



2005 Annual Report to the U.S.  
Environmental Protection Agency on

**CLEAN WATER ACT SECTION 319 AND  
CLEAN WATER PARTNERSHIP  
PROJECTS IN MINNESOTA**

November 2005





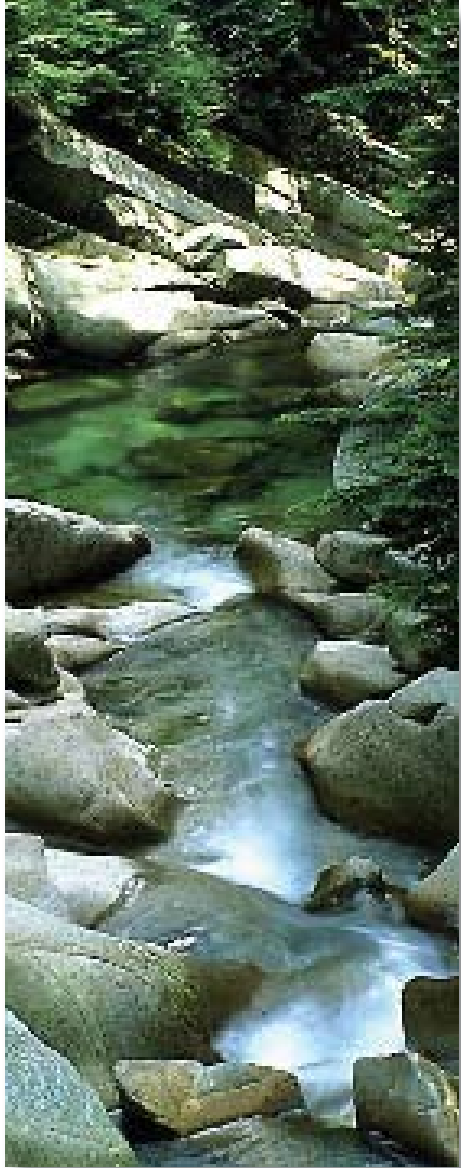


2005 Annual Report to the U.S.  
Environmental Protection Agency on  
**CLEAN WATER ACT SECTION 319 AND  
CLEAN WATER PARTNERSHIP  
PROJECTS IN MINNESOTA**



**TABLE OF CONTENTS**

Introduction ..... 1  
Impaired Waters — MPCA’s top Priority ..... 3  
LARS and eLINK Results for 319/  
CWP Projects: 1997-2005 ..... 5  
Project Summaries for 2005 ..... 8  
CWP Projects ..... 9  
319 Projects ..... 17  
Projects Awarded in 2005 — CWP..... 35  
Projects Awarded in 2005 — 319 ..... 37  
Projects Currently Active..... 39  
Projects Completed History ..... 47



# Watershed Achievements Report

## INTRODUCTION

This report provides specific information about focused nonpoint-source water pollution activities funded by the Clean Water Act Section 319 and Clean Water Partnership (CWP). It also describes Minnesota's efforts to protect, improve and restore the state's waters.

The MPCA's water programs operate under a geographically based watershed approach to support local efforts to assess, protect and restore the state's waters. This approach focuses on the state's 10 major river basins and watersheds, providing data, technical assistance and training to obtain results.



## WATER UNDER STRESS

A 2003 MPCA study looked at stresses on Minnesota's environment, using scientific data, public perception, populations projections, federal mandates and legislative intent. The study pointed to concerns about deteriorating water quality. Among the top five stressors identified were phosphorus, transported sediments and habitat modification. The top five sources of pollution were agricultural runoff, urban runoff and pesticide use. The MPCA has reported that point sources contribute 14 percent of the state's water pollution and nonpoint sources 86 percent. A recent report, St. Croix Basin Phosphorus-Based Nutrient Goals, came up with a 20-percent point-source to 80-percent nonpoint-source estimate for that basin, adding to evidence that nonpoint-source pollution is the primary problem facing Minnesota's waters.

## SETTING GOALS

The goals and objectives of the MPCA's strategic plan for water quality are:

- Assess the status or condition of Minnesota's ground-water systems.
- Prevent or reduce degradation and depletion of ground water
- Assess the chemical, physical and biological integrity of lakes, streams and wetlands to identify if designated uses are being met and to provide information on the condition of waters.

- Maintain and enhance the chemical, physical and biological integrity of Minnesota lakes, streams and wetlands so that water-quality standards and designated uses are met and degradation is prevented.
- Restore the chemical, physical and biological integrity of Minnesota lakes, streams and wetlands that do not support designated uses.

The strategic plan includes environmental indicators that are reported upon regularly. This plan is setting the stage for convergence of point- and nonpoint-source programs, with the watershed model becoming the umbrella under which all activities take place and Total Maximum Daily Load studies and implementation plans a major tool. The MPCA's statewide five-year Nonpoint Source Management Program plan is available on the MPCA Web site at [www.pca.state.mn.us/water/nonpoint/mplan.html](http://www.pca.state.mn.us/water/nonpoint/mplan.html).

## PARTNERS IN WATER QUALITY

Reducing nonpoint-source water pollution will require:

- Partnerships among all levels of government
- Partnerships among government, businesses and citizens
- Understanding the impact of individual actions on common water resources
- Local efforts placed in the context of entire watersheds

# Watershed Achievements Report

- Research aimed at diagnosing impairments and targeting resources toward the biggest problems facing specific water resources
- Public awareness, education and action
- Information and data sharing
- Leveraging resources to achieve the greatest benefits at the least cost.

The MPCA works with partners to achieve these aims in many ways, including the Section 319 and CWP programs and funding. Under Section 319, the states:

- Identify the nonpoint-source controls necessary.
- Specify the programs that will apply the controls.
- Certify that the state has adequate authorities to implement these measures.
- Identify all sources of funding for these programs.
- Establish a schedule for implementation.

The goals of the CWP include:

- Diagnosing problems and threats to water resources
- Developing solutions for reducing the impacts of nonpoint-source pollution on water resources
- Implementing these solutions.

An interagency Project Coordination Team (established in statute) assists the MPCA in prioritizing Section 319 and CWP grant applications that target polluted waters and demonstrate a good chance of success. Financial and in-kind contributions from local sponsors and their communities are substantial, exceeding the 50-percent match requirement in most cases.

## STATEWIDE IMPACTS

The MPCA has assessed approximately 14 percent of lakes and eight percent of streams in Minnesota. More than 900 lakes and nearly 600 stream segments have been identified as impaired so far. The MPCA set a goal of assessing all Minnesota waters for impairments by 2015.

Data regarding the cumulative reductions in phosphorus, soil loss and sedimentation statewide have been available from the Minnesota Board of Water and Soil Resources' Local Annual Reporting System (LARS), with an upgrade

to the system called "eLink" now in place (statistics appear at the front of this report). Minnesota also works with other states and nations on protecting and improving water resources. Among cooperative interstate/international projects:

- Partnership with Great Lakes states and Canada on zero discharge of nine toxic chemicals.
- Joint water-quality monitoring in the Rainy River Basin with Canada.
- Emergency response and spill drills led by the U.S. Coast Guard and multiple Minnesota and Wisconsin jurisdictions.
- A joint Minnesota/Wisconsin St. Croix Basin Planning Team.

## FUTURE TRENDS

When Minnesotans get the message that their lakes or rivers are in trouble, most are ready to step up and do their parts. Among the trends:

- Most projects have a public education and awareness-building component.
- Technical assistance and consultation will become a major factor in how smaller communities respond to nonpoint-source pollution problems.
- Population expansion, especially in the growth rings around major cities and on the North Shore of Lake Superior, are driving economic development options that preserve water quality.
- Monitoring and stewardship of ground water resources will improve.
- Targeted education, technical assistance and partnerships will be important in achieving good stormwater management statewide.
- The engagement of Minnesota's agricultural community in water-quality issues sets the stage for future cooperation.
- The impaired waters process will continue to bring together point- and nonpoint-source activities.

The Section 319 and CWP programs are well positioned to bring together the visions of local partners with the funding and assistance to make great things happen.



# Watershed Achievements Report

## IMPAIRED WATERS – MPCA'S TOP PRIORITY



Like many states, Minnesota is currently not making sufficient progress to restore water quality to standards in waters found to be impaired. As of 2005, the state has 1,890 listed impairments on 1,115 lakes, rivers and streams, with an updated listing of more new impairments due to the U.S. EPA in early 2006. Lack of progress on restoring our waters is not good for the quality of life in Minnesota and has potentially serious consequences for business, tourism and economic development.

To date we've only assessed about eight percent of the state's streams and 14 percent of its lakes for impairments. About 40 percent of these have been found impaired (other states report finding similar rates of impairments). Assessment of all state waters is projected to be completed in the next decade; with more than 12,000 lakes and 92,000 miles of streams in the state, it's clear we can expect to find thousands more impairments in the coming years.

Addressing impaired waters is the MPCA's top priority. There are three primary reasons driving this:

- First is restoring and protecting our famed legacy of water resources. Minnesota has more surface waters than any of the other 48 continental United States. We have a 10 billion-dollar-a-year tourism industry that is based on Minnesota's water resources. Finally, every survey by the MPCA and others shows Minnesotans rank protection of surface water as their top environmental priority.

- Second, addressing impaired waters is a priority because it affects growth and the health of Minnesota's communities and economy.

The Clean Water Act prohibits new or expanded wastewater discharges to impaired waters. This prohibition has taken on new import with a recent court decision. In August 2005, the Minnesota Court of Appeals blocked the permit MPCA issued for the proposed Annandale-Maple Lake wastewater facility, citing the impact the new facility would have on nutrient-impaired Lake Pepin. The MPCA had sought to accommodate the prohibition by incorporating pollutant offsets into new permits, but a majority of the appeals court said a plain reading of the Clean Water Act does not allow offsets.

With the watershed of Lake Pepin, a natural lake on the Mississippi River, covering more than half the state, this court decision affects many other communities that are or will be seeking expansion permits. Expansion is effectively halted in those communities. It affirms why Minnesota must take action immediately to enact a comprehensive policy and funding strategy for testing our lakes, rivers and streams, completing TMDLs, and implementing the appropriate restoration measures.

- The third reason impaired waters are a priority is the Clean Water Act's mandate requiring the states to address them.

# Watershed Achievements Report

This mandate is currently under-funded. The MPCA receives a small amount of funds for assessing water quality and doing TMDLs. While more money is needed to adequately address these two areas, the biggest need is for money to implement restoration activities — an estimated \$600 million to \$3 billion dollars for currently listed waters alone.

The federal mandate alone might not make this a state priority; but combine the mandate with the value Minnesotans place on their water resources and their importance to tourism, economic growth and community growth, and the issue of impaired waters clearly is top priority.

## MINNESOTA'S RESPONSE — THE CLEAN WATER LEGACY ACT

In June 2003 the MPCA and a group of interested and affected stakeholders began the process of designing a legislative proposal for the impaired waters funding gap. This effort was initiated by a January, 2002, finding by the Minnesota Office of the Legislative Auditor (OLA) of the under-funded Clean Water Act requirement to identify, evaluate and restore waters not meeting water quality standards. The OLA recommended that MPCA report to the 2003 Legislature with a multi-year implementation and financing plan to meet this requirement.

In response, an unprecedented coalition of business, agriculture, local government, and environmental groups developed and proposed the Clean Water Legacy Act. The Act will enable Minnesota to implement federal requirements to achieve and maintain water quality standards for surface waters. It will provide for the comprehensive assessment of the Minnesota's surface waters every 10 years, and accelerate and prioritize TMDL report development and restoration activities.

Since the sources of pollutants causing impaired waters are so diverse, the coalition proposed a broad-based fee structure to fund the cleanup based mainly on sewer hookups. For example, residences would be billed \$36 per year. The bill allows for hardship exemptions for those who can't afford the additional expense. Businesses would be charged \$120, \$300 or \$600 per year based on daily wastewater volume. Sixteen groups representing broad-

based interests developed the fee structure after reviewing the issue for two years.

The coalition has asked the Minnesota Legislature to approve \$80 million a year for 10 years to plan and implement cleanup. Businesses and other point-source discharges would pay about 15 percent of the total revenue, the amount the MPCA estimates to be the contribution of point sources to the impaired waters problem. The balance would be paid by nonpoint sources, which include residences and farms.

In two legislative sessions thus far the Act has failed to pass. Disagreements in committees over how to fund it have been the main sticking point. However, all parties agree on the necessity of doing the work, and the coalition that has worked to advance the Act remains strong and committed. With the Annandale/Maple Lake court decision adding new urgency to the problem, the MPCA is confident a way will be found to address the impaired waters funding gap in Minnesota.





# Watershed Achievements Report

## LARS<sup>1</sup> AND eLINK<sup>2</sup> RESULTS FOR 319/CWP PROJECTS: 1997-2005

The table and maps following show progress through 2005 based on previous LARS reporting and 2005 data from eLink. Based on LARS/eLink reporting by CWP and Section 319 project partners, these projects have reduced soil loss from 1997-2005 by more than 50,000 tons per year. Over the same period, sedimentation was reduced by more than 20,000 tons per year. Phosphorus loading has been reduced by nearly 100,000 pounds. The sediment and soil maps following the table show results by watershed for the entire state.

### Best Management Practices Funded 1997-2005<sup>3</sup>

Type	# Reduction (tons/year)	Soil Loss Reduction (tons/year)	Sediment Reduction (pounds/year)	Phosphorus
Feedlot	80	0	0	4,644
Filter Strip Projects	265	21,512	5,520	7,948
Gully Stabilization	80	8,260	4,645	5,068
Sheet and Rill Erosion Control	96	13,905	5,749	6,240
Stream and Ditch Stabilization				
Wind Erosion	75	4,594	4,594	4,275
Other	765	1,529	0	63,959
<b>TOTAL</b>	<b>1,371</b>	<b>50,627</b>	<b>20,509</b>	<b>92,684</b>

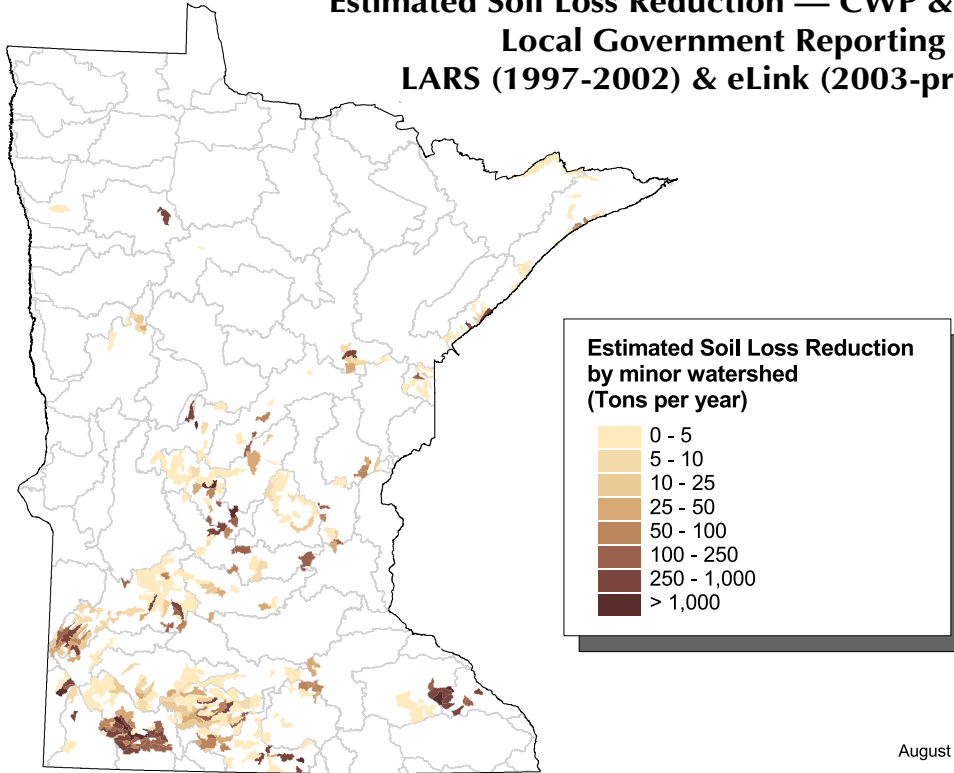
<sup>1</sup> Local Annual Reporting System, data gathered by the Board of Water and Soil Resources, 1997-2002

<sup>2</sup> New eLink system, data gathered by the Board of Water and Soil Resources beginning 2003

<sup>3</sup> Through September 2005

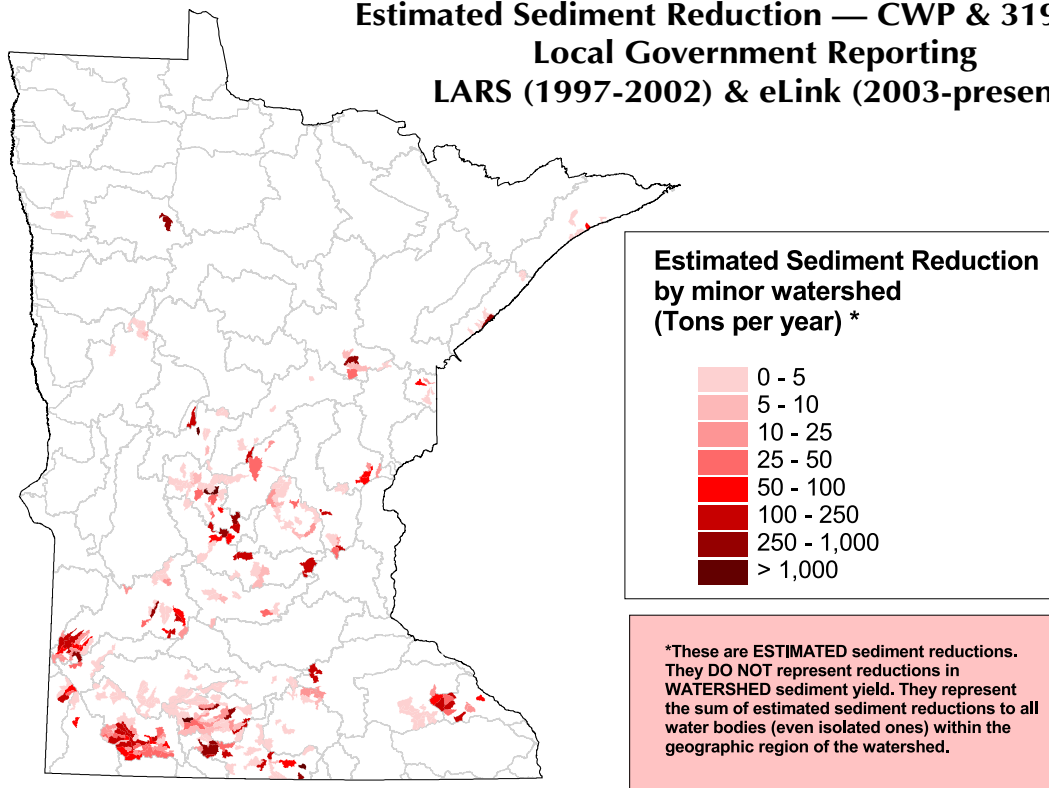
# Watershed Achievements Report

## Estimated Soil Loss Reduction — CWP & 319 BMPs Local Government Reporting LARS (1997-2002) & eLink (2003-present)



August 2005

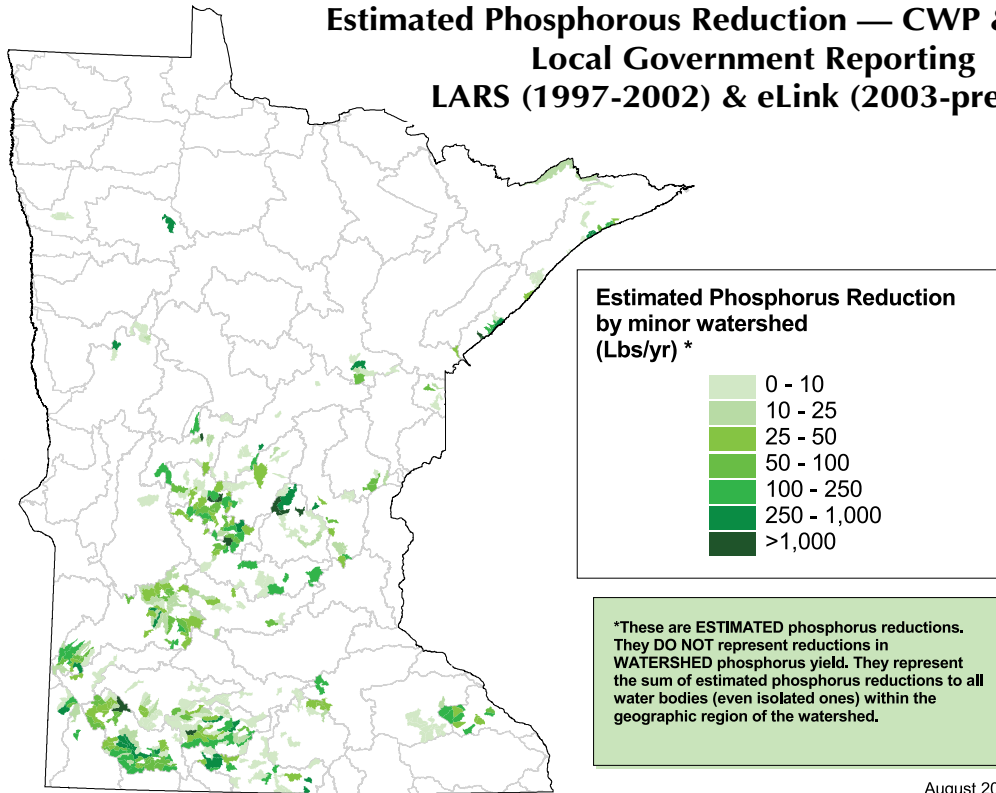
## Estimated Sediment Reduction — CWP & 319 BMPs Local Government Reporting LARS (1997-2002) & eLink (2003-present)



August 2005

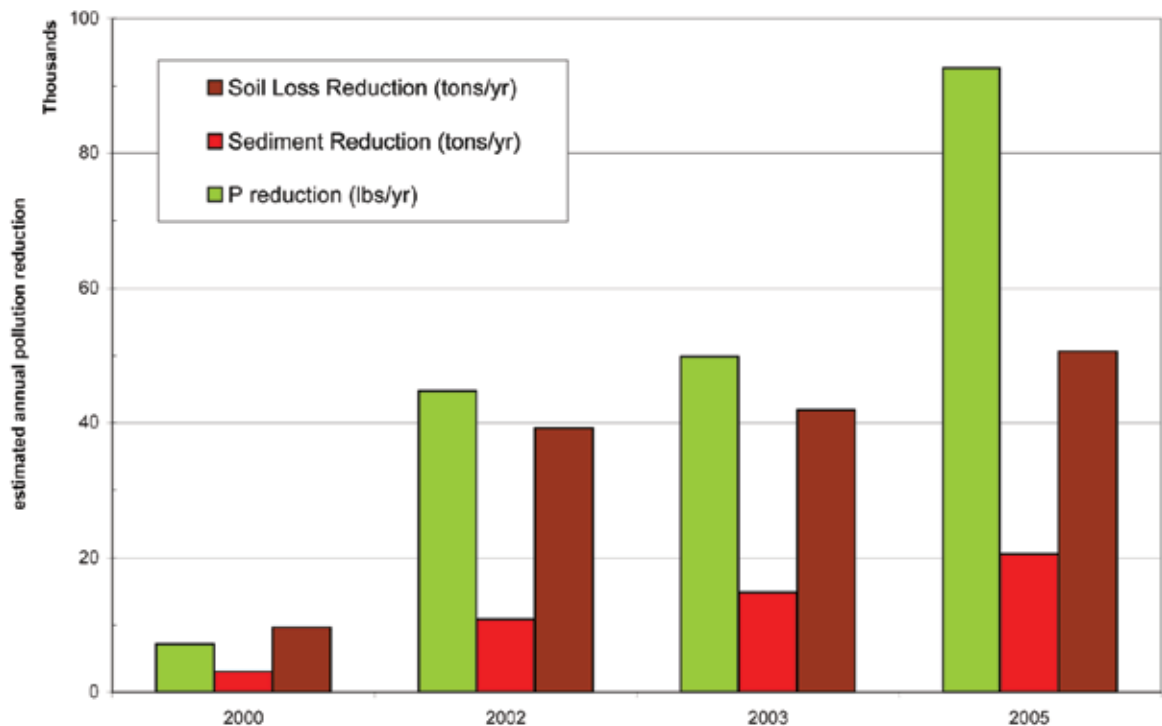
# Watershed Achievements Report

## Estimated Phosphorous Reduction — CWP & 319 BMPs Local Government Reporting LARS (1997-2002) & eLink (2003-present)



August 2005

## CWP/319 Estimated Pollution Reduction Benefits Local Government Reporting LARS (1997-2002) & eLink (2003-present)





# Watershed Achievements Report

## PROJECT SUMMARIES FOR 2005

This section contains summary reports of projects completed in federal fiscal year 2005 (October 1, 2004 through September 30, 2005). Each case illustrates the water-quality outcomes in the “Results that Count” section.

