

# Watershed Management Planning and GIS Stormwater Modeling

## The Peconic Bay National Estuary Program

The Horsley Witten Group, Inc. (HW) assisted the Peconic Bay National Estuary Program on two separate projects to address stormwater pollutant loading and management in four pilot subwatersheds. Both projects were designed to address several goals of the Peconic Estuary Program's Comprehensive Conservation and Management Plan, including improving water quality and opening currently impacted shellfish beds.

The first project involved developing a watershed plan and model to assess stormwater fecal coliform and nitrogen loading in four subwatershed embayments within Peconic Bay. The stormwater loading model used a geographic information system (GIS) approach to assess existing land uses, watershed delineations and associated pollutant loadings within watersheds of concern during critical storm events. The model was used to develop priorities for implementing both regional and subregional stormwater mitigation projects. The project included assessment of over 50 mapped subwatershed areas; a review and assessment of existing federal, state, and local regulations available to protect receiving water quality; an education and outreach component to inform regulators and the public of various management alternatives and a review of alternative stormwater technologies.

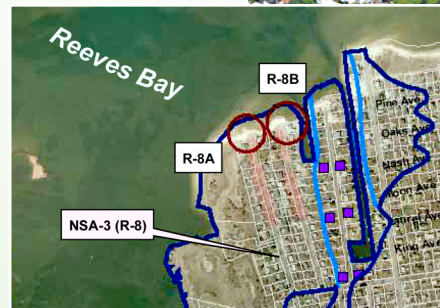
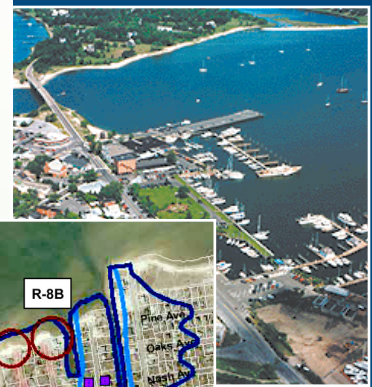
As a follow-up project, HW created detailed subwatershed management plans for each of the four pilot watersheds, which focused on addressing specific stormwater concerns but also incorporated habitat protection and land conservation components. HW ran the pollutant loading model under build-out conditions to identify subwatersheds with the greatest potential for increased pollutant loading in the future, reviewed updated GIS data to target priority areas for conservation and for stormwater retrofits and then conducted rapid field assessments to identify and prioritize areas for conservation and stormwater improvements. The subwatershed plans include a ranking matrix of all conservation and stormwater retrofit sites to help guide watershed managers in selecting the most cost effective project locations for implementation.

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