

**Barnegat Bay National Estuary Program
Strategic Plan
June 2008 through May 2011**

A thriving Barnegat Bay ecosystem is important to the environmental, cultural, and economic well-being of people who live near, work in, and enjoy the bay. The Barnegat Bay National Estuary Program is committed to protecting, restoring, and enhancing the Barnegat Bay ecosystem and to advancing the sustainable use of its natural resources.

Now administered by Ocean County College, the Barnegat Bay National Estuary Program coordinates and supports partnerships with federal, state, and local government agencies, academic institutions, non-governmental organizations, and other stakeholders to:

- Improve water quality throughout the ecosystem;
- Promote wise and sustainable use of the Barnegat Bay watershed, its biota, and other natural resources;
- Support sound science, management, planning, and related decision-making regarding the Barnegat Bay watershed and its resources;
- Increase education and public awareness about the entire watershed and the impacts of human activities on the bay and its resources; and
- Provide leadership for a healthy watershed.

Priorities for Three-Year Period (2008-2011)

The Barnegat Bay National Estuary Program is committed to addressing five priority areas in the coming three years. The BBNEP and its partners agree that the top two priorities are:

1. Improving the capacity of the BBNEP office and strengthening its working relationships with partners to address priority issues; and
2. Improving our recognition and understanding of the bay's condition, and addressing the causes of water quality degradation within the ecosystem, especially *eutrophication* in the bay and *stormwater and non-point source pollution in the watershed*.

The BBNEP and its partners also will work together to address three additional priorities:

3. Addressing *water supply and flow* issues that affect the bay and watershed;
4. Preventing habitat loss, especially of submerged aquatic vegetation, and supporting *habitat restoration*; and
5. Improving understanding of, and addressing, *fisheries declines*.

PRIORITY AREA #1: THE BBNEP

Strategic Objective: Improve the capacity of the BBNEP office and strengthen its working relationships with partners to address priority issues.¹

Desired Results: *Long-term goals:* Organizational growth to support successful projects, partnerships, and outreach.

Three-year goal: Satisfactory implementation review as a result of improved planning, communication, and reporting.

| | Action | Measure of Success | Partners | Timeline (Start/end dates) | Funding |
|-----|---|---|--|--|-------------------------------------|
| | Fundraising for program and actions | | | | |
| P1 | Develop finance plan- with short and long-term goals: this plan should identify the roles of other partners and involve joint funding efforts | Plan | BBNEP*, OCC, BBNEP partners | EPA: 8-31-08; joint funding efforts may require additional time for rulemaking | Various, including external funding |
| P2 | Implement donation tracking system | System in place and communication with sponsors | BBNEP*, OCC | EPA: 12-31-07; Completed | Staff time / base funding |
| | Leadership | | | | |
| P3 | Develop a Strategic Plan with partners, including a signed letter of support | Strategic Plan | BBNEP*, BBNEP-AC | EPA: 3-31-08 target; to be signed at reaffirmation ceremony 5-22-08 | Staff time / base funding |
| P4 | Support staff development and training | | BBNEP*, OCC | Continuous | BBNEP-OCC |
| | Advocacy for CCMP/Strategic Plan | | | | |
| P5 | Reaffirm commitment to CCMP and SP with partners | Public ceremony | BBNEP-AC* and other partners | EPA: 5-22-2008 (see P3 above) | Staff time / base funding |
| P6 | Work with partners to ensure implementation of CCMP and SP; address implementation problems or issues | | BBNEP-AC* | Ongoing-continuous | Staff time / base funding |
| P7 | Review and report accomplishments <ul style="list-style-type: none"> • Obtain reports re: results from grantees • Provide reports to public on science • Develop tracking systems for measuring progress on Strategic Plan | Annual and periodic reporting | BBNEP-STAC*, BBNEP-AC, BBNEP | Ongoing-continuous | Staff time / base funding |
| | Public Involvement and visibility | | | | |
| P8 | Consider changes to the Advisory Committee to engage other stakeholders; review and formalize membership criteria, responsibilities in a MOA/MOU | Signed MOA/MOU | BBNEP-AC*, BBNEP-PC | Year 1 | Staff time / base funding |
| P9 | Develop diverse forums, public meetings, and science meetings | Workshops & conferences (including a State-of-the-bay) held/evaluated for effectiveness | BBNEP*, BBNEP-STAC | Ongoing-continuous | Staff time / base funding |
| P10 | Better involve/include students; e.g., clubs, courses, joint efforts with campus partners | Increased student participation on/off campus | BBNEP*, OCC, on-campus partners such as WaterWatch | Ongoing-continuous | Staff time / base funding |
| P11 | Develop and use a Communication Plan, as required by EPA, to raise awareness of BBNEP | Communication/Public involvement Plan | BBNEP* (consultant), BBNEP-AC | EPA: 6-30-08 | \$15,000 EPA grant |

