

**Testimony of H. Curtis Spalding  
Executive Director  
Save The Bay, Narragansett Bay  
Providence, Rhode Island**

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**Title:** Restoring Hope For Estuaries: Toward a Coordinated National Strategy

Distinguished members of the Commission,

I appreciate this opportunity to share our vision for the future of estuary management, protection, and restoration. We are now at a critical window of opportunity to dramatically improve our nation's estuaries, coastal waters and communities.

If you have visited Rhode Island, you know that the State is made up mostly of water, with Narragansett Bay as the centerpiece. The Bay's arms and rivers reach into every community and every city. Twice a day, the tide brings in the cool and salty waters of the Atlantic Ocean, and mixes with the fresh and nutrient-rich waters of the Blackstone and Taunton Rivers before flushing back out to sea. Within the range of these tides, diverse and abundant marine life thrives.

Estuaries fuel the web of life that extends from inland rivers to the edge of the continental shelf 100 miles offshore. The importance of these interconnected ecosystems has never been appropriately valued, because science is only beginning to understand how the balance of marine and aquatic plant and animal life relates to people. Flounder, striped bass, lobsters, crabs, clams, and oysters are among the creatures our Bay is known for, and these animals have become symbolic of our New England culture. Yet these resources enrich our communities – far more than meets the eye.

The health and well-being of our Bay is a reflection of our society and ourselves. Clean and healthy water is a sign of collective prosperity, stewardship, and clean, efficient cities and towns. Chronically polluted and

degraded rivers and bays are symbols of neglect, depressed communities, and poor management priorities.

Despite their immeasurable value, estuaries are fundamentally threatened. Industrial discharges, polluted runoff, and the ever-growing pressures that come with coastal population growth and development have taken a heavy toll on once clean and vibrant areas of the coast. Their value has been diminished and is in danger of deteriorating further.

Through 30 years of strategic advocacy, Save The Bay has prevented the siting of massive industrial facilities such as nuclear power plants, oil refineries, dredge dump sites, and load center container ports in the Bay. We have helped establish a national estuarine research reserve and have set aside islands and valuable coastal areas for conservation in perpetuity.

This work continues, because estuaries are inherently dynamic places. They are always changing through the seasons, tidal cycles, and over the course of many years they may change dramatically in appearance and ecology. Most of the animals and plants that live in estuaries are resilient and adapt well to natural changes in their environment. It is alarming that the pace of change has sped up so dramatically that we are seeing events occur in a few short years that would normally be observed taking place in the course of centuries.

Two broad issues that have had dramatic ecosystem-wide effects in Narragansett Bay and other estuaries are nutrient pollution and climate change.

In the case of nutrient pollution, nitrogen from wastewater, polluted runoff and fossil fuel combustion enters the Bay through rivers, streams and the atmosphere. The extra nitrogen acts like concentrated fertilizer in the Bay, fueling massive algae blooms that lead to low oxygen levels, fish kills, and foul odors. The excessive plankton and algae alter the water's physical, chemical and biological characteristics. Right now in Upper Narragansett Bay, the water has begun to look like the brown foam of a root beer float. Unfortunately, this is a sign of trouble, as evidenced by the rotting sulfur odors at low tide.

According to recent studies conducted by scientists at the University of Rhode Island, the nitrogen that causes these blooms has increased in the Bay

by five-fold since records have been kept in this area. More troubling still, nitrogen levels are expected to continue to increase exponentially. The Bay's nutrient cycle is out of balance, and this is trouble for the Bay's most critical habitats.

Eelgrass, the valuable underwater flowering grass that used to cover up to 10 thousand acres of Narragansett Bay's bottom, has now been reduced to less than 100 acres – a decline that was certainly accelerated by nutrient pollution which clouded the water so that sunlight could no longer reach the eelgrass. A once thriving scallop industry died in the Bay along with the eelgrass, as young scallops depend on eelgrass to survive. Today, eelgrass is an extremely rare find and scallops are almost extinct.

Like nutrient pollution, climate change is another issue affecting estuary health. Over the past two decades, the average spring water temperature of Narragansett Bay has increased by about 3.4 degrees Fahrenheit. (*Barbara Sullivan, University of Rhode Island, 2002.*) Though it may not seem like much, small temperature changes can have big effects on what can live in the water.

For example, this spring, Save The Bay's Explore The Bay program educated thousands of school kids on our 45' education vessel. Part of the typical field trip involves towing a small net to collect fish, lobsters, and other Bay creatures for the children to discover through hands-on learning in our on-board touch tanks. Each time they set the net, it would soon float up to the surface, despite metal weights and chains designed to keep it running deep.

When the staff brought the net aboard to see what was inside, they found nothing but jellyfish by the thousands – to the disappointment of the students. Recent studies (*see Sullivan, University of Rhode Island*) have linked the early arrival and over-abundance of these non-stinging comb jellies to two factors: increased water temperature and an abundance of the plankton to eat. Because of the warm winter and excess nitrogen, the jellyfish were able to grow unchecked and their population has exploded. And with so many jellies, we could not catch any fish to teach our students. What other effects are these environmental changes having?

