



NONPOINT SOURCE SUCCESS STORY

Indiana

Aquatic Life Use Restored in Two Hogan Creek Watershed Streams

Waterbodies Improved

The Indiana Department of Environmental Management (IDEM) listed South Hogan Creek on its Clean Water Act (CWA) Section 303(d) List of Impaired Waters in 2002 due to high levels of *Escherichia coli* and impaired biotic communities. In 2014, IDEM also listed Little Hogan Creek on its Section 303(d) List for *E. coli* and impaired biotic communities. To address these concerns and others, partners developed and implemented the Hogan Creek Watershed Project (HCWP) in 2005, out of which the Hogan Creek Watershed Management Plan (WMP) was developed. After years of best management practice (BMP) implementation and education and outreach in the watershed, monitoring at South Hogan Creek and Little Hogan Creek revealed that both segments now fully support aquatic life. IDEM will propose to remove both biotic community impairments from its impaired waters list in 2022.

Problem

Hogan Creek flows from its headwaters in northeast Ripley County until it reaches its confluence with the Ohio River, just north of the town of Aurora in southeastern Indiana. Within the greater Hogan Creek watershed (HUC 0509020304) are Little Hogan Creek and South Hogan Creek, in adjacent subwatersheds, comprising approximately 14.5 miles of stream combined (Figure 1). The Hogan Creek watershed is approximately half agricultural and half forested land. According to the 2007 Hogan Creek WMP, the Hogan Creek Steering Committee identified the top five concerns within the watershed as water quality, dumping of garbage, failed septic systems, erosion of cropland and urbanization. A windshield survey conducted by members of the Hogan Creek Technical Committee in 2006 identified numerous farms that allowed livestock direct access to two tributaries of Hogan Creek and had numerous overgrazed pastures.

In 2000, IDEM's Probabilistic Monitoring Program sampled South Hogan Creek (INV0343_01) and discovered a failing Index of Biotic Integrity (IBI) score of 20 for its fish community. In Indiana, an IBI score of less than 36 indicates that a stream is not supporting a well-balanced aquatic community. This caused IDEM to list the segment on its 2002 CWA Section 303(d) List of Impaired Waters for impaired biotic communities. IDEM returned to the same site in 2014 to reevaluate the fish community through its Performance Monitoring Program and again discovered a failing IBI



Figure 1. Hogan Creek is in southeastern Indiana.

score of 30. In 2010, IDEM's Probabilistic Monitoring Program sampled Little Hogan Creek (INV0341_T1007) and found the segment to have a failing IBI score of 34 (30 at the site revisit) for its macroinvertebrate

community. This led IDEM to list this segment on its 2014 CWA Section 303(d) List of Impaired Waters for impaired biotic communities.

Story Highlights

The Dearborn County Soil and Water Conservation District (SWCD) initiated the HCWP in 2005 and created the Hogan Creek Steering Committee to oversee it. The goals of the project were to educate community members about water quality, develop a WMP, perform water quality testing and conduct an extensive outreach program. The committee completed the Hogan Creek WMP in 2007.

The HCWP received four 319 implementation grants from 2008 to 2018 (totaling \$757,851 to date). These funds supported implementing over 2,200 acres of cover crops; 56,398 feet of fencing; and over 98,439 square feet of heavy use area protection (HUAP) in the two subwatersheds containing Little Hogan Creek and South Hogan Creek. Additionally, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) helped implement numerous BMPs in the subwatersheds in 2005–2019, including 114 acres of cover crops; 19,000 feet of fencing; 192 acres of forage/biomass planting; 245 acres of prescribed grazing; 14 watering facilities; and 0.2 acres of wetland creation. Further, the Indiana State Department of Agriculture Clean Water Indiana (CWI) Program supported additional BMPs in these subwatersheds in 2013–2019, including 2,005 acres of cover crops; 112 acres of no-till management; 37 acres of forage and biomass planting; and more.

Results

IDEM conducted Performance Monitoring in 2015 on Little Hogan Creek, which showed great improvement. The macroinvertebrate IBI score was 44 and no longer failing. The fish IBI (which had not been failing) had also slightly improved. IDEM also conducted Performance Monitoring on South Hogan Creek in 2019, which showed a greatly improved fish IBI score of 50. The macroinvertebrate IBI (which had not been failing) had remained the same. In addition, the stream habitat was flourishing and showed small improvement from the previous visit, with a Qualitative Habitat Evaluation Index score of 77 (Figure 2). IDEM has determined that a score of less than 51 is indicative of



Figure 2. South Hogan Creek now fully supports aquatic life use.

poor habitat. Because South Hogan and Little Hogan creeks now fully support aquatic life, IDEM will propose to remove both biotic community impairments from its list of impaired waters in 2022.

Partners and Funding

Various partners have helped restore the greater Hogan Creek watershed over the past 15 years. IDEM awarded the Dearborn County SWCD \$78,376 in CWA 205j funds to develop the Hogan Creek WMP, in addition to an award of \$757,851 in CWA 319 funding to carry out the four implementation projects. Dearborn County and other local partners provided local match totaling \$888,085 for BMPs and other associated project costs. The project's success was also due to its strong partnerships with Historic Hoosier Hills Research Conservation and Development (HHH RC&D) Program and the Ripley County SWCD in project implementation. HHH RC&D assisted with administrative duties and outreach; Ripley County assisted with the project's outreach, education and cost-share efforts. At the county level, in 2013 and 2018 Dearborn County SWCD received a total of \$91,542 in CWI grants and Ripley County SWCD received \$150,000 in 2015–2016. NRCS was also a key partner for the project's cost-share program. In the two subwatersheds containing Little Hogan Creek and South Hogan Creek, NRCS provided BMP promotion, design and installation at a total cost of \$190,746, through its Conservation Stewardship, Environmental Quality Incentives and Wildlife Habitat Incentives programs.



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