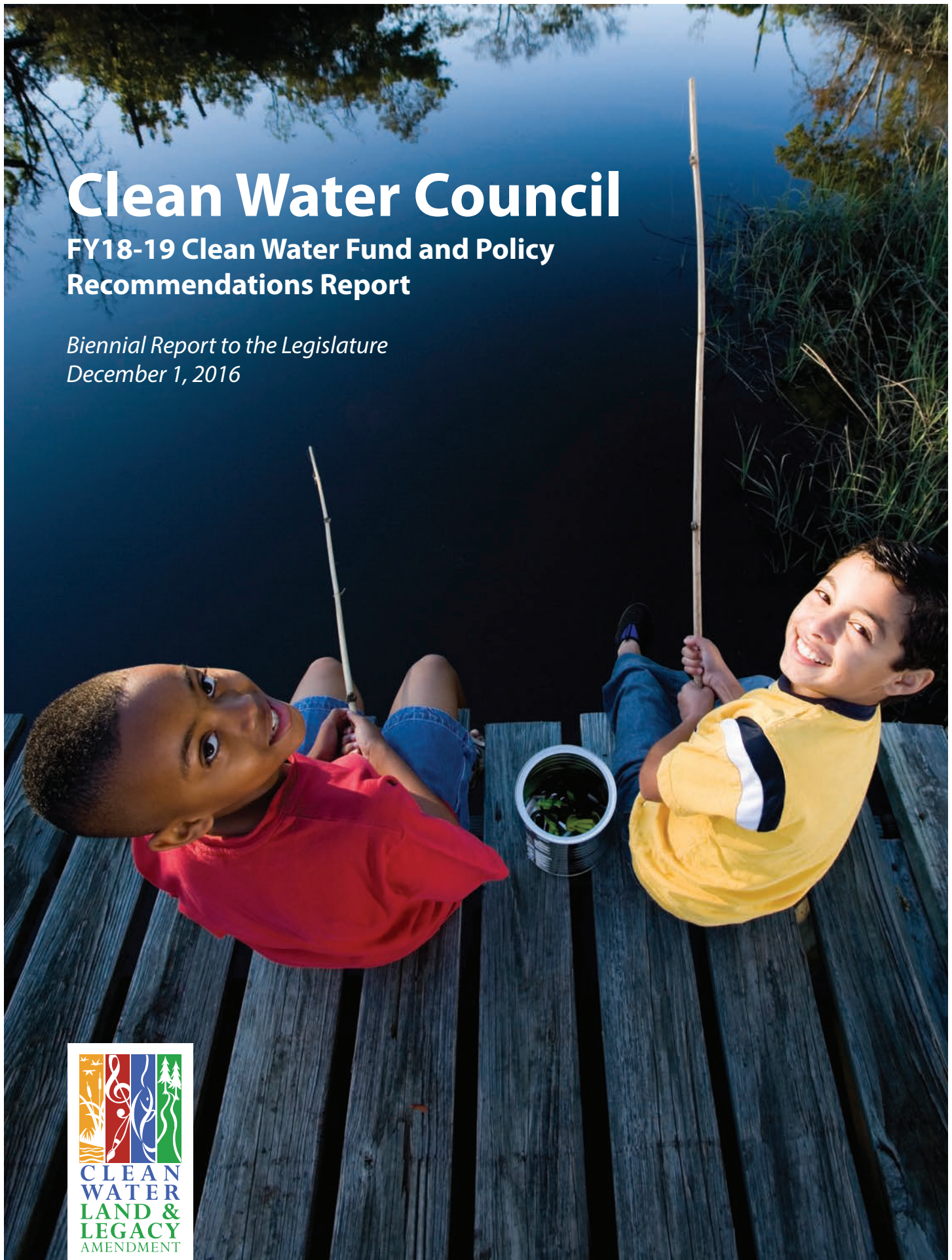


Clean Water Council

FY18-19 Clean Water Fund and Policy Recommendations Report

*Biennial Report to the Legislature
December 1, 2016*



2015-2016 Clean Water Council Officers

Patrick Flowers

Chair, Clean Water Council

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Chair, Policy Ad Hoc Committee

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Vice-Chair, Policy Ad Hoc Committee

Legislative Charge: This report fulfills the requirements of Minn. Stat. § 114D.30, Clean Water Legacy Act (CWLA), for the Clean Water Council (Council) to submit a biennial report to the Legislature by December 1 of each even-numbered year on: the activities for which money has been or will be spent for the current biennium; the activities for which money is recommended to be spent in the next biennium; the impact on economic development of the implementation of efforts to protect and restore groundwater and the impaired waters program; an evaluation of the progress made in implementing the CWLA and the provisions of Article XI, Section 15, of the Minnesota Constitution relating to clean water; the need for funding of future implementation; and recommendations for the sources of funding. The report also fulfills the CWLA requirement for 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.

For further information about this report, please contact the current Clean Water Council Chair or Coordinator whose contact information can be found on the Council's website at www.pca.state.mn.us/cleanwatercouncil.

Report Coordinator: Barb Peichel, Minnesota Pollution Control Agency (MPCA)

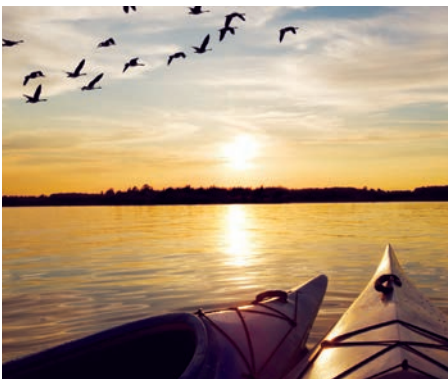
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EXECUTIVE SUMMARY

Clean Water Council

The Clean Water Council (Council) was established in 2006 to advise the Legislature and Governor on the administration and implementation of the Clean Water Legacy Act (CWLA). The Council is required to submit a report to the Legislature and Governor on how FY18-19 Clean Water Fund (CWF) dollars should be appropriated, progress on CWF activities, and future funding needs.

The Council's FY18-19 CWF recommendations, totaling **\$220.514 million**, reflect the priority of providing resources to on-the-ground actions that improve and protect Minnesota's water.

Highlights of the Council's FY18-19 CWF Budget Recommendations

- **Implementation Activities**
\$105 million (48%)
Funds used for projects that restore and protect lakes, streams, and groundwater and upgrade wastewater, stormwater, and septic system infrastructure.
- **Planning & Technical Assistance**
\$67 million (30%)
Funds used to develop restoration and protection plans and provide technical assistance.
- **Monitoring, Mapping & Data Analysis**
\$41 million (18%)
Funds used to monitor and analyze water quality and quantity, fish and plant communities, and map geology.
- **Research & Evaluation**
\$8 million (4%)
Funds used to conduct agricultural and stormwater research, evaluate projects and programs, and report results.

More information on budget recommendations can be found on pages 8-9 and Appendix A (pages 13-17).

More information about programs that receive CWF dollars is on the Council's website at <https://www.pca.state.mn.us/clean-water-council/recommendations-plans> and Minnesota's Legacy website at www.legacy.leg.mn.



Highlights of the Council's FY18-19 Policy Recommendations

The Council recognizes that CWF dollars alone will not be able to meet the expectations of Minnesota citizens for clean water. From a range of issues presented to the Council in 2015 and 2016, two policy recommendations have the Council's support - Drinking Water Protection and Living Cover. More information is in Appendix B (pages 18-22).

Highlights of the Council's 2016 Resolution

The purpose of Council resolutions is to convey the Council's conclusions on topics important to the success of achieving clean water. In 2016, the Council approved a resolution to endorse the Department of Natural Resources' (DNR) work to define the negative impacts of groundwater appropriations on lakes, streams and wetlands. More information is in Appendix E (pages 37-38).

BACKGROUND

The Clean Water Council

The Council was established in 2006 to advise the Legislature and Governor on the administration and implementation of the CWLA, Minn. Stat. ch. 114D. The CWLA requires the Council to submit a report to the Legislature and Governor that includes recommendations for CWF appropriations for the purposes stated in Article XI, Section 15 of the Minnesota Constitution and Minn. Stat. §114D.50. The CWLA also requires this report to include an evaluation of progress related to the CWF and future funding needs.

The 28-member Council represents organizations with a major role in achieving clean water, enabling consensus building and coordination on a wide array of issues critical to the people of Minnesota. The Council holds public meetings monthly to discuss a variety of water topics.



