Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Indiana

Planning, Educating Landowners and Installing Management Practices Restore Bull Run/West Creek Watershed

Waterbodies Improved

Nonpoint source pollution from agricultural and urban areas caused waters in the Bull Run/West Creek watershed to fail to support a healthy biotic community. As a result of this impairment, the Indiana Department of Environmental Management (IDEM) added Bull Run (in 2002) and West Creek (in 2008) to Indiana's Clean Water Act (CWA) section 303(d) list of impaired waters. Using CWA section 319 funds, project partners educated stakeholders about sound agricultural management and implemented best management practices (BMPs) throughout the watershed to control erosion and address urban and agricultural runoff. Recent monitoring data show that the Bull Run segment meets water quality criteria for healthy biotic communities. Therefore, IDEM will propose to remove both segments from the state's 2012 CWA section 303(d) list of impaired waters.

Problem

The Bull Run/West Creek watershed is in northwest Indiana's Lake County, in the Kankakee River Basin. Bull Run, a 6.04-mile-long stream in the watershed's headwaters, joins St. John Ditch to form West Creek, which flows 19.05 miles before emptying into Singleton Ditch. Bull Run lies within an agricultural area (Figure 1), while its confluence with St. John Ditch at West Creek lies within a predominantly urban area.

Data showed that areas of the watershed failed to support healthy biotic communities. Biotic communities are considered impaired on the basis of the narrative water quality standards and the fish Index of Biotic Integrity (IBI), a measurement of stream health based on multiple attributes of the resident fish population. An IBI score of 36 or greater is considered supportive of a healthy biotic community; a score below 36 indicates that the biotic community is impaired and requires development of a total maximum daily load (TMDL) or installation of improvement activities.

Bull Run data collected in 1999 revealed a fish IBI score of 0, and West Creek data collected in 2004 and 2005 showed an IBI score ranging from 16 to 32 (Figure 2). As a result, IDEM added both Bull Run (in 2002) and West Creek (in 2008) to the state's CWA section 303(d) list because of impaired biotic communities. No TMDL was developed for Bull Run/West Creek.

Figure 1. Agricultural activities are the dominant land use surrounding Bull Run.

IDEM identified nonpoint source runoff as the main contributor to the biotic community impairment. Key pollutant sources in the watershed included runoff from row crops, improper manure spreading, livestock with direct access to streams, leaking and failing septic systems, stream bank erosion and urban stormwater runoff. Contributing point source pollutants included one municipal separate storm sewer system (MS4). That facility did not have a history of violating its MS4 permit, and it worked within the MS4 community to implement BMPs and identify outfall locations to address stormwater runoff.

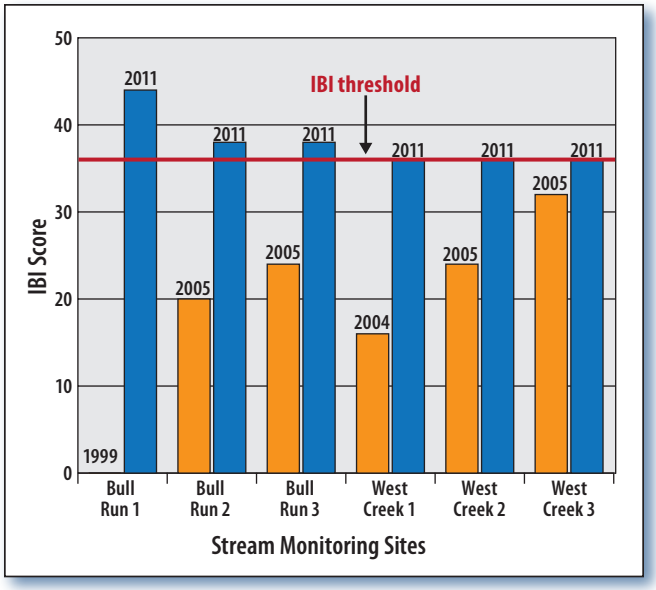

Figure 2. Biological data show that water quality has improved in the Bull Run/West Creek watershed.

Project Highlights

Since 1990 IDEM has supported nine CWA section 319 and 205(j) projects in the greater Lake County area. Project funds were used to develop a comprehensive watershed management plan, identify critical areas and priority actions to improve water quality, and implement demonstration BMPs to control sediment loading and erosion in urban areas. The Indiana Department of Natural Resources (IDNR) hosted education events on urban runoff and its effects on water quality.

Between 1997 and 2004, IDEM staff used CWA section 319 funds to help local farmers implement conservation tillage BMPs and identify additional federal funding opportunities to support BMP implementation. Since 2004 the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) has funded staff to provide this kind of support to local landowners. These combined efforts have led to an 80 percent rate of adoption of conservation tillage practices among farmers in the watershed. Furthermore, a number of farmers have adopted no-till cropping practices, in which agricultural fields are left largely undisturbed from harvest to planting.

The Town of St. John cleared silt from several ditches and reseeded the areas to prevent further erosion. The Town continues to speak with homeowners' associations about how to enhance the stormwater management within their respective subdivisions. The Town has improved stormwater quality by maintaining replanted native vegetation along the Dyer and St John ditches and the tributary to Turkey Creek.

Results

Water quality monitoring data collected in 2011 show that IBI scores in Bull Run and West Creek have improved. The scores now meet or exceed an IBI score of 36, indicating that the biotic community is no longer impaired (Figure 2). Therefore, IDEM will propose to remove both segments (25.09 miles total) from the state's CWA section 303(d) list in 2012.

Partners and Funding

The Northwest Indiana Regional Planning Commission worked closely with the Lake County Soil and Water Conservation District; NRCS regional conservation staff; and a number of state and local partners, including IDNR, the Indiana State Department of Agriculture, and the Lake County Health Department. Partners contributed resources to support educating landowners, identifying pollutant sources and critical areas for potential water quality improvement projects, and conducting outreach to stakeholders. Since 1996 NRCS and the USDA Farm Service Agency have spent an average of $120,000 per year in the Bull Run/West Creek watershed to promote conservation practices, particularly controlled tillage practices.

Since 1990 IDEM has directed $484,787 in CWA section 319 funds and $111,800 in CWA section 205(j) funds, as well as $121,196 in local in-kind and cash match, to fund water quality projects in the Bull Run/West Creek watershed. Between 1997 and 2004, IDEM directed $1,009,364 of CWA section 319 funds to implement agricultural BMPs statewide, including within the Bull Run/West Creek watershed, and to fund IDEM staff working directly with farmers. The St. John MS4 has made a large capital investment—the purchase of three new global positioning system units, which will be used to enhance the existing outfall and BMP location data. More accurate and easily accessible information will help the Town of St. John make future decisions on identifying potential sites for BMP implementation.

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