



Clear Lake Benefits From CRWD Actions

Clear Lake, a 555-acre lake in Meeker County at the headwaters of the Clearwater River Watershed District (CRWD), has been the focus of water quality improvements for nearly 40 years.

In the 1960s, the Minnesota DNR removed rough fish from the lake and restocked it with game fish.

The CRWD also provided grant application funds for Forest Prairie Township to acquire the money to install a sanitary sewer system around Clear Lake. The project was initiated by several Clear Lake property owners who approached the Township Board to request action. The system collects wastewater from 125 homes and pipes it to the City of Watkins, where

it is treated in a facility north of the City.

The District has also completed many other water quality projects focused on Clear Lake, including the Nistler/Geislinger sedimentation basin, the Clear Lake north wetland retention basin, the Ostmark Church erosion control project, and the County Ditch 20 erosion control project at the outlet of Clear Lake.

The many projects completed or underway for Clear Lake address concerns about lake water quality. According to the most recent monitoring data collected for Clear Lake, there is reason for continued concern. Several measures of water quality do not meet standards established by the



The Nistler/Geislinger sedimentation basin is one of many projects implemented on Clear Lake to improve water quality.

Minnesota Pollution Control Agency (MPCA). For example, average summer phosphorus concentration is more than double the MPCA standard for the lake, and the chlorophyll-a concentration (a measure of algal growth) is more than triple the MPCA limit.

As a result of these findings, Clear Lake is listed by the MPCA as an impaired water body. To address the problem, the Agency requires that a Total Maximum Daily Load, or TMDL, study be completed to reduce pollutant loads. (See related article on page 3.)

Clear Lake Property Owners Spearhead Curly Leaf Pondweed Control, Bullhead Removal

Aided by a DNR Pilot Project grant of \$20,000, Clear Lake property owners treated the lake in May 2007 to control Curly Leaf Pondweed, an introduced plant that crowds out native vegetation and interferes with internal cycling of phosphorus, thereby worsening water quality. The group plans an additional treatment in spring 2008 to kill newly germinated plants. With less Curly Leaf, growth of native vegetation will increase and release of sediment phosphorus may decrease.

The group also supported the removal of 5,600 pounds of bullheads, which disturb native vegetation and increase water turbidity with their bottom-feeding activities. The group plans to remove an additional 20,000 pounds of bullheads from the



Clear Lake property owners treated the lake in May 2007 to control Curly Leaf Pondweed.

lake in 2008. They estimate that a total of 80,000 bullheads will be harvested from the lake.

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Restoration Project Continues on Cedar Chain of Lakes

Swimming, fishing, and boating will be more pleasant experiences on Cedar Lake as a restoration project continues.

In response to concerns from lake shore residents about declining water quality in Cedar Lake, the Clearwater River Watershed District started the restoration project in the Cedar Chain of Lakes last spring.

The goal of the restoration project is to reduce the concentration of phosphorus in Cedar Lake and so reduce the growth of algae and improve water quality.

Because most of the phosphorus in Cedar Lake comes from the upper watershed, the project focuses on reducing upstream nutrient runoff and lowering the concentration of phosphorus in Henshaw, Albion, and Swartout lakes.

The District implemented several Best Management Practices to accomplish this, including fish barriers, buffers, and a treatment basin.

Carp and other rough fish will find their movement through

the chain of lakes restricted by fish barriers constructed at three locations: the Highway 55 wetland outlet and the Swartout and Henshaw lake outlets. The barriers are intended to reduce the population of rough fish, whose bottom-feeding activities can uproot vegetation and release phosphorus from sediments.

In addition to restricting rough fish movement, the project also harvested rough fish from Swartout Lake. The first harvest of carp occurred in early February 2008 and removed slightly more than 42,000 pounds of fish. More harvests are planned.

To reduce the amount of phosphorus in water draining from the upper watershed, 146 acres of buffers were planted at tile intakes and will remain in place for one to three years. The buffers will help prevent phosphorus-containing sediments from entering the water stream and, ultimately, Ce-



A diversion berm was constructed in December 2007 to divert stream flow into Segner Pond, a sedimentation basin on the Cedar Lake inlet.

dar Lake.

