



# NONPOINT SOURCE SUCCESS STORY

## North Dakota

### Recreational Use Attained Through Best Management Practice Implementation and Targeted Technical Assistance

#### Waterbody Improved

Runoff from agricultural lands and septic systems led to high bacteria levels in North Dakota's Wild Rice River. As a result, North Dakota added the Wild Rice River to its 1998 Clean Water Act (CWA) section 303(d) list of impaired waters for having its recreation designated use threatened due to fecal coliform bacteria. Best management practices were installed to improve livestock manure management and restore failed septic systems in the watershed. Subsequent samples showed reduced bacteria levels in the listed segment of the Wild Rice River and the segment was taken off the CWA section 303(d) list in 2014.

#### Problem

The Wild Rice River drains 1.43 million acres in Dickey, Sargent, Ransom, Richland, and Cass counties in southeastern North Dakota, and Marshall and Roberts counties in northeastern South Dakota. It is a sub-watershed of the larger Upper Red River Watershed (hydrologic unit code [HUC] 09020105). The listed segment of concern is a 38.6-mile portion of the Wild Rice River from its confluence with the Colfax watershed, downstream to its confluence with the Red River (segment ND-09020105-001-S\_00).

Watershed assessments by the Richland County Soil Conservation District (SCD) and Cass County SCD determined that pasture and rangeland, degraded riparian areas, livestock concentration areas and hobby farms in close proximity to the river could be negatively affecting water quality in the Wild Rice River. The watershed coordinator also cited improperly functioning individual septic systems as a major contributor to water quality problems.

At the time, North Dakota's water quality standards for fecal coliform bacteria required geometric means during any consecutive 30-day period in the swimming season (May 1 to September 30) to be less than 200 colony-forming units per 100 milliliters of water (cfu/100 mL), with no more than 10 percent of those monthly samples higher than 400 cfu/100mL. A sample collected by North Dakota in June 1993 at the STORET 380031 sampling station had a fecal coliform bacteria count of

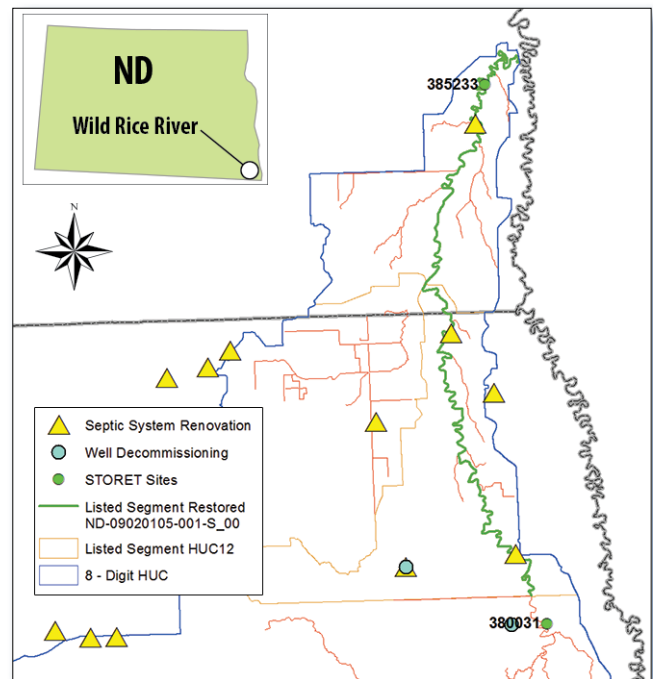


Figure 1. North Dakota's Wild Rice River is in southeastern North Dakota. Partners installed numerous best management practices, including agricultural projects that are not indicated on map.

700 cfu/100mL. Therefore, in 1998 the Wild Rice River was listed as having its recreational designated use threatened due to fecal coliform bacteria. Subsequent sampling during the watershed assessment (2002–2005) supported that listing (Figure 2).