Certainly, the changes in temperature, plankton, and jellyfish have not been the only ones. Fisheries scientists (*see Mark Gibson et al. Rhode Island*

Division of Fish and Wildlife) have observed a fundamental shift in fish populations in the past two decades in our region. High-value bottom fish species such as flounder and cod are declining, while lower-value baitfish species like anchovies and silverside minnows are increasing. This population shift may be caused, in part, by overfishing, but disturbingly, even those bottom fish species not targeted by fishing efforts seem to be declining.

We may not yet have all the science to prove these complex relationships, but it is not difficult to imagine that, at the root of it, people are the source of the pollution driving these dramatic and negative changes.

## **What Can We Do to Reverse These Trends?**

While we have made progress in protection and conservation, the Bay's critical habitats have been degraded to the extent where they can no longer recover on their own. Even where water quality conditions have improved to the point where they could once again support sensitive species like eelgrass, or where we have removed a barrier to fish migration, the habitats will not return without a full-scale comprehensive restoration effort. And for such an effort to be successful, it must have the strong support and commitment of the federal government.

Save The Bay works in three primary areas toward our mission of a clean and healthy Narragansett Bay:

- 1) Protection: Public, legal, and regulatory advocacy to prevent pollution, respond to pollution events, and work for improvements in management and governance.
- 2) Restoration: Direct action to improve the natural function of the Bay's critical habitats – including salt marshes, fish runs, and eelgrass beds.
- 3) Education: Our Explore The Bay program reaches thousands of children, families, and institutions by providing direct hands-on experiences on Narragansett Bay and builds stewardship, understanding, and appreciation of the environment.

Today I will comment on how to strengthen protection and restoration, not because these are more important activities, but because there is a much larger federal role in both areas of work.

Two federal statutes are the backbone of national effort to protect estuaries – the Clean Water Act and the Coastal Management Act. Neither is working as it should.

For over a decade, the USEPA and NOAA have both recognized that estuaries can only be conserved through a whole watershed management approach. For it is not good enough to think globally and act locally. We must act on the watershed level to effectively protect estuaries.

The nutrient enrichment problem demonstrates how the framework we have in place just has not gotten the job done. Attaining substantial reductions in pollutant loadings using watershed management frameworks has been difficult to achieve unless local water resources are seriously threatened or degraded.

Improved information technology is a tremendous tool and has made watershed management potentially more effective. Local and regional management authorities can finally become effectively informed about how to conserve the natural resources in their community. In most cases, understanding leads to some level of willingness to act. Unfortunately, there is very little capital to put to work. Schools must get better. Roads must be paved and property taxes are already too high. Local actions that would protect the estuary simply go unfunded and undone.

If watershed management is really going to work, a serious federal legislative commitment must be made to making it work. Proportionally calibrated, the kind of commitment that's being made to Chesapeake Bay, must be made to all estuaries. But most importantly, the statutory framework must be reworked based on the years of experience we now have using a watershed management approach. That framework needs to reduce program fragmentation, strengthen accountability and most importantly implement incentives and disincentives for all the stakeholders that must be involved in watershed management.

Aggressively furthering the physical restoration of estuaries is just as important and improving protection. For Narragansett Bay, we have built a

new kind of program that partners university scientists, state and federal agencies and most importantly small and large non-governmental conservation groups. Working together, these groups have built the capacity to physically restore estuaries. We have proven that eelgrass can be planted and survive, that culvert projects are workable and that fish ladders will restore historic fish runs. Now that we know these things can be done, we have plans for much more.

Several years ago, Save The Bay helped found Restore America's Estuaries to advance estuarine habitat restoration at the federal level. RAE has identified 74 separate programs related to habitat restoration. These programs fall under seven federal agencies at several jurisdictional levels including the Environmental Protection Agency, the Departments of Interior, Agriculture, Commerce, Defense, Transportation, Health and Human Services.

Because so many agencies and interests are involved in the funding, planning, permitting, and execution of habitat restoration projects, the process can be confusing and discouraging to local groups seeking to pursue a specific project. The need for multiple approvals and bureaucratic reviews and assents can be roadblocks to success. Delays in permit decisions may make community groups ineligible for cost sharing, force them to miss opportunities with contractors or prevent them from engaging in creative partnerships to further restoration.

The fractured nature of governance in estuarine management sometimes leads to non-productive competition among agencies, lack of clarity in the role of various agencies and stakeholders, and a lack of public understanding about the need and opportunities for restoration.

What we need is a full-scale coordinated habitat restoration plan at the federal level as has been called for in the Estuary Restoration Act of 2000. By providing for the coordination and prioritization of coastal and estuarine habitat restoration efforts nationally, we might be able to clarify and streamline this fragmented and confusing process to make it transparent, efficient, and accessible to those groups seeking to perform habitat restoration projects.

The traditional focus of ocean and coastal policy and management has been on marine fisheries and the living resources of the ocean itself. Management of estuaries and near-coastal waters is much more complex. But it is this edge where the rivers enter the sea –this area closest to us on land that contains all the action, all the ecological richness, all the use values, the conflicts, and the competing visions for the future that compel us to act.

There is a great deal we still do not know about estuaries and our coastal waters, and we are constantly in pursuit of better information, science, and management initiatives. But based on the challenges I've described for you today, we know enough to recommend prompt and substantial action on the federal level.

I am honored to have the opportunity to testify before this distinguished Commission today. We applaud your initiative in addressing these critical issues at this time. We are fully committed to supporting this process in the hope that it will advance our collective interest in clean and healthy estuaries. Feel free to contact me directly if you have any questions.