



NONPOINT SOURCE SUCCESS STORY

New Jersey

Green Infrastructure and Restoration Projects Improve Water Quality in the Cooper River

Waterbody Improved

Extensive urbanization resulting in a severely degraded stream corridor led to the 2006 impairment of the upper south branch of the Cooper River for turbidity. The Camden County Soil Conservation District (CCSCD), project partners and volunteers implemented extensive green infrastructure, restoration and education projects throughout the Cooper River watershed. Together, these projects significantly reduced untreated stormwater runoff from impervious surfaces through infiltration. Water quality improved as a result of these activities, prompting the New Jersey Department of Environmental Protection (NJDEP) to remove the Cooper River above Evesham Road (hydrologic unit code [HUC] 02040202110030) assessment unit (AU) from the 2014 Clean Water Act (CWA) section 303(d) list for turbidity.

Problem

The Cooper River watershed encompasses about 50 square miles within the inner coastal plain of southern New Jersey (Figure 1). The watershed discharges to the Delaware River at the city of Camden. Development over the past few generations has pushed urban land use above 70 percent, with impervious cover exceeding 25 percent. High runoff rates have caused extensive streambank erosion and siltation problems throughout the watershed. Within densely developed Camden County, the Cooper River (HUC 02040202110) is impaired by a variety of pollutants. A significant cause of these impairments is the extensive quantity of impervious area that drains directly to the river. The stream corridor is severely degraded. Data collected in 2002–2005 showed that turbidity levels exceeded state standards. As a result, the upper south branch of the Cooper River (HUC 02040202110030—above Evesham Road AU) was listed as impaired due to turbidity in 2006. Other Cooper River AUs are also listed as impaired for other parameters, including aquatic life, phosphorus, fecal coliform bacteria and turbidity.

Story Highlights

The Cooper River Regional Stormwater Management Plan (watershed-based plan), developed by the CCSCD, was approved in May 2006. The plan identifies and prioritizes opportunities for the implementation of stormwater best management practices (BMPs) and

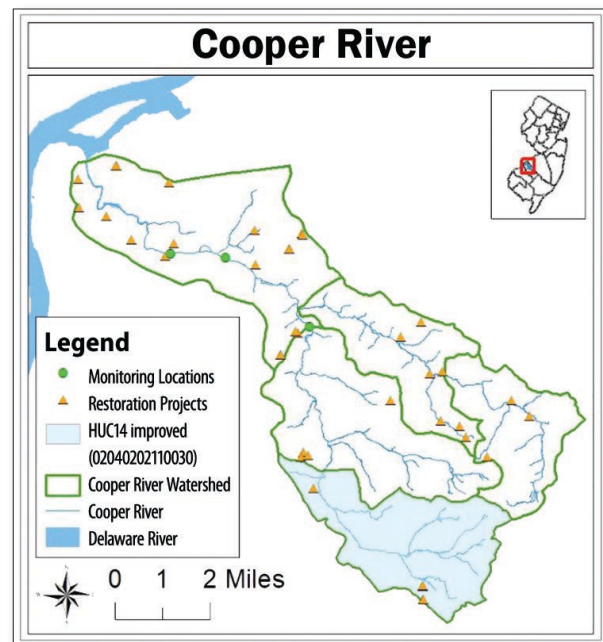


Figure 1. Map of Cooper River restoration projects and monitoring stations.

management strategies to reduce peak flows from high-frequency storms. The plan also determined that urban runoff was a significant source of pollutants in the watershed, especially for nutrients and turbidity.

Project sites for the implementation of green infrastructure were identified and prioritized in the approved plan. The CCSCD, along with project



Figure 2. Completed rain garden at Subaru of America in Cherry Hill, New Jersey.

partners such as Rutgers Cooperative Extension Water Resources Program, Rutgers Cooperative Extension of Camden County, and extensive volunteer effort, began implementing the plan in 2007. To date, approximately 42 rain gardens, 14 stormwater basin retrofits, a stream bank restoration, a floating island pond treatment unit, a biofilter wetland and a buffer restoration have been implemented (Figure 2). Partners constructed most of these projects on public lands: schools, parks, community centers or within the median of municipal roadways. However, several demonstration rain gardens were constructed on commercial properties. In addition, partners implemented extensive education efforts to raise awareness about

the importance of reducing stormwater runoff in the watershed and how to implement low-cost solutions such as rain gardens and rain barrels.

Results

Implementing the Cooper River watershed-based plan significantly reduced untreated stormwater runoff from impervious surfaces through the addition of BMPs that allowed for infiltration of the water quality rainfall events. The latest data from stations USGS–01467150 (station 1), 31DELRBC WQX–Cooper River at Cuthbert Blvd (station 2), and 31DELRBC WQX–Cooper River near mouth (station 3), show that turbidity met the corresponding maximum and 30 day average water quality standards for the 2014 assessment period (Figure 3). The state standard requires that turbidity not exceed a maximum 30-day average of 10 nephelometric turbidity units (NTU), nor be more than 30 NTU at any time.

Partners and Funding

CCSCD completed these projects in partnership with the Rutgers Cooperative Extension Water Resources Program, Rutgers Cooperative Extension of Camden County, partners at six school districts, six municipalities and two corporations. NJDEP awarded CCSCD approximately \$1.1 million in CWA section 319(h) grant funds in 2007–2011. In-kind matching funds (approximately \$76,000) and extensive volunteer effort from project partners played an important role in the implementation of BMPs.

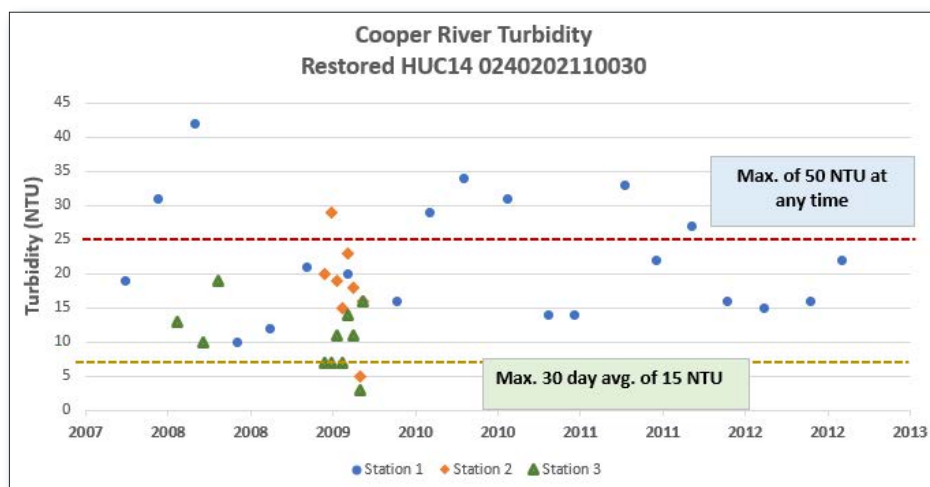


Figure 3. Turbidity levels in the Cooper River (2008–2012).



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