



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Oklahoma

Installation of Best Management Practices Results in Fish Community Improvements in Indian Creek

Waterbody Improved

Indian Creek in Woodward County runs through an area of high cattle and wheat production. An assessment of the fish community in the stream in 2002 revealed a poor condition, resulting in placement on Oklahoma's 2006 Clean Water Act (CWA) section 303(d) list of impaired waters for biological impairment. Implementation of best management practices (BMPs) to promote better quality grazing land decreased sediment and nutrient runoff into the creek. As a result, Oklahoma removed Indian Creek from their 2012 CWA section 303(d) list for fish impairment. Indian Creek now fully attains its fish and wildlife propagation designated use.

Problem

Indian Creek is a 17-mile-long stream in Woodward County (Figure 1) in northwestern Oklahoma, an area of high cattle and wheat production. Poor grazing land management likely contributed to excess sedimentation and nutrient runoff in the 48,755-acre watershed, which impacted the biological community. A 2002 fish assessment produced an Index of Biotic Integrity (IBI) score of 17 for Indian Creek. Waterbodies in this ecoregion of the state are considered not supporting the fish and wildlife propagation designated use if an IBI score is less than 19. On the basis of the assessment results, Oklahoma added the entire length of Indian Creek (OK720500010200_00) to the 2006 and subsequent CWA section 303(d) lists, for biological impairment of fishes.

Project Highlights

Landowners implemented BMPs with assistance from Oklahoma's locally led cost-share program and through the local U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP), Grazing Land Conservation technical assistance program, and general technical assistance program. BMP implementation occurred primarily in 2005 and 2006, with a focus on improving grazing lands in the watershed. To improve the condition of pasture and rangeland, prescribed grazing was instituted on over 2,000 acres. More than 7,000 linear feet of fencing was installed, along with alternative water supplies, to improve livestock usage of available grazing areas. Landowners began nutrient management on 75 acres and installed 34 acres of supple-

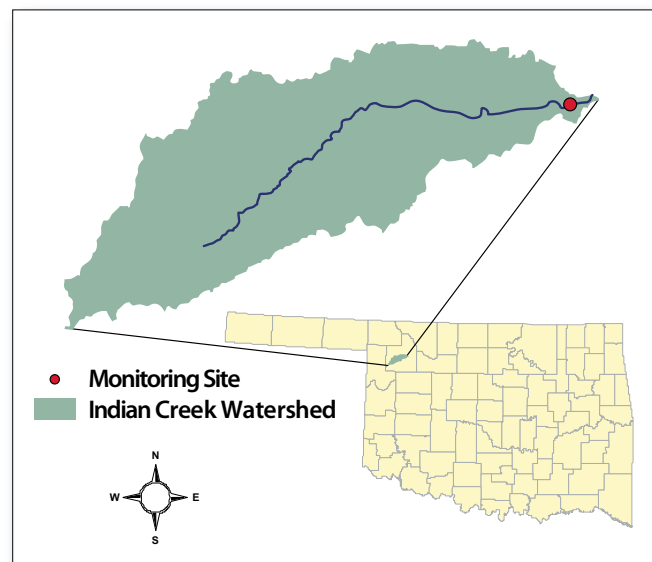


Figure 1. The Indian Creek watershed is in northwestern Oklahoma.

mental vegetative planting to improve pasture and rangeland condition.

The NRCS Conservation Stewardship Program (CSP), Wildlife Habitat Incentive Program (WHIP), and EQIP funded a significant number of additional BMPs from 2007 to 2012. In particular, 2,590 acres of conservation tillage practices (cover crops, crop rotation, no-till, strip-till, direct seed, residue management) were implemented, over 6,000 linear feet of cross-fencing was installed, 770 acres of supplemental grazing land vegetation was planted, five alternative water supplies and one pond were installed, 2,308 acres of prescribed grazing and 931

acres of nutrient management was adopted, and 2,283 acres of proper upland wildlife management was implemented (Figure 2).

In addition, the OCC's education program, Blue Thumb, has had active volunteer monitoring in Woodward County since 2002 and has hosted groundwater screening programs which provide information on the link between nonpoint source pollution and contaminants in wells. These activities provide vital education for the residents of the watershed and help facilitate behavior changes. Active volunteer monitoring and education is continuing in the area.

Results

The OCC's Rotating Basin Monitoring Program, a statewide nonpoint source ambient monitoring program, documented improved water quality in Indian Creek due to landowner implementation of BMPs. The 2002 fish assessment produced an IBI score of 17, with only eight total species observed and 124 total individuals counted. The 2007 assessment resulted in an IBI score of 27, with 15 species and 485 individuals collected in the 400-meter reach sample. Accordingly, Indian Creek was removed from Oklahoma's 2012 CWA section 303(d) list for fish impairment and is now in full attainment of the fish and wildlife propagation designated use.

Partners and Funding

The OCC's Rotating Basin Monitoring Program is supported by U.S. Environmental Protection Agency CWA section 319 funds at an average annual cost of \$1 million. Monitoring costs include personnel, supplies, and lab analyses for 18 parameters from samples collected every 5 weeks at about 100 sites. In-stream habitat, fish, and macroinvertebrate samples are also collected. Approximately \$600,000 in CWA section 319 funding supports statewide education, outreach, and monitoring efforts through the Blue Thumb program.

The Oklahoma cost-share program provided \$4,142 in state funding for BMPs in this watershed from 2001 to 2006 through the Woodward County Conservation District, and landowners contributed \$7,564 through this program. An additional \$23,000 in BMPs was installed in 2009. NRCS has spent more than \$2 million for implementation of BMPs in



Figure 2. Installing alternative water supplies and cross-fencing allows optimal grazing management, which improves pasture condition, reduces erosion of soil and nutrients, and ultimately improves water quality.

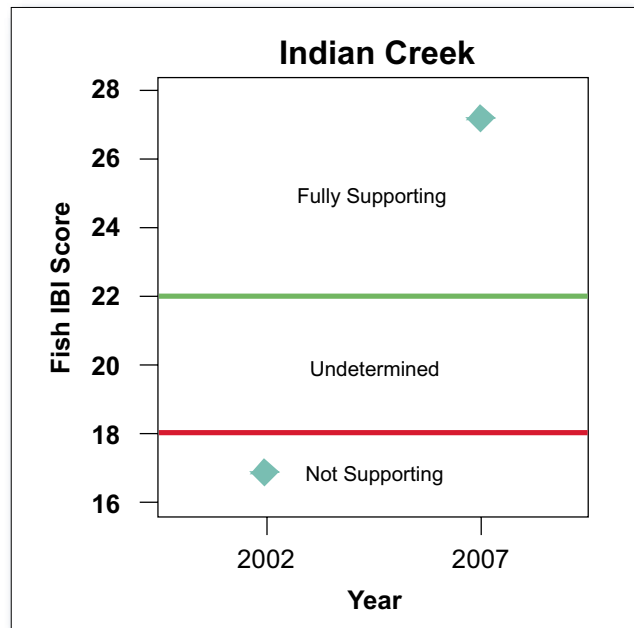


Figure 3. Fish assessment data collected in 2007 showed that Indian Creek is now in full attainment of its fish and wildlife propagation designated use.

the watershed since 2003. Implementation continues through EQIP, CSP, WHIP, and NRCS general technical assistance funds. Landowners provided a significant percentage of funding toward BMP implementation in these programs as well.



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