Clean Water Council

FY16-17 Clean Water Fund Recommendations Report

Wirth Lake in Golden Valley, Minnesota has been cleaned up by the Bassett Creek Watershed Management Commission using Clean Water Funds and other funding sources.

December 1, 2014

Biennial Report to the Legislature

CLEAN WATER LAND & LEGACY AMENDMENT

Photo credit: Greg Wilson, Barr Engineering

2013-2014 Clean Water Council Officers:

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Chair, Clean Water Council

Keith Hanson
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Vice-Chair, Clean Water Council

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

This report fulfills Clean Water Legacy Act (Minnesota Statutes 114D. 30) requirements for the Clean Water 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 through June 30, 2014 in implementing the Clean Water Legacy Act 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 Clean Water Legacy Act requirement for the Clean Water 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 Section 114D.50 of the Clean Water Legacy Act.

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List of Acronyms

AgBMP - Agricultural Best Management Practice

AIS - Aquatic Invasive Species

BMP - Best Management Practice

BOC - Budget and Outcomes Committee of the Clean Water Council

BWSR - Board of Water and Soil Resources

CECs - Contaminants of Emerging Concern

CREP - Conservation Reserve Enhancement Program

CWF - Clean Water Fund

CWI - County Well Index

CWLA - Clean Water Legacy Act

DNR - Minnesota Department of Natural Resources

DoLI - Department of Labor and Industry

EPA - United States Environmental Protection Agency

FY - Fiscal Year

GIS - Geographic Information System

GPS - Global Positioning System

GRAPS - Groundwater Restoration and Protection Strategies

GWMA - Groundwater Management Area

HUC - Hydrologic Unit Code

IBI - Index of Biotic Integrity

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

MIDS - Minimal Impact Design Standards

MnTAP - Minnesota Technical Assistance Program

MPCA - Minnesota Pollution Control Agency

MRCA - Mississippi River Critical Area

NE - North and East

NPDES - National Pollutant Discharge Elimination System

PFA - Public Facilities Authority

PSIG - Point Source Implementation Grants

RAP - Remedial Action Plan

SONAR - Statement of Need and Reasonableness

SSTS - Subsurface Sewage Treatment Systems

TMDL - Total Maximum Daily Load

UMN - University of Minnesota

USACE - United States Army Corps of Engineers

USDA - United States Department of Agriculture

USGS - United States Geological Survey

WLAs - Waste Load Allocations

WRAPS - Watershed Restoration and Protection Strategies

WWTF - Wastewater Treatment Facility

WWTP - Wastewater Treatment Plant

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 FY16-17 Clean Water Funds should be appropriated, progress on Clean Water Fund (CWF) activities, and future funding needs.

The Council's FY16-17 CWF recommendations, totaling $221.6 million, reflect a heightened priority for on-the-ground programs where the funding will likely achieve maximum outcomes in clean water.

Highlights of the Council's FY16-17 Clean Water Fund Recommendations (pages 9-12)

Nonpoint and Point Source Implementation Programs

- **$135.0 million** (61%)
- Funds are used to implement point and nonpoint pollution reduction activities.

Monitoring and Assessment Programs

- **$24.1 million** (11%)
- Funds are used to monitor surface water quality in the state's watersheds on a 10-year schedule. Assessments determine if waters are impaired.

Watershed Restoration and Protection Strategies (WRAPS) Programs

- **$23.5 million** (11%)
- Funds are used to develop pollution reductions and restoration and protection plans.

Drinking Water and Groundwater Protection Programs

- **$31.2 million** (14%)
- Funds are used to protect drinking water, monitor groundwater, and address failing septic systems.

Applied Research and Tool Development Programs

- **$7.8 million** (3.5%)
- Funds are used to provide technical expertise on Best Management Practices (BMPs), geology, groundwater and water reuse.

Highlights of the Council's FY16-17 Policy Recommendations (page 13)

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 2013 and 2014, two policy recommendations have the Council's support:

- Riparian Buffers
- Water Retention, Storage, and Infiltration

These policy recommendations, if adopted, should accelerate the adoption of water quality improvement practices.

Highlights of the Council's 2014 Resolutions (pages 14-16)

The purpose of Council resolutions is to convey to the Legislature and the public the Council's conclusions on topics important to the success of achieving clean water. In 2014, the Council approved resolutions to:

- Adopt Clean Water Fund Guidelines for Aquatic Invasive Species Activities
- Endorse a "One Watershed, One Plan" Framework for Water Resources Planning.

Future Funding Needs

A number of recently released reports make it clear that even though progress has been and will be made for clean water, Minnesota will still be facing major water quality and quantity issues by the end of the Legacy Funds (2034). The Council believes that more funding will be needed for implementation activities in the future. Additional local, state, and federal funding sources are also vital to achieve Minnesotans' vision for clean and sustainable water for drinking, fishing, swimming, and boating.

More Information

More information on programs that receive Clean Water Funds can be found in Appendix A (pages 17-32) and at the Minnesota's Legacy website at www.legacy.leg.mn/funds/clean-water-fund. Appendix B (pages 33-34) describes programs that have not previously received Clean Water Funds.

Background

The Clean Water Council

The Council was established in 2006 to advise the Legislature and Governor on the administration and implementation of the Clean Water Legacy Act (CWLA), Minnesota Statutes 114D. 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.

Purpose of Report

The CWLA requires the Council to submit a report to the Legislature and Governor that includes recommendations for FY16-17 Clean Water Fund appropriations, an update on current activities of programs receiving Clean Water Funds, progress made in implementing the CWLA and provisions of Article XI, Section 15 of the Minnesota Constitution, future funding needs to implement the CWLA, and the economic impact of efforts to restore impaired waters and protect and restore groundwater.

2014 Clean Water Council Members (note that the entity each member represents is in parentheses)

Back row (left to right): **Matt Wohlman** (Minnesota Department of Agriculture), **Bradley Kalk** (Tribal Governments), **Frank Jewell** (Rural County Governments), **Gary Burdorf** (Township Officers), **Warren Formo** (Statewide Farm Organizations), **Patrick Flowers** (Business Organizations), **John Underhill** (Statewide Fishing Organizations), **Todd Renville** (Statewide Hunting Organizations)

Middle row (left to right): **Jason Moeckel** (Minnesota Department of Natural Resources), **Louis Smith** (Nonprofit Organizations for Lakes and Streams), **Representative Paul Torkelson** (Minnesota House of Representatives), **Marilyn Bernhardson** (Soil and Water Conservation Districts), **Representative Barb Yarusso** (Minnesota House of Representatives), **Michael McKay** (Environmental Organizations), **Gene Merriam** (Environmental Organizations), **Doug Thomas** (Minnesota Board of Water and Soil Resources)

Front Row (left to right): **Gaylen Reetz** (Minnesota Pollution Control Agency), **Sandy Rummel** (Metropolitan Council), **Keith Hanson** (Business Organizations), **Senator Bev Scalze** (Minnesota Senate), **Victoria Reinhardt** (Metro Area Governments), **Patrick Shea** (City Governments), **Deb Swackhamer** (Higher Education), **Tannie Eshenaur** (Minnesota Department of Health), **Sharon Doucette** (City Governments)

Not pictured: **Pam Blixt** (Watershed Districts), **Robert Hoefert** (Statewide Farm Organizations), **Senator David J. Osmek** (Minnesota Senate)

A list of members serving on the Council's standing and ad hoc Committees can be found at http://www.pca.state.mn.us/yhizee3.

Background

Clean Water Fund Introduction and Progress

The Clean Water Fund was created following voter approval of an amendment to Minnesota's Constitution in 2008. Thirty-three percent of the three-eighths of one percent increase in Minnesota's sales and use tax receipts are dedicated to the Clean Water Fund. The CWLA requires the Council to include information in this report on the need for funding of future implementation and recommendations for the sources of funding. The Council's budget target for these recommendations is $221.6 million based on the Minnesota Management and Budget's CWF projections provided in August 2014.

The CWLA and the Minnesota Constitution require that the CWF may be spent only to "*protect, enhance, and restore water quality in lakes, rivers, and streams, protect drinking water and protect groundwater from degradation.*" The Council recognizes CWF dollars alone will not be able to address Minnesota's water issues which are both complex and challenging. Additional local, state, and federal funding sources are vital to achieve Minnesotans' vision for clean and sustainable water for drinking, fishing, swimming, and boating. Local capacity is also important and needs support in order for local governments to effectively address water quality issues.

A number of recently released reports referenced below make it clear that although progress has been and will be made for clean water, Minnesota will still be facing major water quality and quantity issues by the end of the Legacy Funds (2034). Note that progress on water issues will vary geographically across Minnesota.

***Minnesota Clean Water Roadmap* goals**
(http://www.legacy.leg.mn/funds/clean-water-fund)

- Increase the percentage of lakes with good water quality from 62% to 70%.
- Increase the percentage of rivers and streams with healthy fish communities from 60% to 67%.
- Reduce nitrate levels in groundwater by 20%.
- Reduce the percentage of new wells exceeding the arsenic standard by 50%.
- A steady or increasing trend for 90% of groundwater monitoring sites affected by groundwater pumping.

Clean Water Fund Performance Report
(http://www.legacy.leg.mn/funds/clean-water-fund)

- Significant phosphorus load reductions have been achieved through regulatory policy, infrastructure investments, and improved technology.
- Decreasing trends for three pesticides and no trend for two common pesticides.
- Although nitrate levels in less than two percent of new wells exceed the drinking water standard for nitrate, there is a slight increase in recent years.
- Many areas of the state lack important groundwater information and are experiencing groundwater declines.
- Not enough information exists to determine water quality, source water quality, nitrate-nitrogen, and impairment trends.
- Significant progress has been made in reducing mercury in Minnesota.

***Minnesota Nutrient Reduction Strategy* reduction milestones**
(http://www.pca.state.mn.us/zihy1146)

- Phosphorus reductions of 35% for the Mississippi River, 10% for the Red River, and 3% for Lake Superior are needed by 2025.
- Nitrogen reductions of 20% for the Mississippi River and 13% for the Red River are needed by 2025.

***Sediment Reduction Strategy for the Minnesota River Basin and South Metro Mississippi River* reduction milestones**
(http://www.pca.state.mn.us/ark8qrf)

- Sediment reductions of 80-90% are needed to meet the *Minnesota River Sediment Total Maximum Daily Load (TMDL).*
- Sediment reductions as high as 50-60% are needed from some watersheds to meet the *South Metro Mississippi River Sediment TMDL.*

Based on the report findings, stakeholder input, and feedback from Legislators, the Council's recommendations reflect a heightened priority for on-the-ground programs where funding will likely achieve maximum outcomes in clean water.

Council Process for Developing FY16-17 Clean Water Fund Recommendations

On June 16, 2014, the Clean Water Council voted to approve the following *Guiding Principles and Funding Priorities for FY16-17 Clean Water Funds*. The Council used these *Principles and Priorities* to guide the development of their FY16-17 CWF recommendations found on the following pages.

