



NONPOINT SOURCE SUCCESS STORY

Oklahoma

Goose Creek Turbidity Declines After Agricultural Best Management Practice Implementation

Waterbody Improved

High turbidity, due in part to practices associated with cattle production, resulted in impairment of Goose Creek and placement on Oklahoma's Clean Water Act (CWA) section 303(d) list in 2008. Implementation of best management practices (BMPs) to promote better quality grazing land decreased sediment loading into the creek. As a result, the entire 15-mile length of Goose Creek was removed from Oklahoma's 2012 CWA section 303(d) list for turbidity impairment. Goose Creek is now in partial attainment of its fish and wildlife propagation designated use, and work continues in the watershed to address other impairments.

Problem

Goose Creek is in Pontotoc and Coal counties in south-central Oklahoma. Land use in the 18,746-acre watershed is primarily rangeland and pasture for cattle production. Poor grazing land management contributed to excess sedimentation in the watershed. In the 2008 water quality assessment, monitoring showed that 12 percent of Goose Creek's seasonal base flow water samples exceeded 50 nephelometric turbidity units (NTU). A stream is considered impaired by turbidity if more than 10 percent of the seasonal base flow water samples exceed 50 NTU (based on five years of data before the assessment year). On the basis of these assessment results, Oklahoma added the entire 15-mile-long Goose Creek (OK410400030490_00) to the 2008 CWA section 303(d) list for nonattainment of the fish and wildlife propagation designated use due to turbidity impairment.

Project Highlights

Landowners implemented BMPs with assistance from Oklahoma's locally led cost-share program and through the local U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) General Conservation Technical Assistance Program and Environmental Quality Incentives Program (EQIP). From 2008 to 2011, landowners improved pasture and range condition with 410 acres of prescribed grazing, 1,685 linear feet of fencing, 325 acres of integrated pest management, 21 acres of nutrient management and supplemental

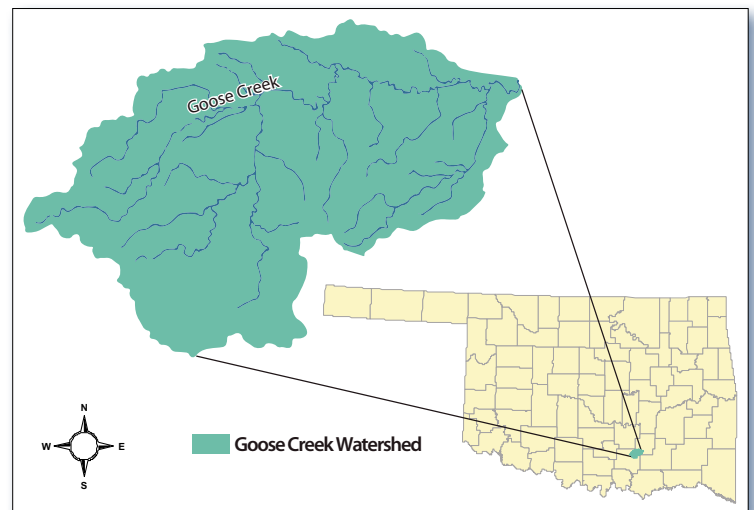


Figure 1. The Goose Creek watershed is in south central Oklahoma.

planting, installation of one pond and 2,572 acres of upland wildlife habitat management. In 2012 and 2013, an additional 620 acres of prescribed grazing further improved pastures and kept erosion potential low.

The Oklahoma Conservation Commission's (OCC's) educational program, Blue Thumb, held volunteer trainings in the area in 2004 and 2010. As a result, there are several active groups in this area, including a group from East Central State University and a group from the Chickasaw tribe. Blue Thumb volun-

teers monitor area streams on a monthly basis after attending a 2-day intensive training workshop that focuses on nonpoint source pollution abatement. Volunteers also assist with educational outreach in the community.

Results

The OCC's Rotating Basin Monitoring Program, a statewide nonpoint source ambient monitoring program, documented improved water quality in Goose Creek due to landowners implementing BMPs. In the 2008 assessment, 12 percent of seasonal base flow water samples exceeded the turbidity criteria of 50 NTU. This exceedance was reduced to zero percent in 2012, and Goose Creek was removed from Oklahoma's CWA section 303(d) list for turbidity impairment. Goose Creek is now in partial attainment of the fish and wildlife propagation designated use, with work continuing in the watershed to address the other parameters impairing the use.

Partners and Funding

The Rotating Basin Monitoring Program is supported by the U.S. Environmental Protection Agency's CWA section 319 program at an average annual cost of \$1 million. Monitoring costs include personnel, supplies and lab analyses for 18 parameters from samples collected every 5 weeks at about 100 sites. In-stream habitat, fish and macroinvertebrate samples are also collected. Approximately \$600,000 in CWA section 319 funding supports statewide education, outreach and monitoring efforts through

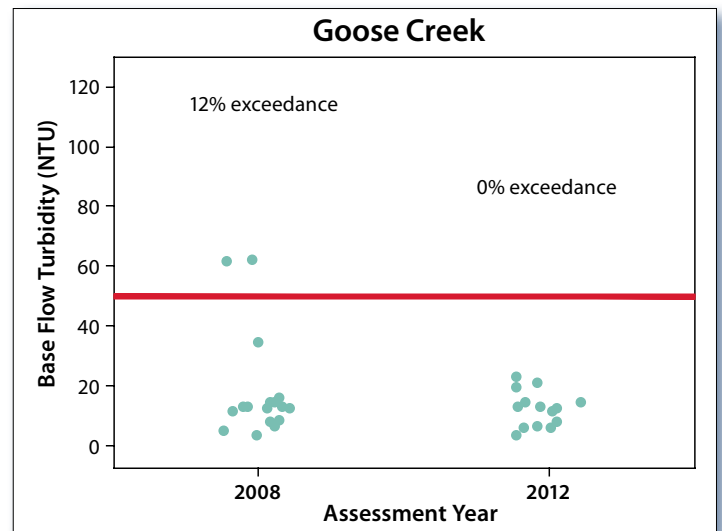


Figure 2. Monitoring data indicate that base flow turbidity levels in Goose Creek have declined.

the Blue Thumb program. The Oklahoma cost-share program provided approximately \$1,000 in state funding for BMPs in this watershed through the Coal County Conservation District. NRCS spent approximately \$845,000 for implementation of BMPs in Coal and Pontotoc counties from 2008 to 2011. An additional \$33,000 was spent from 2012 to 2013 to maintain these practices and continue to promote good grazing land management. Landowners provided a significant percentage of funding toward BMP implementation in these programs as well.



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