### CWP PROJECTS

1. Big Sandy Area Lakes Watershed Management Project
2. Cottonwood River Restoration Project
3. Des Moines River Valley Drinking Water Management Project, Phase 1
4. Diamond Lake Rehabilitation Project
5. Nemadji River Basin Clean Water Project
6. Rice Lake/Lake Koronis Restoration Project Phase II, Part II

### 319 PROJECTS

1. Agricultural and Rural Water Management On-Farm Demonstration Project
2. Ashley and Hoboken Creeks Watershed Basin Restoration Project
3. Big Birch Lake Watershed Management Project
4. Blue Earth River Basin Initiative Comprehensive Nutrient Management Plan
5. Clearwater River Stream Bank Stabilization and Revitalization Project
6. Crow River Watershed Water Quality Enhancement Project
7. Education to Improve Feedlot, Manure, and Nutrient Management
8. Heron Lake Watershed District TMDL Educational Seminars
9. Lake Calhoun Alum Treatment Project
10. Lakes Agnes, Henry, and Winona Stormwater Detention Project
11. North Fork Crow River Watershed District Water Quality Improvement Project for County Ditches 7 and 32
12. Pomme de Terre River Watershed Project
13. Redwood River Clean Water Project
14. South Branch Root River Watershed Implementation Project
15. South Branch Yellow Medicine River TMDL
16. St. Louis River Watershed Mercury Reduction Pilot Project
17. Whitewater River Watershed National Monitoring Program



## CWP PROJECTS

### BIG SANDY AREA LAKES WATERSHED MANAGEMENT PROJECT

The 413-square mile Big Sandy Area Lakes watershed is located in Aitkin County, Minnesota. The results of a two-year diagnostic study identified the Big Sandy lakeshore, Sandy River, Tamarack River, and Minnewawa Creek as areas that must be addressed to meet water quality goals. The Sandy River subwatershed contributes the greatest percentage of the total

phosphorous and suspended solids load. Long-term management of the watershed is based on maintaining a non-degradation policy and achieving reductions in nutrient and sediment loading.

Local citizens saw the need to increase awareness of best management practices through education and further define the causes of lake degradation, so they organized the Big Sandy Area Lakes Watershed Management Project in 1993. The BSALWMP is committed to providing a local mechanism to encourage equal partnership among the city of McGregor and surrounding townships, Aitkin County Soil and St. Louis Watershed districts, lakeshore associations and business interests, federal, state, and county agencies in protecting and enhancing the esthetic, ecological, economic, agricultural, and recreational value of lakes, streams, shore land, and wetland resources in the watershed.

The project was funded by grants through the MPCA in 1994 (diagnostic), 1996 (implementation), and 2002 (continuation). The 2002 CWP 319 grant was intended



*Riprap was installed to prevent soil erosion on 800 feet of Lake Minnewawa's shoreline.*

to improve and protect water quality, wildlife, fisheries, and aesthetic concerns in sensitive areas of the watershed by:

- Conducting a feasibility study of cluster septic systems for Big Sandy, Minnewawa, and Prairie Lakes
- Implementing a shoreline education program on Big Sandy Lake involving an inventory of existing landowners and their shore-land use practices as well as an educational component to improve lakeshore stewardship
- Working with farmers to protect areas sensitive to water quality impacts
- Holding several educational presentations on topics, e.g. wetlands, stream channel restoration, and shoreline management.

Significant progress was made toward these goals by installing demonstration projects, working with private landowners to install BMPs on their properties, and conducting many educational activities.

# Watershed Achievements Report

For more information, contact:

Janet Smude  
Aitkin County Soil and Water Conservation District  
Aitkin, MN

## FINANCIAL INFORMATION

The 1994 CWP grant for diagnostic study was \$69,000, with \$302,435 matching funds. The 1996 CWP implementation grant was for \$200,000, with \$317,807 matching funds. The 2000 CWP continuation grant was for \$175,000, with \$780,444 matching funds.

## RESULTS THAT COUNT

- 2,622 square feet of Lake Minnewawa public access was planted with native vegetation.
- 500 feet of Lake Minnewawa frontage was stabilized with rock riprap.
- 800 feet of Lake Minnewawa shoreline was saved from erosion, which protected a natural fish spawning area and a township road.
- Sandy River culvert scour area was stabilized.
- One-quarter mile of Sandy River bank was stabilized by shaping and seeding.
- 950 feet of livestock exclusion fence was installed at a park along the Tamarack River in Cromwell.
- Cattle were excluded from a half-mile of Fulton Creek
- Approximately a quarter-mile of livestock exclusion fencing was installed on Nelson Lake.
- A residential lot on Eagle Lake in Carlton County was stabilized with native vegetation.
- A residential lot on Island Lake in Carlton County was stabilized with native vegetation.
- Runoff on the north side of Lake Minnewawa was directed to an underground pipe and delivered to a protected outlet near the lake.
- 125 feet of eroding shoreline on Big Sandy Lake was stabilized with rock riprap and planting of native shrubs.
- 100 feet of eroding shoreline on the north side of Lake Minnewawa was stabilized with rock riprap.
- The city of Cromwell partnered with the project to install 950 feet of livestock exclusion fencing along the Tamarack River.
- Six acres of land and 650 feet of undeveloped fragile shoreline were protected from future development by a conservation easement. This project is located where the Prairie River enters Big Sandy Lake.



# Watershed Achievements Report

## COTTONWOOD RIVER RESTORATION PROJECT

The Cottonwood Watershed (at 1,310 square miles and 840,200 acres) is one of the largest watersheds in the Minnesota River Basin. The watershed spreads over Brown, Cottonwood, Lyon, Murray, and Redwood counties.

Because nonpoint-source pollution is the principal determinant of water quality in the watershed and point-source pollution is dispersed, the watershed's size presents many problems in implementing a water-quality improvement plan. Most watershed residents do not live near the Cottonwood River and do not use it for recreational or other purposes. Consequently, they may not realize that their activities affect the river's health.

The Cottonwood River carries high sediment and phosphorous loads during the growing season. In the lower reach, bacteria exceeds the fecal coliform standard and is the subject of a TMDL study. In addition, the river is suffering aesthetically. To address these problems, in 2000 the MPCA, the Redwood-Cottonwood Rivers Control Area (RCRCA), and soil and water conservation districts (SWCDs) representing the five counties embarked on a massive seven-year Cottonwood River Restoration Project, with RCRCA as sponsor.

Landowners who voluntarily chose to implement best management practices (BMPs) received technical assistance and up to 75 percent cost share to help pay for installing conservation practices. These practices are the primary means for reducing nonpoint-source pollution in the watershed. Practices are assessed through use of the National Resources Conservation Service's revised



*Sampling station on the Cottonwood River near Lamberton*

universal soil-loss equation and the inventory planning worksheet for concentrated flow erosion. These tools help estimate the amount of soil saved by each individual BMP. Effects of BMPs on water quality are monitored through a comprehensive monitoring and evaluation program. In addition, landowners continued to participate in an extensive information and education program that encourages them to use BMPs on agricultural land. These three elements — BMPs, long-term water-quality monitoring, and outreach — are critical to the project's success. The goals of this project are to:

- Reduce sediment and nutrient loadings.
- Foster a better understanding by residents of the river's value via outreach and education.
- Instill in residents a commitment to protecting and enhancing the river.

Addressing nonpoint- and point-source pollution will be an ongoing need in the Cottonwood River Watershed. Some monitored pollutant stresses are now listed as TMDL impairments and more improvement is needed.

# Watershed Achievements Report

For more information, contact:

James Doering, executive director  
RCRCA  
1241 E. Bridge Street  
Redwood Falls, MN 56283

## FINANCIAL INFORMATION

This project was funded with an EPA 319 grant for \$155,287 and CWP grants for \$535,413. Matching project costs included SWCD match \$164,601, RCRCA match \$152,919, Minnesota River Basin cost share match \$341,347, Northwest Area Foundation grant for \$16,667 and a CWP SRF loan for \$343,533.

## RESULTS THAT COUNT

The results from the first three years are 431 projects involved in 75 percent cost share, 56 septic replacements, and 13,760 acres of Conservation Reserve Enhancement Program easements, resulting in 71,112 tons/yr of soil loss reduction, 20,344 tons/yr of sediment reduction, and 36,202 lb/yr of phosphorous reduction.



# Watershed Achievements Report

## DES MOINES RIVER VALLEY DRINKING WATER MANAGEMENT PROJECT, PHASE 1

Surficial aquifers in the Upper Des Moines River Valley in southern Cottonwood County are among the largest and most productive in southwestern Minnesota. Public water suppliers in this area, including the cities of Windom and Jeffers and the Red Rock Rural Water Supply (RRRWS), supported by Cottonwood County, wanted to ensure a safe and adequate water supply. These three water suppliers are jointly participating in the Minnesota Department of Health's (MDH) Wellhead Protection Program (WHPA). In 1999, to expedite adopting the WHPA, Cottonwood County, the two cities, and RRRWS applied for and were awarded a CWP grant from the MPCA.

The phase 1 goal was to delineate the wellhead protection areas for Windom, Jeffers, and the RRRWS, with Cottonwood County's support. This task was accomplished in two steps. First, the U.S. Geological Survey developed a regional ground-water flow model. Second, Wenck Associates, Inc., and MDH developed more detailed models for the water suppliers. The goal was achieved in 2005.

For more information, contact:

Cottonwood County Environmental Office  
Michael Hanson  
235 Ninth Street  
Windom, MN 56101-1642  
507-831-2060  
michael.hanson@cottonwood.co.mn.us



### FINANCIAL INFORMATION

The \$65,000 CWP grant was matched by \$120,007 in cash and in-kind contributions.

### RESULTS THAT COUNT

The Des Moines River Valley Drinking Water Management Project Phase 1 Diagnostic Project provided the foundation for Phase 2, in which water suppliers conducted contaminant source inventories, developed potential source management strategies, and evaluated plans.



# Watershed Achievements Report

## DIAMOND LAKE REHABILITATION PROJECT

Located in Kandiyohi County, and covering a 1,697-acre area, Diamond Lake is an important recreational lake that contains a county park and swimming beach. Five watersheds contribute drainage to the lake with watershed four contributing the most phosphorous. A Phase 1 diagnostic/feasibility study conducted from December 1993 through October 1996 showed severe phosphorous and curly leaf pondweed concentrations, increased carp population, and intense mid- to late-summer algae blooms.

Because lake residents and county commissioners wanted to establish a program to improve water quality, the Diamond Lake Area Recreational Association (DLARA) partnered with Kandiyohi County to participate in the Diamond Lake Rehabilitation Project, along with the Kandiyohi Soil and Water Conservation District (SWCD) and the Minnesota Department of Natural Resources in 1992. The overall goal was to bring Diamond Lake up to ecoregion values through the following specific goals:

- Reduce in-lake average summer phosphorous concentration to 40-50 ppb.
- Reduce intensity of mid- to late-summer algae blooms so the minimum Secchi transparency remains greater than 5 ft and the summer average is 7-8 ft.
- Keep carp population below 80 lb/acre.
- Reduce curly leaf pondweed coverage to less than 15 acres (90 percent reduction from 153 acres).

For more information, contact:

**Jeff Bredberg**  
**Kandiyohi County**  
400 SW Benson Ave.  
Willmar, MN 56201

### FINANCIAL INFORMATION

The \$25,000 CWP grant was matched by \$26,419 in-kind contributions.

### RESULTS THAT COUNT

- Four landowners installed buffer and filter strips on 25.5 acres.
- Best Management Practice (BMPs) have been established on 68.4 additional acres.
- Carp barriers are being operated and monitored on the Hubbard stream inlet.
- The DLARA was one of the first in the country to cut curly leaf pondweed during the appropriate time in its lifecycle (May).
- 54 landowners participated in SWCD- and MPCA-sponsored water testing for nitrates and bacteria.
- Seven landowners were taught well-water safety after their wells tested positive for bacteria.
- 23 landowners participated in a nitrate-testing day.
- The DLARA established an agricultural BMP incentives program, which includes filter strips, wetland restorations, grasses and legumes, riparian tree plantings, and sediment blocks. The program provides for a one-time payment (based on acreage per practice) per landowner after the practice is installed and inspected.
- Curly leaf pondweed was cut resulting in decreased volume in the lake's North Bay.
- In 2003 and 2004, the DLARA coordinated a phosphorous-free fertilizer program in which 84 and 70 residents, respectively, participated in the two years. Landowners received a free bag of phosphorous-free fertilizer along with educational information.

# Watershed Achievements Report

## NEMADJI RIVER BASIN CLEAN WATER PROJECT

Located south of Duluth along the Minnesota/Wisconsin border, the Nemadji River Basin drains 433 square miles. Approximately 80 percent of the basin lies in Carlton County, Minnesota. Of major concern is sediment that is carried into the Nemadji River from converging streams and rivers into Superior Harbor, thence into Lake Superior. The high sediment yield is the result of hydrologic system changes and human activities that have increased volumes and rates of runoff and stream flow. In turn, the higher stream-flow energies have increased stream-bank and bluff erosion and slumping.

Use of geographic information systems (GIS) technology was vital to this project. Landsat images were acquired, geo-referenced, and printed into several formats. Large maps were developed for the Carlton County portion of the Nemadji watershed. Open lands were defined as agriculture or urban lands and were digitized using combinations of data. Individual watershed maps were developed for close-up views of each sub-watershed, including the minor watersheds within each sub-watershed and the area encompassed by the River Watch Program.

In 2002, state budget cuts halted this effort. However, Douglas County, Wisconsin, obtained funds to similarly have the Wisconsin portion of the Nemadji River Basin mapped. The resulting individual sub-watershed maps make it possible to view each minor sub-watershed and provide the ability to prioritize sub-sub-watersheds down to each square mile. Douglas County provided Carlton County with a copy of the maps, which are available on CD and are kept at the Carlton County Soil and Water Conservation District Office.

For more information, contact:

**Joan Weyandt**  
PO Box 220  
Carlton, MN 55718



### FINANCIAL INFORMATION

The combined CWP/319 grant was \$143,500.

### RESULTS THAT COUNT

- 15,000 mixed forest trees were planted on 33 acres at Rock Creek.
- 21 luncker structures (artificial reefs creating fish habitat) were placed along the outside bank of Blackhoof River just below Hardings Hill.
- 175 trees were planted on Hardings Hill along with riprap to discourage traffic.
- Monitoring was conducted under the River Watch Program near the confluence of Spring Creek and Blackhoof River.
- Two new culverts were constructed on County Road 146 at the New River culvert site.
- 300,000 gallons of manure was removed from a silo located within 75 ft of Blackhoof River.
- Trees were planted on 10 properties (100 acres) in the Clear Creek, Deer Creek, Rock Creek, Silver Creek, Upper Blackhoof, and Net River sub-watersheds.

# Watershed Achievements Report

## RICE LAKE/LAKE KORONIS RESTORATION PROJECT PHASE II, PART II

---

The Rice Lake/Lake Koronis sub-watersheds are located in Stearns, Meeker and Kandiyohi counties. Nonpoint-source pollution was of great concern, including feedlot runoff, soil erosion, livestock exclusions in drainage ditches, shoreland erosion, failing septic systems, drainage ditch diversions through wetlands, and other impacts to the North Fork Crow River and other natural or man-made waterways.

The Clean Water Partnership Phase I Diagnostic Study (completed in 1992) documented that Rice Lake and Lake Koronis are experiencing water quality problems because of natural eutrophication, increases in residential development in the subwatershed, and agriculture drainage. These activities have all contributed to declining water transparency. As a result of the diagnostic study, MCPA awarded a CWP grant for \$80,000 in 2000 and work began on the Rice Lake/Lake Koronis Restoration Project.

The main implementation goals of the Rice Lake/Lake Koronis Restoration Project Phase II, Part II were to:

- Reduce phosphorous loads by 25 percent
- Reduce phosphorous and sediment loads by implementing Best Management Practices (BMPs)
- Reduce feedlot pollutants through management and education
- Reduce septic leachate from non-complying systems
- Increase awareness and implementation of shoreland BMPs
- Manage the lakes' hydrologic bounce (fluctuation in surface elevation).

The project staff and the cooperating agencies, groups, and individuals sampled water from several different locations around and in the lake to gather quality data; promoted the use of soil testing for lawn care and manure management through project newsletter articles and advertisements; and cooperated and shared information with local residents, sportsman groups, and local, state and federal agencies. In addition, they distributed the Minnesota Extension Service's Septic Systems Owners Guide to 57 residents who upgraded their septic systems, facilitated 12 formal

seminars on water quality with assistance from state and local agencies, and purchased educational materials and equipment.

For more information, contact:

North Fork Crow River Watershed District  
P.O. Box 40  
100 Prairie Ave. N.  
Brooten, MN 56316  
320-346-2869

### FINANCIAL INFORMATION

Final expenses for this project were \$708,289.

### RESULTS THAT COUNT

- Six feedlot/manure projects were upgraded
- Two sediment basins were installed
- Four riprap projects along the shore of Lake Koronis were installed
- Erosion control structures were installed
- One storm water retention pond was installed
- One private well was upgraded with state revolving funds
- Four sedimentation erosion control structures were built
- 50 acres of CWP buffer



## 319 PROJECTS

### AGRICULTURAL AND RURAL WATER MANAGEMENT ON-FARM DEMONSTRATION PROJECT

Farmers and others have been adopting best management practices (BMPs) on the land along with state and federal conservation programs to help address or reduce erosion, nutrients, and other potential contaminants in their operations.

This project focused on two on-farm BMP demonstrations. The rock inlet and in-line woodchip filter projects assisted in providing load reduction estimates.

1. In fall of 2000 and spring 2001, the rock inlet study was located in two separate tributaries of the Minnesota River and on the Watonwan and LeSueur rivers (Watonwan and LeSueur Counties, respectively). These included two on-farm demonstrations, field-scale rock inlets, data acquisition systems, monitoring, and adjacent upland treatment of conservation tillage. The rock inlets were installed with 319 funds, Clean Water Partnership, and state cost-share funds.
2. The inline woodchip study was conducted in fall 2001 and summer 2002 in Morris, Stevens County. The inline woodchip demonstration evaluated a controlled drainage system with inline woodchip filters that can determine drainage efficiency and level of nutrient loading reduction.

The objectives of this 2000-2004 project and demonstrations were to:

- Evaluate the risk of nitrogen and phosphorus losses to water from a livestock wintering area and from stockpiled manure in both runoff and leaching.
- Demonstrate the use of an inline woodchip filter/controlled drainage system to reduce the risk of nitrate leaching from a livestock wintering area.
- Create an educational laboratory where water quality issues surrounding livestock production and agricultural drainage can be observed and discussed by producers, state and local government agencies, contractors, and non-agricultural audiences.

For more information, contact:

Mark Dittrich  
Minnesota Department of Agriculture  
90 West Plato Blvd.  
St. Paul, MN 55107

### FINANCIAL INFORMATION

Rock Inlet Study primary funding sources were EPA 319, \$138,000; Metropolitan Council, \$125,000; Minnesota Corn Growers, \$25,000; and the University of Minnesota, \$88,997. Inline Woodchip Study primary funding sources were EPA CWP 319, \$42,000; and University of Minnesota Rapid Rural Response and Prinsco, Inc., \$46,000.

### RESULTS THAT COUNT

- Rock Inlet Study — Gravel filter reduced losses of sediment, particulate P, and chemical oxygen demand by 20-28 percent.
- In-Line Woodchip Study — Preliminary data show the total amount of nitrogen accumulated in soils is 15 percent, and tile drainage and runoff is less than one percent.

# Watershed Achievements Report

## ASHLEY AND HOBOKEN CREEKS WATERSHED BASIN RESTORATION PROJECT

The Sauk River and its two major tributaries, Ashley and Hoboken Creeks, empty into Big Sauk Lake from the west. Silver Creek has its confluence with Ashley Creek about two miles before Ashley Creek discharges into Big Sauk Lake. These tributaries drain an intensively farmed area and carry large amounts of sediment and nutrients into the Sauk River and ultimately into the lake.

Ashley Creek contributes approximately 72 percent of phosphorous loading to Big Sauk Lake, while Hoboken Creek contributes approximately 16 percent. The MPCA and U.S. Army Corps of Engineers documented this information in 1982 and 1990, respectively.

