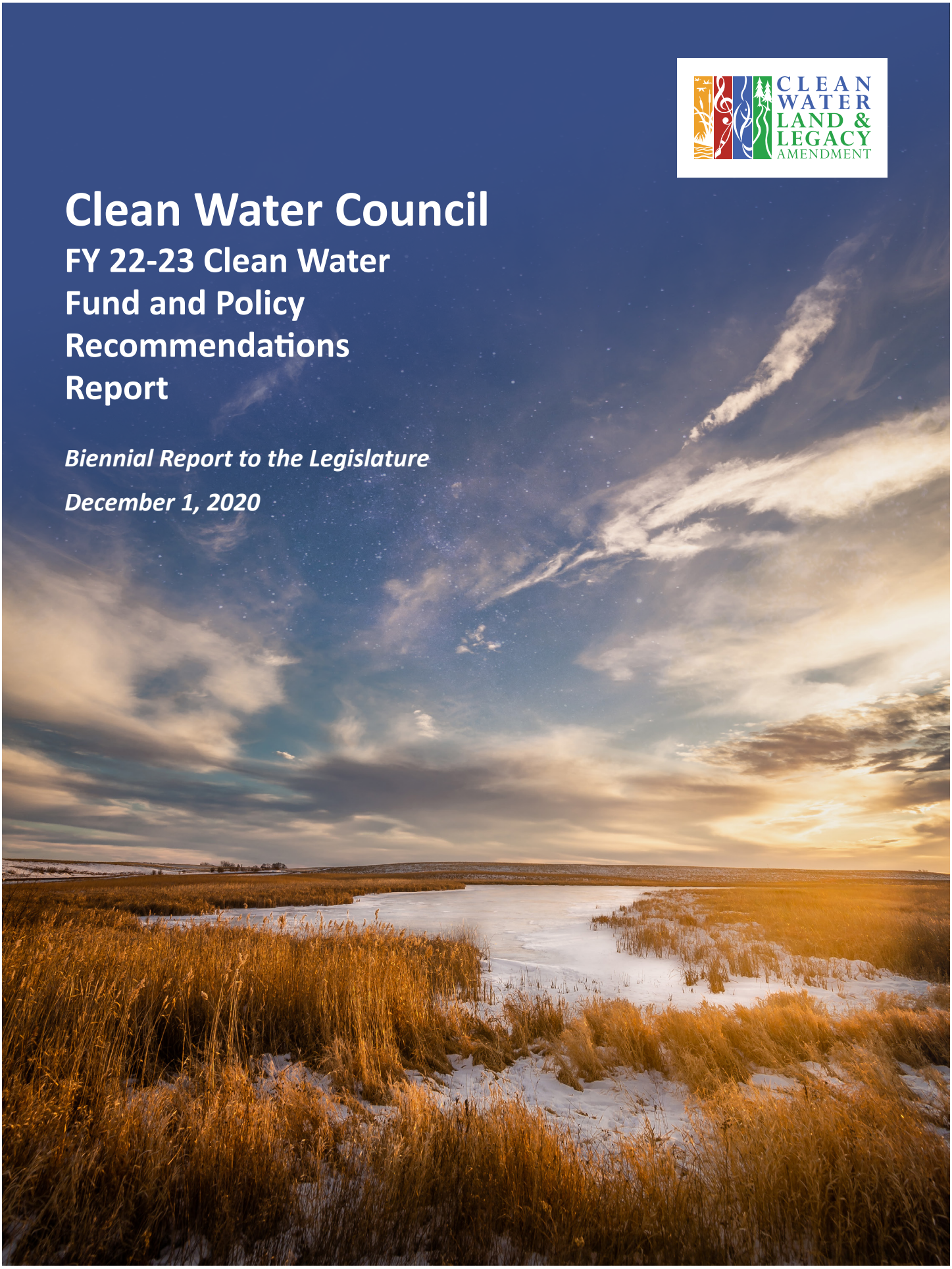


Clean Water Council

FY 22-23 Clean Water Fund and Policy Recommendations Report

Biennial Report to the Legislature

December 1, 2020

lr-cwc-1sy20

LEGISLATIVE CHARGE AND COUNCIL MEMBERSHIP

Minn. Stat. § 114D.30, Subd. 7, of the Clean Water Legacy Act (CWLA) requires the Clean Water Council (Council) to submit a biennial report to the Legislature by December 1 of each even-numbered year. The CWLA also requires the Council to recommend to the Governor and the Legislature the manner in which money from the Clean Water Fund should be appropriated for the purposes stated in Article XI, Section 15, of the Minnesota Constitution and Minn. Stat. § 114D.50.

Voting Members Appointed by the Governor

- **John Barten**, Lakes & Streams Non-Profit, Chair, Policy Committee
- **Steven Besser**, Fishing Organizations
- **Pamela Blixt**, Watershed Districts, Vice-Chair
- **Richard Brainerd**, City Governments
- **Gary Burdorf**, Township Officers
- **Warren Formo**, Farm Organizations
- **Kelly Gribauval-Hite**, Business Organizations
- **Rylee Hince**, Environmental Organizations
- R**obert Hoefert**, Farm Organizations
- **Frank Jewell**, County Governments-Rural, Chair
- **Jen Kader**, Environmental Organizations
- **Holly Kovarik**, Soil and Water Conservation Districts, Vice-Chair, Budget & Outcomes Committee
- **Raj Rajan**, Business Organizations
- **Victoria Reinhardt**, County Governments, Seven County Metro Area, Vice-Chair, Policy Committee
- **Todd Renville**, Hunting Organizations, Chair, Budget & Outcomes Committee
- **Patrick Shea**, City Governments
- **Jordan Vandal**, Tribal Governments

Non-Voting Members Appointed by State Agencies & the University of Minnesota Board of Regents

- **Kevin Bigalke**, Board of Water and Soil Resources
- **Tannie Eshenaur**, Minnesota Department of Health
- **Jason Moeckel**, Minnesota Department of Natural Resources
- **Jeff Peterson**, University of Minnesota
- **Whitney Place**, Minnesota Department of Agriculture
- **Glenn Skuta**, Minnesota Pollution Control Agency
- **Phillip Sterner**, Metropolitan Council

Non-Voting Members Appointed by the Legislature

- **Rep. Patty Acomb**, Minnesota House of Representatives
- **Sen. Karla Bigham**, Minnesota Senate
- **Rep. Josh Heintzeman**, Minnesota House of Representatives
- **Sen. Carrie Ruud**, Minnesota Senate

Council Administrator and Principal Author: Paul Gardner
Council Administrative Support: Brianna Frisch
www.pca.state.mn.us/cleanwatercouncil
Graphic Design: Maureen McIlhargey, Momentum Design, Inc.

The Clean Water Council printed this report in limited quantities. The report is available in alternative formats upon request and online at www.pca.state.mn.us/cleanwatercouncil. This report was printed on 100% post consumer recycled content paper manufactured without chlorine or chlorine derivatives. Estimated cost to prepare this report (as required by Minn. Stat. §3.197) was $9500, which includes agency staff time, printing costs, and graphic design. MPCA document number ***(lr-cwc-1sy20)***

TABLE OF CONTENTS

GLOSSARY

1W1P – One Watershed, One Plan, also known as Comprehensive Watershed Management Plan
AgBMP – Agricultural Best Management Practices
AMT – Alternative Management Tools
AOC – St. Louis River Area of Concern
BMP – Best Management Practices
BOC – Budget and Outcomes Committee
BWSR – Board of Water and Soil Resources
Ch. – Chapter
Council – Clean Water Council
CEC – Contaminants of Emerging Concern
CREP – Conservation Reserve Enhancement Program
CWA – Clean Water Act (federal)
CWC – Clean Water Council
CWF – Clean Water Fund
CWLA – Clean Water Legacy Act
DNR – Minnesota Department of Natural Resources
DWSMA – Drinking Water Supply Management Area
FGI – Forever Green Initiative
FY – Fiscal Year
GRAPS – Groundwater Restoration and Protection Strategies
IBI – Index of Biological Integrity
ICT – Interagency Coordination Team
LCC – Legislative Coordinating Commission
LGU – Local Government Unit
LiDAR – Light Detection and Ranging
MAWQCP – Minnesota Agricultural Water Quality Certification Program
MDA – Minnesota Department of Agriculture
MDH – Minnesota Department of Health
Met Council – Metropolitan Council
Minn. – Minnesota
MPCA – Minnesota Pollution Control Agency
MS4 – Municipal Separate Storm Sewer Systems
NPDES – National Pollution Discharge Elimination System
NRS – Nutrient Reduction Strategy
PFA – Public Facilities Authority
PFAS – Per- and Perfluoroalkyl Substances
PSIG – Point Source Implementation Grants
RUSLE2 – Revised Universal Soil Loss Equation
SSTS – Subsurface Sewage Treatment System
Stat. – Statute
Subd. – Subdivision
Subp. – Subpart
SWCD – Soil and Water Conservation District
TMDL – Total Maximum Daily Load
UMN – University of Minnesota
WRAPS – Watershed Restoration and Protection Strategies

INTRODUCTION

The Clean Water Fund (CWF) uses 1/3 of the sales tax revenue increase approved by Minnesota voters in 2008 through the Clean Water, Land, and Legacy Amendment to the State Constitution. The Clean Water Council is charged with recommending how the Clean Water Fund should be used (Minn. Stat. 114D.50), and the Legislature considers these recommendations as it appropriates funding.

The Clean Water Fund was created to improve water quality in ways that are beyond the state's existing funding capacity. The result has been a comprehensive statewide approach that prioritizes, targets, and measures results for improved water quality.

Statutory Guidance

The statute governing the Clean Water Fund specifies these purposes (Minn. Stat. 114D.50):

> (a) The clean water fund may be spent only to protect, enhance, and restore water quality in lakes, rivers, and streams, to protect groundwater from degradation, and to protect drinking water sources by:
> (1) providing grants, loans, and technical assistance to public agencies and others testing waters, identifying impaired waters, developing total maximum daily loads, implementing restoration plans for impaired waters, and evaluating the effectiveness of restoration;
> (2) supporting measures to prevent surface waters from becoming impaired and to improve the quality of waters that are listed as impaired, but do not have an approved total maximum daily load addressing the impairment;
> (3) providing grants and loans for wastewater and storm water treatment projects through the Public Facilities Authority;
> (4) supporting measures to prevent the degradation of groundwater in accordance with the groundwater degradation prevention goal under section 103H.001; and
> (5) providing funds to state agencies to carry out their responsibilities, including enhanced compliance and enforcement.
> (b) Funds from the clean water fund must supplement traditional sources of funding for these purposes and may not be used as a substitute.
>
> State law (Minn. Stat. 114D.30) also specifies what type of spending the Clean Water Council must recommend.
>
> (a) The Clean Water Council shall recommend to the governor and the legislature the manner in which money from the clean water fund should be appropriated for the purposes stated in article XI, section 15, of the Minnesota Constitution and section 114D.50.
> (b) The council's recommendations must:
> (1) be to protect, enhance, and restore water quality in lakes, rivers, and streams and to protect groundwater from degradation and ensure that at least five percent of the clean water fund is spent only to protect drinking water sources;
> (2) be consistent with the purposes, policies, goals, and priorities in this chapter; and
> (3) allocate adequate support and resources to identify degraded groundwater and impaired waters, develop TMDLs, implement restoration of groundwater and impaired waters, and provide assistance and incentives to prevent groundwater and surface waters from becoming degraded or impaired and improve the quality of surface waters which are listed as impaired but have no approved TMDL.
> (c) The council must recommend methods of ensuring that awards of grants, loans, or other funds from the clean water fund specify the outcomes to be achieved as a result of the funding and specify standards to hold the recipient accountable for achieving the desired outcomes. Expenditures from the fund must be appropriated by law.

In response, the Clean Water Council has recommended spending over several biennia that creates a comprehensive approach to accomplish the objectives in statute.

Lake Pepin

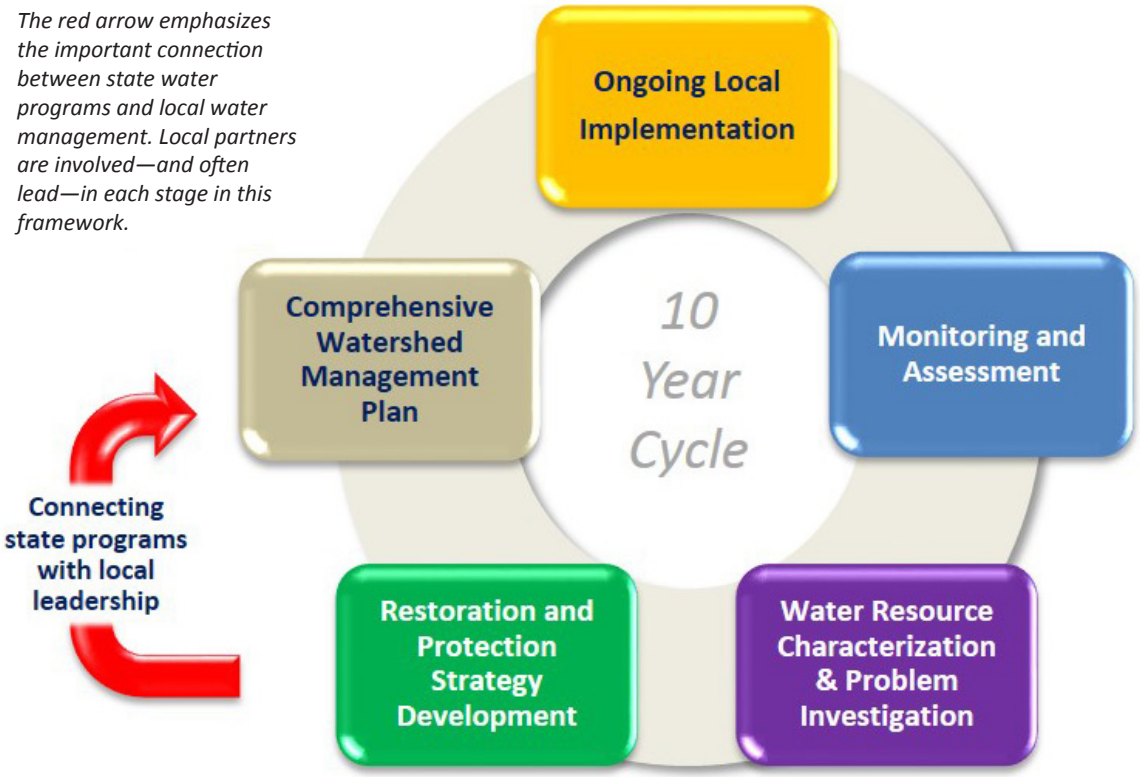
INTRODUCTION

Surface Waters

The State has used a watershed-based approach to improving or protecting the quality of Minnesota surface waters. It adheres to the Minnesota Water Management Framework developed in 2014.

