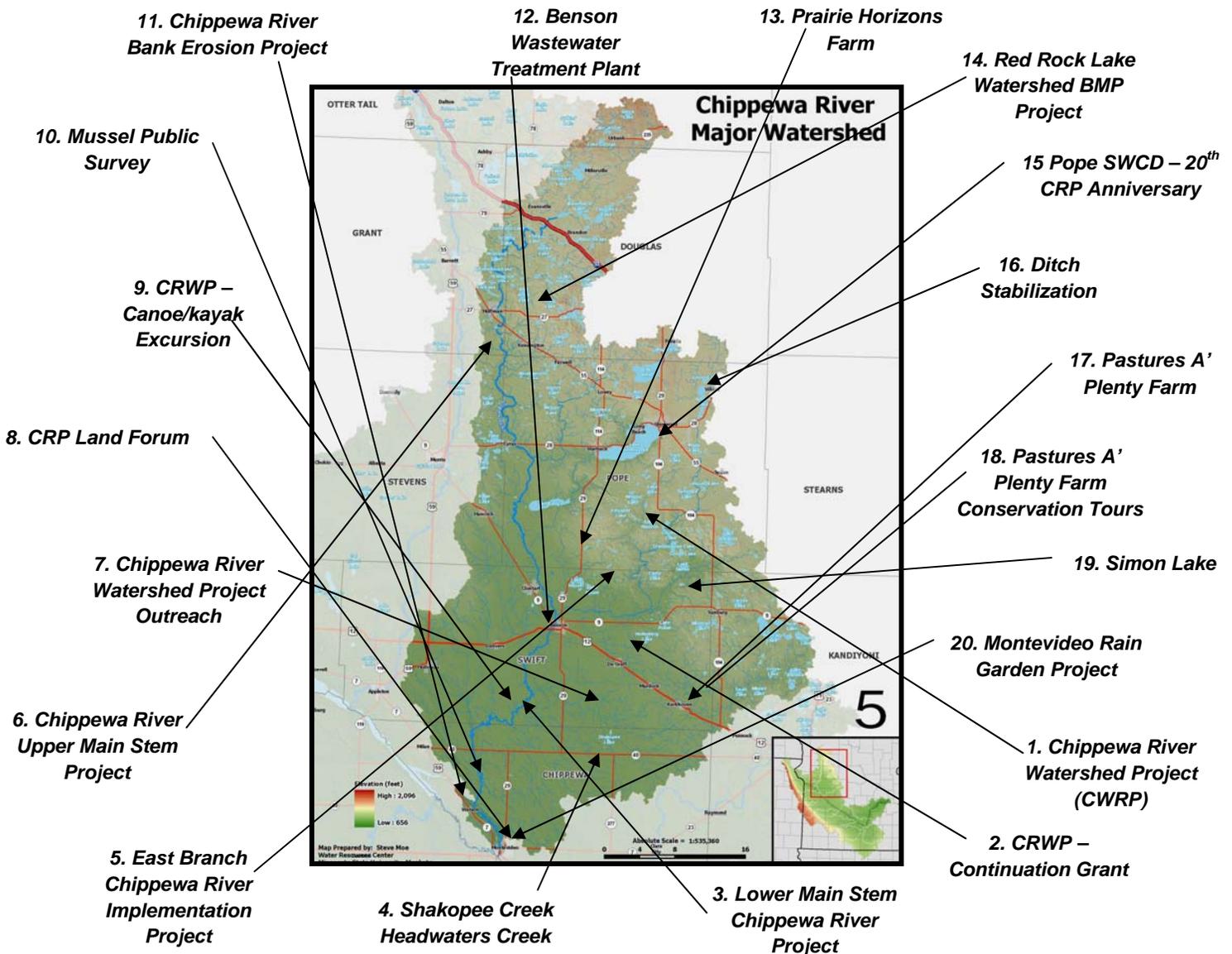


# CHIPPEWA RIVER WATERSHED

One of the largest major watersheds in the Minnesota River Basin, the Chippewa River Watershed drains 2,085 square miles or 1,333,541 acres. The Chippewa River starts out in the headwater lakes of central Minnesota flows south to Montevideo dropping an average gradient of 4.5 miles before it enters the Minnesota River. Major tributaries of the Chippewa are the Little Chippewa River, East Branch Chippewa and Shakopee Creek, concentrating nearly half the flow of the main stem. The Chippewa River is connected to Lac qui Parle River through a glacial river channel called the Watson Sag, which has been modified to allow high flows of the river to be diverted to reduce floodwaters in the lower watershed and Minnesota River. At the western end of the Watson Sag the landscape is an imposing swamp of floating vegetation and bare trees, called the "Big Slough."



