

**The
Citizen's
Guide to
the
Charleston
Harbor
Project**

The Importance of Wetlands

Flood and Erosion Protection: Wetlands protect against flood damage by acting as natural tubs or sponges - storing water and then slowly releasing it. Wetlands act as buffers for the mainland by slowing and absorbing storm surges as well as the daily inrush of the tides, so they also prevent erosion of the coastline. The roots of wetland plants secure riverbanks against erosion.

Filtering Pollutants: Wetlands protect water bodies by removing significant amounts of sediments, nutrients, organic matter, and pollutants from runoff before these substances can enter the water. Many molecules easily adsorb, or attach, to individual sediment particles. As a result, sediments can act as chemical sinks by adsorbing pollutants. The salt-tolerant plants in the wetlands then filter out the sediments from surface runoff before it reaches the water body. In addition, filter feeders, such as oysters and clams, clean the water as they feed.

Serving as Habitat: The accumulation of nutrients from both fresh and salt water sources makes estuaries extremely productive areas, having tremendous food reserves that support vast numbers of organisms. The fluctuating temperature, salinity, and dissolved oxygen levels of small tidal creeks in wetlands make them difficult places for many organisms to survive, but these same conditions make the creeks excellent nursery grounds for the larval stages of creatures such as shrimp, oysters, and crabs. Since they have broader tolerances than the larger adult predators, the larval prey species can survive where the predators cannot. Without wetlands, these species would not survive long enough to reach adulthood.



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Preface

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EDUCATION

ENERGY AND WATER DEVELOPMENT

INTERIOR

BUDGET

DEMOCRATIC POLICY COMMITTEE

This "Citizens Guide" summarizes six years of work that is of particular importance to those of us who make our homes along the South Carolina coast. Over twenty-five years ago, coastal populations were surging, and pristine coastal property and wetlands were being lost at an alarming rate. Concern for our nation's coastal resources prompted me to sponsor the Coastal Zone Management Act of 1972. That legislation did much to protect the natural resources that are one of the distinctive features of our quality of life in the Lowcountry. But by 1990, new problems called for new approaches.

The Charleston Harbor Project, conducted under the Coastal Zone Management Act, is such an approach. It is an example of local leadership, initiative, and concern translated into informed action. The Charleston Harbor Project began with people asking, "What does rapid growth mean to our community? How does it affect our economy, our environment, and our cultural and recreational resources?" Project scientists, local officials, and field research teams have worked for the last six years to identify policy issues and how best to address them. The Charleston Harbor Project examined pollution and stormwater runoff, subdivision design and industrial permits, tidal creeks and colonial wading birds, and much more. Using state-of-the-art methods and technology, a core group of local experts developed a series of carefully conducted investigations designed to assure that public policy is grounded in sound science and seasoned judgement.

The current population of Berkeley, Charleston, and Dorchester counties -- the region examined under the Charleston Harbor Project -- is more than twice as large as it was in 1950 and is expected to rise by another 120,000 by 2015. The cultural, recreational, and natural resources that attract both permanent residents and visitors to the area are at stake. Unless we plan now to manage our region's growth, we risk losing assets that we never can recover.

The Southeast lost 605,000 acres of wetlands between 1985 and 1995, and the effects of those losses can be seen in many large coastal communities to the north and south of Charleston such as Tampa Bay and the Chesapeake Bay. Charleston has a chance to avoid similar problems through far-sighted action. The Charleston Harbor Project lays out a timely and effective strategy for combining economic growth and sound environmental management.

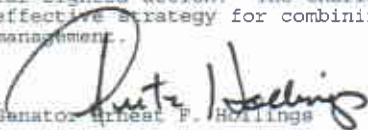
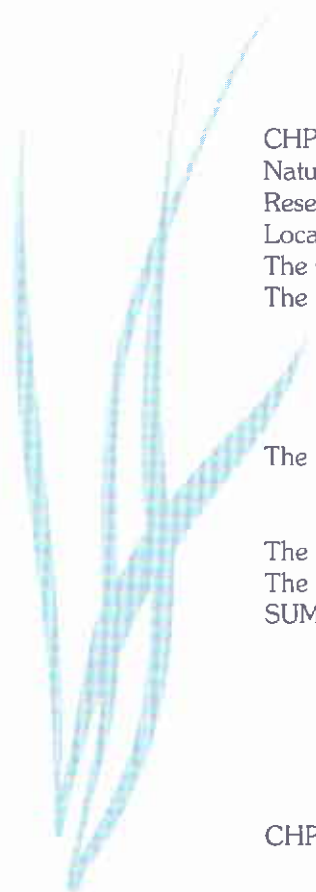