As the water from the upper watershed approaches Cedar Lake, it will enter a newly constructed treatment basin on the Cedar Lake inlet. The 2.9 acre basin, called Segner Pond, will use a limestone-containing filter along with sedimentation to remove both particulate and dissolved phosphorus from the water before it enters the lake.

A special monitoring program begun in 2007 will track the progress of the restoration project. Cedar, Swartout, Albion, and Henshaw lakes were sampled four times by the District in 2007. Eight tributary streams were also sampled in April, May and June. Volunteers assisted District staff by sampling Cedar Lake eight times during 2007. The water samples were analyzed for total phosphorus concentration, chlorophyll-a concentration (a measure of algal growth), and Secchi depth (a measure of turbidity).

So far, the monitoring results

show that average phosphorus concentrations and chlorophyll-a concentrations do not meet MPCA standards in Henshaw, Albion, and Swartout lakes. The average Secchi depth also does not meet the MPCA standard in Henshaw and Swartout lakes.

In Cedar Lake, the average phosphorus concentration decreased in 2007 compared to previous years, but this was likely the result of below-normal rainfall and runoff that year. However, the restoration project is expected to accomplish the same results in years with normal and even above-normal precipitation, with the goal of limiting the external phosphorus load to 1,000 pounds per year.



Commercial fishermen netted slightly more than 42,000 pounds of rough fish from Swartout Lake in early February 2008.



Segner Pond's limestone filter dike will remove additional phosphorus from water before it enters Cedar Lake.

CRWD Addresses Impaired Waters Through TMDL Study

Learn more about the Total Maximum Daily Load (TMDL) Process and How to Protect Water Quality

Impaired Waters and TMDLs

Impaired waters are those that do not meet state water quality standards for dissolved oxygen, nutrients, sediments, bacteria, metals, or other criteria required to support aquatic life or allow the designated use of a water body, such as swimming.

The Federal Clean Water Act requires the Minnesota Pollution Control Agency to identify impaired water bodies and develop total maximum daily loads, or TMDLs, for nutrients, sediments, bacteria, and other parameters. The TMDL is the total amount of a pollutant a water body can assimilate while meeting the established water quality standards.

In the Clearwater River Water-



Water samples are gathered and analyzed early in the TMDL process.

shed District, two stretches of the Clearwater River are impaired for having low oxygen or high levels of bacteria, and 11 lakes are impaired for having high levels of nutrients (see sidebar). Using a 2003 grant from the MPCA, the CRWD has embarked on a TMDL study of these impaired waters with the goal of improving water quality so these waters meet state standards.

Typically, a TMDL is developed in four phases. In Phase 1, existing data is reviewed, data gaps are identified, and plans are developed to collect and analyze the additional data needed. In Phase 2, that data is collected and evaluated.

In the third phase, the TMDL is set. Loads are allocated to point and non-point sources and an implementation plan to meet load reductions is prepared.

Finally, in the fourth phase, plans are implemented to reduce loads to the limits identified in Phase 3.

TMDL Progress in CRWD

To date, TMDL Phases 1 and 2 have been completed for impaired waters in the CRWD. Phase 3, now underway, will use water quality models to quantify existing loads and calculate required reductions. Load reduction alternatives will be identified, an implementation plan will be developed, and a future monitoring plan will be prepared.

The findings of the TMDL study will be presented at public meetings. Check the CRWD website or local newspapers for public notices of the meetings.

Implementation of the recommendations will depend on approval of the Phase 3 study by the MPCA and the U.S. Environmental Protection Agency and acquisition of funding.

How to Protect Our Waters

Many opportunities exist for the public to participate in protecting water quality in the CRWD.

Participate in the TMDL Process. District residents are encouraged to learn about the

TMDL process and attend the public meeting presenting the results of the third phase of the study. The meeting also will be an opportunity to learn about urban stormwater management, septic system upgrades, buffer installations, and other practices that could be implemented to reach TMDL goals.

Plant a shoreline buffer or a rain garden—and get paid! Those who live along a lake or river can take advantage of financial incentives to plant buffers or rain gardens to prevent sediment and nutrients from entering the water. For more information, contact the CRWD.

Plant farm buffers using additional CRWD incentives. Farmers who have rivers or lakes near their properties can qualify for additional incentives from the CRWD to join federal conservation programs or install various buffers. More information is available from the CRWD.

Contact the CRWD for more information about water quality and how to get involved in protecting this vital natural resource.

