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

Six Month Update

presented by
NJDEP Commissioner Bob Martin

Toms River Municipal Building
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33 Washington Street
Toms River, NJ 08753
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State of New Jersey
Department of Environmental Protection

Comprehensive Action Plan to Address the Ecological Decline of Barnegat Bay

Background

The 660-square mile Barnegat Bay *watershed* encompasses most of the 33 municipalities in Ocean County and four municipalities in Monmouth County. Barnegat Bay's 75-square mile *estuarine* system consists of aquatic vegetation, shellfish beds, finfish habitats, waterfowl nesting grounds and spectacular vistas, plus a population of more than 550,000, which balloons during the summer season.

Long appreciated for its great aesthetic, economic and recreational value, an array of human impacts potentially threaten the ecological integrity of this backbay system.

The entire watershed has undergone dramatic growth since 1950, resulting in land use changing from principally undeveloped and agricultural to suburban. Development of the areas surrounding Barnegat Bay has resulted in both a decrease in the natural landscape that helps filter pollutants before they can enter the Bay, and an increase in impervious ground cover (such as pavement and buildings) which further limits the ability of the land to regulate what gets into the Bay. Surface and groundwater quality in the watershed have been degraded by nonpoint source pollution and infiltration to groundwater has been prevented by increased impervious surfaces. The estuary's fisheries and other biological resources also have been negatively impacted by nonpoint source pollution and habitat loss. Boat and personal watercraft traffic on the Bay has grown significantly, raising concerns about the cumulative impacts on the Bay's water quality and aquatic habitat.

Addressing these issues requires complex and multiple tactics. Different parts of the Bay experience different levels of impact. The Bay cannot be restored to a pristine condition, but further degradation can be prevented and some restoration possible. Input gained from extensive stakeholder involvement complemented the scientific data and research conducted by the Department of Environmental Protection and other researchers to provide the basis for the Administration's action plan for Barnegat Bay.

BARNEGAT BAY ACTION ITEM #1

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.

NEXT STEPS

- Send out a Request for Proposal for an independent nuclear consultant.
- Name an independent nuclear consultant to the Advisory Board.
- Hold the first meeting of the Advisory Panel in September 2011.

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.

BARNEGAT BAY ACTION ITEM #2

Fund Stormwater Mitigation Projects

A total of $44 million in grants and loans will fund 90 stormwater projects from 23 municipalities and Ocean County that will help capture and treat the runoff from as many as 2,832 acres of land in the Barnegat Bay watershed.

COMPLETED MILESTONES

- Letters of Intent received for 90 projects totaling about $44M - March 7, 2011
- Report to Legislature to secure appropriations - May 9, 2011
- Introduction of Senate and Assembly bills to implement the SFY2012 Program which increased the funding level from $10M to $17M.

NEXT STEPS

- Approval of SFY2012 Program Legislation and Planning Documents Due to DEP - July 1, 2011
- Project Designs and Loan Applications Due to DEP - September 1, 2011
- SFY2013 Letters of Intent Due to DEP - October 3, 2011

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.

BARNEGAT BAY ACTION ITEM #2

Fund Stormwater Mitigation Projects

SAMPLING OF STORMWATER MITIGATION GRANT PROJECTS:
Best Management Projects

Bioretention Basins
- Stafford Township
- Jackson Township
- Howell Township

Biodetention Basins
- Stafford Township

Gravel Wetlands
- Ocean County (4 Projects)

Infiltration Basins
- Toms River Township

Constructed Wetlands
- Manchester Township (2 Projects)

SAMPLING OF STORMWATER MITIGATION GRANT PROJECTS:
Equipment Purchases

- Bay Head Borough
- Long Beach Township
- Point Pleasant Beach Borough
- Seaside Park Borough

BARNEGAT BAY ACTION ITEM #3

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."

