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Trickle down water benefits

Editor's note: *This is the second of two articles focusing on water improvement projects recently completed by the Clearwater River Watershed District. Last week's article included information about a pair of filters and other measures taken to improve Cedar Lake.*

By Paul Downer
Managing Editor

Lake Betsy south of Kimball may seem somewhat remote to land-going folk in Annandale, but it serves as the front line in a battle to preserve and improve water quality for numerous lakes closer to home.

"It does affect everyone down here (around Annandale) because it's controlling the phosphorus load that flows into Louisa, Marie, Caroline, Augusta, Clearwater and Grass lakes," said Cole Loewen, administrator of the Clearwater River Watershed District.

The connection, of course, is the Clearwater River, and anyone living along the chain of lakes mentioned above is the beneficiary of a recently completed effort to improve water quality in Lake Betsy.

Four years ago the watershed district undertook its Targeted Fertilizer Application Reduction Project, which partnered with agricultural cooperatives to provide soil testing and help farmers use fertilizer most efficiently, ultimately reducing the runoff of phosphorus into Lake Betsy and, by extension, areas further downstream.

Last week's article outlined efforts to lower Cedar Lake phosphorus levels to 20 micrograms per liter. By way of comparison, the state standard is 40 micrograms per liter, and Lake Betsy has a level of 158 micrograms per liter.

"That's nothing. That lake's been around 700 and 600 back in the 1980s," said Loewen.

Projects undertaken since then have lowered the phosphorus level in Lake Betsy, which is important because excess phosphorus can cause algae blooms – and because Lake Betsy's water literally trickles down to the rest of the chain – but progress appears to have come to a standstill.

"(The phosphorus level has) been coming down. What's frustrating now is it seems like we've hit a new plateau," said Loewen. "We're hovering between 120 and 180 micrograms per liter. In the last four to five years it's just been bouncing back and forth in that range."

Efficiency, cleanliness

The targeted fertilizer project has been one of the efforts made to continue driving that phosphorus level down.

In short, the watershed district provided $186,000 in local dollars and $227,500 from a federal grant via the Minnesota Pollution Control Agency to help set up a cost sharing arrangement with the Centra Sota Cooperative in Watkins, the Cold Spring Cooperative, and the Consumers Cooperative Association of Litchfield.

The cooperatives, in turn, performed soil testing and worked with farmers to apply fertilizer at variable rates where it was most needed. Expenses were covered or defrayed by the watershed's participation.

"That's what's really unique about this. We used private enterprise to deliver a government program, which worked out great for everyone," said Loewen.

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In the end, the program was applied to more than 17,700 acres of land, or 61 percent of the agricultural area, within the project boundaries. It also helped to spark participation in those best practices outside the project boundaries.

"Basically what we found is the areas that are most likely to cause a pollution problem – right next to a ditch or tile intake – much less phosphorus in the form of fertilizer is being applied there now than there was previously," said Loewen.

According to water tests, the watershed believes that 10 to 30 percent of the required phosphorus reduction needed to reach the state standard was accomplished by the project.

"We need to reduce the load by 4,100 pounds of phosphorus annually. So this project provided anywhere from 400 to 1,200 pounds," said Loewen. "Pretty good, considering how it was delivered and what it actually is. Agriculture best management practices can be difficult to implement because you're relying on volunteerism."

Sustainable practice

While the watershed district's role in the project is now complete, the overall effort was set up to be self-sustaining.

"The idea behind it was to provide some seed money to help producers try it," said Loewen. "We know that it will provide a water quality benefit, and the cooperatives know that it should pay for the producer in terms of their economics, because they're not buying as much fertilizer. They're applying it where it's actually needed, not wasting it in areas that already have enough phosphorus in the soil."

A post-project study showed that most farmers planned to continue the targeted fertilizer application into the future.

"I don't think there was anyone who said they wouldn't continue it if the economics continued to pay out," said Loewen. "Farming is a year-by-year thing. Some years they're doing great. Some years they're underwater. They have to make their own independent decisions. This might be a tool where they decide one year they won't use it because it's not paying, but it seemed like it was paying out for them, at least while we were doing the project."

More projects planned

While two major projects have recently been completed in the Cedar Lake effort and the fertilizer initiative, Loewen said the district plans to remain active in 2017.

"This isn't it. The board continues to move forward," he said. "We still have goals and objectives that we're working toward. This is part of it, but it's not the end."

The big capital project for this year is the Watkins area storm water project, which is expected to reach 6,500 acres and reduce annual phosphorus entering Lake Betsy by nearly 800 pounds. That will get the lake 10 percent closer to the state standard goal, in addition to the 10 to 30 percent of progress made with the fertilizer effort.

Other work in the upper watershed will include alternative tile intakes, sediment control basins and the installation of buffers along private ditches, which are not included under the buffer law.

Clearwater and Pleasant

While the river is the primary driver of water quality for Clearwater Lake and upstream areas are impaired, Clearwater Lake's large area and two main basins have helped it to remain healthy in recent years.

Its most recent available phosphorus reading was 18 micrograms per liter, below the target for Cedar Lake. The deeper east basin generally has a lower phosphorus level than the west basin, through which the river flows and which has more marshes and muck.

Loewen said Clearwater Lake's phosphorus level had been between 100 and 170 in the 1980s before improvement projects lowered that level near the state standard of 40 micrograms per liter.

"Starting around 2002-03 it started being significantly below the standard and it hasn't really been close since, so the lake is doing very well," said Loewen. "Its big issue now is invasive species."

The last four phosphorus readings in Pleasant Lake have yielded numbers between 20 and 25 micrograms per liter.

"It has been, historically, a very good lake," said Loewen, adding that the last time a reading exceeded the state standard of 40 micrograms per liter was in 1997, and that water clarity there consistently and substantially exceeds standards.