¹ EPA required actions are shaded in grey.

PRIORITY AREA #2: WATER QUALITY AND EUTROPHICATION

Strategic Objective: Improve our recognition and understanding of the bay's condition, and address the causes of water quality degradation within the ecosystem, especially eutrophication in the bay and stormwater and non-point source pollution in the watershed.

Desired Environmental Results: *Long term goals:* Water quality that supports healthy populations of shellfish, SAV, and sustainable recreation. *Three-year goals:* Promote and support priority actions to address nutrient sources and inputs, including development and establishment of a monitoring plan with agreed-upon estuarine bio-indicators.

| | Actions | Success measures | Partners² | Timeline | Funding |
|-----|---|--|---|---|--|
| WQ1 | Take action to align the BBNEP Strategic Plan and CCMP with NJDEP's watershed approach and WQ and biological standards | NJDEP approved watershed plan for Barnegat Bay estuary and watershed | BBNEP-AC*, NJDEP* ³ ; USEPA | Years 1-2 | TBD |
| WQ2 | Continue assessing eutrophication and estuarine condition through (1) development of agreed-upon biological indicators (e.g., SAV, phytoplankton blooms, harmful algal blooms, others), (2) consistent monitoring and evaluation (including Oyster Creek NGS) | Identify barriers to development of indicators, and develop agreed-upon indicators | BBNEP-STAC*, Rutgers/JCNERR, NJDEP, USEPA, NOAA, ALS, Amergen | Years 1- 2 and beyond; also contingent on NJ & federal reg. schedules | Various; NJDEP (?); additional funding needed (Amergen and others) |
| WQ3 | Identify and reduce pollution sources from land use and other sources with a priority on nitrogen and pathogens (see CCMP 5.2 and 5.14) | List of sources with estimates of their magnitude and scale | NJDEP*, USEPA, BBNEP-STAC*, USGS, Rutgers/JCNERR; MU-UCI | Years 2-3 | TBD; funding needed |
| | WQ3A: Develop capability to conduct source tracking on small drainage area scale to inform retrofits that may be needed | Source tracking capacity exists | OCUA, OCSCD, RCE, BBBEP, NJDEP, MU-UCI | Years 2-3 | BBNEP; additional funding for tracking |
| WQ4 | Review and address the impairment status of the Bay and its contributing watersheds to assess the feasibility of/necessity for development of a TMDL for the bay. (see CCMP 5.1) | Determination of whether a TMDL is needed and consensus on relative health of the Bay and its contributing watersheds | NJDEP*, USEPA, BBNEP-STAC*, USGS, JCNERR/Rutgers | | NJDEP, other |
| WQ5 | Promote coordination and discussion of the usefulness of stormwater utilities for BB watershed, including consideration of pros/cons, barriers to implementation, public sentiment, usefulness in BB, relevance of NJDEP report on SW utilities, etc. | Discussions are initiated with local, state, and/or legislative representatives and all affected groups, summary of discussions and next steps | BBNEP*, BBNEP-AC*, NJDEP, OCPD, Development Community, Municipalities | Years 2-3 | Staff time / base funding |
| WQ6 | Consider ways to participate in, support, and use results of CRSSA/JCNERR project to map and assess public and private stormwater basins in the Toms River watershed (see CCMP 5.3) | Project assesses nutrient-reduction, improves various basins, and is expanded (with additional funding) watershed-wide | Rutgers/JCNERR*, Rutgers/CRSSA*, OCSCD*, OCPD, NJDEP | Years 1-2 | CICEET (NOAA), BBNEP, Corporate Business Tax (CBT); other |
| | WQ6A: Develop indicators and protocol for evaluation | Basins are evaluated | Rutgers/JCNERR*, Rutgers/CRSSA*, OCSCD*, OCPD, NJDEP | Ongoing-continuous | |
| | WQ6B: Evaluate, coordinate with NJDEP 319 efforts, and prioritize basins for retrofit | Priority list | Rutgers/JCNERR*, Rutgers/CRSSA*, OCSCD*, OCPD, NJDEP | Years 2-3 | TBD, based on study findings |
| | WQ6C: Explore costs of retrofitting | Estimate | Rutgers/JCNERR*, Rutgers/CRSSA*, OCSCD*, OCPD, NJDEP | Years 2-3 | TBD, based on study findings |
| | WQ6D: Develop and maintain a current | Inventory | Rutgers/JCNERR* | Years 1-3 | OCPD |