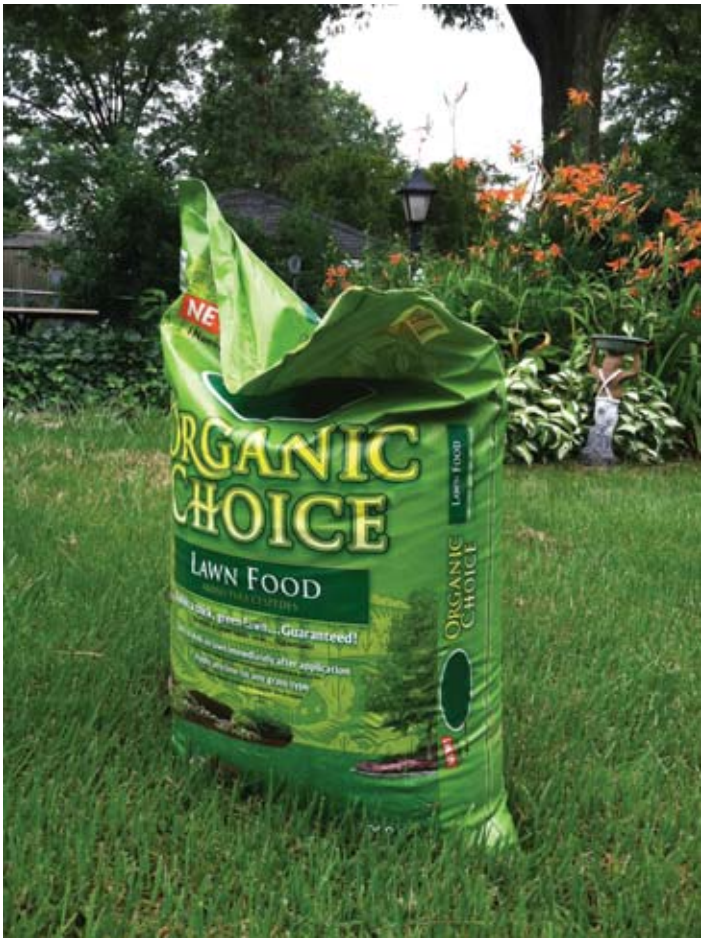
Chris Wible, Director
Environmental Stewardship, The Scotts Miracle-Gro Company

COMPLETED MILESTONES

- Fertilizer Act P.L. Chap. 112 becomes law on January 5, 2011.
- Healthy Lawns Healthy Water Workgroup began monthly meetings.

NEXT STEPS

- Training Proposal by Rutgers for Certification Program for Lawn Care Professionals in July of 2011. Effective January 5, 2012, all professional applicators will be required to become certified.
- Effective January 5, 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 over abundance of these nutrients not only can harm lawns, but when washed into our waterways stimulates excessive algae and weed growth. The new fertilizer law signed by Governor Chris Christie establishes the most restrictive standards in the nation for nitrogen content in fertilizer. These standards will reduce nutrient pollution in all of New Jersey's water bodies.

HEALTHY LAWNS = HEALTHY WATER

WHAT YOU CAN DO:

1. **Choose a no phosphorus and slow-release nitrogen fertilizer.** Check the first and second number on the package for nitrogen and phosphate content. Formula, 26-0-3, for example, means no phosphate.

2. **Apply fertilizer at the spreader setting shown on the bag, to avoid overuse or underuse of product.**

3. **Return any unused product to the original container for future use.**

4. **Do not apply fertilizer products if a heavy rain is predicted.**

5. **Use a drop spreader or a rotary spreader with a side guard to keep fertilizer on the lawn and off driveways, roadways and walkways. Sweep up excess fertilizer from paved surfaces.**

6. **For a healthier, greener lawn, fertilize after the first lawn cutting in the spring and again in the fall when weather conditions are best for grass to absorb nutrients.**

7. **Soil tests can help identify what nutrients your lawn needs.** Contact your County Extension Agent at http://njaes.rutgers.edu/county/ for details and other helpful lawn and garden information.

