Improving trends in the Elk River watershed

Clean Water Fund grants from BWSR and EQIP assistance from NRCS allowed SWCD staff to work with landowners on conservation projects that benefit farms, water quality in Benton and Sherburne counties

CLEAN WATER LAND & LEGACY AMENDMENT

Video: https://youtu.be/FqdLi-yuVSfk

MAYHEW LAKE TOWNSHIP — Brandon Rehnke started his beef operation with three Jersey calves and earnings from three off-the-farm jobs.

Five years later, he's improving his Benton County feedlot and pasture with assistance from the USDA's Natural Resources Conservation Service.

Clean Water Funds from the Minnesota Board of Water and Soil Resources allowed Benton Soil & Water Conservation District staff to design, install and certify the project.

It's part of a two-county, $1.9 million effort to improve water quality in the Elk River watershed by reducing how much phosphorous enters Mayhew Lake in Benton County and Big Elk Lake in Sherburne County. Phosphorous feeds the algae that turns lakes green.

Brandon Rehnke is building up a herd of beef cattle. With assistance from NRCS, he's working with Benton SWCD staff to make feedlot improvements, including a manure storage structure, that will benefit water quality in the Elk River watershed.
Photo Credits: Ann Wessel, BWSR

Landowner Brandon Rehnke, right, talks with Benton SWCD watershed technician Kelly Molitor, left, and Benton County Commissioner Ed Popp in June 2019 about the conservation practices he's implemented with assistance from the USDA's Natural Resources Conservation Service. Popp also serves on the Elk River Watershed Association Board. Molitor has since taken a job with the Stearns County SWCD.

Landowners working with Benton SWCD staff have installed 36 best management practices since 2016, drawing from two Clean Water Fund grants totaling $500,000.

NRCS Environmental Quality Incentives Program (EQIP) dollars allowed staff to leverage those grant funds. Landowner contributions — generally 25 percent of project costs — and Minnesota Department of Agriculture dollars rounded out the balance.

Water quality monitoring results are starting to show improving trends.

Projects tied to the most recent grants built upon work of the Elk River Watershed Association, a joint powers board that formed 25 years ago. About 275 projects have been installed throughout the watershed since 1994.

Kelly Molitor spent two years completing environmental assessments and outreach in Benton and Sherburne counties for the Elk River Watershed Association. The position was funded by part of a third, $182,500 Clean Water Fund grant from BWSR. Molitor now works for the Stearns County SWCD.

An unnamed Elk River tributary downhill from the former dairy barn will be buffered from the feedlot.

The 613-square-mile Elk River watershed spans Benton and Sherburne counties. It includes a bacteria-impaired stretch of the Elk River, and nutrient-impaired Big Elk Lake and Lake Orono. Clean Water Fund projects benefitting Mayhew and Big Elk lakes also benefit downstream waters — including a stretch of turbidity impaired river south of Big Elk Lake.

"We haven't reached clean-water goals in some of these water bodies, but we're getting closer," said Dan Cibulka, Sherburne SWCD water resource specialist. "I think there's a lot of great work being done with the agricultural community. There's a lot of great work being done with our urban

BWSR

The Minnesota Board of Water and Soil Resources' mission: Improve and protect Minnesota's water and soil resources, partnering with local organizations and private landowners.
www.bwsr.state.mn.us

and suburban (community). ... When we're talking about water quality, what we're really talking about is land management and how that affects water quality."

Elk River monitoring data hinted at a decreasing trend in bacteria levels, based on the percent of samples exceeding state standards. May-through-September annual averages date from 2012 through 2018.

Minnesota Pollution Control Agency staff received preliminary 2019 data on Nov. 1. Those results will be finalized sometime in 2020 after MPCA and SWCD staff meet to discuss results.

Data showed trends of improving phosphorous and chlorophyll-a levels from 2006 through 2018 in Elk Lake and from 2009 through 2018 in Lake Orono. Lake Orono's chlorophyll-a levels have met the state standard each year since 2014. The rest did not meet state standards. Chlorophyll-a indicates the presence of algae.

Both lakes showed improving water clarity trends. From 2010 through 2018, Lake Orono has met the state shallow-lake standard of 1 meter clarity.

Top: *Sherburne SWCD technician Franny Gerde, left, and water resources specialist Dan Cibulka record data June 25 from a probe in Rice Creek within the Elk River watershed.* **Left:** *Eli Labrecque fishes with his grandfather Jerry Lange of Clear Lake on June 25 at Rush Lake in Sherburne County.*

"The data that we have are showing that we're moving the needle in the right direction," Cibulka said. "Hopefully we can continue to identify areas that are in need of conservation work, and then work with landowners to put those conservation practices in the ground."

Benton County-based NRCS District Conservationist Pat Gehling said Benton County traditionally has been among the state's top livestock producers, and poultry barns boosted that number. In Sherburne County, land use is a bigger mix of agriculture, lakeshore homes, hobby farms and suburban developments.

"Animal production is pretty prevalent within the Elk River watershed. Livestock numbers on a per-square-mile basis are generally higher than other parts of the state," Gehling said. "Dairy is transitioning out a little bit, but a lot of beef has come in in its place."