MPCA classified Big Sauk Lake as hypereutrophic (high in sediment and phosphorous) from agricultural and feedlot runoff during spring thaws and storm events. Big Sauk Lake, along with Ashley Creek, is on the 2004 Minnesota list of impaired waters because of high nutrient concentrations. Unless the nutrient and sediment loading is significantly reduced, “no recreation” conditions could result, which would have a negative economic impact on an area that depends heavily on tourism and recreation.



*The First Annual Middle Sauk River Water Festival was conducted in May 2004 and was a huge success. Over 400 students attended and were thrilled with the hands-on activities and the array of information given about water.*

In 2001, Pope, Todd, and Stearns counties designed and entered into a three-year implementation plan to address the Ashley and Hoboken Creek watersheds. Priority was given to feedlots and cropland located adjacent to these creeks or along drainage ditches and other tributaries that discharge into these creeks, i.e., Silver Creek.

The Sauk River Watershed District’s (SRWD) 10-year overall plan emphasizes education for its staff as well as the public as a major priority in achieving water quality goals. The plan includes many public activities, education classes, and seminars.

The primary goal of the project was to reduce mean annual flow-weighted concentration to 100-150 micrograms per liter of total phosphorous and less than 10,000 micrograms per liter of total suspended solids for Ashley and Hoboken Creeks. These goals were to be met through upgrading feedlots and implementing Best Management Practices within the watershed. Many other BMPs are

# Watershed Achievements Report

being implemented, for example encouraging the cities of Sauk Centre, Westport, and Villard to address stormwater runoff concerns and possible wastewater discharge, and encouraging volunteer involvement in several aspects of this project.

For more information, contact:

Sauk River Watershed District  
524 4th St. South  
Sauk Centre, MN 56378

## FINANCIAL INFORMATION

This project was funded with an EPA grant for \$231,500 grant with \$288,428 matching funds, for a total project amount of \$519,928.

## RESULTS THAT COUNT

- Eight landowners in the watershed completed feedlot abatement projects.
- Manure storage facilities changed landowners manure management methods. Average total phosphorous reduction per site is 100 lb/year. Since life expectancy of a project averages 15 years, TP reduction can be 1,500 lb.
- Vegetative buffer strips (11.6 acres) were installed along cropland adjacent to a drainage ditch in Pope County.
- Together, two landowners restored 17 acres of wetland in the upper Ashley Creek watershed.
- SRWD and Stearns County Soil and Water Conservation District worked with a landowner on a pasture management plan on both sides of Ashley Creek.
- Using state revolving low-interest loan funds, five septic systems were upgraded within the Ashley and Hoboken Creeks watershed.



# Watershed Achievements Report

## BIG BIRCH LAKE WATERSHED MANAGEMENT PROJECT

**B**ig Birch Lake is a popular recreational water body located in Todd and Stearns counties, Minnesota. The lake is made up of two large basins with a watershed of approximately 9,601 acres. The Birch Lake Phase I Diagnostic Study, completed in 1994, documented that the lake was experiencing declining transparency with increased areas of submerged aquatic vegetation.



The diagnostic study determined that about 17 percent of the total phosphorus (TP) budget in the watershed was from direct atmospheric deposition. The watershed contributes approximately 73 percent of TP to Big Birch Lake, with 66 percent (of the total watershed) coming from the Fish Creek subwatershed (the largest subwatershed northeast of the lake). The remaining 10 percent was estimated to be coming from septic systems. The study documented TP concentrations of 46 micrograms per liter in the northeast basin and micrograms per liter in the main basin. Of primary concern was reducing TP and total suspended solid (TSS) concentrations in Fish Creek and Bass Creek (the 870-acre watershed north of Big Birch Lake). An analysis predicted that lake quality could reasonably be expected to improve with average summer TP concentrations of 23 +/-9 micrograms per liter. This goal was set based on historical lake data, water quality model predictions, and ecoregion patterns.

The Big Birch Lake Watershed Management Project was a logical extension of the diagnostic study. The Sauk River Watershed District is the official project sponsor and coordinating agency of the project. The primary focus of this watershed management project is to maintain water quality at 1998 status and to restore Big Birch Lake to a level where its clean water will serve the needs of future generations. The short-term water quality goals

were based on attaining conditions under which people could safely swim and maintenance of the important sport fisheries in the lake.

One of the most important aspects of this watershed-wide effort was to expand education and outreach efforts. This long-term approach will educate people about the causes and consequences of nonpoint-source pollution and will help

change behaviors that can reduce the amounts of phosphorus and sediment reaching Big Birch Lake from all sources.

For more information, contact:

Sauk River Watershed District  
524 4th St. South  
Sauk Centre, MN 56378

### FINANCIAL INFORMATION

The 319 grant for \$50,000 was supplemented by a state CWP revolving fund loan for \$100,000.

### RESULTS THAT COUNT

- Installed buffer strips at two sites along Fish Creek and its ditches.
- Excluded livestock from a site in the Bass Creek watershed.
- Restored 300+ feet of eroding lakeshore along the lake.
- Restored 100 feet of lakeshore using native vegetation.
- Upgraded two septic systems and improved one feedlot.
- Installed an agriculture waste storage facility for 198 animal units on the northwest side of the lake with estimated TP reduction of 100 lb.
- Multiple upland improvements have decreased in-lake TP concentration by more than 32 percent.

# Watershed Achievements Report

## BLUE EARTH RIVER BASIN INITIATIVE COMPREHENSIVE NUTRIENT MANAGEMENT PLAN

The Greater Blue Earth Watershed comprises 2.2 million acres in south-central Minnesota and north-central Iowa. The LeSueur, Watonwan and Blue Earth rivers, and Elm Creek (impaired for fecal coliform) are within its boundaries. The cities of Mankato and Fairmont get their drinking water from surface-water sources within the watershed. When nitrate levels exceed 10 ppm, the river presents a health risk to residents. Coliform bacteria also present a health risk to everyone utilizing the recreation resource the river provides. Bacteria can enter from septic systems, feedlots, and municipal wastewater systems that are out of compliance with MPCA rules.

The prime farmland is in corn/soybean rotation and swine is the main livestock. When sediment moves across the landscape to the river, it carries with it nutrients, mainly phosphorous and pesticides. Both nitrogen and phosphorous enter surface waters from urban and agricultural sources

The Blue Earth River Basin Initiative (BERBI) was officially formed in 1993 and comprises soil and water conservation districts (SWCDs) in Blue Earth, Cottonwood, Jackson, Martin, Steele, Waseca, and Watonwan counties. BERBI's major focus is to implement conservation practices on the land and is the vehicle to develop projects for funding. The SWCDs work with land owners with whom they have established rapport to get projects on the land. The initial goals of this project were to:

- Build capacity of farmers to do comprehensive nutrient management plans
- Develop a public/private partnership to develop these plans
- Enable farmers to continue to utilize the plans
- Transfer results to other areas of the state.

These goals were met, and were enhanced in 2004 when the U.S. Department of Agriculture and the Natural Resources Conservation Service (NRCS) initiated a Conservation Security Program (CSP) and BERBI was selected to pilot the program. The CSP provides financial rewards to farmers and ranchers who are practicing conservation on their working lands that meet NRCS soil and water quality criteria. The CSP also provides financial incentives to those who expand their conservation efforts through implementing

management activities that provide enhanced protection beyond minimum requirements. Farmers who agreed to participate in the comprehensive nutrient management plan received free manure analysis on each manure source plus \$400 toward completing the plan. Eight comprehensive nutrient management plans and 48 manure analyses were conducted.

Twenty-four attendees participated in a three-day field seminar in which soil analyses were conducted and local and state feedlot regulations were discussed. Also, presentations were made on manure pit sampling and field calibration methods, along with funding sources for cost-share on nutrient management-related issues. Aerial photos and soil maps were provided to each participant as part of a class on drafting a comprehensive nutrient management plan. The participants learned that having a feedlot permit that includes showing adequate and proper usage of manure is not the same as developing a comprehensive nutrient management plan.

For more information, contact:

Linda Meschke, BERBI  
426 Winnebago Avenue, Suite 100  
Fairmont, MN 56031

### FINANCIAL INFORMATION

This project used \$18,275 from an EPA 319 grant and \$19,157 in matching funds, which totaled \$37,432.

### RESULTS THAT COUNT

- Comprehensive nutrient management was applied to approximately 25,000 acres of corn/soybeans with annual pollution reductions of 125 tons of nitrogen and 187.5 tons of phosphorous.
- Minnesota farmers received \$1,459,223 for 152,565 acres enrolled in the CSP.
- Greater Blue Earth River Basin and Nicollet County Watershed Risk Assessment. Geographical Information System maps were produced at the University of Minnesota's St. Paul campus. These maps assist in prioritizing areas in which to spend limited resources and are available in hard copy or electronically from BERBI. The electronic version at [www.berbi.org](http://www.berbi.org) features a zoom-in function for detail.

# Watershed Achievements Report

## CLEARWATER RIVER STREAM BANK STABILIZATION AND REVITALIZATION PROJECT

The goal of this project is to make improvements to water quality in the Clearwater River Watershed while demonstrating effective methods to use in future stream and stream bank stabilization in the Red Lake Watershed District. The efforts focused on three locations — Greenwood 27 (Greenwood Twp., Clearwater County); Gully 6 (Gully Twp., Polk County); and Equality 31 (Equality Twp., Red Lake County).

Greenwood Section 27 design and analysis started in 2000 but most work was done 2002-03. Gully Township Section 6 Lost River Erosion Control Project design and analysis started early 2002 with most work done in 2003. The Equality 31 site was not pursued.

The work plan was revised and approved for additional work on Greenwood 27 and to complete the Lost River Erosion Control Plan.

The need for these projects was identified in a 1994 Clean Water Partnership diagnostic project. Portions of this river do not meet state water quality standards for low oxygen and fecal coliform bacteria. The Clearwater River contributes to the Red Lake River, which is the drinking water source for the cities of Thief River Falls and East Grand Forks, Minn., and Grand Forks, N.D.

All planning and construction related to the grant has been completed. Ongoing activities include monitoring and education.

For more information, contact:

Corey Hanson  
Red Lake Watershed District  
102 Main Avenue North  
Thief River Falls, MN 56701  
218-681-5800



### FINANCIAL INFORMATION

This project was funded with an EPA 319 grant for \$134,500 with matching expenditures of \$167,153.

### RESULTS THAT COUNT

Documentation of dramatic improvements in bank slumping and erosion may be seen in photographs in the final report of this project, available at [www.redlakewatershed.ort/projects/ClearwaterRiverStreamBankFinalReport.pdf](http://www.redlakewatershed.ort/projects/ClearwaterRiverStreamBankFinalReport.pdf).



# Watershed Achievements Report

## CROW RIVER WATERSHED WATER QUALITY ENHANCEMENT PROJECT

---

The Crow River Watershed drains 2,725 square miles in central Minnesota, including 10 counties in the Upper Mississippi River Basin. The Crow River and its tributaries are listed as impaired for turbidity, fecal coliform, low oxygen, ammonia, aquatic biota, and mercury. High levels of phosphorous entering the Crow and its tributaries are among the suspected sources of low dissolved oxygen levels. Erosion from cropland, stream banks and construction sites in developing areas are suspected sources of sediment in the river.

The main objective of this project was to reduce the amount of sediment entering the Crow and its tributaries by implementing BMPs through cooperation partnerships that lead to continued public support for watershed restoration. Phosphorous was prevented from entering the river through erosion control and sediment trapping, and through upgrading and construction of agricultural waste systems to meet state standards. The main objective was accomplished via the following project goals, all of which were met or exceeded.

- Reduce stream bank and lakeshore erosion at up to seven sites using stabilization practices such as riprap and bioengineering or a combination. Sediment caused by stream-bank erosion was reduced by up to 2,100 tons annually by September 2003. Project types included stream-bank, shoreline, and roadside. These stabilization projects prevented 3,317 lbs of phosphorus and 1,072 tons of sediment from entering surface waters per year.
- Install up to 14 agricultural waste systems. Waste utilization plans for the systems were incorporated by September 2003. Phosphorous entering the system was reduced by up to 230,000 lbs annually.
- Reduce sediment entering surface water through erosion control systems, including filter and buffer strips and wetland restoration by September 2003. Sediment was reduced by up to 450 tons annually. Projects installed included six water and sediment basins, two grassed waterways, one wetland restoration, and the Wright County buffer.

Some of the water-quality sampling planned for this grant was not done because the project sponsor received a CWP grant to do a Phase I diagnostic study. Instead, the work group purchased 30 storm-drain stencil sets and provided a workshop for municipal officials on nonpoint-source pollution education. The sponsor also worked with three community groups to organize and carry out storm-drain stenciling projects in their areas.

For more information, contact:

Diane Sander  
Crow River Organization of Water Joint Powers Board  
763-682-1933

### FINANCIAL INFORMATION

EPA's Section 319 grant was for \$453,790. In-kind and cash contributions were \$1322,791, while total cost of the project was \$1,776,581.

### RESULTS THAT COUNT

- Sediment and phosphorus reductions are estimated through soil-loss calculation formulas. The total phosphorus reduction calculated is 24,008 pounds, enough to fertilize 480 acres of corn. The project kept 6,378 tons of sediment out of the Crow River and its tributaries, an amount equal to 637 dump-truck loads.
- By completing nine projects in the county-wide buffer program and Conservation Reserve Program, 10,731 lb of phosphorous and 5,306 tons of sediment per year were kept out of surface waters.

# Watershed Achievements Report

## EDUCATION TO IMPROVE FEEDLOT, MANURE, AND NUTRIENT MANAGEMENT

---

Sponsored by the University of Minnesota Water Resources Center, a massive education program was undertaken, which began in fall 2000 and extended through fall 2004. This program intended, through education, to enable livestock producers, agronomic professionals, and agency staff to reduce the environmental impact of manure, as specified in the new Minnesota feedlot rules and the EPA-USDA joint strategy on animal feedlot operations. The program was designed to coincide with release of new state feedlot rules. Specific goals were to:

- Develop education materials.
- Conduct regional workshops for agricultural professionals, agency staff, and county feedlot officers on registration and permitting requirements, with an overview of environmental practices to meet them (siting, facilities, and land application).
- Conduct county workshops for producers on the topics in the task above.
- Conduct regional workshops for agricultural professionals and agency staff on developing manure and nutrient management plans.
- Conduct county workshops for producers on developing manure and nutrient management plans. This is being extended to include education about management of open feedlots under 300 animal units as specified in the rules.

This program was followed by a three-year program of small-group nutrient management planning for farmers, facilitating hands-on development of manure-nutrient management plans for participating farmers' fields. On-farm, field-length, strip-plot demonstrations of manure-based nitrogen rates are being carried out across the state in another follow-on project. Manure management planning has been facilitated by development of computer software tailored to Minnesota recommendations with subsequent hands-on training in its use. Publications about this program can be accessed at [www.pca.state.mn.us/hot/feedlots.html](http://www.pca.state.mn.us/hot/feedlots.html) or [www.wateroutreach.uwex.edu](http://www.wateroutreach.uwex.edu).

For more information contact:

James L. Anderson  
Dept. Soil, Water, and Climate  
University of Minnesota  
439 Borlaug Hall  
1991 Upper Buford Circle  
St. Paul, MN 55108  
612-625-8209  
[ander045@umn.edu](mailto:ander045@umn.edu)

### FINANCIAL INFORMATION

The 319 grant of \$186,000 was matched by \$186,790 in educational and local funds.

### RESULTS THAT COUNT

All the goals of this program were met.

# Watershed Achievements Report

## HERON LAKE WATERSHED DISTRICT TMDL EDUCATIONAL SEMINARS

---

The Clean Water Act requires states to publish a list of impaired waters every two years. The primary tool for addressing Impaired Waters is the Total Maximum Daily Load (TMDL), which identifies pollution sources to a water body that is classified as impaired. In 2002, the MPCA included Heron Lake on the Minnesota list of impaired waters for excessive nutrients. The Heron Lake Watershed, which covers approximately 472 square miles in four counties in southwestern Minnesota, is a subwatershed of the West Fork Des Moines River watershed, one of the state's major drainage basins. The West Fork Des Moines River watershed has 21 impaired reaches, each with various impairments reflecting exceedance of water-quality standards.

The Heron Lake Watershed District (HLWD) is a local unit of government that implements cost-share, incentive, and loan programs that enable landowners and producers to address nonpoint-source pollution. The TMDL program has the potential to directly affect the agricultural operations and livelihoods of Minnesota residents because of the possibility of mandatory enrollment in Best Management Practices. To explain the TMDL program to water-quality professionals and landowners, HLWD partnered with the Cottonwood County Environmental Office and MPCA to conduct a two-day educational seminar on March 22 and 23, 2005.

Brochures entitled "TMDL — Ready or Not, Here They Come!" were mailed to Heron Lake Watershed residents, agency personnel, area businesses, the Minnesota Association of Watershed Districts, all state and county soil and water conservation districts, and state legislators. Specific topics included defining TMDL, identifying and listing impaired waters, developing effective TMDL plans, implementing TMDLs, effects TMDLs will have on local producers and their agricultural operations, and financial and technical assistance information for producers.

For further information about this and future seminars, contact:

Jan Voit  
Heron Lake Watershed District  
PO Box 345  
Heron Lake, MN 56137

### FINANCIAL INFORMATION

The 319 grant for \$3,448 was matched by \$5,537 of local funds, which totaling \$8,985.

### RESULTS THAT COUNT

Sixty-eight people registered and were provided with an attendee list that included demographic information, speaker contact information, general TMDL information, and a CD containing speaker PowerPoint presentations, questionnaire compilation, pre- and post-test evaluation, speaker survey, follow-up quarterly survey, and pictures. Surveys were sent to speakers. The follow-up survey was sent to government agency personnel.

# Watershed Achievements Report

## LAKE CALHOUN ALUM TREATMENT PROJECT

Lake Calhoun, which is part of the Minneapolis Chain of Lakes, is surrounded by mostly residential and commercial areas and receives stormwater runoff from the surrounding watershed. The lake started to degrade in the early 1900s but has remained relatively constant since 1970. As part of the Clean Water Partnership project, a diagnostic study of urban runoff and lake-water quality was conducted in 1991. The study determined that phosphorus (P) was the key component affecting water quality and was highly variable until restoration efforts began in the late 1990s.

Alum has been used successfully to control internal P loading and improve water clarity in lakes. However, longevity of alum treatment has been highly variable since its inception as a restoration measure. The aim of this project is to investigate and document the efficacy of alum treatment in Lake Calhoun, and determine if reductions in internal P loading contribute to increased water quality in the lake. Lake Calhoun was treated with alum from October 25 to November 2, 2001. The actual dose applied was 42 g Al/m<sup>2</sup> or approximately 780 gallons of alum/acre. Water-quality improvements were detected after treatment even though Lake Calhoun has a relatively short, post-treatment data set. Total P in the water column decreased to a level below estimated historical, pre-impact conditions. External sources of P were reduced through Best Management Practices, including constructed wetlands and grit chambers to improve the quality of stormwater runoff entering the lakes.

As is the case with many lake restorations, P controls were placed on both internal and external sources in the same general time frame. Therefore, it is difficult to determine the specific contributions of alum treatment on P levels within the lake water. The evidence is strong; alum treatment in Lake Calhoun inactivated a large pool of P, interrupting the P cycle in the lake by limiting its internal release. Bi-weekly sampling of lakes continues as part of the surface water quality monitoring program conducted by the Minneapolis Park and Recreation Board (MPRB).

Citizen education and increased street sweeping also were part of the project aimed at limiting external P inputs. Education of the general public was carried out with assistance from the MPRB's water education budget (not a part of this grant).

For more information, contact:

Sara Aplikowski  
Environmental Operations  
Minneapolis Parks and Recreation Board  
3800 Bryant Avenue South  
Minneapolis, MN 55409  
Phone: 612-313-7782, Fax: 612-37-4831  
[www.minneapolisparcs.org](http://www.minneapolisparcs.org)

### FINANCIAL INFORMATION

The total cost for the Lake Calhoun alum treatment was \$198,778, funded partially through an EPA 319 grant of \$105,000.

### RESULTS THAT COUNT

- More than 90 people attended a one-day workshop on chemical inactivation of nutrients for lake management, presented at the Minnesota Valley Wildlife Refuge in Bloomington. The agenda and PowerPoint presentations are available at: [http://wrc.coafes.umn.edu/education/ChemInact\\_wkshp/](http://wrc.coafes.umn.edu/education/ChemInact_wkshp/).
- Presentation was given at the North American Lake Management Society conference on advances in alum-dose calculation for lake restoration that focused on the Minneapolis Chain of Lakes.
- Results of this project will be published in peer-reviewed journals. Information on alum treatments was placed on the MPRB website at <http://www.minneapolisparcs.org/default.asp?PageID=515> and at kiosks by the lakes during the alum treatments.



# Watershed Achievements Report

## LAKES AGNES, HENRY, AND WINONA STORMWATER DETENTION PROJECT

Douglas County, heart of Minnesota's lake country, has more than 300 lakes and an economy based significantly on tourism. The county includes parts of the watersheds of the Chippewa, Pomme de Terre, Sauk River, and Long Prairie Rivers. Lakes Agnes, Henry, and Winona are the headwaters to the Long Prairie River and contribute to the quality of a renowned chain of lakes including lakes Carlos and LeHomme Dieu. Located in downtown Alexandria, Minn., the three lakes present a critical first impression of the community.

These lakes were part of a Phase I Clean Water Partnership in the early 90's and were determined to be hypereutrophic. They are high in nutrient concentrations, including nitrogen and phosphorous. The goals of the project were to:

- Improve water quality in Lakes Agnes, Henry, and Winona.
- Demonstrate environmentally sound handling of storm sewer runoff.
- Educate the public about the connection between storm sewer runoff and water quality.
- To improve water quality in these lakes, two stormwater detention ponds were begun in August 2003 in addition to a pond on airport property, with plans to remove 75 cubic yards of construction borrow. The major work was completed by October 2003. The Department of Natural Resources provided plants for the aquatic portion in addition to labor.

Many methods of public education have been used. Each method targeted a specific aspect of water-quality improvement.

For more information, contact

Reed Heidelberger  
City of Alexandria  
704 Broadway  
Alexandria, MN 56308

## FINANCIAL INFORMATION

The EPA 319 grant was \$261,700, with match of \$212,097, totaling \$447,627.

## RESULTS THAT COUNT

- Detention ponds are aesthetically pleasing.
- Kenwood and Depot Ponds on the Central Lakes Recreational Trail provide opportunities to educate the public about stormwater runoff.
- Detention ponds are withstanding powerful storm events and are effectively processing "dirty" spring snowmelt before it enters the lakes.
- City of Alexandria is committed to maintaining the detention ponds.

