



CLEAN
WATER
LAND &
LEGACY
AMENDMENT

VIDEO:

[“Serpent Lake Targeted Watershed”](#)

features one of the projects backed by the \$1.2 million Clean Water Fund targeted watershed grant: the stormwater treatment at the Summer Place cabins in Deerwood, which also solved a flooding issue.

SERPENT LAKE, CROW WING COUNTY



Beyond clarity: SWCD’s targeted approach yields deeper rewards

DEERWOOD — Serpent Lake is twice as clear as it was 10 years ago. The targeted conservation projects in Deerwood, Crosby and nearby Cranberry Lake that keep

4.7 tons of pollutant-carrying, algae-feeding sediment out of Serpent Lake each year helped to reverse a downward trend in its water quality.

Water clarity exceeded 30 feet in July. The season’s average was 27.2 feet. At its murkiest in 2012, water clarity measured 12.1 feet.

Together, more than \$1.5 million in projects backed by a \$1.2 million targeted watershed pilot program Clean Water Fund grant the Minnesota Board of Water and Soil Resources awarded to the Crow Wing Soil & Water Conservation District in 2014



Top, from left: Crow Wing SWCD Board Chairman Jim Chamberlin, Deerwood Public Works Foreman Patrick Radtke, Serpent Lake Association Vice President Terry Tichenor, EOR Senior Project Manager Jay Michels and SWCD Manager Melissa Barrick met July 20, 2021, at the Summer Place cabins in Deerwood, **above**, site of one of the targeted watershed projects within the Serpent Lake watershed. **Photo Credits:** Ann Wessel, BWSR



Above: A two-stage retention basin and iron-enhanced sand filter slow and treat runoff from a 30-acre drainage area in Deerwood, removing about 90% of the phosphorus. At the Summer Place on Serpent Lake, heavy rains had flooded some — but not all — of the 13 cabins. Getting all 13 to agree to the project generated conflict and negotiation because those unaffected by flooding didn't want to give up land. **Below:** From left: Barrick, Michels, Tichenor and Chamberlin discuss the targeted watershed project at the new outlet to the lake.

keep an estimated 80 pounds of phosphorus out of Serpent Lake annually.

One pound of phosphorus can produce up to 500 pounds of algae.

Phosphorus levels averaged 0.01 microgram per liter (ug/L) in 2021 and 2020. The state's threshold for the region is 0.03 ug/L. From 2013 through 2019, averages ranged from 0.013 to 0.015 ug/L. The grant sought to preserve and improve water quality to prevent Serpent Lake from becoming impaired.

"I think this is a great success story. If you look at the long-term trends, this lake was clearly declining in water clarity," said Crow Wing SWCD Manager Melissa Barrick. "Within a short period of time

“ I used to think that people didn't care about conservation because they didn't do the actions that I perceived I wanted them to do. I realized it's much more complicated than a landowner doing these (two or three things). It's really more of a people art than the hard science itself. ”

— Melissa Barrick, Crow Wing SWCD manager

after diagnosing a root cause, we were able to fix those problems.”

The SWCD's shift in focus from projects to the people who make them happen was equally significant. It gained the buy-in from partners necessary to complete the work, built community support and spawned water-quality work elsewhere

in the county — including [stormwater work in nearby Crosslake.](#)

"A lot of the water quality projects or conservation isn't necessarily about the project itself. It's more about trying to figure out how to work with the different people so that we can all win," Barrick said. "I really try to look at things as opportunities for what people

are already wanting.”

For example, after spending nearly a year trying to convince the Crosby City Council to allow a rain garden in a city park, the SWCD instead focused on resolving a longtime flooding issue. [The result](#) replaced a failing 1920s-era stormwater pipe. It filters runoff from 18 acres through a system of underground sediment traps and rain gardens. The targeted watershed grant contributed \$200,000.

"You've got to be looking at it as what's in it for the other person, not just us on the conservation side of things," Barrick said. "Once we changed gears and tried to solve a problem that they wanted to solve, it was like night and day.”



On the opposite end of the lake, Deerwood had long grappled with flooding at some of the 13 Summer Place Association cabins.

There, the largest of three targeted watershed grant-supported projects in the city installed a system that slows and treats runoff from 30 acres.

Previously, untreated stormwater flowed directly into Serpent Lake through an under-sized pipe. The grant's \$500,000 contribution was nearly as much as the city's total annual budget.

"We're just grateful as a small city — as a very small city — that we were able to be a part of a project that has had the impact that this one has had. It's nothing that we could have even begun to think about on our own," said Deerwood Mayor Michael Aulie.

When the SWCD first approached the city of 532, Aulie said the council was cautious about making a financial commitment.

"It took a little bit of time for us to grasp the vision of it. Crow Wing Soil and Water worked with us pretty well on that," Aulie said. Once it learned the grant would be the primary funding source, the city agreed to support and maintain the project.



Aulie



Above: Deerwood's economy depends heavily upon tourism. Below: An angler was obscured by smoke from distant wildfires on July 20, 2021.

“ We didn't have a budget to take on ... a project like this ourselves. The grant opportunity was extremely helpful. We'd have never been able to do it, plus we don't have the expertise on our staff to take on a project like that. ”

—Michael Aulie, Deerwood mayor

Deerwood Public Works Foreman Patrick Radtke completed much of the city's \$27,000 in-kind work. He's also responsible for some of the maintenance, and has checked the Summer Place project after storms.