Guiding Principles for FY16-17 Clean Water Funds

- Focus on achieving outcomes and improvements in water quality and water resources in accordance with state and federal laws.
- Achieve a balance between short-term progress and long-term achievement of sustainable water quality improvement with a bias towards on-the-ground projects that have measurable outcomes.
- Promote programs where it can be demonstrated that the funding will achieve significant new progress towards attaining the goal of clean water and supplementing and accelerating the process.
- Reflect Constitutional mandates regarding expenditures on drinking water and supplementing (but not substituting for) traditional funding sources.
- Increase agency coordination and collaboration to efficiently utilize Clean Water Fund dollars.

Funding Priorities for FY16-17 Clean Water Funds

- Programs that address point and nonpoint pollution source issues and have measurable outcomes.
- Implementation activities from completed WRAPS, TMDL Implementation Plans, or Comprehensive Local Water Management Plans.
- Continued implementation of the State's Watershed Approach that contributes new, significant progress to achieve water quality goals.
- Surface water and groundwater monitoring activities that contribute to the ability to conduct and target near term work to improve water quality and quantity and influence the long-term sustainability of those improvements.
- Continued progress on the completion of County Geologic Atlases.
- Strengthen local capacity to support nonpoint source implementation activities.
- New enforcement of existing regulations that would achieve measurable clean water outcomes.
- Recommend funding programs that can leverage other available funds to achieve outcomes and increase the overall impact of Clean Water Fund dollars.

Budget Development Process

The Council's Budget and Outcomes Committee (BOC), consisting of nine Council members, met at least monthly during 2014 to prepare draft FY16-17 CWF recommendations for the Council. The BOC met with state agencies and requested information about their proposed FY16-17 programs. The BOC also solicited feedback from stakeholders on draft CWF recommendations in August 2014. On October 20, 2014, the Council voted to approve their FY16-17 Clean Water Fund recommendations.

The Council did not recommend FY16-17 funding for some programs. The Council used the following additional criteria to make the "no funding" decision for programs that:

- Have completed their deliverables,
- Did not have clear and concise outcomes, and
- Are duplicative of similar programs.

The Council recommends that Clean Water Funds should not be used for agency rule-making and other funding sources should be considered for research-related activities in the future. In addition, the Council received stakeholder comments that fees should be raised to support a few of these programs rather than Clean Water Funds. Future budget cycles should have a greater percentage of the total amount focused toward on-the-ground implementation activities.

The Minnesota Constitution also states that CWF dollars must supplement traditional sources of funding and may not be used as a substitute. During 2014, the BOC reviewed information from agencies receiving Clean Water Funds about other funds used historically for these programs to discuss potential substitution issues.

Council FY16-17 Clean Water Fund Recommendations

Nonpoint and Point Source Implementation Programs

- **$135.0 million** (61%)
- Reflects a heightened priority for on-the-ground programs where funding will likely achieve maximum outcomes in clean water.
- Funds are used to implement pollution reduction activities such as upgrading wastewater infrastructure, planting native buffers, restoring eroding streambanks, and implementing conservation tillage.

Monitoring and Assessment Programs

- **$24.1 million** (11%)
- Funds are used to monitor surface water quality in the state's watersheds on a 10-year schedule. Includes monitoring of fish and plants communities, mercury levels, and pesticides. Assessments determine if waters are impaired.

Watershed Restoration and Protection Strategies Programs

- **$23.5 million** (11%)
- Funds are used to develop plans that identify pollution reductions and actions needed to clean up impaired waters or protection actions for healthy waters.

Drinking Water and Groundwater Protection

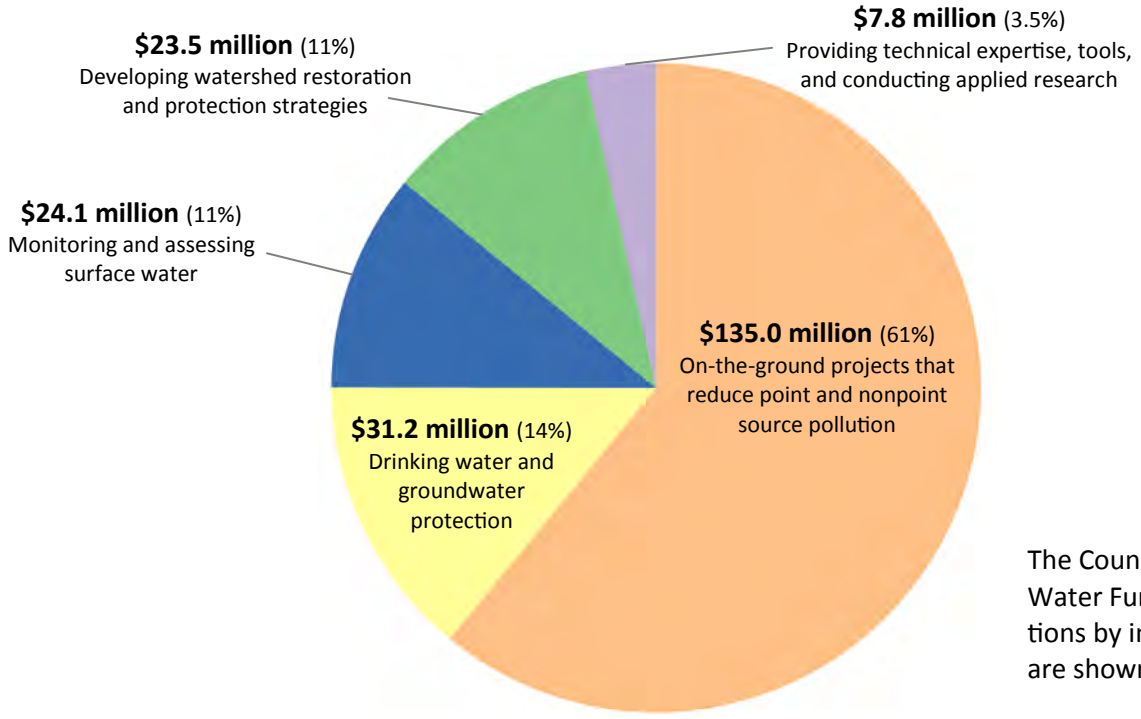
- **$31.2 million** (14%)
- Funds are used to protect drinking water, monitor groundwater and address failing septic systems.
- The Minnesota Constitution requires that at least 5% of the CWF must be spent only to protect drinking water sources. The Council's FY16-17 CWF recommendations include approximately $25.5 million (12%) for drinking water protection.

Applied Research and Tool Development

- **$7.8 million** (3.5%)
- Funds are used to provide technical expertise to Local Government Units (LGUs) and landowners on hydrology, agricultural and urban BMPs, groundwater, geology, and water reuse.

More information on programs that receive Clean Water Funds can be found in Appendix A (pages 17-32) and at the Minnesota's Legacy website at www.legacy.leg.mn/funds/clean-water-fund.

FY16-17 Clean Water Fund Recommendations by Category ($221.6 million)



The Council's FY16-17 Clean Water Fund recommendations by individual program are shown on pages 10-12.

Council FY16-17 Clean Water Fund Recommendations

Table 1. Clean Water Council FY16-17 Clean Water Fund Recommendations by Program

Agency	Program Name	Clean Water Council FY16-17 Recommendations (in thousands)
Monitoring and Assessment Programs		
DNR	**Stream Flow Monitoring**	4,000
DNR	**Lake Index of Biotic Integrity (IBI) Assessment**	2,600
DNR	**Fish Contamination Assessment**	270
MDA	**Monitoring for Pesticides in Surface Water and Groundwater**	700
MPCA	**Continue Monitoring and Assessment Efforts to Meet the 10-Year Cycle**	16,500
	Monitoring and Assessment Total	**24,070**
Watershed Restoration and Protection Strategies (WRAPS) Programs		
DNR	**Watershed Restoration and Protection Strategies**	3,880
MPCA	**Watershed Restoration and Protection Strategies (includes Total Maximum Daily Load development)**	19,590
	Watershed Restoration and Protection Strategies Total	**23,470**
Drinking Water and Groundwater Protection Programs		
BWSR	**Targeted Wellhead/Drinking Water Protection**	3,500
DNR	**Aquifer Monitoring for Water Supply Planning**	2,750
MDA	**Nitrate in Groundwater**	5,171
MDA	**Irrigation Water Quality Protection**	220
MDH	**Drinking Water Contaminants of Emerging Concern (CECs) Program**	2,200
MDH	**Source Water Protection**	3,800
MDH	**Well Sealing Cost Share**	225
MDH	**Groundwater Virus Monitoring Plan**	350
MDH	**Private Well Water Supply Protection**	650
MDH	**Groundwater Strategies for Local Implementation**	250
Met Council	**Metropolitan Area Water Supply Sustainability Support**	1,950
Met Council	**Water Demand Reduction Grant Program Pilot**	500
MPCA	**Groundwater Assessment**	2,363
MPCA	**Enhanced County Inspections/Subsurface Sewage Treatment Systems (SSTS) Corrective Actions**	7,245
	Drinking Water and Groundwater Protection Total	**31,174**

Table 1. Clean Water Council FY16-17 Clean Water Fund Recommendations by Program *(continued)*

Agency	Clean Water Fund Activity Name	Clean Water Council FY16-17 Recommendations (in thousands)
Nonpoint Source Implementation Programs		
BWSR	**Surface and Drinking Water Protection/Restoration Grants (Projects and Practices)**	29,550
BWSR	**Grants to Watersheds with Multiyear Plans (Targeted Watershed Program)**	17,858
BWSR	**Accelerated Implementation**	12,000
BWSR	**Measures, Results and Accountability**	1,900
BWSR	**Conservation Drainage Management and Assistance**	1,500
BWSR	**Riparian Buffer - Permanent Conservation Easements**	15,000
BWSR	**Technical Evaluation**	168
BWSR	**Community Partners Clean Water Program**	1,500
BWSR	**Water Management Transition (One Watershed, One Plan)**	4,200
BWSR	**Soil Loss and Shoreland Buffer Compliance**	2,000
BWSR	**Conservation Reserve Enhancement Program (CREP)**	18,000
BWSR	**Critical Shoreland Protection - Permanent Conservation Easements**	2,000
BWSR	**Tillage and Erosion Transects**	1,000
DNR	**Nonpoint Source Restoration and Protection Activities**	1,000
DNR	**Riparian Buffer Information (Color Infrared Imagery and Analysis)**	650
MDA	**AgBMP Loan Program**	150
MDA	**Technical Assistance**	2,250
MDA	**Minnesota Agricultural Water Quality Certification Program**	2,500
MPCA	**Great Lakes Restoration Project**	1,500
	Nonpoint Source Implementation Total	**114,726**
Point Source Implementation Programs		
MPCA	**National Pollutant Discharge Elimination System (NPDES) Wastewater/ Stormwater TMDL Implementation**	1,800
PFA	**Point Source Implementation Grants (PSIG) - Wastewater Treatment Plant (WWTP) and Stormwater**	18,000
PFA	**Small Community Wastewater Treatment Program**	500
	Point Source Implementation Total	**20,300**

Table 1. Clean Water Council FY16-17 Clean Water Fund Recommendations by Program *(continued)*

Agency	Clean Water Fund Activity Name	Clean Water Council FY16-17 Recommendations (in thousands)
Applied Research and Tool Development Programs		
DNR	**Applied Research and Tools**	1,350
DNR	**County Geologic Atlases**	500
MDA	**Academic Research/Evaluation**	1,575
MDA	**Research Inventory Database**	100
MDA	**Perennial and Cover Crop Research**	500
MDH	**Water Reuse**	350
MPCA	**Watershed Research and Database Development (Watershed Data Integration Project)**	2,300
MPCA	**Stormwater Research and Guidance**	550
MPCA	**Stormwater Best Management Practice (BMP) Performance Evaluation and Technology Transfer**	550
	Applied Research and Tool Development Total	**7,775**
Legislature	**Legislative Coordinating Commission Website**	30
MPCA	**Clean Water Council Budget**	100
	TOTAL	**221,645**

BWSR - Minnesota Board of Water and Soil Resources

DNR - Minnesota Department of Natural Resources

MDA - Minnesota Department of Agriculture

MDH - Minnesota Department of Health

Met Council - Metropolitan Council

MPCA - Minnesota Pollution Control Agency

PFA - Public Facilities Authority

Council FY16-17 Policy Recommendations

The Clean Water 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 2013 and 2014, two policy recommendations have the Council's support: riparian buffers and water retention, storage, and infiltration. These recommendations, if adopted, should accelerate the adoption of water quality improvement practices.

