

**Middle
Fork Crow
River
Watershed
District**

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2010 Annual Report

Education

Today's students are tomorrow's stewards. Such is the philosophy behind the Middle Fork Crow River Watershed District's (MFCRWD) education program. By teaching students about the many different ways our actions can affect water quality, they will ultimately be empowered to make choices that can positively impact the health of our local lakes and streams. To this end, the District is working with area teachers to incorporate water quality education into their classrooms with activities that help teachers meet current state educational standards.

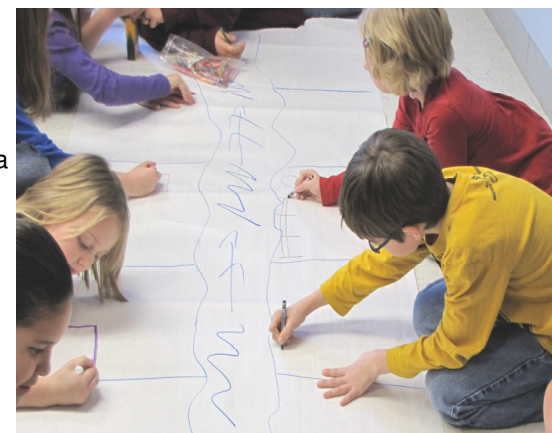


This program has grown from a small effort with two teachers at a single school to a formal program across all school districts in the watershed and we've partnered with the NCFRWD in one district. The program has officially been named the MFCRWD STREAM (Student-Targeted Resource Education, Awareness, and Management) Program. From 2009-2011, staff had the opportunity to work with 96-4th graders at ACGC; 204-5th graders, 140-8th graders and 85-10th-11th graders at NL-S; 40-5th graders, 58-6th graders, 50-7th graders and 50-8th graders at BBE-that's more than 720 area students with a better understanding of water quality!

Funded in part through the Minnesota Pollution Control Agency's Clean Water Partnership program, the STREAM program begins by building a basic understanding of watersheds and the water cycle before moving into more advanced topics, such as best management practices, erosion, non-point source pollution, stormwater, cumulative effects, water chemistry, and macroinvertebrates – the small bugs that live in our water bodies.

With the STREAM program, students employ a number of dynamic activities to reinforce important concepts and to learn about the impacts of individual actions on our lakes and rivers. Interactive games, a tabletop watershed model, field and laboratory investigations, presentations, and Q&A sessions all serve to keep the students engaged while emphasizing the importance of personal responsibility and ownership of our water resources.

The positive feedback the District has received from area teachers has led to the beginning of a pilot program that will ensure a more formal approach to satisfying the state standards that teachers are held to, while increasing the reinforcement of the lessons taught under the STREAM program. The MFCRWD is excited to see the students' knowledge and understanding of their water resources grow over time!



Monitoring Our Waters



Volunteers continue to be a strong force in our monitoring efforts throughout the watershed. This year lake volunteers collected secchi disk readings, water temperature, and chemistry samples on Calhoun, Diamond, George, Green, Long, and Nest lakes. Stream volunteers collected transparency tube readings, water temperature, and chemistry samples at five stream sites. Precipitation data was also collected by volunteers around the watershed.

The results of our lake volunteers' efforts can be seen in the chart below.

In addition to the data collected by our volunteers, District staff collect flow and water quality data at eight stream sites and two lake sites. By collecting and analyzing water quality data throughout the watershed, we can develop a better understanding of the quality of our lakes and streams. We can evaluate trends and better plan future water quality improvement projects.

Funding for the volunteer monitoring program was provided through the Minnesota Pollution Control Agency's Clean Water Partnership Continuation grant.

The Middle Fork Crow River Watershed District would like to extend a huge thank you to our 2010 volunteers: Ruth Schaefer, Lee Thompson, Mel Wensman, Harlan and Sherri Meints, Randy and Mary Jo Patton, Riley and Jill Nelson, Bill and Ann Latham, Graden West, Dave Spears, LuAnn Glieden, Gordy Behm, Dean Lovold, Jeff and Nancy Johnson, and Bob Hodapp.