Senator Ernest F. Hollings



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The Charleston Harbor Project

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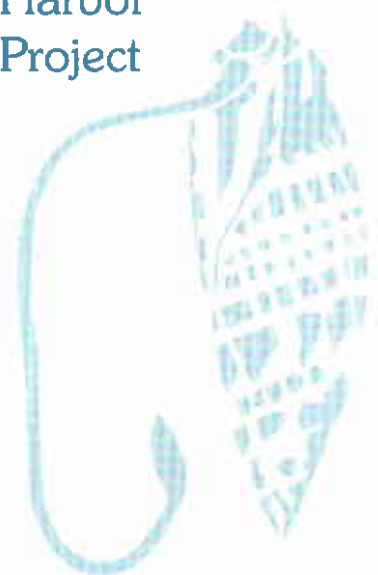
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Heyward Robinson



Words and phrases that are italicized can be found in the glossary at the end of the booklet.

Though, in many cases, familiar and a part of everyday usage, the words are defined with the technical meaning used by the professionals who conducted the studies and wrote about their research and findings.





The Charleston Harbor Project is a multi-year program of applied research leading to the preparation of a Special Area Management Plan (SAMP) for the Charleston, South Carolina, metropolitan area. A SAMP is a coastal management planning process that allows modifications to general coast-wide policies where local conditions or circumstances call for special measures. A Special Area Management Plan is needed in Charleston because of rapid population growth and associated land use changes. Growth increases the stress on sensitive natural systems—from egret nesting grounds to marsh vistas—that play so large a role in Lowcountry life.

The Charleston Harbor Project Study Area

Charleston, South Carolina, and its surrounding uplands and estuary represent a nationally significant cultural, natural, and economic resource. Charleston is a center of commerce, government, and education, and a place where historic buildings and natural beauty combine to create a favorite destination for travelers. The port is one of the largest container ship handlers in the nation, and the Harbor supports the largest commercial shrimp fishery in the state. New industries are coming to the area in record numbers. Striking a balance that will both sustain economic growth and protect the environment becomes an increasing concern.

covers more than 1,900 square miles
contains over 140 miles of rivers
is home to half a million people
and to millions of plants and animals



A Citizen Initiative

It
can
happen
here.

*Years of growing
environmental
awareness, some-
times as the result of
costly tragedies, have
made us more
conscious and
conscientious about
environmental issues.*



The Charleston Harbor Project came about as a result of growing citizen determination to protect the special character of the Charleston Harbor area. The experience of other places provides a glimpse of one future for Charleston, a future no one welcomes. In the aftermath of rapid growth, city after city has suffered widespread environmental damage, including pollution, blight, and problems with water supply or water quality. After-the-fact attempts at restoration are expensive and often disappointing:

Boston Harbor:

An 11-year cleanup program is now underway. Cost estimates are \$3.5-\$4 billion.

Chesapeake Bay:

Over \$2 billion has been spent on the Chesapeake Bay Restoration Project. Some \$60 million is needed annually to sustain the cleanup.

Tampa Bay:

Cost to date is \$2.5 billion. Continuing expenditures are over \$200 million per year.

New York Harbor:

Enormous cleanup efforts are underway. A single project for correcting sewer overflows is estimated to cost as much as \$5 billion for New York and \$1.5 billion for New Jersey.

San Diego Bay:

Over the past five years, \$16 million was spent to clean up the Bay, with a focus on commercial sites. The Navy provided over \$4 million for radioactive waste cleanup work. The city is constructing a \$134 million sewage outfall project to deal with sewage spill and increased discharges.

Charleston citizens want to avoid a future where only strangers would think of swimming in the Harbor, or where sweetgrass and basket-makers are only memories. They seek an innovative, common-sense approach to management for the long-term protection of Charleston's water resources.