Riparian Buffers

It has been demonstrated that buffers of perennial grasses and vegetation can reduce sediment, phosphorus and nitrogen significantly. Currently, state law recognizes the importance of buffers. Buffers are addressed in three areas of law (Minnesota Rules Chapters 6120 and 8420 and Minnesota Statutes 103E) and many different state and local entities oversee the requirements. There have been several studies that have evaluated compliance with buffer requirements and indicate that buffer requirements are oftentimes inconsistently applied and enforced. In order to accelerate the pace of progress in protecting and improving water quality, the State must have consistent perennial vegetative buffers along our riparian areas.

Policy Statement: The Clean Water Council recommends that the State require maintained vegetative buffers along public waters and public ditches, including private ditches that drain to public ditches, to protect water quality. Buffer width should be determined based on conditions on the ground (e.g., soil type and slope) and the differences in the type of water body. There should be one state agency that develops model ordinances for local governments to apply, oversees local implementation, and requires reporting. We recommend the state fund both local implementation and enforcement.

Water Retention, Storage, and Infiltration

Through efforts to drain water in order to make it suitable for agriculture, transportation, and economic and urban development, the natural hydrology of the landscape has been significantly altered. This can lead to moving water off the land faster and in greater amounts, and carrying sediment, nutrients and other pollutants. It has also altered the flow regime of our rivers, streams and ditches modifying both the frequency and magnitude at which the banks and beds of our rivers, streams and ditches erode.

To address this problem, it will be necessary to re-create storage, retention, and infiltration in watersheds to hold back the power and force which destabilizes these systems and contributes to water quality problems. There are many ways that water retention and infiltration can be achieved. Note that watersheds in the seven-county Twin Cities Metro Area are already required by Minnesota Rules, Chapter 8410 to develop watershed plans and stormwater controls.

Policy Statement: The Clean Water Council recommends the State require all major (8-digit HUC) watersheds outside the seven-county Twin Cities Metro Area of the state to develop local comprehensive watershed management plans. These plans must establish water storage goals, expressed in acre-feet, and standards for water storage, retention, and infiltration.

Buffers and native vegetation provide multiple benefits for water quality and wildlife habitat.

Council 2014 Resolutions

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

Aquatic Invasive Species (AIS)

In the past few years, the Council has been asked by Legislators and stakeholders about whether Clean Water Funds should be used to fund AIS activities. In response to these inquiries, the Clean Water Council created an AIS Ad Hoc Committee in April 2013. This Committee met five times during 2013-2014 to discuss AIS issues and develop draft recommendations for the full Council. The full Council passed a Resolution to *Adopt Clean Water Fund Guidelines for AIS Activities* at their February 24, 2014 Council meeting as shown on the following page.

One Watershed, One Plan

As state efforts have focused water monitoring and planning efforts on a major watershed scale in recent years, local governments recommended that local water planning and implementation efforts should also be focused at this scale. The goal of One Watershed, One Plan is to align local water planning on major watershed boundaries with state strategies towards prioritized, targeted and measurable implementation plans. The Council passed a resolution to *Endorse a "One Watershed, One Plan" Framework for Water Resources Planning* on March 17, 2014 as shown on page 16.

Many zebra mussels attached to a native mussel. Photo credit: DNR

Clean Water Council Resolution to Adopt Clean Water Fund Guidelines for Aquatic Invasive Species Activities

WHEREAS, the purpose of the Clean Water Legacy Act is "…to protect, enhance, and restore water quality in lakes, rivers, and streams…" (MN Statutes 114D) and the biological integrity of waterbodies is one important element in evaluating whether waters are meeting their designated uses; and

WHEREAS, invasive species are nonnative species that (1) cause or may cause economic or environmental harm or harm to human health; or (2) threaten or may threaten natural resources or the use of natural resources in the state (MN Statutes 84D.01) and disrupt these native communities to the extent waters no longer meet their designated uses; and

WHEREAS, a clear consensus on the State's comprehensive approach to managing aquatic invasive species has not yet been developed; and

WHEREAS, the Clean Water Council recognizes that multiple long-term funding sources will need to be employed to undertake a comprehensive approach for Aquatic Invasive Species (AIS) activities; and

WHEREAS, the Clean Water Council recognizes that Minnesotans value continued public access to our waters and that personal responsibility for inspection, decontamination of watercrafts, docks and equipment is the first line of defense; and

WHEREAS, the Clean Water Council recognizes that efforts by local units of government, nongovernmental organizations, and individual citizens to combat and protect against AIS can often be integrated into other important activities to address other water quality problems, and thereby produce multiple environmental benefits; and

WHEREAS, the Clean Water Council recognizes that ongoing Clean Water Fund activities can and do address AIS, through:

- Water monitoring and assessments that identify the presence of AIS, identify stressors to water quality, biological health of water bodies and impairments to beneficial uses that may be caused and/or associated with AIS;
- Development of Watershed Restoration and Protection Strategies (WRAPS) and local water management plans; and
- Implementation of strategies and activities identified in WRAPS and local water management plans.

WHEREAS, the Clean Water Council recognizes that certain AIS activities are appropriate for funding support through the Clean Water Fund;

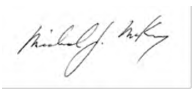
THEREFORE BE IT RESOLVED that the Clean Water Council recommends that AIS activities funded through the Clean Water Fund should be limited to:

- Prevention activities, including education and management activities that produce multiple benefits with sustainable impacts reducing AIS populations and protecting and restoring water quality as part of locally approved water management plans;
- Planning or management activities to address AIS populations that are not yet well-established and that are part of a locally approved water management plan; and
- Inspection and decontamination activities focused on watercrafts, docks, and equipment exiting the relatively finite number of infested waters.

BE IT FURTHER RESOLVED that a new long-term dedicated funding source be created to broadly support the identification, planning, management and eradication of AIS in Minnesota. It is recommended the fund be derived from fees associated with the known vectors that spread AIS.

Dated: February 24th, 2014

Attest:



Michael McKay, Clean Water Council Chair

Clean Water Council Resolution to Endorse a "One Watershed, One Plan" Framework for Water Resources Planning

Whereas, the Minnesota Legislature established the Clean Water Council with the charge of fostering coordination and cooperation among public agencies and private entities engaged in water management, conservation, land use, land management, and development plans, in order to protect and restore Minnesota's surface waters;

Whereas, the state has adopted a watershed-based geographic framework for monitoring, assessment, planning, and restoration of the state's surface waters;

Whereas, the state has adopted a Watershed Restoration and Protection Strategies (WRAPS) approach to implement their responsibilities under the Clean Water Act;

Whereas, the state has adopted a Groundwater Management Area framework as a geographic unit for managing the state's groundwater resources;

Whereas, water planning is done by many units of local government, including counties, water districts, watershed management organizations, soil and water conservation districts, and other local organizations;

Whereas, water movement on the land follows topographic and not political boundaries, and thus planning is best done at a watershed scale (8-digit Hydrologic Unit Code or HUC), coordinated across political boundaries;

Whereas, a coordinated approach to water quality management within local watersheds will provide greater opportunity to engage citizens and other organizations in the effective long-term stewardship of Minnesota's lakes and streams;

THEREFORE BE IT RESOLVED that the Clean Water Council hereby endorses the concept of a One Watershed, One Plan framework being developed by the Board of Water and Soil Resources (BWSR) and local water organizations for water resources planning in our state;

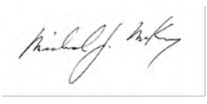
BE IT FURTHER RESOLVED that the Clean Water Council finds the following principles to be important elements of a One Watershed, One Plan framework:

1. Include coordination with entities charged with land planning;
2. Identify effectiveness and efficiencies gained by the coordination between counties, watershed districts, soil and water conservation districts, and other local organizations;
3. Actively engage local organizations, and strengthen rather than duplicate or displace local watershed and land use planning;
4. Ensure that planning incorporates the concept of "one hydrosphere", managing both surface and groundwater as one integrated resource;
5. Encourage coordination with WRAPS and groundwater strategies as they are developed;

BE IT FURTHER RESOLVED that the Clean Water Council requests that the member organizations and agencies develop detailed strategies to implement a One Watershed, One Plan framework for review and consideration by the Council at its November 2014 and its September 2015 meetings in anticipation of its adoption as a permanent program by BWSR in December 2015.

Dated: March 17th, 2014

Attest:



Michael McKay, Clean Water Council Chair

Appendix A
Programs Receiving Clean Water Funds: Description, Progress To Date and Current Activities

This appendix provides a brief description and summarizes progress to date and current activities for each program that has received Clean Water Funds. The CWLA requires that the Council's report include information on the activities for which money has been spent or will be spent for the current biennium and an evaluation of the progress made through June 30, 2014 in implementing the CWLA and the clean water provisions of the Minnesota Constitution. Seven different agencies administer programs that receive Clean Water Funds. More information about programs and projects funded by the CWF can be found on the Minnesota's Legacy website at www.legacy.leg.mn/funds/clean-water-fund.

Clean Water Funds have ranged from approximately $152 million in FY10-11, $185 million in FY12-13, and $195 million in FY14-15. Over time, Clean Water Funds for the different categories have ranged as follows (as a percentage of total funds):

- 12-14% for Monitoring and Assessment
- 12-13% for Watershed Restoration and Protection Strategies
- 9-19% for Drinking Water and Groundwater Protection
- 36-39% for Nonpoint Source Implementation Activities
- 12-21% for Point Source Implementation Activities
- 6% for Applied Research and Tool Development

The Clean Water Council believes that more funding will be needed for implementation activities in the future as indicated by the CWF Performance Report and Clean Water Roadmap (http://www.legacy.leg.mn/funds/clean-water-fund). The Nonpoint Priority Funding Plan (http://www.bwsr.state.mn.us/planning/npfp/index.html) is a criteria-based, systematic process to prioritize CWF nonpoint implementation investments.