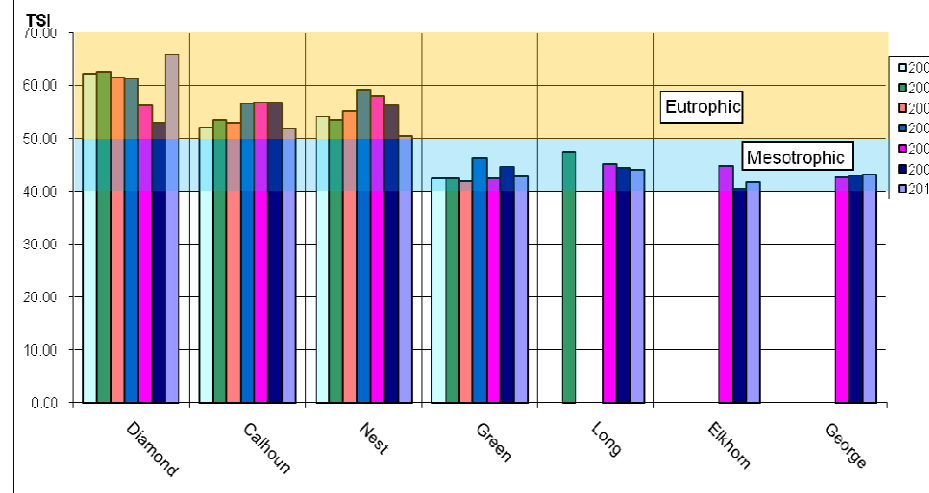
Trophic Status Index (TSI) What does it mean?

Mesotrophic: Water moderately clear; increasing probability of no oxygen in the lowest levels during summer.

Eutrophic: Decreased transparency, lack of oxygen in the lower levels during the summer, weed problems evident, warm-water fisheries only.

Hypereutrophic: Dominance of blue-green algae, algal scums probable, extensive weed problems. Heavy algal blooms possible throughout the summer.

Middle Fork Crow Lakes TSI values 2004-2010



Belgrade Stormwater Mitigation Project

For the past two years, the Watershed District has been working with the City of Belgrade on a stormwater project to help mitigate the flooding that occurs in and around the intersection of highways 71 and 55. Flooding has been a problem at this intersection for many years and the City was interested in eliminating the problem by improving water conveyance.

Rather than running a pipe directly from the affected areas and into the river with no treatment of the stormwater and its associated pollutants, the City and the Watershed District felt that protecting water quality in this important headwater area of the Middle Fork Crow River was necessary. The competing goals of flood mitigation and improving water quality have provided a challenge throughout the planning and designing of this project.

This stormwater mitigation project will include areas of infiltration and ponding to allow stormwater to be filtered through the sandy soils and discharged more slowly to the river. Nutrients, grass clippings, leaves, trash, oil, pet waste, sand, and road salt that often comprise stormwater will be filtered out, improving water quality in the river. By providing areas of increased storage & infiltration, flooding in the intersection will be reduced and velocities at the outlet to the river will be slow enough to not cause additional degradation of the channel. Construction should begin this spring.

Funding for the project will come from the City of Belgrade, the Minnesota Pollution Control Agency's Clean Water Partnership Continuation Grant, Minnesota Department of Transportation, and the Crow River Organization of Water.

Best Management Practices

Best management practices (BMPs) are practices that help improve water quality, erosion control and assist in improving land productivity. The MFCRWD helps fund BMPs with cost share funding and State Revolving Fund (SRF) low interest loans. These projects are often initiated by a landowner inquiry to the MFCRWD office or any of our Soil and Water Conservation District, Natural Resources Conservation Service, county, DNR or local lake association partners.



There are a number of different types of BMP projects that a landowner could implement. Some examples include wetland restoration, buffer strips, sediment blocks, manure management, animal exclusions, raingardens and many more. In 2010 the District installed three different BMPs that focus on shoreline issues.



BMP's implemented in 2010 included one shoreland restoration, a shoreland restoration/raingarden, and one bank stabilization/restoration. These projects focused on minimizing the impact of these properties on Nest Lake, Long Lake and Green Lake.

The MFCRWD is looking to fund a variety of projects in 2011. If you are interested in implementing a BMP project please contact us to see if your project is eligible for cost share funding!



