

Boyer Lake: A sparkling success story

September Snapshots 2017

Lakes are the lifeblood of Becker County, and when a lake becomes impaired it can have significant impacts on the local economy. A study conducted within the Pelican River Watershed area in Becker County found that a mere 1-foot decline in water clarity translated to an approximate \$11,500 average loss of value per parcel of lakeshore property.



Boyer Lake

The associated decline in property value is caused not only by a loss of aesthetic appeal, but also because as water quality gets worse, conditions also degrade for wildlife and fish habitat, impacting tourism interest as well. To handle growing concerns from landowners, the Becker SWCD has hired two Shoreland staff and a seasonal technician. The increased staffing helps the district keep up with the increasing workload and interest in lakeshore projects.

To address concerns in area lakes, the Becker SWCD has applied for, and received grants to address water quality.

These grants have primarily focused on watersheds, but also target lake improvements as part of the overall strategy for restoration work in both the Buffalo Red River Watershed and the smaller Hay Creek subwatershed.

The declining water quality of Boyer Lake, located in the Buffalo Red River watershed, near Lake Park, Minnesota made it one of the lakes targeted for restoration work. In 2008 the secchi disk reading in July was a paltry 2.9 feet, chlorophyll levels (which translate chiefly to green algae growth) were high, and associated phosphorus levels were elevated as well. The lake was added to Minnesota's list of impaired waters in 2012 by the Minnesota Pollution Control Agency due to high phosphorus levels. The associated Total Maximum Daily Load plan for the lake indicates that a 40% overall reduction in total phosphorus is needed before the lake will meet state standards.



Sediment control basins.

The SWCD began targeting the lake, and its associated 2,084 acre watershed in 2013, with the installation of numerous practices. The work included installing 23 water and sediment control basins, which treat 317 acres of agricultural land. A grade control structure treating 110 acres as installed, along with 7 filter strips treating another 76 acres.

In addition, 640 acres of ag land was converted to a no-till system with cover crops, three wetland have been restored, 209 acres were converted from row crops to perennial alfalfa, and over 30 CRP contracts covering 276 acres were planted with native perennial grasses.

This translates to 1,628 acres or *78% percent of the watershed treated by voluntary conservation practices* that were implemented by 8 landowners through contracts and cost-share with the Becker SWCD. These combined practices reduce the nutrients that enter surface waters in runoff due both to large rainfall events and spring snow melt within the Boyer Lake watershed area.

The next step in the process is to conduct water quality monitoring on Boyer Lake area to begin establishing water quality trends. The data collected in July of this year by the SWCD indicates some fairly substantial changes that illustrate the cumulative impacts of selecting the right treatment practices throughout a given watershed area.

In July water quality sampling in 2017 showed a secchi disk reading of 16 feet. An increase in water clarity of *450% over the 9 year span between sample events*. Additionally, chlorophyll-a measured 54 ug/L in 2008 and was less than 1ug/L and a 55% decrease in total phosphorus was seen over the same span. Though these are just singular datasets, it does illustrate that the overall changes are likely still fairly significant.

Becker SWCD hopes to replicate the success of this effort through the completion and acquisition of more clean water fund grants, successful partnerships with other entities with similar goals such as the Buffalo Red River Watershed District, and exceptional rapport with local landowners who are strongly invested in improving surface water quality in Becker County. Boyer Lake is truly a clean water success all around.