

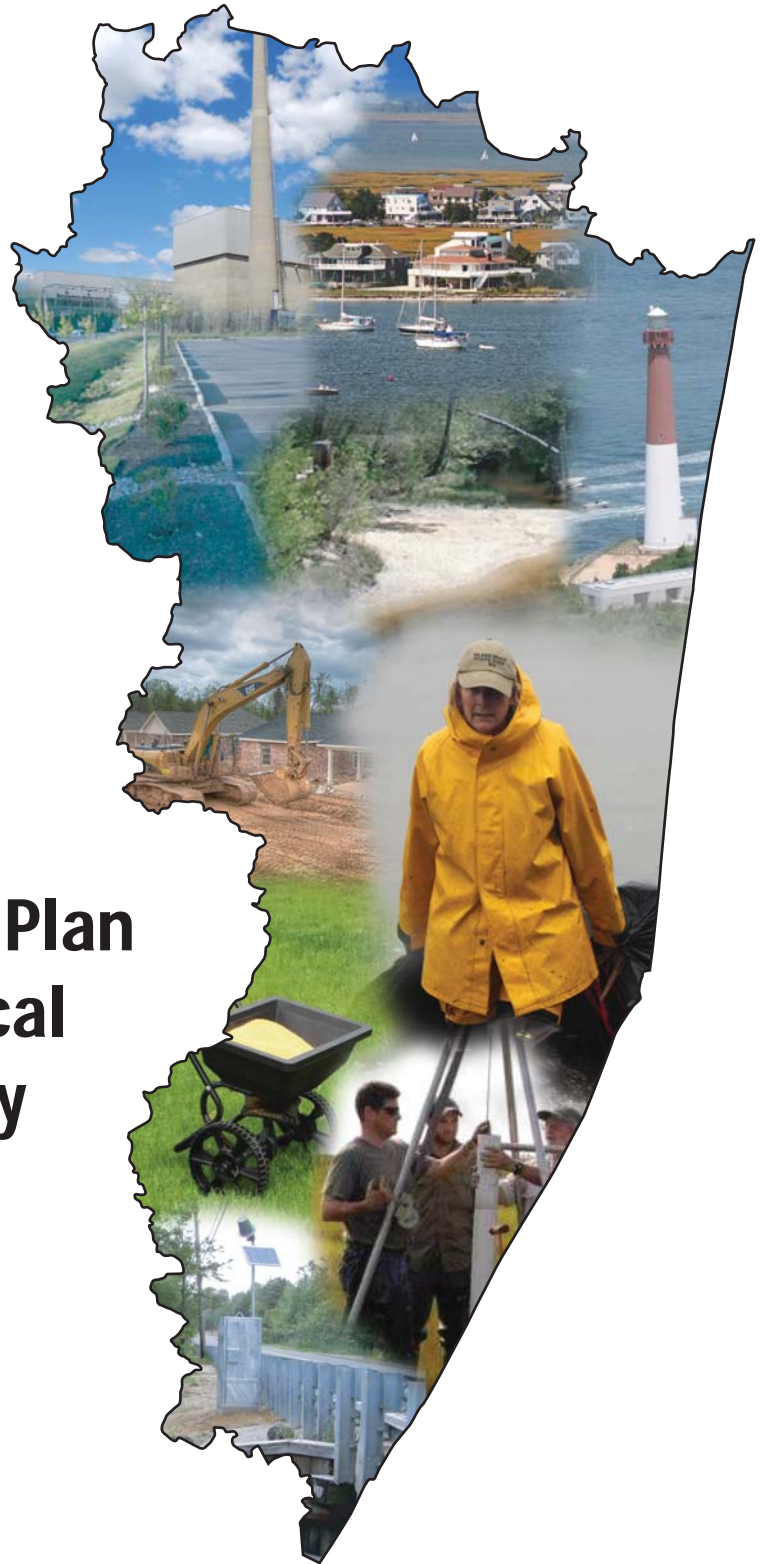
State of New Jersey • Department of Environmental Protection

Governor Christie's Comprehensive Action Plan to Address the Ecological Decline of Barnegat Bay

One Year Update

December 15, 2011

presented by
NJDEP Commissioner Bob Martin



barnegatbay.nj.gov



Comprehensive Action Plan to Address the Ecological Decline of Barnegat Bay

On December 9, 2010, Governor Chris Christie unveiled a comprehensive 10-point plan of action to address the short- and long-term ecological health of Barnegat Bay. The 660-square-mile Barnegat Bay watershed encompasses most of the 33 municipalities in Ocean County and four towns in Monmouth County. Its 75-square-mile, environmentally sensitive estuarine system consists of aquatic vegetation, shellfish beds, finfish habitats, waterfowl nesting grounds and spectacular vistas, as well as a population of more than 550,000 people, which more than doubles during the summer season. In 1995, Barnegat Bay was designated an “estuary of national significance” by the National Estuary Program.

