

Exploding Shrimp and Estuary Management: A Different Approach

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In the truest sense, estuarine management programs are designed to bring order out of chaos. Beginning from a disparate assortment of regulatory and management efforts, these programs must change perspectives toward a view of the estuary as a discrete geographic unit, in need of holistic management. Those who use, benefit from, and appreciate the estuary and its resources must come to recognize the interdependence between the users and the estuary. At various levels, agreement must come as to what to manage, how to manage it, and who will manage.

The Environmental Protection Agency's National Estuary Program (NEP) has addressed this organizational challenge through an approach that appears to track the textbook rational planning model: after a long initial period devoted to problem identification and definition, alternative approaches to problem resolution are examined, selected alternatives are combined into a management plan, and the process then moves into the implementation phase. A closer look, however, discloses one pivotal departure from this model: in many instances, the institutions/individuals involved in problem identification and plan development are not the same ones who are called upon to implement the management program. Many of the measures needed to protect estuarine resources involve not the resources directly, but instead activities that affect the estuarine system. As a result, the call for estuarine management may come from scientists and resource managers, but the responsibility for implementation lies on local decisionmakers and administrators.

In the world of estuarine management, one quickly learns it is difficult to get people to implement a policy or program they have not had a hand in creating. This

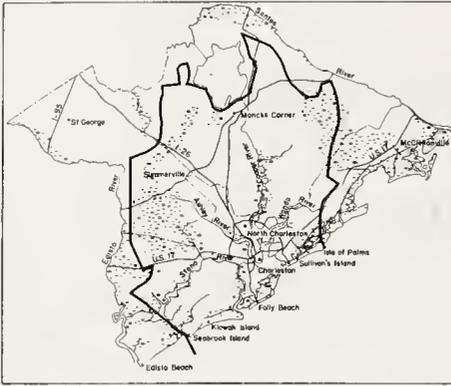
idea was a central tenet of the Charleston Harbor Project (CHP), created by the South Carolina Coastal Council (SCCC) in 1991. The CHP's charge is to develop a workable management plan for the Charleston Harbor estuarine system. In creating the CHP, the staff and board members of SCCC sought to modify the NEP organizational model, and involve potential implementers at the earliest organizational stages. Potential implementers included all entities, public and private, whose activities affect the estuary and who might incorporate CHP policies, recommendations and programs into their continuing activities. The final list encompassed state and federal regulatory and management agencies, local governments, local special service districts, major economic interests, users of estuarine resources, recreational interests, environmental interests, and the general public. Project organizers developed an organizational framework that would allow these potential implementers to help set direction and priorities for the Charleston Harbor Project.

The Charleston Harbor Estuary

The Charleston Harbor estuary covers more than 1,900 square miles, contains over 140 miles of rivers, hundreds more of creeks and thousands of acres of wetlands, and is home to half a million people and millions of marine animals. Like all estuaries, it is an interconnected, interdependent system which supports an abundant variety of wildlife, allows many different human uses, and adds a distinctive beauty to the region.

The estuary is a vital part of everyday life throughout the region, making possible activities like the movement of Navy ships, shrimping, the weaving of sweetgrass baskets, and the shorebirds flying at sunset. Fortunately, the estuarine system is still productive. Episodes like the exploding shrimp in the Ashley River in 1991 (due to the combustion of phosphorus-laden sediments brought in contact with air) are infrequent, spatially confined, and

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Map of the Charleston Harbor Project

not characteristic of the overall system. Growth increases the stress on sensitive natural systems, however; the Charleston region is projected to grow by 50 percent between 1990 and 2005. Unless ways are found to manage the system, the quality of the estuary and the uses made of its resources are expected to decrease.

At the project's outset, the predominant problems appeared to be uncontrolled stormwater runoff and the fragmentation of estuarine management efforts--particularly land use controls at the local level. Stormwater and land use management measures were assumed to be the domain of local governments.

Consensus Building

The Charleston Harbor Project began with myriad participants and a period of consensus-building. To facilitate informed involvement, participating individuals and agencies chose among twelve task forces. Each task force focused on a specific topic or aspect of estuarine management. Some topics were broadly inclusive (e.g., biological resources, stormwater), whereas others related to specialized management tools, such as water quality modeling, and data management and GIS. The topics were based upon preliminary input from estuary users. Through this process, it became clear that it was important to have separate task forces for cultural and recreational resources, due to the prevalence of historic resources within the Charleston region.

Task force membership was self-selected, and involved more than 225 individuals during the initial phase of the project. Participants became involved for a variety of reasons: turf protection, concern for the estuary as an environmental entity, concern for the continuation of estuarine uses, and concern for regional development. Where self-selection failed to provide a task force with the range of opinions and interests known to exist within the community, project staff solicited participants to fill these gaps. The task forces met regularly; participants in each task force were asked to identify goals, problems, management needs, desired end results and administrative options within the topical area of interest.

Some task forces functioned more smoothly than others. Over a period of several months, however, consensus positions on the management needs for the estuarine system emerged from each of the task forces. Perhaps more significantly, participants came to feel that the estuarine system was a discrete resource deserv-

ing of protection, and that they had a hand in controlling, and were responsible for, the direction and success of the overall project.

How Did This Happen?