CRWD Impaired Waters

The MPCA listed the following water bodies in CRWD as impaired.

TMDLs for those marked with an asterisk (*) are planned to begin in 2009 or as funding becomes available. TMDLs for all other water bodies are underway.

- Clearwater River between Clear Lake and Lake Betsy (bacteria and dissolved oxygen)
- Clearwater River between Grass Lake and the Mississippi River (dissolved oxygen)
- Lake Louisa (nutrients)
- Lake Betsy (nutrients)
- Clear Lake (nutrients)
- Lake Marie (nutrients)
- Scott Lake (nutrients)
- Union Lake (nutrients)
- Swartout Lake (nutrients)*
- Lake Albion (nutrients)*
- Henshaw Lake (nutrients)*
- Lake Augusta (nutrients)*
- Lake Caroline (nutrients)*



This dam on the Clearwater River just upstream from the Mississippi River marks the end of Clearwater River's reach. Two river stretches and 11 lakes in the CRWD have been listed as impaired by the MPCA.

Incentive Programs Help District Residents Improve Water Quality

Several incentive programs are available to residents interested in protecting water quality in District lakes, rivers, and streams. For more information about any of the following programs, please call the District office.

Shoreline Buffer Incentive

District residents with lakefront



Rain gardens and lakeshore buffers capture sediment and nutrients.

or riverfront property can receive a one-time incentive of \$250 to plant a shoreline buffer. These buffers of beautiful native plants not only protect water quality by preventing sediment and nutrient runoff, they also attract a variety of birds, butterflies, and other wildlife. Technical assistance to plant a buffer is available from local Soil and Water Conservation District offices. Buffers must meet a minimum size to qualify for the incentive.

Farm Buffer Incentives

Farmers who have a lake or river near their property can receive an additional incentive from the CRWD for joining the federal conservation program. The CRWD will offer a one-time payment of \$200/acre to a farmer who enrolls or establishes a buffer in the Conservation Reserve Program.

Farmers who plant seeded, harvestable buffers along rivers,



Native plant buffers protect water quality, add beauty, and attract birds, butterflies, and wildlife.

streams, or county ditches for a three-year period will receive a one-time payment from the CRWD of \$350/acre.

These are just two of several incentives available to farmers. Please contact the District office to learn about more opportunities.

Rain Garden Incentives

The CRWD will pay a one-time incentive of \$2.50 per square foot to plant and maintain a rain garden on lakeshore property. The payment is limited to an

area no more than 10% of the impervious surface on the property. The rain garden plan must also be pre-approved by the CRWD to qualify.

For more information about rain gardens and their benefits to water quality, visit the web site for Rice Creek Watershed District's Blue Thumb educational program at <http://bluethumb.org/why/>.

Animal Feedlot Upgrade Incentive

Animal producers upgrading their feedlots to reduce phosphorus runoff may be eligible for financial assistance from the CRWD. The amount is based on the degree of phosphorus reduction required and the distance between the feedlot and surface water. Contact the District Administrator for more information.

Meet Your CRWD Board Members and District Staff

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District Governance

A five-member Board of Managers governs the CRWD. The Managers serve staggered three-year terms. The Wright County Board of Commissioners appoints two Managers, the Stearns County Board appoints two, and the Meeker County Board appoints one. The largest portion of the District lies in Wright and Stearns Counties, with a smaller portion in Meeker. The powers and duties of Watershed Districts and their Boards of Managers are set forth in Minnesota Statute 103D.

CRWD Board Meetings

Regular meetings of the CRWD Board of Managers are held twice a month and are open to the public. The Board meets on the second Wednesday of the month at 7:00 p.m. at the Annandale Middle School. Workshops are held on the fourth Wednesday of the month at 6:30 p.m. at Stanley's restaurant in Kimball. Meeting notices and minutes are published in the Annandale, Kimball, and Watkins weekly papers and are posted on the CRWD website at www.crwd.org.

Did You Know?

- Parts of three counties make up the CRWD: northeastern Meeker County, southeastern Stearns County, and northern Wright County.
- The CRWD covers 159 square miles and includes 7,336 acres of lake basins contained mostly in 19 meandered lakes.
- The headwaters of the Clearwater River are in Meeker County. From its headwaters the river flows east-northeast until it meets the Mississippi River at the City of Clearwater. The river is approximately 39 miles long.