*When I sat on the overhanging limb of a willow tree dangling my bare feet into the brown Chippewa River, feeling the slow, steady tug of its unyielding current against my toes, I became connected to the great body of the continent. I was linked not merely with a small river in western Minnesota but swept up into the gigantic stream of life. – Paul Gruchow, 1995: Grass Roots – The Universe of Home*

## CHIPPEWA RIVER WATERSHED

The effort to improve water quality in this large watershed involves a wide range of partners including all the SWCD offices, the Chippewa River Watershed Project, landowners, cities, nonprofit organizations and many other people. Many of these projects have strong collaborative efforts and shown improvements in water quality, recreational opportunities, citizen engagement, wildlife habitat and much more. The Chippewa River Watershed Project has been a leader in this work for well over ten years.

### 1. Organization Spotlight - Chippewa River Watershed Project

An association of non-government organizations and government agencies came together to address water quality and flooding related problems in the Chippewa River Watershed in 1998 under the leadership of the Land Stewardship Project. A staff of three people concentrates on installation of a wide range of Best Management

Practices (BMPs), educating citizens about the benefits of conservation and monitors water quality. In order to effectively promote and implement BMPs across this large of a landscape, the Chippewa River Watershed Project (CRWP) broke down this major watershed into six focus areas: Shakopee Creek Headwaters; East Branch Chippewa River; Lower Main Stem; Upper Main Stem; Dry Weather Creek, Spring Creek, Lines and Cottonwood Creek; and Little Chippewa.



*Kylene Olson on the right talks to citizens of the Chippewa River Watershed*

### 2. CRWP Citizen Engagement

The CRWP offers a comprehensive information and education effort by distributing data, project goals,



objectives, information on BMPs through their participation in SWCD field days, numerous conferences, county fairs, newsletters, e-newsletters, water festivals and demonstrations in schools. In a three year period the CWRP sent out newsletters to a database of 7,500 landowners, e-newsletters posted on the CRWP web site, 600 students attending conservation field days over the course of three years, and 1,400 elementary students reached through water festivals in the watershed. Another effective way to connect with its constituents is by holding an annual meeting each spring that routinely brings out over 100 watershed residents to hear about monitoring data and opportunities for solutions to enhance water quality in the Chippewa River.

Another outreach program is the Citizen Monitoring Network with the CRWP conducting open house training sessions to continue increasing the number of citizen monitors in the watershed. The CRWP also assisted counties with upgrading out-of-compliance septic systems through a low interest loan program - Chippewa County (12 septic system upgrades), Swift County (13) and Pope County (5) from May, 2004 to May, 2007.

One new partnership created during this time was with the MN DNR and their Working Lands Initiative program to remove and control invasive species for grassland/pasture management and provide support for grazers. Ultimately, the CRWP helps build capacity with the local elected officials, both County Commissioners and Soil and Water Conservation District Supervisors, as well as cooperating partners and landowners in the watershed.

### 3. Lower Main Stem Chippewa River

As one of the six major sub-basins of the Chippewa River Watershed, the Chippewa River Watershed Project received a U.S. EPA 319 grant to install BMPs, monitor water quality and quantity of the sub-basin and educate the public by holding public events and by providing information that is easily accessible. The project achieved significant results by enrolling 720 acres into the CRP continuous sign-program, achieving a success rate of 169% of the original goal. Other BMPs installed were two side inlets, 900 feet of streambank stabilization, one feedlot upgrade, and six projects using stream barbs to alleviate streambank erosion. Education activities included hosting two annual meetings reaching 230 watershed residents, participation at county fairs, bus tour of installed BMPs, canoe trip viewing streambank stabilization project for 60 residents and numerous presentations at area schools and monthly updates on the CRWP web site.