New Jersey Department of Environmental Protection Commissioner Bob Martin created an internal team of scientists and technical staff to work with external partners and aggressively implement the Governor’s 10-point plan. Some of the Christie Administration’s accomplishments over the past 12 months include:

- Negotiating closure of the Oyster Creek Nuclear Generating Station in Lacey Township by the end of 2019, ten years ahead of license expiration, and establishing an Oyster Creek Safety Advisory Panel consisting of Commissioner Martin, Homeland Security and Preparedness Director Charles B. McKenna, and Princeton Plasma Physics Chief Operating Officer Dr. Adam Cohen to supplement oversight of the continued safe operation and shutdown of the plant;
- Making available \$20.3 million in zero- and low-interest loans and principal forgiveness loans for local government projects to reduce pollution from stormwater runoff through upgrades to stormwater control systems, construction of wetlands, and purchases of equipment;
- Providing nearly \$3 million in Clean Water Act grant awards for restoration projects to improve the quality of water flowing into Barnegat Bay;
- Teaming up with leading research organizations in the region, including Rutgers University and the New Jersey Sea Grant Consortium, to fund 10 studies that fill in critical research gaps, provide baseline data, and assist the DEP in making policy decisions about steps to restore the Bay;
- Launching a new watershed-wide water quality monitoring network to collect data that will improve understanding of conditions in the Bay, assess these conditions against water quality standards, and direct restoration efforts;
- Holding a massive watershed-wide cleanup effort in October involving some 2,400 volunteers, including over 100 DEP senior staff and employees;
- Implementing the strictest fertilizer law in the nation; and
- Identifying ecologically sensitive areas and beginning a stakeholder process to evaluate how to reduce impacts to Barnegat Bay from power boats to personal watercraft.

This one year report provides a high-level summary of accomplishments to date and provides the next steps for each of the 10 action items. DEP and its partners will continue to carry out this plan and will pursue additional efforts to restore and protect Barnegat Bay. For ongoing updates, visit barnegatbay.nj.gov.

Close Oyster Creek Nuclear Power Plant

The early closure of the Oyster Creek plant is a major win for the long-term health of Barnegat Bay.

COMPLETED MILESTONES

- Christie Administration negotiated agreement with Exelon to terminate plant operations by December 31, 2019.
- Administration established Oyster Creek Safety Advisory Panel on May 6, 2011.
- Dr. Adam Cohen named the independent expert to the Panel on November 23, 2011.

NEXT STEPS

- Hold the first meeting of the Advisory Panel on December 19, 2011.
- Hold first public Panel meeting in early 2012.



The Oyster Creek Nuclear Generating Station withdraws water from Forked River in an amount up to 662 million gallons per day (MGD) for the purpose of cooling the main condenser. In addition, up to 748.8 MGD is withdrawn for moderating thermal effects of the cooling water. Through this Action Plan, any adverse impacts to the Barnegat Bay from plant operations will be eliminated. Shutdown of the nuclear plant ends Oyster Creek withdrawals from Barnegat Bay for cooling purposes and ensures that discharges from the plant do not damage the ecological health of the Bay.

The Oyster Creek Safety Advisory Panel will review plant operations, hold annual public hearings and issue annual reports to supplement ongoing DEP safety inspections and oversight at the plant.

Fund Stormwater Mitigation Projects

\$20.3 million in grants and loans is available to fund 26 stormwater projects from 16 municipalities and Ocean County. These projects will help capture and treat the runoff from as many as 2,368 acres of land in the Barnegat Bay watershed.

COMPLETED MILESTONES

- Governor Christie signed the SFY2012 Program Legislation that allocates funding to implement improvements - August 4, 2011
- Sponsors of 26 projects submitted financial assistance applications and project design documents - September 15, 2011
- Preliminary Stormwater Management Technical Review completed - November 30, 2011

NEXT STEPS

- Issue Environment Appraisals/Environmental Decision Documents and finalize Planning Approvals - December 2011
- Authorize project sponsors to publicly bid the contracts and begin construction or purchase the equipment to control pollutant runoff - February 2012
- Offer additional grants and loans to project sponsors and execute financial assistance agreements - Spring 2012



Much of the deterioration of the Bay can be traced to pollutants that runoff from lawns and streets. If properly constructed, stormwater basins can filter much of this pollution. Through this Action Plan, funding is being made available to retrofit priority stormwater basins and purchase equipment to reduce pollutant runoff, such as street and vacuum sweepers.