# Watershed Achievements Report

## NORTH FORK CROW RIVER WATERSHED DISTRICT WATER QUALITY IMPROVEMENT PROJECT FOR COUNTY DITCHES 7 AND 32

---

In rural Minnesota, county drainage ditches can play important roles in water quality. This water-quality improvement project for two county ditches is located in southwestern Stearns County, in the watershed of the North Fork of the Crow River. Monitoring sites near the outlets of ditches CD-7 and CD-32 are close to the sites that were used previously for a 1985 North Fork Crow River Watershed District (NFCRWD) study. The sub-watersheds of CD-7 and CD-32 are located in the northwestern region of the NFCRWD.

The project began in June 2001 and extended through June 2003. The goal of the monitoring was to gather information that could be analyzed to determine if there was a reduction in total suspended solids (TSS) and total phosphorous (TP) in the last 15 years.

These sites were monitored during and after the implementation of Best Management Practices (BMPs) that included water-quality monitoring, feedlot/manure management, erosion control, land use, education, and project administration. Through the Clean Water Partnership, BMPs have been integrated into the northern part (Grove Lake) and southern part (Rice Lake and Lake Koronis) of the North Fork Crow River Watershed. Additional BMPs are needed in a large area of the sub-watersheds of CD-7 and CD-32.

For more information about this project, contact:

Allan Kuseske  
NFCRWD  
PO Box 40  
Brooten, MN 56316

### FINANCIAL INFORMATION

This \$50,000 319 grant was supplemented by in-kind contributions totaling \$115,779.

### RESULTS THAT COUNT

- High amounts of TP and TSS were being transported into the North Fork Crow River via CD-7 and CD-32, which resulted in establishing upstream monitoring sites.
- A Sedan Brook site was added to provide information from a similar location.
- RMB Environmental Laboratories, Inc. was hired to compile data, which will be submitted to the MPCA's Environmental Data Access website.
- Three manure management systems were completed using money separate from this project, which was provided by the Stearns County SWCD and the Natural Resources Conservation Service.
- Four manure pits were completed, two more are in process.
- 16 erosion-control BMPs projects were completed.
- Ditch repair on CD-7 affected 150 acres with 150 ft of drop pipes installed.
- Ditch repair on CD-32 affected 50 acres with 50 ft of drop pipes installed.
- Project map made with geographical information system software was distributed to NFCRWD board, contractors, and public.

# Watershed Achievements Report

## POMME DE TERRE RIVER WATERSHED PROJECT

---

In 2000, the MPCA funded the Pomme de Terre River Watershed Project, located in Douglas County, to compile all of the data that has been studied on the Pomme de Terre River Watershed to determine if the data justified a Phase II CWP grant. The data collected throughout the watershed provided the basis for a watershed management plan, but ultimately the MPCA determined there was insufficient water-quality data to justify a Phase II grant. Nonetheless the project nonetheless generated much new and useful data throughout the watershed.

The Pomme de Terre Joint Powers Board (JPB) established a Technical Committee and hired a coordinator who was in place from March 2000 to December 2003. The Minnesota Board of Water and Soil Resources approved a \$50,000 grant from special cost share funds. The Technical Committee and the Pomme de Terre River Association both met regularly until the fourth quarter of 2003. The association continues to collect, compile, and summarize data. A report with summarized data was delivered to the JPB in February 2001, and another report was submitted to the JPB in February 2002. Useful tools, including geographic information system (GIS) tools for the watershed, were developed as part of the process and several educational tools and watershed tours were funded.

For more information, contact:

Sheila Barsness  
Pomme de Terre River Association Joint Powers Board  
c/o WesMin RC&D Council  
900 Robert Street Suite #104  
Alexandria, MN 56308  
320-763-3191  
[sheila.barsness@rcdnet.net](mailto:sheila.barsness@rcdnet.net)

### FINANCIAL INFORMATION

The Pomme de Terre River Association matched the \$38,428 MPCA grant.

### RESULTS THAT COUNT

- Organized and presented at three annual Kids Groundwater Days
- Created the Appleton Outdoor Classroom on the river
- Created and distributed newsletter
- Organized citizen monitoring appreciation picnic.

# Watershed Achievements Report

## REDWOOD RIVER CLEAN WATER PROJECT

Located in Lincoln and Murray Counties, the Redwood River Clean Water Project was a long-term water-quality program designed to restore the Redwood River and Lake Redwood through local efforts. The Redwood-Cottonwood Rivers Control Area (RCRCA) was the project sponsor. Objectives were:

- Implement Best Management Practices (BMPs) by providing cost-share/loans and technical assistance
- Long-term water quality monitoring
- Watershed-based education.



These were accomplished through one-on-one landowner contacts and an extensive information and education program that encouraged implementation of BMPs on agricultural land. Landowners who voluntarily implemented BMPs received technical assistance and up to 75 percent cost-share to help pay the cost of installing conservation practices.

During the 2002 reporting period, RCRCA published a final report on the Clean Water Project, "Evolution of Watershed Restoration," which documented an 80 percent reduction in total suspended solids being delivered to Lake Redwood and the Minnesota River. The publication also revealed what caused the dramatic reduction, project accomplishments and trends, along with projection of future direction necessary for the project. More than 478 contacts were made in the Redwood River Watershed through information and education programs.

Addressing nonpoint- and point-source pollution will be a continuous need in the Redwood River Watershed. Current activities focus on setting Total Maximum Daily Load (TMDL) limits based on a long-term monitoring program and developing implementation plans for correcting the impairments. Even with reaching the goal of 15 percent reduction in sediment and nutrient transport, this project will still be out of compliance regarding turbidity.

For further information, contact:

James Doering, Executive Director  
Redwood-Cottonwood Rivers Control Area  
1241 E. Bridge Street  
Redwood Falls, MN 56283

### FINANCIAL INFORMATION

Total 319 expenditures for this project for 2002 were \$333,940.

### RESULTS THAT COUNT

- One state cost-share project started with potential to reduce soil loss by 67 tons/yr, surface-water sedimentation by 43 tons/yr, and phosphorus by 46 lb/yr.
- Eight state cost-share projects completed with potential to reduce soil loss by 87 tons/yr, surface-water sedimentation by 86 T/yr, and phosphorus by 100 lb/yr.
- 11 septic systems installed resulting in 452 lb/yr of phosphorus reduction.
- Five CWP cost-share projects with potential to reduce soil loss by 13 tons/yr, surface-water sedimentation by 13 tons/yr, and phosphorus by 15 lb/yr.



# Watershed Achievements Report

## SOUTH BRANCH ROOT RIVER WATERSHED IMPLEMENTATION PROJECT

The South Branch Root River Watershed Project began in 1998 with the award of a grant for a Clean Water Partnership Phase I Diagnostic Study. The study was completed in 2002, and a Phase II Implementation Project was developed and submitted for funding. Notification was received in December 2003 that a 319 Implementation Grant for \$299,420 and a Clean Water Partnership Low-Interest Loan Fund application for \$300,000 were approved. These funds would not be available until 2005. The Governor's Clean Water Initiative (announced in 2003) targeted the Root River as a pilot watershed for addressing impaired waters affected by fecal coliform bacteria and turbidity. The first three years of the initiative have been focused on the South Branch Root River in Fillmore County.

Although resources were limited before loan and grant funds were available, work was done on the following activities:

- Five watershed committee meetings were held with average attendance of 15.
- CWP loan program elements were developed.
- Outreach and communications plan was developed for an Individual Sewage Treatment System loan program.
- Initial project materials were prepared and reviewed.
- Plans were made and data gathered for maps to help target implementation practices in the watershed.
- Biological monitoring was conducted at two sites for the second year.
- A map of the 97 tillage transect survey sites showing tillage practices on those fields was prepared by Fillmore Soil and Water Conservation District.

For more information, contact:

Donna Rasmussen  
Fillmore County Water Plan Coordinator  
900 Washington St NW  
Preston, MN 55965

### FINANCIAL INFORMATION

Total cumulative expenditures through this period were \$7,713.

### RESULTS THAT COUNT

Fillmore County took the initiative to fund activities such as information materials preparation and other preliminary activities to prepare for implementing the project before loan and grant funds were available.

# Watershed Achievements Report

## SOUTH BRANCH YELLOW MEDICINE RIVER TMDL

---

Part of the South Branch of the Yellow Medicine River is listed on the federal Impaired Waters list as impaired for swimming (primary contact recreation). The main pollutant contributing to the impairment is fecal coliform bacteria. The Yellow Medicine River Watershed District applied for and received a Sec. 319 grant to conduct a Total Maximum Daily Load (TMDL) project to assess fecal coliform sources, concentrations, load reductions/allocations, and develop a implementation plan to bring this reach of the Yellow Medicine River into compliance with Minnesota water-quality standards.

The area of concern is a sub-watershed located along the south branch of the river's five main branches and, in particular, the downstream section of this sub-watershed. The land use is dominated by agricultural cropping and animal production. The single urban center is the city of Minneota, in Lyon County.

The focus and primary intent of this project was to better characterize fecal coliform levels, probable sources, and estimated reduction needs to meet the TMDL's water-quality goal. The project design attempts to:

- Assess the magnitude of each pollution source
- Design realistic control measures
- Quantify the performance of the control measures implemented
- Predict the net effect on the river water quality and quantity.

The scope of the project comprises three components. The first is to assess the magnitude and variability of the watershed loading quantitatively at the most cost-effective resolution. The second is to assemble a technical committee involving the Yellow Medicine River Watershed District, the Lincoln Soil and Water Conservation District, the Lyon County Soil and Water Conservation District, the Natural Resources Conservation Service, the MPCA, and local cities and townships. The third component is to create and utilize a GIS system for the project.

Watershed-wide bacterial loading allocation methods were employed to assess the magnitude of point and nonpoint sources and establish a cause-effect linkage of loading sources and subsequent stream concentrations. The maximum daily load was calculated for spring, summer

and fall conditions based on the results of the monitoring. Analysis from 30 monitoring stations in 1999-2001 showed that although impaired status was relatively rare during the spring and fall seasons, all of the 30 sites were impaired during at least one of the summer months (June through August).

For further information about this project, contact:

Terry Renken  
Yellow Medicine River Watershed District  
507-872-672

### FINANCIAL INFORMATION

The 319 grant was for \$56,983.

### RESULTS THAT COUNT

- A detailed source assessment was conducted
- Load allocations and source reduction strategies were prepared for meeting the TMDL water-quality goal of an 82 percent reduction in fecal coliform loading
- Locally targeted implementation plan for achieving the TMDL water-quality goals includes:
  - Feedlot runoff reduction
  - Stream buffer initiative
  - Drain tile initiative
  - Accelerated adoption of rotational grazing
  - Conservation tillage strategy
  - Urban storm water management
  - Follow-up monitoring plan to commence two years after significant implementation measures have been installed.

# Watershed Achievements Report

## ST. LOUIS RIVER WATERSHED MERCURY REDUCTION PILOT PROJECT

---

The Western Lake Superior Sanitary District serves as the main coordinator for the St. Louis River TMDL Partnership. The target area for this pilot project (encompassing Carlton, Cook, Lake, and St. Louis counties in Minnesota and Douglas County in Wisconsin) is the Lake Superior Watershed in Minnesota, which includes the St. Louis River Watershed and the portion of the St. Louis watershed that lies in Wisconsin.

This pilot project is aimed at reducing mercury released from intentional uses; a monitoring plan will track the effectiveness of mercury-reduction efforts. The overall project is divided into three phases:

1. Identifying existing mercury reduction programs, conducting a needs analysis, developing strategies, and preparing a monitoring plan
2. Implementing
3. Monitoring and following up.

The pilot project focuses on only the first phase. The pilot's objectives are to maximize the effectiveness of existing programs and to implement new gap-filling programs, especially those that can quickly move from planning to implementation. Gaps in effectiveness of existing programs do exist. Discussions with coordinators of existing programs have provided information about the existing mercury collection infrastructure and a better idea of primary communication channels that have been or could be used to disseminate information and conduct similar programs in other locations.

Examples of monitoring activities that could be called for include analysis of wastewater treatment sludge and tracking and aggregating data on the total quantity of mercury collected by mercury reduction efforts. Existing data (e.g., sludge mercury concentrations) will be used and initial monitoring will be conducted as necessary at selected locations to determine baseline conditions. The monitoring program must identify parameters that can be measured year after year and must be affordable as well.

Twenty-seven different programs were analyzed and summarized, concluding that:

- Areas with large populations have the most available programs and disposal opportunities.
- County-level awareness and activity varies.
- Some sectors have made notable strides (dental practices and schools, for instance) while others remain underserved in this area (such as automotive).

For more information, contact:

Joe Mayasich  
Western Lake Superior Sanitary District  
2626 Courtland Street  
Duluth, MN 55806-1894  
(218) 740-4806  
[joe.mayasich@wlssd.duluth.mn.us](mailto:joe.mayasich@wlssd.duluth.mn.us)

### FINANCIAL INFORMATION

EPA funded the pilot grant with \$29,626.

### RESULTS THAT COUNT

- Types of data have been developed to assess the impact of additional efforts aimed at reducing use and improper disposal of mercury-containing products.
- Also developed were what parameters will be tested, who will collect the data, who will aggregate the data and how, and guidance regarding test methods and costs.

# Watershed Achievements Report

## WHITEWATER RIVER WATERSHED NATIONAL MONITORING PROGRAM

The Whitewater River and its watershed have been the focus of considerable interest regarding the river's water quality. Several reaches of the river are actively managed as trout fisheries. Water quality concerns have focused on sediment problems, dissolved oxygen, and elevated stream temperatures. The Whitewater River Watershed National Monitoring Program has been one of many watershed management efforts in recent years.

The overall goals of the Whitewater River Watershed National Monitoring Program project are to:

- Provide the information required under the National Monitoring Program (NMP) for use in evaluating the effectiveness of implemented Best Management Practices (BMPs)
- Provide long-term monitoring for continuing evaluation of the pollution problems and solutions in the Whitewater River Watershed Project.

The specific goals for this project are to:

- Evaluate surface and ground-water interactions present in the five H-flume study areas
- Detect improvement in the quality of water from a treatment watershed as compared to the quality of water from a control watershed using a paired-watershed monitoring design in the five H-flume sites.

A contract involving the James Vermillya farm located in Elmira Township, Olmstead County, was a small part of this project to evaluate the effectiveness of BMPs by using a paired-watershed monitoring design. The study involves operating an automated water-quality monitoring station in a small watershed located on the Vermillya farm. The H-flume and continuous stage recorder allow the project to accurately measure and record stream flow from low base flows to high storm-event flows. The automatic sampler enables the collection of water samples during



*Weir and automated data logger on one of the paired field studies.*

the storm-event flows. The contract with Mr. Vermillya provided for records of land management activities, tillage, crops, nutrient and pesticide management, and crop yields from fall 2001 through fall 2002 for the field. The University of Minnesota, Department of Agriculture, and Biosystems Engineering will continue water-quality and flow monitoring as part of the long-term paired-watershed monitoring project funded by a 319

grant. This information will be incorporated into the land use/management records from previous and subsequent years of the NMP project.

For more information, contact:

Greg Johnson  
MPCA  
520 Lafayette Rd. N.  
St. Paul, MN 55155  
(651) 296-6938  
[greg.johnson@pca.state.mn.us](mailto:greg.johnson@pca.state.mn.us)

### FINANCIAL INFORMATION

The grant contract was for \$48,500. All funds were used to complete the work plan tasks. No in-kind or other funding from the University of Minnesota was used to match the federal funding within this contract.

### RESULTS THAT COUNT

Water-quality data generated through this project have been disseminated nationally and internationally via informal meetings, workshops, and publications.



# Watershed Achievements Report

## PROJECTS AWARDED IN 2005

### CLEAN WATER PARTNERSHIP

(Continuations)

#### ■ Beaver Creek Watershed improvement project

The Beaver Creek Watershed Improvement Project continues funding for feedlot manure application plans, sewer improvement projects, grass-covered waterways to prevent erosion, wetland restoration to prevent erosion and restore wildlife habitat, sediment control and water retention structures, demonstration plots for better fertilizer application, protection of priority lands, stream bank stabilization, and stream monitoring.

**Sponsor: Murray County**

#### ■ Big Birch Lake Watershed management project

This continuation project in the Birch Lake Watershed District provides grant funds for water monitoring to assure effectiveness of water quality improvements and to get a better understanding of nonpoint-source water pollution entering the lake. The grant also supports data analysis, Best Management Practices (BMPs) for land use, watershed resident education, and project data collection to the MPCA.

**Sponsor: Sauk River Watershed District**

#### ■ Lambert Creek water quality improvement project

The continuation of funding to this project brings additional pond excavations to treat water entering Lambert Lake, a critical link in the city of St. Paul's drinking-water supply. Because Lambert Creek is listed as impaired for aquatic biota, stream-bank erosion controls will be designed and installed and a weir will be re-designed to get the Sobota Slough wetland functioning properly.

**Sponsor: Vadnais Lake Area Water Management Organization**

#### ■ Lincoln Co./Redwood River Watershed restoration project

This project provides continued funds for technical assistance for designing and practicing watershed BMPs, water-quality and flow-data monitoring, maintenance of the geographic information system (GIS) database and resource inventories, education of watershed residents, and evaluation of project effectiveness.

**Sponsor: Redwood-Cottonwood Rivers Control Area**

#### ■ Middle Sauk River rehabilitation project

Continued funding of this project provides more outreach and education for watershed residents about preventing stormwater pollution to the Sauk River and its associated chain of lakes; water quality monitoring, modeling and evaluation; and selection, design and installation of BMPs for feedlots and agriculture sites to keep excess nutrients out of the Sauk River chain of lakes. The funding also addresses abandoned wells in order to protect ground water, adds shoreline and stream bank erosion protection using native vegetation, and upgrades septic systems.

**Sponsor: Sauk River Watershed District**

#### ■ North Fork Crow River water quality improvement project

Continued funding for this project brings aid to Stearns, Meeker, Kandiyohi and Pope counties which together include 16 townships and six cities. Continuation of funds brings feedlots into further compliance with developed manure application plans, reduces sediment loading by implementing BMPs, and reduces soil erosion in drainage systems and shore-line areas. With help from the city of Paynesville and Paynesville Township, the funding provides education to landowners for better stormwater management.

**Sponsor: North Fork Crow River Watershed District**

# Watershed Achievements Report

## ■ Osakis Lake Watershed management project

This project brings continued funding for watershed education; water quality monitoring, modeling and evaluation; stormwater and urban stormwater BMPs in a watershed with a growing population; agricultural, rural and land-use BMPs; encouragement of native vegetation to prevent shoreline erosion; upgrading noncompliant or substandard septic systems; and using sediment-reduction ponds, native plants and vegetative buffer strips to control erosion and sediment in order to address concerns about the transparency of Osakis Lake.

**Sponsor: Sauk River Watershed District**

## ■ Sauk Lake Basin restoration project

Continued funding for this project provides more stormwater education to targeted audiences in the watershed; water-quality monitoring and evaluation for the Sauk River, Ashley Creek, Hoboken Creek and Silver Creek; agricultural and rural land-use BMPs on the Ashley and Hoboken tributaries; upgrades to noncompliant or substandard septic systems; and shoreline and stream bank restoration to reduce erosion and sedimentation, improve habitat, and filter stormwater runoff. The funding aids continued work with the rapidly developing city of Sauk Centre to provide assistance and encourage stormwater BMPs such as rain gardens, sediment ponds and stormwater wetlands.

**Sponsor: Sauk River Watershed District**

## ■ Sauk River Chain of Lakes watershed basin restoration

This project provides funding for stormwater education in the rapidly growing Sauk River chain of lakes area; water-quality monitoring and evaluation; development of agricultural, rural and land-use BMPs such as vegetative buffer strips, clean water diversions and better pasture management; shoreline and stream bank restoration; and urban stormwater BMPs.

**Sponsor: Sauk River Watershed District**

## ■ Seven Mile Creek Watershed project

Continued funding for this project provides installation and support for long-term adoption of stormwater BMPs, technical assistance for agricultural land-use improvements, structural and behavioral BMP monitoring and assessment, water-quality monitoring, education and outreach, and data management and analysis.

**Sponsor: Brown Nicollet Cottonwood Water Quality Board**

## ■ Shakopee Creek headwaters project

The Shakopee Creek Headwaters Project continues funding for water-quantity monitoring to evaluate the effectiveness of BMPs such as buffer strips, nutrient-management plans, sediment retention basins and wetland restoration, and for watershed education and program tracking.

**Sponsor: Kandiyohi County**

# Watershed Achievements Report

## PROJECTS AWARDED IN 2005

319

### ■ Building local capacity for community solutions to wastewater problems (Cannon River)

This project is part of the basin-wide response to the Regional TMDL study of fecal coliform impairments in the Lower Mississippi River Basin in Minnesota. Unsewered communities and failing/nonconforming septs were identified as major sources. The project will provide financial incentives to 20 communities to cover half the up-front costs for an initial assessment of their current wastewater conditions. After completion, additional incentives will be available to contract for engineering feasibility studies.

**Sponsor: Cannon River Watershed Partnership, David Legvold, 507-646-8400**

### ■ Cottonwood River Watershed phosphorus reduction project

Cottonwood River phosphorus loadings contribute to turbidity impairment and to nutrient impairments in the Minnesota River. This project will continue to implement BMPs that will help the Lower Minnesota River achieve TMDL goals for dissolved oxygen. BMPs will include septic system upgrades, stream bank restoration, grassed waterways, terraces, sediment control basins, and others.

**Sponsor: Redwood-Cottonwood Rivers Control Area, James Doering, 507-637-2142**

### ■ Feedlot runoff pollution removal by organic biofilter demonstration (Stearns County)

The purpose of this demonstration project is to utilize a carbon-rich biofilter to treat feedlot runoff and thereby provide farmers and small- to medium-sized livestock producers with an efficient and effective treatment alternative. The project will produce technical information that the NRCS will use in approving carbon-rich biofilters in its Number 784 Practice Standard — Wastewater and Feedlot Runoff Control, EQIP.

**Sponsor: Stearns County Soil and Water Conservation District, Dennis J. Fuchs, 320-251-7800**

### ■ Lac qui Parle River main stem water quality enhancement effort

This project will accelerate the implementation of BMPs in the middle reach of the main stem Lac qui Parle River. Will also include low-interest loan program for upgrading ISTS. The lower part of the River is listed for low dissolved oxygen and the middle reach may be listed for turbidity.

**Lac qui Parle-Yellow Bank Watershed District, Mary Homan, 320-598-3319**

### ■ Long Prairie River 2204 TMDL implementation work plan

Six reaches of the Long Prairie are impaired for dissolved oxygen. Point sources will work with MPCA through the permit process to reach compliance with their TMDL load allocations. Nonpoint sources in the watershed will be addressed through BMPs. Half of the funding from this work plan is designated for cost share to landowners in the watershed to install and maintain BMPs with a focus on riparian buffers, manure and nutrient management, and grassed waterways.

