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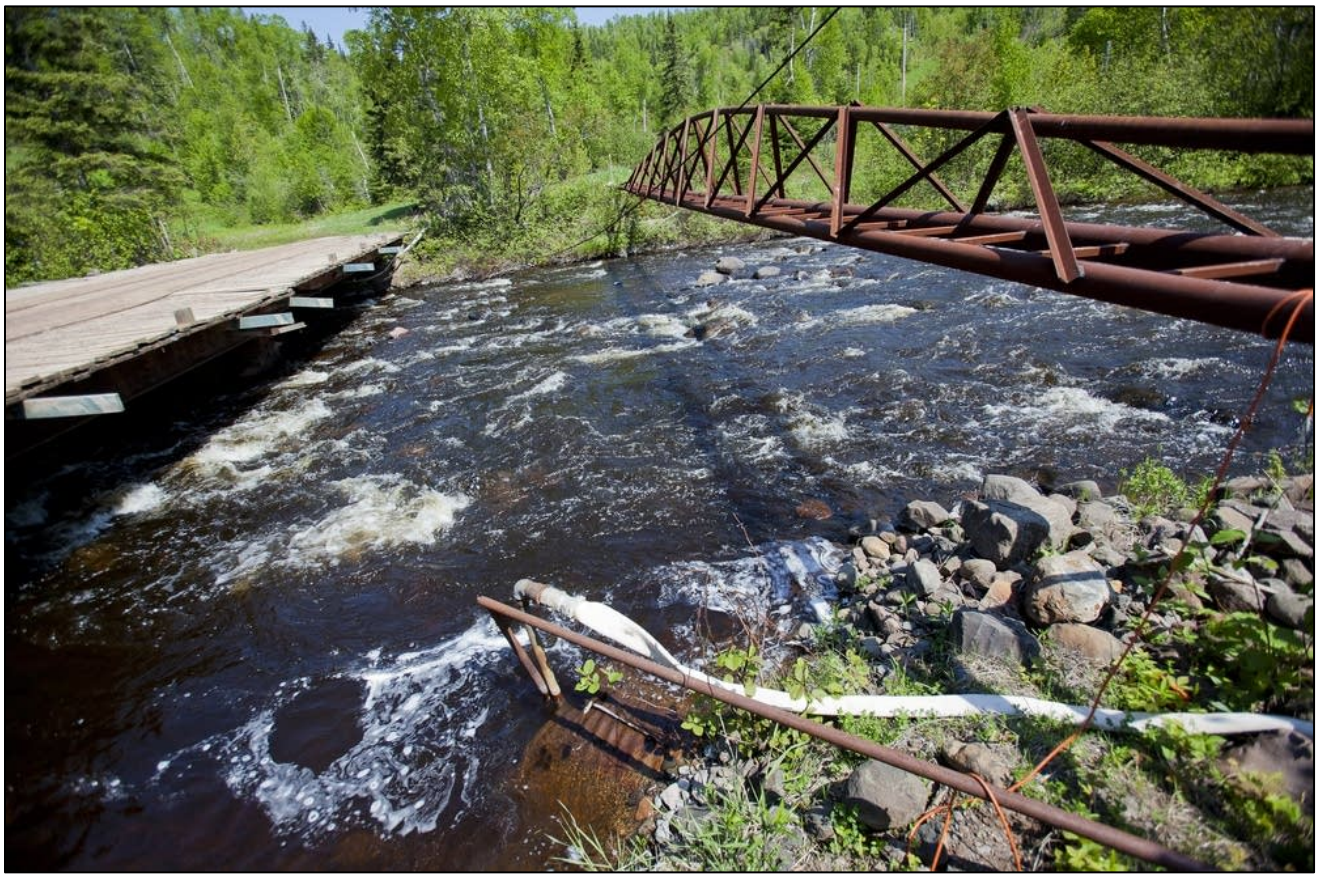
Cleaning up polluted water is tough, but possible. Here's how

Cody Nelson · St. Paul · Apr 23, 2018 Environment



The Poplar River runs past a pumping station and through the Lutsen Mountain Ski Resort. *Derek Montgomery | MPR News file*

Start on the Canadian border at Lake of the Woods and drive some 425 miles south across the length of Minnesota to Okamanpeedan Lake on the Iowa border.

Both those lakes fail to meet at least one water-quality standard. So do thousands of the lakes and streams in between — about 40 percent of Minnesota's water bodies don't meet pollution standards. That's according to the state Pollution Control Agency, which sent its most recent draft impaired waters list to federal officials this month.

Once a body of water gets dirty, it's difficult to clean up. Removing pollutants from a body of water is costly, time-consuming and rare.

But it's not impossible.

First Fulda Lake has been part of a decades-long cleanup effort. *Courtesy of Jan Voit*

To see the kind of work it takes, MPR News looked at two cases in which action by the local community cleaned up a body of water. One is a river running through the woods of northeast Minnesota; the other, a farm country lake in the southwest.

These success stories illustrate how water cleanup isn't a hopeless task, but one that requires grueling work.

First Fulda Lake: Two decades of persistence pay off

Southern Minnesota lakes aren't known for their pristine water quality at this point in time. More often, it's pea-soup water full of bullheads and excess nutrients including phosphorus from farm runoff. But the case of First Fulda Lake shows that murky lakes can be saved — it just might take a long time.

The ongoing restoration efforts at Fulda date back to July 16, 1996, when the city of Fulda had its first meeting with the Heron Lake Watershed District on how to clean up the lake.