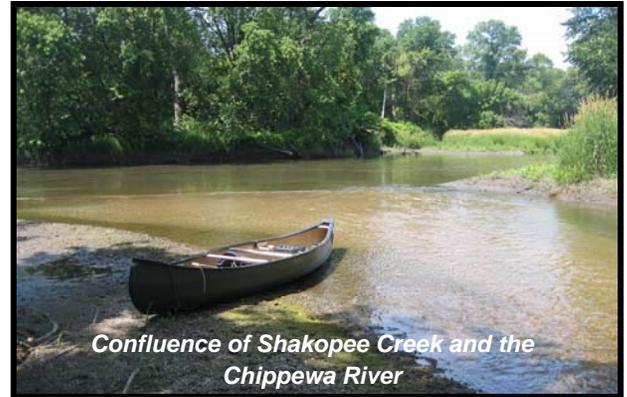
*Streambank Stabilization Project*

### 4. Shakopee Creek Headwaters Project

The Chippewa River Watershed Project secured a U.S. EPA 319 grant to improve water quality in Shakopee Creek through the implementation of Best Management Practices by providing cost-share, incentives and technical assistance along with effectiveness monitoring and educational outreach. Results of the project were as follows: completed 216 acres of filter strips, installed 17 alternative tile intakes, restored two wetlands, and completed one shoreline restoration and one stream bank restoration along with a special project. The project worked with 38 landowners to implement the BMPs, coordinated a citizen monitoring program and participated in public outreach events to help educate hundreds of watershed citizens about water quality issues.

### 5. East Branch Chippewa River Implementation Project

The largest of the six major subbasins of the Chippewa River Watershed, the East Branch Chippewa River joins the main stem at Benson with its drainage basin



*Confluence of Shakopee Creek and the Chippewa River*

encompassing 323,630 acres in the east-south-eastern portion of Pope County and northeast quarter of Swift County. Dotted with numerous lakes at its headwaters, agricultural row cropping is the predominant land use downstream to its mouth. The Chippewa River Watershed Project (CRWP) installed a wide range of Best Management Practices (BMPs) to reduce high levels of nitrates/nitrites and total suspended solids.

Over the time period of June 2006 to July 2009, the CRWP implemented the following BMPs: 404 acres of buffer strips, three shoreline naturalization projects, three sediment basins, two bank stabilization projects, four manure management plans, 12 alternative tile intakes, 41 acres of wetland restorations, one feedlot improvement and two terraces. Education activities were also a big part

of the water quality effort with the CRWP sponsoring canoe trips for high school students, conducting biomonitoring with high school science classes and promoting BMPs at the county fairs. The Chippewa River Watershed Project partnered with Swift Environmental Services, Swift SWCD, Pope SWCD, Swift County Parks and Drainage and Kandiyohi Soil & Water Conservation District.



*Shoreline Restoration*



*Water Quality Monitoring on the Chippewa*

### 6. Chippewa River Upper Main Stem Project

Encompassing close to 200,000 acres of the 1.3 million acre Chippewa River Watershed, the Upper Main Stem reach is the river's headwaters, consisting of many lakes among a landscape dominated by traditional agriculture. Funds from a U.S. EPA 319 grant helped install the following BMPs: 519 acres of buffer strips, 43 sediment blocks, two terraces, one streambank protection, one erosion control project, two shoreline restorations, two ag waste pit closures, two alternative tile intakes, one feedlot runoff improvement and 18 septic system upgrades. The Chippewa River Watershed Project also participated in the Douglas County Water Festival, presenting watershed concepts to over 400 fifth graders.

By 2006, the Chippewa River Watershed Project had moved forward with implementation activities in five out of six of the watershed's sub-basins with the entire



*Chippewa River Dam at Montevideo*

watershed eligible for septic system loan funding. Progress had been made with the installation of 831 acres of filter strips, 57 septic system upgrades, 32 sediment

blocks, seven shoreline naturalizations, four wetland/pond restorations, three nutrient management plans, one streambank protection and one manure separator/composter. Monitoring data showed that the 1,141 tons of nitrate-nitrogen flowing in the river would be enough to fertilize 23,571 acres of corn at 120 pounds per acre. The 111 tons of phosphorus would fertilize 6,344 acres of corn at 35 pounds per acre and 92 percent of the sediment comes from the Chippewa River's lower sub-basin making up only 30 percent of the basin with the rest contributing relatively little.

### 7. Chippewa River Watershed Project Outreach

To reach out to the public, the Chippewa River Watershed Project sponsors a variety of efforts including hosting an

annual canoe trip on the Chippewa River and other

presentations including an

Alternative Tile Intakes for landowners,

contractors and technicians, along with a Chippewa River Watershed Geology presentation by Carrie Jennings of the Minnesota Geological Survey and a Mussel Weekend with DNR malacologists. The CRWP has also published a newsletter called "The Citizen Connection" with a circulation of 8,000, held a photo contest and put on a Nutrient Management and Farm Bill Update Seminar (held jointly with Hawk Creek and Crow River watershed organizations).



