

The National Estuary Program

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Estuaries are waterways where fresh water from rivers mixes with salt water from the ocean. They sustain an abundance of finfish, shellfish and marine microscopic life as well as valuable habitats such as marshes and underwater grass beds. The definition of estuaries may not be widely known, but they are one of the most commonly used natural features on earth. Estuaries, their shores and adjacent drainage basins have always been popular sites for commercial, recreational, industrial and agricultural activities. The number of people and businesses attracted to estuaries by their recreation, commerce and aesthetics is increasing. Almost fifty percent of the population of the United States lives within fifty miles of the coast. The aquatic life that estuaries support is affected by these growing populations and their use of estuarine resources. Pollution and physical alteration have taken their toll on a number of estuaries and threatens others.

Background

Congress recognized the need to protect the nation's endangered estuaries when it established the National Estuary Program (NEP) under the Water Quality Act of 1987. The goals of the program are to identify nationally significant estuaries, protect and improve their water quality, and enhance their living resources. Congress initially appropriated \$4 million to the U.S. Environmental Protection Agency (EPA) to study the first four estuaries in the program: Narragansett Bay in Rhode Island, Buzzards Bay in Massachusetts, Long Island

Sound in New York and Connecticut, and Puget Sound in Washington. In 1986, San Francisco Bay in California and Albemarle/Pamlico Sounds in North Carolina were added to the program. Since 1986, eleven others have been added to the program for a total of seventeen.

The Water Quality Act of 1987 amended and extended the Federal Water Pollution Control Act of 1972 and its 1977 amendments, known as the Clean Water Act. Section 317 of the 1987 Act declares that the increase in coastal population, demands for development, and other direct and indirect uses threaten estuaries. It goes on to state that it is in the national interest to maintain the ecological integrity of estuaries through long-term planning and management.

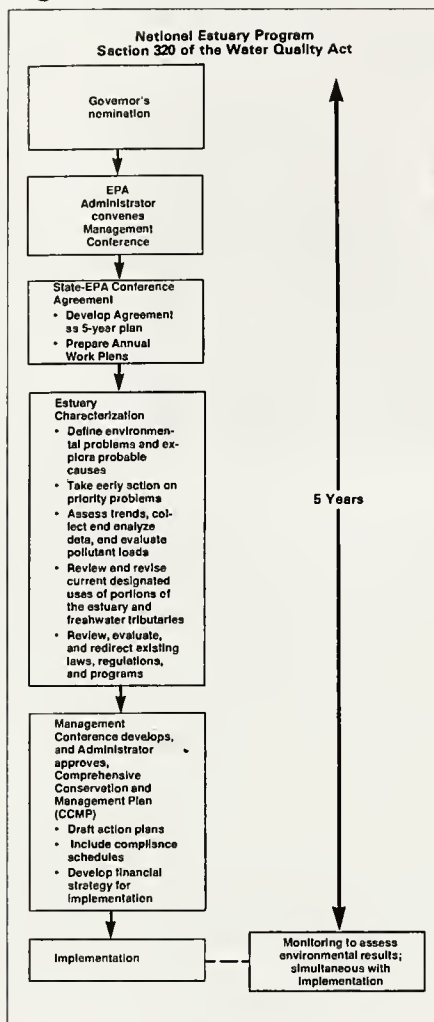
The National Estuary Program has its roots in the lessons learned and the precedents set by the Chesapeake Bay and Great Lakes Programs, as well as from federal legislation and programs such as basin planning. These earlier efforts proved the effectiveness of the problem identification, characterization, and phased management process now employed by the National Estuary Program. The program uses collaborative problem-solving approaches to balance conflicting uses while determining the actions needed to restore or maintain the estuary's environmental quality.

The Water Quality Act of 1987 embodies a new level of national concern for estuaries. It recognizes that there can be no single solution for problems related to specific environmental, demographic, and socio-economic considerations. The Act instead directs EPA to facilitate the development of a framework within which the users and managers of an estuary can work together to develop long-term protection and management plans.

The National Estuary Program addresses complex environmental problems including loss of habitat and living resources, elevation of nutrient levels, depletion of oxygen, contaminated sediments, bacterial contamination of shellfish, and fish disease. These problems

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Figure 1



Source: *Saving Bays and Estuaries: A Primer for Establishing and Managing Estuary Projects*. USEPA, August 1989.

public participation. Many consider consensus building to be the most important aspect of the National Estuary Program. There is almost total agreement that estuaries deserve protection; however, there is almost total disagreement on how to achieve this protection. The strategy is to first build on the agreement by specifying which resources are threatened.

To reach consensus on the measures necessary to protect these threatened resources, opposing sides must focus on their common desire to protect the resources. Those involved must set aside personal agendas. They must realize that everyone contributes to the problem through their lifestyles, and likewise all are part of the solution. Consensus building in a planning process is tedious, time consuming and expensive. In the long run, however, it is a more efficient use of resources than trying to build consensus after designing a program.

The Water Quality Act specifically mandates that EPA and the states provide for, encourage and assist

limit commercial and recreational uses like finfishing and shellfishing and can close beaches to swimming.