2015-2016 Clean Water Council Members *(note that the entity each member represents is in parentheses)*

Front Row (left to right): **Raj Rajan** (Business Organizations), **Victoria Reinhardt** (Metro Area Governments), **Senator Bev Scalze** (Minnesota Senate), **Sandy Rummel** (Metropolitan Council), **Representative Barb Yarusso** (Minnesota House of Representatives), **Sharon Doucette** (City Governments), **Holly Kovarik** (Soil and Water Conservation Districts), **Pam Blixt** (Watershed Districts)

Middle row (left to right): **Warren Formo** (Statewide Farm Organizations), **Gene Merriam** (Environmental Organizations), **Jason Moeckel** (Minnesota Department of Natural Resources), **John Barten** (Nonprofit Organizations for Lakes and Streams), **Todd Renville** (Statewide Hunting Organizations), **Patrick Shea** (City Governments), **Gaylen Reetz** (formerly representing Minnesota Pollution Control Agency)

Back row (left to right): **Patrick Flowers** (Business Organizations), **Doug Thomas** (Minnesota Board of Water and Soil Resources), **Gary Burdorf** (Township Officers), **Frank Jewell** (Rural County Governments), **Robert Hoefert** (Statewide Farm Organizations), **Jeff Peterson** (Higher Education), **Tannie Eshenaur** (Minnesota Department of Health)

Not pictured: **Mark Abner** (Environmental Organizations), **Sharon Day** (Tribal Governments), **Senator David J. Osmek** (Minnesota Senate), **Glenn Skuta** (currently representing Minnesota Pollution Control Agency), **Representative Paul Torkelson** (Minnesota House of Representatives), **John Underhill** (Statewide Fishing Organizations), **Matt Wohlman** (Minnesota Department of Agriculture)

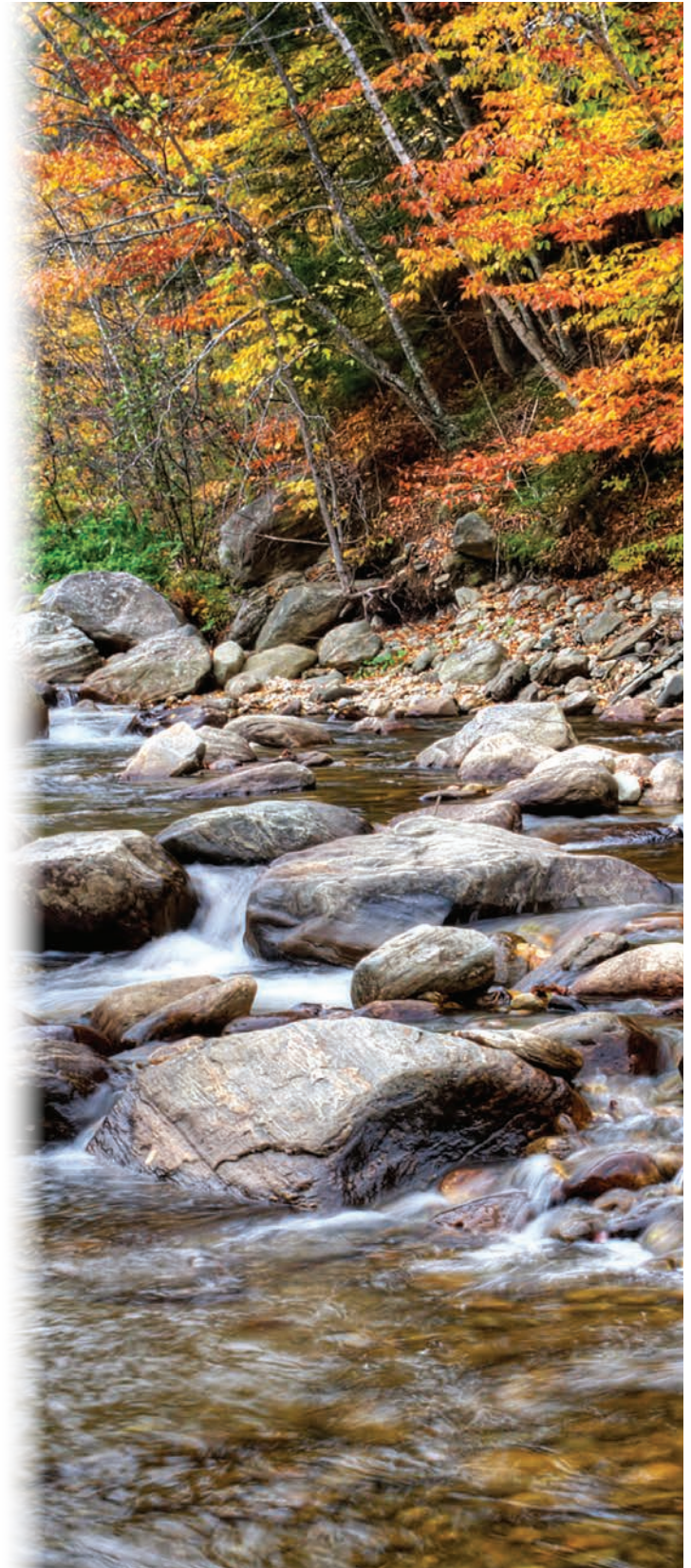
BACKGROUND

Guiding Principles and Funding Priorities for FY18-19 Clean Water Funds

In January 2016, the Clean Water Council voted to approve the following guiding principles and funding priorities. The Council also notes that CWF dollars should be considered one-time funding.

Guiding Principles

- Improve and protect water quality and preserve water quantity in accordance with state and federal laws, without substituting for traditional sources of funding.
- Balance short-term progress with the long-term achievement of clean and sustainable water with a bias towards on-the-ground projects that have measurable outcomes.
- Promote programs that demonstrate significant new progress towards clean and sustainable water resources.
- Promote actions that protect groundwater quantity and quality particularly in vulnerable drinking water areas.
- Consider whether funded programs and projects are cost effective, provide the greatest return on investment for ecosystem services, and how they fit into the entire need to reach clean and sustainable water.
- Encourage activities that change individual and institutional behaviors on the landscape scale to accelerate water quality and quantity outcomes.
- Support programs where agencies innovatively share results to accelerate the adoption of successful projects.
- Promote agency coordination to efficiently utilize Clean Water Fund dollars.
- Keep water where it falls by promoting water storage, retention, and infiltration where appropriate.



BACKGROUND



Funding Priorities

FY18-19 Clean Water Fund dollars will be prioritized for programs that:

- Address point and nonpoint pollution source issues.
- Measure outcomes.
- Restore impaired waters and protect high quality waters.
- Leverage other available funds.
- Implement activities from completed Watershed Restoration and Protection Strategy (WRAPS), Total Maximum Daily Load (TMDL) Implementation Plans, Comprehensive Local Water Management Plans, or Groundwater Plans.
- Target implementation activities through surface water and groundwater monitoring.
- Implement the State's Watershed Approach where deliverables contribute new, significant information to help achieve water quality and quantity goals.
- Strengthen local capacity to support nonpoint source implementation activities.
- Provide new enforcement of existing regulations that would achieve measurable water quality and quantity outcomes.
- In order to comply with state water quality requirements, accelerate drinking water, wastewater, and stormwater infrastructure improvements that rank high on Project Priority Lists for the Drinking Water or Clean Water Revolving Loan Funds.
- Have statewide benefits and applications.
- Prioritize projects on private lands where low income is a barrier for implementation.

FY18-19 CLEAN WATER FUND RECOMMENDATIONS

Budget Development Process

The Council is recommending that **\$220.514 million** of FY18-19 Clean Water Fund dollars be used for the following program activities. Detailed budget recommendations are listed by category in Appendix A (pages 13-17).

Implementation Activities

\$105.145 million (48%)

Funds are used for projects that restore and protect lakes, streams, and groundwater. Examples of activities are upgrading wastewater and stormwater infrastructure, purchasing conservation easements, and protecting drinking water sources.

Planning & Technical Assistance

\$66.653 million (30%)

Funds are used to develop plans that identify actions needed to clean up impaired waters or protect healthy waters. Technical assistance is also provided to local governments, drinking water suppliers, well owners, permittees, and agricultural producers.

Monitoring, Mapping & Data Analysis

\$40.758 million (18%)

Funds are used to monitor the water quality of lakes, streams, and groundwater wells, levels of aquifers, and the health of fish and plant communities and analyze water quality data. Buffers and geology are also mapped.

Research & Evaluation

\$7.858 million (4%)

Funds are used to conduct agricultural and stormwater research, evaluate projects and programs, and report results.

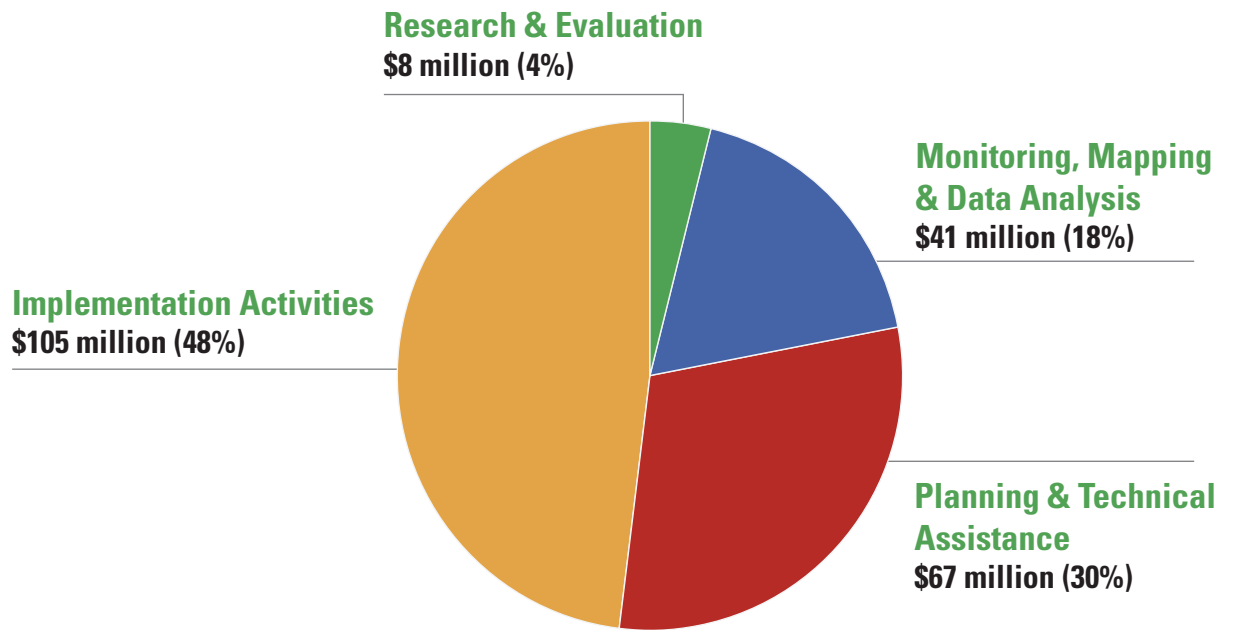


Drinking Water

The Minnesota Constitution requires that at least 5% of the CWF must be spent to protect drinking water sources. The Council's FY18-19 CWF recommendations include approximately **\$38 million (17%)** for drinking water protection. Note this recommended spending level for drinking water protection is distributed among the program subtotals shown above.

