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COMMUNITY-BASED WATERSHED MANAGEMENT

**Lessons from the
National Estuary
Program**

FEBRUARY, 2005

Appendix B: NEP at a Glance

Appendix B contains summary information for each of the 28 NEPs, including each program's Web site address. Source: *The National Estuary Program: Protecting Our Nation's Estuaries* (EPA842-F-99-001).



Albemarle-Pamlico Sounds, North Carolina

*Key management issues: water quality,
habitat protection, and fisheries*

The Albemarle-Pamlico Sounds system is the nation's second largest estuarine system. Working closely with local councils, the Albemarle-Pamlico NEP is implementing cost-effective solutions for the top environmental priorities in the river basin. The NEP has spearheaded a number of significant restoration and protection projects, including identifying and acquiring over 27,000 acres of habitat; opening over 1,000 miles of blocked fish spawning areas; and developing more than 50 geospatial datasets as a component of the North Carolina Corporate Geographical Database. Several commercial and recreational fisheries have also been improved.

Web site: www.apnep.org



Barataria-Terrebonne Estuarine Complex, Louisiana

*Key management issues: water flow alterations, sediment reductions, habitat loss/alteration,
nutrients, pathogens, toxic chemicals,
and changes in living resources*

The confinement of the Mississippi River by man-made levees along with extensive channel construction through adjacent wetlands has changed the natural flow of water and sediments, increasing the impacts of subsidence and allowing the intrusion of salt water. Restoration projects implemented over a two-year span, however, have improved over 5,700 acres of wetlands at a cost of over \$58 million. Nearly 2,500 sewage treatment systems have also been installed, eliminating the discharge of almost one million gallons of raw or partially treated sewage each day. Conservation projects on more than 4,000 acres of agricultural lands have reduced runoff containing nutrients, bacteria, and toxic chemicals.

Web site: www.btnep.org/



Barnegat Bay, New Jersey

Key management issues: nonpoint source pollution (pathogens, nutrients, sediments), and habitat loss/alteration

Over 450,000 people live within New Jersey's Barnegat Bay watershed, and that number doubles in the summer when people flock to the shore. The estuary is not only vital to the state's tourism industry, but also supports commercial and recreational fish populations and rare species. To balance suburban growth with ecosystem protection, all 33 municipalities in Ocean County approved a referendum in 1997 to purchase critical land areas. This land acquisition will help protect stream corridors, water supply areas, natural lands, agricultural land, buffer areas, and aquifer recharge areas. A growing network of private and public partners are working together to ensure the success of this project.

Web site: www.bbep.org/



Buzzards Bay, Massachusetts

Key management issues: nutrients, pathogens, contaminated seafood, and habitat loss/alteration

The diverse habitat of Buzzards Bay includes sandy beaches, salt marshes, eelgrass beds, and urban ports. The waters of the Bay are relatively healthy, but some of the smaller embayments are threatened by increasing amounts of pollution from residential development, industrial wastes, and sewage contamination. To address these issues, the Buzzards Bay Project has assisted in the construction of a test center to promote advanced septic treatment solutions and established limits on the amount of nitrogen that can enter the embayments. In addition, the program has acquired lands for preservation and reopened more than 4,000 acres of shellfish beds.

Web site: www.buzzardsbay.org/



Casco Bay, Maine

Key management issues: habitat protection, toxic chemicals, stormwater and combined sewer overflows, water quality in shellfish and swimming areas, and community stewardship

Casco Bay is a picturesque New England Bay covering 578 miles of shoreline. The Bay supports recreational activities, tourism, and industries, such as shipping, commercial fishing, and shellfishing. Accomplishments of the Casco Bay Estuary Project include promoting the adoption of Portland's combined sewer overflow management plan; organizing efforts to eliminate pollution sources to 360 acres of clam flats and reopen closed clamming areas; assisting in the relocation of 37,000 juvenile lobsters during the dredging of Portland Harbor; assisting with state shellfish advisories by conducting annual toxicity testing in the Bay; and helping to produce an award-winning public service announcement on the protection of the Bay.

Web site: www.cascobay.usm.maine.edu/



Charlotte Harbor, Florida

Key management issues: nutrients, pathogens, habitat loss/degradation, introduced species, and water flow alterations

The Charlotte Harbor Estuary on Florida's west coast is home to more than 2,300 animal species, including manatees, sea turtles, and dolphins. Over 2,100 species of plants—from grasses to mangroves to oaks—are also found in the region. Rapid growth, however, is changing the character and ecology of the watershed. To preserve the estuarine environment, this program is sponsoring 32 varied projects, ranging from removing exotic plants that threaten native species to erecting educational signs on visitor trails. The program also has created an information center, synthesized existing scientific knowledge of the watershed, completed a regional monitoring plan, and assessed the economic value of the area's natural resources.

