Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Oklahoma

Education and Demonstration Efforts Result in Turbidity Improvements

Waterbody Improved

Sandy and Yellowstone Creeks, both in the Salt Fork of the Arkansas River watershed in north central Oklahoma (in Alfalfa and Woods Counties, respectively), were impaired for turbidity due in part to practices associated with crop and cattle production. Agricultural producer education and implementation of best management practices (BMPs) to promote conservation tillage, proper fertilizer application, integrated pest management, and riparian buffer establishment helped to decrease sediment and nutrients going into both creeks. As a result, Oklahoma removed Sandy Creek from its 2004 303(d) list for turbidity impairment, and nominated Yellowstone Creek for removal from the state's 2006 303(d) list for turbidity.

Problem

The Salt Fork is an agriculture-intensive watershed where wheat and alfalfa are the primary crops. Producers often plowed fields to the edge of streams, and cattle often grazed at stream edges, both of which contributed to bank erosion. Consequently, streams in this watershed had high turbidity problems. Oklahoma placed both Sandy Creek, 18 miles long, and Yellowstone Creek, 22 miles long, on the 1998 303(d) list for not attaining their designated use of Fish and Wildlife Propagation (FWP) because of turbidity impairment.

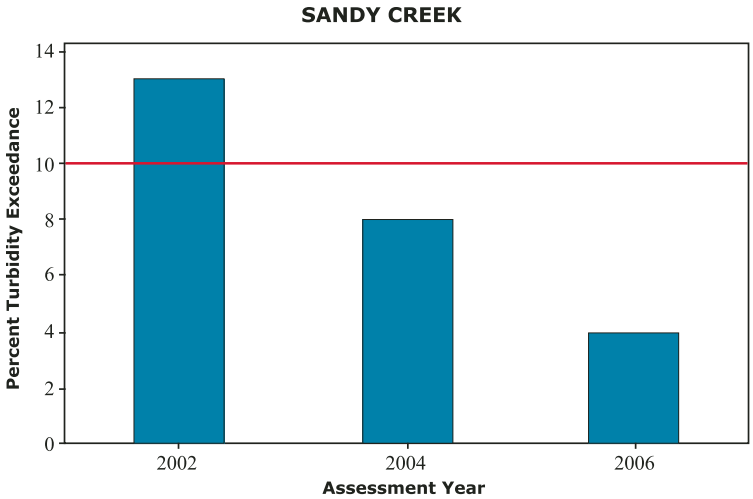
Project Highlights

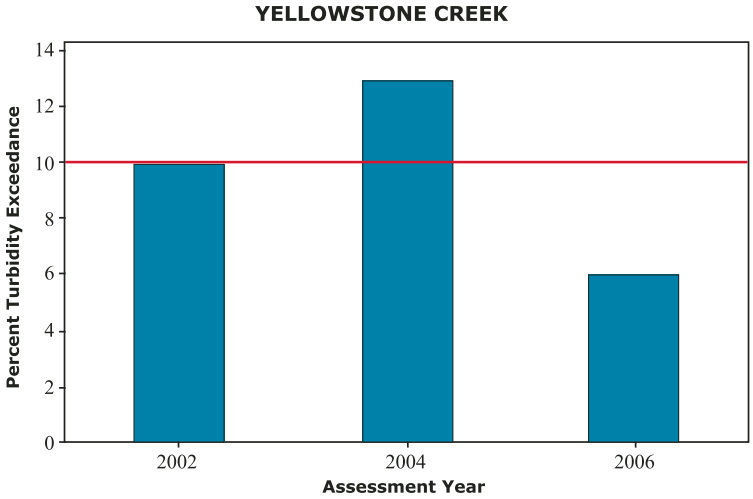
Educating agricultural producers was a top priority for the Salt Fork watershed program. Better management techniques for sediment, nutrient, and pest control, such as no-till and reduced-till planting; proper fertilizer and chemical (pesticide, herbicide, fungicide) application; the use of crop varieties that require fewer chemicals; and riparian buffer zone establishment were taught through multiple channels. Ten BMP demonstration projects showed producers that BMP implementation need not affect their bottom line or production volumes. Numerous educational meetings, tours, and field days, in combination with a Web site and newsletters also promoted the BMPs.

Potential sources of sediment and nutrients in the Salt Fork watershed before implementing the BMPs: fields were often cultivated or grazed to the edge of the stream; riparian buffers were nonexistent or rare.

Results

During the project period, from 1999 to 2002, conservation tillage use within the Salt Fork watershed increased by 21 percent (to 88 percent of producers), soil test-based fertilizer application increased by 29 percent (to 67 percent of producers), and 78 percent of producers recognized the benefits of using vegetative





A stream is considered impaired due to turbidity if 10 percent or more of the seasonal base flow water samples exceed 50 NTUs (based on 5 years of data preceding the assessment year). Both creeks now fully attain their FWP use designation.

buffers along streams. As a result, turbidity has decreased in the Salt Fork watershed. In the 2002 assessment, 13 percent of seasonal base flow water samples from Sandy Creek exceeded the turbidity criteria; in the 2004 assessment it was reduced to 8 percent. In 2006, it was further reduced to 4 percent. Similarly, in 2002, Yellowstone Creek had a 10 percent exceedance of turbidity criteria, which, by 2006, was down to only 6 percent exceedance. Both creeks now meet the requirements of their FWP use designation. Oklahoma removed Sandy Creek from its 303(d) list in 2004, and it expects to remove Yellowstone Creek from its 2006 303(d) list.

Partners and Funding

EPA section 319 funds provided $90,000 for the implementation of this project. The Oklahoma Conservation Commission supplied $60,000, which was used to subcontract with the Oklahoma State University Cooperative Extension to conduct education and demonstration tasks.

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