2010 Open House

In April, 2010 the MFCRWD hosted an open house in honor of our 5th anniversary. More than 50 citizens took time out of their evening to learn about the programs and projects taking place throughout the watershed over the past five years. Displays of many of our key grants were set up to provide information to the public, including the myriad best management practices implemented, education programs, monitoring, stormwater improvement efforts, aquatic invasive species, and our newly procured grants. Attendees were able to ask questions and discuss future activities with the Board and Staff. The Watershed District will continue this tradition with a slight variation in 2011; to accommodate more of our 'snow birds', we will hold our annual open house on June 7, 2011. We hope to see you there!



Park Lane Stormwater Mitigation

In late 2009, the Watershed District collaborated with the City of Spicer and local property owners to implement a major stormwater management and stream restoration project on an inlet to Green Lake. Water quality samples collected from this ephemeral, or temporary, stream indicated that very high concentrations of sediment and nutrients were being delivered to Green Lake via this inlet.

A series of pools and riffles was constructed and native vegetation was planted within the channel with the purpose of slowing water velocities, dropping sediment and reducing nutrient loading into the lake. The project was designed by Emmons & Olivier Resources.

Local buy-in to this stormwater mitigation project was made evident by the donation of perpetual easements by adjacent property owners to the City of Spicer. Partial funding for this important project came from the Minnesota Pollution Control Agency's Clean Water Partnership grant and a Federal 319 Stormwater grant.

One growing season has now passed, and the project is having a very positive affect on the quality of water passing through the channel into Green Lake. Watershed District Staff monitored the water quality before and after installation. Water samples were analyzed for total suspended solids (TSS), total phosphorus (TP) and orthophosphate (OP-a dissolved form of phosphorus that is readily available for plant and algae uptake). Average annual TSS was reduced from 2290 milligrams per liter (mg/L) in 2009 (before project) to 26 mg/L in 2010. Average annual TP in 2009 was 2180 micrograms per liter (ug/L) as compared to 143 ug/L in 2010.



Similarly, average annual OP in 2009 was 130 ug/L and average annual OP in 2010 was 75 ug/L. Monitoring of water quality at this Green Lake inlet will continue.

Maintenance for most best management practices becomes the responsibility of the land owner as projects typically involve privately owned land. Because the property owners adjacent to this channel donated easements to the City of Spicer, a memorandum of understanding was developed between the City and Watershed District to ensure regular maintenance takes place to encourage establishment and ongoing success of the project.

Diamond Lake Chain of Lakes

This fall, Ducks Unlimited presented a possible water quality project to the District involving a temporary drawdown on the chain of shallow lakes that flow into Diamond Lake. The chain is comprised of Shultz, Wheeler, and Hubbard lakes. The purpose of the drawdown would be to improve the water quality of Diamond Lake's principle inlet and in Diamond Lake by reducing carp and rough fish in the shallow lakes and establishing native vegetation.

Carp uproot vegetation and disturb the sediment on the lake bottom, suspending phosphorus into the water column and increasing turbidity (murkiness). Reducing the rough fish population would allow phosphorus to remain adsorbed to sediment in the lake bottom, water clarity would improve, and the native submergent and emergent vegetation that would be established would aid in nutrient uptake; these effects would have a direct impact on the water quality of Diamond Lake.

The MFCRWD and Diamond Lake Area Recreation Association will contribute monies to Ducks Unlimited to



conduct a feasibility study to determine the options, costs, and likelihood of success of a temporary drawdown to improve water quality. Ducks Unlimited is scheduled to complete the feasibility study in 2011.

New Grants

Clean Water Partnership Continuation Grant -

On January 31, 2010 our Clean Water Partnership Grant officially ended. This grant had been vital to many of our efforts over the past 3 years, including best management practice (BMP) implementation, water quality monitoring, youth and adult education and many more activities.

None of these activities were forced to stop, however, as the Watershed District was awarded a Clean Water Partnership Continuation Grant through the Minnesota Pollution Control Agency (MPCA). We received the fully signed grant in March 2010; it will run through June 2013.