Figure 1: Water Management Framework

The red arrow emphasizes the important connection between state water programs and local water management. Local partners are involved—and often lead—in each stage in this framework.



Identifying What's Wrong (or Healthy) with the Water: Monitoring, Assessment, and Characterization

State agencies and local government partners test the state's surface waters in our 80 major watersheds. They determine initial water quality, assess water quality compared to the state's water quality standards to determine if waters are supporting their goals or are impaired, and evaluate other factors impacting water quality such as land use. This initial intensive baseline monitoring approach has been completed in a ten-year cycle that ended in 2019. This funding also supports some evaluation of the presence and levels of contaminants of emerging concern in the state's surface waters. (Monitoring is covered in detail later in the report.)

INTRODUCTION

Blueprint for Improvement: Watershed Restoration and Protection Strategies

The Minnesota Pollution Control Agency (MPCA), working with local water resource managers, develops a blueprint for each watershed (called a Watershed Restoration and Protection Strategy, or WRAPS) that identifies what actions will be required to meet water quality goals and how much those actions will cost. The MPCA also determines Total Maximum Daily Loads (TMDLs) for contaminants in water.

Prioritizing Projects: One Watershed One Plan

The Board of Water and Soil Resources (BWSR) supports local government partners in each major watershed to develop a comprehensive watershed management plan under the One Watershed One Plan program. These plans identify local concerns which, along with strategies in the WRAPS, guide funding priorities.

Funding the Priorities: Implementation

The Clean Water Fund provides financial support via BWSR for priority projects in the comprehensive watershed management plan. The CWF has also supported capacity building for local governments to implement projects ("accelerated implementation") as well as competitive grants to watersheds that do not yet have an approved plan ("projects and practices").

The CWF is also a source of funds for "protection" strategies such as easements that maintain or improve water quality through less intensive land use. "Restoration" projects help waterways and surrounding land mimic natural functions for improved water quality.

The DNR, MDA, and MDH provide technical assistance to landowners and local governments to ensure project success.

The Clean Water Fund supports implementation in several other ways that are mentioned later in the report:

- The CWF funds the MPCA subsurface sewage treatment system (SSTS) enhanced compliance program to improve septic system performance.
- The MPCA also leads the St. Louis River Area of Concern (AOC) program to clean up the Duluth-Superior Harbor and the area upstream.
- A group of local governments in St. Louis County use the CWF to reduce the amount of sewage entering Voyageurs National Park.
- The Public Facilities Authority receives Clean Water Fund support for water treatment facility upgrades through the Point Source Implementation Grant (PSIG) program.

Measurement and Evaluation

The MPCA has now begun a targeted second ten-year monitoring cycle using a reduced set of monitoring sites and a strategy to measure progress for projects completed during the process listed above.

The State estimated in a 2014 Road Map report that as a result of these and other activities, 70 percent of Minnesota waters will be "swimmable" and 67 percent will be "fishable" by 2034 when the Legacy Amendment expires. The 2020 Clean Water Fund Performance Report shows that 64 percent of waters are currently swimmable and 61 percent are fishable.

Drinking Water

Minnesota's approach to protecting drinking water sources has been comprehensive and often coincides with the watershed-based approach for surface waters.

A more detailed description of how Clean Water Fund programs protect and restore sources of drinking water can be found later in the report.

Gathering Groundwater and Drinking Water Information: Monitoring, Assessment, and Characterization

The state compiles data on our groundwater, both quality and quantity, from multiple sources that work together to provide a comprehensive picture. This includes county geologic and groundwater atlases from the Minnesota Geological Survey and the DNR, respectively. In addition, the DNR also maintains a network of aquifer level monitoring wells. The Minnesota Department of Agriculture samples for pesticides and nitrate in private wells in areas with vulnerable groundwater and analyzes pesticides statewide with some of the most sophisticated laboratory capability in the country. MPCA monitors groundwater quality in non-agricultural parts of the state. MDH develops health-based guidance for selected contaminants that are anticipated to be found in state's waters and federally regulated, as well as contaminants that are not regulated by the federal government.

INTRODUCTION

Blueprint for Improvement: Drinking Water Source Protection Planning

The Minnesota Department of Health works with public water suppliers to develop plans to protect community drinking water wells. MDH funds many of the activities required to fulfill the plans ensuring the wells are protected indefinitely.

Watershed-Based Planning: Groundwater Restoration and Protection Strategies

An interagency team led by MDH completes Groundwater Restoration and Protection Strategies (GRAPS) that align with the MPCA's Watershed Restoration and Protection Strategies (WRAPS). The GRAPS identify which steps need to happen to protect groundwater in major watersheds. The GRAPS assist in the development of Comprehensive Watershed Management Plans (One Watershed One Plan).

Funding Priority Projects: Implementation

MDH provides source water protection grants that help keep contaminants out of community water supplies. BWSR uses easements, grants, and technical assistance to protect drinking water sources through better land use. MDA works with farmers and agronomists to adopt practices that protect groundwater. The Metropolitan Council works with businesses and households to reduce their groundwater use in the seven-county metro area to accommodate future population growth. The MPCA's Subsurface Sewage Treatment System program supports enhanced inspection of septic systems and grants for selected low-income households.

The Value of the Clean Water Fund

The Clean Water Fund has given the State of Minnesota new tools and resources that empower it to identify impaired waters and then protect and restore them in a way not possible before 2008 when the Legacy Amendment passed. Prior to the passage of the Legacy Amendment, there were several barriers preventing the state from achieving its goals of protecting and improving Minnesota's water.

- The U.S. Environmental Protection Agency (EPA) requires that the state develop Total Maximum Daily Load (TMDL) reports to determine how much of a particular contaminant would cause a body of water to be impaired. Prior to 2008, the State lacked the funding to do this in a systematic fashion and on a reasonable timeframe. The state has greatly accelerated progress and is exceeding EPA expectations.
- Accurate data and information, such as that provided by the MPCA's intensive watershed monitoring approach and water quality models, is needed to support development of effluent limits and other discharge permit requirements. Permit holders such as municipal wastewater treatment plants rely on accurate data and information to make appropriate investments to meet the requirements in discharge permits. Regulatory agencies may need to be more conservative, resulting in more expensive fixes, if accurate information is lacking.
- State agencies only had the funding to sample a small amount of the state's waters infrequently, and impaired waters in response to complaints, before the Legacy Amendment. They could not determine in most places which waters were healthy and in need of protection, or see if protection and restoration efforts were working. This resulted in long delays to develop and issue discharge permits and ultimately led to legal challenges from communities where economic and population growth was limited because of the delay. Minnesota now has a world-class monitoring system.
- There was little coordination among various local government units on local nonpoint water plans, and quality varied. Planning is now conducted in a coordinated, watershed basis, rather than discreetly along political boundaries.

The predictable and long-term funding from the Legacy Amendment has overcome these obstacles.

- The State has completed intensive water monitoring and assessment for every watershed in the state over ten years. The MPCA knows which waters are impaired, and which are not but could be without action. In a second ten-year monitoring cycle, the State is now targeting its efforts to determine whether protection and restoration activities are working, while preserving the overall data record to continue monitoring overall conditions over time.
- The MPCA has completed three-quarters of the Watershed Restoration and Protection Strategies (WRAPS) reports for the state's 80 major watersheds. The WRAPS incorporates all the monitoring and assessment work as well as the TMDLs for each watershed.
- BWSR is leading work with local units of government to develop comprehensive watershed management plans ("One Watershed One Plan") for all 80 major watersheds, using the WRAPS and GRAPS to set priorities for action.
- CWF investments in water treatment facilities through the PSIG program make it possible for the state to leverage more federal investments from the Clean Water Revolving Fund.

INTRODUCTION

- MDH coordinates with the agencies charged with protecting groundwater by producing Groundwater Restoration and Protection Strategies for the One Watershed One Plan watersheds. In addition, MDH has delineated all areas around public water supply wellheads that require protection—a Drinking Water Supply Management Area (DWSMA).
- CWF investments have allowed the MDA to revise and implement the Nitrogen Fertilizer Management Plan and create the new Groundwater Protection Rule to address nitrate from fertilizer in groundwater.

"The City of Mankato has worked closely with MDH to keep the water of Mankato residents as a number one priority. The initiatives that we have been able to accomplish would not have been possible if it were not for the funds allotted through the Source Water Protection Grants. We have worked closely with the Source Water Protection program on the adoption and implementation of our Wellhead Protection Plan. We are currently relying on MDH to write our Source Water Assessment for our collector wells and create a Surface Water Intake Protection Plan. The Minnesota Department of Health grants program is an important tool for implementing these plans."

–City of Mankato

Beyond identifying impaired waters, the Clean Water Fund is now supporting an increasing number of projects that are designed to remove these impairments in a way that could not be done without the CWF.

- BWSR provides non-competitive grants to watersheds to fulfill priority activities in comprehensive watershed management plans (One Watershed One Plan). These targeted efforts—based on the water monitoring, assessment, and characterization supported by the CWF—speed up priority projects and avoid "random acts of conservation."
- The Clean Water Fund is the catalyst that allows high-impact projects to happen more quickly. The CWF is often the seed funding that attracts matching local, state, federal, and/or private dollars. An example is the St. Louis River Area of Concern (AOC). In and upstream from the Duluth harbor, the Clean Water Fund supports MPCA staff who administer a complex set of clean-up projects. These projects bring in state bonding dollars, other Legacy Amendment support for outdoor habitat (Outdoor Heritage Fund), and federal Great Lakes Restoration Initiative funding. Other prominent examples include the Forever Green Initiative and the Minnesota Agricultural Water Quality Certification Program, both of which attract significant private and federal financial support, respectively.
- The 2020 Clean Water Fund Performance Report estimates that other funding sources provide 95 cents for every dollar spent from the Clean Water Fund. This is likely a conservative estimate as it does not include landowner contributions.
- Smaller amounts of CWF funding—such as BWSR Accelerated Implementation grants—help local governments increase their capacity to handle bigger projects.
- The federal Safe Drinking Water Act requires that public water suppliers prepare a source water assessment of potential threats to drinking water from surface waters. The Clean Water Fund allows the MDH to go beyond just an assessment by supporting a source water protection plan that identifies what activities will protect the source.
- The CWF has developed tools that few other states have. For example, Minnesota is the first state to create a statewide chloride management plan. The plan, which includes some new elements to the statewide general stormwater permit, will help reduce impairments for chloride. The MPCA's Smart Salting Assessment Tool is something used by many other states.

"The consistency of Legacy funding has literally been a game-changer in how we systematically evaluate water in Minnesota and clearly focus on problem areas, pollution sources, and protecting what is not impaired."

–MPCA Division Manager

FUNDING RECOMMENDATIONS

- By supporting key staff and equipment, clean water funding has allowed the MDA to increase the number of detectable pesticides, increase the sensitivity of detection of certain pesticides and increase the overall number of samples that can be analyzed on an annual basis. As a result, Minnesota's pesticide water monitoring program is one of the most comprehensive programs in the country and is regarded as a national leader.

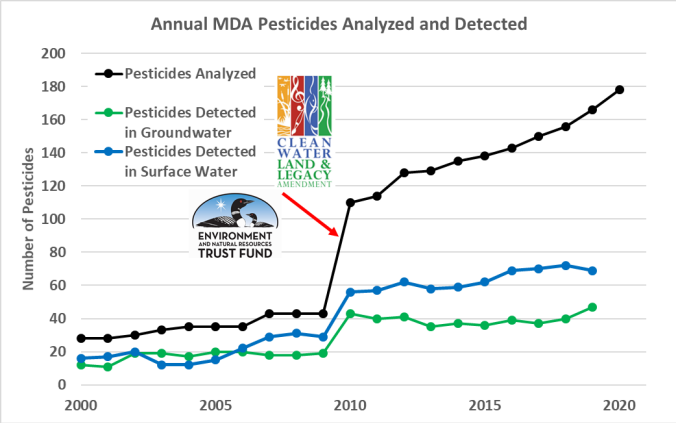


Figure 2: Annual Pesticides Analyzed and Detected

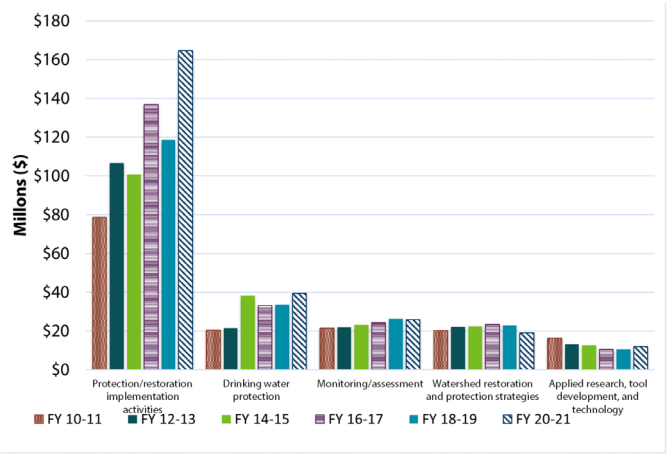


Figure 3: Clean Water Appropriation by Category

Recommendations Process

These recommendations for fiscal years 2022-2023 apply for the period beginning July 1, 2021 and ending June 30, 2023

The Clean Water Council's Budget & Outcomes Committee (BOC) developed its recommendations over the course of six months, with a substantial period of public and agency input beginning in the middle of 2019.