*School Presentation*



*CRWP Annual Meeting at Starbuck Ballroom*

### 8. CRP Land Forum

A forum co-sponsored by West Central Minnesota Regional Partnership, Land Stewardship Project, Chippewa River Watershed Project and Clean Up the River Environment (CURE), brought out a large crowd on January 14, 2010 to hear David Mulla of the University of Minnesota talk about the impact of expiring CRP land on water quality and wildlife. Held at the Montevideo Community Center, Mulla presented research ranking the ecological sensitivity of CRP parcels to identify those that should be protected, and develop a plan to create and maintain wildlife corridors. A citizen forum held after the presentation focused on a discussion covering the CRP land expiration in the upper Minnesota River Basin and strategies to encourage protection of sensitive lands.

## 9. CRWP Canoe-Kayak Excursion

Despite the drier than normal conditions in southwestern Minnesota, the Chippewa River Watershed Project was



*Paddling the Chippewa River*

able to hold its annual paddling adventure due to remnants of winter snowmelt that helped sustain a high enough mid-June water level on the Chippewa River. A

flotilla of colorful kayaks and canoes carried more than 20 people on an eight plus mile stretch of the river from Big Bend to County Road 12 on June 12, 2009. The event drew people from a wide area ranging from Willmar to Alexandria and Montevideo on a clear day. A brisk current helped make it a relaxing, pleasant, 2-2 ½ -hour paddle that ended with a box lunch at the end.

### River Advocate - Kylene Olson

A native of Watson, Kylene Olson has been leading the Chippewa River Watershed Project since its inception in 1998. As its executive director, Olson provides motivation to her staff and partners through her love of the river and her beliefs and values in enhancing the water quality of the Chippewa River, the largest tributary of the Minnesota River. Some of the programs created under her leadership, such as the Citizen Monitoring Program and the High School Biomonitoring Program have been used as a model in other watersheds like the Hawk Creek and Lac qui Parle - Yellow Bank projects.

Kylene Olson received an honor from the Minnesota River Board in 2008 after being recognized with their "Minnesota River Confluence Award." A



*Kylene Olson and Mike Davis examine mussels*

graduate of Southwest State University with a Bachelor of Science degree - emphasis in Environmental Biology, her efforts in the local community runs deep. She served as the mayor of her hometown Watson and a founding director of the Zion Restoration Society, along with being

instrumental in restoring the 125 plus year old church overlooking the Chippewa River Valley. As a member of the Watson Lion's Club, Kylene has served as the president of the organization.

## 10. Public Mussel Survey

At the end of August, the Chippewa River Watershed Project collaborated with the Minnesota Department of Natural Resources to conduct a mussel survey on the Chippewa River. Over two years, the two groups have worked together to survey the health of mussels by engaging the public to help out. As a result of this partnership, the DNR has selected the Milan site as one of three long-term, statewide monitoring project to understand and monitor the status and distribution of all mussel species in Minnesota.



*Collecting mussels*

According to the DNR mussel experts, the Chippewa River has some of the best remaining mussel assemblages in the entire Minnesota River, a good indication that this river is healthier than other main stem river tributaries. These mussel surveys are designed to help the public connect to the resource - the Chippewa River - and assist the DNR with an important research study.

## 11. Project Spotlight - Chippewa River Bank Erosion Project

Erosion along the Chippewa River had been a concern of the Big Bend Church for many years, with many



*Streambank stabilization Project*

graves in danger of sliding into the stream. The Chippewa SWCD and the Montevideo Field Office of

the USDA NRCS provided assistance along with funding from the U.S. Army Corps of Engineers. The project stabilized a 60 foot bluff on 900 linear feet of streambank, protecting 300 graves. Nearly 9,000 tons of rip-rap was used along with 1,700 tons of topsoil. The total cost of the project was \$572,000. Other cooperating partners were Chippewa County, Swift SWCD, DNR, the Chippewa River Watershed Project, and the Big Bend Lutheran Church.

## 12. Benson Wastewater Treatment Facility

The two year, \$2 million upgrade of the Benson Municipal Wastewater Treatment Plant increased capacity, replaced existing equipment with an expanded trickling filter, added more sludge storage, and increased treatment of phosphorus, reducing the discharged level into the Chippewa River to only 0.4 milligrams per liter. Originally built in the early 1980s, the project also added a digester to produce methane, providing much of the facility's heating needs. Today, the plant is well below the Minnesota River discharge limit of 1 milligram per liter of phosphorus.