With this grant, we will continue our water quality monitoring efforts - including our outstanding volunteer monitoring program - and the implementation of best management practices that have led to many important water quality improvement projects. We are excited to continue our intensive youth and adult education programs with funding from this grant.

Conservation Drainage Grant -

On June 30, 2010, the Watershed District received a fully signed Conservation Drainage grant from the Board of Water and Soil Resources (BWSR). These funds are from the 3/8 percent sales tax increase amendment that was passed in 2008.

This grant will fund a pilot project focusing on drainage water management through the installation of controlled drainage systems. Such systems have proven to significantly reduce water volumes, total phosphorus, and nitrate exports via tile lines to receiving water bodies while improving crop yield. The long term goal of this project is to increase acceptance of such practices in this region.

This pilot project will compare the discharge and water quality in two tile lines draining a field near Atwater. In August, flow monitoring equipment was installed in each tile line and a water control structure was installed in one of the lines. Water quality samples were collected in addition to precipitation and flow data. Data will be collected throughout 2011 as well. Once the data has been collected and analyzed, should the results warrant, we will host a presentation for area land owners and producers to share our findings about this new conservation practice.

For more information on controlled drainage and other conservation drainage practices, check out the Agricultural Drainage Management Coalition's website: www.admcoalition.com!

Clean Water Partnership Eurasian Watermilfoil/Stormwater Study -

The Watershed District received a second fully signed Clean Water Partnership grant in March 2010 from the MPCA: the CWP Eurasian Watermilfoil/Stormwater Study. This grant will allow us to carry out a scientific study designed to test our hypothesis that stormwater inlets are providing the nutrients and sediment that are making Green Lake more hospitable for the propagation of Eurasian Watermilfoil (EWM) to take place in Green Lake.

A project kickoff meeting was held with project partners this spring and in September MFCRWD staff collected vegetation samples at 30 sites around Green Lake and analyzed the samples for the presence of EWM. Sediment cores will be collected at the same sites this winter and analyzed. The grant runs through June 2013.



Major Watershed Restoration and Protection Project-

The MPCA has adopted a new approach to completing Total Maximum Daily Load (TMDL) studies for impaired water bodies in the state. Rather than complete a TMDL for one water body at a time, the new approach intensively monitors and assesses lakes and river reaches throughout a watershed at the same time. This will cut down on the time and money spent on completing individual TMDLs.

During the summer of 2010, District staff worked with our project partners, the North Fork Crow River Watershed District and Crow River Organization of Water, to collect dissolved oxygen data at select stream sites along in the Crow River watershed. Next steps for this project will include modeling water quality data and identifying critical pathways contributing to impairments.

Citizen Advisory Committee

The Citizen Advisory Committee (CAC) is made up of a variety of people who represent the diverse interests within the MFCRWD. State Statute requires that all watershed districts have a CAC to assist the Managers with carrying out the mission of the District. In 2010, members met on several occasions, and concluded that the CAC can best serve the District by helping to inform the general public of the projects that are being implemented by the MFCRWD and by helping staff with displays at local community events.

The CAC held its annual meeting on September 17th at Melvin's on the Lake in Spicer. Members were updated on the many activities that the District worked on during the past year. CAC members Trudie Guptill, Troy Block, Greg Lecy and Doug Hanson were recognized for going 'above and beyond' in terms of defining the role of the CAC. We would like to thank them for their dedication to the MFCRWD, and at the same time, we would like to extend our appreciation to Nancy Johnson for serving as the first MFCRWD CAC chairperson, and to Harlan Meints and Troy Block for serving as co-chairs in 2011!



Grass Lake Water Quality Modeling Partnership

Grass Lake is a 1,200 acre prairie wetland basin near the City of Willmar that was drained many years ago. County Ditch 23A, which serves as the headwaters for the South Fork Crow River, runs through Grass Lake south to Lake Wakanda and drains agricultural runoff as well as stormwater from the City of Willmar. Restoration of this wetland will provide improved downstream water quality, flood storage, and wildlife habitat.