The progress to date reported in this Appendix has been provided by the agencies which receive Clean Water Funds. Note that the dollars shown for FY10-15 are a cumulative total of all Clean Water Funds spent to date on these programs. Although the progress shown to date for programs receiving Clean Water Funds is positive, Minnesota will not achieve clean water by the end of the Legacy Funds (2034) because of continuing stresses on water resources. However, the Council's recommendations reflect a goal to maximize the use of Clean Water Funds to restore water resources. The Council recognizes that preventing pollutants from entering water bodies is also an important component of clean water efforts.

Restoring an eroded streambank prevents pollutants from entering the Crow River.

Appendix A

Monitoring and Assessment Programs

Continue Monitoring and Assessment Efforts to Meet the 10-year Cycle (MPCA)
FY10-FY15 Clean Water Funds = $43.8 million

Statewide monitoring and assessment work is on track to meet the 10-year schedule, at a rate of about 10% of the watersheds each year. Intensive watershed monitoring includes biological, chemical, and habitat monitoring in watersheds to assess the water conditions. Assessments determine if waters are impaired and serve as a basis for further analysis of watershed problems, protection options, and overall watershed planning efforts.

- MPCA has intensively monitored water bodies in 60% of Minnesota watersheds. MPCA has also assessed water bodies in 43% of Minnesota watersheds to see if they meet state water quality standards.
- By the end of FY15, nearly 75% of the state's watersheds will have been monitored.

Monitoring for Pesticides in Surface Water and Groundwater (MDA)
FY10-FY15 Clean Water Funds = $2.08 million

Ongoing monitoring using Clean Water Funded state-of-the-art laboratory instruments which provides increased capability and greater capacity.

- MDA increased the number of detectable pesticides from 44 in 2009 to 133 in 2014, increased the sensitivity of detection of certain pesticides, increased the overall number of samples analyzed annually, and monitored new chemicals such as neonicotinoids, a class of neuro -active insecticides.

Lake IBI Assessment (DNR)
FY10-FY15 Clean Water Funds = $4.9 million

Statewide assessment of biological integrity for lakes, including fish and plants, to support the 10-year watershed assessment schedule.

- DNR has conducted 894 surveys of fish communities and evaluated aquatic plant communities for development and use of an index of biological integrity tool.
- DNR is currently sampling nearshore nongame and open water fish communities to support MPCA's lake assessments.

Fish Contamination Assessment (DNR)
FY10-FY15 Clean Water Funds = $530,000

Increase the number of lake and stream sites where fish tissue samples are analyzed to detect mercury contamination levels.

- DNR tested fish from 400 additional lake and river sites.
- DNR is sampling mercury in fish to track the success of Minnesota's efforts to reduce the concentration of mercury in 1,650 impaired lakes and streams, inform pollution reduction research efforts, and update fish consumption advisories.

Stream Flow Monitoring (DNR)
FY10-FY15 Clean Water Funds = $7.65 million

Conduct stream flow monitoring and sediment transport analysis to support watershed assessments.

- DNR has collected 3,139 stream flow measurements and compiled 468 records for over 260 continuous stream gauge sites.
- DNR is currently collecting stream flow data that is used to determine pollutant loading for establishment of impaired waters.

Stream flow measurements taken throughout the year are key to developing continuous flow records for assessing water quality.

Monitoring and Assessment Programs *(continued)*

Lake Superior Beach Monitoring (MDH)
FY10-FY15 Clean Water Funds = $210,000

In order to protect water resources and public health, conduct water quality monitoring for 40 beaches, provide public notification, education, and outreach, analyze data, improve upon existing monitoring methods by exploring bacteria forecasting and document results to support decision-making. Collaborate with local governments to find contamination sources and address polluted runoff.

- Lake Superior Beach monitoring by MDH began in FY14-15. Monitoring data and sanitary surveys conducted at Lake Superior beaches will be used to explore predictive models as a method of forecasting beach water quality.
- Note that Clean Water Funds have not been used to monitor beaches in Minnesota other than Lake Superior.

Watershed Restoration and Protection Strategies (WRAPS) Programs

WRAPS (includes TMDL development) (MPCA)
FY10-FY15 Clean Water Funds = $54.8 million

In 2008, MPCA launched a watershed approach to comprehensively conduct the state's water-quality monitoring and restoration and protection planning on a 10-year cycle. WRAPS, including TMDLs, are developed with local partners to set pollution reduction goals and restoration and protection strategies for impaired waters and unimpaired waters to guide implementation efforts.

- 15 lake impairments and 20 river impairments have been restored to water quality standards. Three WRAPS reports have been completed and approved by MPCA.
- Work on WRAPS projects is currently underway in 59 of the State's 80 major watersheds.

WRAPS (DNR)
FY10-FY15 Clean Water Funds = $9.26 million

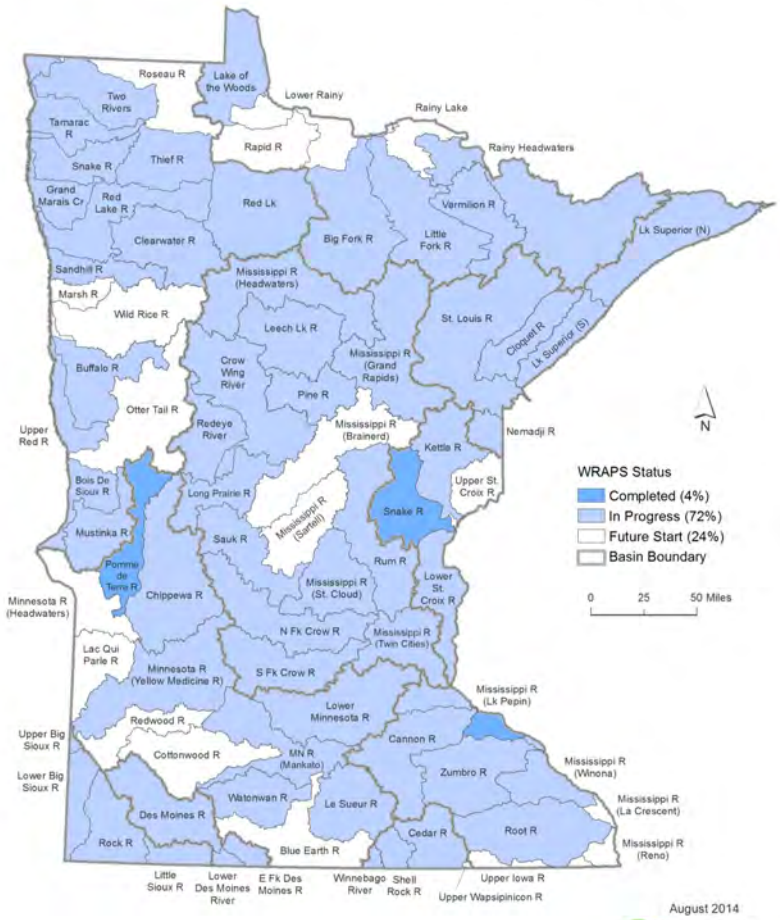
Work with state and local partners to provide expertise, data, analysis, and support for major watershed studies and the development of WRAPS.

- DNR has provided data and information for and participated in development of 37 WRAPS and is continuing to do so.

St. Croix River Water Monitoring and Phosphorus Reduction (MPCA)
FY10-FY15 Clean Water Funds = $200,000

For coordination with the state of Wisconsin and the National Park Service on comprehensive phosphorus reduction activities in the Lake St. Croix portion of the St. Croix River.

Watershed Restoration and Protection Strategies (WRAPS)



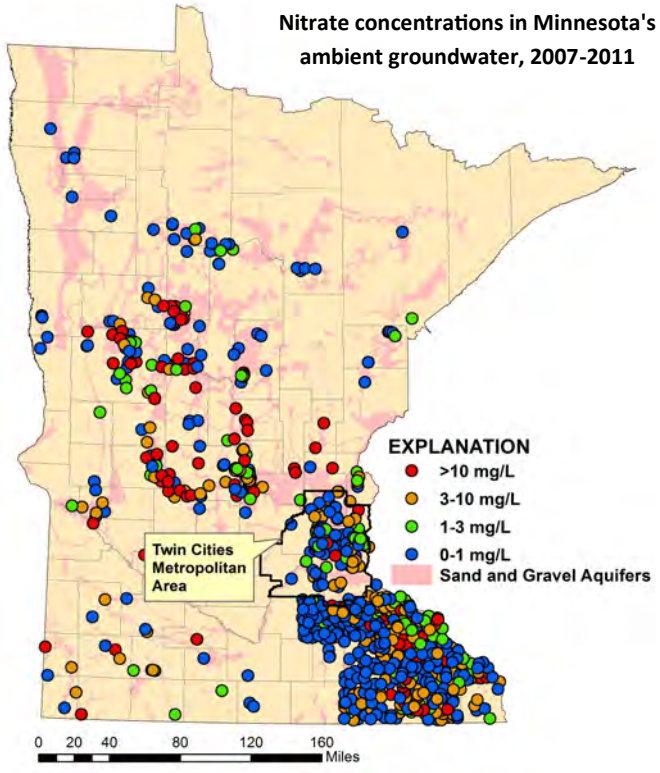
MPCA progress on WRAPS reports by major watershed

Drinking Water Protection and Groundwater Programs *(continued)*

Nitrate in Groundwater (MDA)
FY10-FY15 Clean Water Funds = $7.825 million

Nitrate is one of the contaminants of greatest concern for Minnesota groundwater. In some shallow vulnerable aquifers a significant percent of drinking water wells exceed the drinking water standard.

- MDA has supported irrigation workshops and training for over 400 irrigators in central Minnesota, developed a guide to help counties host irrigation workshops, and worked with over 25 local government partners on groundwater protection in areas where groundwater is vulnerable to nitrate contamination.
- In FY14-15, MDA tested nitrate levels in 1,972 wells in 22 townships where groundwater is vulnerable to nitrate contamination as a pilot to implement the Nitrogen Fertilizer Management Plan (http://www.mda.state.mn.us/nfmp). MDA will continue to work closely with local partners on nitrate testing and to help identify potential sources of nitrate contamination for groundwater.



Data from MPCA's Ambient Groundwater Monitoring Network, MDA's Monitoring Network, and Central Sands Domestic Well Network

Enhanced County Inspections/Subsurface Sewage Treatment Systems (SSTS) Corrective Actions (MPCA)
FY10-FY15 Clean Water Funds = $8.47 million

Support technical assistance and County implementation of SSTS program requirements (M.S. 115.55) including issuing permits, conducting inspections, identifying and resolving non-compliant SSTS, and revising and maintaining SSTS ordinances.

- MPCA and counties significantly increased efforts to find and correct failing septic systems, with 11,566 inspections and 4,927 systems replaced in 2014 alone.
- Funding is currently being focused on further increasing inspection efforts and on addressing unsewered communities. While the exact number of unsewered communities is unknown, MPCA is aware of about 35 communities with inadequate systems and many more small, unincorporated areas without adequate systems.