CHP Response

Background & Approach

From the outset, the Charleston Harbor Project has emphasized inter-governmental cooperation in planning and management and the continuing involvement of civic leaders and the business community. Coordinated management at the *watershed* level will enable the community to consider economic, cultural, and natural resource decisions in a common context. This approach accomplishes two purposes: it fosters new working relationships, and it supports every phase of the work by creating a broad network of knowledge. Policies that work are based on a sound understanding of conditions and processes; they evolve from rigorous research in the natural sciences, or professional review of engineering, economic or organizational issues. The Harbor Project was designed to develop responsible, well-conceived public policies and to direct attention to critical areas where too little is now known and more work is needed. For example, Harbor Project researchers were the first to identify previously unrecognized problems such as *toxic* pollution in some urbanized creeks, and to systematically investigate the *ecology* of *tidal creeks* and the key role of soils and *stormwater runoff* in overall water quality.

Primary Goals of the Harbor Project:

- To maintain and enhance the quality of the environment in the Charleston Harbor estuary system,**
- To maintain the wide range of uses of waters and natural resources of the system,**
- To anticipate and address potential problems before adverse impacts occur.**

The work involves reviewing and, where necessary, rethinking what is now being done in Charleston. What is the overall state of the Harbor as an economic resource and a natural asset? Are critical conditions improving or deteriorating? What are the measurable results of current management policies? What methods used elsewhere might be applied here? What trade-offs are involved in arriving at a recommended combination of goals and policies?





Funding & Program Support



In 1992, the National Oceanic and Atmospheric Administration provided federal funding for the six-year Charleston Harbor Project through the national Office of Ocean and Coastal Resource Management. Additional support has been provided through jointly-funded projects with state and federal agencies such as the U.S. Environmental Protection Agency, U.S. Geological Survey, U.S. Army Corps of Engineers, U.S. Department of Defense, the S.C. Department of Transportation, S.C. Department of Archives and History, Charleston County, and local utilities. The Project has been carried out by the S.C. Department of Health and Environmental Control through its Office of Ocean and Coastal Resource Management. Research projects have been conducted by specialists from public and private institutions including the S.C. Department of Health and Environmental Control, the S.C. Department of Natural Resources, the University of Charleston, The Citadel, the University of South Carolina, Clemson University, the Jones Ecological Research Center, and many others.

Twelve public *Task Forces* were established to focus on key topic areas. Participants have included representatives from federal, state, and local governments; private citizens; and community and civic organizations. Over 200 people attended workshops and briefings, evaluation sessions, and other meetings, some committing hundreds of hours.

Task Forces

CHP
Organization
Structure &
Community
Participation

Biological Resources
Cultural Resources
Data & GIS
Dredge/Spoil Disposal
Economic
Land Use

Marina
Point Source
Public Involvement
Recreation
Stormwater
Water Quality Modeling

The *Management Committee* consists of the Chairperson and Vice Chairperson from each Task Force as well as representatives of key agencies involved in the planning and management of the Harbor Project area. The findings and recommendations of each Task Force were considered by the Management Committee to add an inter-disciplinary and multi-issue perspective.



A recurring theme in the Harbor Project is matching the scale and timing of public policies to the problems they are meant to solve.

Better Management

Too often, management strategies are short-sighted or based on perspectives and reasoning that have become outdated. For example, many environmental management reviews are triggered by permit requests from individual property-owners. Decisions on these permit requests are made on a parcel-by-parcel basis. Little attention is given to the combined effects of the same action on a series of nearby properties, or the cumulative effects over a span of five or ten years on an entire habitat. As another example, under the original *wetlands* regulations, small isolated wetlands often are unprotected as long as larger adjacent wetlands are buffered. These smaller wetlands have been routinely filled as properties are developed. With the passage of time there has been a noticeable decline in such species as the flatwoods salamander, for which the small wetlands are a critical habitat.

Current
Best
Practices

Management of the Charleston Harbor at the watershed level provides a logical alternative to the current parcel-level permit review. An area-wide watershed planning scale allows local, state, and federal managers more flexibility with permit decisions, better spatial definition of natural resources, and more predictability for economic development. Watershed-level planning can ensure that transportation corridors do not conflict with areas that should be protected as biological *habitats*. And the change in scale makes region-wide measures, such as *mitigation banks*, workable strategies for sensible solutions to localized problems. The Charleston Regional Watershed boundary adopted by the CHP is consistent with natural drainage boundaries for water quality management, the ecosystem boundary for natural resource management, and the regional community boundary for economic development.

Watershed
Scale

