



NONPOINT SOURCE SUCCESS STORY

Oklahoma

Whitegrass Creek Experiences Reduction in Turbidity After Agricultural Best Management Practice Implementation

Waterbody Improved

High turbidity, due in part to practices associated with cattle production, resulted in impairment of Whitegrass 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 30-mile length of Whitegrass Creek was removed from Oklahoma's 2012 CWA 303(d) list for turbidity impairment. Whitegrass Creek is now in partial attainment of its fish and wildlife propagation designated use.

Problem

Whitegrass Creek is in Bryan and Choctaw counties in southern Oklahoma. Land use in the 40,878-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 18 percent of Whitegrass 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 30-mile-long Whitegrass Creek (OK410400010210_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, Conservation Reserve Program (CRP), Conservation Stewardship Program and Environmental Quality Incentives Program (EQIP). From 2008 to 2011, landowners improved pasture condition with more than 3,000 acres of prescribed/

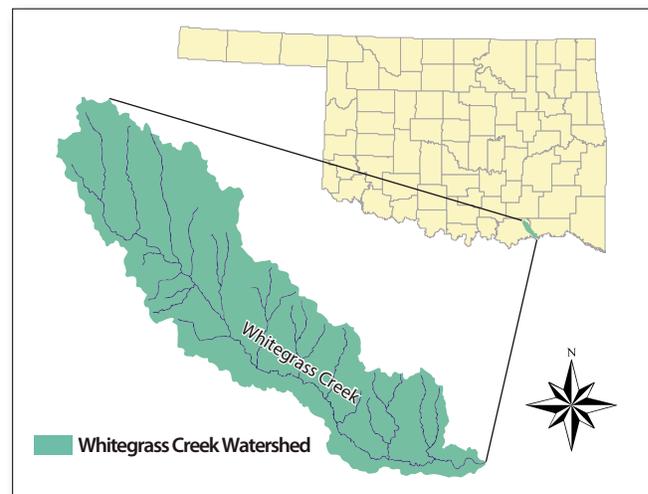


Figure 1. The Whitegrass Creek watershed is in southern Oklahoma.

rotational grazing, installation of two ponds for alternative water sources, 18,076 linear feet of fencing, 958 acres of nutrient management, 1,748 acres of integrated pest management, 55 acres of supplemental planting and 1,948 acres of forage harvest management. Erosion potential was reduced with the installation of two grade stabilization structures, and 43 acres of riparian forest buffer were established. Work continues in the watershed, with an additional two grade stabilization structures installed in 2013, riparian buffer maintenance and 104 acres of supplemental planting.

Results

The Oklahoma Conservation Commission's Rotating Basin Monitoring Program, a statewide nonpoint source ambient monitoring program, documented improved water quality in Whitegrass Creek due to landowners implementing BMPs. In the 2008 assessment, 18 percent of seasonal base flow water samples exceeded the turbidity criteria of 50 NTU. This exceedance was reduced to zero percent in 2012, and Whitegrass Creek was removed from Oklahoma's CWA section 303(d) list for turbidity impairment. Whitegrass Creek is now in partial attainment of the fish and wildlife propagation designated 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 the Blue Thumb program. The Oklahoma cost-share program provided approximately \$2,700 in state funding for BMPs in

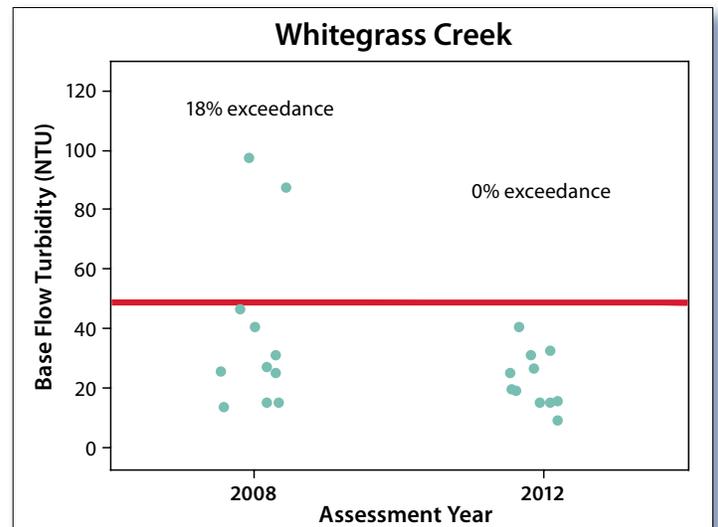


Figure 2. Monitoring data indicate that base flow turbidity levels in Whitegrass Creek have declined.

this watershed through the Kiamichi Conservation District. NRCS spent approximately \$1.8 million for implementation of BMPs in Bryan and Choctaw counties from 2008 to 2011. An additional \$1.1 million 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.



U.S. Environmental Protection Agency
Office of Water
Washington, DC

EPA 841-F-14-001EEE
September 2014

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