²Partners commit to advocating for funding for the strategic planning elements and will undertake their actions to the extent that resources allow.

³ Asterisks denote implementing partners. Other listed partners are supporting partners.

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| | inventory of stormwater basins at the county level | | Rutgers/CRSSA*, OCSCD*, OCPD | | |
| | WQ6E: Plan for retrofitting of remainder of watershed using the Toms River assessment | Expansion plan | Rutgers/JCNERR*, Rutgers/CRSSA*, OCSCD*, OCPD | Year 3 and beyond | Additional funding needed; CBT and other |
| | WQ6F: Inventory potential stormwater mitigation sites | Inventory | Rutgers/JCNERR*, Rutgers/CRSSA*, OCSCD*, USGS*, OCPD | Year 3 and beyond | Additional funding needed |
| | WQ6G: Coordinate with ongoing municipal stormwater efforts | Joint projects with municipalities | Rutgers/JCNERR*, Rutgers/CRSSA*, OCPD, OCSCD*, NJDEP* | Ongoing-continuous | Staff time / base funding |
| WQ7 | Continue Stormwater Implementation Grants to municipalities for actions that further Strategic Plan objectives | Estimates of reduced nitrogen from project implementation | BBNEP, Rutgers/JCNERR SSC, OCPD, NJEIT | Years 2-3 | BBNEP, subject to funding availability |
| WQ8 | Foster the implementation of more progressive, low-impact development and sustainable site design practices at the local level | Pilot LID project | BBNEP SCW,* Rutgers/JCNERR SSC, OCSCD, municipalities, NJDEP, Shore Builders, OCPD | Ongoing-continuous | Staff time / base funding |
| | WQ8A: Make recommendations on best management practices (BMPs) for land use and stormwater regulations for the watershed | Recommendations to enhance existing regulatory framework and State BMP Manual | NJDEP*, BBNEP SCW,* Rutgers/JCNERR SSC | | Staff time / base funding |
| | WQ8B: Develop inventories of best management practices (BMPs) sites in use in the watershed and those supported by BBNEP | Inventory from WQ6 and/or map with click on capability available for use in outreach efforts | NJDEP, BBNEP SCW, Rutgers/JCNERR SSC, OCSCD | Year 1 | BBNEP & partners |
| | WQ8C: Identify regulatory challenges and barriers to implementation of BMPs | Description and action plan to address barriers | BBNEP SCW, Shore Builders | | Staff time / base funding |
| | WQ8D: Work with local governments, senior villages, and Ocean County College to promote low impact development (LID), stormwater, and NPS pilot and demonstration projects using sustainable site design practices | Promotion and implementation of various projects in towns, senior villages, and OCC | BBNEP-SCW*, Rutgers/JCNERR SSC, RCE, OCSCD, OCC | Ongoing-continuous | Staff time; BBNEP with funding from other partner(s) |
| WQ9 | Address issues of changing land use, including conversion from natural to developed and anthropogenic changes | Develop a plan to address land-use as a new BBNEP goal; include build-out analyses, master plan revisions, and other activities | NJDEP, OCPD, USFWS, Rutgers/CRSSA, ALS, TPL, Municipalities (invite the New Jersey State Planning Comm.) | Years 1-3 | Staff time- base funds; additional funds needed as plans and activities develop |
| | WQ9A: Update priority list of undeveloped parcels for acquisition; acquire additional lands, especially large blocks (see CCMP 6.5) | Updated list | TPL*; OCPD-OCNLT; USFWS | Ongoing-continuous | TPL, OCPD-OCNLT, USFWS |
| WQ10 | Support outreach and education for non-point source (NPS) pollution, LID, responsible water use, native species to reduce nitrogen and phosphorous | Targeted programs at nurseries, municipalities, landscaping firms, colleges (e.g., certificate programs) | BBNEP SCW,* RCE, Rutgers/JCNERR-SSC, NJDEP | Ongoing-continuous | Staff time |
| | Q10A: Educate the public about: (1) the proper functions of existing stormwater retention ponds, basins, and other stormwater facilities, and (2) the importance of native species | Expanded outreach programs, including new resident packages, rain-barrel projects, extreme lawn makeovers, and native/introduced species programs | RCE, BBNEP-SCW*, Rutgers/JCNERR-SSC, OCSCD, USFWS, OCPD, ALS, municipalities | Ongoing-continuous | BBNEP/RCE Staff time; additional funds for outreach, other materials |
| | WQ10B: Continue the Stormwater Steering Committee efforts: promote BMPs, promote education, and support NERR stormwater training program | Sponsor and evaluate events and other efforts | BBNEP*, RCE, OCSCD, Rutgers/JCNERR-SSC* | Ongoing-continuous | Staff time / base funding ; expanded efforts need funding |
| | WQ10C: Obtain sponsor for and develop a pilot program for professional certification of landscapers, public works officials, and | Professional Development program exists | OCSCD, RCE, Rutgers Office of Continuing Education, BBNEP SCW* | Year 3 | 4 |

