Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Louisiana

Implementing Best Management Practices Reduces Total Dissolved Solids in Turkey Creek

Waterbody Improved

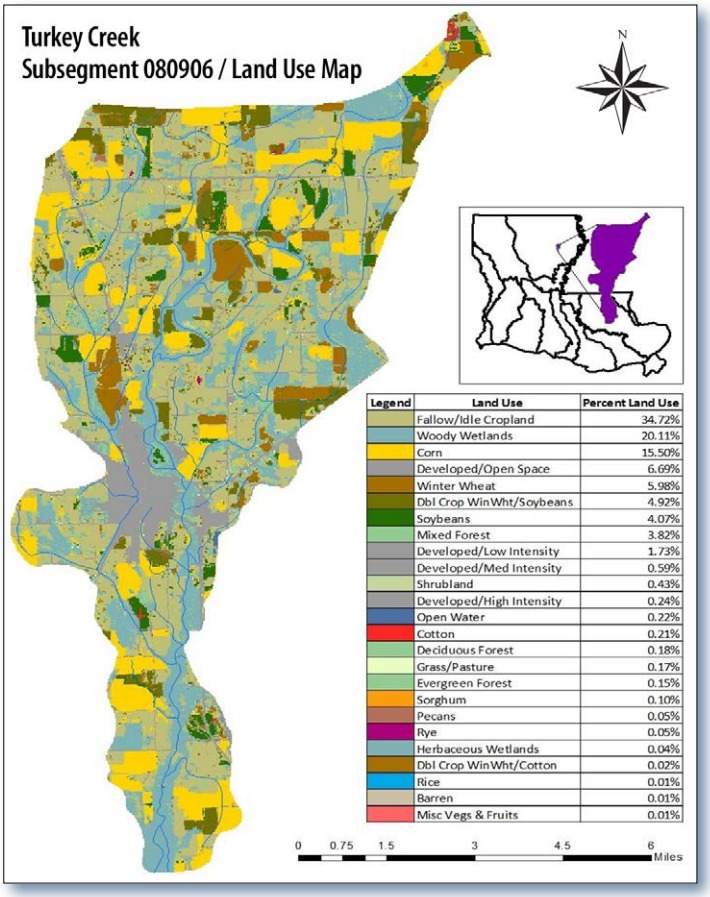
In 2000, Turkey Creek was added to the Louisiana's Clean Water Act (CWA) section 303(d) list of impaired waters for not fully meeting its designated use of fish and wildlife propagation (FWP) due to high concentrations of total dissolved solids (TDS). Suspected sources of pollution were agriculture, natural conditions and unknown sources. The U.S. Department of Agriculture's (USDA's) National Resource Conservation Service (NRCS) helped producers and landowners develop comprehensive resource management system (RMS) plans intended to reduce pollutant loads within the Turkey Creek watershed, specifically targeting agricultural fields. Monitoring data collected since best management practices (BMPs) were implemented in 2003 indicates water quality has improved; as a result, the Louisiana Department of Environmental Quality (LDEQ) removed the TDS impairment for subsegment 080906 in 2010.

Problem

Turkey Creek flows across the rich alluvial plain of the Ouachita River Basin in northeastern Louisiana. Turkey Creek, subsegment 080906, is approximately 19 miles long, and flows from Turkey Creek Cutoff to Turkey Creek Lake, which is a recreational fishing lake for bass, bream and crappie. This subsegment has a total land mass of 35,211.5 acres (Figure 1).

The land use is predominantly agriculture (66 percent), including pasture and hay production, and wetlands (20 percent). The remaining 14 percent of land use is either developed, shrubland, forest, open water or barren land.

Ambient water quality data collected in 1999 indicated Turkey Creek did not support its designated use of FWP due to high concentrations of TDS (Figure 2). The criterion for TDS is 500 milligrams per liter; furthermore, no more than 30 percent of the TDS samples collected on a monthly or near monthly basis may exceed this criterion. TDS concentrations in Turkey Creek exceeded this maximum allowable concentration 65 percent of the time in 1999. As a result, the segment was added to the state's CWA section 303(d) list of impaired waters in 2000. No TDS total maximum daily loads were developed for this watershed.