## Project Highlights

In 2006 the Richland County SCD developed a watershed project implementation plan to restore the recreational uses of the Wild Rice River. As a secondary goal, the project would also protect and enhance the aquatic life use of Antelope Creek and the Wild Rice River. As a part of this plan, through partnerships with local landowners and homeowners, seven septic system renovations and one well decommissioning have been completed within the 12-digit HUCs associated with the listed segment. Restoration practices completed from 2007 to present within the entire Wild Rice River watershed included 136 septic systems renovated, 31 wells decommissioned, 868 acres of cover crop planted, 12,690 feet of perimeter fencing installed, one watering facilitated constructed and one partial livestock waste management system installed.

## Results

In 2009 North Dakota's bacteria standard changed to *Escherichia coli*. The new standard requires that geometric means during any consecutive 30-day period during the swimming season are less than 126 cfu/100 mL, and that no more than 10 percent of the samples exceed 409 cfu/100 mL. Based on the most recent data, these standards were met (see Figure 2). These results allowed the North Dakota Department of Health (NDDoH) to de-list the Wild Rice River (segment ND-09020105-001-S\_00) in the 2014 Integrated Report for bacterial impairment.

## Partners and Funding

In 2002 the Richland County SCD, along with NDDoH, initiated a project to assess water quality and land use conditions within the Wild Rice River watershed. The Richland County SCD also led the development of the 2006 Wild Rice River watershed project implementation plan. The SCD hired staff to assist producers and homeowners in the watershed with the development of contracts and delivery of

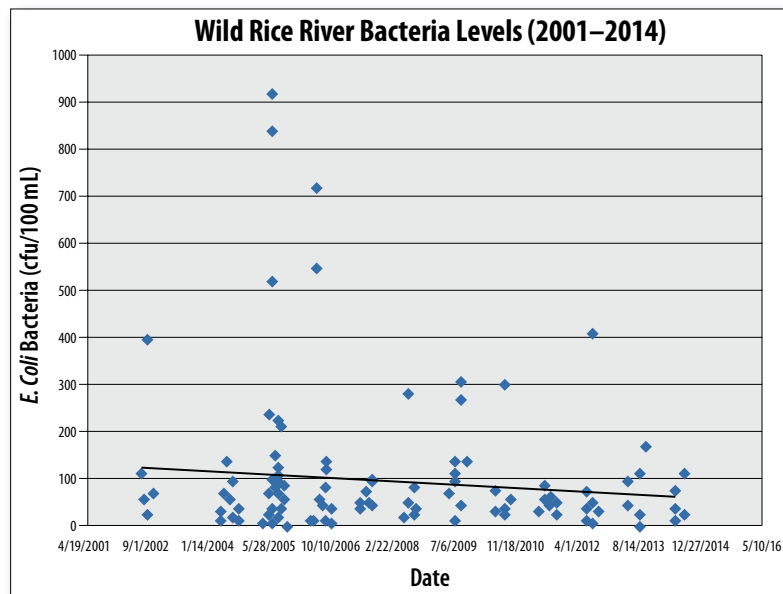


Figure 2. Post-restoration water quality data at STORET sampling site 385233 indicate that the Wild Rice River meets bacteria water quality standards. The line indicates declining bacteria levels over time. Dots represent individual sampling events.

technical assistance for the implementation of best management practices. In addition, project staff works closely with partners at the federal, state and local levels to achieve the goals of the watershed implementation project.

The U.S. Environmental Protection Agency granted \$45,486 in CWA section 319 funding that was matched by \$30,324 in local funds (cash and in-kind services) from local individuals to cost-share renovations within the 12-digit HUCs of the listed segment. The NDDoH provided oversight for project management; developed the quality assurance project plan and conducted training for proper water quality sample collection. NDDoH also assisted with development and implementation of information and education activities. Public involvement has been encouraged and maintained through various workshops, newsletters and presentations provided to community groups.



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