



NONPOINT SOURCE SUCCESS STORY Update

Indiana

Aquatic Life Use Restored in Two Hogan Creek Watershed Streams

Update Overview

The Indiana Department of Environmental Management (IDEM) listed several streams in the Hogan Creek watershed on its Clean Water Act (CWA) Section 303(d) List of Impaired Waters beginning in 2002 due to elevated *Escherichia coli*, impaired biotic communities, and low dissolved oxygen (DO). 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 implementing best management practices (BMPs) and education and outreach in the watershed, monitoring revealed that aquatic life and/or recreational use is supported. IDEM removed biotic community impairments in Little Hogan and South Hogan Creeks from the CWA 303(d) list in 2022 (see [earlier success story](#)) and will propose to remove *E. coli* and DO impairments from Goose Run and Little Hogan Creek in 2024.

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 (Figure 1). The greater Hogan Creek watershed (HUC 0509020304) includes Little Hogan Creek, South Hogan Creek, and Goose Run, in adjacent subwatersheds, constituting approximately 35 miles of stream combined. The Hogan Creek watershed is nearly 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, cropland erosion, and urbanization. A windshield survey conducted by members of the Hogan Creek Technical Committee in 2006 identified farms that allowed livestock direct access to two tributaries of Hogan Creek and had numerous overgrazed pastures.

IDEM measured water quality in the watershed in 2010 as part of its Ohio River probability monitoring program and discovered that DO fell below the 4 milligrams per liter (mg/L) state standard on Goose Run, measuring at 2.42 mg/L. Additionally, *E. coli* was elevated on Little Hogan Creek (INV0341_T1006). Elevated (in this case) means that two individual sampling events were above the single sample maximum of 235 colony-forming units (CFU)/100 milliliters (mL) and the geometric mean of five equally spaced samples collected over a 30-day period was greater than the state water quality standard of 125 CFU/100 mL.

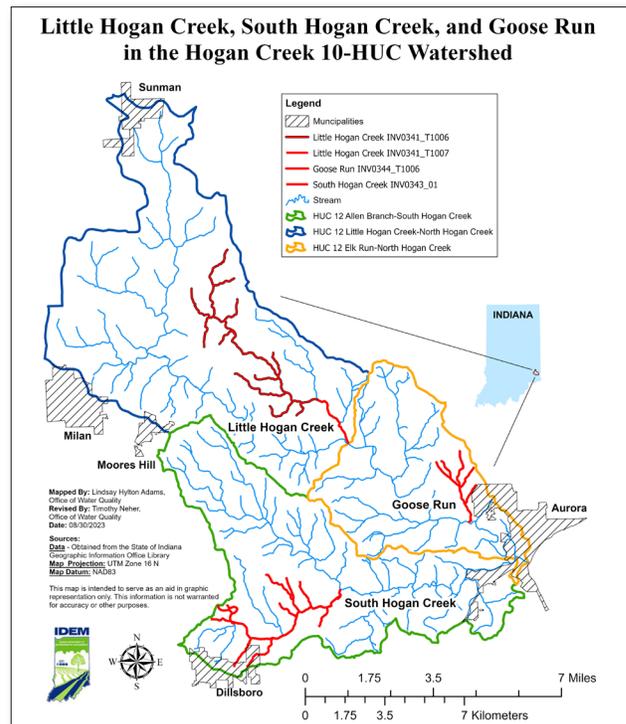


Figure 1. Southeastern Indiana's greater Hogan Creek watershed includes the Little Hogan Creek, South Hogan Creek, and Goose Run subwatersheds.

Story Highlights

The Dearborn County Soil and Water Conservation District (SWCD) formed the HCWP in 2005, and the resulting WMP was approved in 2007. Since the approval of the WMP, the group has received four CWA section 319 implementation grants. See the 2020 success story, [Aquatic Life Use Restored in Two Hogan Creek Watershed Streams](#), to learn about efforts through 2018 that restored Little Hogan and South Hogan creeks. The most recent grant was administered in 2018, where the HWCP used the funding to install BMPs in critically needed areas within the watershed. The fourth round of implementation concluded in February of 2022, marking 14 years of BMP implementation.

Since the initial funding of section 319 implementation dollars in 2008, the HWCP has received \$757,851 in federal grant money. These dollars have supported the implementation of several BMPs within the watershed, notably over 3,500 acres of cover crops; 2,600 feet of access roads; 96,000 feet of fencing; 232,330 square feet of heavy use area protection; 180 acres of pasture and hay planting; 1,100 acres of roof runoff management; and 44 watering facilities.

Additional funding was acquired through the Clean Water Initiative Program sponsored by the Indiana State Department of Agriculture, which supported another 300 acres of cover crops, 50 feet of access roads, and one watering facility. Likewise, the U.S. Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) helped implement numerous BMPs in the watershed in 2005–2021, including over 1,100 acres of cover crops; 7,500 feet of fence; 31,300 square feet of heavy use area protection; 1,000 acres of improved nutrient uptake efficiency; 9,000 feet of livestock pipeline; and 13 watering facilities. The HWCP is proud of the work done in the watershed over the many years and are considering updating the 2007 WMP.

Results

IDEM conducted performance monitoring in 2022 on Little Hogan Creek, which showed significant improvements from previous performance monitoring at three separate stream branches within the watershed. These three stream segments now fully support their designated aquatic life uses due to improved water quality throughout the watershed. The Little Hogan Creek showed five DO measurements taken in April 2022 ranging from 9.43 mg/L to 13.08 mg/L. The upstream segment of Little Hogan Creek measured *E. coli* at a geometric mean of 99 CFU/100 mL, below the impairment threshold of 126 CFU/100mL. And finally, the Goose Run monitoring showed five DO values ranging from 9.4 mg/L to 13.4 mg/L. All three monitored stream segments are meeting their aquatic life uses, and IDEM will propose to remove the impairments from its list of impaired waters in 2024.

Partners and Funding

The partnerships involved in the HCWP have been crucial to the success of the watershed restoration over the past 18 years. The partnership with IDEM led to the funding of the WMP with the CWA section 205(j) funds of \$78,376, as well as the subsequent section 319 funding of the four implementation projects that totaled \$757,851 with a \$888,086 match in cost-share. The USDA-NRCS partnership provided \$170,871 through the Environmental Quality Incentives Program and the Conservation Stewardship Program. Additionally, the Indiana State Department of Agriculture partnership provided \$241,542 of funding through the Clean Water Initiative. The success of the watershed implementation was also due to the Historic Hoosier Hills Resource Conservation and Development Program's support of administrative duties and outreach and Ripley County SWCD for their assistance with project outreach, education, and cost-share program efforts. Other important partnerships included Purdue Extension, Dearborn County Health Department, IDNR, ORSANCO, and the City of Aurora.



U.S. Environmental Protection Agency
Office of Water
Washington, DC

EPA 841-F-24-001G
March 2024

For additional information contact:

Angie Brown
Indiana Department of Environmental Management
317-308-3102 • abrown@idem.IN.gov