Consensus was developed fairly quickly--in part due to hard work and organization, but in larger part because the project staff let it happen. For the most part, the consensus was already there--what the project had to do was identify it, and give it opportunity for expression.

The participatory approach to project development is unusual--most likely none of the 200+ participants in this process had allowed others to have a fraction of the input when developing their own organization's policies, objectives and programs. Still, the estuarine system is intertwined with the lives of most Charlestonians, and the participants accepted the challenge to help create an overall framework in which everyone's interests played a part.

This challenge was made easier because the initial working goals of the project grandfathered in all existing users. These goals have remained unchanged:

- To maintain and enhance the quality of the environment in the Charleston Harbor estuary system.
- To maintain the range of uses of the waters and natural resources of the Charleston Harbor estuary system.
- To anticipate and address potential problems before they harm the Harbor system.

No interest was necessarily going to be hurt by the project, and the project could conceivably be beneficial to each of the participating groups.

This approach is possible because the Charleston Harbor estuary is still in good shape environmentally, and, only now, are conflicts over the allocation of estuarine resources appearing. As a result, the project has been able to focus on maintaining the benefits of a healthy resource, rather than remedying the problems of a more severely polluted estuarine system. The challenge was to develop mechanisms to protect the estuary as the region grows, shaping a future in which everyone was invited to participate.

Putting the Pieces Together

Over a period of 4-5 months, each task force succeeded in identifying objectives and setting issue and action priorities within its topic. The task forces then developed these concerns into a set of recommended projects that would further overall project goals. When combined, the task force recommendations totaled more than \$3 million for the project's first full year of operation, an amount considerably in excess of available funding. The project's Management Committee--pri-

marily task force chairs--then undertook the task of culling and refining projects. Of primary concern was maintaining a balance among the different topical areas included within the project and ensuring that prerequisites for future work were properly scheduled.

The Management Committee deliberated on the mix and scope of projects for four months. At the end of the process, the total cost of recommended projects still exceeded the available federal funding. The participants recommended that this shortfall be addressed through supplemental financial contributions from other federal, state and local sources. In other words, while the impetus for the project came from federal funding, the local commitment to estuarine management would provide the additional resources needed. As the project enters its first substantive year of operation, this financial participation is well on its way to being realized.

How It's Supposed to Work

In November 1991, EPA and NOAA held the *Coast & Estuary Management Workshop* held in Seattle. Two of the general conclusions from this workshop were:

- The central players in coastal and estuarine are local government and local interests. Once broad goals are established at federal and state levels, local authorities must identify and prioritize the problems particular to the area, create the political will to deal with those problems, effectively marshal the resources of higher levels of government and academia, and supplement those resources as necessary.
- Research that leads to useful, management-oriented information is an important basis for estuarine and coastal management. That research must be multidisciplinary and goal-oriented, and address management and governance issues, as well as technical problems.

At its outset, the Charleston Harbor Project sought to incorporate both of these points into the structure of the project.

During the developmental phase of the project (FY 91), information compiled about the estuarine system disclosed gaps in our knowledge of how the estuarine system works, particularly with respect to spatial relationships and causality. As a result, local policy makers and administrators do not have sufficient information and justification to enact programs dealing with stormwater management, land use at the water's edge, critical habitat protection, and cooperative efforts among multiple local jurisdictions.

These gaps were the topic of many conversations both in the task forces and in the Management Committee. In the end, it was determined that project monies should be targeted to gather this missing information. Local par-

ticipants stated that they would wait until FY 93 to address management issues, as long as the technical bases for their programs could be strengthened through science projects in FY 92. Accordingly, scientific research funded by the Charleston Harbor Project are directed toward management needs.

Scientific research is also essential for technical decision-making in the estuary. Proposed projects include the development of a mathematical wasteload allocation model for the estuary, which takes into account tidal variations and stormwater inputs; identification of critical habitats; review of the effectiveness of best management practices for stormwater management; examination of pollutant discharges from discrete sources, including golf courses, agricultural sources, suburban development, and stormwater retention ponds; and development of long-term dredge spoil disposal alternatives for the harbor. The products of these efforts will be used as inputs in the following year to develop stormwater management plans, land use plans, and resource utilization and protection plans by local jurisdictions. Implementation actions at the local level will begin in 1994.

Will It Work?

At Coastal Zone '89, I stated that federal funding was the catalyst needed to effect estuarine management in the Charleston Harbor estuary. The participation generated in Charleston from fairly limited funding in 1991 seemed to prove this point; the federal commitment to continued funding promises that meaningful estuarine management can be achieved. Already in 1992, however, bureaucratic delays and election year politics have wreaked havoc with the timing and amount of project funding. How much the project will be hurt by such problems remains to be seen. Fortunately, though, the initial emphasis on consensus and implementation may be bridging the funding chasm, as participants in both public and private sectors help out financially with "their" project.

The Harbor project staff has consistently taken the view that the Charleston region now has an opportunity to safeguard the estuarine system, and to incorporate estuarine protection into the region's growth. A year of looking at management needs and approaches has shown that this view is shared by the wide range of interests involved in the estuarine system.

The approach we have chosen--consensus building, integration of involved interests, and targeted research--has meant a long period of preparation. We believe that this approach will lead to effective and participatory management of the estuarine system as the project moves forward. We can only hope it will do something about the exploding shrimp. CP