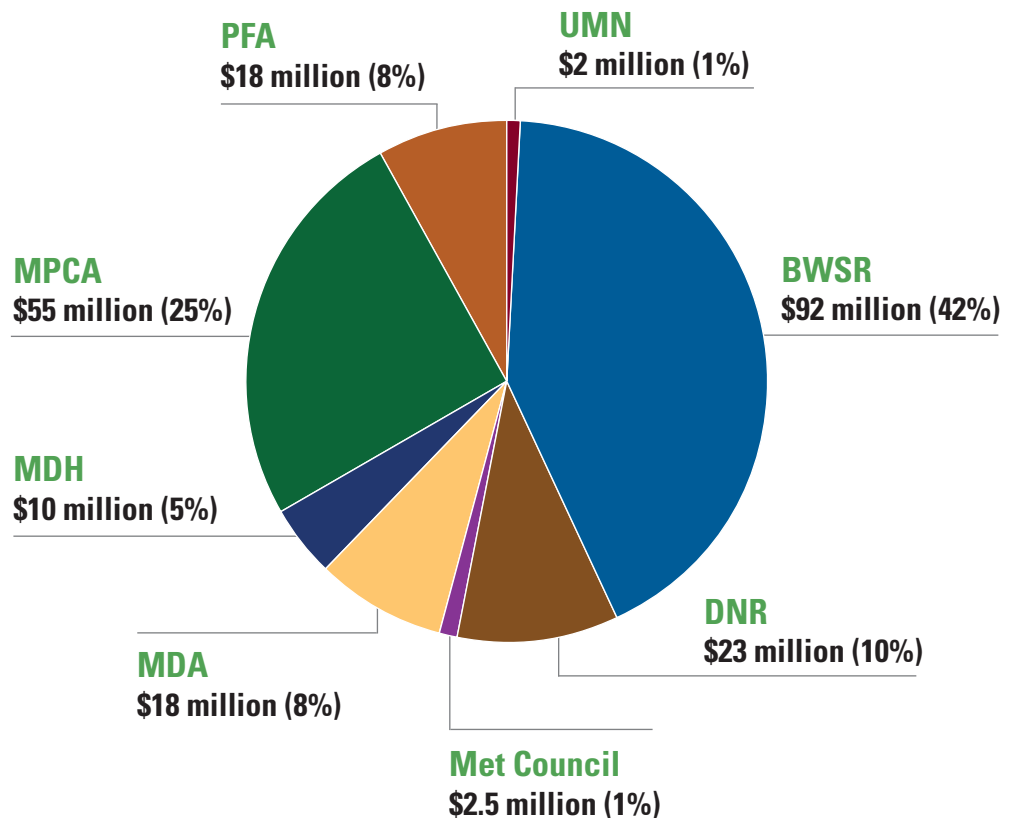
CLEAN WATER FUND RECOMMENDATIONS

by Category



CLEAN WATER FUND RECOMMENDATIONS

by Agency



ISSUES OF CONCERN

Substitute versus Supplement

The Minnesota Constitution states that Clean Water Fund (CWF) dollars *“must supplement traditional sources of funding and may not be used as a substitute”*. The Council is concerned that the State is failing its constitutional duty related to this mandate. General Fund expenditures on conservation and environment activities have eroded since the passage of the constitutional amendment from more than two percent to less than one percent of total General Fund spending. The Council is concerned that the decrease in General Fund spending for conservation and environment activities is indicative of using CWF dollars to substitute for traditional funding.

A specific example is the expenditures for the Conservation Reserve Enhancement Program (CREP) III program. CREP I and II were funded entirely with general obligation bonds to be repaid by the General Fund. To date, \$25 million of Lessard-Sams Outdoor Heritage Fund (OHF) and \$18 million of CWF dollars have been appropriated in FY16-17 for CREP III. Those recommendations were based upon an understanding that the CREP I and II levels of general obligation bonds would be sustained and therefore Legacy funds (OHF and CWF) would be supplemental and justified. No bonding or other non-Legacy sources for CREP III have been invested in FY16-17. Currently, the Council is recommending \$3 million for CREP III for FY18-19, which is significantly less than the Board of Water and Soil Resources' (BWSR) request of \$18 million. The Council wants to ensure that we are supplementing rather than substituting for traditional sources of funding.

Additional local, state, and federal funding sources are vital to achieve Minnesotans' vision for clean and sustainable water for drinking, fishing, swimming, and boating.

The net impact of substitution is that progress towards clean water, as voters expected, is being nullified by the decrease in General Fund expenditures for environmental and conservation activities. It is imperative that both the Legislative and Executive Branches be mindful of this.

Future Funding Needs

The CWLA states that this report should include the *“need for funding of future implementation”*. A number of state reports make it clear that even though progress has been made for clean water, Minnesota will still be facing major water quality and quantity issues by the end of the Legacy Amendment Funds in 2034. The Council believes that other sources of funding besides Legacy Funds will be needed for implementation activities in the future. Additional local, state, and federal funding sources are vital to achieve Minnesotans' vision for clean and sustainable water for drinking, fishing, swimming, and boating.



Confluence of the St. Croix River (on left) and Mississippi River (on right)

ISSUES OF CONCERN

Return on Investment

The CWLA requires that this report include information on "the impact on the economic development of the implementation of efforts to protect and restore groundwater and the impaired waters programs". In lieu of that study, the Council is recommending that the University of Minnesota (UMN) receive CWF dollars to develop guidance documents and tools that can be used to evaluate the return on investment of CWF dollars in water quality improvements and human wellbeing, as well as to assist the Council in future funding decisions.

Administrative Costs

The Council is concerned that administrative costs vary greatly by agency and also that the types of activities included in administrative costs are not consistent among agencies. The Council's Budget Committee requested information from agencies on the proportion of CWF dollars used for administrative costs¹. Agencies use different methodologies to charge administrative costs to the CWF with the average rate applied ranging from 0% to 24%. Because of the various methodologies,

the average effective rate also varies. The variety of methods used and types of costs and rates make it difficult to develop a clear understanding of the administrative charges being applied to the fund and assess if this is a reasonable approach. The Budget Committee also discussed this issue with staff from Minnesota Management and Budget and the Office of the Legislative Auditor.

The Constitutional Amendment was enacted by the voters to be used for very specific purposes and the Council is concerned that this additional revenue is being used to offset pre-existing costs. For example, the passage of the amendment did not cause the cost of building rent or plowing parking lots to increase, but agencies argue that the CWF should pay a share of these costs which is not appropriate for these constitutionally dedicated funds. The Council recommends that the Legislature consider a funding cap for administrative costs for the CWF. Based on our understanding of the expectation of voters in supporting the Constitutional Amendment, this would improve transparency for the fund.



Algae bloom in Little Rock Lake



Algae bloom in lake

¹Administrative (or overhead) costs refer to an ongoing, necessary expense of operating a business which cannot be traced to a particular program. Examples of administrative costs are for equipment, space rental, printing, supplies, and support for information technology (IT), communication, financial, and human resources services.

CONCLUSION

Report Conclusion

Minnesota voters approved the Legacy Amendment with a belief that an increase in funds could improve and protect Minnesota's lakes, rivers and groundwater supplies. The Council's budget and policy recommendations included in this report reflect our best ideas for protection and restoration. Based on two years of meetings and discussions with stakeholders, agencies, and

water experts our recommendations support agency programs, include new initiatives that expand participation, and increase our ability to track progress. We know our recommendations will make progress on clean water but also acknowledge that the amount of CWF dollars available will not meet all the needs and expectations of citizens.



APPENDIX A FY18-19 Clean Water Fund Recommendations by Category



FY18-19 Clean Water Fund Recommendations by Category

This appendix shows the Council's budget recommendations by four general categories - implementation activities; planning and technical assistance; monitoring, mapping, and data analysis; and research and evaluation. The Council recommends that CWF dollars are appropriated to the Board of Water and Soil Resources (BWSR), Department of Natural Resources (DNR), Legislative Coordinating Commission (LCC), Metropolitan Council (Met Council), Minnesota Department of Agriculture (MDA), Minnesota Department of Health (MDH), Minnesota Pollution Control Agency (MPCA), Public Facilities Authority (PFA), and the University of Minnesota (UMN), who will administer these 61 programs.