**Sponsor: Todd County Soil and Water Conservation District, Kitty Tepley, 320-732-2644**

### ■ Rush River implementation project

The South Branch of the Rush River is impaired for fecal coliform. Applied manure, noncompliant feedlots, and noncompliant septic systems are the primary sources. Additionally, nutrients/sediments are of concern in the watershed. The project will focus on completing a TMDL for fecal coliform and reducing bacteria, sediment, and nutrient levels by implementing BMPs.

**Sponsor: Sibley County, Scott Kudelka, 507-237-5435**

# Watershed Achievements Report

## ■ South Branch Whitewater River watershed bacteria reduction project

The Whitewater River Watershed has the highest fecal coliform bacteria levels in the Lower Mississippi River Basin (within Minnesota). This project will address failing septic systems, implement BMPs to reduce bacteria runoff, complete managed grazing plans on five farms, bring feedlots into compliance with state rules, install vegetated buffers along river corridors, and provide education and outreach.

**Sponsor: Whitewater Joint Powers Board, Linda Dahl, 507-523-2171**

## ■ Targeted implementation/compliance activity with TMDL and ecologically sensitive areas, Phase II (Stearns County)

The area of concern is livestock operations and landowners located in and near TMDL waters and ecologically sensitive areas. This project will accelerate BMP adoption by providing technical and financial assistance to those producers located within the priority area. Will investigate unpermitted earthen manure storage basins; identify feedlots in need of pollution abatement, reconstruction or abandonment; develop manure management plans; and implement BMPs for soil erosion.

**Sponsor: Stearns County Soil and Water Conservation District, Dennis Fuchs, 320-251-7800**

## ■ Valley Creek repair and rehabilitation program

Valley Creek is one of only a few streams in the Minneapolis area with a naturally reproducing brook trout population. Threats to the creek include development and poor riparian vegetation management. This project will reduce sediment and other runoff by addressing severe gully erosion sites, stream-bank erosion sites, 2000 feet of stream reaches, and roadway sites. Additional education/outreach will also be included.

**Sponsor: Valley Branch Watershed District, John Hanson, 651-748-4230**

## ■ Volunteer nitrate monitoring network in target areas demonstration

This is a nine-county effort to develop and test the concept of a cost-effective, locally driven, and sustainable means of obtaining long-term trend data for nitrate occurrence in private drinking water supplies. In each county, 50-150 homeowners will be selected to participate in a monitoring design developed by hydrologists from state agencies in cooperation with county water resource managers. Homeowners will be trained to sample for nitrates and ship their samples to specified county locations.

**Sponsor: Southeast Minnesota Water Resources Board, Bea Hoffmann, 507-457-5223**

## ■ Working together to repair and rehabilitate water quality (Crow River)

This project will provide financial incentives to landowners to reduce sediment and nutrient loads, increase education efforts, and maintain erosion control to improve water quality. Will include septic upgrades, installing alternative tile intakes, enrolling filter or buffer strips, stabilize shoreland erosion, working with cities on stormwater/water quality issues, and educational efforts.

**Sponsor: Crow River Organization of Water, Diane Sander, 756-682-1933**



# Watershed Achievements Report

## PROJECTS CURRENTLY ACTIVE 2005

(Listed by year of award)

**Project KEY: Section 319 Projects in GREEN CWP Projects in BLUE**

### 1999

#### **Cass Lake/Lake Winnibigoshish Watershed Project**

Sponsor: Beltrami County

Funding: CWP (Grant) \$93,500 Awarded: 1999

Purpose: Identify concerns within watershed that could result in water quality degradation.

### 2000

#### **Blue Earth River - Watonwan Basin Implementation**

Sponsor: Blue Earth River Clean Water Partnership

Funding: CWP (Grant) \$500,000, (Loan) \$2,156,345

Awarded: 2000

Purpose: Provide SRF loans to fund best management practices in Watonwan, Jackson and Cottonwood Counties.

#### **Crow River Watershed Water Quality Enhancement Project**

Sponsor: Prairie Country RC&D

Funding: Section 319 (Grant) \$453,790 Awarded: 2000

Purpose: Stabilize seven streambank or lakeshore sites, install 14 agricultural waste systems, install other best management practices to reduce sedimentation.

#### **Midway River Watershed Restoration Project**

Sponsor: South St. Louis County Soil and Water Conservation District

Funding: Section 319 (Grant) \$35,750 Awarded: 2000

Purpose: Identify sites contributing sediment loads, provide information and education, prepare GIS inventory and plant trees to stabilize erosion.

#### **Salem Creek Bacteria Reduction Project**

Sponsor: Dodge County Environmental Quality Department

Funding: Section 319 (Grant) \$21,000 Awarded: 2000

Purpose: Target sources of bacteria contamination in Salem Creek through education, outreach, citizen monitoring and one-on-one discussions with landowners.

#### **Training, Technical Assistance and Incentives for Nutrient Management**

Sponsor: Minnesota Board of Water and Soil Resources

Funding: Section 319 (Grant) \$154,761 Awarded: 2000

Purpose: Select priority watershed, develop and deliver nutrient management workshops to local staff, develop local nutrient management plans.

#### **Trapper's Run Best Management Practices**

Cost Share Project

Sponsor: Pope County

Funding: CWP (Grant) \$150,000 Awarded: 2000

Purpose: Identification of noncompliant feedlots, encourage placement of land in CREP, CRP and RIM programs.

### 2001

#### **Red Lake River Restoration and Habitat Improvement Project**

Sponsor: City of Crookston

Funding: Section 319 (Grant) \$420,000 Awarded: 2001

Purpose: Develop and implement streambank and bed stabilization practices, remove dam, construct rapids and provide additional bank restoration.

#### **Sauk Lake Restoration Project**

Sponsor: Sauk River Watershed District

Funding: Section 319 (Grant) \$325,000 Awarded: 2001

Purpose: Apply agricultural conservation practices, develop agriculture best management practices, collect water-quality data, develop shoreland BMPs.

#### **Sauk River Chain of Lakes Watershed Basin Restoration**

Sponsor: Sauk River Watershed District

Funding: Section 319 (Grant) \$200,000 Awarded: 2001

Purpose: Provide agricultural waste management assistance, land use best management practices, shoreland restoration, upgrades to septic systems and education.

#### **Targeted Feedlot Runoff Reduction Project**

Sponsor: Southeast Minnesota Water Resources Board

Funding: Section 319 (Grant) \$586,080 Awarded: 2001

Purpose: Hire experienced agriculturalist for each of eight counties, prepare information on the open lot agreement, train agriculturalists on best management practices.

# Watershed Achievements Report

## **Whitewater River Watershed National Monitoring Program — Paired Watershed Monitoring**

Sponsor: Robert Finley  
Funding: Section 319 (Grant) \$50,000 Awarded: 2001  
Purpose: Evaluate surface and ground-water interactions and detect improvements through use of feedlot management, erosion control, land use best management practices, education and monitoring.

---

## 2002

---

## **BERBI Nonpoint Source Accelerated Implementation**

Sponsor: Blue Earth River Basin Initiative  
Funding: Section 319 (Grant) \$671,250 Awarded: 2002  
Purpose: Accelerate the implementation of conservation practices that address nonpoint source pollution within the greater Blue Earth River system in order to meet TMDL and hypoxia-reduction goals.

## **Best Management Practices Implementation Program**

Sponsor: Carnelian Marine Watershed District  
Funding: Section 319 (Grant) \$50,000 Awarded: 2002  
Purpose: Manage each lake in the district, corresponding shoreland, and contributing subwatershed to maintain the water quality of existing high quality, high value lakes and improve water quality of lesser quality lakes.

## **Big Lake Partnership Wastewater Alternatives Study**

Sponsor: Fond du Lac Reservation Business Committee  
Funding: CWP (Grant) \$16,000 Awarded: 2002  
Purpose: Review potential alternatives for wastewater treatment in the Big Lake area, and develop and implement a plan.

## **Blue Earth River Watershed Project (Lily and Center Creeks)**

Sponsor: Martin County Environmental Services  
Funding: CWP (Grant) \$450,000, \$300,000 (loan)  
Awarded: 2002  
Purpose: Reduce sediment and total suspended solids in the Lily and Center Creek subwatersheds, two of the top three found in the Phase I diagnostic report. Center Creek is also a TMDL project for ammonia and bacteria.

## **Dairy Milkhouse Wastewater Treatment Demonstration**

Sponsor: University of Minnesota  
Funding: Section 319 (Grant) \$192,852 Awarded: 2002  
Purpose: Evaluate and demonstrate effective techniques or systems to reduce environmental pollution contained in dairy milkhouse wastewater and disseminating the results to dairy producers in Minnesota.

## **East Branch Chippewa River Implementation**

Sponsor: Chippewa County  
Funding: Section 319 (Grant) \$120,840 Awarded: 2002  
Purpose: Implement a plan to reduce high nutrient loads and sediment during the growing season from rainfall-driven runoff that occurs throughout the watershed of this tributary to the Chippewa and, eventually, Minnesota River.

## **Elk Creek Conservation Tillage Incentive Program**

Sponsor: Heron Lake Watershed District  
Funding: Section 319 (Grant) \$28,200 Awarded: 2002  
Purpose: Reduce major sources of nutrients and total solids to Okabena Creek from Elk Creek and the section that drains the City of Worthington by encouraging use of conservation tillage.

## **Fond du Lac Nonpoint Source Assessment and Management Plan**

Sponsor: Fond du Lac Reservation Business Committee  
Funding: CWP (Grant) \$20,000 Awarded: 2002  
Purpose: Develop a tribal Nonpoint Source Management Plan that will complement and enhance the state's and other agencies' nonpoint-source objectives.

## **Grazing Management for Trout Stream Improvement**

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$139,300 Awarded: 2002  
Purpose: Train service providers to develop managed grazing plans and facilitate fencing, livestock watering systems and protection of sensitive areas.

## **Hawk Creek Watershed Project "Green Corridors"**

Sponsor: Renville County  
Funding: CWP (Grant) \$106,837 Awarded: 2002  
Purpose: Reduce erosion and nutrient loading to Middle Hawk Creek and Chetomba Creek, two priority subwatersheds, through enrolling riparian areas into Reinvest in Minnesota, improving agricultural drain-tiling systems, and ditch bank stabilization.

## **Implementation Projects for Big Sandy Watershed's Future**

Sponsor: Aitkin County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$32,500 Awarded: 2002  
Purpose: To improve and protect water quality, wildlife, fisheries and aesthetic concerns in sensitive areas of the watershed.

# Watershed Achievements Report

## Indian Creek Improvement Project

Sponsor: Blue Earth County  
Funding: CWP (Grant) \$82,042 Awarded: 2002  
Purpose: Reducing sediment deposition and bacteria levels in this tributary to the Minnesota River that flows through the City of Mankato by developing a plan to address land use, storm water and other strategies.

## Lambert Creek Water Quality Improvement Project

Sponsor: Vadnais Lake Area Water Mgmt. Organization  
Funding: Section 319 (Grant) \$176,287 & CWP (Grant) \$213,713 Awarded: 2002  
Purpose: Restore sheet flow and natural catchment of waters in Lambert Lake, a previously ditched wetland draining to Vadnais Lake, the final impoundment reservoir for the St. Paul Regional Water Services.

## Long-term Water Quality Study of Glacial Ridge Surface and Ground Water Systems

Sponsor: Red Lake Watershed District  
Funding: CWP (Grant) \$525,000 Awarded: 2002  
Purpose: Improve the quality of both surface and ground water, reduce flow and create outstanding wildlife habitat in the Gently River, Burnham Creek, the Polk-Red Lake County Beach Ridge Aquifer and the Red Lake River.

## Lower Maple River Watershed Project

Sponsor: Blue Earth County  
Funding: CWP (Grant) \$534,000, (Loan) \$200,000 Awarded: 2002  
Purpose: Reduce sediment, phosphorus, nitrate, nitrogen and fecal coliform bacteria in the Maple River by 25 percent.

## Manure Management within Ecologically Sensitive Areas in Stearns County

Sponsor: Stearns County SWCD  
Funding: Section 319 (Grant) \$490,000 Awarded: 2002  
Purpose: Enhance, sustain, conserve and protect county surface and ground-water resources.

## Middle Sauk River Rehabilitation Project

Sponsor: Sauk River Watershed District  
Funding: CWP (Grant)\$250,000, (Loan) \$500,000 Awarded: 2002  
Purpose: Address agricultural impacts, including priority feedlots, erosion along ditches, BMPs and rural septic systems.

## Northstar NEMO Initiative

Sponsor: Minnesota Erosion Control Association  
Funding: Section 319 (Grant) \$125,000 Awarded: 2002  
Purpose: Expand nonpoint-source education for local land-use officials, incorporate principles in local plans, and bring together groups interested in land-use and water quality.

## Nutrient Reductions to Improve Lake Detroit Water Quality

Sponsor: Pelican River Watershed District  
Funding: Section 319 (grant) \$50,000, (Loan) \$450,000 Awarded: 2002  
Purpose: Reduce episodes of internal nutrient loading from Rice Lake and adjacent wetlands, promote agricultural BMPs, and reduce biomass nutrient contributions.

## Osakis Lake Watershed Management Program

Sponsor: Sauk River Watershed District  
Funding: CWP (grant) \$365,000, (loan) \$355,000 Awarded: 2002  
Purpose: Prevent the lake from further degrading and improve or maintain its current condition by addressing water-quality concerns within each subwatershed.

## Pond Sediment Characterization

Sponsor: Metropolitan Council Environmental Services  
Funding: Section 319 (Grant) \$90,000 Awarded: 2002  
Purpose: Characterize pond sediments (quantity and quality) in the Twin Cities metro area and provide that information to agencies with responsibilities for public health and water quality.

## Rush River Assessment Project

Sponsor: Sibley County  
Funding: CWP (Grant) \$312,518 Awarded: 2002  
Purpose: Develop diagnostic study and implementation plan for Rush River watershed.

## Sauk Lake Storm and Surface Water Resource Investigation Project

Sponsor: Sauk River Watershed District  
Funding: Section 319 (Grant) \$80,000 Awarded: 2002  
Purpose: Focus on storm-water runoff and its effects on Sauk Lake with identification of primary sources and BMPs.

## Seven-Mile Creek Watershed Project

Sponsor: Brown-Nicollet-Cottonwood Water Quality Board  
Funding: CWP (Grant) \$196,000, (Loan) \$550,000 Awarded: 2002  
Purpose: Reduce nitrate/nitrogen by 40 percent, phosphorus by 40 percent, total suspended solids by 25 percent, and fecal coliform bacteria to levels below 200/100 ml.

## Small Group Preparation of Nutrient Management Plans

Sponsor: University of Minnesota Extension  
Funding: Section 319 (Grant) \$263,040 Awarded: 2002  
Purpose: Improve nutrient and manure management practices by increasing the number of management plans and provide clear access to information through a centralized Web site.

# Watershed Achievements Report

## Springbrook Subwatershed Implementation Project

Sponsor: City of Fridley  
Funding: CWP (Grant) \$201,000 Awarded: 2002  
Purpose: Restore the Springbrook wetland ecosystem by reestablishing a 66:33 emergent plant/open water balance.

## Targeted Residential Wastewater Treatment Project

Sponsor: Southeast Minnesota Water Resources Board  
Funding: Section 319 (Grant) \$530,000 Awarded: 2002  
Purpose: Double the average rate at which individual sewage treatment systems are corrected through local efforts across the basin.

## Upper Mississippi River Source-Water Protection Project

Sponsor: City of St. Cloud  
Funding: Section 319 (Grant) \$243,250 Awarded: 2002  
Purpose: Implement source-water protection at a watershed level among several water suppliers who share a common source water resource

## Whitewater River Watershed National Monitoring Program

Sponsor: Minnesota Pollution Control Agency  
Funding: Section 319 (Grant) \$50,000 Awarded: 2002  
Purpose: To provide information required under the National Monitoring Program and provide long-term monitoring for evaluation of pollutant problems and potential solutions.

---

## 2003

---

## Conservation Tillage Demonstration Project

Sponsor: U of M Water Resources Center  
Funding: Section 319 (Grant) \$17,000 Awarded: 2003  
Purpose: To reduce sediment delivery to surface waters and preserve agricultural soils through increased crop residue cover on row-cropped fields of southern Minnesota.

## Elk River Watershed Priority Lakes Phosphorus Reduction

Sponsor: Elk River Watershed Association Joint Powers Board  
Funding: Section 319 (Grant) \$122,780 Awarded: 2003  
Purpose: To establish manure management BMP test plots throughout the watershed to measure nitrogen and phosphorus reductions and install low-cost conservation practices to address feedlot runoff as well as establish lakeshore buffer demonstration projects along developed shoreline.

## Evaluating Feedlot Runoff Pollution and Ways to Reduce Impacts

Sponsor: Minnesota Pollution Control Agency  
Funding: Section 319 (Grant) \$90,000 Awarded: 2003  
Purpose: To update and upgrade the FLEval model for allocation of costs and decision-making.

## Hawk Creek Watershed Project TMDL — Land Of The Lost

Sponsor: Renville County  
Funding: Section 319 (Grant) \$169,680 Awarded: 2003  
Purpose: To ensure sound agricultural drainage practices, make extensive use of conservation tillage, buffer strips, metered tile intakes, blind tile intakes and soil-conserving cover crops (such as alfalfa produced for biomass).

## Heron Lake Watershed District CWP Project

Sponsor: Heron Lake Watershed District  
Funding: Section 319 (Grant) \$161,750 Awarded: 2003  
Purpose: To implement best management practices (BMPs) such as vegetative cover, riparian and field buffer strips, windbreaks feedlot compliance, nutrient management planning, compliant septic systems, and wetland wildlife habitat restoration.

## High Island Implementation Project

Sponsor: Sibley County  
Funding: CWP (Grant) \$163,428, Section 319 (Grant) \$136,422 Awarded: 2003  
Purpose: To implement education activities and best management practices (BMPs), such as nutrient and manure management plans, spring nitrate testing, open tile intake alternatives, cover crops feedlot waste management, noncompliant septic system upgrades, structural practices, vegetative practices, and monitor for results.

## Improved Livestock Management in Riparian Areas

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$185,000 Awarded: 2003  
Purpose: To implement four to six managed grazing systems in each of the three stream corridors, conduct intensive monitoring to measure water quality, evaluate forage conditions, evaluate habitat, stream-bank condition and macro-invertebrates in the streams, conduct field days at participating farm sites, develop and refine educational materials.



# Watershed Achievements Report

## Local Nitrate Testing and Educational Outreach for Private Well Owners

Sponsor: Minnesota Department of Agriculture

Funding: Section 319 (Grant) \$110,000 Awarded: 2003

Purpose: To assist local entities to provide nitrate watertesting services and water-quality outreach on a county level.

## Lower Main Stem Chippewa River Sub-basin

Sponsor: Chippewa County

Funding: Section 319 (Grant) \$170,860 Awarded: 2003

Purpose: To provide incentive programs for Best Management Practices (BMPs), including buffer strip initiative, nutrient and residue management, livestock exclusion, alternative tile intakes and special projects; to document and track the BMPs installed and to provide technical assistance and cooperation from an extensive group of watershed partners.

## Manure Management Within Ecologically Sensitive Areas in Stearns County — Phase II

Sponsor: Stearns County Soil and Water Conservation District

Funding: Section 319 (Grant) \$300,000 Awarded: 2003

Purpose: To provide funding for comprehensive manure management plans, to correct feedlot pollution problems, to correct soil erosion problems, and to provide educational and technical information about feedlot rules and corrective actions.

## Meeting TMDL Goals with the Minnesota Phosphorus Index

Sponsor: Minnesota Department of Agriculture

Funding: Section 319 (Grant) \$(no data) Awarded: 2003

Purpose: To field test, validate and implement the Minnesota Phosphorus Index in real-world setting, including evaluation of its effectiveness as a tool for prioritizing high-risk fields and farms.

## Minnesota Restorable Wetland Inventory

Sponsor: Ducks Unlimited

Funding: Section 319 (Grant) \$(no data) Awarded: 2003

Purpose: To identify and map restorable wetlands in a total of at least six counties and make the data available on an internet-based GIS utility.

## Red River Basin Buffer Initiative

Sponsor: Red River Basin Commission

Funding: Section 319 (Grant) \$236,250 Awarded: 2003

Purpose: To implement buffers and wetland restorations through a targeted approach.

## Reduction of Fecal Coliform Bacteria from Human Sources (TMDL Implementation Project)

Sponsor: Southeast Minnesota Water Resources Board

Funding: Section 319 (Grant) \$154,000 Awarded: 2003

Purpose: To assess unsewered communities, fund engineering feasibility studies, and create record-keeping and communication functions among county staff, ISTS owners and pumpers.

## Redwood River Watershed Phosphorus TMDL Compliance Project

Sponsor: Redwood-Cottonwood Rivers Control Area

Funding: Section 319 (Grant) \$290,000 Awarded: 2003

Purpose: To provide information and education encouraging implementation of best management practices on agricultural land, develop one-on one landowner contacts, and provide technical assistance and cost-share for installing conservation practices.

## Shared Coastal Zone Engineering Assistance

Sponsor: Minnesota Board of Water and Soil Resources

Funding: Section 319 (Grant) \$215,000 Awarded: 2003

Purpose: To share a coastal engineer position for implementation of coastal nonpoint pollution control programs and projects in Lake Superior.

## Snake River Watershed Enhancement Project

Sponsor: Snake River Watershed Management Board

Funding: Section 319 & CWP (Grants) \$250,000

Awarded: 2003

Purpose: To bring into compliance six agricultural feedlot operations and 12 nonconforming septic systems, protect an estimated 750 feet of shoreline against erosion, restore 18,750 square feet of lakeshore with native vegetation, exclude livestock from four miles of streams, protect stabilized stream banks, reduce nutrient and sediment loading, write forest stewardship plans for 1,500 acres of private forest land, produce a newsletter twice a year, reaching more than 28,000 residents, and provide education about ways to protect and improve the water quality at the same time promoting cost-share programs and project activities.

## South Branch Buffalo River Water Quality Modeling Demonstration Project

Sponsor: Buffalo Red Watershed District

Funding: Section 319 (Grant) \$45,158 Awarded: 2003

Purpose: To implement a comprehensive program of education, citizen involvement, conservation of critical pieces of land, acceleration of current best management practices (BMP) programs, piloting of new BMPs and monitoring.

