NONPOINT SOURCE SUCCESS STORY Update

Alabama

Multi-Phased Implementation and Partner Efforts Result in Improved Water Quality in Dry Creek

Update Overview

The U.S. Environmental Protection Agency added Dry Creek to the Clean Water Act (CWA) section 303(d) list of impaired waters in 1998 for not meeting fish and wildlife use classification for ammonia, organic enrichment (OE)/dissolved oxygen (DO), nutrients and pathogens. Partners completed a two-phase project to implement best management practices (BMPs) and stakeholder education, and the creek now meets ammonia (2012), nutrient (2016), and OE/DO (2016) water quality criteria for its use classification. Dry Creek was removed from the 2016 list of impaired waters for nutrients and OE/DO.

Problem

Dry Creek (HUC 03160111-0203) in Blount County, Alabama, was listed as partially meeting its use support status for ammonia, OE/DO, nutrients and pathogens. The suspected cause was pasture grazing runoff. In 2012, Dry Creek was delisted for ammonia impairment. However, it remained impaired for nutrients, OE/DO and pathogens.

Story Highlights

Phase one (2007–2010) included implementation of agricultural BMPs along with multiple education/outreach efforts. Phase two (2011–2014) continued BMP implementation and education efforts (Table 1). Two no-till seed drill purchases helped landowners with conservation tillage practices to reduce sediment and nutrient transport into local waterways; these continue to be used.

Table 1. BMPs installed during project phases one and two.

Practice	Amount
Alternative water sources	5
Alum treatment of poultry litter	7,000 lbs
Controlled stream access for livestock watering	2
Fence	47,766 ft
Forage and biomass planting	32 ac
Heavy use area protection	37,845 ft^2
Livestock stream crossing	4,116.5 ft^2
On-site wastewater treatment system (pumpout)	145
Pond	2
Prescribed burning	97.58 ac
Stream channel stabilization	210 ft

Notes: ac = acres; ft = feet; ft^2 = square feet; lbs = pounds

Results

Alabama Department of Environmental Management (ADEM) collected water quality data in 2014 at three sampling stations: DRYB-10, DRYB-80, and DRYB-75A. While established ADEM numeric nutrient criteria for wadeable streams do not currently exist, ADEM used available data, best professional judgment, and a comparison of characteristically similar ecoregions to determine impairment. Although total phosphorus (TP) and total nitrogen (TN) concentrations drive nutrient impairment assessment, elevated chlorophyll *a* is also an important indicator for nutrient and DO related impairments. All 2014 samples at the three Dry Creek stations were below Level IV Ecoregion 68d reference conditions for mean TP, TN and chlorophyll *a*. Four samples did not meet DO standards due to natural conditions (creek was dry); however, all other samples met standards. Data collected on carbonaceous biochemical oxygen demand (BOD) and nitrogenous BOD, which influence DO levels and are used to determine OE impairment, were well below mean eco-reference conditions. Only the pathogen impairment remains.

Partners and Funding

Key partners included Blount County Soil and Water Conservation District; U.S. Department of Agriculture, Natural Resources Conservation Service; ADEM; Alabama Department of Public Health; Cawaco Resource Conservation and Development; Alabama Water Watch; local landowners; and other state, local, private and public entities. Dry Creek phased implementation was funded in part through $466,834 in CWA section 319(h) grant funds (with $339,826 in nonfederal match from partners).

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