The Council's 2015-2016 Budget and Outcomes Committee members are Frank Jewell (Committee Chair), Todd Renville (Committee Vice Chair), Sharon Doucette, Warren Formo, Bob Hoefert, Gene Merriam, and Pat Shea. The Budget Committee met monthly to review budget proposals and solicited input from stakeholders and agencies during their budget development process.

More information on programs that receive CWF dollars can be found on the Council's website (<https://www.pca.state.mn.us/clean-water-council/recommendations-plans>) and at Minnesota's Legacy website (www.legacy.leg.mn).

APPENDIX A

FY18-19 Clean Water Fund Recommendations by Category



IMPLEMENTATION ACTIVITIES – \$105.145 million (48%)

AGENCY	PROGRAM NAME	RECOMMENDATION
BWSR	Critical Shoreland Protection-Permanent Conservation Easements	\$2,500,000
BWSR	Targeted Wellhead/Drinking Water Protection	\$3,500,000
BWSR	Riparian Buffer-Permanent Conservation Easements	\$12,000,000
BWSR	Conservation Reserve Enhancement Program (CREP)	\$3,000,000
BWSR	Conservation Drainage Management and Assistance	\$1,500,000
BWSR	Surface and Drinking Water Protection/Restoration Grants (Projects and Practices)	\$29,500,000
BWSR	One Watershed One Plan (Implementation) ²	\$12,000,000
BWSR	Water Legacy Grants Program ³	\$2,000,000
DNR	Aquatic Management Areas ²	\$2,000,000
DNR	Forests for the Future ²	\$2,000,000
MDA	Agriculture Best Management Practices (BMP) Loan Program	\$150,000
MDA	Minnesota Agricultural Water Quality Certification Program	\$5,000,000
MDH	Well Sealing Cost Share	\$500,000
Met Council	Water Demand Reduction Grant Program Pilot	\$500,000
MPCA	Great Lakes Restoration Project	\$1,500,000
MPCA	National Park Water Quality Protection Program	\$2,000,000
MPCA	Enhanced County Inspections/Subsurface Sewage Treatment Systems Corrective Actions	\$7,245,000
PFA	Point Source Implementation Grants	\$18,000,000
PFA	Small Community Wastewater Treatment Program	\$250,000

² Note this program has not received Clean Water Fund dollars in the past.

³ Note this program was expanded so additional entities are eligible for CWF dollars.

APPENDIX A

FY18-19 Clean Water Fund Recommendations by Category



PLANNING & TECHNICAL ASSISTANCE – \$66.653 million (30%)

AGENCY	PROGRAM NAME	RECOMMENDATION
BWSR	One Watershed One Plan (Planning)	\$4,200,000
BWSR	Buffer and Soil Erosion Law Implementation	\$6,800,000
BWSR	Accelerated Implementation	\$12,000,000
DNR	Watershed Restoration and Protection Strategies	\$3,970,000
DNR	Nonpoint Source Restoration and Protection Activities	\$2,000,000
MDA	Nitrate in Groundwater	\$4,171,000
MDA	Irrigation Water Quality Protection	\$220,000
MDA	Technical Assistance	\$2,250,000
MDA	Research Inventory Database	\$100,000
MDH	Source Water Protection	\$5,595,000
MDH	Groundwater Restoration and Protection Strategies	\$400,000
MDH	Drinking Water Protection ²	\$300,000
Met Council	Metropolitan Area Water Supply Sustainability Support	\$2,000,000
MPCA	Watershed Restoration and Protection Strategies	\$20,290,000
MPCA	Wastewater/Stormwater (National Pollution Discharge Elimination System) TMDL Implementation	\$1,800,000
MPCA	Accelerated Implementation of Municipal Stormwater (MS4) Permit Requirements	\$557,000

²Note this program has not received Clean Water Fund dollars in the past.

APPENDIX A

FY18-19 Clean Water Fund Recommendations by Category



MONITORING, MAPPING & DATA ANALYSIS – \$40.758 million (18%)

AGENCY	PROGRAM NAME	RECOMMENDATION
BWSR	Tillage and Erosion Transects	\$850,000
DNR	Stream Flow Monitoring	\$4,000,000
DNR	Lake Index of Biotic Integrity Assessment	\$2,600,000
DNR	Fish Contamination Assessment	\$270,000
DNR	Aquifer Monitoring for Water Supply Planning	\$3,400,000
DNR	Buffer Map Maintenance	\$200,000
DNR	Color Infrared Imagery Analysis	\$650,000
DNR	Applied Research and Tools	\$1,350,000
DNR	County Geologic Atlases	\$250,000
LLC	Legacy Website	\$15,000
MDA	Monitoring for Pesticides in Surface Water and Groundwater	\$700,000
MDA	Pesticide Testing of Private Wells	\$2,000,000
MDH	Drinking Water Contaminants of Emerging Concern Program	\$2,200,000
MDH	Private Well Water Supply Protection	\$800,000
MPCA	River and Lake Monitoring & Assessments	\$16,550,000
MPCA	Groundwater Assessment	\$2,363,000
MPCA	Watershed Research and Database Development	\$2,310,000
UMN	County Geologic Atlases	\$250,000

APPENDIX A

FY18-19 Clean Water Fund Recommendations by Category



RESEARCH & EVALUATION – \$7.858 million (4%)

AGENCY	PROGRAM NAME	RECOMMENDATION
BWSR	Measures, Results and Accountability	\$1,900,000
BWSR	Technical Evaluation	\$168,000
MDA	Academic Research/Evaluation	\$1,575,000
MDA	Forever Green Agriculture Initiative	\$2,000,000
MDA	Vegetative Cover and Soil Health ²	\$250,000
MDH	Groundwater Virus Monitoring Plan	\$200,000
UMN	Stormwater BMP Performance Evaluation and Technology Transfer	\$1,500,000
UMN	Clean Water Return on Investment Pilot ²	\$265,000

²Note this program has not received Clean Water Fund dollars in the past.

The Council also recommends \$100,000 for FY18-19 to support their activities such as field tours, meetings, per diem, and travel expenses. Note this amount does not include funding for Council staff which is included in MPCA's Watershed Restoration and Protection Strategies (WRAPS) line item.

APPENDIX B

FY18-19 Policy Recommendations



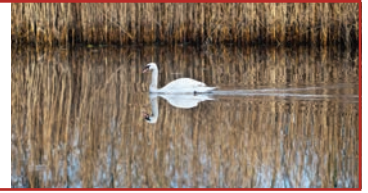
FY18-19 Policy Recommendations

The Council recognizes that CWF dollars alone will not be able to meet the expectations of Minnesota citizens for clean water. From a range of policy issues discussed during 2015 and 2016, two policy recommendations are considered high priority and have the Council's support: drinking water protection and living cover.

The Council's 2015-2016 Policy Committee members are Pam Blixt (Committee Chair), John Barten (Committee Vice Chair), Gary Burdorf, Warren Formo, Gene Merriam, Victoria Reinhardt, John Underhill, and Mark Abner (former member). The Council's Policy Committee met monthly to review policy proposals and solicited input from stakeholders and agencies during their policy development process.

APPENDIX B

FY18-19 Policy Recommendations



Living Cover for Drinking Water Protection

Policy Statement

The Clean Water Council recommends that the State require the establishment of living cover or equivalent practices in vulnerable areas as identified in wellhead and surface water intake protection plans to protect public and private drinking water sources.

Background

Land use is one of the greatest influences on the quality of Minnesota's ground and surface waters, affecting the purity of our state's sources of drinking water. The State of Minnesota should promote land use practices like living cover that minimize or eliminate potential contamination of water in targeted high risk areas such as wellhead protection areas. The State should consider multiple approaches to encourage living cover with an emphasis on economically sustainable approaches.

The Clean Water Council supports living cover as one approach to implement the State's water quality strategies. Recent reports including MPCA's *Nutrient Reduction Strategy* have indicated the dramatic influences land use can have on water quality. Twenty-six million acres out of a total 55 million acres in Minnesota are in agricultural lands and important to our economy. Roughly 1.2 million acres are in areas where groundwater is used as public drinking water sources (called "wellhead protection areas"). Because of the nature of native soils and geology, roughly 360,000 of those 1.2 million acres are vulnerable to contamination from activities on the land surface. In these areas, land use has a significant impact (positive or negative) on groundwater quality. When soils are bare (for up to 9 ½ months of the year for some crops), nutrients and other chemicals in the soil can leach away or run off to contaminate ground and surface water, and can lead to contamination of drinking water sources. When there is living cover on the land, soil erosion is reduced or eliminated and plants take up nutrients that might otherwise contaminate ground or surface water.

Definitions

LIVING COVER includes:

Perennial crops: Perennial grasses, hay and pasture anchor the soil, build organic matter, and increase the soil's ability to hold water and nutrients.

Cover crops: Grasses, small grains, legumes and winter annuals provide cover before the primary crop establishes and after it is harvested, reducing runoff, erosion and nitrate leaching.

Prairie and grasses: Grasses and prairie plants have extensive root systems that hold soil in place. Grass or prairie buffers can be added in fields, on field edges or as grassed waterways.

Wetlands: Natural and constructed wetlands prevent erosion and filter water, absorbing excess nutrients before they enter lakes and streams.

No till/minimum till: After harvest, plant residue can be left in place to protect soils from erosion before crops establish the next spring.