Web site: www.charlotteharbornep.com/



Coastal Bend Bays and Estuaries, Texas

Key management issues: habitat loss/alteration, nutrients, stormwater runoff, debris, pathogens, and drinking water quality/supply

Located in a semiarid region, this estuary faces pressures from agriculture, tourism, maritime commerce, and the large and growing City of Corpus Christi. The Coastal Bend Bays and Estuaries Program is working to meet the area's water needs while protecting the estuaries' rich plant and animal life. The program is focusing on three key actions: shoreline management, nonpoint source management, and freshwater resources. The program's Management Plan was completed in a streamlined, community-based process with an unprecedented diversity of stakeholder involvement. The Texas Legislature also has designated \$900,000 over two years for the program.

Web site: www.cbbep.org/



Delaware Estuary, Delaware, New Jersey, Pennsylvania

Key management issues: population growth, urban sprawl, habitat fragmentation, and toxic chemicals

The Delaware Estuary watershed spans three states. Bringing stakeholders together in such a large and complex watershed poses daily challenges. The Partnership for the Delaware Estuary coordinates resources, draws on the expertise of its many stakeholders, and inspires large numbers of residents in its watershed to become involved. Through these actions, the Partnership works to support environmentally sound land use practices, enhance important habitats, reduce polluted runoff, and reduce toxic and bacterial contamination. These efforts help ensure that contact recreation and fishing are permitted throughout the estuary.

Web site: www.delawareestuary.org



Delaware Inland Bays, Delaware

Key management issues: nutrients and habitat loss

Development and intensive agriculture in a burgeoning coastal resort area threaten the Inland Bay's habitat and natural resources. To help address these issues, the Delaware Center for the Inland Bays established the James Farm Ecological Preserve, a 150-acre county-owned property, which is leased as an outdoor living and recreation area. The program is also investigating harmful algal blooms and recommending pollution control strategies to address nutrient levels in the Bays. In addition, the program is restoring seagrasses; strengthening scallop, clam, and oyster populations; planting trees and shrubs to buffer stream banks from pollution; and examining the amount of nutrients entering the watershed through precipitation.

Web site: www.inlandbays.org/



Galveston Bay, Texas

Key management issues: habitat loss, nonpoint source pollution, and water flow alterations

Galveston Bay has lost 30,000 acres of wetland habitat and 90 percent of its seagrasses since the 1950s. Contaminated runoff has degraded water quality and sediments in the Bay's tributaries and some near-shore areas. In addition, altered freshwater inflows have changed the water's salinity and circulation patterns, which can severely stress wetlands and oyster reefs. In an effort to address these problems, industry and various levels of government are working together to leverage funding, save money, and develop creative restoration solutions. This diversified partnership has, for example, implemented an innovative seeding technique and used dredged material in wetland restoration efforts.

Web site: www.gbep.state.tx.us



Indian River Lagoon, Florida

Key management issues: habitat loss/alteration, increased freshwater flows, nutrients, sedimentation, and “muck” deposits

The location of the Indian River Lagoon on Florida’s eastern coast—between the temperate climate of the north and the subtropical climate of the south—combined with its large size make it an estuary of high biological productivity. To ensure the health and diversity of the estuary, this program is partnering with numerous municipalities and counties to reduce stormwater runoff, which carries excess nutrients and sediments into the lagoon. The program’s blueway/conservation and recreation lands project has acquired approximately 8,800 acres of land in the watershed, and mangrove replanting is helping to restore critical habitat. Sales and renewals of the program’s license plate initiative across Florida have raised more than \$1.6 million dollars for estuary restoration.

Web site: <http://www.sjrwmd.com/programs/outreach/irlnep/index.html>



Long Island Sound, Connecticut, New York

Key management issues: nutrients, habitat loss and degradation, toxic chemicals, and pathogens

More than 8 million people live within the 16,000 square-mile Long Island Sound watershed. Boating, fishing, swimming, and beach-going generate more than \$5 billion annually for the regional economy. The top propriety of the Long Island Sound Study is to reduce nutrients that are impairing fish and shellfish habitat by depleting oxygen levels in many areas of the Sound. The program has set an ambitious goal to reduce nitrogen loads by almost 60 percent over 15 years and to restore 2,000 acres and 100 river miles of habitat by 2008. To meet these goals, the program is upgrading sewage treatment plants to treat nitrogen; restoring wetlands, beaches, dunes, coastal grasslands, forests, and shellfish reefs; and involving local communities in developing watershed-based approaches to control polluted runoff.

