NONPOINT SOURCE SUCCESS STORY

Oklahoma

Mineral Bayou Waters Run Clearer With Conservation Practice Installations

Waterbody Improved

High turbidity levels resulted in impairment of Mineral Bayou Creek and placement on Oklahoma's Clean Water Act (CWA) section 303(d) list of impaired waters in 2012. Pollution from cropland, grazing lands and urban areas contributed to this impairment. Implementing conservation practice systems (CPs) to promote better land management in agricultural areas decreased pollutant runoff and turbidity levels in the stream. As a result, Oklahoma removed the turbidity impairment from its 2014 CWA section 303(d) list. Mineral Bayou Creek now fully supports its warm water aquatic community (WWAC) designated beneficial use.

Problem

The Mineral Bayou watershed covers approximately 25,120 acres in Bryan County, Oklahoma (Figure 1). Land use in the watershed is about 71 percent managed pasture land. Approximately 16 percent of the watershed is developed, which includes the town of Durant, Oklahoma. Durant is a rapidly growing community along Oklahoma's southern border and is the capital city and headquarters of the Choctaw Nation. The primary agricultural products from the watershed are hay and cattle.

Water quality monitoring in the mid-2000s determined that challenges with grazing land management contributed to a 2012 listing of a 15.53-mile segment of the stream as impaired by turbidity, when at least 12 percent of turbidity readings exceeded acceptable limits. A stream is considered impaired for turbidity if more than 10 percent of baseflow samples exceed 50 nephelometric turbidity units (NTU) during an assessment period. Based on these results, Oklahoma added segment OK410600010300_00 to the CWA section 303(d) lists in 2012 for nonattainment of the WWAC designated beneficial use.

Story Highlights

At least 20 landowners in the watershed worked with the Bryan County Conservation District, the Oklahoma Conservation Commission (OCC) and the Natural Resources Conservation Service (NRCS) to implement CPs through the OCC's Locally Led Cost Share Program (LLCP) and through Oklahoma NRCS's Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program (CSP) and general conservation technical assistance program.

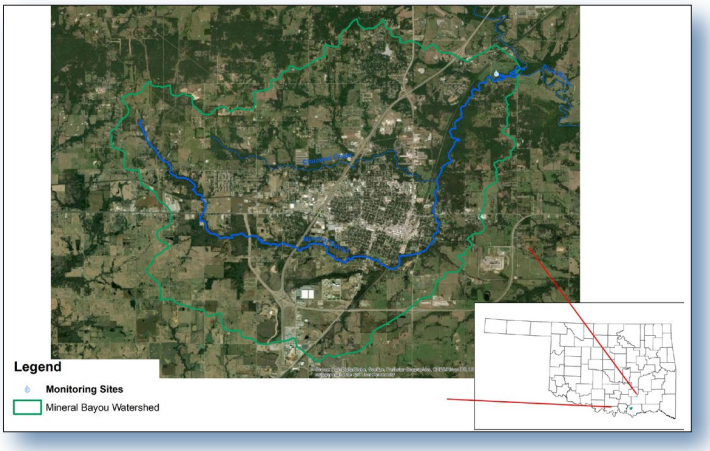

Figure 1. The Mineral Bayou watershed is in southern Oklahoma.

From 2005 to 2018, landowners improved grazing management, which reduced runoff of sediment and other pollutants by increasing vegetative cover and reducing bare soil.

Landowners implemented access control (136 acres [ac]), brush management (57 ac), conservation cover (136 ac), critical area planting (1 ac), fence (7,503 feet),

grade stabilization structures (1), nutrient management (279 ac), pasture and hayland planting (257 ac), pest management (249 ac), ponds (11), pond cleanout (1), prescribed grazing (575 ac), split nitrogen applications (43 ac), and tree and shrub planting (1 ac).

Results

The OCC documented improved water quality in Mineral Bayou Creek due to installation of CPs through its statewide nonpoint source Rotating Basin Ambient Monitoring Program. By 2014, turbidity exceedances had dropped to 6 percent and remained at similar levels through the 2020 assessment period (Figure 2). Based on these data, Oklahoma removed Mineral Bayou Creek from the CWA section 303(d) list for DO in 2014. Mineral Bayou Creek now fully supports its WWAC beneficial use.

Partners and Funding

The OCC monitoring program is supported by the U.S. Environmental Protection Agency's (EPA's) CWA section 319 funding at an average annual statewide cost of $1 million. Approximately $500,000 in EPA section 319 funds support statewide water quality educational efforts through Blue Thumb. Approximately $217,400 of these federal and state matching funds have been devoted to Mineral Bayou Creek. From 2005 to 2018, NRCS supplied more than $20,000 for CP implementation in Oklahoma through EQIP. In addition, many practices were funded through CSP and by landowners based on recommendations through NRCS general technical assistance. Finally, the OCC, Bryan County Conservation District, and landowners funded more than $20,524 worth of CPs (at least $10,199 of which was funded by landowners through the LLCP).

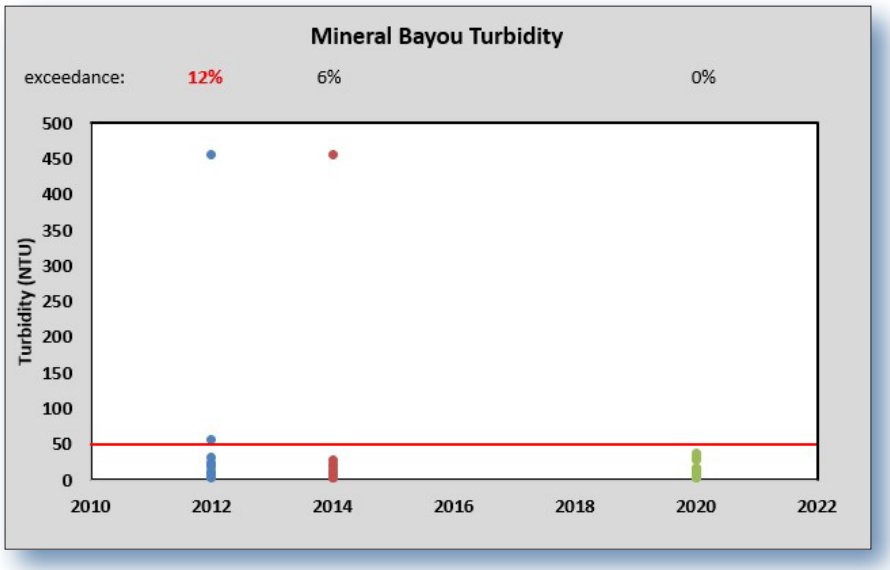

Figure 2. Turbidity decreased in Mineral Bayou Creek with the installation of CPs.

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