

Stormwater Solutions for North Carolina

Project Location

North Carolina National Estuarine Research Reserve, North Carolina

Project Lead

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Targeted End Users and Products

- [Project final report](#)
- [Smart Yards: a guide demonstrating stormwater volume reduction measures](#)

Project Partners

- [North Carolina Reserve](#)
- [City of Wilmington](#)
- [North Carolina Coastal Federation](#)
- [New Hanover County Soil and Water Conservation District](#)
- [North Carolina Department of Environment and Natural Resources](#)
- [Town of Wrightsville Beach](#)
- [University of North Carolina Wilmington](#)

About the Science Collaborative

The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. Learn more at www.nerrs.noaa.gov.

Overview

Stormwater pollution is the number one threat to coastal water quality in North Carolina, where it contributes to beach closures, impacts tourism, and interrupts shellfish harvests. Rapid urbanization, population growth, and a shifting climate have all converged to make it increasingly difficult for the state's communities to reduce the volume of stormwater washing over landscape and protect water quality. Excess runoff also leads to street flooding that ranges from being a nuisance to a danger to public safety. A team led by the [North Carolina reserve](#), the [North Carolina Coastal Federation](#), and the [University of North Carolina Wilmington](#) recently collaborated with local communities, nonprofits, and state agencies to reduce the volume of polluted stormwater runoff in southeast coastal North Carolina.

Project Benefits

- The design and installation of a series of stormwater reduction measures within the Town of Wrightsville Beach and City of Wilmington.
- Stormwater retrofits reduced the volume of stormwater draining from a nearby development and roadways into adjacent coastal waters. The measures allowed polluted runoff to soak into the ground rather than flow through a pipe directly into stormwater outfalls.
- Pre- and post-monitoring of the demonstration sites indicated that a majority of the retrofit sites resulted in a 50 to 90 percent reduction in stormwater volumes within the watersheds.

Project Approach

The North Carolina reserve leveraged that work by collaborating with the North Carolina Coastal Federation, the University of North Carolina Wilmington, state and local agencies, municipalities, development professionals, and homeowners to implement effective stormwater management techniques to improve coastal water quality.

Project Approach (continued)

- **Demonstration and monitoring:** Using collaboration and watershed restoration plans to frame the project, the team demonstrated, monitored, and shared various approaches to reducing stormwater volume in different contexts.
- **Installation:** They installed infiltration sites and retrofitted existing infrastructure at targeted sites within the project area. These projects increased the amount of stormwater that infiltrates into the ground and reduce the volume flowing into coastal waters.
- **Stakeholder engagement:** The team involved stakeholders through hosted interactive trainings for stakeholders, including trips to project sites. These events allowed stakeholders to develop an increased understanding of, and support for, the project and stormwater management practices.