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"It was super dirty," said Jan Voit, the watershed district administrator. "They quit using it for swimming and recreation."

Over 20 years later, the lake is getting back to how it used to be.

Problems: First Fulda Lake, 122 acres in size, is a shallow body of water, 7 feet at its deepest point.

As a prairie lake, it faced pollution from agricultural runoff. It's also near a town, from which it received stormwater runoff. Then there's the invasive carp that would root up vegetation on the lake bottom and churn up sediment, making the water even more turbid.

Fixes: Step one was looking for grants to pay for fixing up the lake. Then the watershed district began working with farmers on a drainage-improvement project to ensure they had buffers on open ditches, and swapping in rock inlets for open-tile intakes.

Other grant money was used to pay farmers to do conservation tillage.

In the city, there were lakeshore restorations and educational efforts.

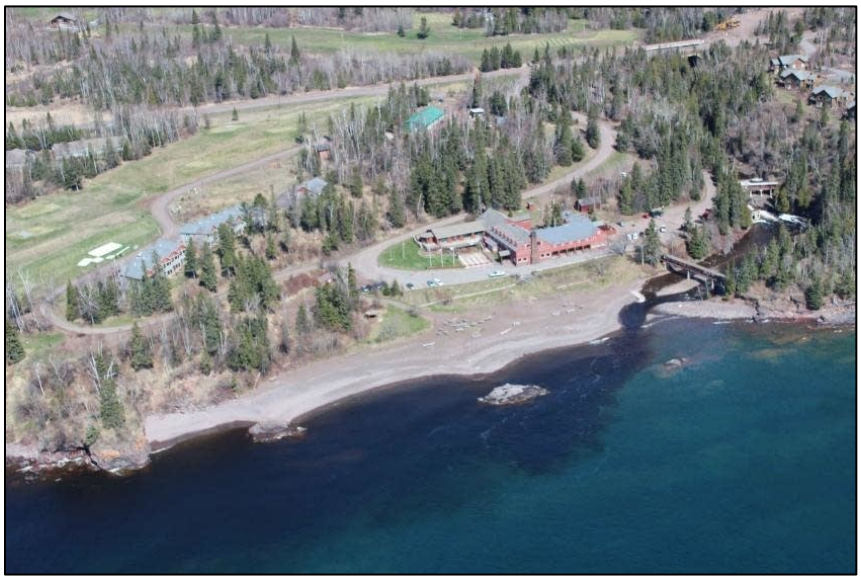
To tackle the carp, the Department of Natural Resources drained as much of the lake as it could and then used a chemical called rotenone to poison treatment to kill the invasive fish. An electric barrier was installed as well.

Impact: The state says the lake now has low enough nutrient levels for recreation — 22 years after initial clean-up work began.

Voit said it's unheard of for a dirty southern Minnesota lake to make progress like that.

"The only way to make a change on the landscape is to make behavioral changes for the people who live here," Voit said. "You can make a difference. It takes a long time ... but it is possible."

Poplar River: Quick, strong action salvage a prized waterway



The mouth of the Poplar River where it dumps into Lake Superior at Lutsen Resort. *Minnesota Pollution Control Agency*

Streams like the Poplar River in northeast Minnesota are generally long and winding as they cross flat land before a sharp drop into down the escarpment toward Lake Superior through clay, and silty soil.

So, it's common for the rivers to take a brown color every so often, like after a rainstorm.

But when the lower Poplar River was deemed impaired in 2004, "it was a surprise to everybody," said Tom Rider, who co-owns the Lutsen Mountains ski area through which the Poplar flows.

The community acted quickly to restore the waterway, which is the MPCA says is again clear enough to meet the standard to support aquatic life.

Problems: For decades, there was an ad hoc approach to land management around Lutsen, said Phil Larson, a technician at the Cook County Soil and Water Conservation District.

"You just kinda did whatever you wanted. If you needed a road, you bulldozed a road across the side of the hill," he said. "A lot of that stuff is kind of legacy destruction that happened, and we're still cleaning up from it."

• Full coverage: Water and the environment

Even 10 years ago, he said, if staff at the ski hill needed a ditch, they'd dig a ditch and put in a culvert to drain it, which isn't very effective.

Erosion took its toll over the years, dirtying the Poplar. Watershed studies estimate a third of the erosion to be human-induced, with the rest coming from natural causes.

Fixes: It turned out that humans could aid the river by addressing both the human-caused and natural erosion. Step one was moving the Poplar away from the "megaslump" — an area where the river butts against a high dirt bank, which is considered the largest contributor of sediment — and installing a tree and rock buffers to keep dirt out.

Lutsen changed how it built ski runs, too. Now, workers preserve the existing topsoil as much as possible when constructing new runs to retain its permeability, Rider said. Lutsen also uses waterbars on ski runs, which divert water runoff into wooded areas or into a stormwater reservoir rather than running down into the river.

Impact: Largely, it's an attitude change. Larson summed up important lesson to learn when it comes to development around water: "Humans can't *not* make an impact."

Lutsen staff have received training from the MPCA, Rider said. "Our sense of awareness of these issues have improved dramatically."

The federal Environmental Protection Agency will make the final call whether Fulda and the Poplar officially come off the impaired waters list. Regardless, the health of both water bodies is improving.

The common theme for both successful restoration efforts is a great deal of patience and resolve among the people involved.

Voit said the Fulda cleanup has been one of the more rewarding things she's seen in her career.

"It's a testament to the people in the town," she said.