

CLEAN WATER FUND TAX DOLLARS



Top to bottom, left to right: Day 1 of a streambank restoration project on the Otter Tail River in Wilkin County shows, at right, the field that was eroding into the river. A \$135,000 Clean Water Fund grant restored a 1,200-foot stretch of the bank. Heavy equipment was at work on Day 9. The aerial view on Day 13 showed woody toe benches, with exposed tree roots facing the stream channel. "We did this particular application because it was going to be a lot less expensive than the traditional rock riprap," said Don Bajumpaa, Wilkin SWCD district manager. Grasses have grown up on the buffer since the final day of construction. **Photo Credits:** Wilkin SWCD

Otter Tail River bank stabilization preserves farmland, pleases paddlers

The Otter Tail River devoured topsoil by the ton.

As it wound toward the Red River of the North and Lake Winnipeg, the Otter Tail bit into 80 acres of Wilkin County clay – good cropland, in Karlo Etten’s family for 100-plus years. The bank dropped 15 feet at its steepest point along a curve that defined the field’s edge.

“We held the same edge until the last few years,” said Etten, who’s rented the field since 1999.

He’s seen trees disappear over that edge as the bank gave way. He’s lost a strip of cropland 10 to 12 feet wide.



“The river cutting into the clay was taking thousands of tons of sediment away,” Etten said. “The landlords know that they’re never going to get \$100,000 back out of that 15 feet of river edge, but they didn’t like to see the dirt destroyed. They really wanted to take care of it; it was just out of reach without those programs.”

A \$135,000 Clean Water Fund grant the Minnesota Board of Water and Soil Resources awarded in 2016 aims to restore and protect 1,200 feet of streambank along that bend in the Otter Tail River. BWSR calculates improvements – including a graduated, grassed slope on land and strategically placed tree trunks and roots in the water – will keep 440 tons of sediment out of the river annually.

Ongoing Progress

Some changes, like slowing the water along the bend, are immediate; others, like clearing up the 20- to 30-mile stretch of Otter Tail River that’s impaired, will take more time.

Since 1997, the Wilkin SWCD has received more than \$1.9 million in grants related to the Otter Tail River.

The 1,200-foot-long streambank restoration bordering the field Karlo Etten farms was accomplished under budget. Competitive bidding brought the cost down to \$90,985, including \$68,239 in BWSR funds and a \$22,746 landowner match.

The leftover grant funds were redirected to another project with the same purpose in the watershed: a ditch retrofit that will improve water quality.

“Whatever those reductions are is material we kept on the land,” said Bruce Albright, Buffalo-Red River Watershed District administrator. “Once we send that sediment on its merry way to Lake Winnipeg, we don’t get it back. These types of projects keep it on the landscape, keep it where it’s needed.”

Estimated reductions will move the Lower Otter Tail River 6.5 percent closer to its Total Maximum Daily Load goal – the point at which it meets water quality standards.

“We had crops that were crumbling and falling into the river. The Otter Tail River is also impaired for turbidity,” said Don Bajumpaa, Wilkin Soil & Water Conservation District manager.

The SWCD partnered with the Buffalo-Red River Watershed District and the project engineer to create a floodplain and curb the water’s energy by installing woody toe debris benches in the eroded bank. Tree trunks’ exposed roots faced the stream channel.

“You could see right away when they were putting the trees in, each tree was deflecting water,” Etten said.

Sod mats containing willows and other woody vegetation were placed on top of the benches, where they will stabilize soil. Grasses planted on the reshaped, more gradual slope will meet the willows and tie the project together. A widened buffer strip on top of the bank will control erosion.

Stream bank erosion is the No. 1 cause of the Otter Tail River's impaired designation downstream of the Orwell Dam, six miles southwest of Fergus Falls. The Otter Tail joins the Bois de Sioux to become the Red River in Breckenridge.

"The Otter Tail's really a gem in terms of biodiversity because of all the lakes in the watershed. The lakes and wetlands stabilize the flows. It's the most diverse river in the Red River Basin."

– Luther Aadland, DNR river ecologist

"Even though it's impaired, it's in a much better condition than many of the other rivers in the Red River Valley basin, so it's important for us to continue to protect that, and to prevent it from degrading any further," Bajumpaa said.

"There's also a real diversity of fisheries that are in the river, and projects like this just help to add habitat and spawning areas for those game fish," Bajumpaa said.

About 75 fish species are native to the Otter Tail River, according to Luther Aadland, a Fergus Falls-based Department of Natural Resources river ecologist who worked on the concept design for the Etten project. South of the Orwell Dam, anglers might expect to catch channel catfish up to 15 pounds, along with smallmouth bass and – since the Breckenridge dam was removed – sauger, possibly muskellunge and sturgeon.

"The species that were extirpated from the entire Red River Basin because of dams, we're slowly bringing those back. People are starting to catch some lake sturgeon," Aadland said.

Most of the restoration work was finished by October 2016. Etten said he was back to farming as usual – "just a different shape to go around" to accommodate the widened buffer.

By June 2017, Bajumpaa said the buffer plantings were flourishing. One more seeding was planned along the field's edge.

This year, Etten planted the field to spring wheat. He generally keeps the 2,500 acres he farms in Foxhome, Bradford and Meadows townships in a four- or five-year rotation based on where he plants sugar beets. He also grows corn, soybeans and wheat.

Preventing soil erosion and improving water quality are the SWCD's main focus. But paddlers benefit, too, from improved water quality. This stretch runs through private land and the nearest put-in requires a bit of a paddle, but it does receive some recreational use.

The Otter Tail River is among Minnesota's state water trails.

Aadland, who owns four kayaks and one canoe, has paddled and fished that stretch of river in his free time.

"We paddle by several of the projects we've done in the past, and they're some of the best fishing in the reach. They're also more aesthetic. It creates a more naturalized environment to paddle through. It's definitely a benefit that way," Aadland said.

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