

Elk River watershed trends improving



Clean Water Funds from BWSR plus NRCS assistance allowed SWCD staff, landowners to pursue conservation work that benefits water quality in Benton, Sherburne counties



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 (NRCS).

Clean Water Funds from the Minnesota Board of Water and Soil Resources (BWSR) allowed Benton Soil & Water Conservation District (SWCD) 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.

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 grant funds. Landowner contributions — generally 25 percent of project costs — and Minnesota Department of

Clockwise from left: Brandon Rehnke, right, talks to Benton SWCD watershed technician Kelly Molitor and Benton County Commissioner Ed Popp in June 2019 about the conservation practices he’s implemented. Rush Lake in Sherburne County is among the water bodies that benefit. Rehnke now feeds cattle on level ground. Fencing will keep cattle out of the creek, and a rock crossing will be installed.

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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 and operated through December 2019. About 275 projects have been installed throughout the watershed since 1994.

For two years, Kelly Molitor completed 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.

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 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 (MPCA) staff received preliminary 2019 data in November. Those results will be finalized after MPCA and SWCD staff meet to discuss results.

Data showed trends of improving phosphorous and chlorophyll-a levels



Gehling



Popp

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.

“The data that we have are showing that we’re moving the needle in the right direction,” Cibulka said.

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.

“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. Using the existing setup for beef cattle would 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.

Cow-calf pairs occupy a hard-surface feedlot designed to contain and filter runoff. The \$240,000 in improvements include 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, and then 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.



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. **Center:** 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.



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,” Gehling said.

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.

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

“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.”



Top: Sherburne SWCD technician Franny Gerde, left, and water resources specialist Dan Cibulka record data from a probe in Rice Creek within the Elk River watershed on June 25 a few miles outside Clear Lake. **Center:** Gerde prepares to leave for the next sampling site. **Bottom:** Cibulka finishes taking samples at a site on the Elk River. “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 and suburban (community),” he said.

Watershed 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.

FUNDS: \$500,000 in 2016 and 2017 Clean Water Fund grants. The Benton SWCD received a \$350,000 Clean Water Fund award in 2020 to continue targeting phosphorous reduction in Mayhew and Big Elk lakes. As of mid-December 2019: \$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 a \$25,000 Livestock Investment Grant and \$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