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| | government agencies regarding environmentally sensitive landscaping | | | | |
| | WQ10D: Address barriers to use of ground-moisture sensors for private irrigation systems, | Sensors and water use are improved | OCSD, RCE, OC Mayors Association | Ongoing-continuous | Staff time / base funding |

PRIORITY AREA #3: WATER SUPPLY AND INPUT

Strategic Objective: Address water supply and flow issues that affect the bay and watershed.

Desired Environmental Result: *Long-term goals:* Provide natural freshwater flows (both quantity and periodicity) to the bay to: (1) support healthy living resources, (2) support societal uses, and (3) prevent salt water intrusion. *Short-term goals:* Support plans to conserve and reduce water use.

| | Action | Success measures | Partners | Timeline | Funding |
|-----|---|---|--|--------------------|---|
| WS1 | Review the proposed State Water Supply Plan and provide comments to NJDEP about its impacts on BB watershed. (see CCMP 5.20) | Comments | BBNEP-STAC* | Years 1-2 | Staff time / base funding |
| WS2 | Develop BB watershed-specific implementation plan for State Water Supply Plan, including feasibility of conservation, reuse, and other demand management tools (see CCMP 5.21) | Development of white paper re: implementation issues in Barnegat Bay | BBNEP-STAC* | Years 2-3 | Staff time / base funding |
| WS3 | Support development of programs to characterize and assess shallow water aquifer withdrawals, especially for irrigation (see CCMP 5.22) | Programs are initiated | NJDEP*, USGS | Year 1 | Staff time / base funding |
| WS4 | Review existing data and consider the need for a new study to determine the freshwater input is needed to ensure a healthy ecosystem (see CCMP 5.20) | Report/white paper on issues needing study and feasibility of study | NJDEP*, BBNEP-STAC, Rutgers/JCNERR, USGS, USFWS | Year 2 | Staff time / base funding |
| WS5 | Support public education about the status of the water supply, and promote water conservation and re-use projects (see CCMP 5.24) | Increased conservation and reuse of water via increases in projects that reuse water (e.g., golf courses), in numbers of households using BMPs. | BBNEP* (to coordinate), RCE, USGS, JCAA, OCUA, water purveyors | Ongoing-continuous | Staff time / base funding ; funding needed for projects |

PRIORITY AREA #4: HABITAT LOSS AND HABITAT RESTORATION

Strategic Objective: Prevent habitat loss, especially of submerged aquatic vegetation, and support habitat restoration.

