WRITTEN TESTIMONY OF
JEFF BENOIT
PRESIDENT AND CEO, RESTORE AMERICA'S ESTUARIES

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SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

Protecting and Restoring America's Great Waters Part 1: Coasts and Estuaries
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Good morning Chairwoman Johnson and Members of the Subcommittee. I am Jeff Benoit, President and CEO of Restore America's Estuaries. I am pleased to be here today to discuss Restore America's Estuaries' comments regarding coastal and estuarine protection and restoration and specifically the National Estuary Program (NEP). We believe that the NEP is one of the vital programs woven into the fabric of working partnerships needed to restore and maintain the water quality and ecological integrity of estuaries. Many of our accomplishments at Restore America's Estuaries are due to partnerships and community involvement, and we believe that the NEP embodies both of these essential elements.

The NEP is also a program that I personally feel is very important and that I have first-hand experience working with through my former position as Director of the Massachusetts Coastal Zone Management Program (MCZMP), which administers two NEPs, including the Buzzards Bay NEP and the Massachusetts Bays Program. The MCZMP embraced the NEP concept early on and helped establish the two Massachusetts Programs because of the unique opportunity to use these programs to supplement the regular CZM efforts with a focused site-based planning and management process.

We strongly urge the reauthorization of this program, and before I present our recommendations, I would like to provide you with a little background about Restore America's Estuaries and discuss several issues of interest to our organization.

RESTORE AMERICA'S ESTUARIES

Restore America's Estuaries has been working since 1995 to restore our nation's greatest estuaries. Our mission is to preserve the nation's network of estuaries by protecting and restoring the lands and waters essential to the richness and diversity of coastal life. Restore America's Estuaries is a national alliance of 11 community-based organizations that protect and restore coastal and estuarine habitat. Our 11 member organizations include: American Littoral Society, Chesapeake Bay Foundation, Coalition to Restore Coastal Louisiana, Connecticut Fund for the Environment—Save the Sound, Conservation Law Foundation, Galveston Bay Foundation, North Carolina Coastal Federation, People for Puget Sound, Save the Bay—San Francisco Bay, Save the Bay—Narragansett Bay, and Tampa Bay Watch. Collectively, we have over 250,000 members nationwide.

Restore America's Estuaries is results-oriented. We join with government agencies, corporations, civic organizations, scientists, and local volunteers to conduct restoration projects with real impacts. Since its creation, Restore America's Estuaries and its 11 member organizations have:

- Invested about $30 million in local restoration projects;
- Restored more than 56,000 acres of estuarine habitat;
- Built more than 300 oyster reefs and planted over 2.6 million oysters;
- Mobilized more than 250,000 volunteers, including more than 80,000 young people in coastal restoration and education activities each year; and
- Convened the largest biennial national conference for the coastal restoration community.

At the national level, Restore America's Estuaries has been a leader in bringing all sectors of the restoration community together to advance the knowledge, science, policies, and best practices in coastal and estuarine habitat restoration. Restore America's Estuaries engaged in a 2-year initiative to create a multi-sector consensus document, *A National Strategy to Restore Coastal and Estuarine Habitat*, which outlines the objectives and methods for reaching the goal of restoring one million acres of our nation's coastal and estuarine habitats. In a previous effort, we worked closely with the Coastal and Estuarine Research Federation to build a consensus framework for habitat restoration through a collaborative process between scientists and field practitioners to define scientifically sound and technically feasible principles of estuarine habitat restoration. These principles are delineated in the publication, *Principles of Estuarine Habitat Restoration*.

IMPORTANCE OF ESTUARIES

Estuaries—where freshwater from a river mixes with saltwater from the ocean—are essential both ecologically and economically. Estuaries are among the most biologically productive, economically valuable, aesthetic, and densely populated places on earth.

Some of the invaluable ecological services they offer include: providing vital nursery habitat for two-thirds of the commercial shellfish and finfish populations and habitat for nesting and foraging coastal birds; stabilizing shorelines and buffering against erosion; and providing flood control. In addition, they provide opportunities for people to recreate and to appreciate and learn about the natural environment.