Web site: www.longislandsoundstudy.net



***Lower Columbia River Estuary,
Oregon, Washington***

*Key management issues: biological integrity,
impacts of human activity and growth, habitat loss/alteration, conventional pollutants, toxic
contaminants, institutional constraints,
and public awareness/stewardship*

The Columbia River is one of the nation's premiere natural resources. It supports a billion dollar economy with impacts far beyond the Pacific Northwest. The lower Columbia River and Estuary are in trouble, however, and its problems are manifested in the numerous threatened and endangered species of salmon and steelhead. To maintain the ecological integrity and economic health of the watershed, the Lower Columbia River Estuary Partnership developed a comprehensive, well-supported Management Plan with extensive public involvement. The plan makes use of a number of innovative tools, including a system to compare and rank the problems in each of the seven priority management areas. The plan also brings a coordinated approach to environmental monitoring on the lower Columbia River.

Web site: www.lcrep.org/



Maryland Coastal Bays, Maryland

*Key management issues: nutrients, population growth, toxic chemicals, habitat/wildlife loss, sediments, and
fisheries*

During the summer, the population of the Coastal Bays swells to more than 250,000 people each week. Population growth is one of the major threats to the estuary, along with excess nutrients, habitat loss, sedimentation, and toxic chemicals. As a result, species diversity has declined in the northern bays. To instill a stewardship ethic among citizens and visitors, the Maryland Coastal Bays Program has sponsored more than 50 events, including free boat tours, cleanups, fundraisers, and land management workshops. It also has held "Alternative Futures" workshops to allow residents to create their vision for the watershed's future and to produce different growth scenarios. The program also helped secure a grant to preserve nearly 10 percent of the watershed's natural land.

Web site: www.mdcoastalbays.org



Massachusetts Bays, Massachusetts

Key management issues: contaminated shellfish, habitat loss, stormwater pollution, municipal wastewater management, local land use, and growth

The Massachusetts Bays region encompasses all of the coastal waters from the tip of Cape Cod to the New Hampshire border. Because of the region's diversity—in terms of its land use, ecology, and other factors—it hosts a wide range of environmental problems. In light of these challenges, the Massachusetts Bay Program has spearheaded an interagency program to reopen contaminated shellfish beds by identifying sources of pollution and implementing solutions for remediation. To address habitat loss and degradation, the Program has piloted a unique, holistic approach to assess wetland quality that may serve as a model in New England. Other initiatives include conducting a workshop series to prepare municipal officials for upcoming stormwater regulations and helping towns with growth planning and open space preservation.

Web site: www.mass.gov/envir/massbays



Mobile Bay, Alabama

Key management issues: water quality, physical and hydrologic modifications, habitat loss, living resources, human uses, and public involvement/education

The Mobile Bay watershed covers more than 71,500 square miles along the Gulf of Mexico. The program's successful projects include shoreline erosion control, habitat restoration, and wetland stormwater management. It has enhanced public awareness of key management challenges through community meetings and encouraged volunteer monitoring by citizens. Local governments and businesses have also been active participants in supporting watershed activities. The program has completed an economic valuation of Mobile Bay, along with preliminary characterization studies for each of the key management issues.

Web site: www.mobilebaynep.com/



Morro Bay, California

Key management issues: erosion and sedimentation, pathogen contamination of shellfish operations, nutrients, freshwater flow reductions, heavy metals, and habitat loss.

This estuary encompasses roughly 2,300 acres of mudflats, eelgrass beds, tidal wetland, and open water habitat—making it the most significant wetland system on California’s south central coast. Threats to the estuary include erosion and sedimentation, as well as water diversion, urban and agricultural runoff, and changing land uses that threaten water quality and wildlife habitat. Faced with these challenges, the program has held workshops and established multi-stakeholder issue groups to focus on priority problems. In addition, the U.S. District Court awarded the program \$3.6 million to carry out its conservation and Management Plan, drawing from gas and electric utility penalty funds.