"VULNERABLE" describes how easily both water and pollution can move from the land surface into groundwater, rivers or lakes used for drinking water supplies. All surface water sources are vulnerable. Groundwater sources could be vulnerable if the local geology lacks protective layers between the ground surface and the drinking water aquifer. Scientists at Minnesota Department of Health designate areas that need special protection because human activities inside these boundaries could easily harm the water quality in these sources of drinking water.



Red clover cover crop interseeded between corn rows

APPENDIX B

FY18-19 Policy Recommendations



Living Cover for Drinking Water Protection *(Continued)*

Barriers

Economics drives many land use decisions. Currently there are a number of barriers to the establishment of perennial crops and cover crops including markets for products; equipment for establishment, management, and harvesting; infrastructure (e.g., for cellulosic ethanol production); and consumer awareness and demand for foods like flours from perennial grains and grass-fed beef. Costs for crop production include equipment, seeds, fertilizer, fuel, shipping, storage, land (owning or renting), salaries, etc. Revenue comes from the sale of

crops. Other factors also affect economic returns on land use, including property taxes. There are limits to funding available for economic incentives like easements and land purchase.

State government can have relatively little influence on costs or revenues, other than by providing cost-share to promote or support activities, and altering the impact (costs) of taxes. An additional factor in land management is that roughly 50 percent of cropland in Minnesota is rented. Incentives are needed that can positively influence a landowner (whether directly operating the land or renting it out) to establish land use practices that are protective of groundwater in vulnerable areas.



Intermediate wheatgrass (Kernza™) – new perennial grain developed by UMN's Forever Green Initiative for use in high quality bread products. This new economic opportunity for Minnesota farmers would provide continuous living cover on fields which would benefit water quality.

APPENDIX B

FY18-19 Policy Recommendations



Advancing Drinking Water Protection

Policy Statement

The Clean Water Council recommends that the State:

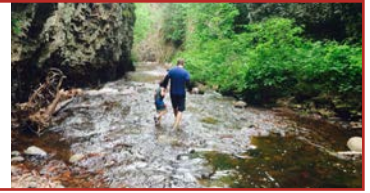
1. Fund drinking water protection efforts to engage local and national experts and academic institutions to identify regulatory, technological, and behavioral barriers and to enable the development of public health policies and an implementable action plan to address emerging threats and ensure long-term, safe drinking water in Minnesota. Examples for consideration may include:
 - The notification of the existence of lead in a drinking water distribution system from the main water line to the tap and education on possible actions at property transfer.
 - The notification of the existence of lead in a drinking water distribution system from the main water line to the tap and education on possible actions before rental properties can rent to new tenants or enter into new lease agreements.
2. Direct the Minnesota Department of Health to determine the scope of the lead problem in drinking water and cost to remove all lead from drinking water distribution systems.
3. Promote economic incentives for land use practices that protect high risk source water areas and maximize multiple benefits.
4. 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.
5. Require that surface water-based community public water systems prepare source water intake protection plans with defined implementation activities for review and approval by the Minnesota Department of Health.



Photo Credit: Minnesota Department of Health and Western Lake Superior Sanitation District

APPENDIX B

FY18-19 Policy Recommendations



Advancing Drinking Water Protection *(Continued)*

Background

In the spirit of the Clean Water, Land and Legacy Amendment's call to protect our sources of drinking water, the State of Minnesota should take concrete steps to assess and address potential threats to safe drinking water. This assessment of drinking water needs and challenges should identify regulatory, technological, and behavioral barriers, and translate emerging science into protective public health policy and action. This approach should be flexible - to address threats at any point from source water to taps in home - and focused to lead to specific and timely interventions by the state, water utilities, and other partners.



Approximately 20 percent of Minnesotans have a private well as their water supply. Nitrate contamination is increasing in some areas of the state and approximately 10% of new wells exceed the safe drinking water standard for arsenic. Private wells are not regulated beyond the construction standards and an initial test of water quality for bacteria, nitrate and arsenic. Any follow up or periodic testing, or treatment for contaminants, is up to the well owner.

Lead is a component of many drinking water service lines and plumbing systems, particularly in older buildings. It is critical to protect Minnesota's drinking water at the tap but also to increase consumers' understanding of lead toxicity and eliminate sources because there is no safe level of lead exposure. A comprehensive approach is needed to reduce children's exposure to lead in dust, paint, and drinking water.

There is no safe level of lead exposure.

Drinking water sources are at risk of contamination in many parts of Minnesota. Protecting drinking water at the source in rivers, lakes, and groundwater is the most cost-effective and equitable strategy because it prevents both known and unknown contaminants from entering the water supply, protects both public and private wells, and does not rely on costly treatment or individual action. Incidents in Fairmont and New Brighton, Minnesota; Elk River, West Virginia; Flint, Michigan; Toledo, Ohio; and Des Moines, Iowa point to threats that have relevance for Minnesota, including lead, harmful algal blooms, unregulated contaminants, and rising nitrate levels in source waters.

- Approximately 2.7 percent of the 360,000 acres of high-risk wellhead protection areas are in permanent conservation easements. Of the total acres of high-risk wellhead areas, however, about 115,000 acres are in row crop production. These would be a priority for promoting living cover in wellhead protection areas.
- Only 3 out of the 24 public drinking water suppliers that use surface water have source water protection plans because these are voluntary.
- Only about a hundred of the more than 80,000 commercial chemicals used in the United States are regulated in public water supplies as contaminants under the Safe Drinking Water Act. There are no regulations on private water supplies.

APPENDIX C
2016 Clean Water
Fund Report
Card



2016 Clean Water Fund Report Card

The Council's Report is required to include information on the progress made in implementing the CWLA and the clean water provisions of the Minnesota Constitution.

This appendix is a summary of the *2016 Clean Water Fund Performance Report* (<http://www.legacy.leg.mn/funds/clean-water-fund/clean-water-fund-performance-reports>) which is an effort led by state agencies to report on the progress of Clean Water Fund expenditures.

APPENDIX C

2016 Clean Water Fund Report Card



Minnesotans care deeply about the state’s natural resources and cultural heritage. In 2008, we voted to increase our sales tax and pass the Clean Water, Land and Legacy Amendment, providing 25 years of constitutionally-dedicated funding for clean water, habitat, parks and trails, and the arts.

The following report card highlights work done using Legacy amendment dollars for Minnesota’s many water resources. The Report Card tracks a suite of performance measures that are described in the full report. It provides a qualitative assessment of how well actions are being implemented and what outcomes are being achieved.

The legend shows the symbols used to describe how measures were scored. Measures are scored according to their status as of the end of fiscal year 2015 (FY15) and for their trend over time. Scores were developed using data-informed professional judgment of agency technical staff and managers.

Report Card Legend





















Action Status Scores	
	We are making good progress/meeting the target
	We anticipate difficulty; it is too early to assess; or there is too much variability across regions to assess
	Progress is slow/we are not meeting the target; or the activity or target is not commensurate with the scope of the problems






























Outcome Status Scores	
	Water quality is high – we are on track to meet long-term water resource needs and citizen expectations
	Water quality needs improvement or it is too early to assess – it is unclear if we will meet long-term water resource needs and citizen expectations; and/or water quality varies greatly between regions
	Water quality is under intense pressure – long-term water resource needs and/or citizen expectations exceed current efforts to meet them

Trend	
	Improving trend
	No change
	Declining trend



Water monitoring in the Flute Reed River near Hovland, MN

Measure	Status	Trend	Description	
Investment measures				
INVESTMENTS	Total Clean Water Fund dollars appropriated by activity	FY10-11: \$152.2M FY12-13: \$179.4M	FY14-15: \$182.5M FY16-17: \$228.3M	Appropriation levels will vary by biennium and the strength of the economy. FY10-15 funds have been allocated, while FY16-17 allocations are in progress.
	Total Clean Water Fund dollars per watershed or statewide for 1) monitoring/assessment, 2) watershed restoration/protection strategies, 3) protection/restoration implementation activities, and 4) drinking water protection	Most watersheds in the state are benefiting from local and statewide projects.		For FY10-15, all 80 watersheds benefited from Clean Water Fund supported activities. Implementation activities comprise the largest portion of spending in watersheds statewide.
	Total Clean Water Fund dollars awarded in grants and contracts to non-state agency partners	\$240.1M was awarded in grants and contracts to non-state agency partners in FY10-15.		About 80% of grant and contract awards are for implementation activities; 47% of total FY10-15 appropriations were awarded to non-state agency partners.
	Total dollars leveraged by Clean Water Fund	\$154M was leveraged by Clean Water Funds in FY10-15, or 96 cents for every implementation dollar invested.		Required Clean Water match funds were met and exceeded.
Surface water measures				
ACTION	Percent of major watersheds intensively monitored through the watershed approach			Steady progress is being made at the pace set in 2008.
	Local partner participation in monitoring efforts			Since 2012, all programs have met local participation goals.
	Number of nonpoint source best management practices implemented with Clean Water funding and estimated pollutant load reductions			Although funding has increased and there is a continued increase in practices and projects being implemented, the total request for projects has remained three times greater than available funds.
	Number of municipal point source construction projects implemented with Clean Water Funding and estimated pollutant load reductions			Pace of awards is linked to permit cycles and compliance schedules; demand is growing with the improving economy and expanded eligibilities.
OUTCOME	Rate of impairment/unimpairment of surface water statewide and by watershed	 Stream/lake swimming	Not enough information for a trend determination at this time.	Water quality varies greatly by region. Watersheds yet to be assessed will influence the statewide impairment/unimpairment rate. It is unclear whether long-term goals will be met.
		 Stream aquatic life		
	Changes over time in key water quality parameters for lakes and streams	 Lake clarity	Not enough information for a trend determination at this time.	Lake clarity: There are improving trends in lake water clarity in more lakes than not.
		 Stream fish		Stream fish: Fish community health varies greatly by region, but statewide percents of poor vs. good fish community health are similar.
		 Pesticides in streams		Pesticides in streams: Detections in streams vary greatly as a result of hydrologic and agronomic conditions; concentrations above water quality standards are rare.
		 Pesticides in lakes		Pesticides in lakes: Detections in lakes vary by region; detections in lakes have been well below water quality standards.
	Number of previous impairments now meeting water quality standards due to corrective actions			Although many projects are making progress in improving water quality, more waterbodies are being listed as impaired relative to the slower rate of waterbodies being restored.
Trends of mercury in fish in Minnesota			Mercury in game fish over the last 30 years shows an improving trend despite large fluctuations during shorter periods, demonstrating the need for long-term and consistent monitoring.	
Trends of mercury emissions in Minnesota			Significant progress has been made reducing mercury emissions from power plants and is expected from the mining sector. To meet Minnesota's 2025 emissions goal, further reduction of mercury use in various products will be necessary.	