8. **For more information visit www.nj.gov/dep/healthylawnshealthywater**

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

CLEAN WATER
It's Up to You New Jersey

BARNEGAT BAY ACTION ITEM #4

Require Post-Construction Soil Restoration

"Healthy functioning soils are the root of conserving and protecting the future of Barnegat Bay. They reduce stormwater runoff, minimize soil erosion and nutrient transport and help to restore needed freshwater inputs to the bay."

Dave Friedman, District Director
Ocean County Soil Conservation District

COMPLETED MILESTONES

- Governor Christie signed Soil Restoration Act P.L. 2010 Chap. 113 into law on January 5, 2011.
- Sub Committee established and four meetings held.

NEXT STEPS

- Draft Standards proposed to State Committee in July.
- State Soil Conservation Committee proposes amendments to Soil Erosion and Sediment Standards.
- Standard amendments undergo public participation process.
- Standards amendments adopted as statewide regulation applying to all new development and redevelopment.

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.

BARNEGAT BAY ACTION ITEM #4

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 Mondi, *NJ Nursery & Landscape Association*

Brian McLendon, *NJDEP*

Angelo Caruso, *Bergen SCD*

Dave Lamm, *NRCS*

Ron Bannister, *NJDEP*

Fred Bowers, *Princeton Soil Inst.*

Barry Chalofsky, *NJDEP*

Tony DiLodovico, *NAIOP*

Paul Pospiech, *NJDOT*

Robyn Jeney, *Pinelands Comm.*

Amy Karpati, *PPA*

Jaclyn Rhoads, *PPA*

John Lago, *NJDCA/SIAB*

BARNEGAT BAY ACTION ITEM #5

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 runoff from nutrients entering the Bay.

COMPLETED MILESTONES

- Over 1,500 acres have been acquired since the implementation of the Governor's Action Plan.
- Some of the lands acquired are now part of Double Trouble State Park and Colliers Mill Wildlife Management Area.
- Grants to Ocean County have been made to help acquire land near the Forked River Mountains.