Groundwater Assessment (MPCA)
FY10-FY15 Clean Water Funds = $6.75 million

Monitor groundwater and enhance the ambient groundwater well network to collect critical water quality data needed for drinking water protection and surface water impact analysis, including modeling to support TMDLs and CECs in a subset of monitoring wells.

- MPCA sampled conventional pollutants in 230 groundwater wells and CECs in 40 of these wells, provided funding and technical assistance for the Southeast Minnesota Volunteer Nitrate Monitoring Network, and published findings in the 2013 Groundwater Condition Report for 2007 -2011 (http://www.pca.state.mn.us/0agx947).
- MPCA will continue annual well monitoring, add new wells, conduct a groundwater CECs study, use groundwater modeling to investigate areas of concern, assist DNR with GWMAs, and complete U.S. Geological Survey (USGS) contracts for groundwater recharge modeling and synthetic stream hydrographs.

Drinking Water Protection and Groundwater Programs *(continued)*

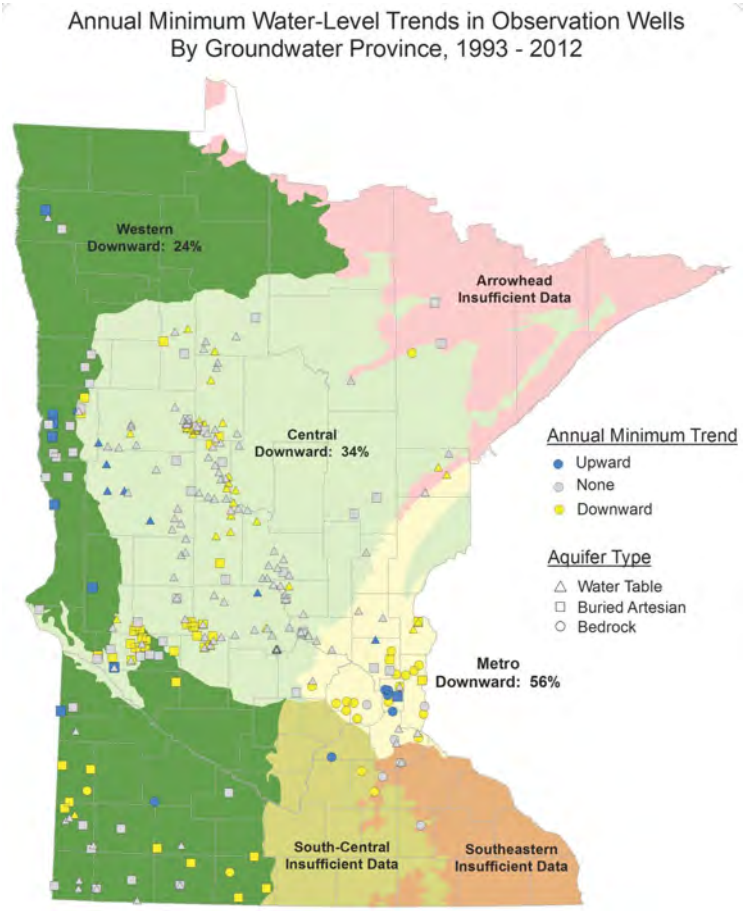
Groundwater Management Areas (GWMAs) and Statewide Mapping (DNR)
FY10-FY15 Clean Water Funds = $3 million

- DNR started planning and stakeholder involvement efforts to establish three GWMAs.
- DNR is finalizing plans and approving GWMAs, beginning to implement long-term efforts to enhance groundwater resource management with more and better information, and improving outreach and communication.

Irrigation Water Quality Protection (MDA)
FY10-FY15 Clean Water Funds = $220,000

Nitrogen contributions to groundwater under irrigated agriculture can be significant in some parts of Minnesota. Funding provides a regional irrigation water quality specialist.

- In FY14, a University of Minnesota (UMN) Extension Irrigation Specialist was hired to provide irrigation management and nitrogen fertilizer Best Management Practice (BMP) education and collaborate with public and private entities to develop tools to conserve groundwater.



Aquifer Monitoring for Water Supply Planning (DNR)
FY10-FY15 Clean Water Funds = $5.75 million

Monitor Minnesota's observation well network to collect critical aquifer level data needed for drinking water and water supply protection. Includes analysis, modeling and work with stakeholders to address sustainability management and planning.

- DNR has inventoried the state's observation well network (878 wells), installed continuous data loggers on over 275 wells, and installed, equipped, maintained or sealed 255 wells.
- DNR is continuing to install and equip monitoring wells in areas where more groundwater information is essential to ensure sustainable use.

Targeted Wellhead/Drinking Water Protection (BWSR)
FY10-FY15 Clean Water Funds = $8.63 million

Grants to implement best management practices or permanent conservation easements in communities/ wellhead protection areas where the actions needed to protect drinking water are known.

- 20 easements have been funded through BWSR, permanently protecting 1,197 acres.
- For FY14-15, six easements have been funded through BWSR, permanently protecting 259 acres.

Inflow and Infiltration Reduction Program (Met Council)
FY10-FY15 Clean Water Funds = $1 million

Grants help protect surface water from spills, groundwater from outflow pollution where pipes have deteriorated, and preserve groundwater for Minnesota's water supply.

- Met Council has awarded $1 million in grants to 11 cities (leveraging a total of $3.4 million in total project costs) and approved 803 projects.
- Currently, Met Council is reviewing community projects; $462,000 in project costs have been reimbursed so far.

Drinking Water Protection and Groundwater Programs *(continued)*

Metropolitan Area Water Supply Sustainability Support (Met Council)
FY10-FY15 Clean Water Funds = $3.8 million

Implement projects that address emerging drinking water supply threats, provide cost-effective regional solutions, leverage inter-jurisdictional coordination, support local implementation of wellhead protection plans, and prevent degradation of groundwater.

- Met Council has completed a Northeast Metro feasibility assessment of subregional approaches to water supply and surface water impacts, completed four Metro subregional feasibility assessments and informed and engaged 48 Metro communities.
- Met Council is currently engaging LGUs responsible for water supply planning in a series of public forums, meeting with work groups regarding feasibility assessments for water supply approaches, and continuing technical work and identification of funding mechanisms and equitable cost-sharing structures for regionally beneficial water supply approaches.

Drinking Water Contaminants of Emerging Concern Program (MDH)
FY10-FY15 Clean Water Funds = $5.675 million

Continue to protect human health by developing guidance. Develop public health laboratory capacity for research and analysis of emerging contaminants. Give grants to local organizations for community-based outreach and education activities.

- MDH screened 64 emerging contaminants and developed new guidance values and fact sheets for 23 of these contaminants to provide health risk context when they are found in Minnesota waters.
- In FY14, MDH completed 16 contaminant screenings and four full reviews. MDH is currently developing additional recommendations for 154 pesticides and 150 pharmaceuticals through rapid assessment processes and quantitative microbial risk assessment and guidance for bacteria and viruses.

Source Water Protection (MDH)
FY10-FY15 Clean Water Funds = $8.475 million

Continue to assist public water suppliers in securing the long-term sustainability of their drinking water sources. Develop and implement wellhead protection plans to safeguard drinking water sources. Grants assist public water suppliers with implementation of their plans to protect sources of public drinking water and with management of known or potential contamination threats.

- MDH has expanded their ability to deliver technical assistance to LGUs so now Minnesota has more than 350 approved Source Water Protection Plans.
- MDH awarded $1.5 million dollars to public water suppliers through 261 grants for plan implementation and local efforts to protect drinking water supplies.

Technical Assistance to Industrial Water Users (Met Council)
FY10-FY15 Clean Water Funds = $50,000

To partner with the UMN's Minnesota Technical Assistance Program (MnTAP) to identify opportunities for industrial water users to reduce or reuse their water consumption within the North and East (NE) Metro GWMA.

- Met Council executed a contract with MnTAP and started to identify industry sector targets for water conservation outreach and on site assessment tools.
- Currently, three to five industry sectors are being identified for targeted outreach and engagement to define opportunities for water conservation.

Workshop and Grants for the NE Metro GWMA (BWSR)
FY10-FY15 Clean Water Funds = $100,000

For a workshop to promote landscape BMPs that keep water on the land within the NE Metro GWMA and for grants to LGUs.

- BWSR leadership has been coordinating with other agencies involved with assessing groundwater.

Drinking Water Protection and Groundwater Programs *(continued)*

County Well Index (CWI) Enhancement (MDH)
FY10-FY15 Clean Water Funds = $1.448 million

CWI is the principal source of well construction information and geologic interpretations and is used by many public and private sector groups to understand and manage Minnesota's groundwater resources.

- The modernization and enhancement of CWI's business application, based on stakeholder input, is complete. MDH entered, updated, or scanned 74,000 backlogged and pre-1990 Well and Boring Records into the CWI database.
- MDH is continuing to enter the backlog of well records and scanning of pre-1990 into CWI, updating the online CWI search system, creating an application for well contractors to submit and manage well information online, and creating an online system/mobile application for pinpointing well locations using standardized GPS/GIS standards.

Private Well Water Supply Protection (MDH)
FY10-FY15 Clean Water Funds = $650,000

In contrast to highly monitored water supplies that serve water to the public, water quality from a residential well depends on the owner's initiative and vigilance. Existing private well monitoring networks maintained by sister agencies and local partners and existing data from a variety of sources will be used to supplement targeted well sampling to characterize the occurrence and magnitude of contaminants in private wells.

- MDH has evaluated more than 25,000 water samples tested for arsenic from new wells since 2008 to better understand the conditions controlling arsenic occurrence in groundwater. MDH will sample approximately 250 newly constructed wells to evaluate any arsenic concentration and geochemistry changes.
- MDH has sampled 31 wells. Results will be used to develop well construction and sampling guidance.

Uncovering an unused 1920s well in Little Falls

Well Sealing Cost Share (MDH)
FY10-FY15 Clean Water Funds = $1 million

There is a continuing need to fund well sealing into the foreseeable future. There are between 250,000 and 500,000 unused and unsealed wells. Approximately 6,000 wells are sealed per year. Clean Water Funds supplement other efforts to properly seal these wells which protects both public health and groundwater.

- 26 public wells were sealed and 171 private wells were sealed through MDH's program.
- MDH awarded nine local governments well sealing funds to assist in sealing an estimated 170 unused private wells. A request for proposal is currently being drafted to receive applications to seal unused public wells.

Investigating Stormwater Collection and Treatment in the NE Metro GWMA (Met Council)
FY10-FY15 Clean Water Funds = $100,000

To investigate the feasibility of collecting and treating stormwater in the NE Metro GWMA to enhance surface waters and groundwater recharge.

- Met Council held a workshop for agency staff to discuss an approach to evaluate subregional potential for stormwater collection.
- Met Council is currently holding technical meetings with agency staff to review and refine the proposed approach.

Drinking Water Protection and Groundwater Programs *(continued)*

Drinking Water Protection in GWMAs (MDH)
FY10-FY15 Clean Water Funds = $300,000

Funding initiated in FY15 is for MDH to work with BWSR and others in GWMAs to develop groundwater protection strategies, including updating wellhead protection areas, and the means for implementing strategies on a local level.