Program Approach

Section 320 of the Water Quality Act of 1987 authorizes the Administrator of the Environmental Protection Agency in Washington, D.C., to convene Management Conferences. Conference participants characterize an estuary, define its problems, and develop a Comprehensive Conservation and Management Plan (CCMP) (see Figure 1). Even though the collaborative process is basically the same at every Management Conference, each estuary program establishes its own objectives and operating methods. These depend on the character and problems indigenous to the particular estuary; of utmost importance are the interests and values of its public.

Consensus Building and Public Participation The primary strategies of the Management Conferences are consensus building and

public participation. A well-conceived public participation strategy should be an early product of the Management Conference. Public acceptance or informal consent is essential because it is the public who pays for CCMP implementation. Public pressure during implementation ensures that federal, state, and local commitments are met.

The Management Conference Process

Phase I--Planning The planning phase builds the management organization for identifying and solving problems. This phase begins a 5-year effort during which the three phases are carried out sequentially. This has been necessary for most of the current set of 17 NEPs because of the need to set up a management structure, and to characterize the estuary through comprehensive information acquisition activities before developing a CCMP. The management framework established in Phase I must define the decision-making process for the estuary program. This process is often difficult because it attempts to balance conflicting needs and uses without compromising the goal of restoration and maintenance of the estuary. To achieve this balance, the Management Conference must be a forum for open discussion, cooperation, and compromise among disparate interests. Such a forum is the instrument for collaborative decision-making that leads to acceptance and support for implementation of program plans.

The Conference creates a committee structure which includes a policy committee, a management committee and technical and citizens advisory committees. These committees represent four constituent groups: elected and appointed policy-making officials from all government levels; environmental managers from federal, state, and local agencies; local scientists and academics; and private citizens--business, industry and community and environmental organizations. The policy committee sets the program's goals, objectives and priorities. It decides on recommendations from all committees and leaves the operational duties to other working committees. An important component of the conference work is an effective program director and staff, supported by Water Quality Act appropriations, who provide technical assistance to conference participants.

Phase II--Characterization Once the Management Conference structure has been set up, participants begin to characterize the estuary and define its problems. In this phase, existing data concerning the health of the estuary as well as physical, chemical, and biological factors which control changes, both spatial and temporal, are summarized. New data may also need to be collected to develop a fuller understanding of problems and their causes.

The characterization process identifies existing and potential problems, missing information, and ways to fill these data gaps. The result should be an understand-

ing of the estuarine process as well as the links between human activities and environmental change. This provides the objective basis used to develop action strategies for the estuary's CCMP.

An evaluation of the institutional structures governing the estuary is also conducted during the characterization process. This involves examining laws, regulations and management programs. This evaluation addresses the enforcement of regulations, program coordination, and the effective use and allocation of resources.

During the evaluation process, problems can be identified for early action. These high-priority problems can be acted on while the rest of the evaluation takes place. In every estuary program, Water Quality Act funds have been used to address these problems. These highly visible actions have generated interest and support for the program.

At the conclusion of the characterization process, participants produce a report telling the story of the estuary. It is critical that this report be written in a manner that can be understood by the public. If the program is to be successful, the public must understand the estuary's problems and support the solutions developed.

Phase III--CCMP The Comprehensive Conservation and Management Plan is the major product of the estuary program. The CCMP does the following:

- summarizes findings;
- identifies and prioritizes problems;
- determines environmental quality goals and objectives;
- identifies action plans and compliance schedules for pollution control and resource management; and
- ensures that designated uses of the estuary are protected.

The relationship between the CCMP components and the Management Conference Process is shown in Figure 2.

The NEP program relies heavily on intergovernmental collaboration not usually found in other federal programs. The development and implementation of the CCMP for an estuary involve a variety of cooperative as well as unilateral but complementary actions by federal, state, and many local government entities.

Phase IV--Implementation The Management Conference also has the responsibility for coordinated implementation of the CCMP. While scientific evidence and public support are essential for estuary restoration and protection, a comprehensive series of actions designed to clean up an estuary are also important. It is further necessary to have the money and political will to make clean-up and preservation a reality.

