



The National Estuary Program: A Ten-Year Perspective

Demonstrating Practical Tools for Watershed
Management Through the National Estuary Program

The National Estuary Program

Introduction

This past year, 1997, marked the 10th anniversary of the US EPA's flagship watershed effort, the National Estuary Program (NEP). What began as a demonstration of an alternative to traditional command-and-control regulatory approaches to water quality problems has evolved into a model for integrated, watershed-based, stakeholder-oriented, water resource management. A decade of trial and effort has taught some useful lessons about applying this approach; it has also led to significant environmental improvements and insights upon which the EPA expects to build over the next 10 years of the program.

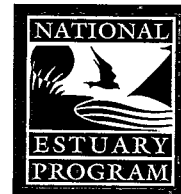
History

The National Estuary Program was created by the Water Quality Act of 1987, influenced by public alarm over beach closures, fish kills, contaminated shellfish beds, and a general sense of deteriorating coastal environments. There was growing awareness of the impacts of nonpoint source pollution, and that such impacts were related to the surge in coastal growth and development. More fundamentally, there was new appreciation of estuaries as an incredibly rich and varied resource at increasing risk from cumulative activities in coastal watersheds.

These systems, and the risks, were too complex to be addressed by one entity alone and went well beyond the existing mandates of regulatory and enforcement programs. At that time, water quality was chiefly defined by concentrations of chemicals in a waterbody and was primarily driven by point source concerns and programs. There were few, if any, tools to recognize and address more comprehensive issues. Additionally, there was little authority or capability to integrate efforts within geographic or hydrologic units.

Congress recognized that in order to achieve long-term protection of water quality and living resources—the fundamental “fishable, swimmable” goals of the Clean Water Act—the participation of those most affected by environmental decisions was critical. Experiences from the

Great Lakes and Chesapeake Bay Programs, with their collaborative approach to managing watersheds and estuaries, were clearly drawn upon in shaping the NEP under the Act. Stakeholders, Congress determined, must have a major role in deciding how to protect and restore their estuaries. Congress also recognized that state and local entities were at the forefront in carrying out activities affecting estuaries, and that they needed to be integral partners in the decision-making process. EPA's role was to provide technical and financial assistance, management guidance, and the organizational vehicle to foster the growing partnerships.



What is the National Estuary Program?

The NEP is a voluntary program that brings a community together to improve its estuary using a forum to establish working relationships and the trust necessary to develop solutions. This fosters a higher likelihood of long-term success because solutions are “owned” by participants who have a stake in reaching them.



EPA periodically calls for nominations to the program from state governors. If an estuary meets the agency's criteria, EPA may then designate it to be included in the program. Once the designation has been made, a Management Conference is formed to provide the decision-making framework for participants, which typically include government agencies at the federal, state, and local level; community residents; user groups; scientific and technical institutions; business and industry; and environmental groups. The EPA functions as the overall facilitator of the process and as a Management Conference representative. The Management Conference, or stakeholders, together define program goals and objectives, identify estuary problems, and design action plans to prevent or control pollution and restore habitats and living resources such as seagrasses and shellfish. These action plans come together in a Comprehensive Conservation and Management Plan (CCMP) which serves as a blueprint for protecting and restoring the estuary.

Administration of each of the 28 designated local NEPs includes a Management Committee which serves as the focal point of the program. It is supported by a Director and technical and outreach staff, scientific and technical advisory committees, and citizen advisory committees.

How Does it Work?

The NEPs build on existing programs and traditional water quality control measures and tailor them to specific places and communities—coastal watersheds and related estuaries.

Each local NEP must examine changes in water quality and natural resources, evaluate point and nonpoint source pollutant loadings, and determine the relationship between loadings and priority problems for its particular system. Local NEPs generally target a broad range of issues, including contaminated runoff and sediments, releases from septic systems, shoreline erosion, declines in fish and shellfish, and loss of wetlands. There is a strong emphasis on the ability to transfer these solutions to other watershed systems in other areas.

