

What is green infrastructure?

Green infrastructure is a method of managing stormwater with naturalized features such as rain gardens and landscaping techniques.

Green infrastructure promotes water management that protects communities and restores or mimics a natural system. It incorporates both the natural environment and engineered systems to provide clean water and conserve ecosystem values and functions.

Traditional “gray” infrastructure is designed to channel water from one place to another as quickly as possible. Stormwater runoff directly enters storm drains and flows into streams and rivers. Green infrastructure allows water to recharge gradually into the ground. Slow absorption through healthy soil filters out impurities and replenishes groundwater.

Why does it matter?

As the Barnegat Bay watershed has developed over the years, much of the land has been disturbed or paved over with concrete, asphalt, and other impervious surfaces. Rainwater flows quickly over pavement and compacted earth, washing pollutants like fertilizer, pet waste, and road salt into waterways that flow into Barnegat Bay.

An overabundance of these pollutants has caused the Bay to become overloaded with nutrients such as nitrogen. Known scientifically as *eutrophication*, this unhealthy condition depletes oxygen in the water and diminishes the Bay’s capacity to support native fish, shellfish, and aquatic plants while encouraging algae blooms and a proliferation of stinging sea nettles. This unhealthy, polluted condition takes away from our enjoyment of the Bay.

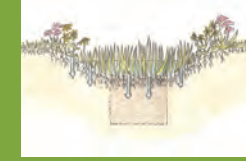
What are the benefits?

In addition to improving the health of creeks, rivers and Barnegat Bay for our enjoyment, green infrastructure also generates an abundance of beneficial outcomes ranging from a reduction in flooding to the creation of vital habitat for fish and wildlife.

Making use of healthy soil and native vegetation instead of pipes and concrete basins lowers water treatment costs and encourages groundwater recharge. Rain gardens and vegetated swales attract pollinators like birds, bees and butterflies and bring beauty and new vitality to public spaces.

1

Stormwater Basin Retrofits



There are roughly 2,700 stormwater basins in the 660-square-mile Barnegat Bay watershed, and the impact of retrofitting basins on a watershed-wide scale could greatly reduce pollutant loads. Stormwater basins collect and temporarily hold runoff from development such as buildings, streets and parking lots. Retrofitting ineffective stormwater basins reduces the amount of nitrogen, phosphorus and other pollutants washing into the Bay. Loosening and amending the soil at the bottom of a basin restores the soil’s natural ability to filter out pollutants while new native plants absorb nitrogen. Instead of flowing directly into waterways, runoff percolates through the soil and replenishes groundwater. Fewer pollutants reach the Bay, and flooding is reduced.

2

Bioswales

These gently sloped, often meandering drainage areas collect and slowly direct rainwater away from buildings, streets and parking lots. Amended soils and native vegetation within and around the swale filter out silt, fertilizer and other contaminants as the water is gradually absorbed back into the ground.

3

Porous Pavement

Unlike traditional paving materials, special asphalt, concrete and spaced paving allows rain and snow to seep into the ground beneath the surface, increasing groundwater recharge while decreasing stormwater runoff.



A bioswale collects and infiltrates stormwater in a highway median.

4

Bayscaping and Bay-Friendly Land Management

Bay-friendly land management and bayscaping are two types of green infrastructure programs developed by the American Littoral Society to protect and restore water quality in Barnegat Bay. The programs encourage building healthy soils, utilizing native plants, minimizing lawn areas and fertilizer use, conserving water, and creating habitat. Unlike lawns and high-maintenance exotic plants, native plants require little or no fertilizer, pesticides or watering. Hardy natives do well in the region’s sandy soils, help soak up excess water in problem drainage areas, and attract pollinators. Properly managed lands have healthy well-drained soils that percolate rainwater and remove pollutants from runoff. They may also include wide vegetated buffers or living, natural edges along ponds, streams and drainage channels to filter stormwater before it flows into waterways.



Native wildflowers are ideal for buffer zones and rain gardens.

5

Rain Gardens

Rain gardens are shallow depressions planted with native grasses, shrubs, and flowers, and situated where they can capture runoff from downspouts, parking lots and other paved areas. Attractive, inexpensive and relatively simple to install, they are among the easiest ways to reduce stormwater runoff, filter out pollutants, and encourage groundwater recharge.

6

Tree Boxes

Designed to collect and filter runoff, these precast concrete basins are installed at street level, filled with soil media, and planted with native trees or shrubs. Compact and attractive, they are ideal for retrofits in urban areas or where space is limited.

