NONPOINT SOURCE SUCCESS STORY

Texas

Implementing Practices Through Cooperative Conservation Improves Water Quality in the Lower San Antonio River

Waterbody Improved

The Lower San Antonio River was added to the Clean Water Act (CWA) section 303(d) list of impaired waters in 2000 for not supporting the primary contact recreation use due to high levels of bacteria. In 2006 the Texas Commission on Environmental Quality (TCEQ) began developing a total maximum daily load (TMDL) for the waterbody, which was approved in 2008. Grazing livestock were identified as one of the potential sources of bacteria. As a result, conservation plans were developed and conservation practices were voluntarily implemented by ranchers in the watershed with CWA section 319(h) grant funding provided by the Texas State Soil and Water Conservation Board (TSSWCB) and the U.S. Environmental Protection Agency (EPA), and with Environmental Quality Incentives Program (EQIP) funding provided by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). Through these cooperative conservation efforts, water quality was improved and portions of the Lower San Antonio River (assessment units [AUs] 1901_01 and 1901_05) were removed from the state's list of impaired waters in 2014.

Problem

The 1,210-square-mile Lower San Antonio River watershed (Figure 1) in south-central Texas begins near Falls City and flows to its confluence with the Guadalupe River on the Texas coast. The Lower San Antonio River is 153 miles long, and drains portions of DeWitt, Goliad, Karnes, Refugio, Victoria and Wilson counties. The watershed is largely rural, mostly suited for grazing by cattle, with a few animal feeding operations present.

Water quality data collected in the Lower San Antonio River from 1992 to 1999 showed that fecal coliform levels exceeded the bacteria water quality standard for contact recreation. As a result, TCEQ added the river to the 2000 CWA section 303(d) list of impaired waters for not supporting its primary contact recreation use.

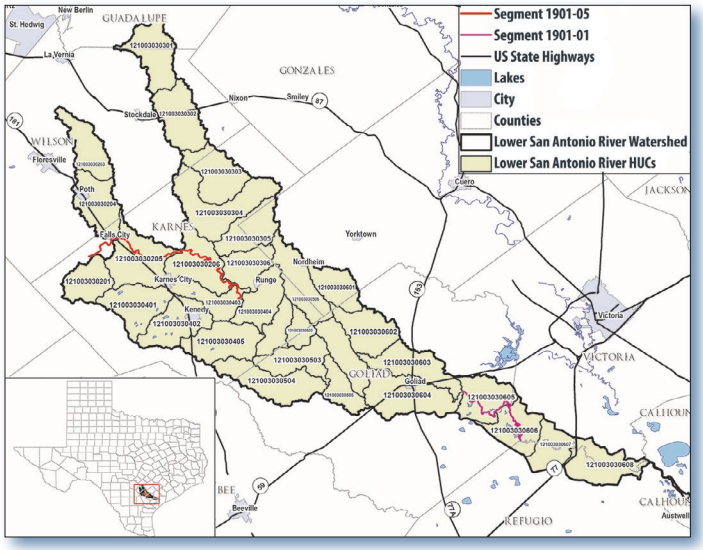

Figure 1. The Lower San Antonio River is in south-central Texas.

Project Highlights

In April 2006 the TCEQ initiated a TMDL study for the Lower San Antonio River. The local soil and water conservation districts (SWCDs) and local landowners expressed interest in addressing the bacteria impairment in the river. The TSSWCB, partnering with the Karnes County, Wilson County and Victoria SWCDs, certified and implemented 25 water quality management plans (WQMPs) in the impaired subwatersheds.

The WQMPs covered a total of 15,961 acres, and included best management practices (BMPs) such as alternative water sources, prescribed grazing, cross-fencing, nutrient management and grass planting. In addition, the NRCS recognized the need to improve water quality, and dedicated EQIP funding, through the EQIP South Central Texas Resource Concern for Water Quality, to implement conservation practices on 40,291 acres in the watershed.

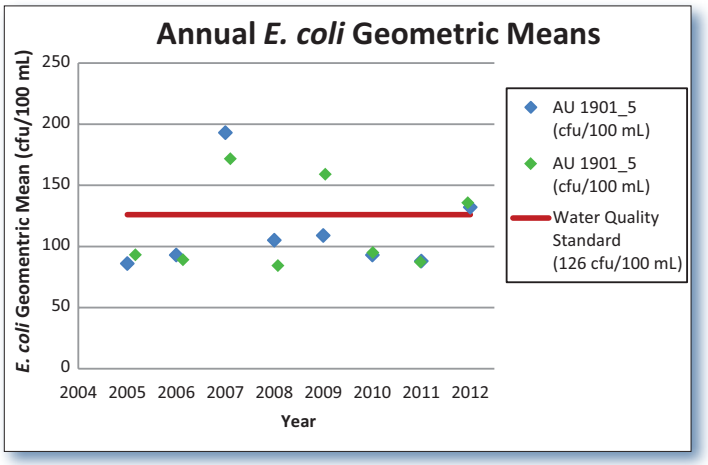

Figure 2. Long-term *E. coli* data for AUs 1901_01 and 1901_05 show compliance with the state water quality standard.

Figure 3. Water quality in the Lower San Antonio River is expected to continue improving.

Additionally, TCEQ partnered with the San Antonio River Authority (SARA) and the city of San Antonio to implement educational activities and install BMPs that were identified in the Upper San Antonio River TMDL (upstream of Segment 1901) to reduce *Escherichia coli* loadings.

Results

Water quality monitoring data show that the long-term *E. coli* geometric means met the state water quality standard for contact recreation in portions of the Lower San Antonio River. The applicable water quality standard requires that the geometric mean of *E. coli* not exceed 126 colony-forming units per 100 milliliters (cfu/100 mL). Long-term *E. coli* geometric means were 109.53 cfu/100 mL in AU 1901_01 and 110.64 cfu/100 mL in AU 1901_05 (Figure 2). Consequently, AUs 1901_01 and 1901_05 were removed from the impaired waters list in 2014. These waterbodies currently support all their designated uses. Water quality monitoring continues in the Lower San Antonio River to track the progress of restoration work in the watershed.

The success of this effort can be attributed to landowners implementing targeted BMPs, guided by WQMPs and conservation plans and empowered by an increased awareness of water quality issues through technical assistance. Implementation of BMPs on grazing land continues in the watershed; an implementation plan for the TMDLs will soon be developed. As a result, water quality improvement is expected to continue in the Lower San Antonio River (Figure 3).

Partners and Funding

Over $294,000 in CWA section 319(h) funds (provided by the TSSWCB and EPA) were used to develop WQMPs in the Lower San Antonio River watershed. The NRCS provided over $658,058 in federal Farm Bill funding to provide technical assistance and financial incentives to landowners to implement BMPs in the Lower San Antonio River watershed. In addition, approximately $211,623 in CWA section 319(h) funds (provided by the TCEQ and EPA) were used for two education and outreach projects for the Upper San Antonio River.

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