Restore America's Estuaries convened a panel of internationally renowned experts to help us understand the economic value of coastal and estuary resources. These authors were asked to research and summarize our knowledge of coastal economic value. We would like to submit the Executive Summary of this report, *The Economic and Market Value of Coasts and Estuaries: What's at Stake*, for the record.

Their findings were astonishing—far beyond commercial fishing and tourism, healthy coasts and estuaries are essential for protecting more than $800 billion of trade each year, tens of billions of dollars in recreational opportunities annually, and more than 45 percent of the nation's petroleum refining capacity. Through this research, we found that with only 13 percent of the land area of the continental U.S., estuary regions of the nation comprise a disproportionate share of the

nation's economy, with 43 percent of the population, 40 percent of the employment, and 49 percent of output. It is clear that much of the U.S. gross domestic product (GDP) is generated in these narrow ribbons along our nation's coasts. In fact, the U.S. Commission on Ocean Policy found that over half of the nation's GDP ($4.5 trillion in 2000) is generated in coastal counties and adjacent ocean waters.

THREATS TO ESTUARIES

Estuaries and their associated natural resources and important ecosystem services are in a perilous state due to an increasing level of stress. The coast is the fastest growing region in the country, with the coastal zone losing land to development at a pace faster than the rest of the country. This affects the quality of coastal watersheds and, as a result, the health of estuaries and coasts. These valuable coastal areas are threatened by coastal sprawl, which seriously degrades coastal water quality, reduces access to coastal waters, mars the aesthetic beauty, increases flood control costs, eliminates recreation opportunities, and alters estuaries.

In addition to physical impacts (e.g., wetland loss, shoreline armoring, and sea-level rise) to these ecosystems, nutrient and other chemical pollution (e.g., pharmaceuticals and personal care products), invasive species, and over-harvesting of resources are major causes of declines in the productivity and health of these systems.

Estuaries around the country have lost varying degrees of habitat and biological function. For example, between the 1950s and the 1990s, the Galveston Bay system experienced a net loss of nearly 35,000 acres of its wetlands due to a variety of human and natural causes. In addition, 70 percent of the eel grass beds and 50 percent of the salt marshes around Narragansett Bay in Rhode Island have been lost due to human activity, and the Raritan Bay area in lower New York Harbor has lost over 80 percent of its original wetlands. In New Jersey, only a mere 2 percent of the historic native oyster populations have survived after suffering from disease, over-harvesting, and habitat destruction. In the Chesapeake Bay over 16 million bushels of oysters were harvested in the early 1900s, but the harvest has collapsed to only 45,000 bushels in 2006. In Long Island Sound more than 40 percent of the original wetlands are gone. The story continues on the west coast as well. San Francisco Bay has lost 95 percent of its original marshland.

A growing threat to our nation's estuaries is climate change. The impacts of climate change will exacerbate the already increasing stresses on our sensitive coastal resources. Estuary wildlife and the habitat they depend on are threatened by changes in rainfall, temperature, sea level, soil conditions and air pollution. For example, altered rain and snowfall patterns throughout the U.S. will affect the volume and timing of fresh water flowing into our estuaries, consequently changing salinity and sediment conditions, which will impact sensitive habitats and species. While no one knows how precipitation patterns might be altered, changing fresh water flows would affect the distribution and abundance of some shellfish such oysters, as well as rare species, that depend on high salinity salt marsh habitats.

Sea level rise is of particular concern. As sea level rises, the frequency and duration of coastal flooding and inundation will increase, severely impacting sensitive coastal resources and adjacent properties. For example, in San Francisco Bay, sea level rose about seven inches over

the last century at the Golden Gate, and the Intergovernmental Panel on Climate Change and the 2006 California Climate Action Team project it could rise another two to three feet by 2100, which could cause coastal flooding of Bay wetlands and shoreline cities.

Healthy estuaries help counter climate change by capturing carbon from of the atmosphere and providing natural flood protection. Scientists have found that tidal salt marshes are particularly effective in helping to counter climate change, and recommend tidal salt marsh restoration as an important strategy to capture and hold carbon from the air. According to scientists, every acre of restored, healthy salt marsh captures and converts at least 870 kilograms of carbon dioxide into plant material annually—equivalent to the greenhouse gas emissions from driving 2,280 miles. Restored tidal salt marshes also provide natural flood control and may reduce the need to build seawalls to protect developed shoreline areas against sea level rise.