Fund Stormwater Mitigation Projects

STORMWATER BASIN RETROFIT GRANT PROJECTS:

Best Management Practices

Gravel Wetlands

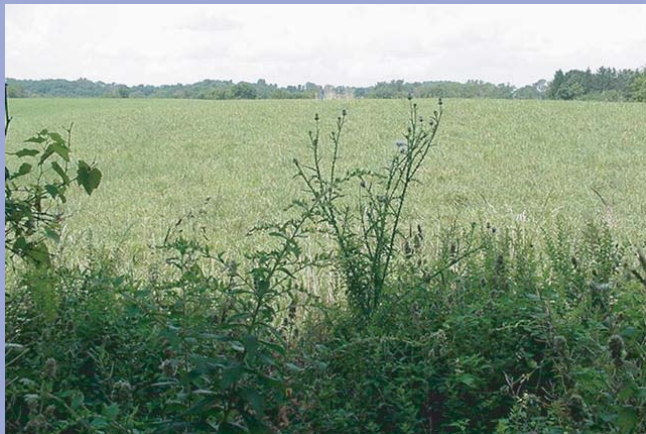
- Ocean County (8 Projects)
- Howell Township (Block 42, Lot 79.69)
- Jackson Township (Independence Estates)

Wet Ponds

- Toms River Township (Adams Avenue)

Constructed Wetlands

- Stafford Township (2 Projects: Forecastle and Neptune)
- Berkeley Township (Veteran's Park)



EQUIPMENT PURCHASE GRANT PROJECTS:

- Bay Head Borough/Mantoloking
- Long Beach Township/Beach Haven
- Point Pleasant Beach Borough
- Seaside Park/Seaside Heights/Lavallette

OTHER PARTICIPATING PROJECTS:

- Barnegat Township (equipment)
- Lacey Township (equipment)
- Ocean Gate Borough (end-of-pipe treatment device)

Reduce Nutrient Content from Fertilizer

"The new law's focus on consumer and commercial application practices will positively impact water quality by mitigating storm water runoff and soil erosion. Feeding grass only when it is actively growing and keeping fertilizer off streets and driveways are important to help keep nutrients out of our storm sewers, rivers and Barnegat Bay."

Chris Wible, Director
Environmental Stewardship, The Scotts Miracle-Gro Company

COMPLETED MILESTONES

- Fertilizer Act P.L. Chap. 112 becomes law on January 5, 2011.
- Healthy Lawns Healthy Water Workgroup met monthly with Rutgers University to develop an online training and certification program for professional lawn care fertilizer applicators.

NEXT STEPS

- Continue ongoing public information campaign notifying lawn care professionals about the requirements for training and testing, and informing the public how they can reduce water quality impacts.
- Effective January 2012, lawn care professionals must pass a test to be certified.
- Effective January 2013, all fertilizer products for turf must contain at least 20% slow release nitrogen and zero phosphorous.



Nitrogen and phosphorus are nutrients required for plant growth. An overabundance of these nutrients not only can harm lawns, but also when washed into our waterways stimulates excessive algae and weed growth. The new fertilizer law signed by Governor Christie established the most restrictive standards in the nation for nitrogen content and application rates for fertilizer. These standards will reduce nutrient pollution in all of New Jersey's water bodies.

HEALTHY LAWNS – HEALTHY WATER

Certification of Lawn Care Professionals

Please be advised that as of **January 5, 2012**, all lawn care professionals must be certified in order to apply fertilizer in New Jersey. Rutgers University is administering the online training and certification program. Online training will be available in **mid-December, 2011**, and access to the test will follow. The fees to become certified or trained are as follows:

Certified Fertilizer Applicator:

\$75 fee for the first year (training and testing)

\$25 annual fee for the subsequent three years

Trained Fertilizer Applicator:

\$25 annual fee

To access the lawn care certification training modules and test visit, <http://profact.rutgers.edu>

Help Spread the Word – But NOT the Fertilizer!

According to New Jersey's fertilizer law, as of **November 15, 2011** residents cannot apply fertilizers containing nitrogen or phosphorus to their lawns until next spring (**March 1, 2012**).

Commercial fertilizer applicators must complete their customer service cycle of late fall nitrogen or phosphorus fertilization by **December 1, 2011**. Fertilizer containing nitrogen or phosphorus cannot be applied onto lawns again until **March 1, 2012**.

Please note that all other materials, such as products containing potassium, lime and composts, are still legal to apply during the **blackout dates** of November/December through March.

Workgroup members include:

John Buechner, Lawn Doctor

Willie DeCamp, Save Barnegat Bay

Dave Ertle, Ocean County Utility Authority

Brian R. Feldman, TruGreen

Stan Hales, Barnegat Bay Partnership

Helen Henderson, American Littoral Society

Bill Kelso, Lebanon Seaboard

Ken Klipstein, NJ Water Supply Authority

Todd Pretz, Jonathan Green

James Murphy, Rutgers University

Stephanie Murphy, Rutgers University

Nancy Sadlon, NJ Green Industry Council

Heather Saffert, Clean Ocean Action

Amy Weaver, Stony Brook-Millstone

Watershed Association

Chris Wible, Scotts Miracle-Gro

New Jersey Department of Environmental Protection
www.CleanWaterNJ.org



For more information on the New Jersey's fertilizer law visit, www.nj.gov/dep/healthylawnshealthywater/

Require Post-Construction Soil Restoration

COMPLETED MILESTONES

- On January 5, 2011, Governor Christie signed Soil Restoration Act P.L. 2010 Chap. 113 into law.
- After a public participation process, the State Soil Conservation Committee (SSCC) approved soil compaction mitigation amendments to the Technical Standards for Erosion and Sediment Control in New Jersey.