# Watershed Achievements Report

## **Straight River Fecal Coliform Reduction Project (A Regional Fecal Coliform TMDL Project)**

Sponsor: Cannon River Watershed Partnership  
Funding: Section 319 (Grant) \$256,750 Awarded: 2003  
Purpose: To sign eligible feedlot owners to the MPCA Open Lot Agreement and developing practices that comply with 7020 feedlot rules, install 1,500 acres of buffers and filter strips per year, and promote additional best management practices (BMPs) to reduce fecal coliform bacteria entering the Straight River.

## **TMDL Educational Seminar**

Sponsor: Heron Lake Watershed District  
Funding: TMDL (Grant) \$60,000 Awarded: 2003  
Purpose: To develop and implement a two-day educational seminar for local governmental units to explain the TMDL program. Specific topics would include identifying and listing impaired waters, developing effective TMDL plans, implementing TMDLs, and the effect TMDLs would have on local producers and their agricultural operations.

## **Whitewater River Watershed National Monitoring Program**

Sponsor: Whitewater River Watershed Project  
Funding: Section 319 (Grant) \$100,000 Awarded: 2003  
Purpose: To continue monitoring, begun in 1995, for a priority watershed project for several local, state and federal agencies and organizations.

---

## 2004

---

## **Chippewa River Watershed Continuation Project**

Sponsor: Chippewa County  
Funding: CWP (Grant) \$279,211, (Loan) \$250,000  
Awarded: 2004  
Purpose: To fund three staff members, continue information and education on best management practices with watershed students and residents, continue maintenance of the water-quality monitoring network and continue best management practices (BMPs) implementation, including agricultural BMPs, urban BMPs in stormwater management, upgrading individual septic systems and manure management.

## **Cost-Share Incentives for Small Feedlot Fixes**

Sponsor: Hiawatha Valley RC&D Association  
Funding: Section 319 (Grant) \$242,000 Awarded: 2004  
Purpose: To provide a 50-percent cost share for feedlot fixes for 220 feedlots.

## **Cottonwood River Restoration Project BMP Implementation Continuation**

Sponsor: Redwood-Cottonwood Rivers Control Area  
Funding: CWP (Grant) \$161,942 Awarded: 2004  
Purpose: To continue implementation activities, including outreach to the watershed community, education on watershed BMPs, stream bank restoration, agricultural best management practices, urban stormwater BMPs, continuing water-quality monitoring and data analysis, and ongoing project administration.

## **Dakota County Nonpoint Source Reduction Project**

Sponsor: Dakota County  
Funding: Section 319 (Grant) \$191,539 Awarded: 2004  
Purpose: To initiate an intensive one-on-one farmer outreach program, purchase permanent conservation easements along the Vermillion River and its tributaries; and expand water-quality monitoring of both ground water and the Vermillion River.

## **Designing Feedlot Improvements in Targeted Areas under the Open Lot Agreement**

Sponsor: Southeast Minnesota Water Resources Board  
Funding: Section 319 (Grant) \$300,000 Awarded: 2004  
Purpose: To provide financial and technical assistance for designing low-cost solutions for feedlot runoff.

## **Educating Local Officials on Water-Quality Impacts of Nonpoint Source Pollution**

Sponsor: Minnesota Lakes Association  
Funding: Section 319 (Grant) \$30,000 Awarded: 2004  
Purpose: To educate elected and appointed officials on the connection between water quality and land-use, through one-day workshops, presentations at local government conferences, working with trade groups and the production of videos and brochures.

## **Expansion of the Red Top Farm Demonstration Concept**

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$87,000 Awarded: 2004  
Purpose: To obtain year-round quantification of nutrient and pesticide losses from the fields under different best management practices and scenarios.

## **Greater Yellow Medicine River Phase II Continuation Project**

Sponsor: Yellow Medicine River Watershed District  
Funding: CWP (Grant) \$251,608, (Loan) \$625,000  
Awarded: 2004  
Purpose: To continue water quality monitoring, data analysis, project administration, local education activities, and implementation of agricultural best management practices such as nutrient management, filter strip construction, conservation easements and cost-share with other conservation programs.

# Watershed Achievements Report

## Hawk Creek Watershed Continuation Project

Sponsor: Renville County

Funding: CWP (Grant) \$251,853, (Loan) \$872,000

Awarded: 2004

Purpose: To fund three staff positions; additional water-quality monitoring, and data analysis to measure prior BMP performance; outreach activities such as displays, tours, demonstrations and fairs; and land-use BMPs including nutrient management, stream-bank erosion control, and an individual septic-system loan program.

## Hawk Creek Watershed Project — Beaver Tales

Sponsor: Renville County

Funding: Section 319 (Grant) \$174,137 Awarded: 2004

Purpose: To provide financial incentives to landowners for appropriate land-use decisions and best management practices which will correct and prevent water pollution.

## Hawk Creek Watershed Project — Hawk TMDL

Sponsor: Renville County

Funding: Section 319 (Grant) \$247,509 Awarded: 2004

Purpose: To provide financial incentives to landowners to implement conservation practices that will reduce the impacts of nonpoint source water pollution on the creek.

## Jefferson-German Lakes Water Quality Improvement Continuation Project

Sponsor: Le Sueur County

Funding: CWP (Grant) \$55,000, (Loan) \$250,000

Awarded: 2004

Purpose: To upgrade BMPs for priority feedlots, devise solutions for highly erodible lands in four priority subwatersheds, provide loan funding to upgrade nonconforming individual septic treatment systems, continue waterquality monitoring/data analysis, assistance in updating the Le Sueur County water plan, planning BMP demonstration sites and developing information materials.

## Little Cottonwood River Restoration Continuation Project

Sponsor: Brown, Nicollet and Blue Earth Counties

Funding: CWP (Grant) \$157,696, (Loan) \$150,000

Awarded: 2004

Purpose: To continue funding two staff positions responsible for targeting, marketing, creating relationships and enrolling environmentally sensitive agricultural lands into state and federal programs. Nutrient management demonstrations, EQIP funding for polluting feedlots, and upgrading noncompliant septic systems are also priorities for this project. Continued watershed monitoring, dataanalysis, maintaining an interactive watershed Web site, newsletters, and other educational efforts will round out the work of this continuation.

## On-Farm Manure Management Demonstration

Sponsor: University of Minnesota

Funding: Section 319 (Grant) \$279,600 Awarded: 2004

Purpose: To adopt best management practices and new technology for field application of manure.

## Restoring Water Resources of the Sauk River Chain of Lakes

Sponsor: Sauk River Watershed District

Funding: Section 319 (Grant) \$250,000, CWP (Loan)

\$500,000 Awarded: 2004

Purpose: To continue to carry out the goal of phosphorus reduction and loading by following the recommendations made in the CWP Phase IIA Final Report.

## Shakopee Creek Headwaters Project

Sponsor: Kandiyohi County

Funding: Section 319 (Grant) \$217,863 Awarded: 2004

Purpose: To promote conservation practices that target water-quality improvement and flood reduction through education and incentives. The project encourages active landowner participation in developing strategies that create a sustainable environment.

## South Branch Root River Watershed Fecal Coliform Bacteria Reduction Project

Sponsor: Fillmore County

Funding: Section 319 (Grant) \$299,420, CWP (Loan)

\$300,000 Awarded: 2004

Purpose: To reduce fecal coliform levels by 20 percent, turbidity/total suspended solids by 10 percent, and reduce harmful bacteria by 65 percent and sediments by 30 percent in southeastern rivers and stream within 10 years.

## Southeast Minnesota Milk House Wastewater Treatment Demonstration

Sponsor: University of Minnesota

Funding: Section 319 (Grant) \$183,822 Awarded: 2004

Purpose: To install different milk house wastewater handling systems on cooperating dairy farms for evaluation and demonstration. In southeastern Minnesota, different soils, karst conditions, topography and cultural practices drive the need for this type of research and demonstration.

## Steele County Septic System Loan Program

Sponsor: Steele County

Funding: Section 319 (Grant) \$66,000, CWP (Loan)

\$500,000 Awarded: 2004

Purpose: To provide administrative and financial assistance low-interest loans for individual land owners to upgrade inadequate septic systems.

# Watershed Achievements Report

## **Targeted Feedlot Open Lot Implementation Engineering Assistance**

Sponsor: Southeast SWCD Technical Support Joint

Funding: Section 319 (Grant) \$300,000 Awarded: 2004

Purpose: To provide engineering technical assistance and work with producers who sign up for the Open Lot Agreement.

## **Targeting Implementation/Compliance Activity within TMDL and Ecologically Sensitive Areas**

Sponsor: Stearns County SWCD

Funding: Section 319 (Grant) \$300,000 Awarded: 2004

Purpose: To investigate unpermitted earthen manure storage basins; target and accelerate compliance; implement educational initiatives, manure management, feedlot pollution abatement systems, erosion control; promote related best management practices, and continue water-quality monitoring.

## **Upper Main Stem Chippewa River Implementation**

Sponsor: Chippewa County

Funding: Section 319 (Grant) \$164,210, CWP (Loan) \$200,000 Awarded: 2004

Purpose: To implement a buffer strip initiative, the Filters for the Future Initiative, septic inspection fee, livestock exclusion projects, manure testing, shoreline naturalization site installation, the Alternative Tile Intake Initiative, sediment basins, terraces, wetland restoration or other best management practices.

## **Watonwan River Major Watershed Implementation Plan Continuation**

Sponsor: Watonwan County

Funding: CWP (Grant) \$100,000, (Loan) \$500,000

Awarded: 2004

Purpose: To implement agricultural BMPs for nutrient management, streambank stabilization, channel restoration, drainage inventory, residue management, water retention, upgrading individual septic treatment systems, ongoing monitoring and data analysis, and education activities.



# Watershed Achievements Report

## PROJECTS COMPLETED HISTORY

(Listed by year of award)

Project KEY: Section 319 Projects in GREEN CWP Projects in BLUE

### 1989

#### Boy River Recreational Area Diagnostic Feasibility Study

Sponsor: Cass County  
Funding: CWP (Grant) \$59,862 Awarded: 1989  
Purpose: Prevent degradation of resources through identification of nonpoint-source controls and education.

#### East Side Lake Improvement Project

Sponsor: Mower County  
Funding: CWP (Grant) \$39,650 Awarded: 1989  
Purpose: Monitor water quality and sediments, improve water quality for recreational and aesthetic purposes.

#### French Lake Water Quality Improvement Project

Sponsor: Rice County  
Funding: CWP (Grant) \$46,779 Awarded: 1989  
Purpose: Determine sources and locations of pollutants entering French Lake.

#### Grove Lake Restoration Project

Sponsor: North Fork Crow River Watershed District  
Funding: CWP (Grant) \$18,632 Awarded: 1989  
Purpose: Reduce algal blooms and weed growth through wetland restoration and feedlot management.

#### Lake Bemidji Watershed Study

Sponsor: Beltrami County  
Funding: CWP (Grant) \$84,425 Awarded: 1989  
Purpose: Protect and improve water quality using urban and forestry best management practices, as well as feedlot and erosion control.

#### Lake Florence Restoration Project

Sponsor: City of Stewartville  
Funding: CWP (Grant) \$30,250 Awarded: 1989  
Purpose: Study water-quality problems and determine restorative measures for Lake Florence.

#### Lake Redwood Monitoring Project

Sponsor: Redwood-Cottonwood Rivers Control Area  
Funding: CWP (Grant) \$27,570 Awarded: 1989  
Purpose: Prioritize and implement best management practices in subwatersheds of Lake Redwood.

#### Lambert Creek/Vadnais Lake Water Quality Improvement Project

Sponsor: Vadnais Lake Area Water Management Organization  
Funding: CWP (Grant) \$97,000 Awarded: 1989  
Purpose: Reduce phosphorus concentrations in watershed and St. Paul reservoir lakes.

#### Long Lake Diagnostic/Feasibility Study

Sponsor: Minnehaha Creek Watershed District  
Funding: CWP (Grant) \$32,485 Awarded: 1989  
Purpose: Reduce algal blooms through control of in-lake sediments and watershed best management practices.

#### Maple Grove Drift Aquifer Protection

Sponsor: City of Maple Grove  
Funding: CWP (Grant) \$67,500 Awarded: 1989  
Purpose: Municipal wellhead protection, monitoring and development of protection strategy.

#### Okabena-Ocheda-Bella Diagnostic/Feasibility Study

Sponsor: City of Worthington  
Funding: CWP (Grant) \$57,740 Awarded: 1989  
Purpose: Reduce algal blooms, preserve and restore wetlands, protect the water supply aquifer.

#### Olmsted County Ground-Water and Wellhead Protection Project

Sponsor: Olmsted County  
Funding: CWP (Grant) \$180,114 Awarded: 1989  
Purpose: Install monitoring network for wellhead protection, develop land use strategies that protect the water supply.

#### Trout Lake Diagnostic Feasibility Project

Sponsor: City of Coleraine  
Funding: CWP (Grant) \$38,700 Awarded: 1989  
Purpose: Restore swimming by reducing algal blooms, reintroduce trout, develop a management plan.

# Watershed Achievements Report

---

## 1990

---

### **Agnes, Henry and Winona Clean Lakes Monitoring Project**

Sponsor: Douglas County  
Funding: CWP (Grant) \$60,233 Awarded: 1990  
Purpose: Monitoring three hypereutrophic lakes, management plan to improve recreational uses.

### **Buffalo River Aquifer – Buffalo River Monitoring Project**

Sponsor: Clay County Health Department  
Funding: CWP (Grant) \$69,998 Awarded: 1990  
Purpose: Determine water quality and identify potential contamination for the Buffalo River aquifer.

### **Centerville Peltier Lake Project**

Sponsor: Rice Creek Watershed District  
Funding: CWP (Grant) \$44,750 Awarded: 1990  
Purpose: Control severe algal blooms through wetland restoration and watershed management.

### **Dept. of Natural Resources Water Coordinator**

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$50,000 Awarded: 1990  
Purpose: Initiate DNR Waters and Forestry 319 work plans and coordination efforts.

### **Duck Lake Water Quality Improvement Project**

Sponsor: Blue Earth County  
Funding: CWP (Grant) \$42,840 Awarded: 1990  
Purpose: Reduce algal blooms using agricultural and urban best management practices, improve recreational uses.

### **Ground-Water Analysis of East Brown and West Nicollet Counties**

Sponsor: Brown-Nicollet-Cottonwood Water Quality Board  
Funding: CWP (Grant) \$50,340 Awarded: 1990  
Purpose: Monitor nitrate contamination of wells, focus on nitrogen best management practices implementation.

### **Lake Sarah Project**

Sponsor: Pioneer-Sarah Creek Watershed Management Commission  
Funding: CWP (Grant) \$51,830 Awarded: 1990  
Purpose: Reduce algal blooms, reduce weeds to improve recreation with BMPs and wetland restoration.

### **Loon Lake Project**

Sponsor: City of Waseca  
Funding: CWP (Grant) \$38,000 Awarded: 1990  
Purpose: Construct treatment pond to reduce phosphorus and sediment from storm water.

### **Minneapolis Chain of Lakes**

Sponsor: Minneapolis Parks and Recreation Board  
Funding: CWP (Grant) \$150,000 Awarded: 1990  
Purpose: Improve and maintain recreational uses of Minneapolis Chain (Lakes Cedar through Harriet) using urban best management practices.

### **Minnesota Nonpoint-Source Implementation Program**

Sponsor: University of Minnesota Extension Service  
Funding: Section 319 (Grant) \$80,000 Awarded: 1990  
Purpose: Development of best management practices, manure management, farmstead and on-site workshops.

### **Mountain Lake Project**

Sponsor: City of Mountain Lake  
Funding: CWP (Grant) \$28,885 Awarded: 1990  
Purpose: Reduce weed growth for recreational uses through control of agricultural and urban runoff and sediment.

### **Nonpoint-Source Analysis of the Nemadji River**

Sponsor: Carlton County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$25,000 Awarded: 1990  
Purpose: Analysis of nonpoint-source problems and sources in the Nemadji River Basin.

### **Nonpoint-Source Analysis of the St. Louis River**

Sponsor: South St. Louis County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$35,000 Awarded: 1990  
Purpose: Analysis of nonpoint-source problems in the tributaries of the St. Louis River

### **North Shore Management Board Project on Nonconforming Septic Systems**

Sponsor: North Shore Management Board  
Funding: Section 319 (Grant) \$15,000 Awarded: 1990  
Purpose: Assessment of nonconforming septic systems from the Lester to the Encampment Rivers.

### **Pesticide Management**

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$40,000 Awarded: 1990  
Purpose: Management and storage site plans for pesticide collection and disposal.

### **Schwanz Lake Water Quality Diagnostic Study**

Sponsor: City of Eagan  
Funding: CWP (Grant) \$29,503 Awarded: 1990  
Purpose: Develop solutions for a hypereutrophic lake in a suburban park, using storm-water best management practices education program.

# Watershed Achievements Report

## U. S. Fish and Wildlife Service Technical Assistance

Sponsor: U.S. Fish and Wildlife Service  
Funding: Section 319 (Grant) \$40,000 Awarded: 1990  
Purpose: Provide technical assistance on wetland restoration and development.

## Whitewater Watershed Project

Sponsor: Winona State University  
Funding: CWP (Grant) \$63,000 Awarded: 1990  
Purpose: Improve water and land resources, streams and wetland in a cooperative project with the USDA.

---

## 1991

---

## Best Management Practices Field Audits on Forest Land

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$20,000 Awarded: 1991  
Purpose: Pilot a best management practices field audit for future use.

## Best Management Practices on Nonferrous Mine Wastes

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$25,000 Awarded: 1991  
Purpose: Develop guidance on wetland treatment best management practices to reduce trace metal runoff.

## Clear Lake Wellhead Project

Sponsor: City of Clear Lake  
Funding: CWP (Grant) \$70,538 Awarded: 1991  
Purpose: Investigate high municipal well nitrate-N and develop reduction methods.

## Clearwater Nonpoint-Source Study

Sponsor: Red Lake Watershed District  
Funding: CWP (Grant) \$142,142 Awarded: 1991  
Purpose: Develop best management practices plan to improve river water quality, feedlot management and agricultural practices.

## DNR Coordination Effort

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$45,850 Awarded: 1991  
Purpose: Coordination and implementation of DNR water nonpoint-source efforts.

## Farm\*A\*Syst and Manure Management

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$39,800 Awarded: 1991  
Purpose: Develop Farm\*A\*Syst displays and brochures, manure management manual and training.

## Feedlots in Marshall II

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$47,790 Awarded: 1991  
Purpose: Provide a feedlot technical assistance specialist in the Marshall Office.

## Feedlots in the Marshall Region

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$40,000 Awarded: 1991  
Purpose: Provide technical assistance to soil and water conservation district staff on addressing high-priority feedlots.

## Garvin Brook RCW Project II

Sponsor: Winona County Extension Service  
Funding: Section 319 (Grant) \$5,267 Awarded: 1991  
Purpose: Continuing well sampling and surveying for nitrogen/nitrates, and providing information to the public.

## Great Lakes Erosion Control

Sponsor: South St. Louis County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$100,000 Awarded: 1991  
Purpose: Investigate methods of limiting erosion in the Lake Superior Basin.

## Lake Sarah Project

Sponsor: Pioneer-Sarah Creek Watershed Management Commission  
Funding: CWP (Grant) \$50,060 Awarded: 1991  
Purpose: Reduce algal blooms, reduce weeds to improve recreation through best management practices and wetland restoration.

## Lake Shaokatan Restoration Project

Sponsor: Yellow Medicine River Watershed District  
Funding: CWP (Grant) \$48,000 Awarded: 1991  
Purpose: Reduce algal and toxic algal blooms, improve fishery and other uses.

## Metropolitan Ground-Water Study of Highway Runoff

Sponsor: Metropolitan Council  
Funding: Section 319 (Grant) \$39,500 Awarded: 1991  
Purpose: Determining ground-water impacts of PAHs from infiltrating highway runoff.

## Middle Des Moines Watershed Restoration

Sponsor: Jackson County  
Funding: CWP (Grant) \$172,000 Awarded: 1991  
Purpose: Stop and reduce degradation

## Minneapolis Chain of Lakes

Sponsor: Minneapolis Parks and Recreation Board  
Funding: CWP (Grant) \$250,000 Awarded: 1991  
Purpose: Improve and maintain recreational uses of the Minneapolis Chain (Cedar through Harriet lakes) through urban best management practices.

# Watershed Achievements Report

## Minnesota River Play

Sponsor: Theater for Corporate and Community  
Funding: Section 319 (Grant) \$5,000 Awarded: 1991  
Purpose: Development of a script for a play on the value and water-quality condition of the Minnesota River.

## St. Louis River Phosphorus Abatement

Sponsor: South St. Louis County SWCD  
Funding: Section 319 (Grant) \$48,000 Awarded: 1991  
Purpose: Investigation of best management practices to reduce phosphorus in the St. Louis River.

## Statewide Nonpoint-Source Educational Strategy

Sponsor: Office of Strategic and Long Range Planning  
Funding: Section 319 (Grant) \$42,000 Awarded: 1991  
Purpose: Develop a statewide nonpoint-source pollution educational strategy

## Upper Coon Creek Watershed Water Quality

Sponsor: Coon Creek Watershed District  
Funding: CWP (Grant) \$48,000 Awarded: 1991  
Purpose: Develop an interactive ground water and surface water project, implement watershed best management practices for water quality.

## Wellhead Protection Outreach and Public Information

Sponsor: Minnesota Department of Health  
Funding: Section 319 (Grant) \$62,000 Awarded: 1991  
Purpose: Develop public information and outreach activities to promote wellhead protection.

## Wetlands Restoration in the Upper Minnesota River

Sponsor: Upper Minnesota River Watershed District  
Funding: Section 319 (Grant) \$30,000 Awarded: 1991  
Purpose: Wetlands restoration throughout the Upper Minnesota River watershed for improved water quality.

---

## 1992

---

## Anoka Sand Plain Project

Sponsor: U. S. Geological Survey  
Funding: Section 319 (Grant) \$40,000 Awarded: 1992  
Purpose: Study of the residence time of recharge water and flux of agricultural chemicals in the unsaturated zone.

## Best Management Practices Field Audits on Forest Land II

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$38,500 Awarded: 1992  
Purpose: Continue forestry best management practices field audits.

## Farm\*A\*Syst and Manure Management Materials

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$50,000 Awarded: 1992  
Purpose: Continuation of Farm\*A\*Syst

## Program. Feedlots in Marshall Project

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$52,500 Awarded: 1992  
Purpose: Feedlot management training and technical assistance to soil and water conservation districts in the Marshall area.

## Garvin Brook RCW Project III

Sponsor: Winona County Extension Service  
Funding: Section 319 (Grant) \$9,000 Awarded: 1992  
Purpose: Continuation of well sampling and cataloging in Garvin Brook project area.