NEXT STEPS

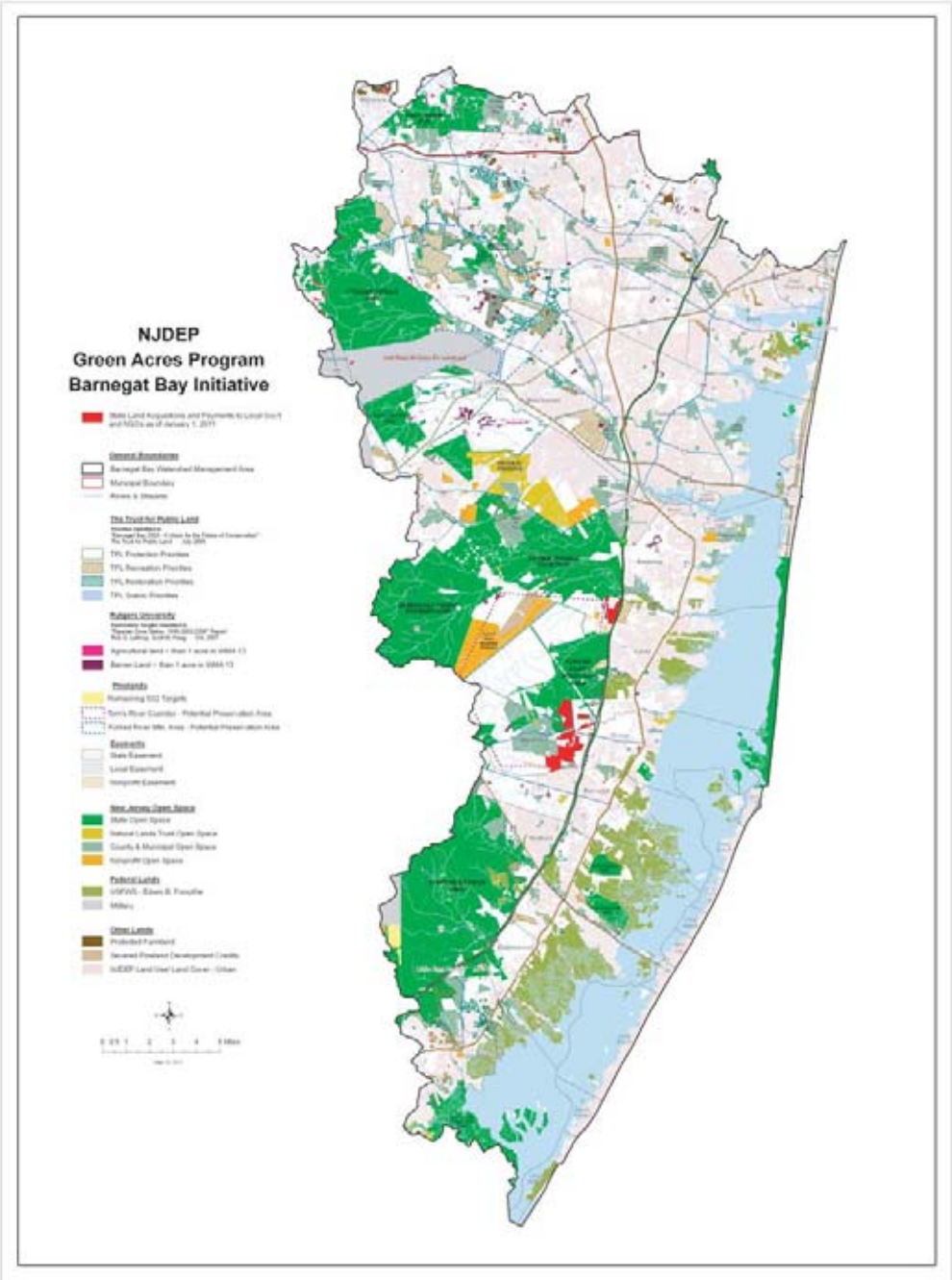
- Green Acres will continue to work with partners to identify and acquire environmentally sensitive areas.

Double Trouble State Park

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.

BARNEGAT BAY ACTION ITEM #5

Acquire Land in the Watershed



BARNEGAT BAY ACTION ITEM #6

Establish a Special Area Management Plan

The SAMP process will build upon the Governor's goal through interested party meetings to address land use issues in order to achieve a healthy Barnegat Bay.

COMPLETED MILESTONES

- Held a public interest meeting on March 17, 2011.
- Developed and obtained approval from NOAA for a 5 year strategic plan to improve the Barnegat Bay's coastal zone.

NEXT STEPS

- Conduct stakeholder meetings to engage interested parties.
- Determine strategies to address issues raised in stakeholder meetings.

The primary goal of the Barnegat Bay SAMP is to improve coordination among planning jurisdictions. Through interested party meetings, the SAMP will build upon existing land use plans and make recommendations to the DEP for research and restoration projects.

BARNEGAT BAY ACTION ITEM #7

Adopt More Rigorous Water Quality Standards

"For the first time, we are monitoring the water flow into and out of the bay, concurrent with monitoring water quality. This will give us the scientific basis to make decisions about how to restore Barnegat Bay."

Richard H. Kropp, Director
United States Geological Survey
New Jersey Water Science Center

COMPLETED MILESTONES

- Adopted narrative nutrient criteria on December 21, 2010.
- Formed Barnegat Bay Ambient Monitoring Partnership.
- Partnered with United States Geological Survey for the installation of flow measurement devices in all remaining tributaries and inlets to the Bay.
- Ambient Monitoring Partnership collected first samples on June 6, 2011.

NEXT STEPS

- Model selection and development (water quality and flow).
- Map the bottom of the Bay.
- 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

The recently adopted narrative criteria provide a description of the ecological conditions that signal nutrients are too high. Indicators of biological health are being developed with Rutgers and USGS. With these measures and models that are being developed to link pollutant loads to responses in the Bay, the Department will:

- Determine where improvement is needed to meet water quality standards.
- Set numeric targets for pollutant concentrations or loads.
- Calculate maximum allowable loads to meet these targets.
- Develop strategies for achieving the reductions needed to reach the targets.