The BOC's June 2019 meeting solicited input from several dozen stakeholders in the public, private, and nonprofit sectors on the outcomes of the Clean Water Fund since the passage of the Legacy Amendment. This meeting built on the Clean Water Fund Trajectory Report assembled by the nonprofit Freshwater in late 2018 with the input of stakeholders who were instrumental in recommending the creation of the Clean Water Fund.

The Council also began a strategic planning process in the fall of 2019, which included facilitated discussions during several Council meetings. Council staff and leadership also met one-on-one with many parties having a particular interest in the success of the CWF. The Council approved its Strategic Plan in April 2020.

The Council then requested that state agencies and the University of Minnesota adhere to the objectives in the Strategic Plan when submitting proposals for CWF funding. Agencies and the University gave overviews of their programs to the full Council in March, April, and May of 2020, and then had a dialogue with the BOC at its April, May, and June meetings. (All but one of these meetings were held on-line using WebEx due to COVID-19.) In June 2020, the Council held a meeting just for public input. By September 2020, the Council received 132 specific written comments from 41 entities.

In July 2020, agencies submitted budget requests to the BOC that took into account decreased sales tax revenue expected in FY22-23. Several university departments, a nonprofit organization, and a collection of local governments near Voyageurs National Park also submitted requests.

The state agencies, acting together as the Interagency Coordination Team (ICT), recommended using a revenue target for FY22-23 of $220 million based in input from Minnesota Management and Budget and on the May 2020 state budget forecast and revenue estimate. The BOC then made recommendations to the full Council for $219,984,000. The full Council on September 21, 2020 made two minor amendments of a few hundred thousand dollars at the request of two agencies seeking shifts between their own programs. On November 16, 2020 the Council approved two additional adjustments to maintain continuity of several programs at MDH and DNR, which involved the transfer of some unspent BWSR funds from FY14-15 and increased the total revenue available from $219,984,000 to $220,247,000.

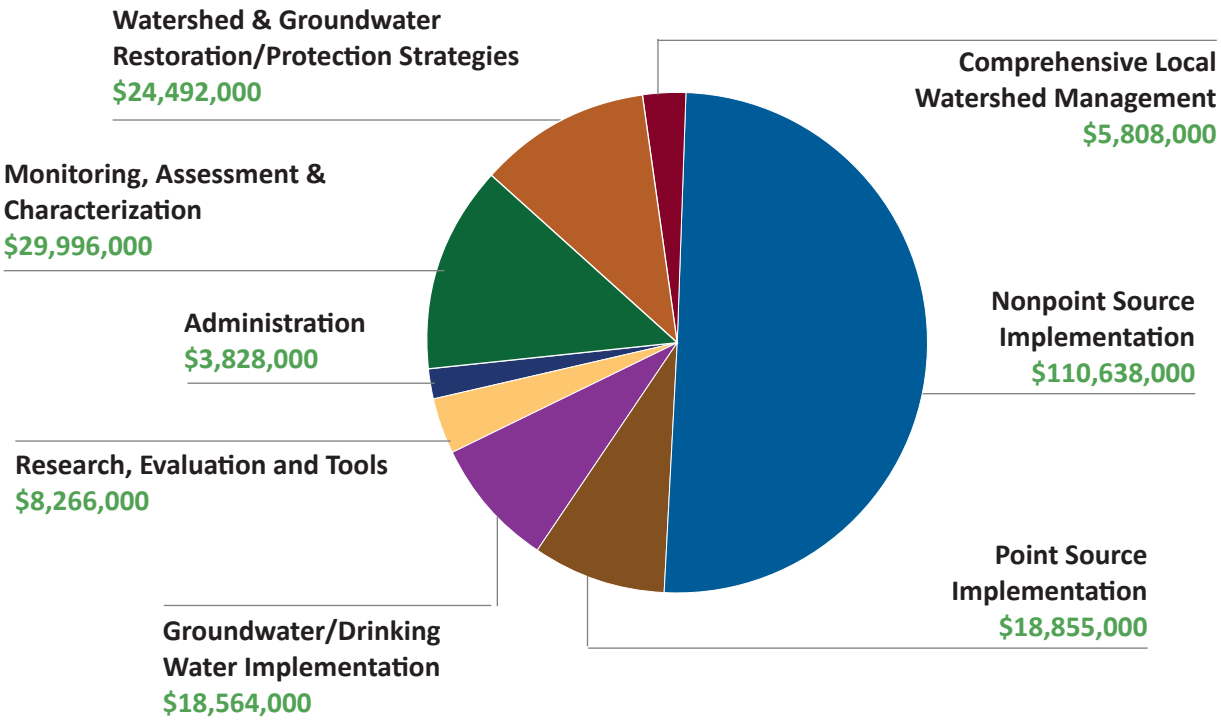
FUNDING RECOMMENDATIONS

Uncertainty

The Council anticipates the need to revise its recommendations in response to the December 1, 2020 budget forecast and revenue estimate. This is due to continued economic uncertainty due to COVID-19 since the May 2020 forecast. At the time of this report's writing, discussions are taking place in the executive branch about a funding solution for soil and water conservation districts. The solution may include some Clean Water Fund support.

The funding recommendations are listed in the following Figures 4 and 5.

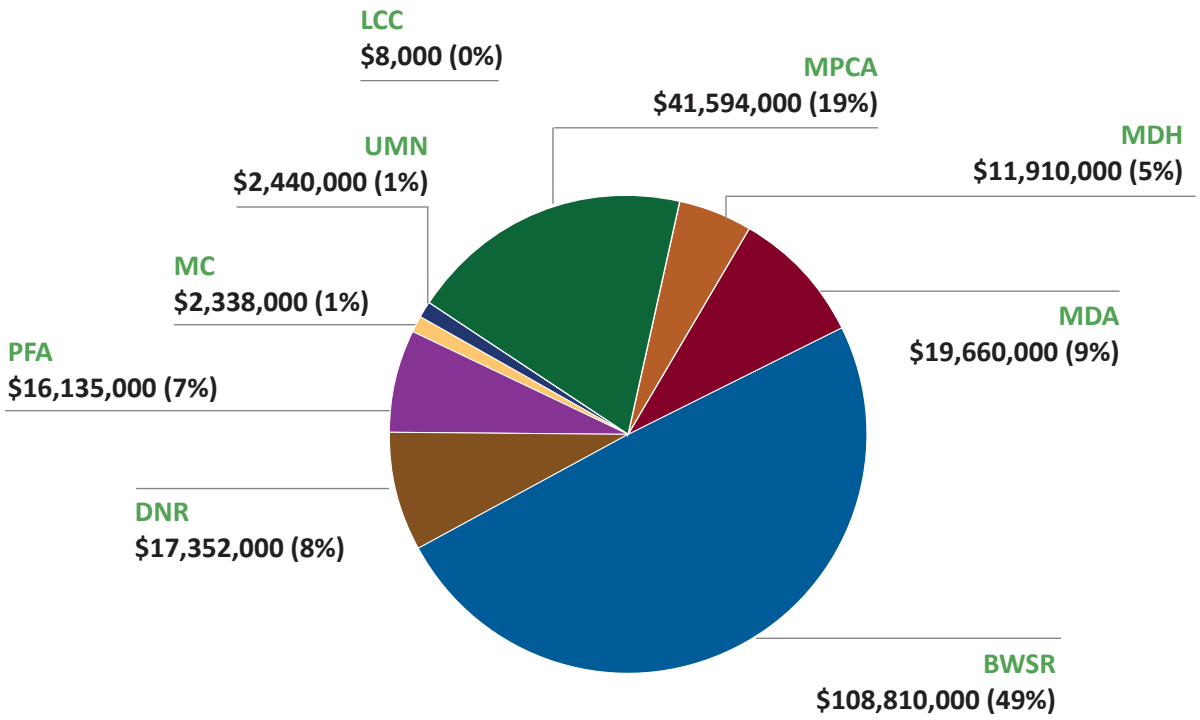
Figure 4: Spending Breakdown by Water Management Framework Category



- Nonpoint Source Implementation: Programs and projects that address pollution from nonpoint sources — storm sewers, failing septic systems, and runoff from construction sites, animal feedlots, paved surfaces, and lawns.
- Point Source Implementation: Programs and projects that address pollution from a single location such as a water treatment plant.
- Groundwater/Drinking Water Implementation: Projects that address water quality and quantity needs in groundwater and drinking water.
- Monitoring, Characterization, and Assessment: Programs that determine the condition of ground and surface waters, and analyze and synthesize data so that key interactions, stressors, and threats are understood.
- Watershed and Groundwater Restoration and Protection Strategies: Development of strategies and high level plans that identify priorities in each of the state's 80 major watersheds.
- Comprehensive Local Watershed Management: Planning for prioritized, targeted, and measurable actions for each major watershed ("One Watershed One Plan").

FUNDING RECOMMENDATIONS

Figure 5: Spending Breakdown by Agency



Agency Acronyms

BWSR – Board of Water & Soil Resources

DNR – Department of Natural Resources

MDA – Minnesota Department of Agriculture

MC – Metropolitan Council

MDH – Minnesota Department of Health

MPCA – Minnesota Pollution Control Agency

PFA – Public Facilities Authority

FUNDING RECOMMENDATIONS

Pass-Through

While state agencies are the primary recipients of the Clean Water Fund, 63 percent of these funds would be passed through to other entities through grants, technical assistance, and easements. (Grants and technical assistance have highlighted sections later in the report.)

Program Reductions

Compared to the Council's FY20-21 recommendations, the number of programs to be funded has been reduced from 65 to 57.

Boundary Waters Canoe Area (BWCA)

FUNDING RECOMMENDATIONS

Monitoring, Assessment, and Characterization ($29,996,000 and 13.6%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
DNR	Aquifer Monitoring for Water Supply Planning*	Monitors 1,125 wells statewide and installs 50 new wells annually. Provides planning and technical assistance to water suppliers and LGUs.	$3,700,000
DNR	Fish Contamination Assessment	Tests fish for mercury and PCBs for 1385 lakes and 114 rivers.	$136,000
DNR	Lake Index of Biological Integrity	Surveys fish and aquatic plants in 495 lakes for stressors. Results serve as proxy for "fishable" waters.	$2,000,000
DNR	Buffer Map Maintenance	Maintains mapping capability to determine compliance with buffer law.	$50,000
DNR	Stream Flow Monitoring Program	Continuously monitors 172 sites for volume, chemistry, and sediment.	$4,000,000
MDA	Monitoring for Pesticides in Surface Water and Groundwater	Analyzes an additional 650 pesticide samples annually at MDA lab for risk assessment, planning, and BMPs.	$700,000
MDA	Pesticide Testing in Private Wells*	Provides free pesticide testing for 6,100 vulnerable wells in 344 priority townships.	$678,000
MDH	Contaminants of Emerging Concern**	Develops health-based drinking water guidance for about five contaminants annually.	$2,400,000
MPCA	River and Lake Monitoring and Assessment	Completes intensive monitoring in about eight watersheds per year, and annual pollutant monitoring @ 197 sites annually.	$14,432,000
MPCA	Groundwater Monitoring and Assessment	Performs water quality sampling & data analysis from network of 270 ambient wells.	$1,900,000

Watershed & Groundwater Restoration/Protection Strategies ($24,292,000 and 11.0%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
DNR	Watershed Restoration and Protection Strategies-DNR Portion	Adds geomorphology, hydrology, and connectivity data to WRAPS process, and supports Watershed Health Assessment Framework (WHAF) tool.	$3,800,000
MPCA	Watershed Restoration and Protection Strategies (includes TMDL development)	Develops data-driven strategies to meet water quality goals in each of 80 watersheds at about eight to ten watersheds annually. Required by law to be complete in 2023.	$13,208,000
MDH	Groundwater Restoration and Protection Strategies	Completes GRAPS for six to eight major watersheds annually in alignment with comprehensive watershed management plans (One Watershed One Plan). Also provides training and makes groundwater data public.	$1,126,000
MDH	Source Water Protection*	Assists public water systems in the management of over 500 source water protection plans statewide. Completes new or updated planning and data driven strategies for 60 systems during the biennium. Provides grants for implementation activities. Collaborates with other local planning efforts and develops and coordinates water quality surveillance activities.	$6,158,000

FUNDING RECOMMENDATIONS

Comprehensive Local Watershed Management ($5,808,000 and 2.6%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
BWSR	Watershed Management Transition (One Watershed, One Plan)	Completes about seven comprehensive watershed management plans annually. All plans will be started by 2025.	$5,808,000

Nonpoint Source Implementation ($110,638,000 and 50.2%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
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).	$43,564,000
BWSR	Accelerated Implementation	Builds technical skills through Technical Service Areas and technical trainings. This grant program builds the capacity of local governments to accelerate on-the-ground projects that improve or protect water quality and perform above and beyond existing standards.	$9,682,000
BWSR	Conservation Drainage Management and Assistance	Provides grants and technical assistance to SWCDs/drainage authorities for water quality BMPs.	$1,446,000
BWSR	Conservation Reserve Enhancement Program (CREP)**	Purchases and restores permanent easements to treat & store water.	$1,208,000
BWSR	Critical Shoreland Protection-Permanent Conservation Easements**	Protects threatened shoreline with easements to protect good water quality.	$2,468,000
BWSR	Working Lands Floodplain Easements [formerly Riparian Buffer-Permanent Conservation Easements]**	Establishes and restores easements in floodplains and riparian areas.	$3,872,000
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.	$22,266,000
BWSR	Watershed Partners Legacy (WPL) Grants	Would create a small grants program modeled on Conservation Partners Legacy. Requested by Council strategic plan.	$200,000
BWSR	Enhancing Soil Health and Landowner Adoption of Cover Crops for Drinking Water & Groundwater Protection	Supports Office of Soil Health. Makes grants to SWCDs for cover crop and conservation tillage demonstration projects. Supports Governor's climate initiative.	$4,066,000

