



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Oklahoma

Implementing Agricultural Best Management Practices Decreases Turbidity in Kiowa County's Stinking Creek

Waterbody Improved

High turbidity, due in part to practices associated with wheat and cattle production, resulted in impairment of Stinking Creek and placement on Oklahoma's Clean Water Act (CWA) section 303(d) list of impaired waters in 2008. Implementation of best management practices (BMPs) to promote better quality grazing land and cropland decreased sediment loading into the creek. As a result, Oklahoma removed the 18-mile-long Stinking Creek from the state's 2012 CWA section 303(d) list for turbidity impairment. Stinking Creek is now in partial attainment of its fish and wildlife propagation (FWP) designated use.

Problem

Stinking Creek is located in Kiowa County in southwestern Oklahoma (Figure 1). Land use in the 66,868-acre watershed is primarily wheat production and pasture for cattle production. Poor grazing land and cropland management contributed to excess sedimentation in the watershed. In the 2008 water quality assessment, monitoring showed that 21 percent of Stinking 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 5 years of data before the assessment year). On the basis of these assessment results, Oklahoma added the entire 18-mile-long segment of Stinking Creek (OK310830020020_00) to the 2008 and subsequent CWA section 303(d) lists for nonattainment of the FWP 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) Environmental Quality Incentives Program (EQIP), Wildlife Habitat Incentive Program (WHIP), Conservation Stewardship Program (CSP), and general conservation technical assistance program. From 2008 to 2011, landowners in Kiowa County reduced the potential for erosion from

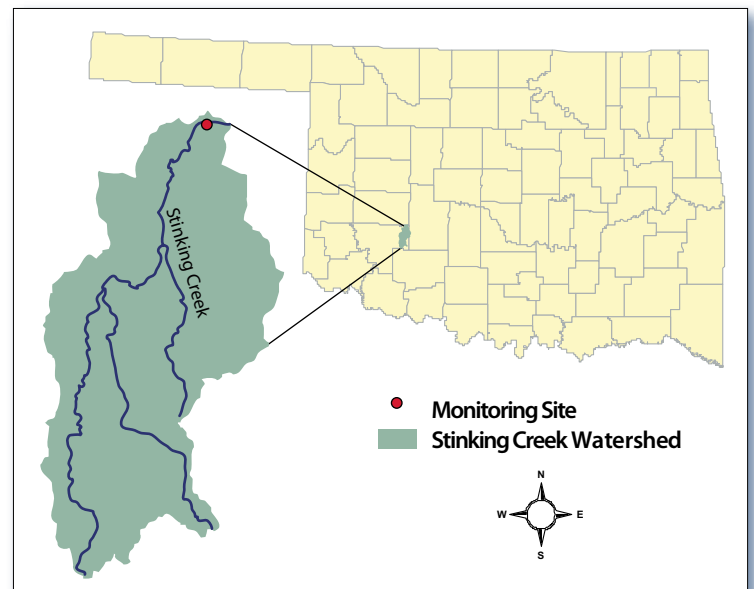


Figure 1. The Stinking Creek watershed is in southwestern Oklahoma.

grazing land by implementing prescribed grazing and nutrient management, installing more than 40 ponds, four watering facilities, four grade stabilization structures, diversions, terraces, and grassed waterways. In addition, vegetation was enhanced by cross-fencing and supplemental planting of critical erodible areas and pasture and range land areas. Additional BMP implementation has occurred in 2012, which has allowed continued improvement in the watershed.



Figure 2. Stinking Creek, following the implementation of best management practices.

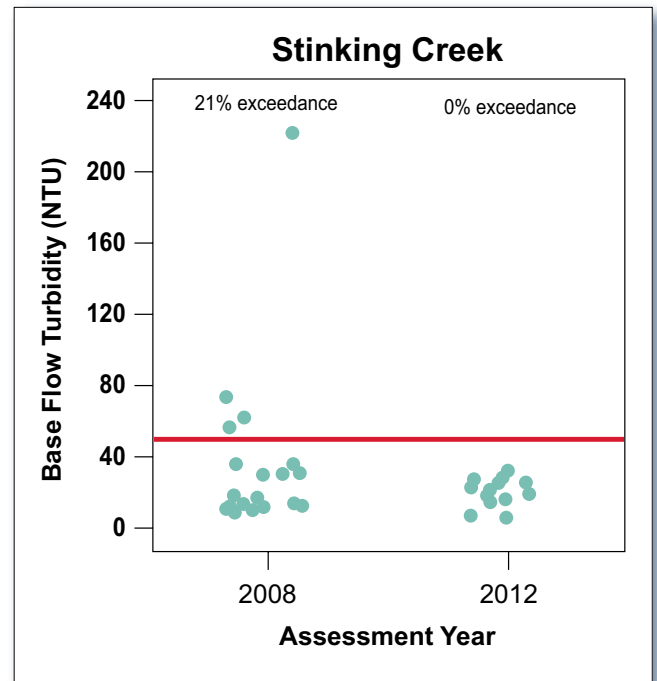


Figure 3. Monitoring data show that turbidity levels Stinking Creek have declined.

Results

The Oklahoma Conservation Commission's Rotating Basin Monitoring Program, a statewide nonpoint source ambient monitoring program, documented improved water quality in Stinking Creek due to landowners implementing BMPs (Figure 2). In the 2008 water quality assessment, 21 percent of seasonal base flow water samples exceeded the turbidity criteria of 50 NTU. This exceedance was reduced to zero percent in the 2012 assessment (Figure 3). Accordingly, Stinking Creek has been removed from Oklahoma's CWA section 303(d) list for turbidity impairment and is now in partial attainment of its FWP designated use.

Partners and Funding

The Rotating Basin Monitoring Program is supported by U.S. Environmental Protection Agency CWA section 319 funds 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 \$16,322 in state funding for BMPs in this watershed through the Mountain View Conservation District, and landowners contributed \$9,322 through this program. The NRCS spent approximately \$3.3 million for implementation of BMPs in Kiowa County from 2008 through 2011 through NRCS EQIP, CSP, WHIP, and general technical assistance funds, and another \$800,000 was expended in 2012. Landowners provided a significant percentage toward BMP implementation in these programs as well.



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