Green Infrastructure for Barnegat Bay

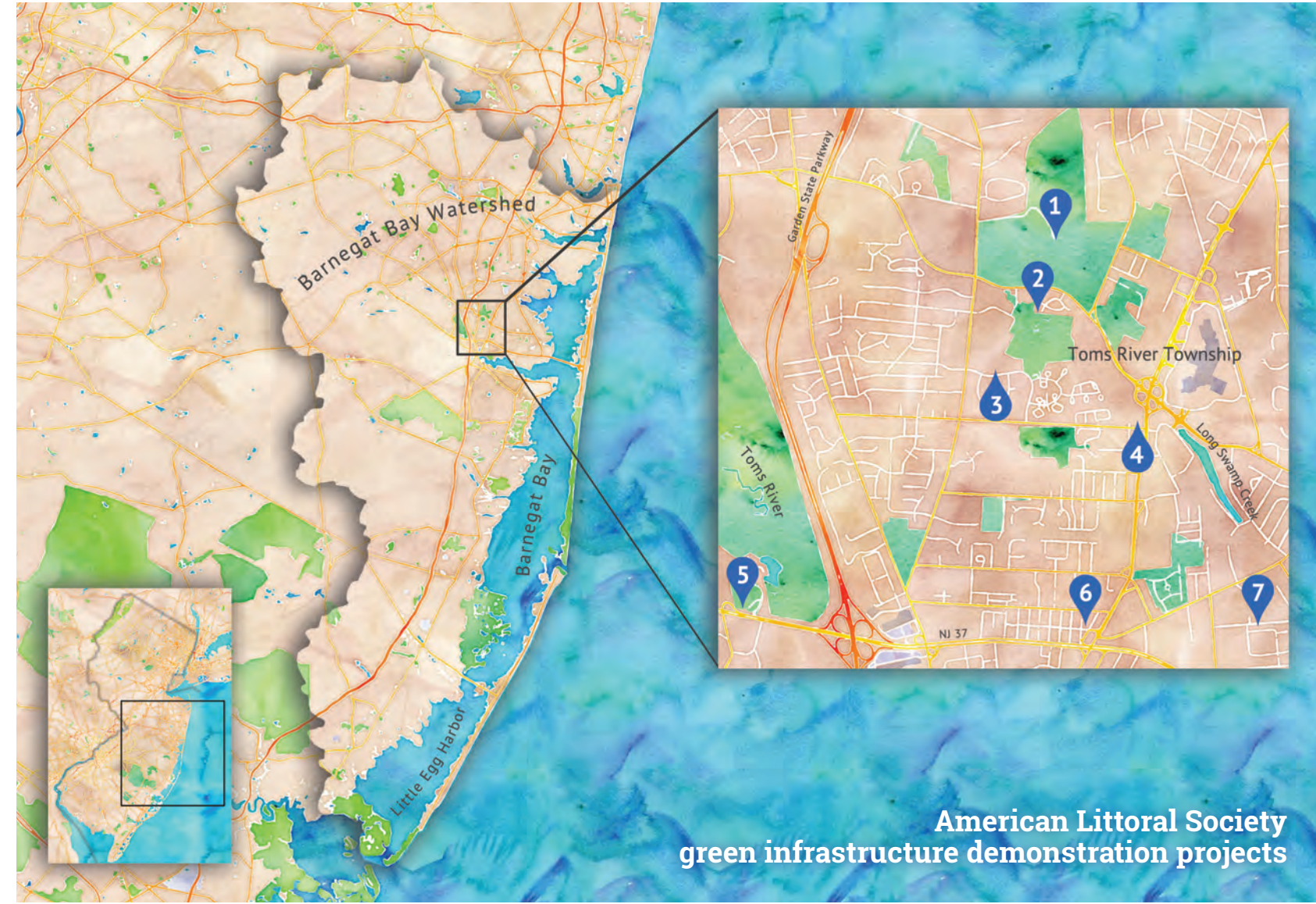
Clean and healthy water is crucial to our communities. The American Littoral Society is implementing a series of green infrastructure demonstration projects to improve water quality in Barnegat Bay and its tributaries by reducing pollutants entering the bay in stormwater runoff. The Society and its project partners are developing tools and techniques for government, businesses and individuals. These measures will yield cleaner and healthier water for people and wildlife throughout the Barnegat Bay watershed.

American Littoral Society

Since 1961, the American Littoral Society has promoted the study and conservation of marine life and habitat, defended the coast from harm and empowered others to do the same through advocacy, education and conservation. To learn more, visit www.littoralsociety.org.

Our Partners

Funding for this project was provided by a Watershed Restoration 319(h) Grant from the New Jersey Department of Environmental Protection (Grant #RP11-038). Thanks to our partners at Princeton Hydro, LLC, Ocean County Soil Conservation District, Ocean County Department of Planning, Ocean County Department of Engineering and Roads, and Jacques Cousteau National Estuarine Research Reserve.



American Littoral Society
green infrastructure demonstration projects

Our Demonstration Projects

- 1. Bey Lea Golf Course**
Land management program—Barnegat Bay-friendly certification
- 2. Toms River High School North**
Rain garden, “Bayscape for Barnegat Bay” native plant garden, tree boxes, and manufactured treatment device
- 3. Laurel Commons Homeowners Association**
Bio-retention basin retrofit
- 4. Toms River Board of Education**
“Bayscape for Barnegat Bay” native plant garden, porous pavement, and manufactured treatment device
- 5. Community Medical Center**
Bio-retention, rain garden basin/inlet retrofit
- 6. Ocean County Basin**
Soil amendments, invasive plant removal
- 7. Toms River Township**
Low-flow channel basin improvement



American Littoral Society
18 Hartshorne Drive, Suite #1
Highlands, NJ 07732
Phone: 732-291-0055
Fax: 732-291-3551
Web: littoralsociety.org

Clean Water, Beautiful Bay

Six green infrastructure projects
for the Barnegat Bay Watershed

