



Trout habitat helpers: Arresting upland erosion

A Goodhue SWCD project pinpointed, prioritized erosion-prone gullies where conservation fixes would improve water quality, habitat



**YouTube
video link:**
[http://bit.ly/
GoodhueSWCD](http://bit.ly/GoodhueSWCD)

GOODHUE – Mark Diercks is an occasional trout angler and full-time beef farmer whose 300-acre operation includes some of the most erosion-prone cropland in Goodhue County.

His 17-acre bluff-top field in Belvidere Township drains into a cold-water trout stream and, eventually, Lake Pepin, a widening of the Mississippi River.

Throughout the Mississippi River/Lake Pepin Watershed, the Goodhue



Mark and Judy Diercks stood at the edge of their Belvidere Township field where dams will keep sediment out of trout streams.

Lake Pepin, a 21-mile-long widening of the Mississippi River, will benefit from upland conservation practices paid for in part through a Clean Water Fund grant from the Minnesota Board of Water and Soil Resources.

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Ann Wessel,
BWSR



Mark and Judy Diercks walked along a 440-foot-long berm at the edge of their Belvidere Township field while a contractor built the dam designed to stop gully erosion. Construction didn't disrupt the Diercks' operation; Mark harvested three hay crops before work started. The field was scheduled to be planted in corn this season.

Soil & Water Conservation District is targeting dozens of sites like Diercks' with a \$545,000 project designed to improve water quality and trout habitat.



Two new dams at the edge of Diercks' field above Wells Creek will reduce by an estimated 92 percent the runoff caused by heavy rains. They're among 25 built to date. Four more are planned for 2018. All involve willing landowners.

"I didn't have to do it, but it's a good thing to do," said Diercks, 59, who also chairs the Wells Creek Watershed Partnership.

By keeping about 80 percent of his land in hay, Diercks is already reducing soil erosion.

The earthen dams will eliminate a gully – and the sediment-carrying, streambank-damaging torrents it delivered.

"Instead of the water gushing down the gully in a rain event, water is stored behind the dam and metered out in a small pipe over 12 hours," said



Beau Kennedy of the Goodhue Soil & Water Conservation District estimated work on the Diercks property would reduce peak-flow discharge by about 92 percent.

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– Beau Kennedy, Goodhue SWCD

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Jesse Hadler of Hadlers Dozin of Lake City scraped away the topsoil to expose the clay that would build the berms of a dam being constructed on Mark and Judy Diercks' Belvidere Township field.

Goodhue SWCD water planner Beau Kennedy.

On a warm fall morning, a backhoe operator shaped a 440-foot-long, 17.5-foot-tall berm out of clay. A white PVC pipe marked the outlet. A Wells Creek tributary flowed out of sight, beyond the steep, tree-covered slope. Mark and Judy Diercks walked along a packed-earth ridge as they discussed the project with Kennedy.

"Pretty much just to slow

down the flow of the water downstream and into the valley and to keep our soil where we want it up here on the field,” Mark Diercks said, describing the intended outcome. “Slow release is what we’re after here.”

Protecting and restoring water quality is what Goodhue SWCD is after throughout the Mississippi River/Lake Pepin Watershed. These projects build upon past practices implemented in the county and watershed. The watershed’s 205,750 acres span Goodhue and Wabasha counties, including Wells Creek and Hay Creek south of Red Wing. Many of the trout streams here flow directly into the Mississippi River.

“I look at those projects as more of an immediate threat, solving an immediate issue. We know that there’s soil loss coming from that gully going directly downstream into that trout stream. We’re solving that issue right there,” Kennedy said. “Wider-scale adoption of cover crops or tillage practices – that’s going to do (more) for the watershed than these little dams, but this is an immediate concern that we’re solving.”

When Goodhue SWCD staff helped the Minnesota Pollution Control Agency write a Watershed Restoration and Protection Strategies report in 2014, they discovered upland dams were absent in many of the subwatersheds. SWCD staff set priorities using that information along with water-quality data and GIS assessments.

Grants cover up to 90 percent of individual projects’ costs. They include \$318,000 in Clean Water Funds from the Minnesota Board of Water



Trout Streams’ Status

The Lake Pepin/Mississippi River Watershed includes 22-mile-long Wells Creek, 15-mile-long Hay Creek (pictured above), their tributaries and streams that flow directly into the Mississippi. The Minnesota Department of Natural Resources monitors trout streams.

WELLS CREEK: “Over 20 years, Wells Creek has done phenomenally well,” said Randy Binder, Lake City-based DNR fisheries specialist. Trout numbers rose as habitat improved. Since 2010, the adult brown trout count has averaged 600 per mile at one testing station. In October 2017, the count was 720 per mile. Wells Creek is the warmer of the two streams.

HAY CREEK: Cold and clear enough at the headwaters to support reintroduction of the more temperature-sensitive brook trout, Hay Creek hasn’t been stocked for 30 years. Fish reproduce naturally. A testing site in the lower, warmer reaches of the stream produced nearly 2,000 brown trout per mile in October 2017. The 10-year average is 660 per mile.

and Soil Resources, and a \$147,000 Environmental Protection Agency grant.

The Diercks project cost about \$12,500.

“Without the funding, I would’ve never been able to get it done because it is pretty expensive to go it

alone,” Diercks said.

By arresting runoff at the source, upland dams help trout streams in a few ways.

The dams retain sediment, which can exacerbate streambank erosion, smother the riffles where trout spawn and feed on aquatic insects,

and fill the deep pools where trout evade predators.

“Those small impoundments would slow a lot of that runoff down,” said Randy Binder, Lake City-based fisheries specialist with the Minnesota Department of Natural Resources. “That quick runoff is definitely an issue. It changes stream hydrology. They’re much more flashy. ... They’re not stable systems anymore.”

Binder said trout stream habitat improved as a result of dams built in the ‘50s and ‘60s. But as dairy farms disappeared from the landscape, row crops replaced water-retaining hay fields. Trout streams became more susceptible to flooding.

“If we can reduce that peak flow, we think some of our in-stream habitat will either fix itself or maybe open the door for us to come in and design a small stream project to improve habitat,” Kennedy said.

Work that benefits trout streams ultimately benefits Lake Pepin, impaired for aquatic recreation because of excess nutrients, which feed algae growth.

“It’s kind of a showcase of what other watersheds could do – and that we should be doing here – to help address that sediment issue in Lake Pepin. We’re at the doorstep of Lake Pepin. We should take care of it if we expect the rest of the state to take care of it,” Kennedy said.

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