Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Indiana

Implementing Best Management Practices and Conducting Education and Outreach Restores Jenkins Ditch

Waterbody Improved

Agricultural activities related to crop cultivation and hydrological modification contributed nonpoint source pollution to Jenkins Ditch, causing the waterbody to fail to support its aquatic life designated use. As a result, the Indiana Department of Environmental Management (IDEM) added Jenkins Ditch (a 2.13-mile segment) to Indiana's Clean Water Act (CWA) section 303(d) list of impaired waters in 2006 for poor fish community biological integrity. Stakeholders implemented best management practices (BMPs) in the watershed and conducted education and outreach activities to raise community awareness, resulting in improved water quality. The waterbody now supports its aquatic life designated use. As a result, IDEM removed Jenkins Ditch from Indiana's list of impaired waters in 2012.

Problem

Jenkins Ditch is a 2.13-mile-long headwater tributary of the Jenkins Ditch–South Fork Wildcat Creek (SFWC) subwatershed in Clinton County, Indiana. It is in the eastern portion of the SFWC watershed and is classified as a legal drain. The SFWC watershed covers approximately 250 square miles, including more than 60 miles of streams (Figure 1). About 36 miles of these streams are listed as Outstanding Rivers by the Indiana Natural Resource Commission. Row-crop agriculture (mostly corn and soybeans) accounts for 78 percent of the land use in the Jenkins Ditch–SFWC subwatershed. Some of the natural SFWC headwaters, including Jenkins Ditch, have been classified as open drainage channels and have been modified through channelization and dredging to help drain agricultural areas. In the past, crop-related agricultural activities and hydrological modification contributed sediment and other nonpoint source pollutants to Jenkins Ditch.

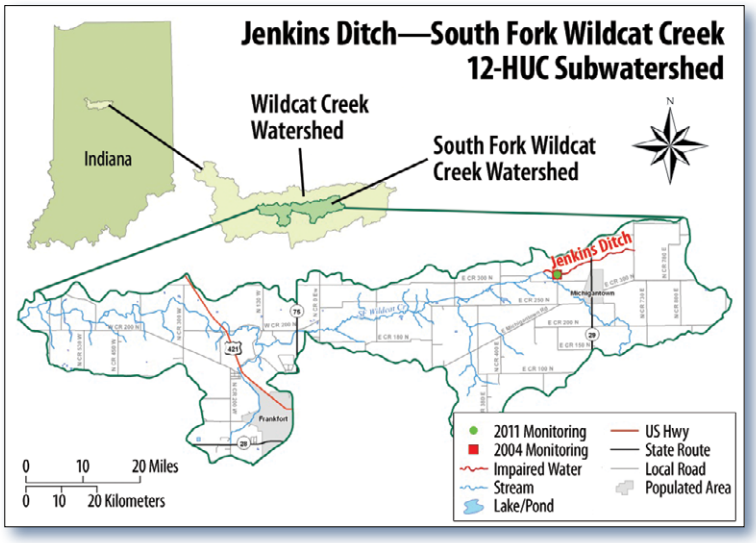

Figure 1. Map of Jenkins Ditch–South Fork Wildcat Creek subwatershed with IDEM sampling sites.

The biological integrity of a stream is measured using the Index of Biotic Integrity (IBI), a tool used to assess the effect of anthropogenic disturbances on a stream based on its biota. In Indiana, streams that have IBI scores of equal to or greater than 36 are considered to be supportive of the biological integrity, as derived from the state's narrative water quality standard. Biological fish community data collected by IDEM in 2004 showed that Jenkins Ditch received an IBI score of 30, indicating that it failed to support its aquatic life designated use. Consequently, in 2006 IDEM added the entire 2.13-mile segment of Jenkins Ditch (assessment unit INB0742 _ T1001) to Indiana's CWA section 303(d) list of impaired waters for poor biological integrity for fish communities. In 2008 IDEM developed a total maximum daily load (TMDL) for *Escherichia coli*, total suspended solids, and nitrate-nitrite in the SFWC subwatershed.