## 13. Prairie Horizons Farm

Part of the Upper Minnesota River Valley Food Cooperative, Prairie Horizons Farm features a rotational grazing on certified organic pasture system, Lowline Angus cattle, third crops and an organic garden featuring cucumbers, beets, cantaloupe, carrots, squash, multi-colored maize and pumpkins. Located in the rolling glacial moraine of Western Minnesota between Benson and Starbuck, Prairie Horizons Farm uses a rotation grazing system for a special breed of grass-loving black Angus cattle on Certified Organic pastures and native prairie. They are proud of using no grain, no antibiotics, no drugs, no hormones, and only a half gallon of fossil



fuel to raise each of their beef cattle. In the summer of 2009, Prairie Horizons Farm was part of a 3<sup>rd</sup> Crop Walk-n-Talk Tour sponsored by Rural Advantage,

Productive Conservation on Working Lands, U.S. Fish and Wildlife Service, Minnesota DNR, Pope County Working Lands Initiative, Chippewa River Watershed Project, Pope SWCD, NRCS, and FSA.

## 14. Red Rock Lake Watershed BMP Project

Located in Douglas County and west of Alexandria, Red Rock Lake is a shallow 708 acre lake. The project is sponsored by Douglas SWCD with the goal of reducing nutrient loading and fecal coliform levels in the Red Rock Lake Watershed. Funding will be made available to livestock producers within the watershed for fencing, alternative water sources, and reseeding degraded shoreline. Priority will be given based on the proximity to the lake, current farming practices, and risk potential of contributing fecal coliform, sediment, and/or phosphorus to the water body.



## 15. Pope SWCD – 20<sup>th</sup> CRP Anniversary

To celebrate the 20<sup>th</sup> Anniversary of CRP, Pope SWCD helped coordinate a banquet with the USDA's Farm Service Agency and the Natural Resources Service that brought in 285 people. In addition to the banquet, other events were a conservation tour, five seminars, 18 booths, a conservation forum and a locally grown meal. As the only location to hold an event of this magnitude, the day was sponsored by Pheasants Forever, Inc., Pope County Pheasant Restoration; Gobblers of Glacial Ridge; Harrison Company; Agassiz Seed; Glacial Ridge Cattleman's Association; Arnie Gerzewski; and Lake-land Foods, Inc.



## 16. Ditch Stabilization

In conjunction with Pope County Land and Resource Department, Pope SWCD stabilized a portion of Judicial Ditch 4 (JD4) with rock rip rap in the Chippewa River Watershed. Located near Lake Leven, JD4 contributes erosion from its banks to one of Pope County lakes on the impaired water list for excess nutrients. Pope SWCD did the survey and assisted with the implementation phase.

### 17. Pastures A' Plenty Farm

Jim VanDerPol and his family operate a farm near Kerkhoven that combines a mix of crops, livestock, and pasture for a balanced approach to sustainability. A bulk of the land is set aside for grazing intermixed with a rotation of hay, corn, soybeans and barley plus dairy and beef cattle, poultry and a farrow-to-finish hog operation. VanDerPol understands you need livestock for a balanced sustainable agricultural operation.



His Berkshire cross hogs gestates in a pasture much of the time with some farrowing in pens. Pastures A Plenty Farm is an organic operation except for the hogs (which get some nonorganic feed) that markets its products throughout the state. To be sustainable, VanDerPol uses manure from the livestock to add nutrient to the perennial grass pastures, which in turn helps hold the soil together and provides biodiversity for wildlife. He sees his operation as being economic feasible, repeatable without damaging the land, farmers or customer, friendly to the future and the environment.

### 18. Pastures A' Plenty Farm Conservation Tours

The Pastures A' Plenty Farm has also been the focus of conservation tours including one on "Carbon



*Jim VanDerPol and family*

Sequestration by using grasses and legumes in pastures to be a highly effective method for removing excess carbon dioxide from the air and storing it in the soil. The Land Stewardship Project and Sustainable Farming Association of Minnesota held the tour at the Pastures A' Plenty Farm which featured a local foods dinner. Part of the tour focused on a working demonstration on how to construct a rolling chicken house station for raising birds on pasture and VanDerPol's innovative approach for supplying their customers with nitrate-free brats.

### 19. Lake Simon

A new, state-of-the-art, high velocity, tube fish barrier was installed on 569 acre Lake Simon by Ducks Unlimited



*Fish Tube Barrier*

with assistance from private landowners. This new barrier will limit the number of undesirable species of fish like carp from getting into this shallow lake in southern Pope County. Over time the lake has suffered like many shallow lakes in Minnesota from continuous high water levels, low water clarity, severely reduced aquatic plants and way too many undesirable fish. On the positive side, the Lake Simon Watershed still contains many small wetlands and upland grass fields helping limit nutrient runoff from agricultural production. Ducks Unlimited and the DNR met with the landowners to discuss management options and acquire an outlet easement to construct and maintain the new structure. Historically, this lake had supported large numbers of migrating waterfowl. The DNR is now looking at giving Lake Simon a wildlife management designation allowing the agency to improve the quality of habitat and increase duck numbers.

