



NONPOINT SOURCE SUCCESS STORY Update Oklahoma

Best Management Practice Implementation Results in Improved Bacteria Levels in Big Creek

Update Overview

This Nonpoint Source Success Story Update highlights the removal of a second impairment (dissolved oxygen) from Big Creek (OK121510030010_00). Oklahoma added Big Creek to the 2004 Clean Water Act (CWA) section 303(d) list for *Escherichia coli* (*E. coli*) and the 2008 303(d) list for dissolved oxygen (DO). The *E. coli* impairment was removed in 2012 (for more details see the April 2014 Nonpoint Source Success Story, *Best Management Practice Implementation Results in Improved Bacteria Levels in Big Creek*). Because recent data show that DO levels comply with water quality standards, Oklahoma removed the DO impairment in 2014.

Problem

Challenges with grazing management contributed to low dissolved oxygen levels in the Big Creek. DO collections for the 2008 assessment indicated that 36 percent of samples violated the 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 Big Creek to the 2008 CWA section 303(d) list for DO impairment.

Story Highlights

Much of the work contributing to the improvement is described in the April 2014 Big 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 2014 to 2017 to continue improving the waterbody, including prescribed grazing (20,410 acres), cross and live-stock access control fencing (19,952 feet), reduced tillage (257 acres), one grade stabilization structure, riparian buffers (278 acres), livestock pipeline (8,078 feet), 10 watering facilities, and additional practices.

Results

The OCC’s Rotating Basin Monitoring Program documented improved water quality in Big Creek. In the 2014 assessment, only 9.5 percent of samples collected violated the DO criteria (Figure 1). As a result, Oklahoma removed Big Creek from the 2014 CWA section 303(d) list for DO impairment; it now fully 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. Funding includes an additional \$62,000 in water quality monitoring and education from the OCC using U.S. Environmental Protection Agency CWA section 319 funds. NRCS, FSA and OCC invested a minimum of \$50,000 additional conservation program funds for CPs in the watershed from 2012 to 2017. Landowners contributed approximately \$37,000 additional resources toward CP implementation as well.

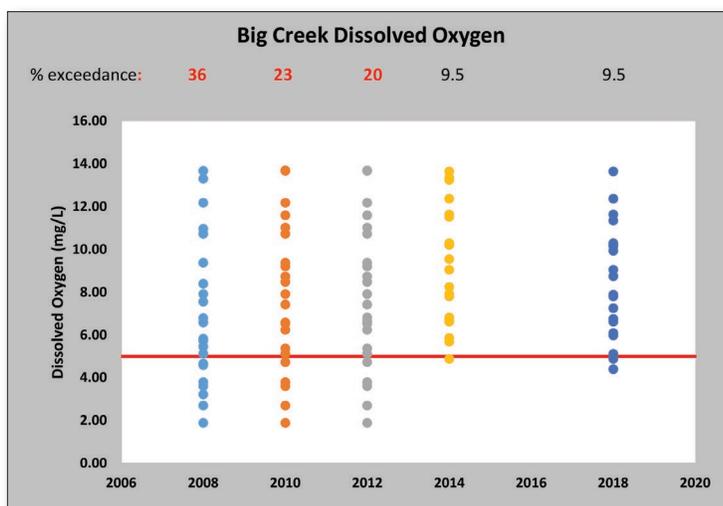


Figure 1. Dissolved oxygen concentrations have improved.

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