NEXT STEPS

Revise the Technical Standards for Erosion and Sediment Control in New Jersey to include the approved recommendation and release them to the public for review and comment before final adoption.

- Publish in the NJ Register in early 2012
- Public Review and Comment
- Response to Comment and Finalize Standards
- Adopt and Implement



Soil compaction contributes to an increase in stormwater runoff and nonpoint source pollution in New Jersey's waterways. By restoring soil health and promoting plant growth soils will be more effective in reducing runoff. On January 5, 2011 Governor Chris Christie signed into law a measure that requires the Secretary of Agriculture and the Commissioner of Environmental Protection, through the State Soil Conservation Committee, to propose modifications to the existing soil erosion and sediment control standards. These modifications and standards will address soil compaction across the state, which is a contributing factor in stormwater runoff and nonpoint source pollution in New Jersey's waterways. The new standards will ensure that soil is restored to the greatest extent possible through aeration and re-vegetation.

Require Post-Construction Soil Restoration

NJDA-SSCC Soil Erosion Control Standards Sub Committee on Soil Restoration

John Showler, *NJDA*

Frank Minch, *NJDA*

David Earl, *NJDOT*

Valarie Hrabal, PE, PP, *SIAB*

Robert McCarthy, PE, PP, *NJBA*

Stephanie Murphy, *Rutgers*

Dave Friedman, *Ocean SCD*

Bill Brash, *Mercer SCD*

Dominick Mondì, *NJ Nursery & Landscape Association*

Brian McLendon, *NJDEP*

Angelo Caruso, *Bergen SCD*

Dave Lamm, *NRCS*

Ron Bannister, *NJDEP*

Fred Bowers, *Princeton Soil Inst.*

Tony DiLodovico, *NAIOP*

Paul Pospiech, *NJDOT*

Robyn Jeney, *Pinelands Comm.*

Amy Karpati, *PPA*

Jaclyn Rhoads, *PPA*

John Lago, *NJDCA/SIAB*



Acquire Land in the Watershed

Preserving critical lands for open space will help protect the Barnegat Bay from the impacts of development by helping to reduce nutrients from runoff entering the Bay.

COMPLETED MILESTONES

- Over 1,654 acres have been acquired since the implementation of the Governor's Action Plan with an additional 1,386 acres under contract.
- Some of the lands acquired since the last update include a 180-acre addition to the Forest Resource Education Center in Jackson which is in the headwaters of the Toms River.
- One of the properties under contract include a youth camp easement with the Jersey Shore Boy Scout Council protecting 436 acres of land in Ocean Township within the watershed of the Oyster Creek.

