Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Arkansas

Conservation Tillage Reduces Surface Erosion from Agriculture Activities

Waterbody Improved

Excess sediment from unpaved road surfaces and agriculture and construction activities impaired Days Creek. As a result, an 11-mile reach of Days Creek was added to the state's 2006 Clean Water Act (CWA) section 303(d) list of impaired waters for siltation. The Arkansas Natural Resources Commission (ANRC) took action to address siltation caused by erosion of agricultural fields during storm events. Landowners and the Conservation District responded by implementing several agricultural best management practices (BMPs) that reduced siltation and restored water quality. Days Creek now supports its aquatic life designated use, and the 11-mile reach of the creek was removed from the state's CWA section 303(d) list of impaired waters in 2008.

Problem

Days Creek, a tributary to the Sulphur River, flows through Miller County in southwestern Arkansas. Monitoring data collected from 2001 to 2005 show elevated turbidity levels. An Arkansas Department of Environmental Quality (ADEQ) assessment found that an 11-mile segment of Days Creek did not support its aquatic life designated use because of siltation/turbidity from surface erosion. Therefore, in 2006 Days Creek was added to the state's CWA section 303(d) list of impaired waters for siltation/turbidity.

The state standard requires that "suspended solids added to surface waters by artificial sources shall not interfere with the behavior, reproduction, physical habitat or other factor related to the survival and propagation of aquatic or semi-aquatic or terrestrial wildlife." ADEQ found that a number of sources contribute to siltation problems in the Days Creek watershed, including in-stream erosion and erosion from unpaved road surfaces and agriculture and construction activities (Figure 1).

Project Highlights

In 2004 the Miller County Conservation District, with funding assistance from ANRC, purchased a no-till drill, which allows farmers to plant seeds directly into the previous year's crop residue without tilling the soil (Figure 2). The crop residue protects the soil and lessens the opportunity for erosion. Many farmers took advantage of the opportunity to use the no-till drill—by June 2008 it had

Photo courtesy of USDA NRCS

Figure 1. As seen in this photo, conventional tillage leaves soil unprotected, often leading to erosion during storm events.

Photo courtesy of USDA NRCS

Figure 2. A no-till drill can be used to reduce soil erosion from agriculture activities.

been rented 64 times. In addition to incorporating no-till into their farming practices, multiple landowners implemented other BMPs on 1,464 acres, including conservation cover and cover crops.

Results

ANRC successfully addressed erosion from agricultural sources through cost effective targeting of CWA section 319 funds. Thanks to landowners' efforts to conserve topsoil and prevent erosion by using BMPs, Days Creek meets its aquatic life designated use. Specifically, the landowners' use of the no-till drill contributed greatly to restoring the water quality.

Monitoring data show a 42 percent decrease in turbidity between 2004 and 2007 (Figure 3). On the basis of these data, the 11-mile segment of Days Creek was removed from the state's CWA section 303(d) list of impaired waters in 2008.

Partners and Funding

The following groups helped to restore Days Creek: landowners living in the Miller County Conservation District, Miller County Conservation District staff, Arkansas Natural Resources Commission and the U.S. Environmental Protection Agency.

The Miller County Conservation District used $12,120 in CWA section 319 funds (made available through the ANRC) to purchase the no-till drill for BMP implementation. Local landowners provided approximately $25,250 of in-kind match for using the drill.

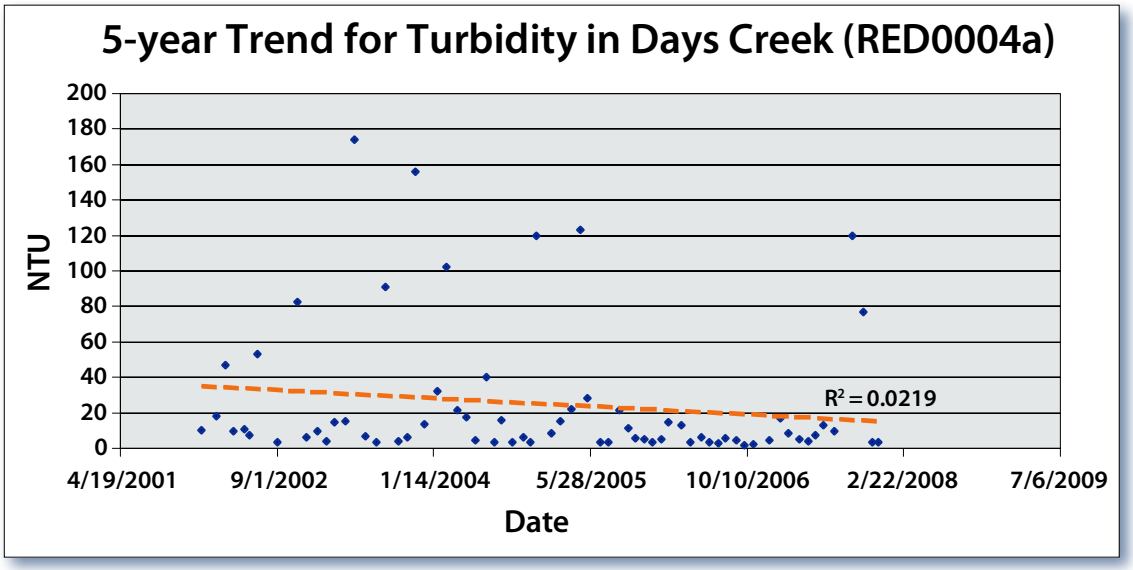

Figure 3. Five-year trend for turbidity in Days Creek.

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