- FY15 funding will be used by MDH to 1) conduct an assessment of local government needs in order to work on groundwater protection and restoration issues, and 2) develop and pilot approaches for delivering groundwater data and information to local watershed planning efforts (e.g., One Watershed, One Plan).

Groundwater Virus Monitoring Plan (MDH)
FY10-FY15 Clean Water Funds = $1.6 million

To examine the occurrence, fate and transport of viruses in groundwater sources in Minnesota and estimate the risk of acute gastrointestinal illness from consuming drinking water from untreated groundwater sources. Through the collection of virus occurrence data, hydrogeologic data and contaminant information, health-based guidance and tools could be improved and developed to reduce the public health risk from groundwater drinking water sources.

- MDH completed the study design and two rounds of virus sampling (includes other indicators) at 82 community public water supply systems. A companion study of illness in several communities will begin in May 2015.

Local Water Management Plan Development and Implementation for the NE Metro, Bonanza Valley and Straight River GWMAs (BWSR)
FY10-FY15 Clean Water Funds = $400,000

Through development or implementation of local water management plans, identify strategies for groundwater protection and potential locations for infiltration projects and practices.

- Currently, BWSR leadership has been coordinating with other agencies involved with assessing groundwater. Plan development and implementation will be forthcoming.

Planning for the NE Metro GWMA (Met Council)
FY10-FY15 Clean Water Funds = $400,000

To develop a plan for the NE Metro GWMA and to predesign preferred long-term solutions to address regional water supply and sustainability issues, including enhancing surface waters, in collaboration with DNR.

- Met Council held the first workshop for agency staff to discuss approaches for investigating long-term solutions for water supply and sustainability issues.
- Met Council is currently holding technical meetings with agency staff to review and refine the proposed approach. Draft proposals will be further refined and finalized with input from the local water supply work group and other stakeholders.

Nonpoint Source Implementation Programs

Conservation Drainage Management and Assistance (BWSR)
FY10-FY15 Clean Water Funds = $3.36 million

Implementation of a conservation drainage/ multipurpose drainage water management program in consultation with the Drainage Work Group to improve surface water management by providing funding under the provisions of Minnesota Statutes 103E.015.

- BWSR awarded grants to 23 projects to retrofit existing or enhance new drainage systems with water quality improvement practices, conduct multipurpose drainage management planning, provide outreach and evaluate outcomes.

Nonpoint Source Implementation Programs *(continued)*

Great Lakes Restoration Project (MPCA)
FY10-FY15 Clean Water Funds = $3.95 million

Great Lakes restoration projects in the St. Louis River Area of Concern (AOC) with local and federal partners.

- In partnership with the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE), MPCA completed contaminated sediment sampling and made progress on fish tumor sampling for the St. Louis River estuary. MPCA used this information to complete the 2013 St. Louis River AOC Remedial Action Plan (RAP) (http://www.pca.state.mn.us/fhcuwfr) with the goal of delisting. Preliminary results are indicating the fish tumor impairment may no longer be present. To date, Clean Water Funds have leveraged $8.75 million of federal funds for this project.
- MPCA entered an agreement with the USACE to provide technical, planning and engineering assistance to implement the RAP. MPCA and DNR will develop work plans and construction design plans for all restoration sites. Additional fish tumor sampling will be conducted in 2015.

Clean Water Partnership (MPCA)
FY10-FY15 Clean Water Funds = $7.5 million

Provides grants to study and implement solutions that protect Minnesota water bodies before water quality standards are exceeded.

- Since FY10, MPCA awarded 22 projects for $3,422,823; these awards are matched by $7,267,276 in local funds. These projects completed 158 BMP activities, which have reduced nitrogen by approximately 20 tons, phosphorus by 40 tons, sediment by 7,523 tons and soil loss by 4,479 tons.
- For FY14, MPCA awarded five projects for $882,309; these awards are matched by $914,813 in local funds. MPCA will award additional funds to projects in winter 2014-2015 for FY15 funds.

As part of the RAP, the USACE places dredge material at a St. Louis River restoration site to restore shallow aquatic habitat.

AgBMP Loan Program (MDA)
FY10-FY15 Clean Water Funds = $13.9 million

Provides low interest loans throughout the state to farmers and rural landowners to help finance practices, structures and other improvements that reduce or eliminate water pollution. This loan program is administered by local governments, has very low transaction cost, and as loans are repaid, the repayments are used to fund additional projects.

- MDA has provided $9 million for 456 low interest loans from a revolving fund for projects that reduce or eliminate existing water quality problems. The program has leveraged $7.5 million in other financing. Loans were used for 84 agricultural waste management projects, 344 septic systems upgrades or relocations and 28 conservation tillage equipment purchases.

DNR Rulemaking - Mississippi River Critical Area (MRCA) (DNR)
FY10-FY15 Clean Water Funds = $100,000

- DNR engaged local governments and interest groups in processes to update rules for the MRCA.
- DNR is currently responding to stakeholder concerns, revising the 2014 working draft rules and Statement of Need And Reasonableness (SONAR) and conducting formal rulemaking to finalize and promulgate the rules.

Nonpoint Source Implementation Programs *(continued)*

Edge-of-Field monitoring provides data on nutrient and sediment losses on the field scale.

Technical Assistance (MDA)
FY10-FY15 Clean Water Funds = $6.815 million

Provide technical assistance on impaired waters issues in agricultural landscapes and demonstrate and promote BMPs.

- MDA has held over 50 field days, tours and educational events to share scientific data and provide technical assistance to farmers and conservation professionals to help them implement BMPs that address water quality impairments from agricultural sources. On-farm work is conducted at 17 sites using 37 automated monitoring stations.
- Examples of FY14-15 program activities include:
  - *Root River Field to Stream Partnership*: MDA conducts intensive water monitoring to evaluate impacts from agricultural practices.
  - *Clay County Drainage Site*: MDA evaluates the impact of surface and subsurface drainage from agricultural fields.
  - *Discovery Farms Minnesota*: MDA conducts edge-of-field monitoring to evaluate nutrient and sediment losses on 11 farms.

Minnesota Agricultural Water Quality Certification Program (MDA)
FY10-FY15 Clean Water Funds = $3 million

A new program under development by the MDA, MPCA, DNR and BWSR, and endorsed by the EPA and U.S. Department of Agriculture, to increase the adoption of on-farm conservation practices to protect water quality through a voluntary approach. Pilot projects to develop and evaluate the concept will extend through FY16.

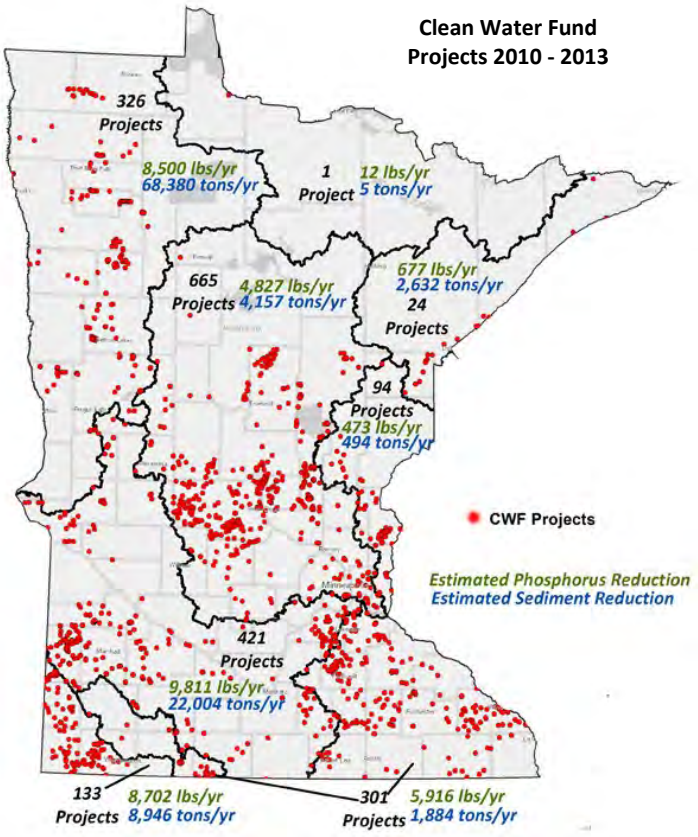
- The Minnesota Agricultural Water Quality Certification Program (MAWQCP) is a voluntary program designed to accelerate adoption of on-farm conservation practices that protect Minnesota waters. MDA is currently piloting MAWQCP in four watersheds.
- MAWQCP has certified 11 farmers and landowners. By October 2014, 22 farmers and landowners will be certified. Approximately 250 farmers and landowners within the pilot areas are pursuing certification in FY15.

Nonpoint Source Restoration and Protection Activities (DNR)
FY10-FY15 Clean Water Funds = $2.5 million

Support local implementation efforts, including: assisting with targeting conservation practices; helping local partners plan for, design, and implement clean water projects; building local community capacity to manage for healthy watersheds; and working in forested watersheds on water quality protection.

- DNR gave technical help on over 250 local implementation projects, created zonation models for three watersheds, and wrote 150 forest stewardship plans for 16,588 acres in Tulibee Lake Watersheds.
- DNR is currently participating in and advising One Watershed, One Plan, local land use planning and zoning processes and providing technical assistance on implementation projects.

Nonpoint Source Implementation Programs *(continued)*



Projects and estimated pollution reductions by major basin mapped in eLINK

Surface and Drinking Water Protection/Restoration Grants (Projects and Practices) (BWSR)
FY10-FY15 Clean Water Funds = $78.265 million

Grant and incentive funding to protect, enhance and restore water quality in lakes, rivers and streams and to protect groundwater and drinking water by implementing priority actions in local water management plans.

- BWSR awarded grants to more than 241 projects resulting in over 2,490 conservation practices being installed. These conservation practices are estimated to reduce over 44,200 tons of sediment and prevent 48,085 lbs. of phosphorus and 96,171 lbs. of nitrogen from entering Minnesota waters annually.
- In FY14, BWSR awarded 29 restoration and 13 protection project grants resulting in over 18,000 lbs. of phosphorus, 18,000 tons of sediment, and over 5,000 lbs. of nitrogen being reduced each year.
- Note that in 2014, only 20% of the requested funds were able to be awarded because of the limited funding available.

Measures, Results and Accountability (BWSR)
FY10-FY15 Clean Water Funds = $4.59 million

Conservation quality assurance by providing oversight, assessment, assistance and reporting of local government performance and results.

- Funds have supported BWSR staff and an update to the web-based system (eLINK) that tracks statewide conservation practices.
- Funds currently support BWSR staff charged with getting protection and TMDL-derived restoration strategies adopted into local water plans, directing over $19 million of grant funds to priority areas, eLINK maintenance and procedures to optimize leveraging of non-State funds.

Accelerated Implementation (BWSR)
FY10-FY15 Clean Water Funds = $14.6 million

Enhance the capacity of LGUs to accelerate implementation of projects and activities that supplement or exceed current state standards for protection, enhancement, and restoration of water quality in lakes, rivers, streams, and groundwater.