### 20. Montevideo Rain Garden Project

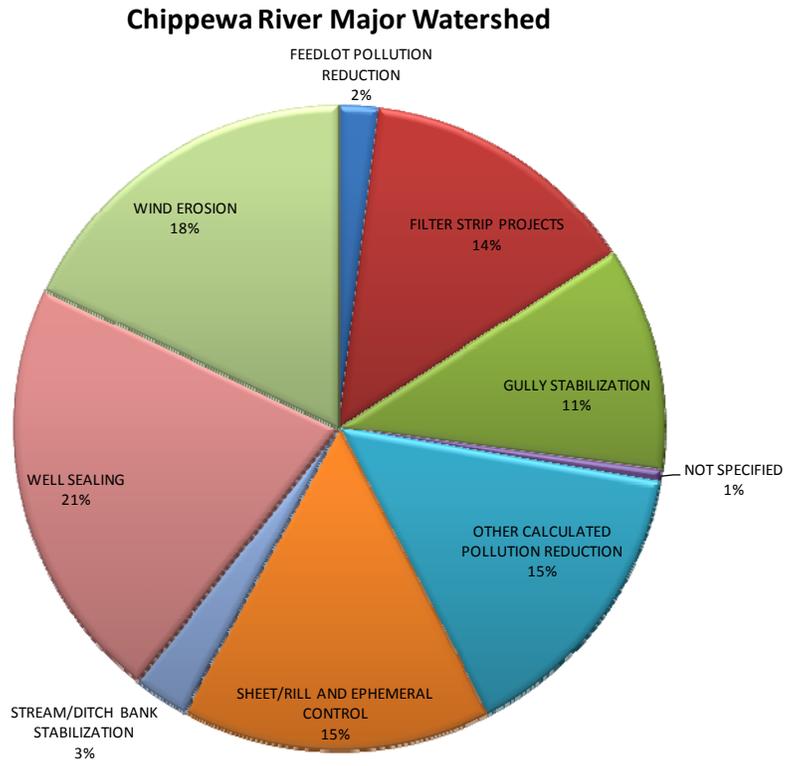
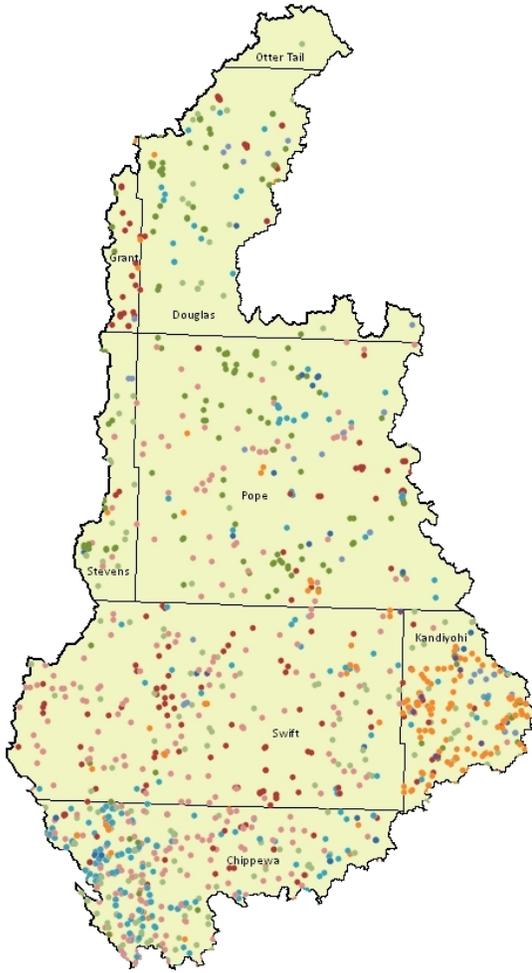
A coalition of groups – Chippewa SWCD, Hawk Creek Watershed Project, University of MN Extension Service,



*Montevideo Rain Garden*

Chippewa Co. Land & Resource Management office, Chippewa County Commissioners, Chippewa Co. Highway Dept., Montevideo HS Ag Dept., NRCS, City of Montevideo, and the Chippewa Co. Master Gardeners – came together to begin the planning process to install trail rain gardens in Montevideo on city and residential property to positively effect stormwater runoff. One of the projects dealt with the installation of a rain garden next to the parking lot at the Chippewa County Courthouse. Native wildflowers and plants were planted to soak up stormwater flowing off the parking lot.