Project Highlights

Landowners have implemented BMPs on more than 20 percent of the land area of the Jenkins Ditch–SFWC subwatershed. The BMPs include conservation crop rotation, residue and tillage management, pest and nutrient management plans,

waste management practices, filter and buffer strips, and habitat management practices. From 1999 to 2003, the Indiana Association of Soil and Water Conservation Districts (IASWCD) used grants to fund two technical assistant positions to help reduce the backlog of conservation practices within the larger Wildcat Creek watershed. The technical assistants helped landowners design, survey, and implement conservation practices, placing priority on practices that could address the identified water quality concerns. Using funds provided through the IASWCD, the Wildcat Creek Watershed Network (now known as the Wildcat Creek Watershed Alliance) hired an executive director/watershed coordinator to develop a long-term strategic plan for the larger Wildcat Creek watershed, which includes SFWC and Jenkins Ditch. Although these grant-funded activities occurred before Jenkins Creek was officially listed as impaired, they built the foundations for future planning and implementation efforts that improved Jenkins Ditch.

From 2005 to 2012, watershed partners conducted education and outreach through stakeholder meetings, public workshops, field days, newsletters, and community cleanups to raise awareness and prompt behavior changes in community members within the entire SFWC watershed community. Workshop topics included information on BMPs such as the use of cover crops, proper septic system management, and soil health maintenance.

Results

Biological fish community data collected by IDEM in 2011 indicated that water quality in Jenkins Ditch has improved, thanks to watershed restoration efforts. Jenkins Ditch earned an IBI score of 38, meeting Indiana's water quality standards. Jenkins Ditch now fully supports its aquatic life designated use. On the basis of these data, IDEM removed Jenkins Ditch from Indiana's list of impaired waters in 2012.

Partners and Funding

Among the many partners involved in these activities were the Clinton, Howard, Tipton, and Tippecanoe County Soil and Water Conservation Districts (SWCDs); the Greater Wabash River Resource Conservation and Development Council; Purdue Cooperative Extension; Hoosier Riverwatch; and the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS).

Figure 2. Jenkins Ditch in 2011.

Partners used $729,000 in CWA section 319 funds to implement restoration projects throughout the SFWC watershed. Another $462,000 in CWA section 319 matching funds supported the work of a variety of project partners: (1) The Clinton County SWCD served as a project leader, facilitating water quality data management, developing watershed management plans, and organizing education and outreach events (efforts that were also supported by $116,700 in CWA section 205 matching funds); (2) Commonwealth Biomonitoring performed chemical and biological watershed monitoring from 2010 to 2011; (3) local participants in cost-share programs implemented and installed various water quality conservation practices; (4) IASWCD provided two technical assistants in 1999 to focus on conservation practices that address water quality concerns within the greater Wildcat Creek watershed; and (5) members of the Wildcat Creek Watershed Alliance developed the *Wildcat Creek Long-term Strategic Plan*. Partners used another $113,000 in CWA section 205 funds to develop a watershed management plan for critical areas throughout the SFWC watershed.

IDEM also used CWA section 106 funding to conduct field sampling in 2004 and 2011. USDA's Farm Service Agency provided at least $1.11 million in Conservation Reserve Program and Conservation Reserve Enhancement Program funds to implement BMPs in Clinton County. NRCS provided at least $1.54 million in Conservation Stewardship Program, Environmental Quality Incentives Program, and Wildlife Habitat Incentive Program funds to install an animal mortality facility structure, enroll 371 acres in comprehensive nutrient management programs, plant 32 acres in pasture/hay, and install 2,500 feet of fencing in the Jenkins Ditch area.

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For additional information contact:

Bonny Elifritz
Indiana Department of Environmental Management
317-308-3082
belifrit@idem.in.gov