



# NONPOINT SOURCE SUCCESS STORY Update Oklahoma

## Improving Vegetative Cover Leads to Improved Water Quality in Bitter Creek

### Update Overview

This Nonpoint Source Success Story Update highlights the removal of an additional impairment (turbidity) from Bitter Creek (OK621100000100\_00). Oklahoma added Bitter Creek to the 2002 Clean Water Act (CWA) section 303(d) list for *Escherichia coli* (*E. coli*) and turbidity. The *E. coli* impairment was removed in 2010 (see the April 2014 Nonpoint Source Success Story, [Implementing Best Management Practices Reduces Bacteria Levels in Bitter Creek](#)). Because recent data show that turbidity levels comply with water quality standards, Oklahoma removed the turbidity impairment in 2010.

### Problem

Challenges with grazing and cropland management contributed to turbidity in Bitter Creek. Collections for the 2002 assessment indicated that 26 percent of samples violated the turbidity criteria for a warm water aquatic community. A stream is impaired if more than 10 percent of samples violate the criteria. Based on these results, Oklahoma added Bitter Creek to the 2002 CWA section 303(d) list for turbidity impairment.

### Story Highlights

Much of the work contributing to the improvement is described in the April 2014 Bitter Creek success story; however, landowners have continued to partner with U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS), Farm Services Agency (FSA), and the Oklahoma Conservation Commission’s (OCC’s) Locally Led Cost-share Program (LLCP) to install conservation practices (CPs). Landowners installed additional CPs from 2010 to 2017 that improved vegetative cover, including no-till (2,647 acres), livestock access control (97 acres), nutrient management (441 acres), prescribed grazing (904 acres), range planting (304 acres), terraces (84,149 feet), 88 acres of wetland restoration, and additional practices.

### Results

OCC’s Rotating Basin Monitoring Program has documented improved water quality in Bitter Creek. In the 2010 assessment, 7 percent of baseflow samples exceeded the turbidity standard (Figure 1). As a result, Oklahoma removed Bitter Creek from the CWA section 303(d) list for turbidity; it now partially supports its Fish and Wildlife Propagation beneficial use.

### Partners and Funding

Partners highlighted in the April 2014 success story continued to work in the watershed with the support of an additional \$105,000 in water quality monitoring and education from the OCC using U.S. Environmental Protection Agency CWA section 319 funds. NRCS, FSA, OCC, and landowners invested a minimum of \$70,000 in additional conservation program funds for CPs in the watershed from 2012 to 2017.

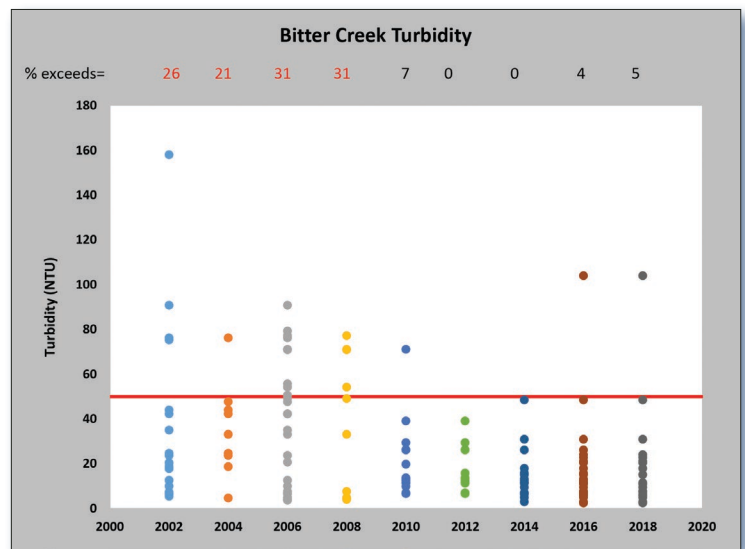


Figure 1. Turbidity declined as agricultural producers installed CPs.

**Update: October 2018**

**EPA 841-F-18-001Z**

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

**For additional information contact:**

**Shanon Phillips**

Oklahoma Conservation Commission  
405-522-4500 • shanon.phillips@conservation.ok.gov