NEXT STEPS

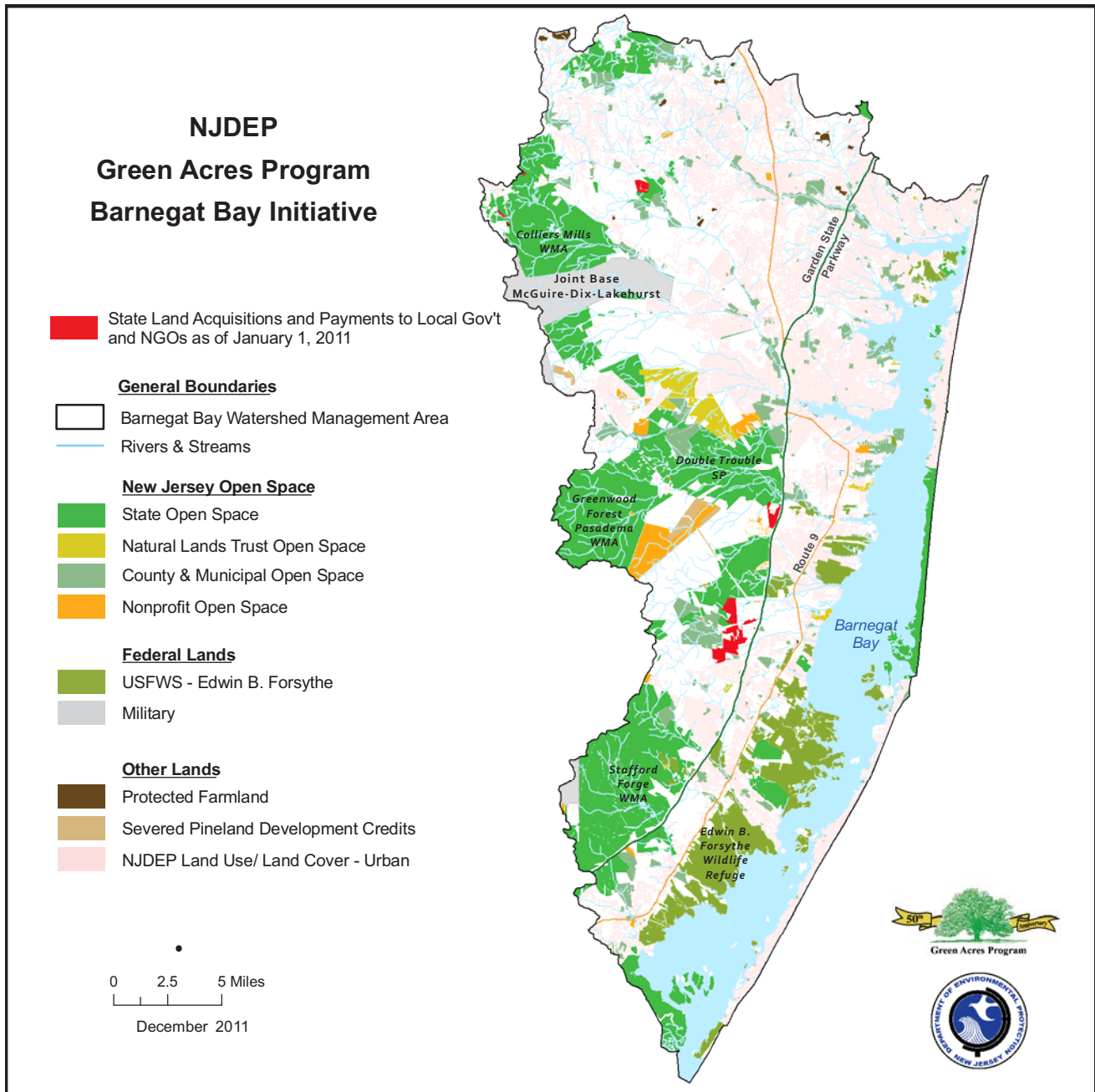
- Green Acres will continue to work with partners to identify and acquire environmentally sensitive areas.



Joseph A. Citta Scout Reservation

Acquiring available, ecologically sensitive lands along the Barnegat Bay and its tributaries is a cost-effective and critical measure to prevent development activities that could further degrade the Bay's water and ecological quality. The Green Acres program will continue to identify and prioritize these lands for acquisition and will work with willing sellers to purchase them.

Acquire Land in the Watershed



Establish a Special Area Management Plan

DEP will assess environmental data throughout the watershed and work with each municipality to align land use planning policy in the Barnegat Bay region.

COMPLETED MILESTONES

- Obtained approval from NOAA for a 5 year strategic plan to improve the Barnegat Bay's coastal zone.
- Developed a comprehensive land use management approach to guide SAMP development.
- Incorporated DEP and stakeholder issues into SAMP concept plan.

NEXT STEPS

- Characterize land use and water resource conditions in Barnegat Bay tributary drainage areas and identify milestones for stream health; preserve, maintain, restore.
- Establish targeted action strategy recommendation that build upon existing land use plans and improve coordination among planning jurisdictions.
- Provide data and recommendations to each of the 37 municipalities.
- Coordinate approach with Barnegat Bay Partnership efforts.



Because the pattern and intensity of development, and thus the water quality impacts, vary across the Barnegat Bay watershed, a combination of various innovative and condition-specific approaches that target specific stressors to water resources is required.

DEP will pull together its environmental data from throughout the watershed and share this information with each of the municipalities to inform their land use planning. This will help establish a consistent land use planning policy in the Barnegat Bay watershed.

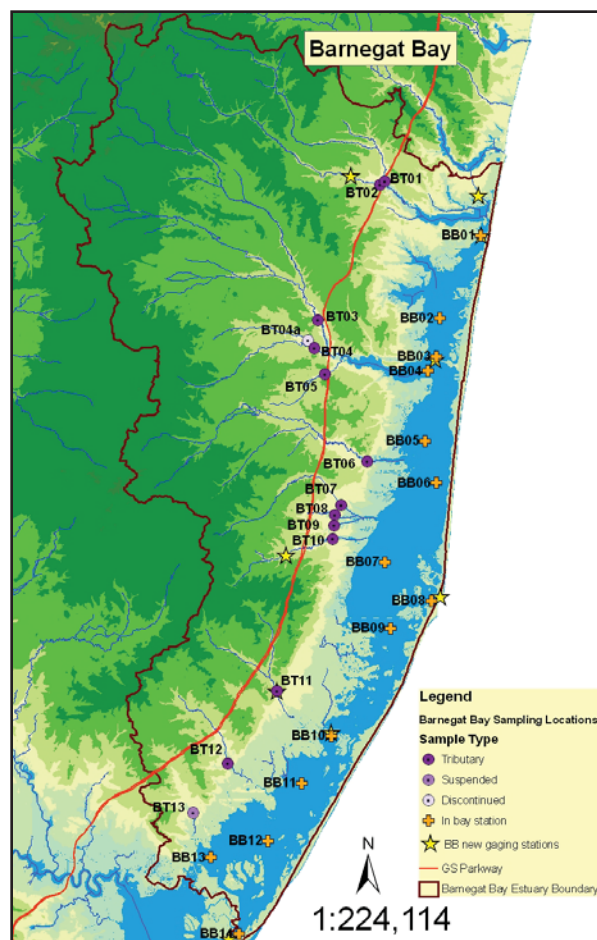
Adopt More Rigorous Water Quality Standards