FUNDING RECOMMENDATIONS

Nonpoint Source Implementation ($110,638,000 and 50.2%) Cont'd			
BWSR	Buffer Law Implementation	Supports oversight and grants to SWCDs for implementation of the buffer law.	$3,872,000
BWSR	Wetland Restoration Easements**	Creates permanent easements for de-nitrification and rate and volume control.	$4,840,000
DNR	Non-point Source Restoration and Implementation	Provides technical assistance for 85 projects annually that are prioritized in comprehensive watershed management plan.	$2,600,000
MDA	AgBMP Loan Program	Supports administration of 2,000+ clean water loans for conservation tillage, SSTS, erosion control, and agricultural waste.	$150,000
MDA	MN Agricultural Water Quality Certification Program	Provides technical assistance for 900+ farmers to adopt water quality BMPs with verified results. Matched with federal RCPP grant.	$6,000,000
MDA	Technical Assistance	Supports 25 edge-of-field water quality monitoring sites, 100 farm demonstration plots, and 30 field days and other events annually.	$2,904,000
MPCA	St. Louis River Area of Concern - Remedial Action Plan Implementation	Manages cleanup of the St. Louis River/Duluth harbor. Attracts state and federal matching funds.	$1,500,000

Point Source Implementation (18,855,000 and 8.6%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
MPCA	Accelerated Implementation of MS4 Permit Requirements	Provides technical assistance to cities to help them comply with state stormwater permit. Will support increased need due to new general permit.	$400,000
MPCA	Chloride Reduction	Provides technical assistance and grants to public entities to meet chloride TMDLs, mostly from road de-icers and water softening.	$520,000
MPCA	NPDES wastewater/stormwater TMDL implementation	Integrates stormwater and wastewater data with WRAPS and includes TMDLs in permits. Supports pollutant trades. Maintains MN Stormwater Manual.	$1,800,000
PFA	Point Source Implementation Grant (PSIG) Program	Upgrades municipal water treatment facilities to comply with TMDLs.	$15,935,000
PFA	Small Community Wastewater Treatment Program	Makes grants & loans to replace failing community SSTS.	$200,000

FUNDING RECOMMENDATIONS

Groundwater/Drinking Water Implementation ($18,564,000 and 8.4%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
BWSR	Targeted Wellhead/Drinking Water Source Protection*	Makes easements and grants to LGUs in priority wellhead protection areas.	$2,000,000
MDA	Irrigation Water Quality Protection*	Funds irrigation UMN extension staff to educate on irrigation & nitrogen BMPs.	$270,000
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.	$5,006,000
MDH	Drinking Water Protection*	Will develop a State Drinking Water Plan and implement The Future of Drinking Water report.	$500,000
MC	Water Demand Reduction-Efficiency - Grant Program	Makes grants to metro cities to replace inefficient residential fixtures/sprinklers to reduce groundwater demand.	$500,000
MC	Metropolitan Area Water Supply Sustainability Support Program**	Provides technical support to communities and businesses to use groundwater more efficiently.	$1,838,000
MPCA	Enhanced County inspections/ SSTS corrective actions	Provides county grants for more SSTS inspections and income-based assistance to reach 80% compliance.	$5,324,000
MPCA	National Park Water Quality Protection Program	Replaces failing septic systems polluting Voyageurs National Park. Matched by many other sources.	$1,400,000
MDH	Private Well Protection*	Studies well contaminants. Supports outreach to 1.2M well users to test and address contaminants.	$1,726,000

FUNDING RECOMMENDATIONS

Research, Evaluation and Tools ($8,266,000 and 3.7%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
BWSR	Tillage, Cover Crop and Erosion Evaluation	Estimates soil erosion and tracks use of tillage BMPs and cover crops.	$724,000
BWSR	Technical Evaluation [aka Restoration Evaluation]	Conducts up to 10 technical evaluations of CWF projects annually. Required by law.	$84,000
DNR	Tool Development and Evaluation [Formerly Applied Research and Tools]	Evaluates water flow ("digital dams") and forestry BMPs throughout the state, and develops fine-scale watershed models using LiDAR.	$1,066,000
UMN	County Geologic Atlas Part A*	Develops Part A county-level geologic atlases.	$900,000
MDA	MN Water Research Digital Library [aka Research Inventory Database]	One stop to find water related research and reports in Minnesota.	$80,000
MDA	Forever Green Agricultural Initiative (U of MN)	Supports competitive R&D grants for crops providing continuous living cover, and implementation of those crops.	$3,872,000
UMN	Stormwater Research and Technology Transfer Program**	Makes competitive grants to research and evaluate stormwater BMPs.	$1,350,000
UMN	Quantifying the Multiple Benefits of Clean Water Investments	Reviews CWF for equity considerations, estimates costs of water quality goals, and adds climate to comprehensive watershed management plans.	$190,000

Administration ($3,828,000 and 1.7%)			
Agency	**Activity**	**Summary of Program**	**Recommendation**
MPCA	Clean Water Council	Funds two FTEs, communications, planning, and Council member expenses. Separated out from MPCA CWF budget for transparency, so it is cost neutral.	$550,000
LCC	Legislative Coordinating Commission Website	Supports upkeep of LCC site with CWF project information. Required by law.	$8,000
BWSR	Measures, Results and Accountability	Supports grants management, reporting, and oversight.	$2,710,000
MPCA	We Are Water MN	Supports traveling water exhibit and local engagement at six sites in FY22-23.	$560,000
		TOTAL:	**$220,247,000**

* 100 percent of this appropriation would be spent to protect drinking water sources.

** Between 10 and 75 percent of this appropriation would be spent to protect drinking water sources.

POLICY RECOMMENDATIONS

The Council recognizes that CWF dollars alone will not meet the expectations of Minnesota citizens for clean water. The Council's Policy Committee considered a range of policy issues in 2019 and 2020, and developed or revised three policy recommendations that are sufficiently important to warrant the Council's support:

- **Reducing de-icing chloride (road salt) pollution (revised)**
- **Reducing chloride pollution from water softening**
- **Disclosure of well water quality at time of sale**

Boundary Waters Canoe Area (BWCA)

POLICY RECOMMENDATIONS

Chloride Reduction: De-Icer

Revised Policy Statement

The Clean Water Council recommends that the State of Minnesota implement the following actions to reduce chloride in Minnesota surface and groundwater:

- Fund the **Smart Salting applicator training and certification** program, and the MPCA's **chloride reduction budget** to support the development and maintenance of tools, resources, policies, trainings and assistance programs to reduce chloride pollution.
- Request that the Legislature give the MPCA the **authority to charge a fee** for chloride training.
- Provide **liability protection** for the Smart Salting program certifying private winter de-icing applicators for reduced salt applications.
- Provide **research funds to develop new technology and alternatives** to chloride-containing de-icing chemicals, and best management practices.
- Encourage and support the **adoption of the MPCA's Chloride Reduction Model Ordinance Language** by local governmental entities.
- Have the MPCA convene and lead a stakeholder process to develop recommendations for **new labeling requirements** on bags of de-icing chemicals sold in Minnesota.

Problem

Chloride is a naturally occurring ion found in low levels in Minnesota surface and groundwater. Salt used for winter de-icing and water softening contains chloride. Chloride is not toxic in small concentrations. However, above 230 mg per liter (about one teaspoon in 5 gallons of water), chloride becomes toxic to freshwater fish and other aquatic life under long-term exposure. Once chloride enters our surface water (lakes, streams, and wetlands) and groundwater, it is extremely expensive and not feasible to remove it.

Winter de-icing salts are among the primary sources of chloride in Minnesota waters.

In the Twin Cities Metro Area (TCMA) winter maintenance activities use approximately 365,000 tons of chloride de-icer per year. The de-icing salts eventually wash into nearby lakes, streams and wetlands. Recent monitoring shows increasing chloride concentrations in surface water and shallow groundwater. Since it is very difficult and expensive to remove chloride from our surface and groundwater once it gets into water, reducing chloride at the source is necessary.

- **Inconsistent labeling** for de-icers creates confusion for consumers. De-icers can be labeled as "eco-friendly" or as an alternative to salt, but they may pose other problems for water quality. Currently there is not a standard for labeling de-icers for their potential threats to water quality.

Solution

1. Training and Certification. Continue the Smart Salting applicator training and certification program: The MPCA has a training program for private and public salt applicators, such as snow removal contractors and snowplow drivers. This has been a very successful program and has assisted winter maintenance programs in reducing salt application rates by 30% to 70%, without compromising public safety. The TCMA Chloride Management Plan and Statewide Chloride Management Plan include the Smart Salting training program as the top implementation strategy to reduce salt use in the winter. In the past, MPCA conducted this training with federal funds, but those funds are temporary. The estimated operating cost for the training program in FY22 is $350,000/year. To qualify for the liability protection to private salt applicators, the applicator must complete Smart Salting training program to be certified. The State should continue to provide adequate funding to the MPCA's **Chloride Reduction Program** budget to support the development and maintenance of tools, resources, policies, trainings and assistance programs like MnTAP to assist communities in their effort to reduce chloride pollution.

2. Allow the MPCA to Charge a Fee. Currently the MPCA does not have the authority to charge a fee for the training that would defray some of the cost. Legislative authority will be required. There is more demand for these chloride reduction training than the MPCA can meet. By charging a fee to willing customers, the agency can meet the demand.

3. Liability Protection. Provide liability protection to certified private salt applicators against slip and fall lawsuits:

The notion here is that private applicators certified through the Smart Salting program would be able to apply for liability protection. The private applicator industry and local stakeholders strongly support this proposal. Various groups introduced bills to this effect in the last three legislative sessions and it has passed several committees and one house; however, none was enacted into law.

4. Research Funding for Alternatives. Make research funds available to develop new technology and alternatives to chloride-containing de-icing chemicals. Research on new technologies and alternative de-icing solutions may allow for a shift in snow and ice management that protects water resources while maintaining public safety. A full list of needed research areas can be found in Section 5 of the TCMA Chloride Management Plan.

5. Adopt Local Chloride Reduction Ordinances. Encourage and support the adoption of the MPCA's Chloride Reduction Model Ordinance Language by local governmental entities. The model ordinances provide guidance for creating and implementing ordinances that will assist with reducing chloride pollution. The new municipal stormwater general permit for the State (also known as the MS4 general permit) requires adoption of several of these ideas. The four focus areas in the guidance include:

a. Occupational Licensure for Winter Maintenance Professionals
b. De-icer Bulk Storage Facility Regulations
c. Land Disturbance Activities
d. Parking Lot, Sidewalk and Private Road Sweeping Requirements

6. De-icing product labeling requirements. The MPCA should convene and lead a stakeholder process to develop recommendations for new labeling requirements on bags of de-icing chemicals sold in Minnesota. The goal of this effort will be to convene a knowledgeable group of stakeholders from a variety of sectors to create language that will ensure that consumers are provided accurate and necessary information about the de-icing products they are purchasing and applying to Minnesota's environment. Some key areas that should be evaluated include, but would not be limited to:

- Require complete ingredients list with percentages provided
- Third party certification requirements for any statements about the products' environmental, pet and human safety
- Provide "practical' temperature ranges (not temperature ranges that can only be achieved in a lab setting or over a time period of weeks for melting to occur)
- Report possible negative impacts of the product on surfaces, vegetation, water quality, and other
- Safety protocols for handling the products
- Guidance for proper application that includes:
    - Snow and Ice removal prior to application
    - Application rates that are based on research
    - Suggested equipment for proper application and proper spread patterns
    - Conditions in which product will not be effective or may create unsafe surfaces

Chloride Reduction: Water Softening

Policy Statement

The Clean Water Council recommends that the State do the following to reduce chloride in Minnesota surface and groundwater:

- **Provide financial support and technical assistance to municipalities to reduce chloride discharges** and allow flexibility for how municipalities achieve these reductions.
- **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.
- **Fund a program** for activities, training, and grants that reduce chloride pollution. Grants should support upgrading, optimizing, or replacing water softener units.

Problem

Chloride is a naturally occurring ion found in low levels in Minnesota surface and groundwater. Salt used for winter de-icing and water softening contains chloride. Chloride is not toxic in small concentrations. However, above 230 mg per liter (about one teaspoon in 5 gallons of water), chloride becomes toxic to freshwater fish and other aquatic life under long-term exposure. Once chloride enters our surface water (lakes, streams, and wetlands) and groundwater, it is extremely expensive and not feasible to remove it.

Residential water softeners are among the primary sources of chloride in Minnesota waters.

The discharge of chloride from residential water softeners can end up in surface waters even after wastewater treatment. Reducing the need for chlorides in water treatment is a priority in Minnesota. However, there are obstacles to achieving chloride reduction.

- **Timer water softeners** are still available. Newer on-demand water softeners are more efficient than older models because they add salt when water demand requires it. However, water softeners are still on the market in Minnesota with a timer that will use salt at regular intervals whether the water requires it or not to remove hardness.
- If public water suppliers upgrade to central softening of water, excessive wastewater discharges of chloride may persist due to continued use of residential water softeners when they are no longer necessary to reduce hardness.

Solution

1. Support municipal efforts to reduce chloride. The State should provide adequate funding to provide municipalities financial resources to reduce chloride discharges. This includes funding programs offered through the Minnesota Public Facilities Authority and the Minnesota Pollution Control Agency's water softening grant program.