"We have had quite a few heavy rainfalls after we put that one in, and it handled it great. The homeowners in that area are just overwhelmed (with) just how awesome it turned out. The people are happy. I think the lake is very happy — if the lake could talk," Radtke said.

With 9 miles of shoreline, 1,100-acre, 62-foot-deep Serpent Lake is among the Cuyuna Lakes Area's primary recreational and residential lakes. It draws swimmers, anglers, boaters and water-skiers to tourism-dependent Deerwood and Crosby. About 280 homes ring the lake. Roughly half of those lakeshore residents belong to the Serpent Lake Association.

The lake association spearheaded the Serpent Lake-focused work. While the SWCD staff implements projects, Crow Wing SWCD Board Chairman

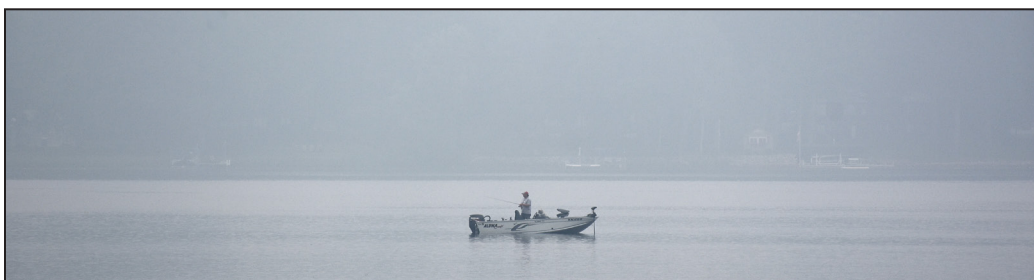
GRANT DETAILS, PROJECT PARTNERS

PROJECT SITES:

Deerwood — Grant funds contributed \$500,000 to stormwater treatment at the 13 Summer Place Association cabins; \$85,000 to infiltration basins that slow runoff at nearby Skone Park; and about \$107,000 (through a related grant) to a rain garden and check dam project on private land that reduces flooding on Cross Road. **Crosby** — \$300,000 supported a city stormwater treatment and flood reduction project. **Elsewhere** — \$90,000 supported a Cranberry Lake alum treatment that bound phosphorus; \$90,000 helped Crosby, Deerwood and Ironwood Township adopt stormwater ordinances.

MATCHES:

Monetary and in-kind contributions tied to the \$1.2 million grant awarded in 2014 totaled \$300,000 — \$133,000 cash, \$117,000 in-kind, plus \$50,000 in the value of land required for an easement to construct the Summer Place project. **Deerwood** — \$15,000 Skone Park match. The work affecting Cross Road, handled in a separate grant, was supported by \$30,000 in SWCD capacity dollars plus a \$5,000 landowner contribution. **Crosby** — \$50,000 city contribution, \$20,000 Hallett Community Trust Grant. Serpent Lake Association — \$48,000 contribution (\$12,000 a year for four years' matching funds), Summer Place site maintenance and water quality monitoring. **Combined** — Local government staff members' time and services including engineering and attorney fees.



Jim Chamberlin said it's the partnerships, citizen-driven conservation planning and open communication that make water quality improvements possible.

"Sure, the water quality benefits that we're seeing are huge," said Chamberlin, a former Crow Wing SWCD technician who grew up in Deerwood. "More important is the success if you do the right thing on the land, you can turn things around for lakes that are degraded. The story is the community effort that that takes."

Targeted work will continue as Crow Wing SWCD and its partners develop community-driven One Watershed, One Plan priorities within the Pine River watershed. Barrick said the Serpent Lake experience made it easier to develop specific plans with measurable phosphorus-reduction goals for One Watershed, One Plan.

"In the end, I think you get a better result when you have a more specified plan rather than a plan that may include many options for all kinds of landowners," Barrick said. "I think you can make better choices if you have that data to guide you on where you should work."

Countywide, the SWCD has developed water-quality goals for 21 of its 533 lakes.

"I think things need to be targeted because dollars are limited. At the same time, I think education is huge because we all need to be conservationists," Chamberlin said. That includes writing conservation into ordinances, and encouraging landowners



“ There’s not really a history of the lake being more clear than it is now. We’re riding a crest, and we want to do everything we can to keep it there. ”

—Terry Tichenor, Serpent Lake Association vice president

to maintain their septic systems and restore their shoreline buffers.

"I've seen attitudes change on Serpent Lake. Parents of friends I grew up with on the lake (are) putting in buffers and rain gardens," Chamberlin said. "I think it already has changed attitudes and actions on the lake."

Serpent Lake Association Vice President Terry Tichenor said education is among the lake



Top: A boardwalk covers the pipe that had sent untreated stormwater directly into Serpent Lake. Barrick stood in front of the outlet as she visited with Chamberlin, center, and Serpent Lake Association Board Member Jim Seletos.

Above: Momentum created by the targeted watershed work has inspired more lakeshore property owners to make improvements on their own, such as maintaining a buffer, to benefit water quality.

association's primary roles. That includes reminding lakeshore property owners that good water quality equals higher property values.

Tichenor, who moved to Serpent Lake full-time in 2014 and gets out on the water or ice three to four times a week, has noticed "well over

50%" of lakeshore property owners have installed some type of shoreline buffer to filter runoff.

"There's not really a history of the lake being more clear than it is now. We're riding a crest, and we want to do everything we can to keep it there," Tichenor said.



The Minnesota Board of Water and Soil Resources' mission is to improve and protect the state's water and soil resources by working in partnership with local organizations and private landowners. Website: www.bwsr.state.mn.us