Kandiyohi County is one of the many partners involved in this complex restoration project. Recently, the County approached the MFCRWD with an opportunity to collaborate. Grab samples for water chemistry and flow data have been collected at two stream sites. To determine the annual load of nutrients and sediment that are passing through these stream locations and into the wetland based on limited grab samples and flow data, a water quality model is used; the model used in this instance is called "FLUX". Staff of the MFCRWD have used FLUX to determine loads throughout the Middle Fork Crow River watershed and will be partnering with the County to apply the model to the Grass Lake data. These sites will continue to be monitored during and after the restoration and modeling results can be used to determine the overall effectiveness of the project.

Nest Lake Curly Leaf Pondweed Management Program



For more than 10 years the Nest Lake residents have been battling an infestation of curly leaf pondweed. Despite the use of a mechanical harvester and volunteer labor to remove the curly leaf pondweed, the weed continues to contribute to degraded water quality and interferes with recreational opportunities on the lake. Lake residents wanted to do more to reduce the nuisance level of curly leaf pondweed while improving the water quality and ecological wellness of Nest Lake.

At the January 2010 Board meeting, the District received a petition from the Nest Lake Improvement Association

(NLIA) for assistance with the formation of an aggressive curly leaf pondweed management program. As part of the petition process, an engineer's report was completed (by Wenck Associates) to research and discuss various treatment options and associated costs. A combination of herbicide treatment and mechanical harvesting was chosen as the preferred option.

The next step of the petition process is to appoint viewers to determine the benefits and damages to affected property owners of curly leaf pondweed management and improved water quality. Upon completion of the viewer's report, a public hearing will be held for affected property owners. Finally, the project will be officially established and the special assessment will be collected to fund the curly leaf pondweed management program on the lake.

In addition to the petition, the NLIA applied for, and was awarded, a grant through the MN DNR to treat 60 acres of curly leaf pondweed with an herbicide in 2010. The Association continued to mechanically harvest curly leaf pondweed throughout the season in addition to the 60 acres of herbicide treatment. A point intercept survey will be conducted in 2011 to determine the success of the treatment, but initial observations indicate that the treatment was successful.

Financial Report

The MFCRWD signed three new grants in 2010 and is acting as fiscal agent on a partner-led contract. A summary of our grant and contract agreements follows:

- Diamond Lake Total Maximum Daily Load study (contract): \$176,215 for the completion of a TMDL study, which will lead to an implementation plan for the improvement of water quality in Diamond Lake. The contract runs through June, 2011.
- Conservation Drainage in the Middle Fork Crow River Watershed: This grant provides \$15,600 to study the impacts of controlled drainage systems on nutrient exports. It runs through December, 2011.
- 319 Stormwater Assessment Grant: \$140,000 in grant funds and \$100,000 for low interest loans. The overall goal of the grant is to reduce the impacts of stormwater runoff by implementing a variety of stormwater treatment options in the cities of New London and Spicer. The grant was signed in Nov, 2008, and runs through Aug, 2012.
- Clean Water Partnership Continuation Grant: This grant provides \$350,000 in grant funds and \$150,000 for low interest loan funds. It allows us to conduct education and outreach programs, water quality monitoring and evaluation, and BMP implementation throughout the entire Middle Fork Crow watershed. The grant runs through June, 2013.
- Clean Water Partnership Eurasian Watermilfoil (EWM)/Stormwater Study: This grant provides \$33,000 in grant funds to study the hypothesized relationship between stormwater inlets and the establishment of EWM stands in Green Lake. It runs through June, 2013.
- Major Watershed Restoration & Protection Project: This contract provides funds for the MFCRWD and project partners to conduct a region-wide TMDL study. The MFCRWD is the fiscal agent for this project, which provides \$300,000 for implementation.

<u>2010 AUDIT</u>	
<u>SUMMARY OF REVENUES, EXPENSES, AND CHANGES NET ASSETS</u>	
Revenues	
Grants	\$165,491
General fund	\$246,293
State aid	\$15,455
Interest Income	\$7,634
Miscellaneous	\$4,260
Total Revenues	<u>\$439,133</u>
Expenditures	
Meetings	\$15,664
Contract labor	\$100,870
Administrative	\$7,626
BMP implementation expense	\$36,036
Professional expenses	\$23,864
Employee benefits	\$16,790
Dues	\$3,648
Insurance	\$4,181
Payroll expenses	\$129,289
Payroll tax expense	\$10,324
Utilities	\$1,736
Monitoring	\$13,741
Office expense	\$4,743
Public education	\$6,733
Miscellaneous	\$1,745
Depreciation	\$6,826
Rent	\$8,550
Total Expenses	<u>\$392,366</u>
Change in Fund Balance	\$46,767
Fund Balance January 1	\$356,884
Fund Balance December 31	\$403,651

The complete audit report is available at the Middle Fork Crow River Watershed District Office.