## Garvin Brook RCW Project IV – Well Sampling

Sponsor: Winona County Extension Service  
Funding: Section 319 (Grant) \$3,632 Awarded: 1992  
Purpose: Continuation of well sampling in the Garvin Brook area.

## Growth Management Project

Sponsor: Natural Resources Conservation Service  
Funding: Section 319 (Grant) \$40,000 Awarded: 1992  
Purpose: Growth management assessment to mitigate nonpoint-source pollution.

## Jefferson – German Lakes Water Quality Improvement Project

Sponsor: LeSueur County  
Funding: CWP (Grant) \$118,000 Awarded: 1992  
Purpose: Resource investigation of Jefferson-German Lakes watershed.

## Lake Bemidji Watershed Project

Sponsor: Beltrami County  
Funding: CWP (Grant) \$274,000 Awarded: 1992  
Purpose: Implementation of Phase II to reduce nonpointsource pollution to Bemidji and Irving Lakes and the sand plain aquifer.

## Minnesota River Water Quality Conference

Sponsor: Sportsmen's Coalition for a Clean Minnesota River  
Funding: Section 319 (Grant) \$5,000 Awarded: 1992  
Purpose: Sponsorship of citizens interested in improving the water quality in the Minnesota River.



# Watershed Achievements Report

## Natural Resources Conservation Service Conservationist Best Management Practices Implementation

Sponsor: Natural Resources Conservation Service  
Funding: Section 319 (Grant) \$58,800 Awarded: 1992  
Purpose: Assignment of SCS conservationist to MPCA to assist with best management practices implementation.

## Nutrient Management Technical Assistance

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$58,800 Awarded: 1992  
Purpose: Provide nutrient management technical assistance to Minnesota farmers.

## Pineland Clean Water Project

Sponsor: Pineland Clean Water Project Joint Powers Board  
Funding: CWP (Grant) \$145,000 Awarded: 1992  
Purpose: Resource investigation of surface and groundwater nonpoint-source pollution in Hubbard and Becker Counties.

## St. Louis River Phosphorus Reduction

Sponsor: South St. Louis County SWCD  
Funding: Section 319 (Grant) \$48,000 Awarded: 1992  
Purpose: Reduce phosphorus nonpoint-source pollution in the St. Louis River.

## Wellhead Protection Outreach and Public Information

Sponsor: Minnesota Department of Health  
Funding: Section 319 (Grant) \$40,000 Awarded: 1992  
Purpose: Continuation of public information and outreach activities promoting wellhead protection.

---

## 1993

---

## Anoka Sand Plain Project II

Sponsor: U.S. Geological Survey  
Funding: Section 319 (Grant) \$35,000 Awarded: 1993  
Purpose: Determine the residence time of water and chemicals in the Anoka Sand Plain area.

## Biological Community Monitoring in the Minnesota River Basin

Sponsor: Winona State University  
Funding: Section 319 (Grant) \$10,000 Awarded: 1993  
Purpose: Conduct a nonpoint-source assessment of biological elements of the Minnesota River.

## Brown-Nicollet-Cottonwood Phase II — Ground-Water Implementation

Sponsor: Brown-Nicollet-Cottonwood Water Quality Board  
Funding: CWP (Grant) \$264,000 Awarded: 1993  
Purpose: Implementation of Phase II ground-water monitoring and improvements.

## French Lake Water Quality Improvement Project, Phase II

Sponsor: Rice County Highway Department  
Funding: CWP (Grant) \$139,000 Awarded: 1993  
Purpose: Implementation stage of the French Lake waterquality improvement project.

## Garvin Brook RCW Project V

Sponsor: Winona County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$1,074 Awarded: 1993  
Purpose: Continuation of the Garvin Brook Clean Water Project to assess ground-water quality.

## Growth Management Project II

Sponsor: Natural Resources Conservation Service  
Funding: Section 319 (Grant) \$33,750 Awarded: 1993  
Purpose: Phase II project to prevent nonpoint-source pollution via growth management strategies.

## Information and Education Coordinator

Sponsor: University of Minnesota Extension Service  
Funding: Section 319 (Grant) \$92,000 Awarded: 1993  
Purpose: Coordinator to provide educational programming to reduce nonpoint-source pollution.

## Isotopic and Chemical Analyses of Waters from the Whitewater/Minnesota River Basin

Sponsor: U of M Office of Research and Technology  
Funding: Section 319 (Grant) \$10,000 Awarded: 1993  
Purpose: Evaluate implemented best management practices and pollutant flow paths, assess BMP timeframe impacts.

## Lake Harriet Watershed Assistance Project

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$50,000 Awarded: 1993  
Purpose: Implementation and evaluation of best management practices in the Lake Harriet watershed.

## Lake Shaokatan Restoration Project, Phase II

Sponsor: Yellow Medicine River Watershed District  
Funding: CWP (Grant) \$240,000 Awarded: 1993  
Purpose: Implementation of the Lake Shaokatan project to reduce algal/toxic algal blooms and improve recreational uses.

## Lake Shetek Watershed Improvement Project

Sponsor: Murray County  
Funding: CWP (Grant) \$131,000 Awarded: 1993  
Purpose: Resource investigation of Lake Shetek to assess and develop improvement plan.

## Lake Traverse Improvement Project

Sponsor: Bois de Sioux Watershed District  
Funding: CWP (Grant) \$70,000 Awarded: 1993  
Purpose: Resource investigation of Lake Traverse to assess and develop improvement plan.

# Watershed Achievements Report

## Lake Washington Water Quality Improvement Project

Sponsor: Le Sueur County  
Funding: CWP (Grant) \$94,000 Awarded: 1993  
Purpose: Resource investigation of Lake Washington to assess and develop improvement plan.

## Lambert Creek Improvement Project

Sponsor: Vadnais Lake Area Water Management Org.  
Funding: CWP (Grant) \$245,000 Awarded: 1993  
Purpose: Implementation of Lambert Creek project to reduce phosphorus in its reservoir lake.

## Manure Management Program

Sponsor: U of M Office of Research and Technology  
Funding: Section 319 (Grant) \$58,000 Awarded: 1993  
Purpose: Develop a manure management program to advance the state's nonpoint-source abatement efforts.

## Manure Storage Basin Monitoring Project

Sponsor: Morrison County  
Funding: Section 319 (Grant) \$2,000 Awarded: 1993  
Purpose: Conduct a manure storage basin monitoring project in Morrison County.

## NRCS Conservationist Best Management Practices Implementation

Sponsor: Natural Resources Conservation Service  
Funding: Section 319 (Grant) \$35,000 Awarded: 1993  
Purpose: Continuation of conservation position to work on nonpoint-source issues.

## Whitewater Project Land-Use Data

Sponsor: Whitewater River Watershed Joint Powers Board  
Funding: Section 319 (Grant) \$6,000 Awarded: 1993  
Purpose: Develop land-use data for the Whitewater River watershed.

## Whitewater River Monitoring

Sponsor: Whitewater River Watershed Joint Powers Board  
Funding: Section 319 (Grant) \$3,600 Awarded: 1993  
Purpose: Develop and implement a monitoring plan for the Whitewater River watershed.

## Whitewater River Runoff Monitoring Project

Sponsor: Whitewater River Watershed Joint Powers Board  
Funding: Section 319 (Grant) \$8,200 Awarded: 1993  
Purpose: Monitor runoff from the Whitewater River watershed.

## Whitewater Watershed Monitoring — Finley

Sponsor: Joseph Finley  
Funding: Section 319 (Grant) \$300 Awarded: 1993  
Purpose: Evaluate effectiveness of best management practices through the use of paired-watershed monitoring.

---

## 1994

---

## 1996 Nonpoint Source Conference Management

Sponsor: Southeast Minnesota Water Resources Board  
Funding: Section 319 (Grant) \$10,000 Awarded: 1994  
Purpose: Provide funding for the 1996 agricultural nonpoint source conference.

## Anoka Sand Plain Project III

Sponsor: U.S. Geological Survey  
Funding: Section 319 (Grant) \$35,000 Awarded: 1994  
Purpose: Continue monitoring activities of the Anoka Sand Plain Project.

## Big Sandy Area Lakes Watershed Project

Sponsor: Aitkin County  
Funding: CWP (Grant) \$69,000 Awarded: 1994  
Purpose: Protect and maintain the beneficial uses of the Big Sandy Lakes watershed.

## Boy River CWP Project, Phase II

Sponsor: Cass County  
Funding: CWP (Grant) \$38,000 Awarded: 1994  
Purpose: Implementation of the improvement plans for the Boy River.

## Crystal, Loon, Mills Lakes Water Quality Improvement Project

Sponsor: Blue Earth County  
Funding: CWP (Grant) \$93,000 Awarded: 1994  
Purpose: Investigate the sources of degradation to Crystal, Loon and Mills Lake.

## Fairfax Urban Demonstration Project

Sponsor: Prior Lake-Spring Lake Watershed District  
Funding: Section 319 (Grant) \$110,000 Awarded: 1994  
Purpose: Implement structural and nonstructural best management practices in an urban watershed.

## Feedlot Technical Assistance Project

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$63,000 Awarded: 1994  
Purpose: Prove statewide feedlot technical support to implement revolving loan fund program.

## Great Lakes Erosion Control II

Sponsor: South St. Louis County SWCD  
Funding: Section 319 (Grant) \$40,000 Awarded: 1994  
Purpose: Develop projects to correct erosion, sedimentation and pollution problems.

# Watershed Achievements Report

## Information and Education Coordinator

Sponsor: University of Minnesota Extension Service  
Funding: Section 319 (Grant) \$60,000 Awarded: 1994  
Purpose: Continue coordination of educational programming to reduce nonpoint-source pollution.

## Knife Lake Demonstration Project

Sponsor: Kanabec County  
Funding: CWP (Grant) \$31,500 Awarded: 1994  
Purpose: To begin implementation of the final phase of rehabilitation for Knife Lake.

## Lake Harriet Best Management Practices

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$50,000 Awarded: 1994  
Purpose: Test the implementation and evaluation of urban best management practices in the Lake Harriet Watershed.

## Manure Management Program

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$54,000 Awarded: 1994  
Purpose: Continue one-on-one contact with livestock producers for manure management plans.

## Minneapolis Chain of Lakes Implementation Project

Sponsor: Minneapolis Parks and Recreation Board  
Funding: CWP (Grant) \$812,000 Awarded: 1994  
Purpose: Implementation of best management practices for the Minneapolis Chain of Lakes watershed.

## Minnesota Lakes Association 1994

### Annual Conference

Sponsor: Minnesota Lakes Association  
Funding: Section 319 (Grant) \$2,000 Awarded: 1994  
Purpose: Co-sponsor the 1994 Minnesota Lakes Association annual conference.

## Mountain Lake CWP Phase II Project

Sponsor: City of Mountain Lake  
Funding: Section 319 (Grant) \$100,000 Awarded: 1994  
Purpose: Implementation of improvement plan for Mountain Lake.

## Nutrient Management Technical Assistance

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$95,000 Awarded: 1994  
Purpose: Continue nutrient management activities with farmers and expand to agricultural retailers.

## Prior Lake Wetlands Project

Sponsor: Prior Lake- Spring Lake Watershed District  
Funding: Section 319 (Grant) \$74,000 Awarded: 1994  
Purpose: Demonstration of wetland restoration on nonpoint-source pollution in Prior Lake.

## Prior Lake - Spring Lake CWP Phase II Project

Sponsor: Prior Lake - Spring Lake Watershed District  
Funding: Section 319 (Grant) \$100,000 Awarded: 1994  
Purpose: Implementation activities for Prior and Spring Lakes improvement.

## Redwood River Clean Water Project

Sponsor: Cotton River Clean Water Partnership  
Funding: Section 319 (Grant) \$109,000 Awarded: 1994  
Purpose: Implementation of the Redwood River improvement strategies.

## Schwanz Lake Clean Water Partnership Phase II Project

Sponsor: City of Eagan  
Funding: Section 319 (Grant) \$89,100 Awarded: 1994  
Purpose: Implementation of the improvement plan for Schwanz Lake.

## Whitewater Watershed Project

Sponsor: Whitewater River Watershed Joint Powers Board  
Funding: Section 319 (Grant) \$8,600 Awarded: 1994  
Purpose: Water sampling and assessments in the Whitewater River watershed.

## Whitewater Watershed Project - U of M

Sponsor: University of Minnesota  
Funding: Section 319 (Grant) \$12,700 Awarded: 1994  
Purpose: Complete a macroinvertebrate, fishery and habitat assessment in the Whitewater River watershed.

## Whitewater Watershed Project Continuation

Sponsor: Whitewater River Watershed Joint Powers Board  
Funding: Section 319 (Grant) \$18,000 Awarded: 1994  
Purpose: Continuation of water sampling at new sites in the Whitewater River watershed.

# Watershed Achievements Report

---

## 1995

---

### **24,000 Scale Hydrology Mapping**

Sponsor: St. Cloud State University  
Funding: Section 319 (Grant) \$33,000 Awarded: 1995  
Purpose: Develop complete stream network using Arcview and other information.

### **Agricultural Best Management Practices Implementation Program**

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$261,000 Awarded: 1995  
Purpose: Provide technical staffing assistance and support to implement agricultural State Revolving Fund loans.

### **Anoka Sand Plain Project V**

Sponsor: U.S. Geological Survey  
Funding: Section 319 (Grant) \$40,000 Awarded: 1995  
Purpose: Continuation of monitoring activities in the Anoka Sand Plains area.

### **Big Birch II SRF Loan Agreements**

Sponsor: Sauk River Watershed District  
Funding: CWP (Loan) \$403,000 Awarded: 1995  
Purpose: Develop loan agreements to assist with best management practices implementation on Big Birch Lake.

### **Blue Earth River Basin Implementation Framework**

Sponsor: Blue Earth River Basin Initiative  
Funding: CWP (Grant) \$220,000 Awarded: 1995  
Purpose: Identify contributions of pollutants from the Blue Earth River basin and determine strategies for reduction.

### **Brown-Nicollet-Cottonwood Phase II Implementation Project**

Sponsor: Brown-Nicollet-Cottonwood Counties Joint Powers Board  
Funding: CWP (Grant) \$129,000; (Loan) \$1,086,000 Awarded: 1995  
Purpose: Continue implementation and diagnostic activities begun in earlier phases of the project.

### **Cation, Anion and Isotope Analysis Project**

Sponsor: University of Minnesota Department of Geology/ Geophysics  
Funding: Section 319 (Grant) \$5,200 Awarded: 1995  
Purpose: Analyze cations, anions and isotopes in samples provided by the MPCA.

### **Cost-Benefit Analysis for Water Quality Regulation and Decisionmaking**

Sponsor: Express Interactive Solutions  
Funding: Section 319 (Grant) \$15,000 Awarded: 1995  
Purpose: Present seminar on cost/benefit analysis for water-quality regulation.

### **Digital Hydrographic Data Project**

Sponsor: U.S. Department of the Interior — Geological Survey  
Funding: Section 319 (Grant) \$68,400 Awarded: 1995  
Purpose: To develop and analyze digital hydrographic data in portions of Minnesota.

### **Fecal Coliform Analysis for the Minnesota River Basin**

Sponsor: Mankato State University  
Funding: Section 319 (Grant) \$3,000 Awarded: 1995  
Purpose: Collect and analyze Minnesota River Basin water samples for fecal coliform, enter into database.

### **Fish and Invertebrate Communities in the Whitewater River**

Sponsor: Whitewater River Watershed Joint Powers Board  
Funding: Section 319 (Grant) \$6,700 Awarded: 1995  
Purpose: Using GIS technology, examine fish and invertebrate communities in Whitewater River watershed.

### **Fish Lake Phase II Project**

Sponsor: U of M Office of Research and Technology  
Funding: CWP (Grant) \$49,000 Awarded: 1995  
Purpose: Implement best management practices to reduce phosphorus and nutrient loading to Fish Lake.

### **French Lake II Loan Agreement**

Sponsor: Rice County Highway Department  
Funding: CWP (Loan) \$153,000 Awarded: 1995  
Purpose: Loan Funding to assist with implementation activities for the French Lake Phase II project.

### **Growth Management Project III, Implementation**

Sponsor: Natural Resources Conservation Service  
Funding: Section 319 (Grant) \$41,000 Awarded: 1995  
Purpose: Implement a land management framework.

### **Jefferson-German Lakes Water Quality Improvement Project**

Sponsor: Le Sueur County  
Funding: CWP (Grant) \$96,000 Awarded: 1995  
Purpose: To reduce phosphorus loadings to the Jefferson-German Lakes system through best management practices.

### **Lake Bemidji IIA Watershed Management Project**

Sponsor: Beltrami County  
Funding: CWP (Grant) \$120,000; (Loan) \$780,000 Awarded: 1995  
Purpose: To continue implementation activities begun under the Lake Bemidji Phase II project.

### **Lake Volney Water Quality Improvement Project**

Sponsor: Le Sueur County  
Funding: CWP (Grant) \$50,000 Awarded: 1995  
Purpose: To determine cause and effect relationships between land use and water quality, develop an improvement plan and implement.



# Watershed Achievements Report

## Maplewood Innovative Storm-Water Management Project

Sponsor: City of Maplewood  
Funding: Section 319 (Grant) \$63,000 Awarded: 1995  
Purpose: Implement storm-water methods and infiltrate storm water using innovative strategies and techniques.

## Minnesota River Basin Fecal Coliform Analysis

Sponsor: Mankato State University  
Funding: Section 319 (Grant) \$3,000 Awarded: 1995  
Purpose: Collect and analyze Minnesota River Basin water samples for fecal coliform, enter in a database.

## Mountain Lake Project Phase II

Sponsor: City of Mountain Lake  
Funding: Section 319 (Grant) \$100,000 Awarded: 1995  
Purpose: Continue implementation activities begun in the Mountain Lake Phase II CWP project.

## Phosphate Management in the Blue Earth River Basin

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$61,000 Awarded: 1995  
Purpose: Increase adoption of practices to reduce losses of pollutants to the Blue Earth River watershed.

## Pokegama Lake Watershed Project

Sponsor: Pine County Soil and Water Conservation District  
Funding: CWP (Grant) \$62,000 Awarded: 1995  
Purpose: To develop a comprehensive lake and watershed management plan for Pokegama Lake.

## Prior/Spring Lakes Phase II CWP Project

Sponsor: Prior Lake — Spring Lake Watershed District  
Funding: Section 319 (Grant) \$77,000 Awarded: 1995  
Purpose: Continue implementation activities begun previously.

## Redwood River Phase II Clean Water Project

Sponsor: Cotton River Clean Water Partnership  
Funding: Section 319 (Grant) \$109,000 Awarded: 1995  
Purpose: Continue implementation and best management practices begun in Redwood River Phase II.

## Shoreland Vegetation Best Management Practices to Reduce Erosion and Runoff

Sponsor: University of Minnesota  
Funding: Section 319 (Grant) \$33,000 Awarded: 1995  
Purpose: Demonstrate pollution prevention by the effectiveness of vegetative plantings.

## South Zumbro River Watershed Project

Sponsor: Olmsted County  
Funding: CWP (Grant) \$135,000 Awarded: 1995  
Purpose: Implement best management practices to reduce ground-water and surface-water pollution in the Zumbro River watershed.

## Whitewater River Fish and Invertebrates

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$6,700 Awarded: 1995  
Purpose: Using GIS technology, examine the fish and invertebrate communities in the Whitewater River.

## Whitewater Watershed Project II

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$27,000 Awarded: 1995  
Purpose: Continue macroinvertebrate fishery and habitat assessments for Whitewater River.

## Whitewater Watershed Automated Monitoring

Sponsor: U of M Office of Research and Technology  
Funding: Section 319 (Grant) \$7,800 Awarded: 1995  
Purpose: Operate and maintain automated monitoring sites near the Whitewater River watershed.

## Whitewater Watershed Biosystems and Ag Engineer

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$5,000 Awarded: 1995  
Purpose: Assist operation of five automated monitoring sites, monitor weather station.

---

## 1996

---

## Big Sandy Lake Phase II Restoration Plan

Sponsor: Aitkin County  
Funding: CWP (Grant) \$200,000 Awarded: 1996  
Purpose: Reduce phosphorus loadings and increase participation in conservation practices.

## Bioavailable Phosphorus Credit Pay for Pounds

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$3,000 Awarded: 1996  
Purpose: Determine relationships of soils, phosphorus absorption and chemistry in the Minnesota River Basin.

# Watershed Achievements Report

## **Blue Earth River-Watonwan Basin**

### **Implementation Framework**

Sponsor: Blue Earth River Clean Water Partnership  
Funding: CWP (Grant) \$214,000 Awarded: 1996  
Purpose: Identify water-quality contributions of the Watonwan River and determine goals for improvement.

### **Best Management Practices implementation in the Lake Superior Drainage Basin**

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$22,000 Awarded: 1996  
Purpose: Fund a position to educate, design best management practices, oversee erosion control in Lake Superior.

### **Brown-Nicollet-Cottonwood Phase IIB Amendment**

Sponsor: Brown-Nicollet-Cottonwood Water Quality Board  
Funding: CWP (Grant) \$150,000 Awarded: 1996  
Purpose: Continue implementation and diagnostic activities begun, further loan  
Funding for BMP implementation.

### **Cation/Anion and Isotope Analysis Project**

Sponsor: University of Minnesota Department of Geology/ Geophysics  
Funding: Section 319 (Grant) \$7,800 Awarded: 1996  
Purpose: Analyze cation, anion and isotopes in samples provided by the MPCA.

### **Clearwater River State Revolving Loan Water Quality Improvement Project**

Sponsor: U of M Office of Research and Technology  
Funding: CWP (Loan) \$567,000 Awarded: 1996  
Purpose: Provide SRF loan  
Funding for streambank stabilization, public education and best management practices.

### **Cottonwood River Restoration Project**

Sponsor: Cotton River Clean Water Partnership  
Funding: CWP (Grant) \$215,000 Awarded: 1996  
Purpose: Document factors affecting sediment/nutrient transport, develop an implementation plan.

### **Create Wetlands over Acid Generating Tailings**

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$2,500 Awarded: 1996  
Purpose: Convert tailings basins into wetlands to protect water quality and create habitat.

### **Cross Lake Watershed Project — Pine County**

Sponsor: Pine County Soil and Water Conservation District  
Funding: CWP (Grant) \$35,000 Awarded: 1996  
Purpose: Collect data, determine nutrient/hydrogeologic budgets, promote awareness.

### **Economic Evaluation — Pollutant Reduction**

Sponsor: U of M Office of Research and Technology  
Funding: Section 319 (Grant) \$20,000 Awarded: 1996  
Purpose: Develop economic model of decisions to estimate the financial impacts of pollutant reduction on farms and local units of government.