Measure	Status	Trend	Description	
Surface water measures				
Municipal wastewater phosphorus discharge trend			Significant phosphorus load reductions have been achieved through regulatory policy, infrastructure investments, and improved technology. Further reductions will continue to be challenging and expensive as small systems receive limits and tighter discharge permits.	
Drinking and groundwater measures				
ACTION	Number of community water supplies assisted with developing source water protection plans			Met target for FY14-15. On track to meet long-term target of every vulnerable community public water system engaged in source water protection by 2020.
	Number of grants awarded for source water protection			Increased funds accelerate implementation of proven strategies for source water protection.
	Number of local government partners participating in groundwater nitrate-nitrogen monitoring and reduction activities			New local partnerships continue to be established for nitrate-nitrogen monitoring and reduction activities.
	Number of new health-based guidance values for contaminants of emerging concern			Met target for FY14-15. On track to meet goal of 10 guidance values developed each biennium.
	Number of counties completing a county geologic atlas for groundwater sustainability			Significant progress has been made. Counties continue to step up to participate but substantial work remains before all counties are done.
	Number of long-term groundwater monitoring network wells in Minnesota			Many areas of the state still lack important groundwater information. Long-term monitoring accelerated by Clean Water Fund investments is filling gaps.
	Number of unused groundwater wells sealed			While Minnesota leads the nation in the number of sealed wells, continued effort is needed to address the estimated 250,000 to 500,000 unused, unsealed wells remaining.
OUTCOME	Changes over time in pesticides, nitrate-nitrogen and other key water quality parameters in groundwater	Pesticides 		Variable trends for five common pesticides indicate a mixed signal. Low levels are still frequently detected in vulnerable groundwater.
		Nitrate-Nitrogen statewide 	Not enough information for a trend determination at this time.	In many areas, drinking water aquifers are not vulnerable to surficial contamination. Wells may have low levels of nitrate-nitrogen. In some areas it can be a significant concern.
		Nitrate-Nitrogen Central Sands 		A significant percentage of wells from the township testing program exceed the drinking water standard for nitrate in localized sensitive areas in the Central Sands.
		Nitrate-Nitrogen southeast region 		In one county with considerable karst geology, two of 11 townships in the township testing program had more than 10% of wells exceed the drinking water standard for nitrate.
Changes over time in source water quality used for community water supplies		Not enough information for a trend determination at this time.		Identifying correlations between drinking water contaminants is a significant step in trend analysis of source water quality.
Nitrate concentrations in newly constructed wells			Although nitrate levels in less than 2% of new wells violate the drinking water standard, there has been a slight increase in recent years.	
Changes over time in groundwater levels			Most observation wells show no significant trend, but many areas of the state lack important groundwater information while some areas experienced groundwater declines.	
Social measures and external drivers				
DRIVERS	Social measures		Not enough information for a trend determination at this time.	In recent years, state agencies have developed and piloted the Social Measures Monitoring System. This work integrates social science into Clean Water Fund projects.
	External drivers			The external drivers identified continue to alter land-water interactions across Minnesota impacting how Clean Water funds need to be invested.

APPENDIX C

2016 Clean Water Fund Report Card



In the first six years of Clean Water funding, state agencies have distributed the funds across Minnesota with major investments in all 80 watersheds. Restoration and protection spending was focused in watersheds with more significant water quality challenges.

Agencies are making solid progress in both surface water and groundwater quality. Examples include improving sewer systems and implementing activities to reduce nitrate in drinking water.

The Legacy Amendment has accelerated the implementation of practices to improve and protect Minnesota's water resources, although funding is not keeping pace with demand. In total, more than 4,600 best management and conservation practices have been installed resulting in annual reductions of about 79,000 pounds of phosphorus and 120,000 tons of sediment going to waters across the state.



Clean Water funding has ramped up efforts to collect key information statewide needed to develop restoration and protection strategies, and to target implementation dollars:

- The DNR has completed 22 County Geologic Atlases with new or updated atlases in progress for 27 additional counties. At the current level of funding, atlases should be completed statewide in 10 to 15 years.
- The MPCA is on track to complete intensive water monitoring of all 80 major watersheds by 2018. Since the 2014 Clean Water Fund Performance Report, the agency has started monitoring in 19 more watersheds.
- The MDA began the Township Testing Program for well water in 2013 and is on track to complete the first round of nitrate testing in private wells by 2019. By 2019, MDA will offer free nitrate testing in 250-300 townships with vulnerable groundwater.

Changes in human behavior, such as decisions on land use and product selection, are needed to change water quality for the better, as demonstrated by these measures:

- Water monitoring is showing correlations between impaired waters and agricultural land use.
- To reach the state goal for decreasing mercury reductions in fish, Minnesota will need to see further reductions of mercury in products such as fluorescent lamps and dental amalgam.
- Chloride is increasing in urban areas across the state, emphasizing the need to reduce salt in winter road and water softener treatments.

Because water quality is so dependent on human behavior, the Clean Water Fund Performance Report includes more information on social measures this year, providing a baseline for tracking social science data in meeting Minnesota's clean water goals.

APPENDIX D

Clean Water Progress



Clean Water Progress

The Council's Report is required to include information on the progress made in implementing the CWLA and the clean water provisions of the Minnesota Constitution.

The Council requested that each agency that administers CWF dollars provide a summary of their main outcomes and success stories which is included in this appendix.

More information on programs that receive CWF dollars can be found on the Council's website (<https://www.pca.state.mn.us/sites/default/files/wq-cwc1-18.pdf>) and at Minnesota's Legacy website (www.legacy.leg.mn).

APPENDIX D

Clean Water Progress



MINNESOTA BOARD OF WATER AND SOIL RESOURCES (BWSR)

BWSR's unique mission and structure provides for effective and efficient use of Clean Water Fund (CWF) dollars with proven results. Working through Minnesota's local governments enables BWSR to be strategic in granting funds to meet local identified water quality goals within the larger scope of Minnesota's clean water efforts. BWSR's reporting and tracking requirements ensure measurable and specific results. For Minnesota, that means cleaner water that's fishable, swimmable, and drinkable.

Clean Water Fund Investments: Outcomes to date

To date, through 753 CWF awards, more than 4,574 conservation practices have been installed to reduce critical erosion, stormwater runoff, and to keep water on the land. These awards include public and private projects and involve Minnesotans who voluntarily engage in these activities.

These conservation practices are estimated to reduce 100,500 tons of sediment per year and prevent 79,300 pounds of phosphorus per year from entering Minnesota waters.

Minnesota's investment of nearly \$114M leveraged \$62M in partner contributions.

In FY16 BWSR funded 64 competitive grant applications totaling almost \$12M. These projects are estimated to reduce over 19,200 tons of sediment per year and prevent over 16,400 pounds of phosphorus per year from entering Minnesota waters.

Success Story - The Grand Marais Creek Cut Channel Stabilization

A \$662,000 CWF grant through BWSR provided the Red Lake Watershed District the impetus needed for others to commit funding and get the Grand Marais Creek restoration project underway.

The Grand Marais Creek outlet had steadily eroded since the early 1900s, when a drainage system was created to divert the Grand Marais Channel to an outlet ditch. The CWF project stabilized the existing outlet channel so that it could continue to hold emergency overflow from high water events. This grant also leveraged funding from the Lessard-Sams Outdoor Heritage Council to restore the 6-mile natural channel. In addition to the outlet stabilization and channel restoration, nearly 400 acres of wetland and native prairie habitat were restored.

Overall, this project reduces sediment loading to the Red River by an average annual 700 tons/year. By reducing this loading to the Red River, the project is doing its part to remove the Red River from the list of impaired waters. Beyond water quality, the project restores the original hydrology, improves aquatic and riparian habitat, provides for fish passage and the use of spawning habitat, reduces flooding upstream, and provides improved and stable drainage.