2. Update the Plumbing Code. The plumbing code would effectively prohibit the installation of new water softeners that use a timer through one of two options.

a. Ion Exchange water softeners used primarily for water hardness reduction that, during regeneration, discharge a brine solution shall be of a demand initiated regeneration type equipped with a water meter or a sensor [based on a Wisconsin model]; or
b. All water softening or conditioning appliances installed must meet the following criteria [based on a California model]:
    i. The appliance activates regeneration by demand control.
c. An appliance installed on or after January 1, [insert desired year], shall be certified by a third party rating organization using industry standards to have a salt efficiency rating of no less than 4,000 grains of hardness removed per pound of salt used in regeneration. (This is the recommendation that MPCA suggests in Property Management training and in the Statewide Chloride Management Plan.)

3. Fund activities, training, and grants that reduce chloride pollution. The MPCA has several tools available to help municipalities reduce chloride pollution. Grants can be used to support rebates that homeowners and businesses can use to upgrade, optimize, or replace their water softening equipment.

Disclosure of Well Water Quality at Time of Sale

Policy Statement

The Clean Water Council recommends that the State do the following to protect drinking water for private well owners:

- 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
- Direct buyers to mitigation guidance from the Minnesota Department of Health

Problem

Currently, about 1.2 million Minnesotans get their drinking water from groundwater through a private well. While the State plays a role in protecting drinking water sources, testing well water is generally treated as the responsibility of the property owner, and the Minnesota Department of Health (MDH) recommends that it be done regularly (annually for bacteria; bi-annually for nitrate; at least once for arsenic and lead; and before a baby drinks the water for manganese). In limited cases, such as the Township Testing program of the Minnesota Department of Agriculture, the State provides the funding. However, many private well owners do not test their water. A 2016 Minnesota Department of Health (MDH) survey of private well owners found less than 20% of respondents had tested their well water at the frequency MDH recommends.

Once a well owner tests their water and gets the results, they are better able to know what steps they may need to take to ensure safe drinking water. However, currently owners are under no obligation to inform buyers of their property of any high contaminant levels in private drinking water supply system. Education is useful, but some mandates are necessary to increase testing, reporting, and protect the health of private well users. Minnesota Statutes 103I.235 requires sellers of real property to disclosure the existence of a well but not water quality results.

POLICY RECOMMENDATIONS

Some lenders and loan programs already require testing

In a 2019 MDH survey of 243 real estate professionals, 46% of respondents said that the mortgage companies they work with always or usually require well water testing. Respondents explained that the following loan programs require well testing, but the testing parameters varies on what is tested: Veterans Affairs Home Loan, Federal Housing Administration[1], and USDA Home Loans. A statewide policy would bring consistency to testing requirements at property transfer.

Dakota County has required well testing at property transfer since 1998

Dakota County Ordinance number 114 requires testing a private well for bacteria, nitrate, arsenic, and manganese (added in 2019) within in 12 months prior to a real estate transfer. The ordinance updates in 2019 also require that water quality issues are addressed through treatment or well replacement prior to sale.

Cost considerations

On average, it costs about $125 to test for all five recommended contaminants.

There are home water treatment options to address water quality issues. The price for treatment varies based on the type of treatment and who installs it. Point-of-use reverse osmosis is an effective way to treat for all five contaminants and costs about $300 if you install it yourself or $1500 to have a water treatment professional install it. Annual maintenance is about $100. There are additional treatment options that range in price and application[2].

Precedent on Disclosure

Regarding public water testing disclosure related to urban property transfer, the Clean Water Council has already made the following policy recommendation in FY16-17:

- **Property Transfers:** Notify the buyers of the potential existence of lead pipes between the water main and taps, and provide informational material to mitigate risks.
- **Renters:** Notify the renters, the potential existence of lead pipes between the water main and taps and provide informational material to mitigate risks.

The Council also adopted a policy statement in FY18-19 in support of testing and disclosure for private wells.

- Develop a comprehensive, systematic approach for periodic testing of the water quality of private wells including the notification of testing results and education on possible actions. Examples for consideration may include:
  - The testing of private wells providing drinking water at property transfer and notification of testing results to buyers.
  - Periodic testing of private wells providing drinking water to rental properties and requiring notification of the results before rental property owners can rent to new tenants or enter into new lease agreements.

Solution

The Council recommends legislation to require property owners to have their well water tested by the time the property is sold and to notify potential buyers of the test results.

[1] The FHA requirements can be found at 24 CFR 200.926d.

[2] Minnesota Department of Health, https://www.health.state.mn.us/communities/environment/water/wells/waterquality/index.html.

HIGHLIGHTED PROGRAMS

Drinking Water

Protecting drinking water is one of the key objectives of the Clean Water Fund and the Clean Water Legacy Act.

In the Council's FY22-23 recommendations, twenty percent of the Clean Water Fund would be spent on protecting sources of drinking water. As described in a previous section, the state approach to protecting drinking water sources is to:

- Gather and share important information about groundwater resources and drinking water wells as well as surface water drinking water sources
- Learn more about the health risks from chemicals, pathogens, and naturally occurring elements in water
- Assist communities to protect their drinking water

The primary contaminants of interest in water supply wells are nitrogen/nitrate, bacteria, arsenic, manganese, and lead. Nitrogen/nitrate is usually the result of commercial fertilizer or manure infiltrating below the crop root zone on farms or on urban lawns. Bacteria can reach wells mostly from leaking septic systems and animal waste. Arsenic and manganese already exist in the soil, while lead comes from lead drinking water pipes and on-premise plumbing.

While the Minnesota Department of Health has the largest role, other agencies have active parts in drinking water source protection.

Monitor, Assess, and Characterize

- **Nitrate and Pesticide Testing in Private Wells** – MDA provides free nitrate and pesticide testing to 90,000 well owners in priority townships where groundwater is particularly vulnerable to contamination. As of March 2020, MDA tested 32,217 wells in 344 vulnerable townships across 50 counties.
- **Groundwater Quality Monitoring** – MPCA monitors ambient groundwater quality in non-agricultural parts of the state using a network of 270 wells.
- **Aquifer Monitoring for Water Supply Planning** – DNR uses a network of 1,125 water quantity monitoring wells statewide with 50 new wells installed annually, and provides planning and technical assistance for local government units.
- **County Geologic Atlas Part A** – The Minnesota Geological Survey (MGS) at the University of Minnesota completes county-level geologic atlases.
- MDA's Root River Field to Stream Partnership (RRFSP) under the agency's **Technical Assistance program** is a unique water monitoring project located in southeast Minnesota. The RRFSP project uses both edge-of-field and in-stream monitoring to characterize water quality in three study areas within the Root River watershed. Through outreach activities and one-on-one meetings, the results are discussed with farmers, landowners, fertilizer dealers, water managers and community leaders to promote an advanced level of conservation planning and delivery.

Protect

- Source Water Protection – MDH carries out numerous activities to protect drinking water sources with the Clean Water Fund.
  - Delineate Drinking Water Source Management Areas (DWSMAs) around 500 vulnerable public water supplies (complete in 2020) and 420 non-vulnerable public water supplies
  - Help public water suppliers develop a wellhead protection plan within the DWSMA
  - Provide planning and surveillance assistance to public water suppliers
  - Monitor possible threats from newly identified pathogens
  - Encourage water suppliers to engage their communities:
    - Send fliers to property owners in vulnerable DWSMAs on ways to protect the drinking water source
    - Share tips about source water protection, water use, and conservation on city websites
    - Host a nitrate testing clinic
    - Distribute fliers for farmers and companies about underground tank management within the DWSMA

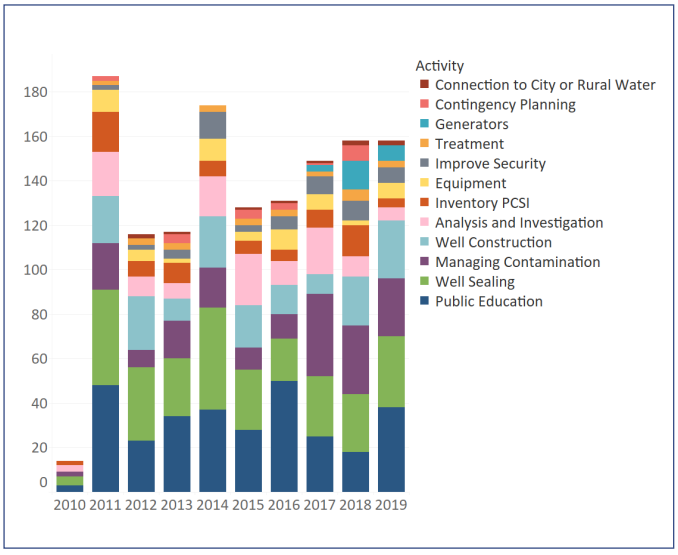


Figure 5A: Source Water Protection Grant Activities 2010-2019

HIGHLIGHTED PROGRAMS

- **Drinking Water Protection** – MDH will develop a State Drinking Water Plan and carry out priorities in the Future of Drinking Water report.
- **Private Well Protection** – MDH studies well contaminants and provides outreach to 1.2 million private wells users to test and address contaminants. For example, MDH creates handouts and fliers for private well owners on well water safety, operation and maintenance, and sealing abandoned wells.
- **Metropolitan Area Water Supply Sustainability Support Program** – The Metropolitan Council provides technical support to communities and businesses to use groundwater more efficiently.
- **Contaminants of Emerging Concern** – Since the federal government only regulates for about 100 contaminants, MDH develops health-based guidance for drinking water for five contaminants annually that either have been or could be expected to be detected in Minnesota's groundwater. For example, MDH has developed guidance for a number of PFAS chemicals that have no federal standards. That guidance is essential for determining what levels are safe to drink over a lifetime, how toxic mixtures are, and when treatment is needed.
- **Easements** - BWSR helps landowners take selected lands out of production through easement programs. These easements provide some income for farmers but avoid the application of fertilizer in DWSMAs, or otherwise filter it out before it reaches surface or groundwater.
- **Irrigation Water Quality Protection** – MDA supports a University extension specialist who educates farmers on best management practices in nitrogen application through irrigation.
- **MDA's Nitrate in Groundwater** program funds applied nitrogen research at Rosholt Farms in Pope County. and other demonstration sites to help the University of Minnesota revise its widely-used nitrogen application guidelines.

Figure 6: Lysimeters Monitoring Nitrogen Loss at Rosholt Farm

Restore/Mitigate

- **Targeted Wellhead/Drinking Water Source Protection** – BWSR supports easements and grants to local units of government for priority wellhead protection areas.
- **Nitrate in Groundwater** – MDA supports the new Groundwater Protection Rule as part of the state's Nitrogen Fertilizer Management Plan (NFMP). The rule restricts Fall application of nitrogen fertilizer in areas vulnerable to contamination and outlines steps to reduce the severity of the problem in areas where nitrate in public water supply wells is already elevated. The Clean Water Fund will support testing of 700 to 900 private wells annually, support two university extension staff to educate landowners on nitrogen BMPs and support their adoption. The CWF will also fund local advisory teams and seven BMP demonstration sites.

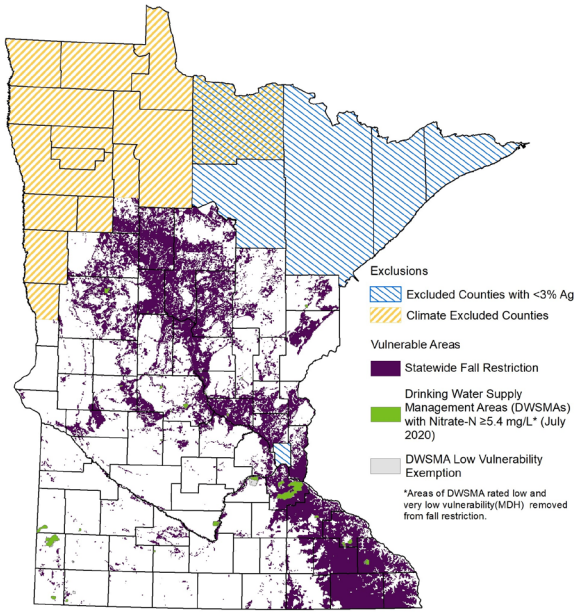


Figure 7: Vulnerable Groundwater Areas/Fall Restrictions

- **Managing contamination** – Several agencies use the programs in this section to execute many different activities that eliminate or reduce contaminants in groundwater that is used for drinking water. These are several examples:
  - Planting native plant species in a stormwater basin
  - Establishing perennial crops in a DWSMA, such as introducing continuous loving cover to landowners or renting land and planting Kernza® and cereal rye through the **Forever Green Initiative**
  - Incentivizing nitrogen best management practices near the municipal well
  - Remediating a gravel pit site within a DWSMA

    - Removing leaking underground storage tanks within a DWSMA
    - Sealing old or abandoned wells and constructing new wells
- **MDA's Minnesota Agricultural Water Quality Certification Program** (MAWQCP) engages farmers to employ best management practices for water quality. The average 400-acre certified farm reduces nitrogen loss by up to 49 percent. The most common new conservation practices implemented by MAWQCP certified producers include: cover crops, nutrient management, grassed waterways, irrigation water management, treating tile inlets, prescribed grazing, and water and sediment control basins.
- **Stormwater Research & Technology Transfer Program** – Minnesota's Stormwater Research Council at the University of Minnesota provides competitive grants to research and evaluate stormwater BMPs, a portion of which have positive impacts on drinking water sources.
- **Grants to Watersheds with Approved Comprehensive Management Plan (Watershed-Based Implementation Funding)** – BWSR makes non-competitive grants to implement projects and activities in approved comprehensive watershed management plans (One Watershed One Plan).
- **Surface and Drinking Water Protection/Restoration Grants (Projects and Practices)** - BWSR makes competitive grants for high priority conservation BMPs identified in local management plans. BWSR requires that up to 20 percent of funding support drinking water protection.

"Working with the Source Water Protection Program has allowed us to pursue initiatives to reduce the nitrates that impact our drinking water. Kernza, a perennial wheatgrass that is also a nitrogen scavenger, is currently planted on 125 acres in our wellhead protection area. The Minnesota Department of Health grants program has been an important financial resource for our small community as we diligently work to safeguard our drinking water."