Water Quality Sensor

Oyster Creek Water Quantity Gauge

Monitoring Partners:

Barnegat Bay Partnership

Ocean County Health Department

Monmouth University

USGS science for a changing world

Brick Utilities

BARNEGAT BAY ACTION ITEM #8

Educate the Public

"Public education is essential in order for the public to successfully understand, protect and restore Barnegat Bay. Coordinated planning efforts between state government and local partners will help highlight existing education efforts, stimulate new initiatives and partnerships, and help integrate communications and education, along with science and policy, into long-term plans for the Bay."

Angela Andersen, Chair
Communications and Education Committee, Barnegat Bay Partnership

COMPLETED MILESTONES

- Developed DEP's Barnegat Bay website.
- Organized meetings between environmental educators and representatives from school districts in Ocean County.
- Distributed two cable PSAs from DEP's ***Clean Water - It's Up to You, New Jersey*** campaign.
- Revised DEP website for ***Healthy Lawns, Healthy Water Partnership.***
- Developed DEP Barnegat Bay display.
- Developed DEP stormwater and fertilizer handouts and materials.
- Participated in several Barnegat Bay Partnership's events.
- Established a volunteer bacteria source track down project.

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.

BARNEGAT BAY ACTION ITEM #8

Educate the Public

NEXT STEPS

- Begin distribution of radio PSA messages.
- Complete and promote new DEP Barnegat Bay in Action public education website.
- Begin monthly e-updates for the ten point action plan.
- Increase media activity and "good news" stories about the watershed.

LEAD PARTNERS

- American Littoral Society
- Barnegat Bay Partnership
- Cooperative Extension of Ocean County
- Jacques Cousteau National Estuarine Research Reserve
- Long Beach Island Foundation of the Arts and Sciences
- Natural Resource Education Foundation
- Ocean County Soil Conservation District
- Pinelands Preservation Alliance

ADDITIONAL EDUCATION ACTIVITIES IN BARNEGAT BAY

- DEP assisted the Department of Agriculture and State Soil Conservation Districts with New Jersey's annual Envirothon in May.
- Fish and Wildlife and Parks and Forestry held a Projects Learning Tree and WILD workshops for eleven overnight groups at the Sedge Island Natural Resource Education Center in Barnegat Bay.
- Sedge Island's Intern Program hired five college interns to provide education at the center.
- Sedge Island conducted programs for the Barnegat Bay Shellfish Restoration Program with the Cooperative Extension Program of Ocean County and Reclam the Bay.
- A rain garden was installed at Washington Street School in Toms River, with the Ocean County Soil Conservation District.
- Outreach was conducted at marinas as part of ongoing Clean Vessel Act and Clean Marina Program.

BARNEGAT BAY ACTION ITEM #9

Produce More Comprehensive Research

"The research projects being funded by the NJDEP should not only improve our understanding of the bay but also help inform management decisions to address the troubling conditions of the Bay."

Stan Hales, Director
Barnegat Bay Partnership

COMPLETED MILESTONES

- Assessed research to identify data needs.
- Identified eight research projects that provide critical missing information on the health of Barnegat Bay.
- Posted online bibliography of Barnegat Bay Research.
- Developed a comprehensive plan for future research needs.
- Completed research, nutrient and ecological histories of Barnegat Bay.

NEXT STEPS

- Award research contracts.
- Conduct research projects: establish baseline condition of bay and 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.