I would like to now turn your attention to the NEP, first to highlight what we consider to be successes of the program, and then identify several areas for programmatic improvements.

THE NATIONAL ESTUARY PROGRAM

For over 20 years, the NEP has been a unique, voluntary, community-based program working to restore and maintain the water quality and ecological integrity of estuaries of national significance. The 28 NEPs across the country have tackled complex water quality issues, and to varying degrees, have achieved on-the-ground environmental results, secured and leveraged funds, improved public education about estuaries, and engaged communities and stakeholders.

Successful Elements of the National Estuary Program

Congress was far-sighted in establishing the NEP in 1987 through amendments to the Clean Water Act both because of the specific charge to NEPs to be **stakeholder driven** and to take a **watershed-based ecosystem approach** to assessing and addressing challenges in an estuary.

Stakeholder Driven

The NEPs play a unique role by convening a broad community of stakeholders as equal partners and employing a collaborative approach to identifying issues and solving problems that includes the public in the planning and decision-making process. NEPs engage citizens' participation by establishing key partnerships among: federal, state, and local agencies; nonprofit organizations; industry; academia; environmental and business groups; and community residents. This process of casting a broad net and involving many diverse interests and communities has been, and continues to be, essential to addressing complex coastal and estuarine issues. The NEPs engage stakeholders to develop a Comprehensive Conservation and Management Plan (CCMP) which becomes the management blueprint for the estuary with specific actions to improve water quality, habitat, and living resources.

A recent study published in the American Journal of Political Science found that the networks in communities with an NEP span more levels of government, integrate more experts into public policy discussions, and have stronger relationships among stakeholders than estuaries without an NEP (M. Schneider et al., 2003). Because NEPs actively engage stakeholders and have strong

networks in places, other management entities should take advantage of these networks in the future in reaching out to stakeholders for other efforts in those particular estuaries.

Watershed-based Planning

NEPs have a broad mandate to use the watershed as a geographic unit for planning and management purposes. They are also empowered to look across state lines, which is critical for estuaries that span multiple states. Because of this approach, NEPs play an important role in addressing coastal and estuarine challenges at a watershed or ecosystem-based level and consider the multiple and cumulative impacts on an estuary. The NEP focuses across the watershed, recognizing the connection between upstream pollution sources and downstream impacts. As the U.S. Commission on Ocean Policy found, taking this type of watershed or ecosystem-based management approach is critical to being able to address the many issues impacting coasts and estuaries. The Commission noted that *"[t]he assessment and planning process used by the NEP holds promise for the future of ecosystem-based management."*

In addition, NEPs are also becoming increasingly more experienced in employing an "adaptive management approach" by targeting a broad range of issues in their CCMPs and determining the effectiveness of actions through monitoring and analysis of environmental data. Based on this type of feedback loop, they have the ability to modify their actions if they are not achieving the desired results.

Improving Capacity for Planning and Implementation

Support for the management and stewardship of our coastal ecosystems that bridge land and sea has never been more important due to the accelerating pace of environmental change now occurring. While environmental degradation of estuaries has continued in recent years, the NEP has been a key program aimed at developing a blueprint for protecting and restoring designated estuaries. Following the development and approval of the CCMP blueprints, NEPs transition to implementing the plans, as was provided by amendments through the *Estuaries and Clean Waters Act of 2000.* But even as NEPs work on implementing the CCMPs, the plans themselves need to be regularly revisited to stay current. These two issues, updating and implementing the CCMP, are addressed in the following section.

Adequate Funding to Update and Implement Plans

As population and development pressure along the nation's coasts continues to rise, increased funding will be required to fully address the complex problems facing coasts and estuaries. It is crucial that Congress provide stable and adequate funding to implement the NEP to better address growing challenges to our nation's estuaries and coasts. One of the fundamental issues preventing the NEP from being as effective of a program as it could be is that there is insufficient funding to fulfill their very broad mandate. This low level of federal funding for implementation of their CCMPs limits their effectiveness.