–City of Edgerton (Pipestone County)

Enhanced Compliance

Minn. Statute 114D.50 Subd. 3 (5) permits the use of the Clean Water Fund for enhanced compliance and enforcement — meaning work that could not be done before the creation of the CWF.

There are several activities in the Council's recommendations that enhance compliance and enforcement.

- The MPCA's Enhanced **Subsurface Sewage Treatment System (SSTS) Compliance and Corrective Actions** program supports a higher level of inspection for septic systems. The program also provides some support for replacement of SSTS systems for qualified low-income property owners. The MDA's **Agricultural Best Management Practices Loan Program** provides low-interest loans to farmers to get their septic systems into compliance.
- The MPCA's program for **Accelerated Implementation of MS4 Permit Requirements** assists local government in their efforts to comply with the state's general permit for municipal separate storm sewer systems (MS4). The permit requires municipalities to eliminate or reduce the flow of contaminants into their storm sewer system. A new general state MS4 permit went into force in the fall of 2020 and it includes some new requirements, especially on the use and storage of chlorides such as road de-icer. The Clean Water Fund supports training and other assistance to permit holders to achieve compliance.
- The MPCA's **Chloride Reduction Program** helps wastewater discharge permit holders, such as municipalities, to achieve compliance with chloride limits. Excessive chloride in wastewater discharge is usually due to inefficient or unnecessary residential water softeners. The MPCA works with the permit holder to educate residents on how to reduce their chloride use and occasionally provide incentives to upgrade their softeners.
- The Public Facilities Authority (PFA)'s **Point Source Implementation Grant (PSIG)** supports selective upgrades to water treatment facilities so that they comply with permit requirements based on the Total Maximum Daily Load (TMDL) for the waterway that receives the discharge and other regulatory requirements to improve water quality.

Technical Assistance

A large proportion of Clean Water Fund spending supports technical assistance. Minnesota's landowners and local government units often cannot accomplish our water quality goals without expert help.

Regulation has provided measurable benefits for water quality. Empowering the public and private sectors as well as individuals with technical assistance multiplies its effects and increases the likelihood of success. Assistance comes in the form of demonstration sites to show the targeted audiences what is possible, interpretation of scientific data to guide projects, as well as training in best management practices.

HIGHLIGHTED PROGRAMS

Municipalities/Townships

- **Source Water Protection** – MDH delineates Drinking Water Supply Management Areas (DWSMAs) with local units of government; supports public water systems with planning for protection activities; and coordinates source water monitoring.
- **Accelerated implementation of MS4 Permit Requirements** – The MPCA helps cities comply with the state's general stormwater permit. A new statewide permit with new provisions that help meet water quality goals has been completed, requiring more time to familiarize cities with the new requirements.
- **National Pollutant Discharge Elimination System (NPDES) Wastewater/Stormwater TMDL Implementation** – This MPCA program maintains the Minnesota Stormwater Manual, a resource used by thousands of public and private sector professionals to ensure compliance and encourage innovation for stormwater management.
- **Groundwater Restoration and Protection Strategies (GRAPS)** – An interagency team led by MDH identifies risks to groundwater quality and quantity in watersheds and recommends targeted strategies for local partners to protect and restore groundwater.

Watershed Districts/Soil and Water Conservation Districts/Water Management Organizations

- **Non-Point Source Restoration and Implementation** – DNR provides "cradle to grave" technical assistance for 85 projects annually that are prioritized in approved comprehensive watershed management plans. Assistance includes design help on streambank stabilization, culverts, side inlets, fish passage, forestry BMPs, and stormwater BMPs; coaching of local project managers; planning assistance; on-site construction; and oversight.
- **Accelerated implementation** – BWSR provides grants to build technical skills through Technical Service Areas (TSAs) and technical trainings. The program builds local government capacity to accelerate on-the-ground projects that improve or protect water quality and perform above and beyond existing standards.
- **Conservation Drainage Management and Assistance** – BWSR provides grants and technical assistance to SWCDs/drainage authorities for water quality benefits beyond what is required in drainage law.

Farmers and Other Rural Landowners

- **Irrigation Water Quality Protection** – MDA supports an irrigation specialist at the University of Minnesota-Extension who promotes best management practices (BMPs) that can reduce nitrate-nitrogen losses to groundwater from irrigated crops. This specialist provides direct support and education to irrigators, and collaborates with partners on applied research and demonstration.
- **Nitrate in Groundwater** – MDA supports the state's Nitrogen Fertilizer Management Plan and Groundwater Protection Rule. MDA is working with 38 local government partners on nitrate monitoring and reduction activities including: private well testing; groundwater monitoring; nitrogen fertilizer BMP promotion and adoption; local advisory teams to work with farmers; technical support; and demonstration projects. The CWF also supports two university extension staff who educate landowners on adoption of best management practices (BMPs).
- **Technical Assistance Program** – Technical assistance activities are a primary way to work with farmers and the agricultural community to promote conservation practices and vegetative cover. MDA maintains 25 edge-of-field water quality monitoring sites and 100 farm demonstration plots per year, and results are shared at field days, workshops and other educational events (~30 events annually).
- **AgBMP Loan Program:** The AgBMP Loan Program provides low interest loans to individuals for best management practices that restore or protect water resources. These loans can be used for any practice that reduces pollution. The program is administered by local governments, has very low transaction costs, and repayments fund additional projects.
- **Private Well Protection:** MDH promotes well stewardship strategies for 1.2 million private well owners, including testing for contaminants, protection actions, and treatment when needed.
- **Minnesota Agricultural Water Quality Certification Program (MAWQCP)** – See description on page 36.
- **Enhancing Soil Health and Landowner Adoption of Cover Crops for Drinking Water and Groundwater Protection** – BWSR supports the Office of Soil Health and makes grants to SWCDs for cover crop and conservation tillage demonstration projects.

Businesses

- **Chloride Reduction** - The MPCA used the CWF to develop a Smart Salting Assessment Tool used by 1,000 salt de-icer consumers such as snow removal companies, commercial property owners, and public works departments. The tool complements the MPCA's Smart Salting training classes that have certified 40 entities. The tool and training help avoid additional chloride impairments in Minnesota's waters. The Mayo Clinic in Rochester used the assistance to reduce its salt use by 60 percent.

- **Metropolitan Area Water Supply Sustainability Support Program** – The Metropolitan Council supports businesses that seek to use groundwater more efficiently using university interns. This program meets the Council's Strategic Plan by reducing demand in the metro area by 150 million gallons a year.

Grants

Much of the Clean Water Fund is used for grants. They range from support for research to grants to local governments that accelerate the state's ability to protect and restore water quality.

- **Forever Green Initiative** – Through the MDA, the University of Minnesota's Forever Green Initiative makes grants available to researchers. The program supports the development and increased adoption of perennial species that can improve water quality and provide economic benefits for farmers.
- **Stormwater Research and Technology Transfer Program** – The University of Minnesota's Stormwater Research Council supports competitive grants to evaluate stormwater BMPs. Successful research on enhanced street sweeping is an example of how this program helps local governments improve water quality in new ways.
- **Source Water Protection** – MDH provides public water supplier grants for municipalities. These are most often small grants that help a city reduce risks to their drinking water sources, wells, lakes, or rivers.

Figure 8: Tank Removal in Bovey

- **Contaminants of Emerging Concern** – Outreach and education grants foster innovative actions that help keep CECs out of Minnesota's waters. Grants funded drug take back programs, culturally relevant outreach to Latinx communities, media ads, outreach toolkits for safe disposal options, and local collaborations on decreasing the use of toxic chemicals and pharmaceuticals.
- **Enhanced County Inspections/SSTS Corrective Actions** – The MPCA makes grants to counties so that counties can increase inspections of septic systems. This program has led to an 80 percent compliance rate statewide, a goal in the Council's Strategic Plan. The program also allows counties to support replacement of SSTSs for qualified low-income property owners.

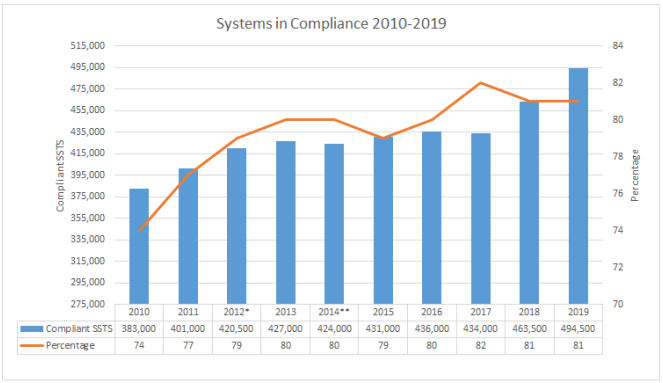


Figure 9: SSTS Systems in Compliance 2010-2019

- **Point Source Implementation Grants (PSIG)** – The Public Facilities Authority (PFA) uses the Clean Water Fund to assist municipal water treatment facilities through the PSIG program. In contrast to other PFA grants and loans supported by other funds, PSIG supports selected treatment upgrades to comply with Total Maximum Daily Load (TMDL) requirements and other regulatory requirements to improve water quality.
- **Small Community Wastewater Treatment Program** – The PFA makes grants and loans to replace failing SSTSs with community SSTSs. These modest grants from the CWF allow these very small communities to get started on the planning process.
- **Water Demand Reduction Efficiency Grant Program** – The Metropolitan Council makes grants to municipalities in the seven-county Twin Cities metro area that defray resident expenses in replacing inefficient residential fixtures and sprinkler control systems.
- **Watershed Management Transition (One Watershed One Plan)** – BWSR provides support to approximately seven major watersheds a year (via a managing partner such as an SWCD or watershed district) to complete comprehensive

watershed management plans. These plans use the data from the state's Watershed Restoration and Protection Strategies (WRAPs) and Groundwater Restoration and Protection Strategies (GRAPS) to prioritize which projects should be funded first to achieve water quality goals. Plans for all 80 major watersheds will have started by 2025.

- **Targeted Wellhead/Drinking Water Source Protection** – BWSR provides funding for local government units to set aside land in priority wellhead protection areas, including with easements.
- **Buffer Law Implementation** – BWSR provides grants to SWCDs for implementation of the buffer law. Projects support SWCDs for design and landowner assistance.
- **Grants to Soil and Water Conservation Districts** – For several biennia, the Legislature has appropriated between $18 and $24 million in funding each biennium for SWCDs from the Clean Water Fund. These grants, usually at or just above $100,000 per district and distributed through BWSR, support the capacity of SWCDs to provide increased technical and financial assistance to private landowners statewide.
- **Accelerated Implementation** – BWSR makes modest grants to local government units so that they can carry out more complex projects. Funding often supports equipment and analytical tools.
- **Surface and Drinking Water Protection/Restoration Grants (Projects and Practices)** – BWSR distributes competitive grants to local government units for high priority conservation and urban BMPs identified in local management plans. Up to twenty percent of grant funding must be for drinking water protection activities.
- **Grants to Watersheds with Approved Comprehensive Watershed Plans (Watershed-Based Implementation Funding)** – BWSR distributes non-competitive grants to major watershed partnerships to carry out priority projects agreed upon by state and local government in a comprehensive watershed management plans (One Watershed One Plan). These are non-competitive grants distributed on a rotating basis. As more plans are complete, this pool of funding will increase over time.
- **Watershed Partners Legacy Grants** – At the request of the Clean Water Council, BWSR proposes to make small grants to help non-governmental entities improve local water quality.
- **Enhancing Soil Health and Landowner Adoption of Cover Crops for Drinking Water and Groundwater Protection** – BWSR grants funding to selected local governments to demonstrate cover crops for local farmers. According to the state's Nutrient Reduction Strategy (NRS) five-year progress report, "Since 2017, two programs supported by the Clean Water Fund (MAWQCP and BWSR competitive grants) have provided the majority of non-federal cost-share funding that supports adoption of cover crops."

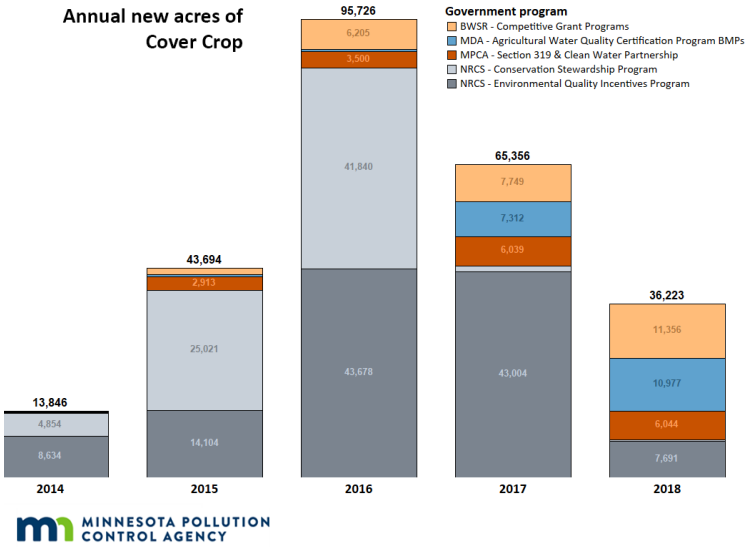


Figure 10: New Acres of Cover Crop

Economic Benefits

In the Clean Water Legacy Act, the Legislature in 2006 stated that **"there is a close link between protecting, enhancing, and restoring the quality of Minnesota's groundwater and surface waters and the *ability to develop the state's economy*, enhance its quality of life, and protect its human and natural resources."**

In addition, the statutory requirement for this document (Minn. Stat. 114D.30 Subd. 7) requires that it report on "the impact on economic development of the implementation of efforts to protect and restore groundwater and the impaired waters program."

Many activities supported by the Clean Water Fund provide economic benefits.