Diamond Lake Total Maximum Daily Load (TMDL) Study

Diamond Lake was added to the Minnesota Pollution Control Agency's (MPCA) list of impaired waters in 2006 due to excess nutrients, specifically phosphorus. In 2008, the MFCRWD entered into a contract with the MPCA and retained a consultant to carry out a total maximum daily load (TMDL) study. The goal of the TMDL is to identify the sources of the excess nutrients.

Monitoring took place throughout 2008 and 2009 on Diamond Lake and Schultz, Wheeler and Hubbard lakes which comprise the chain of shallow lakes that drain into Diamond Lake, as well as five streams that flow into the lake and the outlet of the lake. Chemistry samples and physical data were collected at each site, in addition to flow data at the stream sites.

Once the monitoring data had been collected, District staff worked with our consultant (Houston Engineering) to

complete lake and watershed modeling and the development of the implementation plan. The monitoring report and draft TMDL, which includes an implementation plan, have been completed and sent to the MPCA for their comments. Those comments will be incorporated and the report will then be sent to the federal Environmental Protection Agency for their comments in January 2011. Their comments will be considered and the TMDL will be sent back to the MPCA. The TMDL will then be on public notice for citizens to read and comment on. After the public notice is complete, the report will be sent to the EPA for finalization. The MFCRWD plans to host a final public meeting to discuss the draft TMDL and implementation plans, as well as answer any questions residents may have.

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Coming up in 2011



2011 promises to be another busy year at the Watershed District. With spring snowmelt, our monitoring efforts throughout the watershed will once again commence and we will continue our extensive and successful volunteer monitoring program. Best management practices (BMPs) will be at the forefront again with continued cost-share funds available through the Clean Water Partnership Continuation grant. The Belgrade stormwater mitigation and water quality improvement project will be installed, improving water quality in our important headwaters area. Water quality education with our area school districts will also continue and we hope to introduce our pilot program in New London-Spicer to formalize our efforts and assist teachers in meeting state education standards with creative, hands-on water quality lessons.

Work will also continue work on our CWP Eurasian Watermilfoil/Stormwater and Conservation Drainage studies, and the Major Watershed Restoration and Protection Project. The District will work with citizen groups to address aquatic invasive species issues in addition to working with the Nest Lake Improvement Association and their curly leaf pondweed management program. We are also hoping to host a summer tour of some of the BMPs that we have installed over the past 4 years. Keep on eye out for more information to come this summer!

New Office Space

Over the past couple years, District staff and Board members have realized that we are outgrowing our current office space. Since moving into our current location, the District hired two additional full time staff members and purchased many pieces of monitoring equipment. Our leased space does not offer storage space for our monitoring equipment, nor does it provide private office space for the employees. With the board room tripling as a storage room as well as a laboratory for calibrating equipment, meetings can get crowded.

A subcommittee of the Board of Managers was formed to gather information on possible building or remodeling options at different locations to better meet the District's needs. They met with a local architect to work out office, storage, and meeting space requirements. The subcommittee has also looked into several open lots and buildings for sale. As of yet, no decisions have been made to purchase a building or open lot. The Board and staff are very appreciative to Duane Day for generous donations of much of his time, pro bono.

Other MFCRWD Outreach

The Middle Fork Crow River Watershed District had many opportunities to support and contribute to our local communities and clean water projects this past year. Contributions were made to the Earth Day celebration at Prairie Woods Environmental Learning Center, the Gary and Cindy Westby scholarship for a senior from the New London-Spicer high school, the Kandiyohi County Aquatic Invasive Species committee for education and information activities, and the Crow River Organization of Water's Clean up the Crow program.