Desired Environmental Result: *Long-term goals:* Unimpaired, quality habitats, vegetated with appropriate native species, that support self-sustaining populations of federally and state-listed species (e.g., endangered and threatened species such as pine barren tree frog, swamp pink) and other native species. *Short-term goals:* (1) Support existing efforts and mechanisms to acquire/protect wetlands, adjoining uplands, and other uplands (~1000 acres/year); (2) coordinate efforts to assess previous restoration projects, support existing restoration projects, and prioritize new restoration projects; and (3) address and incorporate sea-level rise and other climate-change concerns (e.g., wetland migration and submergence) into acquisition and restoration planning.

| | Action | Success measures | Partners | Timeline | Funding |
|----|---|---|--|--|--|
| H1 | Maintain, restore and improve shoreline buffers adjacent to coastal wetlands and freshwater tributaries to prevent habitat loss and maintain continuous corridors for habitat protection and low-impact recreational pursuits (see CCMP 6.1 and 6.3) | Buffer evaluations completed; collaborative efforts to address regulatory issues within the region; successful shoreline restoration projects | ALS*, NJDEP, RCE, USACE, USEPA, USFWS, NRCS, NOAA/NMFS/RC, OCSCD, other restoration groups (e.g., Coastal America) | Ongoing-continuous; extends beyond 3-year time frame | Fish Habitat Conservation Plan, NFWF, Corporate Wetland Restoration partners, NOAA; funding needed |
| | H1A: Evaluate buffers to establish baseline and periodic reviews to show improvements | Baseline study completed in 2007. | BBNEP-STAC*, NJDEP, Rutgers/JCNERR, Rutgers/CRSSA, RCE, USEPA, USFWS, NRCS, NOAA/NMFS/RC, OCSCD | Years 1-3 | BBNEP; other partners |
| | H1B: Evaluate and address stronger protection measures (e.g., C1 designation and implementation) for riparian/estuarine buffers; identify and address regulatory impediments | Workshops and other targeted meetings | NJDEP, BBNEP, ALS*, JCAA, USFWS, other partners | Years 2-3; longer to address rulemaking | Staff time / base funding |
| | H1C: Explore municipal beaches as potential pilot sites for living shorelines | Pilot Site | OCPD, municipal officials | Years 2-3 | Staff time / base funding |
| H2 | Review reports on sea level rise, conservation and restoration targets, and identify potential habitats threatened by climate change and explore opportunity for funding to address adaptation to climate change impacts | Adaptation projects are initiated; 2008 JCNERR workshop | USEPA*, BBNEP-STAC, USGS, USFWS, NOAA/NMFS, Rutgers/JCNERR, Rutgers/CRSSA, NRCS, NJDEP | Ongoing-continuous | Staff time, broader scale efforts depend on additional funds |
| H3 | Research, summarize, promote, and implement alternative restoration approaches (e.g., "living" shorelines, reuse of dredged material) | Summary review document | BBNEP-STAC*, NJDEP, NOAA/NMFS, USFWS, Rutgers/ JCNERR, ALS, USACE | Years 2-3 | External funds to increase project number and scales |
| H4 | Work with partners to support erosion control efforts and create opportunities for non-structural stabilization (see CCMP 6.3) | Non-structural stabilization is in use in towns | BBNEP-STAC*, NJDEP, USACE, USEPA, USFWS, NOAA/NMFS/RC, NRCS, ALS, NGOs | Years 2-3 | Funding needed for large-scale efforts |
| H5 | Convene regional workshops to identify regulatory and other impediments to non-structural solutions, including cumulative impacts, and develop steps to address them | Workshops, with summary of impediments and strategies | NJSG*, USACE, NJDEP, USFWS, NOAA/NMFS, developers and builders, others | Years 2-3; longer if rulemaking required | Funding needed; work with other NEPs |
| H6 | Review and evaluate implementation of current | Public report | NJDEP*, USFWS, ALS, NOAA/NMFS, | Year 1; longer | Staff time / |