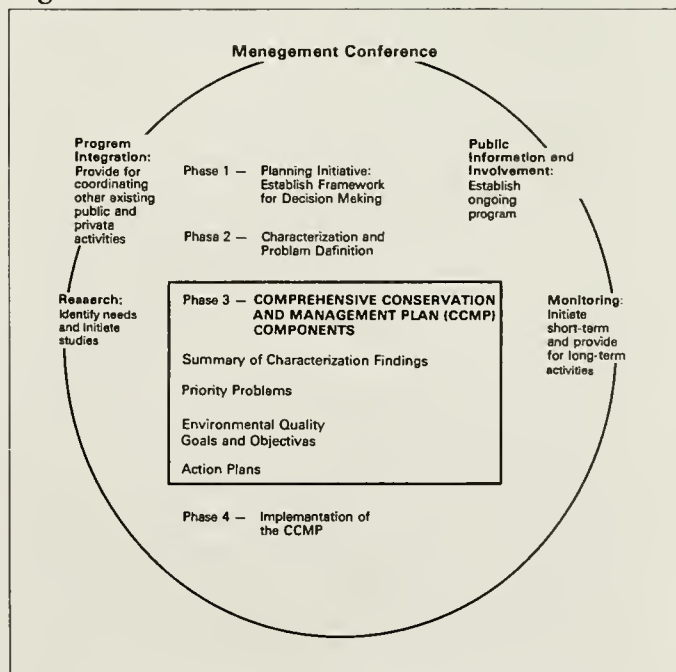
The Management Conference must ensure that funding resources are identified and that participating parties commit their moral support, political muscle, and financial resources to implementation. NEP requires that the CCMP include agreements to this effect. Approval by the EPA Administrator and the governor lend additional weight to the CCMP action plans.

How Successful Has the Program Been?

The oldest of the National Estuary Programs have only recently completed or are about to complete their CCMPs. These include Puget Sound, Buzzards Bay and Narragansett Bay. As a result, it is difficult to find data that can document improvements in water quality in any of the estuaries. The Chesapeake Bay Program, which has been in existence since the mid 1970s, has shown success in improving the estuary. Indicators of this success include a 20 percent reduction in phosphorus levels over the past six years; the return of underwater grasses along Bay shorelines; a renewed increase in striped bass in the Bay; and a 50 percent reduction in 1990 in municipal and industrial facilities that were in significant non-compliance.

Even without water quality data to document improvements, the National Estuary Program shows early signs of success. The level of cooperation between federal, state, and local entities has grown dramatically over the last five years. A national network of coastal environmental managers has developed. Appreciation for the value of estuarine resources has increased as a result of education and public involvement in the develop-

Figure 2



Source: *Saving Bays and Estuaries: A Primer for Establishing and Managing Estuary Projects*. USEPA, August 1989.

ment of CCMPs. These early indicators, along with the successes of the Chesapeake Bay Program, suggest that the NEP process will correct and prevent problems in nationally significant estuaries.

The Albemarle-Pamlico Program

The Albemarle-Pamlico Program is in its fifth and final year. A CCMP is expected in November 1992. This program covers a study area of approximately 30,880 square miles in northeastern North Carolina and southeastern Virginia. It is the second longest estuarine complex in North America and a key nursery area for east coast fisheries. Human uses of the estuary have increased and changed over the last several decades. Major uses of the estuary now include commercial fishing, agriculture, forestry, waste disposal, residential and commercial development, national defense, mining, wildlife habitat, tourism, and recreation.

The Albemarle-Pamlico estuary does not exhibit the same severe problems that some others do; however, there are warning signs that environmental degradation is present. The major signs that the estuary is in distress include:

- a general decline in finfish fisheries since 1980;
- large-scale fish kills and outbreaks of fish diseases such as "red sore" disease, and ulcerative mycosis;
- outbreaks of "shell disease" in blue crabs;
- massive blooms of blue-green algae occur each year in some tributaries; and
- the loss of vast areas of rooted aquatic plants from Albemarle Sound, Pamlico Sound, and the Pamlico River.

The Albemarle-Pamlico Program has successfully used the collaborative problem-solving approach to address these problems. More than ninety individuals representing all levels of government, business and industry, and private citizens are participating in the Management Conference as members of the Policy, Technical, and Citizens Advisory Committees. The accomplishments of the Albemarle-Pamlico NEP are many and include:

- the development of information in four key areas--critical resources, fisheries dynamics, water quality, and human impacts;
- action demonstration projects involving agricultural best management practices to control excess nutrients from non-point sources, animal waste projects in North Carolina and Virginia and a seafood processing waste project in North Carolina;

- an effective public participation program which has reached out to school children, local government officials, interest groups, involved citizens and the general public--projects include the development of a "mini-CCMP" by the Citizens Advisory Committees (Blueprint for Action), creation of fact sheets and educational posters, the development of school curricula, radio and TV broadcasts, and the citizens water quality monitoring network.

Future of the National Estuary Program

The National Estuary Program has proven to be a popular and successful approach for dealing with estuarine problems. The Administrator of EPA has recently determined that the addition of new estuaries to the program is warranted. In a February 20, 1992, notice in the Federal Register, EPA announced its call for nominations of estuaries to the National Estuary Program. EPA will select up to three estuaries to be included in the program in Fiscal Year 1993.

The lessons learned in the NEP over the last five years have led to modifications in the timetable and approach used for developing CCMPs. It is now expected that new Management Conferences will enter the program with a fairly complete problem characterization. This should enable conference participants to complete a first draft of the CCMP within the first eighteen months of the program. In addition, new applicants to the program will be expected to focus on early action demonstration projects. They will develop CCMPs and synthesize data simultaneously, in contrast to the sequential approach currently used. Finally, new Management Conferences will be expected to complete their final draft CCMP one year before the final CCMP is due. Applicants who commit to these modifications will be given preference.

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