Web site: www.mbnep.org/index.html



Narragansett Bay, Rhode Island

Key management issues: nonpoint source pollution (nutrients), pathogens, habitat loss/degradation, monitoring, and local land use/growth

For hundreds of years, Narragansett Bay has supported a remarkably diverse set of resource uses. The densely populated upper Bay watershed has served as a cradle of American industry, while the lower Bay provides a recreational resource of regional importance and international renown. The Bay is home to important fisheries and supports a wide variety of migratory fish and wildlife. The Narragansett Bay Estuary Program is working collaboratively to better assess the ecological health of the Bay, reverse ecological degradation, and improve planning for the Bay’s future. Specifically, the Bay Program is mapping Rhode Island’s estuarine habitats and promoting habitat restoration; monitoring water quality and advocating nutrient controls; and helping to develop watershed-based approaches toward sustainable use of the Bay’s natural resources.

Web site: www.nbep.org/



***New Hampshire Estuaries,
New Hampshire***

Key management issues: pathogens, habitat loss/alteration, nutrients, and toxic chemicals

The New Hampshire Estuaries Project is using the health of the state's shellfish population as an indicator of water quality and a measure of overall estuarine health. For the first time in more than 10 years, the Hampton/Seabrook Estuary—the most productive recreational clam flat in coastal New Hampshire—was opened, and more than 800 shellfishers participated in the opening day harvest. Many organizations within the state have worked together to identify and eliminate pollution sources and reopen shellfish beds. Their work has resulted in the opening of an additional 550 acres of shellfish waters in the Great Bay Estuary.

Web site: www.state.nh.us/nhep/



***New York-New Jersey Harbor,
New York, New Jersey***

Key management issues: toxic chemicals, dredged material management, pathogens, nutrients, and habitat loss/alteration

For over 300 years, the Harbor has served as a critical port and economic center in the midst of a densely populated area. These factors have contributed stresses to the estuarine system. Many areas of the Harbor contain elevated levels of toxic chemicals. Pathogenic contamination results in beach and shellfish bed closures. To address these and other issues, the program is identifying sources of loadings of toxics, pathogens, and nutrients to the Harbor and is reducing them by cleaning up sources of toxics, controlling discharges from combined sewer overflows, and improving nitrogen removal at treatment plants. A protocol now allows managers to quickly assess potential impacts of accidental sewage discharges and to take action to protect the public. The program also developed a map of priority habitat sites and helped direct millions of dollars to their acquisition and restoration.

Web site: www.harborestuary.org/



Peconic Bay, New York

Key management issues: nutrients, pathogens, toxic chemicals, brown tide, and natural resource threats

One of The Nature Conservancy's "Last Great Places in the Western Hemisphere," the Peconic Estuary is a high-quality resource, vital to the economy of Long Island. However, brown tides have decimated the once nationally significant bay scallop industry, bacterial contamination has closed many shellfishing areas, and nutrient inputs have depressed dissolved oxygen locally. In response, the Peconic Estuary Program has integrated economics with habitat and water quality management, establishing specific policies to control nitrogen inputs. More than 50 early implementation projects deal with stormwater management, wastewater treatment upgrades, and scallop, wetlands, and eelgrass restoration. Public support and nonfederal resources have been critical, resulting in tens of millions of dollars for land preservation, pollution control, and resource management.

Web site: www.peconicestuary.org



Puget Sound, Washington

Key management issues: habitat loss, declining fish stocks, stormwater runoff, onsite septic systems, introduced species, and shellfish protection

Puget sound encompasses 2,300 miles of shoreline and is home to more than 200 species of fish and 14 species of marine mammals. The Puget Sound Action Team has helped protect this critical resource. The program's plan led to the development of the nation's first sediment standards. More than a third of the 140 local governments in the basin have adopted the plan's basic stormwater program. Further, laws have been passed to require certification of professionals who work with onsite septic systems. Commercial shellfish acreage has been reopened after years of closures. And an award-winning public education program has involved more than 1.5 million people. The program also works with British Columbia on common issues including marine protected areas, toxics, and the introduction and spread of aquatic nuisance species.

Web site: www.psat.wa.gov/



San Francisco Estuary, California

Key management issues: aquatic resource degradation, wetlands loss, decline of wildlife species, altered flow regimes, introduced species, increased pollution, and lack of integrated planning and management

Facing a variety of challenges—from the loss of wetlands to a lack of economic incentives to promote public/private habitat protection—the San Francisco Estuary Project has made great strides by strengthening and providing support for local planning efforts. The project worked cooperatively with local, state, and federal agencies, and private organizations to develop the Baylands Ecosystem Habitat Goals Report—a scientific guide for restoring and improving the baylands and adjacent habitats of the San Francisco Estuary. The project is now working to implement the report by developing a regional wetlands Management Plan that will include identifying restoration projects and their costs, establishing a wetland monitoring framework, and reaching agreements among funding, regulation, and implementing parties.