- BWSR awarded grants to 64 projects to local governments to go “above and beyond” existing water quality standards.
- In FY14, BWSR awarded grants to 21 projects that develop resource inventories and ordinances, conduct GIS analyses, and utilize prioritization, targeting and measurement tools. BWSR also awarded grants to eight Technical Service Areas in FY14 to help build capacity that will accelerate conservation practices.
- Note that in 2014, only 49% of the requested funds were able to be awarded because of the limited funding available.

Nonpoint Source Implementation Programs *(continued)*

Riparian Buffer - Permanent Conservation Easements (BWSR)
FY10-FY15 Clean Water Funds = $31.94 million

Purchase and restore permanent conservation easements on riparian lands adjacent to public waters (except wetlands). Establish buffers of native vegetation that must be at least 50 feet where possible and no more than 100 feet. This program is coordinated and matched with Outdoor Heritage Funds.

- To date, 459 easements have been funded through BWSR, permanently protecting 5,261 acres.
- For FY14-15, 87 easements were funded through BWSR permanently protecting 1,910 acres.
- Note that in 2014, only 31% of the requested funds were able to be awarded because of the limited funding available.

Shoreland Protection Grants (DNR)
FY10-FY15 Clean Water Funds = $1 million

DNR will develop the program and give grants for ordinance development and shoreland improvements for communities that establish shoreland regulations more protective than the statewide minimum standards.

Grants to Watersheds with Multiyear Plans (Targeted Watershed Program) (BWSR)
FY10-FY15 Clean Water Funds = $12 million

These grants focus on watersheds where the amount of change necessary to improve water quality is known, the actions needed to achieve results are identified and can be implemented within a four-year time period and are capable of achieving a measurable outcome.

- In FY14, projects in Serpent Lake, Dobbins Creek and Long Lake were selected to reduce pollution.
- Note that in 2014, only 11% of the requested funds were able to be awarded because of the limited funding available.

Water Management Transition (One Watershed, One Plan) (BWSR)
FY10-FY15 Clean Water Funds = $900,000

Accelerate implementation of the State's Watershed Approach through development of watershed-based local water planning that is synchronized with WRAPS and Groundwater Restoration and Protection Strategies (GRAPS).

- BWSR selected the Lake Superior North, North Fork Crow River, Red Lake River, Root River, and Yellow Medicine River Watersheds as the pilot watersheds.

Technical Evaluation (BWSR)
FY10-FY15 Clean Water Funds = $336,000

Statutory mandate to annually evaluate up to 10 habitat restoration projects.

- BWSR evaluated 30 projects receiving Clean Water Funds. At least 8 projects will be evaluated during FY15.

Conservation practices implemented for Serpent Lake in Crow Wing County through BWSR's Targeted Watershed Program will prevent 139 pounds of phosphorus from entering the lake.

Nonpoint Source Implementation Programs *(continued)*

Community Partners Clean Water Program (BWSR)
FY10-FY15 Clean Water Funds = $6 million

Increase citizen participation in implementing water quality projects and programs to increase long term sustainability of water resources. The efforts and resources of active and engaged community groups, such as lake associations, non-profits, and conservation groups, will be supported through this program. This effort will be delivered locally using a "small grants partners" program.

- BWSR has funded 43 applications resulting in over 100 projects that engaged citizens to reduce runoff and keep water on the land.

Manure Applicator Program Enhancement (MDA)
FY10-FY15 Clean Water Funds = $100,000

Funding to develop training manuals and resources for manure applicators and site managers. These educational materials will help ensure that manure is safely handled and properly applied.

- Through a contract with MDA, UMN will update a training manual by December 2014 for about 300 Commercial Animal Waste Technicians to help them study for proper management and application of animal waste exams. UMN will also develop curriculum for a Commercial Animal Waste Technician Applicator Certification Training Program in 2015.

Soil Erosion Drainage Law Compliance (BWSR)
FY10-FY15 = $3.4 million

Restores and protects surface water by supplementing local efforts to apply existing soil erosion reduction and drainage statutes and associated rules.

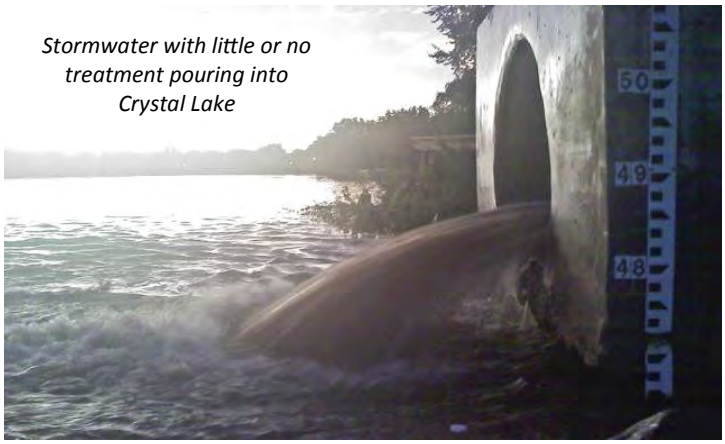
- In FY14, BWSR awarded grants to 23 projects that conducted highly erodible land compliance checks, conservation planning, adoption of erosion control ordinances, and drainage system inspections, inventories and analyses.

Point Source Implementation Programs

Point Source Implementation Grants (PSIG) for Wastewater and Stormwater (PFA)
FY10-FY15 Clean Water Funds = $62.02 million

Provides 50% grants up to $3 million to help municipalities implement wastewater and stormwater projects to comply with TMDL wasteload requirements, phosphorus reduction requirements, water quality based effluent limits, and nitrogen limits for soil-based wastewater treatment.

- From 2010-2014, PFA awarded grants and loans for:
  - 26 wastewater construction projects resulting in a total phosphorus reductions of more than 100,000 lbs./year
  - 3 wastewater construction projects resulting in total mercury reductions of 4,607 mg/year
  - 5 stormwater construction projects reducing phosphorus discharges by 1,272 lbs./year and also resulting in significant decreases in total suspended solids
  - 14 wastewater construction projects in previously unsewered areas to build new community collection and treatment systems or connect to existing municipal systems
- In FY14, PFA awarded 10 grants, totaling $7.8 million, to cities to make wastewater and stormwater improvements. These grants leveraged an additional $7.8 million in other project funding. In FY15, PFA has received 30 PSIG grant applications for $32.5 million.



Stormwater with little or no treatment pouring into Crystal Lake

Point Source Implementation Programs *(continued)*

Small Community Wastewater Treatment Program (PFA)
FY10-FY15 Clean Water Funds = $9 million

Provides grants and loans to assist small communities with replacing non-complying septic systems with community SSTS.

- PFA awarded funds for 5 projects to build new community wastewater collection and subsurface soil treatment systems and 24 small community technical assistance projects to help small communities identify treatment alternatives to address non-complying septic systems.
- In FY14, PFA awarded two technical assistance grants for $63,370 and one construction loan/ grant package for $310,608 to address non-conforming SSTS in unsewered communities. For FY15, there are 23 active technical assistance grants in process.

NPDES Wastewater/Stormwater TMDL Implementation (MPCA)
FY10-FY15 Clean Water Funds = $3.4 million

Staffing costs for wastewater and stormwater efforts to implement TMDLs.

- MPCA conducted workshops to assist stormwater permit applicants with TMDL-related application questions and converted the Stormwater Manual (http://www.pca.state.mn.us/pyria84) to a web-based platform. MPCA is currently developing a reporting form and guidance for stormwater permittees.
- MPCA staff interpret TMDL results to develop appropriate water quality based limits used in wastewater permitting, review facility plans, and help address unsewered communities. To date, 94% of the 500 Wasteload Allocations (WLAs) have been met in permits. In FY14, 63 new WLAs were met in reissued permits, and MPCA increased efforts for addressing un/undersewered communities and completed two new wastewater treatment projects.

Applied Research and Tool Development Programs

Investigation of Groundwater and Surface Water Interaction in NE Metro (Met Council)
FY10-FY15 Clean Water Funds = $537,000

For an agreement with USGS to investigate groundwater and surface water interaction in and around White Bear Lake and surrounding northeast metropolitan lakes.

- Water samples have been collected from lakes and wells for stable isotope and age-dating analysis, data has been collected for statistical analysis of existing hydrologic variables and hydrologic parameters, and field measurements were conducted of White Bear Lake outflow.
- Data collection and analyses are continuing to support upcoming groundwater flow modeling and the development of a USGS Scientific Investigations Report.

Wastewater Treatment System Design and Technical Assistance (MPCA)
FY10-FY15 Clean Water Funds = $750,000

Identify and pilot options for implementing standards, not to develop new standards. The MPCA will work with regulated parties to identify new or more efficient ways of meeting standards at Wastewater Treatment Facilities (WWTFs) (municipal and industrial).

- MPCA has awarded grants for two pilot projects at WWTF for treating contaminants of new or emerging concern and is reviewing a third contract.
- Through MPCA, the UMN has organized wastewater professionals to discuss leading treatment problems including treatment of CECs. Over the next year, the group will further identify wastewater-related challenges with the goal of understanding and proactively solving these challenges.

Applied Research and Tool Development Programs *(continued)*

Applied Research and Tools (DNR)
FY10-FY15 Clean Water Funds = $4.8 million

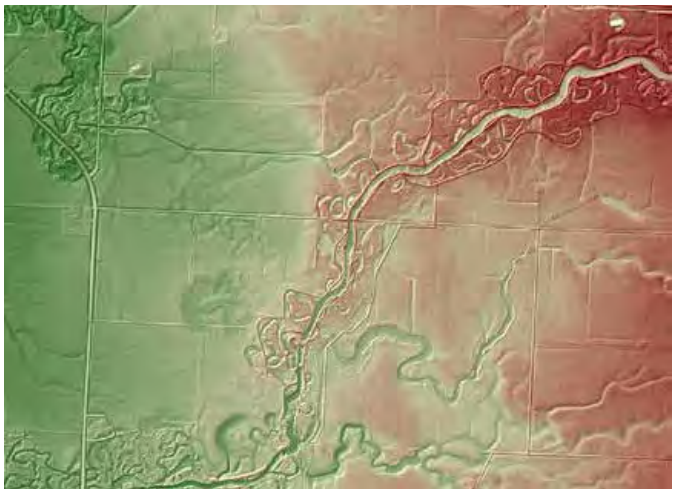
Provide hydrology modeling expertise to improve understanding of the cumulative impacts of drainage and water management on watershed health, and identify combinations of BMPs to improve water quality; maintain/update spatial data for watershed boundaries, streams, and water bodies and integrate LiDAR (Light Detection and Ranging) data; assess relationships among disturbance patterns, BMP applications, and water quality in forested watersheds; maintain the stream biomonitoring database.

- DNR collected and distributed Minnesota LiDAR data, updated and maintained watershed boundary data and developed detailed watershed models, analyzed forestry practices for risk to watersheds, and developed a database for stream information.
- DNR is creating a database to be used for the hydro-modification of high-resolution digital elevation maps created with LiDAR data and continuing watershed modeling and forestry analysis.