Upper Reach of Grand Marais Creek - Pre Project (2013)



Upper Reach of Grand Marais Creek - Post Project (2015)

APPENDIX D

Clean Water Progress



MINNESOTA DEPARTMENT OF NATURAL RESOURCES (DNR)

From Data to Implementation - DNR's Clean Water Fund Outcomes

Between FY10 and FY17, the DNR used clean water funding to [measure stream flow](#) (over 6,900 measurements), sample over 1,000 lakes for biological integrity, and test more than 650 lake and stream sites for mercury in fish. We've brought expertise in watershed science to WRAPS development and helped with local implementation projects, with an emphasis on hydrology, stream stability and restoration, and lake and stream protection, especially in Minnesota's forested landscape. Our [Watershed Health Assessment Framework](#) makes it easy for anyone to explore watershed data and health scores at multiple scales. Our foundational data, such as [LiDAR-derived digital elevation models](#) and watershed models, help predict the best locations for and potential benefits of conservation practices. We have also dramatically expanded the state's [aquifer level monitoring network](#) (adding over 500 observation wells) and established three new [groundwater management areas](#) to address water sustainability concerns. Finally, we have enhanced the development of 10 [County Geologic Atlases](#).

Success Story - From "At-risk" to "Protected" Watersheds

The Minnesota Forest Resources Council, BWSR, local Soil and Water Conservation Districts, and the DNR are collaborating with private land owners to manage private lands within tullibee (a sensitive fish species) watersheds to make them more resilient to climate change and development pressures. The Tullibee Lake Watershed Forest Stewardship Project began in 2013 with funding from both the CWF and the Outdoor Heritage Fund. The project helps pay for private land management within the watersheds of 64 tullibee refuge lakes. DNR Forestry oversees the project in partnership with BWSR, which enlists local soil and water conservation districts to contact landowners, answer questions, and sign up interested parties.

Recent project efforts involving about 900 acres of forestland, near Hackensack in the Leech Lake watershed, have moved Ten Mile Lake and its watershed from an "At-risk Status" to a "Protected Status." In the past 5 years, partners were able to increase protected forestland from 73% to 79% of the watershed; moving it above the critical 75% protected threshold. This is just one example of using strong science to target specific areas of land for conservation management that is making a long-term difference for Minnesota's water quality and forest economy.



Forested shoreline of Ten Mile Lake

APPENDIX D

Clean Water Progress



MINNESOTA DEPARTMENT OF AGRICULTURE (MDA)

Outcomes to Date

The MDA works with the agricultural community, researchers and local government to promote agricultural practices that will help achieve clean water goals. The MDA conducts research and demonstration projects to ensure accurate scientific information is available and used to address water quality concerns in agricultural areas. Clean Water Funds are used to evaluate the effectiveness of conservation practices and promote agricultural best management practices (BMPs).

The MDA is implementing the Nitrogen Fertilizer Plan for preventing and responding to nitrate contamination of groundwater. Clean Water funding supports private well testing, BMP demonstrations, local advisory teams, and technical support. Clean Water Funds also support the Forever Green program at the University of Minnesota which conducts research to develop environmentally friendly cropping systems suitable for the cold climate and short growing seasons in Minnesota.



Success Story

The Minnesota Agricultural Water Quality Certification Program (MAWQCP), a unique partnership of federal-state government and private industry, has completed one year of statewide operations. The voluntary program is a national demonstration project that identifies and mitigates agricultural risks to water quality, improving and protecting Minnesota waters. To date, over 250 farms covering more than 140,000 acres have been certified. The 475 new practices adopted by certified growers are saving 12.5 million pounds of soil per year and reducing nitrogen and phosphorus losses.

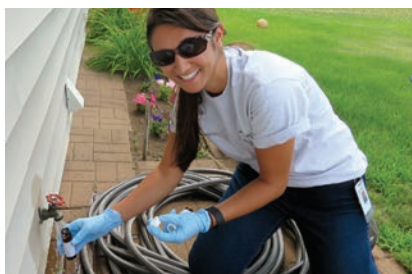


Technical Assistance

- Supported 35 edge-of-field monitoring stations
- Implemented 150+ nutrient management initiative field trials

Data & Outreach

- Engaged 3,000+ participants, primarily farmers and agronomists, through 150 outreach events
- Provided data to support WRAPS and other technical documents



Township Nitrate Testing

Under the Nitrogen Fertilizer Management Plan, the MDA plans to offer free nitrate testing to 70,000 private well owners, within 250-300 townships, over the next six years.

Township Testing Results

- 13,720 private wells tested in 104 townships in ten counties (2013-2015)
- 9.6% found to be over the drinking water standard for nitrate



Ag BMP Loans FY10-17

- 674 projects completed with \$12,947,672 in Ag BMP loans
- Total project costs: \$20,912,063 (state investment leveraged \$7,964,391)

FY16-17 Biennium to date

- 109 projects issued \$1,937,899 in Ag BMP loans
- 150 additional projects totaling ~\$3 million expected by the end of biennium

APPENDIX D

Clean Water Progress



MINNESOTA DEPARTMENT OF HEALTH (MDH)

Outcomes to Date

As Minnesota's lead public health agency, MDH protects, maintains, and improves health of all Minnesotans and visitors. Clean Water Fund initiatives at MDH have:

- provided health-based guidance for 32 drinking water contaminants that raise new concerns for human health,
- improved well information sharing and access by enhancing the Minnesota Well Index, including updating over 200,000 well records,
- protected swimmers and drinking water consumers from the health risks associated with bacteria and/or viruses at beaches and in groundwater, and advanced safe and sustainable water reuse,
- sampled 259 private drinking water wells and analyzed over 30,000 well records to better understand the distribution of arsenic in groundwater, and
- protected drinking water sources by providing technical and financial assistance for source water protection planning and implementation, and sealing over 500 unused wells.



Properly located and constructed wells prevent contaminants from moving down into the drinking water source



Success Story

CWF initiatives have supported communities like Owatonna, where the wellhead planning process helped Owatonna Public Utilities (OPU) identify a well vulnerable to flooding. OPU was able to raise the well before the damaging 2010 flood and then used cost-sharing grant dollars to seal other unused wells. For families, like the Millers in Wright County, efforts to test new private drinking water wells made them more aware of potential problems and empowered them to make choices that can improve the quality and safety of their drinking water. MDH's Clean Water Fund initiatives provide important new information about the quality of drinking water throughout Minnesota. We have gained a clearer understanding of the distribution and sources of viruses in our groundwater and examined the health impacts of state-wide emerging contaminants.

APPENDIX D

Clean Water Progress



MINNESOTA POLLUTION CONTROL AGENCY (MPCA)

Outcomes to Date

The MPCA, with local government partners, has:

- monitored and assessed the water quality and health of fish and aquatic insects in our rivers and lakes for 70% of the state's 80 watersheds
- monitored the quality of our state's groundwater using a network of over 250 wells
- identified sources of problems in our waters and developed solutions for restoring and protecting them - completed Stressor Identification reports for 32 watersheds, computer models for 70 watersheds, and Watershed Restoration and Protection Strategies (WRAPS) reports for 9 watersheds, with dozens more in progress
- regulated stormwater and wastewater - funded county programs to fix septic systems, executed a dozen pollutant trading agreements, made the state's Stormwater Manual web-based, and performed stormwater research projects with local governments and the University of Minnesota

- cleaned up sites contaminated by past industrial pollution in the St. Louis River Area of Concern (Duluth area) – state funding has brought in over \$27,000,000 in federal support since 2009

Success Story - The Root River Watershed

The MPCA's monitoring and assessment work has greatly expanded our knowledge of the condition of our water resources statewide. Using the Root River Watershed as an example, prior to the Clean Water Fund our water monitoring programs were sparse, and so was our data (Figure 1, top map). With the advent of the Clean Water Fund, our data and knowledge have dramatically increased (Figure 1, bottom map).

Our improved environmental data enabled us to develop more targeted strategies for restoring and protecting our waters. These Root River WRAPS maps show areas of focus for local watershed planning and implementation efforts (Figure 2, top map restoration, bottom map protection).

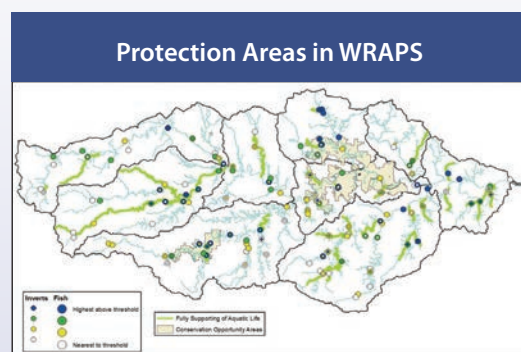
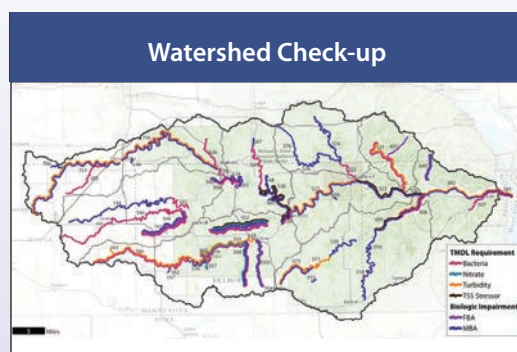
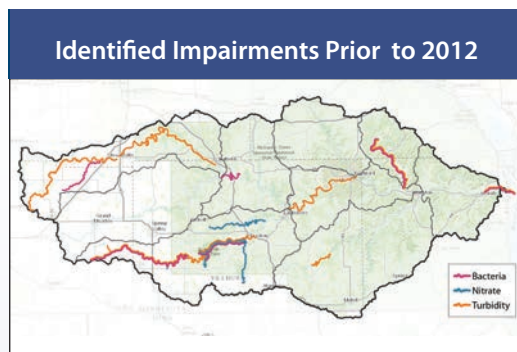


Figure 1. Top map shows identified impairments in the Root River Watershed Prior to 2012. Bottom map shows new impaired stream reaches after more thorough monitoring by MPCA in 2016.