BARNEGAT BAY ACTION ITEM #9

Produce More Comprehensive Research

PROPOSED RESEARCH PROJECTS

- Benthic Invertebrate Community Monitoring and Indicator Development for Barnegat Bay.
- Monitoring of Submerged Aquatic Vegetation's Response to Stressors in Barnegat Bay.
- Nutrient and Ecological Histories of Barnegat Bay (Year 2).
- Assessment of Hard Clam Populations in 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.
- Tidal Freshwater and Salt Marsh Wetland Studies of Changing Ecological Function and Adaptation Strategies.
- Baseline Characterization of Phytoplankton and Zooplankton Communities, and Harmful Algal Blooms (HABs).

* Note many of these projects were culled from the "Barnegat Bay Prospectus: Research Priorities for the Barnegat Bay-Little Egg Harbor Ecosystem to Support Science-Based Watershed Management," developed by the Barnegat Bay Partnership - Science and Technical Advisory Committee (STAC), September 24, 2010

Nutrient Sampling

PARTNERS

- Barnegat Bay Partnership - Science & Technical Advisory Committee
- United States Environmental Protection Agency
- United States Geological Survey

BARNEGAT BAY ACTION ITEM #10

Reduce Water Craft Impacts

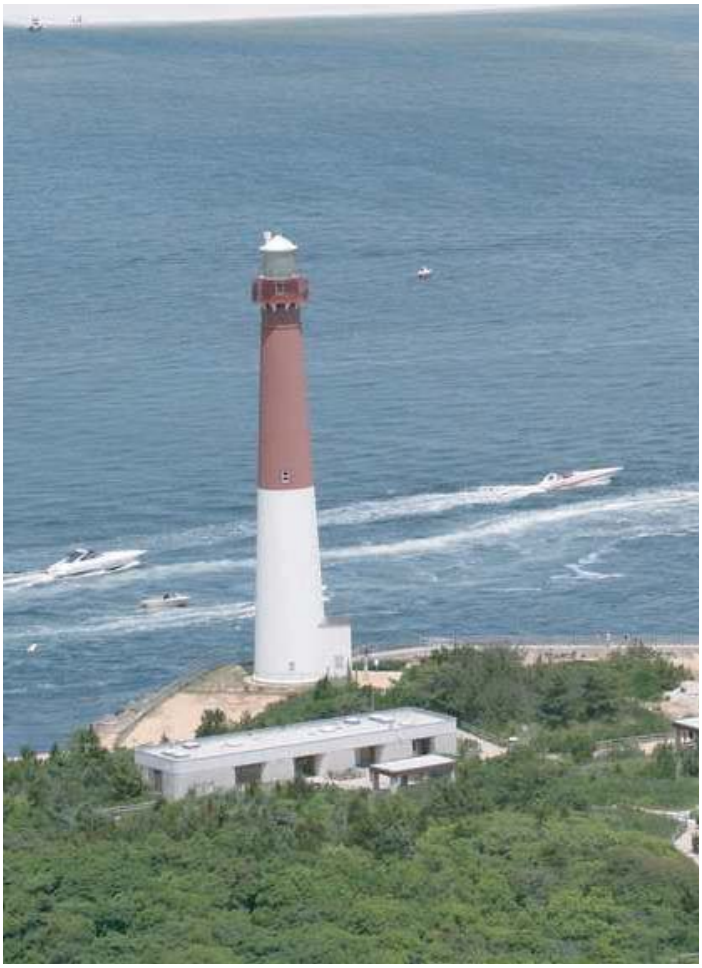
Boats and personal water craft can harm environmentally sensitive areas of Barnegat Bay, if operated carelessly.

COMPLETED MILESTONES

- Met with researchers to identify location of environmentally sensitive areas, including subaquatic vegetation.
- Met with stakeholders to review identified areas and hear concerns about these locations and began monthly meetings.

NEXT STEPS

- Continue the identification of sensitive areas.
- Determine the best approach to designate and protect these areas.



Boats and personal water craft can harm the Bay by damaging submerged aquatic vegetation and disrupting aquatic habitats. The DEP is meeting with stakeholders and reviewing research that identifies the locations of these sensitive areas. This information will provide the background needed to determine the appropriate management plan for protecting the Bay's environmentally sensitive areas.