Accommodating Economic Growth

The CWF supports activities that helps Minnesota de-couple economic growth and use of water. Examples include:

- The Metropolitan Area Water Supply Sustainability Support Program provides ongoing assistance supporting the Metropolitan Council's efforts to reduce groundwater use in the Twin Cities by 150 million gallons a year to accommodate expected future population growth.

- The Public Facilities Authority's **Point Source Implementation Grant** program finances selective upgrades to wastewater treatment plants in Greater Minnesota when the plant might exceed permitted amounts of contaminants in wastewater effluent.
- A BWSR grant from the Clean Water Fund supported a stormwater reuse/rainwater harvesting system at Allianz Field in St. Paul to supply water to future nearby buildings.

Enhancing tourism and other outdoor activities

- The CWF supports the staff who direct the St. Louis River Area of Concern (AOC) program and leverages millions of federal dollars that are restoring Duluth's harbor and other outdoor activities.
- **Easements** and other land protection strategies can create additional habitat that also protects public drinking water sources.

Financing

- The CWF provided $14.3 million to the **Agricultural Best Management Practices (AgBMP) Loan Program**. This program provides low-interest loans to farmers and local governments to finance projects like septic system replacement, conservation tillage, agricultural waste management, and structural erosion control measures. By recirculating the proceeds, the clean water portion of the program has financed 2,043 projects totaling $26.9 million.

Reduced economic risk and greater resilience

Farms that are in the **Minnesota Agricultural Water Quality Certification Program (MAWQCP)** are more profitable.

- Certified farms have a higher net income, better term debt coverage and operating expense ratios, and in most instances higher yields.
- The average net farm income of certified farms is 26% higher than non-certified farms, or on average $19,000 more income per year.
- The net worth of certified farms is on average 62% higher than non-certified.[4]

Monitoring & Assessment

Up to 15 percent of the Clean Water Fund is spent on monitoring and assessment.

After its passage in 2008, the Clean Water Fund allowed the State of Minnesota to complete federal requirements to identify impaired waters. Waters are impaired when they exceed a water quality standard for certain contaminants.

The Minnesota Pollution Control Agency (MPCA) evaluates waters to see if they are impaired for the following uses: aquatic consumption; aquatic life; aquatic recreation; drinking water; and limited resource value. The MPCA tests for 31 specific impairments.

The State recently completed a ten-year cycle of testing all waters in all 80 major watersheds. Other agencies complete additional testing (also supported by the Clean Water Fund) including a **Fish Contamination Assessment; Lake Index of Biological Integrity; Stream Flow Monitoring**; and **Groundwater Monitoring**.

These monitoring results are combined with other testing and inform the creation of a **Watershed Restoration and Protection Strategy** (WRAPS). The WRAPS lists all impairments in the watershed and lists specific strategies for how to meet water quality goals. Local stakeholders then produce a comprehensive watershed management plan (**One Watershed One Plan**) with the Board of Water and Soil Resources (BWSR) using Clean Water Funds. The plan prioritizes which strategies get funded first.

The MPCA has now started a second cycle that targets resources at specific issues and at reduced levels compared to the first ten-year cycle. The second cycle will be different from the first.

- The MPCA has reduced the total amount of testing sites by one-third while still maintaining the minimum required by the U.S. EPA.
- One-third of this monitoring is committed to the requests of local or state agency partners in the second cycle. These partners may be looking to measure the impacts of specific projects such as stream restoration or drinking water protection activities.
- The MPCA also maintains 197 long-term stream pollutant monitoring sites that allow the State to identify trends and looming threats. Contractors like soil and water conservation districts (SWCDs) take water chemistry samples 30 times a year.

Why keep monitoring? Targeted investment and progress tracking requires a comprehensive monitoring strategy to identify which waters are healthy, which are declining, and

[4] Farm Business Management (FBM) and the Minnesota State Agriculture Centers of Excellence, "Influence of Intensified Environmental Practices on Farm Profitability," April 2020.

which are improving. Monitoring data make it possible for state agencies and local partners to target Clean Water Fund investments and other federal and state dollars to keep healthy waters healthy, stop declining trends, and make improvements where they would make the biggest impact. In addition, accurate TMDLs ensure that point source discharge sources such as wastewater treatment plants spend only the financial resources they need to in order to comply with their permits.

Combined Efforts with Other Dedicated Funds, Federal Funds, etc.

State statute allows and gives priority to clean water projects that can leverage other sources of funding.

> *Money from the clean water fund may be used to leverage federal funds through execution of formal project partnership agreements with federal agencies consistent with respective federal agency partnership agreement requirements.* -- Minn. Stat. 114D.50 Subd. 4 (h)

> *The Clean Water Council shall give priority in its recommendations for restoration funding from the clean water fund to restoration projects that…most effectively leverage other sources of restoration funding, including federal, state, local, and private sources of funds.* – Minn. Stat. 114D.20 Subd. 6 (3):

The Clean Water Fund is often the initial seed funding or is otherwise a partial source of funding for large and complex projects. The State has documented that every dollar from the Clean Water Fund leverages another 95 cents from other funding sources. Some other sources such as landowner contributions are not always documented, so the leverage is likely even higher.

Other funding sources leveraged by the Clean Water Fund—either to assist a project or as direct payment to landowners—include the following:

Administered by the Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture

- **Environmental Quality Incentives Program (EQIP)**
- **Conservation Stewardship Program (CSP)**
- **Regional Conservation Partnership Program (RCPP)**
- **Agricultural Conservation Easement Program (ACEP)**
- **Healthy Forests Reserve Program (HFRP)**
- **Conservation Innovation Grants (CIG)**

Administered by the Farm Service Agency, U.S. Department of Agriculture

- **Conservation Reserve Enhancement Program (CREP)**

Administered by the U.S. Environmental Protection Agency

- **Federal Clean Water Act Section 319 Grants**
- **Great Lakes Restoration Initiative/Area of Concern (AOC)**

Administered by the U.S. Fish and Wildlife Service

- **Fishers and Farmers Partnership Grants**

State Funding Sources

- **General Obligation Bonds**
- **Environment & Natural Resources Trust Fund**
- **Outdoor Heritage Fund**

Local Funding Sources

- **Watershed Districts**
- **Water Management Organizations**
- **Soil and Water Conservation Districts**
- **Counties, Municipalities, and Townships**
- **Landowners and Property Owners**: Our current estimate of leverage funds does not include landowner contributions. Most support for landowners, such as agricultural BMPs, require initial investment by the individual.

Dozens of programs supported by the Clean Water Fund operate simultaneously, making it challenging to track progress in one place. Generally speaking, the larger the scale (e.g., statewide perspective), the more difficult it is to see trends influenced by the Clean Water Fund. Smaller scale evaluation on a sub-watershed scale is more likely to connect results to the Fund.

Protection strategies, such as reducing the risk of future water impairments by reducing potential sources of pollution, are an additional barrier to measuring progress. This is because when they are effective, successful protection strategies keep water quality at a high level and therefore show no “improvement.”

Statutory Requirements

There are several statutory *reporting* requirements on the Clean Water Fund that measure certain activities.

State Constitution: Article XI, Section 15 requires that five percent of the Clean Water Fund be spent on protection of drinking water sources. The FY22-23 set of recommendations would spend 20 percent of the Fund on this purpose.

- **Performance Report**: State agencies produce a biennial report on clean water outcomes in the biennial Clean Water Fund Performance Report. This document includes roughly 20 key measures on surface water quality, drinking water, and groundwater. A summary of these measures is included in a four-page Clean Water Fund Report Card. These measures do not necessarily make a direct connection between Clean Water Fund spending and environmental outcomes that are measured on a statewide level.
- **Restoration Evaluation**: The DNR and BWSR, as described in Minn. Stat. 114D.30 Subd. 6, performs a biennial Legacy Fund Restoration Evaluation Report. This report evaluates restoration projects supported by dedicated sales tax revenue derived from the Legacy Amendment, including the Clean Water Fund.
- **Clean Water Fund Recommendations**: This document is required to be submitted by the Clean Water Council every even-numbered year on December 1st, according to Minn. Stat. 114D.30 Subd. 7.
- **Legacy Web Site**: Minn. Stat. 114D.50 Subd. 4(c) requires that agencies submit project information to the Legislative Coordinating Commission (LCC) for inclusion in a searchable database at https://www.legacy.mn.gov/. (The Council's recommendations include partial support for web site maintenance.)
- **Measurable Outcomes**: "A project receiving funding from the clean water fund shall include measurable outcomes, as defined in section 3.303, subdivision 10, and a plan for measuring and evaluating the results." -Minn. Stat. 114D.50 Subd. 4(a)

Fishable, Swimmable, Drinkable Standard

There are several statutory reporting requirements on the Clean Water Fund that measure certain activities.

Among the broadest objectives of the Clean Water Fund and State water policy are to have "fishable", "swimmable", and "drinkable" water. In 2014, Minnesota's Clean Water Roadmap estimated goals that were realistic to meet by 2034.

- **Fishable**: The tool for measuring "fishability" of Minnesota lakes is the Fish-Based Index of Biological Integrity (IBI). The statewide goal was to increase the percentage of Minnesota's rivers and streams with healthy fish communities, as measured by the IBI, from 60 percent in 2008 to 67 percent in 2034. Minnesota was at 61 percent in 2017.

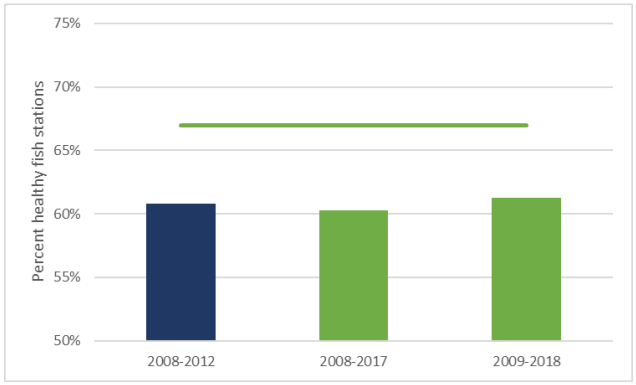


Figure 11: Fishable Waters as Determined by Healthy Fish Stations

- **Swimmable**: The indicator for "swimmability" is good water quality on the Trophic State Index (TSI). The statewide goal was to increase the percentage of lakes with a good quality on the TSI from 63 percent in 2008 to 70 percent in 2034. Minnesota was at 64 in 2017.

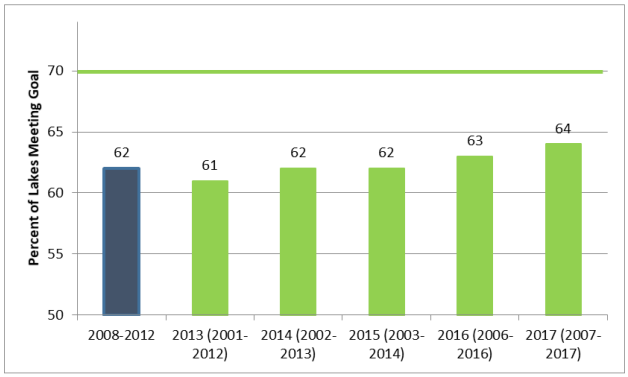


Figure 12: Swimmable Waters as Determined by Recreational Standards

- **Drinkable**: Drinkability is measured by water quality and water quantity indicators. The goal for water quality is twofold; to reduce the number of new wells with unsafe levels of arsenic by 50% and to reduce the number of wells with unsafe levels of nitrate by 50% in two regions of the state. The goal for water quantity is to have 90% of the monitoring sites have either a steady or increasing water level trend.

GOALS	
	Drinking water is safe for everyone, everywhere in Minnesota
	Ground water is clean and available
	Surface water is swimmable and fishable
	Minnesotans value water and take actions to sustain and protect it

Strategic Indicators

In order to give Minnesotans a better indication the results achieved by the Clean Water Fund, the Clean Water Council established its first Strategic Plan in the spring of 2020. The Plan includes roughly 40 strategies for the State to complete by 2034 using the Clean Water Fund. These strategies, when fulfilled, would result in protected or improved water quality, although the ability to show trends will take place over many years. Here is a key sampling of these strategies.

Goal 1: Drinking water is safe for everyone, everywhere in Minnesota

- **Source Water Protection Plans (MDH)**
  - Complete source water protection planning and implementation for 500 vulnerable community public water systems. Delineation of DWSMAs for these systems was **COMPLETED** in 2020. The Clean Water Fund will support half of needed activities through 2034.
  - Complete first generation source water protection plans for remaining 420 community public water systems by 2025. This program is **ON TRACK**.
  - Complete revised source water assessments for all 23 surface water systems by 2025. This program is **ON TRACK.** MDH plans to have ten assessments complete by 2023.
  - Complete source water intake protection planning by 2027. This program is **ON TRACK**. Five plans should be complete by mid-2023.
  - Complete pilot source water protection planning for 10 non-community public water systems with at-risk populations by 2027. This program is **ON TRACK**. MDH projects that three will be complete by mid-2024.

- **Metro Groundwater Use Reduction (Metropolitan Council)**: Metro population growth will require a reduction in groundwater use by 150 million gallons per year to ensure a sustainable water supply in the future. Due to two programs supported by the Clean Water Fund, the Met Council is **ON TRACK** with this goal.