Figure 2. Top map shows critical areas for restoring impaired streams in the Root River Watershed. Bottom map shows areas for future protection efforts.

APPENDIX D

Clean Water Progress



PUBLIC FACILITIES AUTHORITY (PFA)

Outcomes to Date

Point Source Implementation Grant (PSIG) Program

The PSIG program provides grants to help cities upgrade water infrastructure treatment facilities to comply with TMDL waste-load requirements and more stringent water quality-based effluent limits for phosphorus, chloride, and other pollutants. From 2010-2016 the PFA awarded 68 PSIG grants totaling \$52 million, including 41 wastewater and stormwater projects to reduce phosphorus discharges by over 140,000 lbs/yr and 22 projects in previously unsewered areas to build new community collection and treatment systems or connect to existing municipal systems.

Small Community Wastewater Treatment Program (SCWTP)

The SCWTP provides grants and loans to help assist small unsewered communities with technical assistance and construction funding to replace non-complying septic systems with community subsurface sewage treatment systems. From 2010-2016 the PFA awarded 24 technical assistance grants totaling \$712,000 to help communities conduct site evaluations and feasibility studies, and 10 construction loans and grants totaling \$5.4 million resulting in the removal of 231 non-complying individual systems.

Success Stories

Monticello, Big Lake and Elk River are cities on the Mississippi River and previously none of these cities had a limit on the amount of phosphorus they could discharge from their wastewater facilities. As a result of a TMDL waste load allocation, these cities received more restrictive discharge limits to provide significant and consistent reductions in their phosphorus discharges. To help make the treatment facility improvements necessary to meet the new limits, each city received a grant from the PSIG program. In total these three cities received \$4.4 million in PSIG grant funds for treatment improvements that will annually remove almost 14,000 pounds of phosphorus from the river system.

The community of Almelund, population 90, in Chisago County had been identified as having serious septic failures and was considering a multimillion-dollar collection and treatment system. In 2011, the SCWTP provided a Technical Assistance grant to conduct a stakeholder process and complete a Community Assessment Report that evaluated the true problem and the full range of alternatives including private or public fixes. Ultimately, the community leaders decided to right-size the project by approving a public subsurface treatment system for just 10 of the 50 structures with the greatest needs, drawing to a close over 20 years of planning. The county ordinance will address the remaining failed private systems to schedule replacement.



Elk River Wastewater Treatment Facility under construction to meet phosphorus limit (January 2015)

APPENDIX D

Clean Water Progress



METROPOLITAN COUNCIL (MET COUNCIL)

Outcomes to Date

Metropolitan Council engages in several water supply planning activities throughout the seven-county Twin Cities metropolitan area, guided by the Master Water Supply Plan. Work includes studies, tools, projects, and research to support local and subregional efforts that move the region toward sustainable water supply management. Met Council's work has identified millions of gallons of water and hundreds of thousands of dollars of savings each year for metro businesses and cities. It also provided valuable information to help address groundwater quantity and quality issues; water use trends; improved geologic mapping; and increased support for monitoring vulnerable resources such as calcareous fens. The work also supported delineation of wellhead protection areas and the update of local water supply plans; and provided guidance and tools for water conservation and reuse.



Metropolitan Council water supply planning and utility staff collaborate in the development and implementation of the Twin Cities metropolitan area Master Water Supply Plan.



Metropolitan Council supports water efficiency projects through MnTAP to provide a venue to partnership between MnTAP and Minnesota industries, such as this internship project by Ryan Venteicher at Gedney Foods Company.

Success Story

Increased water efficiency at businesses throughout the Twin Cities metropolitan area realizes multiple benefits. In 2011, Met Council established a program in partnership with the UMN's Minnesota Technical Assistance Program (MnTAP) to evaluate barriers to and identify opportunities for water conservation by industrial groundwater users. In 2013, ten companies participated in one-day assessments or hosted summer interns from MnTAP. This work identified approximate savings of 80 million gallons of water and \$360,000 each year.

APPENDIX D

Clean Water Progress



UNIVERSITY OF MINNESOTA (UMN)

Outcomes to Date

UMN contributes to the Clean Water Council's mission by providing science-based information and by developing new innovations that improve water quality. Most of the work at UMN supported by the Clean Water Fund has been part of programs managed by state agencies, which has deepened the connections between the University and state government. One of the first major activities at UMN supported by the Clean Water Fund was the [Water Sustainability Framework](#), a multi-stakeholder science-driven report to inform the state's future investments in support of clean water. Other major activities have included the [County Geologic Atlas Program](#), the [Forever Green Initiative](#), and a recently formed [program](#) on urban stormwater research. UMN faculty have leveraged support from the CWF to obtain additional funding, expanding the impact of the initial investments. The Forever Green Initiative, for example, has so far secured about three dollars of additional funding for every dollar invested from the CWF.



Harvesting camelina as a relay crop in soybean.



Pennycress establishment in the corn and soybean rotation.

Success Story

The UMN Forever Green Initiative develops new crops that have commercial value and improve water quality by keeping plant cover on the landscape for an extended period of the year. Two such crops are camelina and pennycress, both of which are winter annual cash-producing cover crops for use in the corn and soybean rotation. General Mills is interested in commercializing food products formulated with ingredients derived from camelina and PepsiCo has shown interest in pennycress oil for potential use in products such as eco-friendly bio-based materials. CWF dollars provided through MDA have supported research demonstrating that pennycress and camelina, when grown as relay or double crops in the corn and soybean rotation, reduced nitrogen leaching by 96% compared to unprotected soil. Ongoing breeding programs are developing new varieties of both species for Minnesota farmers to enhance their economic opportunity while also improving water quality.

APPENDIX E
Clean Water
Council Resolution
(2016)



Clean Water Council Resolution

The purpose of Clean Water Council resolutions is to convey the Council's conclusions on topics important to the success of achieving clean water.

APPENDIX E

Clean Water Council Resolution (2016)



Resolution to Support the State’s Approach to Cumulative Impacts of Groundwater Withdrawals on Surface Waters

Whereas, Minnesota’s groundwater resources are limited;

Whereas, the Minnesota Department of Natural Resources submitted a report to the Legislature on the definitions and thresholds for negative impacts to surface waters in January 2016;

Whereas, in some areas of Minnesota, groundwater withdrawals are using more groundwater than can naturally be recharged from precipitation events;

Whereas, Minn. Stat. § 103G.287, subd. 5 states that “the commissioner [of natural resources] may issue water use permits for appropriation from groundwater only if the commissioner determines that the groundwater use is sustainable to supply the needs of future generations and the proposed use will not harm ecosystems, degrade water, or reduce water levels beyond the reach of public water supply and private domestic wells constructed according to Minn. R. ch. 4725”;

Whereas, Minn. Stat. § 103G.265, subd. 1 states that “the commissioner [of natural resources] shall develop and manage water resources to assure an adequate supply to meet long-range seasonal requirements for domestic, municipal, industrial, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes from waters of the state”;

THEREFORE, BE IT RESOLVED that the Clean Water Council hereby supports the Minnesota Department of Natural Resources’ work to define the negative impacts of groundwater use on lakes, streams, and wetlands through the following actions:

1. For streams, establish protected flows as defined in Minn. R. 6115.0630, subp. 12;
2. For lakes with frequent surface outflow, use the stream’s protected flow to set the sustainable diversion limit;
3. For lakes with infrequent surface outflow, establish protection elevations as defined in Minn. R. 6115.0630, subp. 13; and
4. For wetlands, develop and establish target hydrographs that maintain wetland types and their characteristic plant and animal communities.

BE IT FURTHER RESOLVED the Minnesota Department of Natural Resources should prioritize their work on cumulative impacts of groundwater withdrawals on surface waters in geographic areas where demand for water may be exceeding sustainable supplies.

ACRONYMS AND ABBREVIATIONS

BMP – Best Management Practice
BWSR – Board of Water and Soil Resources
Ch. – Chapter
Council – Clean Water Council
CREP – Conservation Reserve Enhancement Program
CWF – Clean Water Fund
CWLA – Clean Water Legacy Act
DNR – Minnesota Department of Natural Resources
FY – Fiscal Year
LCC – Legislative Coordinating Commission
LiDAR – Light Detection And Ranging
M – Million
MAWQCP – Minnesota Agricultural Water Quality Certification Program
MDA – Minnesota Department of Agriculture
MDH – Minnesota Department of Health
Met Council – Metropolitan Council
Minn. – Minnesota
MnTAP – Minnesota Technical Assistance Program
MPCA – Minnesota Pollution Control Agency
MS4 – Municipal Separate Storm Sewer Systems
OHF – Outdoor Heritage Fund
OPU – Owatonna Public Utilities
PFA – Public Facilities Authority
PSIG – Point Source Implementation Grants
R. – Rule
SCWTP – Small Community Wastewater Treatment Program
Stat. – Statute
Subd. – Subdivision
Subp. – Subpart
TMDL – Total Maximum Daily Load
UMN – University of Minnesota
WRAPS – Watershed Restoration and Protection Strategies