The method used is an interactive, collaborative decision-making process where stakeholders work together to develop the CCMP for their estuary. All stakeholders participate as equal partners in setting priorities, planning, and implementing the action plan. No one single entity drives the local NEP; decisions are made collectively by the Management Conference with input from the stakeholders.

The goal is to develop—and, most importantly, implement—their CCMP, tailored to meet their particular needs and problems, while meeting national program requirements. CCMPs integrate available regulatory tools as well as innovative restoration and protection methods and techniques addressing point and nonpoint source pollution, and set time tables for implementation. Critical to this is building and sustaining long-term public support to carry out the actions agreed upon in the plan.

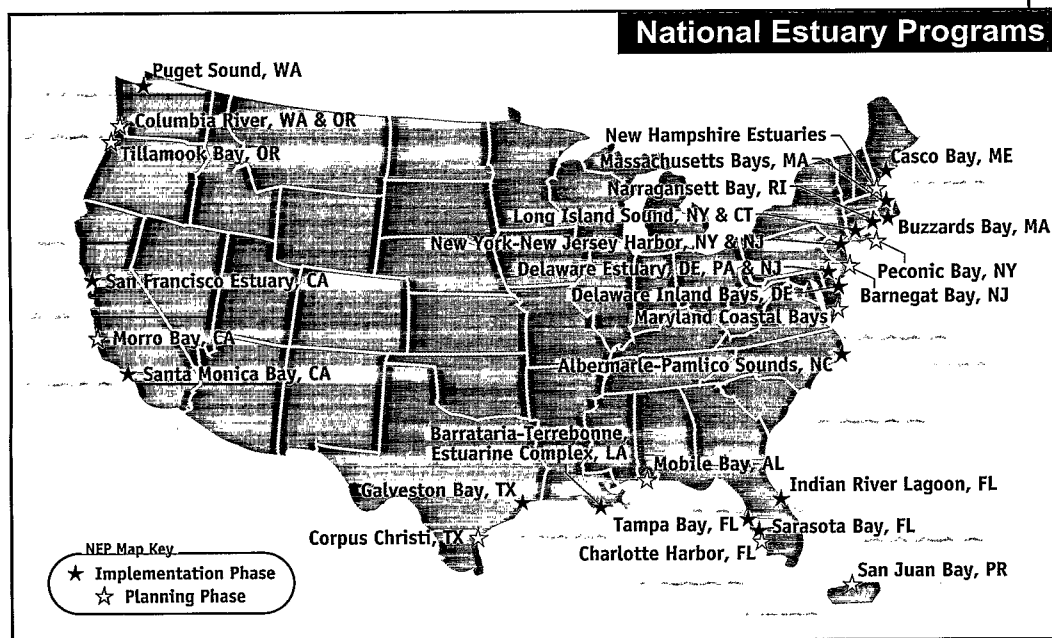
The NEP Today

What began in 1987 with six local NEPs scattered around the country, has grown to 28 in 18 states and Puerto Rico. The project sites offer a broad range of environmental conditions and stakeholder representation. Of the 28, 17 have completed

their CCMPs and are in the implementation phase. The other 11 are still in the process of developing CCMPs (with seven scheduled to have approved plans by the end of 1998). Local programs are not, however, waiting until their CCMPs are approved to protect and restore their estuaries. Most have taken early action to address known problems or those identified during the plan development process.

Lessons Learned

A number of key lessons have been learned over the past ten years. The NEP has demonstrated that community-based resource management achieves results. Although it takes time to see environmental changes such as improvements in water quality, progress is being made. In order to demonstrate improvements in the estuary, we have seen the importance of



NEPs setting measurable environmental goals and indicators. Both programmatic and environmental monitoring are critical to assess progress in implementing CCMP actions as well as changes in environmental conditions.

The program has seen that building an effective management and decision-making framework requires commitment, close collaboration on the part of participants, and time. It is especially important that there is close coordination between federal, state, and local governments. It takes time for groups to build strong partnerships and develop the trust to collectively reach decisions on actions and implementation. The NEP has seen the importance of incorporating groups that have not always been part of coastal discussions, such as oil and gas interests and the housing and development sector. Through the NEP, these and other stakeholders can work together, in some cases for the first time, to protect and restore their estuary.