Legend	Land Use	Percent Land Use
	Fallow/Idle Cropland	34.72%
	Woody Wetlands	20.11%
	Corn	15.50%
	Developed/Open Space	6.69%
	Winter Wheat	5.98%
	Dbl Crop WinWht/Soybeans	4.92%
	Soybeans	4.07%
	Mixed Forest	3.82%
	Developed/Low Intensity	1.73%
	Developed/Med Intensity	0.59%
	Shrubland	0.43%
	Developed/High Intensity	0.24%
	Open Water	0.22%
	Cotton	0.21%
	Deciduous Forest	0.18%
	Grass/Pasture	0.17%
	Evergreen Forest	0.15%
	Sorghum	0.10%
	Pecans	0.05%
	Rye	0.05%
	Herbaceous Wetlands	0.04%
	Dbl Crop WinWht/Cotton	0.02%
	Rice	0.01%
	Barren	0.01%
	Misc Vegs & Fruits	0.01%

Figure 1. Turkey Creek is in northeastern Louisiana.

Figure 2. Before partners implemented BMPs, Turkey Creek carried high sediment loads during summer months.

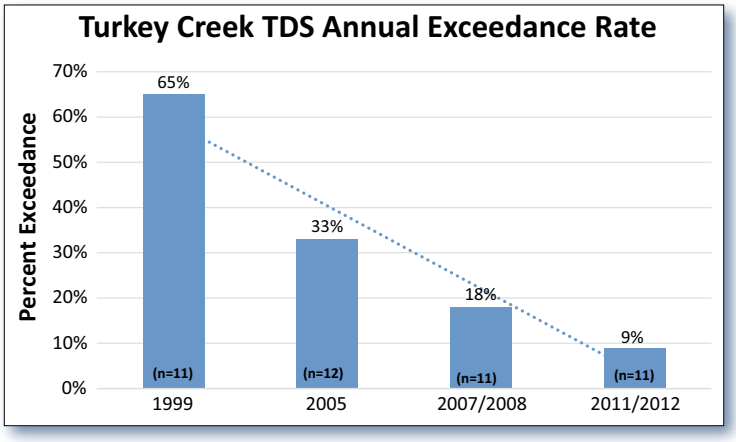


Figure 3. Turkey Creek's annual percent exceedance rate decreased after stakeholders implemented BMPs in 2003.

Project Highlights

Since 2003, NRCS has been assisting producers and landowners with the development of comprehensive RMS plans. These plans include sets of approved conservation practices intended to address resource concerns and improve water quality. Using NRCS' ranking criteria and considering the distance from treatment area to Turkey Creek, RMS plans were prioritized for cost share and technical assistance. RMS plans implemented in Turkey Creek subsegments included various BMPs: conservation cover (approximately 752 acres), cover crop (12 acres), residue management (176 acres), critical area planting (44 acres), fencing (148,801 linear feet), grade stabilization structures (27 units), prescribed grazing (299 acres), nutrient management (267 acres), and animal watering facilities (116 units).

NRCS partnered with the Louisiana Department of Agriculture and Forestry (LDAF) and the Northeast Soil and Water Conservation District (SWCD) to provide technical and cost share assistance for implementing 43 BMPs through the Cooperative Conservation Partnership Initiative. Additionally, LDAF used $1.5 million in CWA section 319 incremental funds for BMP implementation and assistance; the Wetland Reserve Program provided $2,101,678 to support 1,388 acres of watershed restoration. A watershed coordinator, representing LDEQ, currently works with stakeholders on a watershed implementation plan in an effort to reduce nonpoint source pollutants and further improve water quality in Turkey Creek.

Results

Data collected by LDEQ after BMPs were implemented indicate that water quality rapidly improved. Monthly TDS concentration data show that the exceedance rate decreased from 65 percent before BMP implementation to 9 percent in 2011/2012 after BMP implementation (Figure 3).

The improvement in water quality following BMP implementation indicates the major source of TDS impairment is agriculture. As a result of the BMPs, TDS concentrations are meeting the standard criterion and remain below the 30 percent maximum exceedance rate. Consequently, the 2010 Integrated Report delisted Turkey Creek for TDS. Through collaborative efforts with LDEQ and its partners, stakeholders will continue to use the BMPs on the agricultural lands to maintain these water quality improvements.

Partners and Funding

The partners involved in selecting, implementing and monitoring for this subsegment included local producers, NRCS, LDAF, Northeast SWCD, LDEQ and the U.S. Environmental Protection Agency (USEPA). Funding for cost share was provided through the USDA's Farm Bill Programs and USEPA's CWA section 319 incremental funding (approximately $4.6 million).

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