COMPLETED MILESTONES

- Adopted narrative nutrient criteria in December 2010.
- Established the ambient Monitoring Partnership, which since June has collected more than 300 samples (3,500 sample bottles) and made more than 3,000 measurement of field parameters.
- In partnership with the USGS, flow measurement devices have been installed in all but 3 tributaries and inlets to the Bay.
- The mapping of the Bay bottom (bathymetry) has begun; first of two boat surveys was completed.
- Water quality and flow models have been selected, and work to develop the flow model has begun.
- Established a partnership with ReClam the Bay for sediment sampling.
- Interactive map linking both station information and data was created and can be viewed at www.nj.gov/dep/barnegatbay/bbmapviewer.htm

NEXT STEPS

- Conduct Year 2 monitoring program.
- Complete installation of flow measurement devices.
- Complete boat and aerial survey work for mapping of Bay bottom.
- Continue development of flow model and begin development of water quality model.
- Measure sediment quality.



As part of the plan to address the health of Barnegat Bay, NJDEP created a comprehensive monitoring network to collect water quality data that will establish the baseline conditions of the Bay and assess this condition against applicable water quality standards. Data from this monitoring program will be used to establish the linkage between loadings of pollutants and the observed conditions in the Bay and thereby direct actions to restore the Bay.

BARNEGAT BAY ACTION ITEM #7

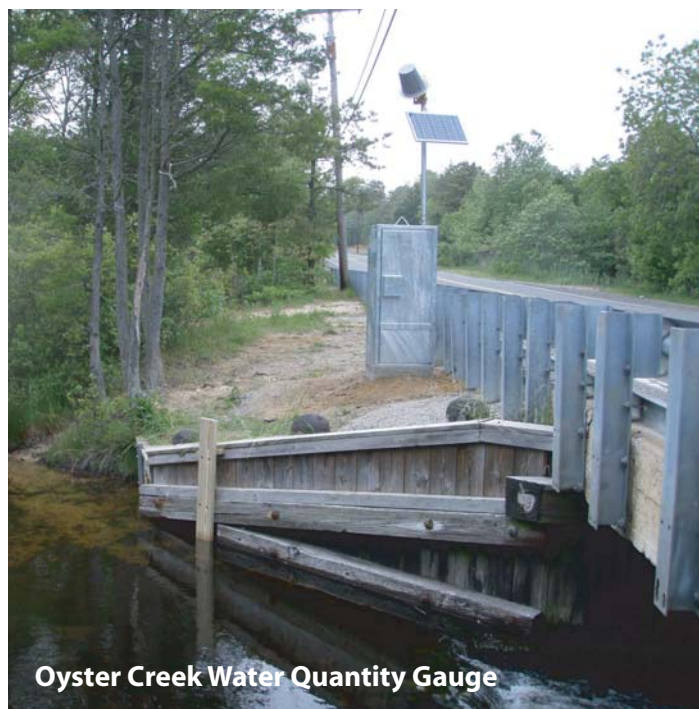
Adopt More Rigorous Water Quality Standards

Pollutant loading information developed by the comprehensive monitoring network, along with sediment data and the results of the bathymetric survey, is being used to develop flow and water quality models for Barnegat Bay that will allow DEP to simulate what happens to nutrients, sediment and other inputs to the Bay. The completed flow and water quality models, along with the benthic indices under development, along with data from other research projects under Action Item #9, will provide important scientific tools that can be used to:

- Determine the locations and extent of water quality impairments.
- Set numeric targets for pollutant concentrations or loads.
- Calculate maximum allowable loads to meet these targets.
- Make decisions about how to restore Barnegat Bay.



Water Quality Sensor



Oyster Creek Water Quantity Gauge

Monitoring Partners:



Educate the Public

COMPLETED MILESTONES

- Developed a comprehensive Barnegat Bay resources website, and grew its hits seven-fold since January 2011.
- Developed an action update listserv and issued more than 20 announcements to date.
- Created online resource for educators ***Barnegat Bay Education in Action***.
- Taped twelve segments for Comcast Cable's ***Eye on Ocean County*** series to inform the public about DEP's activities and actions individuals can take to help.
- Participated in and provided informational displays and handouts at multiple public events.



