



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Illinois

Installing Best Management Practices Restores Indian Creek

Waterbody Improved

The presence of priority organics (endrin and methoxychlor) in Illinois's Indian Creek prompted the Illinois Environmental Protection Agency (Illinois EPA) to include a 10.5-mile-long segment of the creek on the 2000 *Illinois Water Quality Report* for not fully supporting the aquatic life designated use. Stakeholders implemented best management practices (BMPs) including rain gardens and streambank restoration to reduce priority organics by controlling erosion and urban runoff. Pollutant loading into Indian Creek dropped and water quality improved. Post-project monitoring data demonstrated that Indian Creek now fully supports its designated use for aquatic life, prompting Illinois EPA to remove the creek segment from the state's list of impaired waters in 2010.

Problem

The Indian Creek watershed drains a 38-square-mile area in southern Lake County in northeastern Illinois (Figure 1). Indian Creek discharges into the Des Plaines River near Lincolnshire, Illinois. The Indian Creek watershed encompasses numerous municipalities, including Buffalo Grove, Hawthorn Woods, Indian Creek, Lake Zurich, Libertyville, Lincolnshire, Long Grove, Kildeer, Mundelein, and Vernon Hills, and portions of Fremont, Ela, Vernon and Libertyville townships. Four major stream branches extend over 40 miles within the watershed—the Indian Creek main stem, Kildeer Creek, Diamond Lake Drain and Seavey (Hawthorn) Ditch. The watershed contains approximately 650 acres of lakes, including 12 situated along major stream branches. Its key land uses are residential areas (38 percent) and agricultural areas (16 percent).

On the basis of monitoring data collected in the 1990s, Illinois EPA reported in the 2000 *Illinois Water Quality Report* that a 10.5-mile-long segment of Indian Creek (segment GU-02) failed to fully support its aquatic life designated use, in part because of the priority organics endrin and methoxychlor. Municipal point sources, construction, land development, urban runoff/storm sewers, and contaminated sediments were identified as potential sources contributing to the impairment. Priority organics (endrin and methoxychlor) would remain a cause of impairment for segment GU-02 through the 2008 *Illinois Integrated Water Quality Report and Section 303(d) List*.

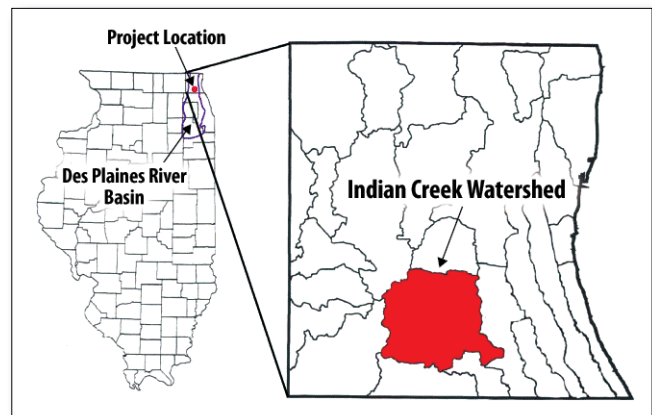


Figure 1. Indian Creek flows through southern Lake County in northeastern Illinois.

Project Highlights

The Indian Creek Watershed Committee (ICWC) was formed in 1999 to provide stakeholders in the watershed with an opportunity and forum to express their concerns, and to provide direction for watershed restoration through the watershed planning process. The Lake County Stormwater Management Commission (LCSMC) and the watershed project team, including committee members, Applied Ecological Services, Inc. (AES) representatives, and other interested parties, held regular monthly meetings to form the vision, goals and objectives for restoring the watershed.



Figure 2. Stabilizing the streambanks on Seavey Ditch, a tributary to Indian Creek, helped to reduce erosion and improve water quality.



Figure 3. Watershed partners installed a 2,046-square-foot rain garden in West Shore Park to treat stormwater runoff from area roadways.

Using Clean Water Act (CWA) section 319 funding support, the watershed partners, including the Chicago Metropolitan Agency for Planning, AES Inc., and others, initiated an upgrade of the Indian Creek watershed plan in 2004 to make the plan consistent with U.S. EPA's guidance for watershed-based plans. The upgraded plan was aimed at improving water quality by controlling nonpoint source pollution throughout the watershed. The initial upgrade was completed in June 2006; the plan was updated again in 2008. The *Indian Creek Watershed-based Plan* was adopted in 2009.

From 2001 to 2011, Illinois EPA completed four nonpoint source pollution control projects funded under CWA section 319 to implement BMPs in the Indian Creek watershed. The projects included 10,292 feet of streambank and shoreline protection (Figure 2), 6.3 acres of wetland restoration, two grade stabilization structures and one rock outlet protection structure to control water flow and prevent soil erosion, three rain gardens (Figure 3), 0.8 acre of urban filter strip, and an urban stormwater wetland to control stormwater runoff.

The projects also included a water quality monitoring component to assess water quality improvement as a result of BMP implementation. These monitoring efforts tracked changes in total suspended solids and total phosphorus loading to assess how well the BMPs had reduced the impact of runoff into the Indian Creek and other waterbodies in the watershed. The monitoring results also helped to guide BMP design and implementation.

Results

Illinois EPA estimates that the four CWA section 319-funded projects in the Indian Creek watershed reduced annual pollutant loadings by approximately 674 tons of sediment, 145,409 pounds of total suspended solids, 483 pounds of phosphorus and 1,131 pounds of nitrogen. Because priority organics adsorb to sediments and can be carried to waterbodies in stormwater runoff, the implemented BMPs also reduced the levels of priority organics moving through the Indian Creek system. Based on Illinois EPA monitoring data, Indian Creek was identified as fully supporting its aquatic life designated use in 2010. Priority organics (endrin and methoxychlor) were removed as a cause of impairment in the 2010 *Illinois Integrated Water Quality Report and Section 303(d) List*. Therefore, segment GU-02 was removed from the state's list of impaired waters in 2010. Monitoring data continued to show full support of the aquatic life designated use in 2012.

Partners and Funding

Contributing a total of \$1,493,243 of CWA section 319 funds, Illinois EPA partnered with the Chicago Metropolitan Agency for Planning, AES, Countryside Lake Association, LCSMC and local landowners to implement BMPs in the Indian Creek watershed. Local partners provided \$1,418,087 in matching funds, bringing the total cost for the projects to \$2,911,330.



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