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| | regulations (including CAFRA, Flood Hazard Area Rules, <i>etc.</i>) regarding important habitats (see CCMP 6.10) | | USEPA, MU-UCI, developers and builders, others | to address rulemaking | base funding |
| H7 | Facilitate partnerships and funding for natural lands acquisition and management (see CCMP 6.5 and 6.12). | Increased funding/ acquisition | TPL*, USACE, USFWS, NJDEP (Green Acres), OCPD-OCNLT, BBNEP, others | Ongoing-continuous | Staff time / base funding |
| H8 | Promote USACE restoration plan for projects and implementation strategies (see CCMP 6.2) | Funding for federal restoration projects | USACE*, BBNEP, USFWS, NJDEP, NMFS, OCPD-OCNLT, others | Ongoing-continuous | Requires local partner/funding |
| H9 | Support NJ/local land use & growth management plans that encourage sub-watershed planning to minimize impervious coverage and maintain habitat and ecosystem functions | Planning consistency | NJDEP*, OCPD, towns, BBNEP-SCW, Brick Twp. Utilities, ALS (invite NJ Dept. of Community Affairs, Sustainable Growth Program,) | Ongoing-continuous | Staff time / base funding; funds needed to expand efforts |
| | H9A: Provide model ordinances to promote habitat preservation | Model ordinances in place | NJDEP*, OCPD, towns, BBNEP-SCW (invite NJ Dept. of Community Affairs, Sustainable Growth Program) | Ongoing-continuous | Staff time / base funding |
| | H9B: Work with municipalities during revision of their master plans to align them with CCMP and BBNEP priorities for habitat and water quality protection (see CCMP 6.9) | Consistency among the Strategic Plan and Municipal Master Plans | BBNEP-SCW, NJDEP, NJ Dept. of Community Affairs, Sustainable Growth Program, OCPD, towns | Ongoing-continuous | Staff time / base funding |

PRIORITY AREA #5: FISHERIES DECLINES

Strategic Objective: Improve understanding of, and address, fisheries declines.

Desired Environmental Result: *Long-term goals:* (1) Stable populations of healthy freshwater, estuarine-dependent, and marine fishes and shellfishes; (2) consumable fishes and shellfishes (*i.e.*, reduction in fish and shellfish contamination), and (3) consistent management of commercially valued species such as river herring, blue crabs, hard clams, and bait species. *Three-year goals:* (1) Identify priority data gaps regarding exploited species and their management; (2) promote and support monitoring and assessment of freshwater and exploited estuarine species; and (3) promote comprehensive monitoring and assessment of power plant impacts on biotic resources.

| | Action | Success measures | Partners | Timeline | Funding |
|----|--|--|--|---|---|
| F1 | Fill data gaps to support decision making regarding economically-important fisheries and fish habitats | Detailed population assessments of clams, sea grasses, and other species that are exploited or are of management concern | NJDEP-DFW*, BBNEP-STAC, NOAA/NMFS, USFWS, Rutgers/JCNERR, JCAA | Years 1- 2 | Funding needed |
| F2 | Improve assessment of Oyster Creek power plant impacts (see CCMP 5.15). | License/permit requirements; monitoring program established | BBNEP-AC*, Amergen, Rutgers/JCNERR, ALS, others | Ongoing-continuous; set in part by regulatory schedules | Funding needed (Amergen <i>et al.</i> ?) |
| F3 | Include freshwater fishes and exploited estuarine species in bioindicator assessments; implement monitoring of those species. | Review information and develop agreed-upon indicators | BBNEP-STAC, NJDEP, NOAA/NMFS, USFWS, USEPA, JCAA (invite Pinelands Commission) | Years 2-3 | Funding needed (Pinelands Commission <i>et al.</i> ?) |
| F4 | Educate the public about the functional role of the bay in early life stages of important estuarine-dependent species, <i>e.g.</i> , flounder, bluefish, <i>etc.</i> | Public outreach materials | JCAA, NOAA/NMFS, USEPA, USFWS, Rutgers/JCNERR, BBNEP, RCE | Ongoing-continuous | Staff time / base funding |