Watershed Research and Database Development (Watershed Data Integration Project) (MPCA)
FY10-FY15 Clean Water Funds = $5.1 million

Incrementally connect data management systems that will interface existing systems and provide a central location for reporting, analysis, and data management of watershed data.

- MPCA developed new web search functionality so water data is more accessible to internal and external stakeholders and linked projects to the state financial systems for more accurate tracking and accountability.
- MPCA is developing a new data system for water assessment and listing data, enhancing reporting components, and implementing tracking measures.



Applying sophisticated terrain analysis to LiDAR elevation data helps implementers identify places where conservation practices will be most effective at restoring and protecting water quality. This image is from the Wild Rice River Watershed near Ada.

Stormwater Research and Guidance (MPCA)
FY10-FY15 Clean Water Funds = $1.495 million

For performance of existing stormwater infiltration sites, as identified in Minimal Impact Design Standards (MIDS). Monitor the range of existing infiltration devices and compare to design criteria, maintenance records, and quantify year-round infiltration rates. Develop and refine pretreatment options and standards for municipal stormwater treatment trains.

- MPCA is researching stormwater BMP performance information for incorporation into guidance materials for permitted entities.

Research Inventory Database (MDA)
FY10-FY15 Clean Water Funds = $600,000

This user-friendly, searchable inventory provides researchers, water planners, and the public with access to research relevant to water management in Minnesota. The inventory will grow steadily from its current base of over 1,200 articles, increasing the utility of research that was previously scattered across many websites, reports, and journals.

- MDA completed development of the Minnesota Water Research Digital Research Library which is available online and populated with over 1,200 diverse research articles and scientific reports.

Applied Research and Tool Development Programs *(continued)*

Academic Research/Evaluation (MDA)
FY10-FY15 Clean Water Funds = $4.2 million

Projects focus on supporting the development of agricultural BMPs and quantifying agricultural contributions to impaired waters with a focus on gaining a better understanding of the processes that underlie these contributions. BMPs will be developed and evaluated to protect and restore water resources while maintaining productivity.

- MDA has supported 28 research projects (14 completed and 14 ongoing) to identify processes that affect water quality and evaluate the costs and benefits of specific agricultural practices.
- Four projects were funded in FY14 that included research on cover crops.
- More information about all of the MDA's Clean Water Research is available at www.mda.state.mn.us/protecting/cleanwaterfund/research.

Design BMPs for Water Access Sites (DNR)
FY10-FY15 Clean Water Funds = $85,000

Develop design standards and BMPs for public water access sites to maintain and improve water quality by avoiding shoreline erosion and runoff.

- DNR developed a *Stormwater and Shoreline Best Management Practices for Public Water Access* guide and posted it on the DNR website.

Interagency Water Data Portal Development (MPCA)
FY10-FY15 Clean Water Funds = $2 million

An interagency team has begun planning for a statewide water data portal. The portal would allow users to access data from many agencies from one webpage, rather than searching multiple websites.

- MPCA developed the Key Water Information Catalog (http://es.metc.state.mn.us/KeyWaterList/) as a simple, short-term solution for better data access for water professionals and the public.
- MPCA is analyzing end-user data needs for an interagency data website portal, completed subject matter expert meetings, and is developing data analysis and comparing formats of groundwater, surface water, permitting and spills data.

County Geologic Atlases (DNR)
FY10-FY15 Clean Water Funds = $2.23 million

Work with the Minnesota Geological Survey to accelerate completion or updates to County Geologic Atlases that provide critical groundwater and geology information to local governments.

- DNR supported enhanced chemistry data analysis on 5 County Geologic Atlases and started work on 8 more Atlases.
- For FY14-15, DNR completed 4 County Geologic Atlases and began or is continuing work on five additional Atlases.

Red clover cover crop interseeded between corn rows (2014 MDA Clean Water Fund Research Project entitled Assessing Water Quality Enhancements in Corn Cropping Systems through Optimization of Cover Crop Establishment Technologies).

Appendix B

New Programs Proposed to Receive FY16-17 Clean Water Funds

This appendix contains descriptions for ten programs that the Clean Water Council is recommending receive FY16-17 Clean Water Funds but are not described in Appendix A as they have not previously received Clean Water Funds.

Groundwater Strategies for Local Implementation (MDH)

A barrier to integrating management of Minnesota's surface and groundwater resources is that groundwater management information is developed for a variety of purposes and on a variety of scales that rarely correspond to watershed boundaries. This initiative will take existing information and develop GRAPS on a watershed scale for incorporation into One Watershed, One Plan pilot areas. Local agencies will be consulted to guide GRAPS development. Funds will also be directed to regional or local entities such as Soil and Water Conservation Districts, watershed districts, and counties to provide resources to incorporate GRAPS into local plans and pursue funding opportunities available for implementation of these strategies to protect public and private drinking water sources. This effort builds on the FY15 effort to protect drinking water sources in GWMAs and may be shared by a number of state and local agencies.

Riparian Buffer Information (Color Infrared Imagery and Analysis) (DNR)

Color infrared imagery collected on a five-year rotating cycle will be analyzed to determine the extent of permanent vegetation in riparian areas. That information will be provided to LGUs to support their assessment and compliance efforts, and would be funded through BWSR's Soil Loss and Shoreland Buffer Compliance Program.

Water Reuse (MDH)

Water reuse is in progress in Minnesota, and includes use of harvested rainwater (from roofs), stormwater, gray water, and reclaimed municipal wastewater.

While water reuse has the potential to reduce water costs and demands on water resources, health protection concerns will affect the adoption of water reuse strategies by municipalities, industries, and other interested parties. At this time, no systematic evaluation or policy development on treatment and use options to ensure the health and safety of water reuse has been implemented in Minnesota. These funds would be used for (1) a comprehensive study of non-regulatory and regulatory approaches for ensuring safe and sustainable water reuse, (2) recommendations for practices and policies for water reuse in Minnesota, and (3) work by the UMN to collect and analyze field data for use in targeting Minnesota-specific risks. Various agencies including the MPCA, DNR, MDH, and Department of Labor and Industry (DoLI) all play some role in reuse and would participate in the project.

Critical Shoreland Protection - Permanent Conservation Easements (BWSR)

A pilot program to purchase permanent conservation easements to protect lands adjacent to public waters with good water quality but threatened with degradation.

Tillage and Erosion Transects (BWSR)

Program to systematically collect data and produce statistically valid estimates of the rate of soil erosion. It will track the adoption of high residue cropping systems in the 67 counties with greater than 30% of land in agricultural row crop production.

Soil Loss and Shoreland Buffer Compliance (BWSR)

Protect and restore surface water quality by supplementing local efforts to ensure compliance with state soil erosion statutes and shoreland buffer rules.

Appendix B

Perennial and Cover Crop Research (MDA)

To develop perennial and cover cropping systems specific to Minnesota that are necessary to protect and restore the state's surface and groundwater resources while increasing efficiency, profitability, and productivity of Minnesota farmers.

Stormwater BMP Performance Evaluation and Technology Transfer (MPCA)

Enhance data and information management of stormwater BMPs; evaluate BMP performance and effectiveness to support TMDL compliance; develop standards and incorporate them into state of the art guidance using MIDS as the model; implement a knowledge and technology transfer system across local government, industry and regulatory sectors. The funds would be passed through to the UMN.

Conservation Reserve Enhancement Program (CREP) (BWSR)

Interagency effort to implement a Conservation Reserve Enhancement Program aimed at restoring surface water quality in areas targeted for nutrient reductions and protecting sensitive groundwater and drinking water resources.

Water Demand Reduction Grant Program Pilot (Met Council)

These grants would encourage implementation of water demand reduction measures by municipalities in the Twin Cities Metro Area to ensure the reliability and protection of drinking water supplies. Some of these measures would include but are not limited to: municipal, commercial and residential water use audits, indoor water use and summer peak use reduction mainly targeting smart outdoor water use and old inefficient toilet swap.

Restoring wetlands from marginal farmland, as pictured here, is one component of the CREP program. Restored wetlands provide a benefit to both wildlife and water quality.

Appendix C
Impact of the Impaired Waters Program and Groundwater Restoration and Protection on Economic Development

The CWLA requires the Council to include "*information on the impact on economic development of the implementation of efforts to protect and restore groundwater and the impaired waters program.*" Economic development can be defined as the "*sustained, concerted actions of policy makers and communities that promote the standard of living and economic health of a specific area.*" To date, there is not a study that specifically analyzes these impacts to Minnesota's groundwater and impaired waters. Therefore the section below simply provides information that may be of interest. It is recommended that a future study, if conducted, include a broader analysis of all ecosystem services.

Water Valuation Technical Work Team Report (Minnesota Water Sustainability Framework)
(http://wrc.umn.edu/watersustainabilityframework/)

- The price of residential water is extremely variable, with 2005 rates in 91 Twin Cities Metro Area communities ranging from $0.58 per 1,000 gallons to $5.40 per 1,000 gallons.
- Comparing the per-acre profit from irrigated and non-irrigated lands on the same farm yields a value for irrigation water of $0.04/gallon.
- An Iowa study estimated the recreational value of improving water quality of $150 per year per household. Ecosystems provide flood-control services. The value of this service for one Minnesota lake was estimated at $440 per acre.
- Contingent valuation studies indicate that people are willing to pay for improved water quality.

Impaired Waters
(http://www.pca.state.mn.us/lupg1125)

- 4,114 pollutants or stressors impair Minnesota waters according to MPCA's 2014 draft 303(d) list.
- The Clean Water Act prohibits any new or expanded discharge to impaired waters until a TMDL is completed if the discharge negatively affects impaired water bodies.

Draft Strategic Plan for the DNR Groundwater Management Program
(http://files.dnr.state.mn.us/waters/gwmp/gwsp-draftplan.pdf)

- Current use of groundwater and projected demand is outpacing supply in several areas of Minnesota.
- Overuse of groundwater can negatively impact other groundwater users and highly valued resources such as trout streams, wetlands, groundwater-connected lakes and rivers, as well as the fish, wildlife, and native plant communities that depend on them.

Future Wastewater Infrastructure Needs and Capital Costs (MPCA)
(http://www.pca.state.mn.us/index.php/view-document.html?gid=17157)

- In 2011, Minnesota communities identified over 1,100 wastewater infrastructure projects at a cost of over $3.6 billion dollars.

Clean Water Fund Performance Report
(http://legacy.leg.mn/funds/clean-water-fund)

- $142.1 million was awarded in grants and contracts to non-state agency partners in FY10-13.
- $106 million was leveraged by Clean Water Funds in FY10-13, or $1.16 for every dollar invested.
- CWF supported at least 247 non-state agency FTEs in FY14-15.

Fishing and Hunting
(http://www.fishwildlife.org/files/Hunting_Economic_Impact.pdf and http://asafishing.org/facts-figures/sporfishing-economics/)

- Minnesota fishing supports 43,000 jobs in the state, generates $2.8 billion in direct annual expenditures and contributes more than $640 million a year in tax revenues.
- Minnesota hunters, estimated at nearly 600,000 people, spend approximately $482 million annually generating about $64 million in state taxes.