It has been found to be critical that the appropriate stakeholders are involved in the NEP during the early stages of development of the CCMP. Involvement from the beginning has facilitated commitments to and adoption of the CCMP—and its implementation. The EPA has clearly learned that the consensus-building process must reflect the character of the local community and balance the divergent needs and interests of the coastal stakeholders.

The NEP has provided a laboratory where environmental impacts are examined. Research conducted or sponsored by the NEPs has led to some significant discoveries.

- While it was known that estuaries serve as sinks for upstream pollutants, the NEPs have built on the work of the Chesapeake Bay Program to demonstrate that nitrogen from the air is also a major contributor to problems in coastal waters—particularly in eastern and gulf coast estuaries.
- Research funded, in part, by the NEP, led to the discovery of the marine toxic microorganism *Pfiesteria* which produces neurotoxins that kill fish and may cause human health problems. This discovery has assisted a number of other estuaries coping with the impacts of *Pfiesteria*.
- Nutrient over-enrichment has long been linked to stimulating growth in aquatic plants and contributing to low levels of dissolved oxygen in estuaries, but local NEPs have recently seen possible links to red and brown tides.
- It was not anticipated that accidental or intentional introduction of species would become a significant environmental and economic concern for some estuaries in the NEP. However, a number of instances of this problem have been noted. Brazilian pepper is encroaching on native plant communities in the Florida NEPs. The introduction of the Asian clam in ballast water has disrupted the food web in Pacific coast NEPs by consuming food sources such as phytoplankton vital to native and endangered species. The Japanese oyster drills found in northwest NEPs are decimating oyster populations. The work conducted by these and other NEPs was key in helping to support legislation to address the introduction of invasive species in ballast water (National Invasive Species Act).

A real surprise has been the commonality in environmental issues faced in estuaries around the country. While each estuary and its setting are unique, the NEP has found that all face similar environmental problems and challenges: over-enrichment of nutrients, contamination from pathogens and toxic chemicals, alteration of freshwater inflow, loss of habitat, declines in fish and wildlife, and introduction of invasive species. Consequently, the need to exchange scientific and management information among NEPs is critical to ensure their success and the ability to transfer the knowledge gained to other estuaries improves conditions nationwide.

Collectively, the NEPs have created a significant knowledge base and wealth of experience in dealing with the problems that threaten the health of virtually all estuaries. They serve as a vital national network for technical assistance. Each local

program has produced a vast amount of outreach materials—documents, workshops and the like—to educate and inform the community and to share management insights. They also directly provide critical technical assistance to the local governments surrounding the estuary and indirect assistance to the entire collection of estuaries which ring the country.

Many local NEPs have created innovative management approaches to solve these common problems. They have employed alternative on-site wastewater treatment technologies to control nitrogen; established marina pump-out facilities; provided education and training for owners, installers, and pumpers of septic systems to reduce pathogens; promoted beneficial uses of dredged material to restore and create wetland habitat; installed fish passages to increase spawning; and helped citizen volunteers remove invasive plant species from public areas.

Accomplishments

Local NEPs, and the partnerships forged therein, have produced many significant programmatic and environmental improvements. They have been the catalyst to bring together various levels and branches of government that previously never worked cooperatively—thereby providing more comprehensive management and expediting the regulatory review processes. They have been instrumental in getting local ordinances passed addressing problems associated with stormwater runoff, have facilitated conservation easements for critical areas, and have helped local stakeholders to place limits on nitrogen loading to estuaries. One local NEP has fostered a coordinated effort to improve wastewater treatment facilities in two adjoining states as a means of reducing nutrients. Partnerships between NEPs and industry have led to new ways of doing business. NEP pollution prevention activities targeting toxic chemicals have been adopted by small businesses and reduced their wastes. Action Plan Demonstration Projects (APDP) function as program-funded, small-scale projects to test the effectiveness of technologies and approaches that may be included in the CCMP. These have included creation of artificial wetlands for stormwater mitigation, construction of an artificial oyster reef from recycled coal ash, and design of shrimp by-catch reduction devices. Through these APDP projects and early action on the part of NEPs, many acres of shellfish beds have been reopened, seagrass acreage has increased, shorelines have been stabilized, and native habitat has been restored.