# Chippewa River Watershed Conservation Practices and Land Use

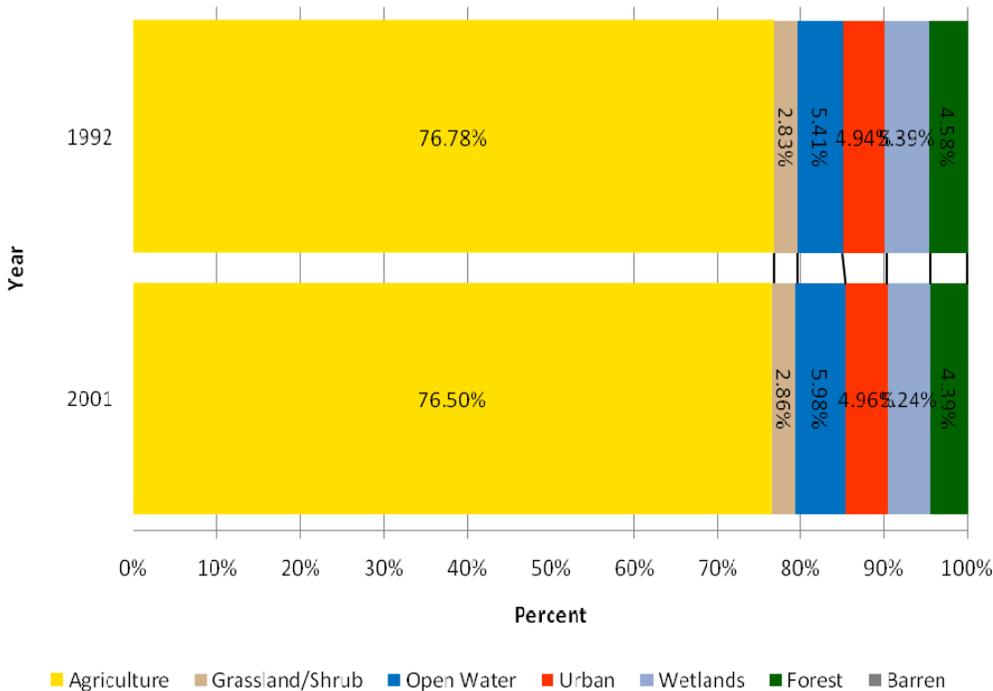


## Conservation Practices

In 1998, a group of organizations came together to form the Chippewa River Watershed to focus on water quality efforts. The map to the left and the pie chart above illustrates conservation practices in the Chippewa River Watershed. The conservation practices data comes from the Board of Water and Soil Resources (BWSR) program compiles information on a county, watershed, and individual-project basis from 1997 to 2008. The number of conservation practices reflects only actual contract and not the acres. There are additional conservation practices installed in the Chippewa River Watershed but not recorded in either LARS or eLINK.

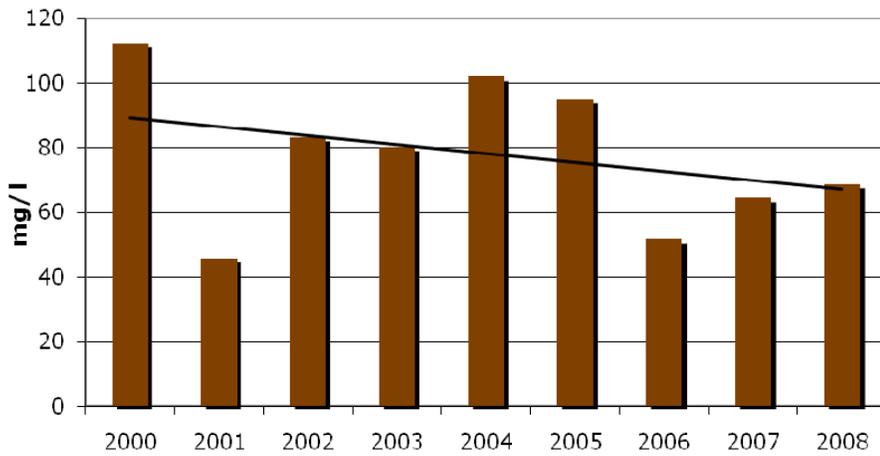
Source: Minnesota Agricultural Statistics

