

2 decades of work leads to gains in battle against phosphorus in Sauk River Chain of Lakes

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The more than 700 water quality projects completed in the Sauk River Watershed District over almost 20 years hit all the buzzwords in nutrient reduction efforts: buffer strips, wetland restoration, stormwater runoff, rain gardens, erosion control, feedlot runoff abatement and more. Is it working for the Sauk River Chain of Lakes? Cast your eyes upstream. Collectively, work by local, state and federal partners over the past 25 years has reduced phosphorus going into the Sauk River Chain of Lakes by 68%. Too much phosphorus in a lake can lead to algae blooms and decreased levels of dissolved oxygen, which aquatic animals and insects need.



The Sauk River Chain of Lakes is what the name implies: interconnected lakes that begin at a Sauk River inlet in Richmond and have a dam outlet to the Sauk River's downstream reaches near Cold Spring. In terms of phosphorus management, the Minnesota Pollution Control Agency has grouped 14 lakes and tributaries that make up the Sauk River chain and includes four lakes that connect from the south via Eden Valley Creek. It's a complicated system, according to both MPCA Environmental Specialist Scott Lucas and Sarah Boser, Sauk River Watershed District's water resource manager. Most of the lakes function similar to a reservoir system — as lakes with a lot of flow-through, where water doesn't stick around long before it's on to the next. "Lakes are emptying out really quickly into another lake — into another lake," Lucas said. The lakes and rivers are closely intertwined, and some are flowage lakes (in the river's path, directly in its flow) while others are not. "It's not straight river, and it's not straight lakes," Boser said. That's one reason the MPCA established site-specific standards for the Chain of Lakes rather than enforcing regional standards. "In this particular system, because of the complexity of it, because of the type of land use, because of the way the lakes are moving in and out to each other and the fact that it's kind of a river, it's kind of almost a riverine system, and it's a reservoir, there's just not a realistic chance of meeting those standards," Lucas said.

How did these improvements happen?

Not overnight, and not alone. The Sauk River Chain of Lakes has a large, mostly agricultural watershed. And those 703 watershed projects completed between 1995 and 2013 aren't all contributors to the Chain of Lakes' water quality improvement, Boser said. But work done upstream is the primary reason for improvements in phosphorus load in the chain of lakes.

"We've done the low-hanging fruit," said Dennis Fuchs, Stearns County Soil and Water Conservation District Administrator. "All those conservation practices are helping." He's talking specifically about best management practices, which are designed to mimic natural circumstances. The Stearns SWCD has been involved in helping implement and manage cover crops. It's also done work with lakeshore landowners to naturalize and stabilize shorelines. Both projects are intended to keep sediment, which can carry nutrients with it, out of the water. The SWCD looked at almost 150 earthen manure storage basins to determine whether they were adequately separated from groundwater or properly lined. If not, those basins were earmarked for repaired or abandoned.

Boser said no one single project jumped to mind when she thought about how improvements were made to the lake system. There's been a lot of work done by a lot of different partners: the Sauk River Watershed District and the Stearns County Soil and Water and Conservation District, but also SWCDs in Todd and Douglas counties, the cities of Osakis, Sauk Centre, Richmond and Cold Spring, Stearns County Environmental Services and individual landowners. Boser said the Sauk River Chain of Lakes Association has worked with the Watershed District as well, monitoring water quality on the lakes and instituting shoreline restorations. "They all kind of build together to create that reduction," Boser said. "There's never one silver bullet," Lucas said. "Every circumstance requires a special touch. Every circumstance requires a special type of project or different degrees of varying projects. ... It's always gonna be a multi-tiered, multi-level solution to the problem." Fuchs has been with the Stearns County Soil and Water Conservation District for 25 years, and in that time, he's learned how important it is to build trust with landowners and farmers. The SWCD doesn't have regulatory authority, but is there to provide technical and potentially financial assistance to landowners. "Building that trust with the landowner is extremely important," Fuchs said. And cooperating just got a little easier, according to Boser. Local entities that typically would have to create their own water plans (counties, the Watershed District, SWCDs) have recently gone through the planning process for One Watershed, One Plan, a Minnesota Board of Water and Soil Resources initiative that puts all those separate heads together and has them work on as a team.

What about the work left to do?

Though improvement has been made, the Sauk River Chain of Lakes needs further reductions in its phosphorous levels to reach its standards. And despite the gains made, the remaining work is challenging, Lucas said.

"Numbers don't always tell the whole story," he said. Lucas said the phosphorous levels may look closer to the goal, but because many practices that can be used to lower that phosphorous level have already been instituted in the watershed, it can be harder to close the remaining gap. "It looks closer," Lucas said. "Is it easier to get there? No, not necessarily."

There's also the matter of additional challenges, like the increased rainfall and rainfall intensity Minnesota is starting to have, Fuchs said. What used to hold nutrient-rich soil in place 30 years ago, preventing it from being washed into streams and rivers, might not cut it in a 2021 downpour. "That just means we need to do a better job of protecting and armoring our soil," Fuchs said.

It takes a "considerable effort" to get an impaired water body delisted, Fuchs said. Still, there are always other best management practices out there: Green roofs. Using pervious surfaces (surfaces water can run through) on patios and driveways. Planting more trees. Putting native vegetation on the shoreline. Even going back to previously planted buffers and upping their effectiveness with a different species of perennial vegetation. "There's just no limits to what types of practices you can install," Lucas said.

Fuchs said the SWCD is working on several projects and programs, including more edge-of-field practices in frequently flooded fields and potential wetland restoration. They're also continuing their work with the Minnesota Agricultural Water Quality Certification Program, which helps farmers and agricultural landowners choose what best management practices to install for water quality improvements, as well as a new Stearns County pilot project working to eliminate barriers to implementing conservation practices. The Watershed District has a few streambank restoration areas planned, Boser said, is working on storm water management projects with some area cities.