The DEP will implement public education and outreach activities for Barnegat Bay that are designed to educate year-round and summer residents and visitors about the impacts of their actions and engage them in becoming active stewards of the watershed's natural resources. These activities will support the Governor's actions to restore the Bay and bring together and leverage the department's own expertise and resources with that of the education community in Barnegat Bay.

Educate the Public



NEXT STEPS

- Continue outreach about New Jersey's fertilizer law focusing on certification requirements for the lawn care industry and application dates for the Spring.
- Implement outreach strategies for low impact boating (Action Item #10).
- Increase public and school involvement and other stewardship activities for the May 9, 2012 Barnegat Bay Blitz.
- Promote new and existing rain garden projects and demonstration sites.
- Coordinate short- and long-term activities and plans with the Barnegat Bay Partnership's Communications and Education Committee.

HIGHLIGHTED PROJECTS

- On October 19, over 2,400 volunteers participated in the first Barnegat Bay Blitz cleaning up dozens of areas in the watershed's 37 municipalities.
- DEP worked with the Ocean County Soil Conservation District to create two rain garden sites in the Toms River Regional Schools.
- Students from the Marine Academy of Technology and Environmental Science (MATES) presented water quality findings from two sites to DEP officials and the public in August. Their research was part of a pilot project to test stormwater runoff using optical brighteners, a chemical found in laundry detergent, that if present, signifies the presence of bacteria or other contaminants.
- DEP continued its collaboration with ReClam the Bay and the Rutgers Cooperative Extension Program of Ocean County to restore shellfish populations and habitat in Barnegat Bay.



BARNEGAT BAY ACTION ITEM #8 - Educate the Public

{ spotlight on }

Barnegat Bay Blitz



"I thank these volunteers and commend them for their dedication and spirit of cooperation in helping to restore Barnegat Bay, an ecological treasure that is important to all of New Jersey."

DEP Commissioner Bob Martin



Engaging the public to participate in positive, tangible actions that will improve the water quality of Barnegat Bay is a key component of Educating the Public. The single largest public participation program offered this year was the Barnegat Bay Blitz. This first-ever, single-day, watershed-wide cleanup engaged more than 2,400 volunteers (and more than a hundred DEP staff!) in all 37 municipalities. This massive cleanup not only helped to remove litter and debris that could wind up in the Bay, but also planted the seeds for sustained partnerships between the DEP staff who volunteered as team captains and the volunteers in the watershed. These relationships will be built upon as we prepare for next year's Blitz and will undoubtedly help us identify additional outreach programs and restoration opportunities.



BLITZ 2011 ACCOMPLISHMENTS

Total Volunteers: 2,412
Residents: 597
Students/ Teachers: 1,815 (from 17 schools)
Llamas: 2

731 bags of Trash
575 bags of Recycling

In addition, 3 full dumpsters and 3 dump trucks

The 2012 Blitz is scheduled for May 9, 2012

2011 BLITZ PARTNERS





Top: Sailors from the Lakehurst Naval Base tackled six miles of trails through Colliers Mills Wildlife Refuge.

Middle: Students from Lavallette Elementary School pose with bags of trash and debris collected from the Lavallette Bayfront.

Bottom: Llamas happily towed the trash out of Colliers Mills in backpacks.



Top: A volunteer from the Island Beach/Sedge Island Cleanup wades through the bay dragging bags of trash behind her.

Bottom: NJDEP volunteer clears trash and debris from a dump site in Little Egg Harbor. Among the finds were over 100 TVs and electronics.



Produce More Comprehensive Research

Environmental research poses and answers important human health and ecological questions for managing Barnegat Bay. It fills in critical data gaps and supplies valuable information for modeling, water quality criteria, and enforceable standards based on sound and defensible science.

COMPLETED MILESTONES

- Assessed ongoing research to identify data needs.
- Posted Online Bibliography of Barnegat Bay Research - www.nj.gov/dep/dsr/barnegat/index.htm
- Research project completed in 2011: *Nutrient and Ecological Histories of Barnegat Bay*.
- Developed a comprehensive plan for future research needs and identified 10 key research projects.
- Awarded 10 research contracts for FY2012 amounting to \$1.2 million.

NEXT STEPS

- Conduct research projects.
- Establish baseline condition of bay.
- Fill in critical data gaps.



Brigantine Salt Marsh

Over the years, extensive research has been conducted on Barnegat Bay but the work has not been fully coordinated - resulting in some key gaps in the data. Understanding the Bay's baseline condition will provide a solid basis for future comparisons to measure the effectiveness of the Comprehensive Plan of Action. The NJDEP Office of Science has been working with the Science Advisory Board, state universities, the U.S. Geological Survey, the U.S. Environmental Protection Agency, and the Barnegat Bay Partnership to develop and fund the additional research needed to fill in the data gaps. In conjunction with water quality analysis this research will assist in answering fundamental questions about the current status of the Bay ecosystem.