Rehnke converted the dairy barn on his 13-acre home site into a calf barn with room for about 80 Holstein feeder calves. Using the existing setup for beef cattle would

Details

WATERSHED: The 613-square-mile Elk River watershed spans Benton and Sherburne counties, and includes bits of Morrison and Mille Lacs counties. The Briggs Lake Chain — Big Elk, Julia, Rush and Briggs lakes — lies within the watershed. The Elk River joins the Mississippi River in the city of Elk River.

ELK RIVER WATERSHED ASSOCIATION: The joint powers board is composed of both counties and their SWCDs. Its primary focus has been reducing non-point pollution sources.

FUNDS: $500,000 in 2016 and 2017 Clean Water Fund grants. As of mid-December: $1,492,904 in USDA Natural Resources Conservation Service assistance, $337,792 in landowner match, $29,560 in non-matching Minnesota Department of Agriculture funds (including $4,560 from the Minnesota Agricultural Water Quality Certification Program).

PROJECTS: As of mid-December, 36 projects had been completed through two Clean Water Fund grants targeting phosphorous reduction in Mayhew and Big Elk lakes. They included 14 erosion control projects, 14 cover crops, four feedlot projects, two test plots, one wetland restoration and one stream crossing.

ANNUAL REDUCTION ESTIMATES: About 1,165 tons of total suspended solids, 2,015 tons of soil loss prevented, 1,446 pounds of phosphorous and 3,633 pounds of nitrogen

Left: *Solids settle and water evaporates from a basin. The remaining water travels through tile to a vegetated treatment area, where solids settle out as the water flows across a series of alternating gravel and grass strips on its way to a grassed waterway.* **Middle:** *A covered-roof stacking slab provides six months of manure storage. The 50-by-80-foot building has 4-foot-tall concrete walls and an attached, uncovered area.* **Right:** *Fencing will allow rotational grazing paddocks within the 10-acre pasture in Mayhew Lake Township.*

have been convenient. The barn opens onto a pasture with a creek at the bottom of the hill. But it didn't meet MPCA setback requirements. And it posed a few challenges.

"Everything I was doing was operating on a hill. (Now) I'm on flat, level ground. The feed's closer and it's easier to feed," Rehnke said.

Driving across the rough pasture was tough on the skid loader. Navigating the hill could be challenging — especially in the winter.

"You're sitting on a hill that's icy and the cows all see the feed so they're charging the gate," Rehnke said.

Now, cow-calf pairs occupy a hard-surface feedlot designed to contain and filter runoff. The $240,000 in improvements also included a concrete scraping lane leading to a 50-by-80-foot roofed stacking slab with 4-foot-tall walls and six months' storage space. Runoff enters a sediment control basin. Some evaporates. The rest filters through a series of grassed and gravel strips before entering a grassed waterway.

"It allows for some expansion. It keeps me in compliance for years to come. I can grow. It helps significantly with growth," Rehnke said.

Gehling

His status as a beginning farmer qualified Rehnke, 30, for a slightly higher rate of EQIP assistance.

"It's a challenging time. I think (for) a lot of our beginning farmers it's probably not their primary income. A lot of times that's how they do get started. It's a secondary job, or they have a secondary job," Gehling said. "Farming is not an easy business to get into."

Rehnke didn't grow up on a farm, but he grew up working on neighbors' farms.

He still works full-time for the Minnesota Department of Transportation, and operates St. Cloud Spray Foam and Central Minnesota Ag Services, a mobile repair business.

As he builds his herd this winter, Rehnke is seeking rental pasture land. By early December, he'd lined up two

Popp

sites totaling 70 acres.

On his own 10-acre pasture, the new seeding flourished this summer. But a wet fall delayed work. Next spring, Rehnke said he planned to finish the fencing that will allow rotational grazing and keep the cattle out of the unnamed Elk River tributary.

Clean Water Funds and NRCS assistance have allowed producers to cut some of the risk associated with trying practices such as rotational grazing or cover crops.

Benton County Commissioner Ed Popp serves on the Elk River Watershed Association Board and farms near Rice. He recalled how farmers' thinking has changed over the decades.

"We were in the go-go '70s and '80s where you plowed up everything, and irrigation came in, and you wanted every inch of cropland you could get. Fertilizer was cheap, and commodity prices were relatively where they've been for the last four years. So it was just do all of the acres you could do and put on all of the nitrogen you want," Popp said.

That's no longer the case. Input costs increased. Commodity prices remained low.

"The cost-sharing at 75 percent is a big thing, because otherwise landowners just can't afford to move forward," Molitor said.

Gehling elaborated on how the NRCS and SWCD partnership has helped farmers.

"EQIP tends to be fairly stable funding, and we can typically get financial assistance. But quite often the amount of cost-share is fairly low," Gehling said. NRCS might fund 40 percent of an erosion control project, for example.

"It's been a great opportunity for the Elk River Watershed to come in with some supplemental funds to piggyback with our EQIP funds so that it makes the projects affordable for the farmers," Gehling said. "That's been the key in getting a lot of things done."