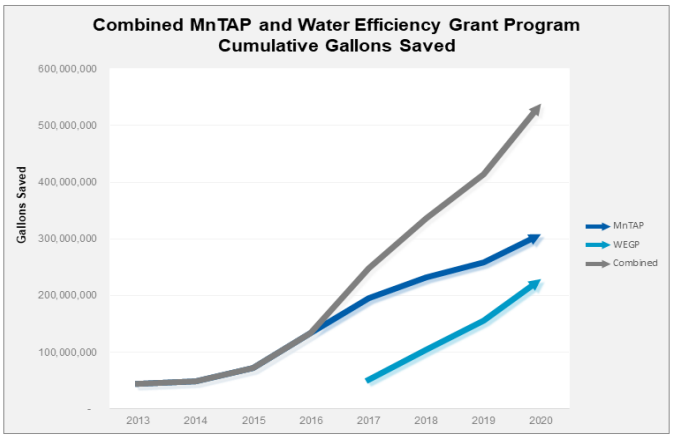


Figure 13: Combined MnTAP and Water Efficiency Grant Program Cumulative Gallons Saved

- **Nitrogen Reduction in Groundwater:** The CWF supports the MDA's implementation of the Ground Water Protection Rule, so that no additional existing municipal water supply wells exceed the drinking water standard for nitrate. The state has identified all DWSMAs where nitrate is above or projected to be above the drinking water standard of 10 mg/L. Beginning in 2019 with the adoption of the Groundwater Protection Rule, the Clean Water Fund supports the mitigation activities that will reduce nitrate levels to acceptable levels. The state is **ON TRACK** in applying the initial two of four mitigation levels. This includes voluntary adoption of best management practices (BMPs) and alternative management tools (AMT) (Level One), creation of local advisory teams that recommend uniform BMPs and AMTs, and measuring their effects (Level

Two). There are six DWSMAs in Level One and 17 in Level Two. There are 11 other DWSMAs that could be included pending additional information.

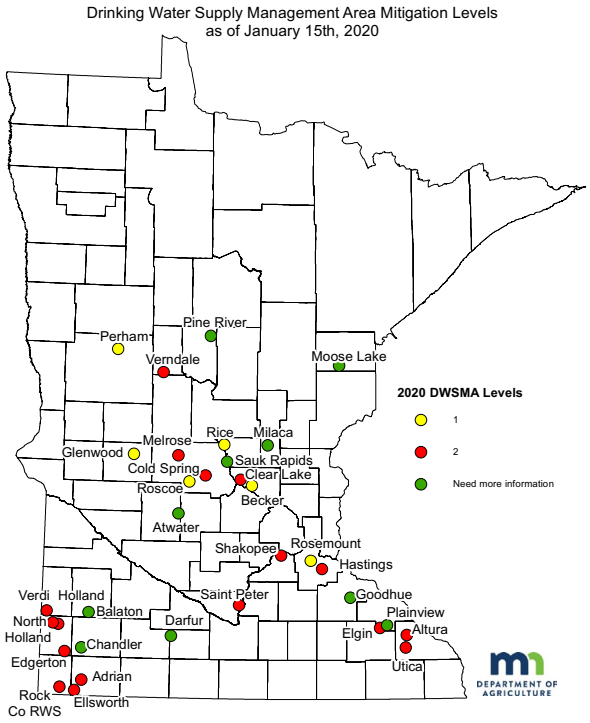


Figure 14: Drinking Water Supply Management Area Mitigation Levels as of January 2020

- **Protection of Public Wellheads**: Approximately 400,000 acres of vulnerable land surround more than 900 DWSMAs. The Council's strategy is to protect this acreage to ensure safe drinking water no later than 2034. MDH is **ON TRACK** to complete development of this measure in FY23.

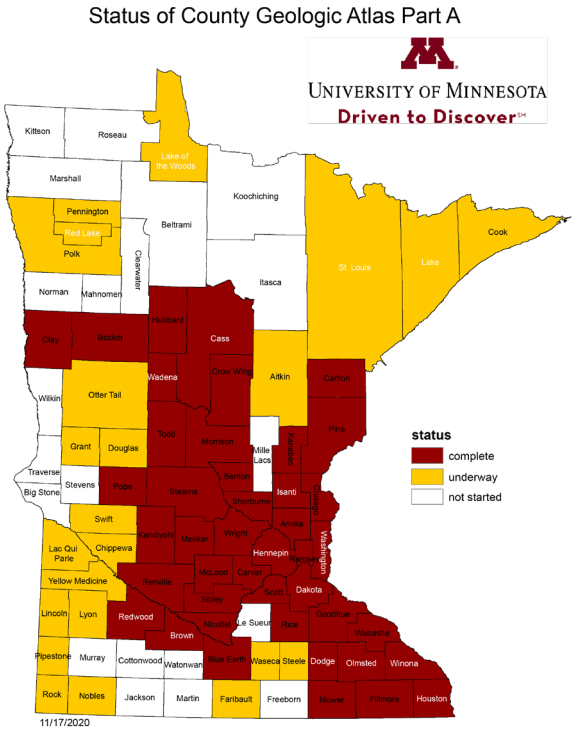


Figure 15: MN Geologic Atlas Part A

Goal 2: Groundwater is clean and available to all in Minnesota

- **Groundwater Restoration and Protection Strategies (GRAPS)**: MDH completes a GRAPS for all major watersheds engaged in comprehensive watershed planning. This program is **ON TRACK** to be completed at the same time that One Watershed One Plans are complete by 2025.
- **Geologic Atlases**: The Minnesota Geological Survey is **ON TRACK** to complete geologic atlases for all Minnesota counties within the next decade. These are Part A of the County Geologic Atlas series.
- **Groundwater Atlases**: DNR is **ON TRACK** to complete groundwater atlases for all Minnesota counties by 2029. These are Part B of the County Geologic Atlas series.

HOW DOES THE STATE MEASURE PROGRESS AND PROVIDE OVERSIGHT?

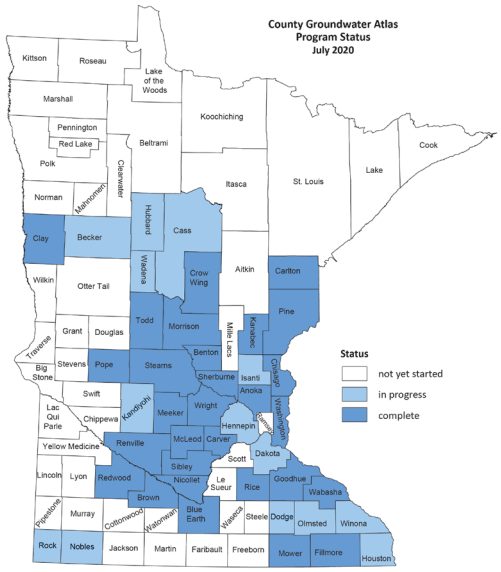


Figure 16: County Groundwater Atlas Part B Program Status

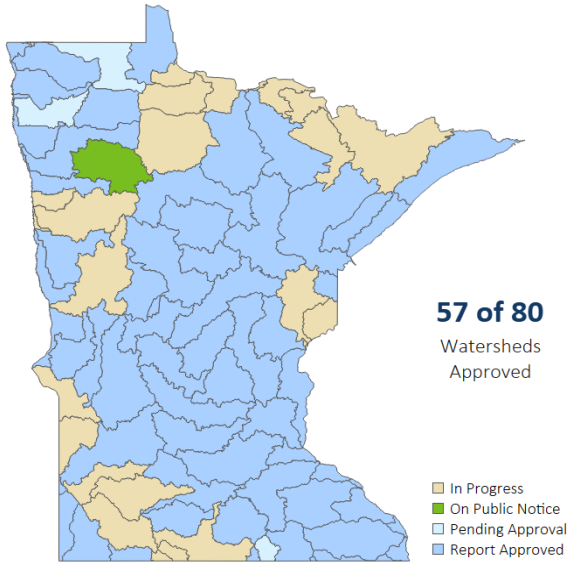


Figure 17: WRAPS dashboard map

- **Groundwater Monitoring Wells**: The DNR has a goal of having 1,600 state-owned and managed long-term groundwater monitoring wells statewide by 2034. The Clean Water Fund supports 50 new wells a year in addition to the 1,125 current wells and DNR is **ON TRACK** to meet its goal.
- **Subsurface Sewage Treatment Systems (SSTS)**: The MPCA estimates that the Clean Water Fund can help to maintain a compliance rate for subsurface septic treatment (SSTS) systems at a minimum of 80 percent, and to attain a goal of 90 percent annually. The compliance rate will vary annually since there are always new systems failing every year. In 2019, compliance was at 83 percent, which **EXCEEDS** the minimum goal. The percentage of SSTSs that pose an imminent threat to public health and safety has dropped from seven percent in 2010 to two percent in 2019.

Goal 3: Surface waters are swimmable and fishable throughout the state

- **Watershed Restoration and Protection Strategies (WRAPS)**: A WRAPS is like a blueprint for action in each of Minnesota's 80 major watersheds. The MPCA compiles the science from other CWF activity to identify which actions are most likely to meet a watershed's water quality goals. As of November 2020, 56 of 80 WRAPS have been completed. Statue requires them to be complete by 2023, and the MPCA is **ON TRACK** to complete them.
- **One Watershed One Plan (1W1P)**: The Board of Water and Soil Resources (BWSR) assembles local government units—such as watershed districts, soil and water conservation districts, water management organizations, counties, municipalities—to prioritize the projects identified in the WRAPS, GRAPS, and other local issues. This results in a comprehensive watershed management plan using the One Watershed One Plan program. With an approved plan, that watershed will receive a defined amount of funding for high priority projects for the lifetime of the Clean Water Fund. The program is voluntary, but there likely will be approximately 60 plans completed due to combined efforts among watersheds. Sixteen have been approved and 22 are in development to date. Plans are **ON TRACK** to be underway by 2025.
- **Mississippi River Headwaters**: The Council's plan aligns with other public and private stakeholders seeking to protect 100,000 priority acres and restore 100,000 priority acres in the Upper Mississippi River headwaters basin by 2034 to ensure high water quality into the future. The Council is still working with stakeholders on the best way to measure this strategy.
- **Contaminants of Emerging Concern**: MDH attempts to evaluate five contaminants annually. MDH is **ON TRACK** to complete this goal. The University of Minnesota Water Resources Center and Humphrey Institute of Public Affairs conducted a review of this program in 2016.
- **Cover Crops/Continuous Living Cover**: Achieve a goal of five million acres of row crop agriculture that use cover crops or continuous living cover by 2034. See Figure 10.

HOW DOES THE STATE MEASURE PROGRESS AND PROVIDE OVERSIGHT?

- **Certified Farms (cumulative benefits)**: The Council and MAWQCP estimates that 6,500,000 acres and 5,100 Minnesota farms will be enrolled in the program in the by 2030. This would constitute about one-third of cropland in Minnesota. MAWQCP is **ON TRACK** to meet this goal. As of September 2020, there are 659,440 certified acres in the program and 950 certified producers. MAWQCP documents water quality and climate benefits from certification, including how many *new* best management practices are employed. These are the cumulative benefits:
    - Keeps 37,786 tons of sediment out of our waterways
    - Avoids the loss of 106,445 tons of soil
    - Reduces phosphorus by 46,903 pounds
    - Reduces carbon emissions by 43,745 metric tons of CO2-equivalent, or the amount emitted annually by 9,400+ passenger vehicles

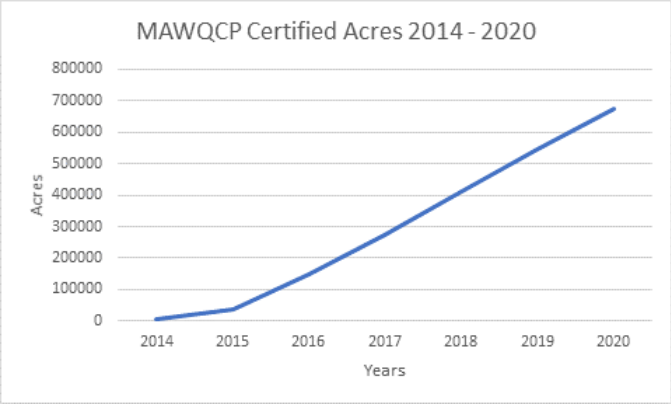


Figure 18 MAWQCP certified acres graph 2014-2020

- **Certified Farms (marginal benefits)**: On average, each new 400 acre Water Quality Certified farm provides the following *annual* benefits:
    - Conserves 65 tons of soil and reduces sediment load into surface waters by 23 tons
    - Avoids 29 pounds of phosphorus (one pound of phosphorus can create 500 pounds of algae)
    - Reduces carbon emissions by 65 metric tons of CO2 equivalent (the same amount emitted by 7.5 homes a year)
    - Reduces nitrogen loss by up to 49% through Advanced Nutrient Management that exceeds best management practices set by the University of Minnesota)
- **Great Lakes Restoration:** The Strategic Plan asks for support of the federal Great Lakes Restoration Initiative's Action Plan. Currently, this means continued funding of staff who lead the St. Louis River Area of Concern (AOC) program at MPCA and for project support activities. The program is **ON TRACK** to complete its remediation and restoration projects by 2024. Delisting the AOC will follow sometime after that.
- **BWSR Competitive Grants**: The Legislature in 2017 required BWSR to submit a biennial report on its Clean Water Fund recipients, and the amount of pollution reduced by their projects. According to the report, "BWSR requires grant applicants to estimate anticipated outcomes for proposed projects during the application process. Applicants used pollution reduction calculators, such as the Revised Universal Soil Loss Equation (RUSLE2), and similar tools for estimating effectiveness of keeping water runoff on the land through infiltration, diversion, or collection. Based on projected outcomes, projects funded in FY 18-19 will remove 35,500 pounds of phosphorus and 51,000 tons of sediment from Minnesota waters."
- **BWSR Easements**: BWSR carries out several easement programs to improve water quality. The State entered into an agreement with the federal government to provide $175 million in Conservation Reserve Enhancement Program (CREP) funding to leverage $350 million in federal funding. Minnesota is only $16.5 million shy of this goal. BWSR reports that as of January 2020, 450 applicants had enrolled 24,000 acres in permanent conservation easements. To date, the program has reduced annual pollutant loads by the following: 5,300 metric tons of CO2 equivalent per year; 7,600 pounds of total phosphorus per year; 480,000 pounds of total nitrogen per year; and 49,200 tons of sediment per year.
- **Cumulative BWSR Impacts**: For the period 2018-2019, the cumulative impacts of grants and easements have reduced sediment by 177,000 tons of sediment and prevented 189,000 pounds of phosphorus annually.

Duluth Harbor