Produce More Comprehensive Research

RESEARCH PROJECTS

- Benthic Invertebrate Community Monitoring and Indicator Development for Barnegat Bay -Little Egg Harbor Estuary
- Barnegat Bay Diatom Nutrient Inference Model
- Benthic-Pelagic Coupling: Hard Clams as Indicators of Suspended Particulates in the Barnegat Bay
- Assessment of Fishes and Crabs Responses to Human Alteration of Barnegat Bay
- Assessment of the Distribution and Abundance of Stinging Sea Nettles (Jellyfishes) in Barnegat Bay
- Baseline Characterization of Phytoplankton and Harmful Algal Blooms
- Baseline Characterization of Zooplankton in Barnegat Bay
- Multi-Trophic Level Modeling of Barnegat Bay
- Tidal Freshwater and Salt Marsh Wetland Studies of Changing Ecological Function and Adaptation Strategies
- Ecological Evaluation of Sedge Island Marine Conservation Area in Barnegat Bay

Additional information on each project can be found at www.nj.gov/dep/barnegatbay/plan-research.htm



Nutrient Sampling

PARTNERS

- Barnegat Bay Partnership - Science & Technical Advisory Committee
- United States Environmental Protection Agency
- United States Geological Survey
- Rutgers University
- New Jersey Sea Grant Consortium
- Montclair State University
- Monmouth University
- Rider University
- Academy of Natural Sciences
- National Marine Fisheries Service

Reduce Water Craft Impacts

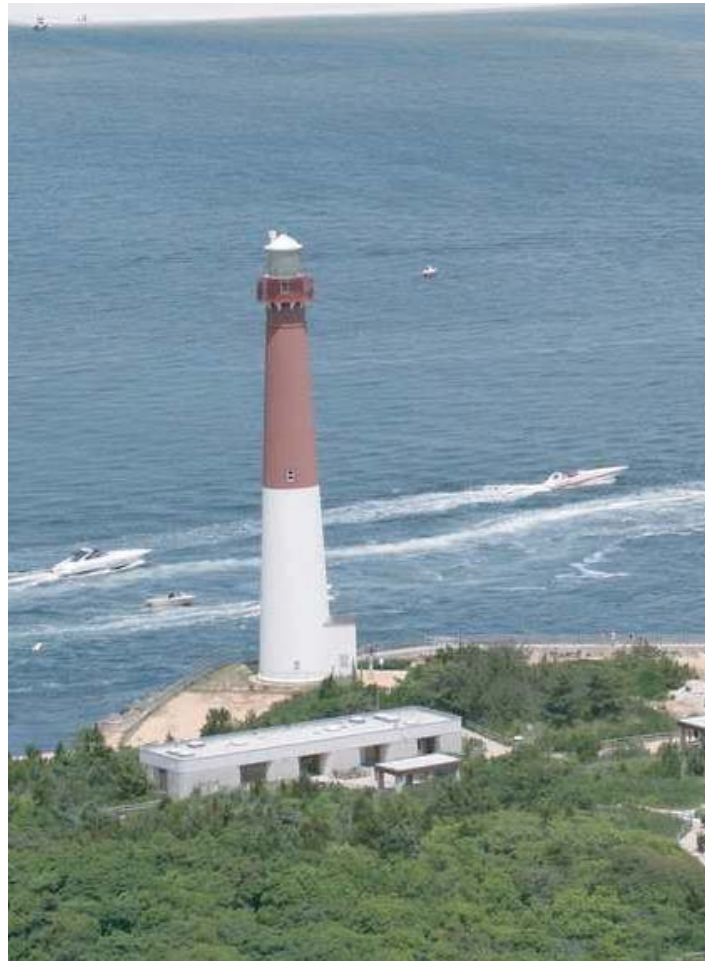
Boats and personal water craft can harm environmentally sensitive areas of Barnegat Bay, if operated carelessly.

COMPLETED MILESTONES

- Using the research provided by state scientists identified ecologically sensitive areas and initiated a stakeholder process to discuss management options to protect these areas.
- Developed education programs and information materials that will be used in a public information campaign to raise awareness about ecologically sensitive areas in the Bay and reduce boater impacts in these areas.

NEXT STEPS

- Determine the best management approaches to protect the ecologically sensitive areas.
- Assess and evaluate the health of ecologically sensitive areas to determine additional environmental management methods to protect them.



Boats and personal water craft can harm the Bay by damaging submerged aquatic vegetation and disrupting aquatic habitats. After reviewing numerous studies conducted by New Jersey academic institutions and DEP's own research, ecologically sensitive areas were identified and will be evaluated to determine the appropriate environmental management strategies to protect them.