Into the Future

The most significant challenge facing the NEP is to successfully implement the CCMPs. Transition from plan development to action can be very difficult. Local NEPs need to gain commitments from implementors to support CCMP actions and create an effective administrative or institutional structure to ensure they are carried out. This usually requires that they develop the financing necessary to make this happen.

Public participation in the development of the CCMP is one of the most important facets. All too often, the completion of the plan is seen as an end-point rather than a beginning and, consequently, finding a way to maintain public involvement is a great challenge. The public must be involved early in the decision-making process in order to ensure that CCMP actions are carried out.

Because CCMP actions typically transcend a single agency, each local NEP must establish an appropriate institutional arrangement to ensure implementation. NEPs have employed a wide range of organizational structures for this effort, the most common being a coordinating institutional arrangement between the Management Conference and a designated state agency which serves as the administrative "host". A few NEPs have established non-profit organizations that serve either as the coordinating body or as a complement to that group.

Financing CCMP implementation can be costly.

Implementation occurs over many years and so a stable, long-term source of funding is critical. While the EPA is committed to support the NEPs at some level during implementation, each program must identify other funding vehicles early in the planning process to ensure continued program success. NEPs must be able to leverage other sources of funds from key players, such as state and local governments, to implement CCMP commitments.

Now that the NEP has reached its tenth year, the EPA is at a critical point in setting its direction for both the near and long term.

There are approximately 130 estuaries in the United States. Do they all need to be part of the NEP? The EPA recognizes that it may not be appropriate, or even necessary, to designate all of these estuaries as NEPs. What may be more important and effective is to transfer the lessons learned within the NEP to other areas. Clearly, a wealth of knowledge, experience, and tools exist after ten years of the NEP that can be used to further coastal watershed protection. The EPA is working with other federal, state, and local agencies to get information to local decision-makers and interested stakeholders.

The EPA has committed a significant amount of time and resources in support of Management Conference activities for the local NEPs—matched by state partners. Local NEP participants have invested vast numbers of hours in developing their CCMPs and gaining consensus among stakeholders, as well as educating and getting the community involved in activities to restore their estuaries. This common investment is yielding dividends. NEPs are successfully addressing the broad range of problems and issues facing local coastal communities. Not only does the NEP benefit the individual estuaries in the program, but the approach and findings have assisted other coastal areas in addressing water quality issues on a watershed basis.

The US EPA looks forward to continuing its partnership with the 28 NEPs over the years to come and witnessing improvement in the health of our nation's estuaries.



Please visit the US EPA web site at www.epa.gov/owow/estuaries/nep.html to find out more about the NEPs.

Previous Publications in the Demonstration Projects Series

Report Title	National Estuary Program	Date	Publication #
Biological Nutrient Removal Project	Long Island Sound, CT/NY	1995	EPA842-F-95-001A
Buttermilk Bay Coliform Control Project	Buzzards Bay, MA	1995	EPA842-F-95-001B
Georgetown Stormwater Management Project	Delaware Inland Bays, DE	1995	EPA842-F-95-001C
Texas Coastal Preserves Project	Galveston Bays, TX	1995	EPA842-F-95-001D
Shell Creek Stormwater Diversion Project	Puget Sound, WA	1995	EPA842-F-95-001E
City Island Habitat Restoration Project	Sarasota Bay, FL	1995	EPA842-F-95-001F
Buzzards Bay "SepTrack" Initiative	Buzzards Bay, MA	1997	EPA842-F-97-002G
New Options for Dredging in Barataria-Terrebonne	Barataria-Terrebonne Basin, LA	1997	EPA842-F-97-002H
Coquina BayWalk at Leffis Key	Sarasota Bay, FL	1997	EPA842-F-97-002I
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