### **French Lake Phase II Continuation Agreement**

Sponsor: Rice County Highway Department  
Funding: CWP (Grant) \$62,000 Awarded: 1996  
Purpose: Continue best management practices implementation activities begun in French Lake Phase II.

### **Grass Lake Restoration Project**

Sponsor: Kandiyohi County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$100,000 Awarded: 1996  
Purpose: Acquire conservation easements and restore drained prairie wetland basin.

### **Grove Lake Restoration Project, Phase II**

Sponsor: North Fork Crow River Watershed District  
Funding: CWP (Grant) \$40,000; (Loan) \$143,000  
Awarded: 1996  
Purpose: Reduce or eliminate nutrient loading through implementing best management practices.

### **Growth Management Sustainable Land-Use Pilots**

Sponsor: Natural Resources Conservation Service  
Funding: Section 319 (Grant) \$90,000 Awarded: 1996  
Purpose: Test planning, principles and goals through sustainable local land-use pilots.

### **Heron Lake Watershed Restoration Project**

Sponsor: Heron Lake Watershed District  
Funding: CWP (Grant) \$200,000; (Loan) \$444,000  
Awarded: 1996  
Purpose: Reduce pollutant loading, improve wildlife habitat, improve lake management.

### **Jefferson-German II State Revolving Fund Loan #2**

Sponsor: Le Sueur County  
Funding: CWP (Loan) \$1,050,000 Awarded: 1996  
Purpose: Additional loan for continuation of implementation activities.

### **Lake Harriet Watershed Best Management Practices Project, Phase III**

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$50,000 Awarded: 1996  
Purpose: Continue best management practices activities in the Lake Harriet watershed.

# Watershed Achievements Report

## Lake Washington Phase II Water Quality Improvement Project

Sponsor: Le Sueur County  
Funding: CWP (Grant) \$102,500; (Loan) \$1,251,000  
Awarded: 1996  
Purpose: Improve watershed coordination, reduce watershed loading, develop plans and educational opportunities.

## Miller Creek Restoration Project

Sponsor: U.S. Department of Agriculture  
Funding: Section 319 (Grant) \$15,000 Awarded: 1996  
Purpose: Riparian tree planting, pond side plantings, reestablish spring and fish habitat.

## Miller Creek Watershed Preservation and Restoration Project

Sponsor: Natural Resources Conservation Service  
Funding: CWP (Grant) \$18,300 Awarded: 1996  
Purpose: Monitor Miller Creek to determine current status and begin implementation of best management practices.

## Mountain Lake Phase IIB Watershed Project

Sponsor: City of Mountain Lake  
Funding: Section 319 (Grant) \$100,000 Awarded: 1996  
Purpose: Continue best management practices activities for the Mountain Lake project.

## NALMS 1996 Conference

Sponsor: North American Lake Management Society  
Funding: Section 319 (Grant) \$2,500 Awarded: 1996  
Purpose: Provide funding to assist with implementation of 1996 NALMS conference.

## NRCS Conservationist Best Management Practices Implementation

Sponsor: Natural Resources Conservation Service  
Funding: Section 319 (Grant) \$15,000 Awarded: 1996  
Purpose: Continue the technical assistance to local governmental units of NRCS conservationist.

## Oakdale Wellhead Protection Program

Sponsor: City of Oakdale  
Funding: CWP (Grant) \$25,000 Awarded: 1996  
Purpose: Delineate wellhead protection plan, assess water supply vulnerability, develop strategies and implement.

## On-Farm Manure Management

Sponsor: Kandiyohi County  
Funding: Section 319 (Grant) \$37,200 Awarded: 1996  
Purpose: Assist farmers and compile information on implementing a manure management strategy.

## Osakis Lake Improvement Project

Sponsor: Sauk River Watershed District  
Funding: CWP (Grant) \$183,000 Awarded: 1996  
Purpose: Define water-quality goals, reduce pollutants, increase public awareness, improve coordination of nonpoint-source water pollution-prevention activities.

## Paynesville Wellhead Protection

Sponsor: City of Paynesville  
Funding: CWP (Grant) \$12,000 Awarded: 1996  
Purpose: Evaluate impacts on Paynesville water supply and develop a plan to protect ground-water resources.

## Phosphate Management II in the Blue Earth River Basin

Sponsor: U of M Office of Research and Technology  
Funding: Section 319 (Grant) \$60,750 Awarded: 1996  
Purpose: Increase adoption of best management practices to lower phosphorus inputs to the Blue Earth River.

## Pollution Reduction Payments Project

Sponsor: LeSueur County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$26,000 Awarded: 1996  
Purpose: Develop grant agreements with land managers for best management practices implementation in LeSueur County.

## Prior-Spring Lakes Improvement Project

Sponsor: Prior Lake - Spring Lake Watershed District  
Funding: Section 319 (Grant) \$67,200 Awarded: 1996  
Purpose: Continue implementation activities begun in earlier Prior-Spring Lakes project.

## Redwood River Clean Water Project

Sponsor: Cotton River Clean Water Partnership  
Funding: Section 319 (Grant) \$108,790 Awarded: 1996  
Purpose: Continue implementation activities for the Redwood Watershed project.

## Rice Lake and Koronis Lake Restoration Project

Sponsor: North Fork Crow River Watershed District  
Funding: CWP (Grant) \$57,500 Awarded: 1996  
Purpose: Reduce phosphorus loadings through best management practices.

## Shoreland Vegetation Best Management Practices to Reduce Erosion and Runoff

Sponsor: Aitkin County  
Funding: Section 319 (Grant) \$19,200 Awarded: 1996  
Purpose: Continue establishing filter strip demonstration plots to protect water quality.

# Watershed Achievements Report

## Shoreland Vegetation II Best Management Practices

Sponsor: Aitkin County  
Funding: Section 319 (Grant) \$15,000 Awarded: 1996  
Purpose: Continuation of shoreland vegetation activities on Big Sandy Lake.

## Snake River Project

Sponsor: Snake River Watershed Management Board  
Funding: Section 319 (Grant) \$60,000 Awarded: 1996  
Purpose: Implement streambank protection, pollution abatement, erosion control and manure management.

## Tanner's Lake State Revolving Fund Loan

Sponsor: Ramsey-Washington Metro Watershed District  
Funding: CWP (Loan) \$945,000 Awarded: 1996  
Purpose: Provide loan assistance for best management practices in the Tanner's Lake watershed.

## Water Level Gage Installation Project

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$54,000 Awarded: 1996  
Purpose: Install and monitor water level gages on bridge piers or freestanding structures.

## Wetland Treatment of Mine Drainage

Sponsor: Minnesota Department of Natural Resources  
Funding: Section 319 (Grant) \$20,000 Awarded: 1996  
Purpose: Study two created wetland systems to determine lifetime for treating mine wastes.

## Whitewater Paired Watershed Monitoring

Sponsor: Robert Finley  
Funding: Section 319 (Grant) \$1,800 Awarded: 1996  
Purpose: Place water quality monitoring stations in two small watersheds to evaluate best management practices effectiveness.

## Achieving Major Changes in Minor Watersheds

Sponsor: University of Minnesota Office of Research and Technology  
Funding: Section 319 (Grant) \$78,000 Awarded: 1997  
Purpose: Involve landowners and local units of government in developing tailor-made best management practices implementation plans.

## Anoka Sand Plain V — Ground-Water Dating

Sponsor: U.S. Geological Survey  
Funding: Section 319 (Grant) \$35,000 Awarded: 1997  
Purpose: Determine the recharge age of the Anoka

## Biological Monitoring in the Whitewater Watershed Project

Sponsor: Winona State University  
Funding: Section 319 (Grant) \$20,000 Awarded: 1997  
Purpose: Site sampling and assessments of biological indicators in the Whitewater River watershed.

## Boy River II State Revolving Fund Loan - Environmental Subordinate Service Districts

Sponsor: Cass County  
Funding: CWP (Loan) \$206,000 Awarded: 1997  
Purpose: Provide loan funding to local subordinate service districts for sewage treatment.

## Comfort Lake Phase I Diagnostic Study

Sponsor: Wyoming Township  
Funding: CWP (Grant) \$34,000 Awarded: 1997  
Purpose: Monitor Big and Little Comfort Lakes to analyze nutrients.

## Designing Storm-Water Best Management Practices Workshop

Sponsor: University of Minnesota  
Funding: Section 319 (Grant) \$27,000 Awarded: 1997  
Purpose: Develop and present workshops on construction site erosion and storm-water detention.

## Horseshoe Chain of Lakes Improvement Project

Sponsor: Sauk River Watershed District  
Funding: CWP (Grant) \$80,000; (Loan) \$320,000  
Awarded: 1997  
Purpose: Extend agricultural efforts, address on-site septic systems and shoreland erosion.

## Introduction to ArcView Course for MPCA Employees

Sponsor: Rowekamp Associates Inc.  
Funding: Section 319 (Grant) \$8,800 Awarded: 1997  
Purpose: Provide introduction to ArcView computer training for MPCA employees.

---

## 1997

---

## 1998 Minnesota Comprehensive Local Water Planners Conference

Sponsor: West Polk County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$3,000 Awarded: 1997  
Purpose: Provide partial Funding for the 1998 Minnesota Local Water Planners Conference.

## Accelerated Water Quality Improvement Program

Sponsor: Stearns County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$100,000 Awarded: 1997  
Purpose: Provide technical and financial assistance to agriculture in the Sauk River watershed.



# Watershed Achievements Report

## Lake Sallie Restoration

Sponsor: Pelican River Watershed District  
Funding: CWP (Grant) \$54,000; (Loan) \$385,000  
Awarded: 1997  
Purpose: Develop ecosystem management approach with alum treatment and biomanipulation.

## Long Prairie River Monitoring Project

Sponsor: Todd County Soil and Water Conservation District  
Funding: CWP (Grant) \$35,000 Awarded: 1997  
Purpose: Group efforts to depict water quality conditions and to maintain and improve water quality.

## Mountain Lake Watershed Project IV

Sponsor: City of Mountain Lake  
Funding: Section 319 (Grant) \$50,000 Awarded: 1997  
Purpose: Continue best management practices implementation activities.

## Old Sod Farm Wetland Enhancement and Storm-Water Management

Sponsor: Ramsey-Washington Metro Watershed District  
Funding: Section 319 (Grant) \$40,400 Awarded: 1997  
Purpose: Design/develop wetland learning center, improve storm-water quality, increase diversion of storm water.

## On-Farm Manure Management II

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$37,000 Awarded: 1997  
Purpose: Continue educational program with livestock producers for precise manure management strategies.

## Pokegama/Cross Lake Erosion Project

Sponsor: Pine County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$72,000 Awarded: 1997  
Purpose: Implement sediment control structures for ravines to Pokegama and Cross Lakes.

## Redwood River Watershed Project IV

Sponsor: Cotton River Clean Water Partnership  
Funding: Section 319 (Grant) \$122,000 Awarded: 1997  
Purpose: Continue implementation activities in the Redwood River watershed.

## Rice Lake and Koronis Lake Restoration Project

Sponsor: North Fork Crow River Watershed District  
Funding: Section 319 (Grant) \$36,000 Awarded: 1997  
Purpose: Develop, implement best management practices for the watershed, educate landowners.

## Shoreland Vegetation III - Best Management Practices to Reduce Erosion and Runoff

Sponsor: U of M Department of Horticultural Science  
Funding: Section 319 (Grant) \$30,000 Awarded: 1997  
Purpose: Continue reestablishing native vegetation to reduce erosion and runoff, evaluate impacts.

## Springbrook Subwatershed Resource Investigation Project

Sponsor: City of Fridley  
Funding: CWP (Grant) \$30,000 Awarded: 1997  
Purpose: Investigate and monitor water quality and land use, identify pollutants and develop best management practices.

## Tillage Transect Program

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$94,000 Awarded: 1997  
Purpose: Establish baseline data on crop residue management and reduce soil erosion and sedimentation.

## Whitewater Watershed Biological Monitoring

Sponsor: Winona State University  
Funding: Section 319 (Grant) \$30,000 Awarded: 1997  
Purpose: Analyze the biological monitoring data collected for the Whitewater Watershed Project.

## Workshops for Designing Storm-Water Management Practices

Sponsor: University of Minnesota  
Funding: Section 319 (Grant) \$27,000 Awarded: 1997  
Purpose: Develop and present workshops on construction site erosion and storm-water detention.

---

## 1998

---

## 1999 State Water Planning Conference

Sponsor: Southeast Minnesota Water Resources Board  
Funding: Section 319 (Grant) \$3,000 Awarded: 1998  
Purpose: Provide funds for the 1999 Minnesota State Water Planning Conference June 22-23, 1999.

## Alternative Wastewater Demonstration Project

Sponsor: Beltrami County SWCD  
Funding: Section 319 (Grant) \$65,000 Awarded: 1998  
Purpose: Replace 19 septic systems with a community activated sludge treatment system.

## Benefits and Impacts of Chemical Treatment of Lake Inflows

Sponsor: U of M Office of Research and Technology  
Funding: Section 319 (Grant) \$40,000 Awarded: 1998  
Purpose: Evaluate effectiveness of alum treatment for phosphorus removal at three sites.

## Bioavailable Phosphorus Credits in Pay for Pounds

Sponsor: U of M Office of Research and Technology  
Funding: Section 319 (Grant) \$17,400 Awarded: 1998  
Purpose: Determine relationships between soils, phosphorus and chemistry in the Minnesota River Basin.

# Watershed Achievements Report

## Best Management Practices Implementation in Lake Superior Drainage

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$21,200 Awarded: 1998  
Purpose: Continue  
Funding of half-time engineer in the BWSR Duluth Office.

## Buffering Drainage Ditches in Iosco Creek Watershed

Sponsor: Blue Earth River Basin Initiative  
Funding: Section 319 (Grant) \$44,000 Awarded: 1998  
Purpose: Establish vegetative buffer in Iosco Creek watershed drainage ditches.

## Cold Spring Wellhead Protection Project

Sponsor: City of Cold Spring  
Funding: CWP (Grant) \$100,620 Awarded: 1998  
Purpose: To develop a joint Wellhead Protection Plan taking in six public water suppliers.

## Environmental Protection through Shoreline Stewardship

Sponsor: Beltrami County SWCD  
Funding: Section 319 (Grant) \$27,000 Awarded: 1998  
Purpose: Provide information and education on the effects of traditional landscaping on water quality.

## Ground Water Disinfection Rule Requirements Implementation

Sponsor: Minnesota Department of Health  
Funding: Section 319 (Grant) \$85,000 Awarded: 1998  
Purpose: Conduct detailed age dating of public well water under water disinfection rule.

## Improved Implementation of Manure-Testing Practices on Minnesota Farms

Sponsor: Minnesota Department of Agriculture  
Funding: Section 319 (Grant) \$17,100 Awarded: 1998  
Purpose: To provide direct assistance and information to more than 106 Minnesota livestock producers for implementing manure-testing practices.

## Information and Education Coordinator

Sponsor: Minnesota Extension Service  
Funding: Section 319 (Grant) \$66,000 Awarded: 1998  
Purpose: Continue Funding for nonpoint-source information and education coordinator.

## Lake Superior Shoreline Protection Program

Sponsor: Cook County  
Funding: Section 319 (Grant) \$60,000 Awarded: 1998  
Purpose: Work with landowners to solve erosion and sedimentation problems on the north shore of Lake Superior.

## Lake Volney Improvement Project, Phase II

Sponsor: Le Sueur County  
Funding: CWP (Grant) \$175,000; (Loan) \$712,000 Awarded: 1998  
Purpose: Improve watershed coordination, reduce lake loading, education for landowners, evaluate impacts.

## Lakeshed Erosion Control Cost-Share Program

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$50,000 Awarded: 1998  
Purpose: Provide funds to demonstrate and apply lowercost land treatment practices to sediment.

## LARS-LUG Annual Reporting System

Sponsor: Minnesota Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$91,000 Awarded: 1998  
Purpose: Provide funds for LARS enhancements, information to local government.

## Minneapolis Chain of Lakes Continuation

Sponsor: Minneapolis Parks and Recreation Board  
Funding: CWP (Grant) \$250,000; (Loan) \$1,000,000 Awarded: 1998  
Purpose: Continue implementation activities begun in Minneapolis Chain of Lakes Phase II.

## Payment for Pounds Phosphorus Study — Bioavailable Phosphorus Credits

Sponsor: U. of M. Department of Soil, Water and Climate  
Funding: Section 319 (Grant) \$30,940 Awarded: 1998  
Purpose: To determine the impact of Minnesota River soil characteristics and phosphorus absorption, the saturation point for phosphorus, and the bioavailability of phosphorus.

## Pollution Reduction Payments Projects

Sponsor: LeSueur County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$33,000 Awarded: 1998  
Purpose: Implement the Pollution Reduction Payments Project.

## Redwood River Clean Water Project, Year 5

Sponsor: Cotton River Clean Water Partnership  
Funding: Section 319 (Grant) \$122,000 Awarded: 1998  
Purpose: Continue best management practices activities in the Redwood River watershed.

## South Branch Root River Watershed Phase I Diagnostic Study

Sponsor: Fillmore County  
Funding: CWP (Grant) \$61,500 Awarded: 1998  
Purpose: To complete a diagnostic study of the South Branch of the Root River.

# Watershed Achievements Report

## **Square Lake Phase I Resource Investigation**

Sponsor: Washington Conservation District  
Funding: CWP (Grant) \$56,000 Awarded: 1998  
Purpose: To find out how vulnerable Square Lake might be to pollution and develop protection strategies to maintain its conditions.

## **Wastewater Facilitator**

Sponsor: Blue Earth River Basin Initiative  
Funding: Section 319 (Grant) \$92,000 Awarded: 1998  
Purpose: Provide facilitator to work in Blue Earth watershed on wastewater problems.

## **Whitewater Analysis of Biological Monitoring**

Sponsor: Winona State University  
Funding: Section 319 (Grant) \$50,000 Awarded: 1998  
Purpose: Analyze prior biological monitoring data collected for the Whitewater Watershed Project.

## **Whitewater River Watershed Project, Phase II**

Sponsor: Whitewater River Joint Powers Board  
Funding: CWP (Grant) \$218,000 Awarded: 1998  
Purpose: To provide financial assistance, technical assistance, education, monitoring and incentives for landowners to reduce erosion, increase forest cover and improve water quality.

---

## 1999

---

## **Accelerated Water-Quality Improvement Program in Stearns County, Phase II**

Sponsor: Stearns County Soil and Water Conservation District  
Funding: Section 319 (Grant) \$200,000 Awarded: 1999  
Purpose: To lower the total phosphorus concentration to the ecoregion average for tributaries of the Sauk River.

## **Evaluation of the Potential Benefits and Adverse Effects of Alum Treatment to Remove Phosphorus from Lake Inflows**

Sponsor: U. of M. Water Resources Center  
Funding: Section 319 (Grant) \$81,781 Awarded: 1999  
Purpose: To evaluate factors that can affect the success of alum treatment, including treatment design elements, chemical composition of lake inflows and lake characteristics.

## **Grazing Land Improvement Project**

Sponsor: Board of Water and Soil Resources  
Funding: Section 319 (Grant) \$61,200 Awarded: 1999  
Purpose: To assist landowners and operators to develop and maintain managed grazing systems and to provide technical support in pasture management.

## **Lake Francis Diagnostic - Feasibility Study**

Sponsor: Lake Francis Improvement Association  
Funding: CWP (Grant) \$24,150 Awarded: 1999  
Purpose: To develop a comprehensive strategy for reducing algal blooms and increasing clarity and fishery potential.

## **Long/Spring Lakes Shoreline Stabilization Project**

Sponsor: Dassel Area Environmental Association  
Funding: CWP (Grant) \$26,689 Awarded: 1999  
Purpose: To reduce shoreline erosion and nonpoint-source nutrient loading to the lakes.

## **River-Friendly Farmer Program Expansion**

Sponsor: U. of M. Extension Service  
Funding: Section 319 (Grant) \$70,000 Awarded: 1999  
Purpose: To provide recognition of farmers whose best management practices help maintain and improve water quality in Minnesota's rivers.

## **Rush Lake Phase I Resource Investigation**

Sponsor: Rush Lake Improvement Association  
Funding: CWP (Grant) \$70,000 Awarded: 1999  
Purpose: To determine the causes of the lakes' deteriorating water quality and design a program to improve the lakes.

## **Small Community Wastewater Solutions**

Sponsor: U. of M. Extension Service  
Funding: Section 319 (Grant) \$11,750 Awarded: 1999  
Purpose: To prepare a common-sense guidebook for communities seeking practical solutions to wastewater problems.

## **Tillage Best Management Practices for Water-Quality Protection in Southeastern Minnesota**

Sponsor: U. of M. Extension Service  
Funding: Section 319 (Grant) \$44,000 Awarded: 1999  
Purpose: To develop a publication to assist landowners with erosion control and other best management practices.

## **Whitewater River Watershed National Monitoring Program**

Sponsor: Minnesota Pollution Control Agency  
Funding: Section 319 (Grant) \$48,780 Awarded: 1999  
Purpose: To provide information required under the National Monitoring Program and provide long-term monitoring for evaluation of pollutant problems and potential solutions.

# Watershed Achievements Report

---

## 2000

---

### Achieving Major Change in Minor Watersheds

Sponsor: University of Minnesota Extension Service  
Funding: Section 319 (Grant) \$72,173 Awarded: 2000  
Purpose: To achieve widespread adoption of land-use BMPs for four minor watersheds.

### Construction Site Erosion-Control Ordinance Implementation

Sponsor: Minnesota Erosion Control Association  
Funding: Section 319 (Grant) \$60,000 Awarded: 2000  
Purpose: To provide education and training to key groups, promoting expertise in erosion-control measures, and improving implementation of state programs and local ordinances.

### Minnesota River Basin: Promoting Best Management Practices

Sponsor: University of Minnesota Office of Technology and Research  
Funding: Section 319 (Grant) \$55,200 Awarded: 2000  
Purpose: Develop a resource guide that will combine the assessment and information aspects of the Cropland Assessment System.

### Shoreland Reclamation for Improved Water Quality

Sponsor: Washington County SWCD  
Funding: Section 319 (Grant) \$23,250 Awarded: 2000  
Purpose: To enlist landowners in reclaiming shoreline areas through best management practices.

### Upland Water Retention for Improving Drainage and Water Quality Video

Sponsor: Minnesota Pollution Control Agency  
Funding: Section 319 (Grant) \$10,400 Awarded: 2000  
Purpose: To prepare a 17-minute video on the impacts of drain tiling on both water retention and water quality.



---

## 2002

---

### Redwood River Clean Water Project

Sponsor: Redwood-Cottonwood Rivers Control Area  
Funding: Section 319 (Grant) \$50,000 Awarded: 2002  
Purpose: To reduce sediments and nutrients, expand game fishery habitat, and reduce peak flow.