## Landuse



# Chippewa River Watershed Pollution Reduction

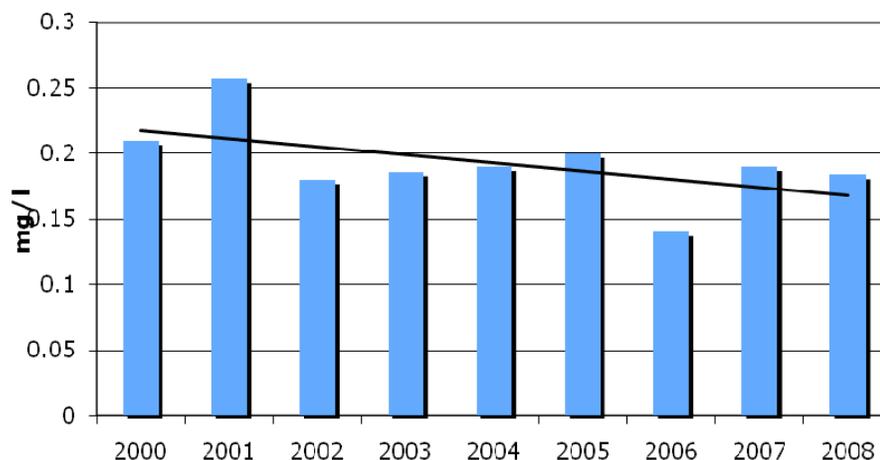
**Total Suspended Solids FWMC 2000-2008**



**Total Suspended Solids**

Overall the trend for Total Suspended Solids (TSS) concentration and load in the Chippewa River appears to be decreasing. Not all years fit the trend. Years in which there is more rain in the months of March through June see higher levels of TSS. Additionally, the Chippewa River is comprised of several tributaries and not all of these tributaries are equal contributors of TSS. Those areas that are heavily drained and row cropped in the southern clay soil basins are yielding more TSS than the western sandy soil basins or the northern glacial moraine basins. Also areas with less overall row cropped acres tend to yield lower levels of TSS.

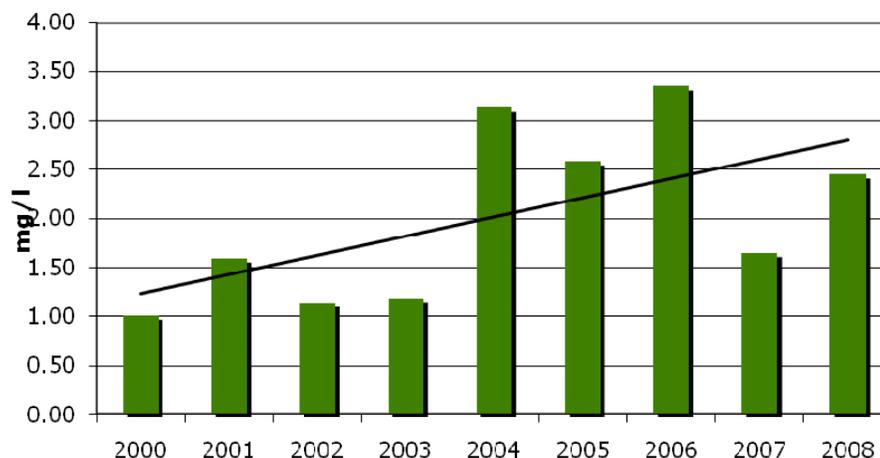
**Total Phosphorus FWMC 2000-2008**



**Total Phosphorus:**

Overall the trend for Total Phosphorous (TP) in the Chippewa River appears to be decreasing. Not all years follow the trend. Additionally, the Chippewa River is comprised of several tributaries and not all of these tributaries are equal contributors of TP. Those areas that are heavily drained and row cropped are yielding more TP than basins that have more perennial land use types. Data shows that the high levels of TP seen in row cropped basins are largely a result of higher levels of the soluble phosphorous portion of TP.

**Nitrate-Nitrogen FWMC 2000-2008**



**Nitrogen:**

Overall the trend for Nitrate-Nitrite Nitrogen (NO2-3) concentration and load in the Chippewa River appears to be getting higher. Not every year fits the trend but there is a definite trend and it is increasing. Years with more rain in the months of March through June see higher levels of NO2-3. Nearly half of the NO2-3 entering the Chippewa River comes from its' Shakopee Creek Tributary a silty-clay soil basin that is dominated by row cropping and intensive drainage.