Web site: www.abag.ca.gov/bayarea/sfep/sfep.html



San Juan Bay Estuary, Puerto Rico

Key management issues: sewage discharges, reduced water circulation, nutrient-toxic contamination, living resource degradation, aquatic debris, and lack of public awareness/involvement

The San Juan Bay Estuary is one of many tropical areas trying to harmonize economic development with resource protection. Urban development during the past 40 years has led to considerable changes in freshwater inflows and degradation of many habitats and living resources. To address these challenges, the program focuses on improving water and sediment quality and enhancing and protecting habitat and living resources. The program is restoring the Martin Pena Channel, and promoting active participation of all associated communities. The program helped establish a solid waste management and recycling program and conducted environmental education demonstration projects directed at community-based conservation and development. In addition, it has created fences to reduce illegal dumping, cleaned up beaches, planted mangrove seedlings, and reforested tributaries.

Web site: www.estuariosanjuan.org/



Santa Monica Bay, California

Key management issues: stormwater/urban runoff, habitat restoration, toxic chemicals, pathogens, sediment contamination, contaminated seafood, and bay plan financing

As home to more than 5,000 species of flora and fauna, Santa Monica Bay provides a rich natural resource immediately adjacent to the second largest metropolitan area in the nation. With more than 45 million visitors per year, the Bay faces many challenges regarding water quality and habitat protection. To address concerns about health risks to Bay swimmers, the Santa Monica Bay Restoration Commission completed the first west coast study to assess human health risks of swimming in waters contaminated by urban runoff. Other accomplishments include developing a comprehensive Bay monitoring program; leading efforts to establish a stormwater permit for Los Angeles County and its 85 cities; conducting groundbreaking research on urban runoff sources, toxicity, and impacts; restoring coastal wetland habitats; and funding public outreach programs to encourage Bay stewardship.

Web site: www.santamonica.org



Sarasota Bay, Florida

Key management issues: population growth and development, nutrients, habitat loss/degradation, and stormwater runoff/ sewage discharges

Nearly 50 years of urban growth and development have taken a toll on Sarasota Bay. Excess nitrogen—which enters the Bay through wastewater, stormwater, rainfall, and the atmosphere—poses the biggest threat to the health of the estuary. Working with the community, the Sarasota Bay NEP has helped to reduce the amount of nitrogen entering the Bay by 47 percent, resulting in an 18 percent increase in seagrass coverage. The program has embarked on a series of projects to enhance habitat related to seagrasses, wetlands, and artificial reefs. As compared with 1998, the Bay now supports an additional 110 million fish, 71 million crabs, and 330 million shrimp. The program has also enhanced more than 130 acres of wetlands since 1990—about eight percent of those lost since 1950.

Web site: www.sarasotabay.org/



Tampa Bay, Florida

Key management issues: water and sediment quality, habitat loss/alteration, species loss/decline, and spill prevention/response

Tampa Bay—Florida’s largest open water estuary—stretches 398 square miles at high tide. After decades of pollution, the Bay is coming back to life, thanks in part the Tampa Bay Estuary Program. In particular, the program has focused on controlling nitrogen loadings to the Bay to restore vital underwater seagrass beds. The Tampa Bay Nitrogen Management Consortium, an innovative public-private partnership, developed an action plan to achieve nitrogen reduction goals. The consortium is making impressive progress toward the program’s long-term goal of recovering 12,350 acres of seagrasses baywide. The program is also providing national leadership in addressing air deposition of nitrogen and other pollutants to coastal waters.

Web site: www.tbep.org/



Tillamook Bay, Oregon

Key management issues: habitat loss/degradation, bacterial contamination, altered flow regimes, sedimentation, and erosion

Dominated by rugged mountains with a narrow coastal plain, Tillamook Bay faces a challenging combination of environmental concerns. In particular, past land use practices and flooding have impacted critical habitats for salmon spawning and rearing. To address these challenges, the Tillamook Coastal Watershed Resource Center houses a 150-layer GIS database and posts environmental data and watershed enhancement updates online. Other projects include streamside fencing and riparian re-vegetation to keep livestock out of streams and to restore riparian areas; adding large rocks and woody debris to improve in-stream habitat; and purchasing ecologically valuable land to be preserved in land trusts. A consortium of agencies, industries, and stakeholders is responsible for implementing the programs Comprehensive Conservation and Management Plan.

Web site: www.tbnep.org