A challenge has been that without adequate funding, it is difficult for the NEPs to revise and update their CCMPs. In some estuaries, these plans are outdated and they have not continued to evolve or to serve as the blueprint or point of reference for government agencies or communities. In some cases, they have been overtaken by other state management planning efforts that are

currently more relevant for decision-makers. Reauthorization of the NEP and additional funding would enable the state and partners to dedicate staff time and energy toward revising and adapting these plans to meet today's estuarine management challenges. Without adequate funding, it is difficult for NEPs to take a comprehensive approach in addressing threats to the ecosystem.

Not only is implementation of the CCMPs critical, but it is also important that support is provided on-the-ground at the local level because that is where the implementation of the plans needs to happen. It is critical that sufficient funding is getting distributed at the local level to the NEPs. We encourage EPA and the NEPs to work collaboratively to make funding allocation decisions for the program.

Recommendation: It is critical that NEPs have continued authority and strengthened capacity through reauthorization and additional funding to update and implement CCMPs.

As we mentioned previously, NEPs are also becoming increasingly more successful in employing an "adaptive management approach" by targeting a broad range of issues in their CCMPs and determining the effectiveness of actions through monitoring and analysis of environmental data. Based on this type of feedback loop, they have the ability to modify their actions if they are not achieving the desired results.

Recommendation: CWA provisions should be strengthened to formally embrace the concept of adaptive management.

Remaining Agile and Targeting Specific Issues

While CCMPs are important for creating the overall blueprint for protecting and restoring designated estuaries, NEPs also need to be able to be flexible, current, and adaptive so that they can address new issues as they arise rather than waiting for the CCMP to be revised. In addition, because the CCMP is such a comprehensive planning tool, the NEPs also need to have a way to prioritize and target pressing issues. Strategically planning to identify priorities is also important so that the NEPs can adapt to the local situation, fill capability gaps, and be agile to address issues that federal, state, and local agencies cannot adequately address with their existing budgets and mandates.

One way to do this has been through the annual work plans that the NEPs have been developing as a basis of their annual EPA funding. These work plans serve to focus and prioritize the issues identified through the CCMP. The annual work plans are also generally reviewed and approved through a public stakeholder process, ensuring that the NEP is focusing each year on issues that are priorities for their communities.

This annual planning process has been helpful in allowing the NEPs to determine what efforts other management entities are undertaking and focusing their limited resources on areas that are not currently being addressed in a watershed. In North Carolina, for example, the Albemarle Pamlico NEP has helped to supplement other estuary management programs with its limited resources. Some years funding for this NEP has been used for multiple issues, however, some

years it has been focused on one major project (such as mapping of submerged aquatic vegetation) that was identified by management agencies as a major need that was not being covered by their operational program budgets. This type of planning process will continue to help the NEPs identify a clearer role so that they are supplementing other efforts in an estuary.

Recommendation: CWA provisions should be strengthened to provide for a public process to generate annual strategic priorities that identify where to best target time and resources.

Incorporating Habitat Restoration into Implementation

NEPs have been effective at demonstrating real environmental results through on-the-ground habitat restoration and protection, and we encourage them to continue focusing on that critical aspect. According to EPA, since 2000 alone, NEPs and their partners have restored and protected over 1 million acres of habitat; however, it's clear that there are great demands for additional habitat restoration and protection along our nation's coasts.

Recommendation: CWA provisions should be strengthened to establish habitat restoration as a national priority to be incorporated into all CCMPs and annual work plans in order to develop strategic priorities for habitat restoration and conduct restoration projects.

Using NEPs as a Model

Because of some of the successes of the NEPs, they have also begun sharing lessons learned with other local watershed groups. EPA and the NEPs have developed a handbook to share lessons learned from the NEPs called *Community-based Watershed Management: Lessons from the National Estuary Program*. The handbook is designed for individuals and organizations involved in watershed management. It describes innovative approaches to watershed management implemented by the NEPs and draws on over 20 years of experience to share information on how the NEPs organize and maintain effective citizen involvement efforts, collect and analyze data, assess and prioritize problems, develop and implement management plans, and communicate results of program activities. These types of efforts are valuable in informing other watershed management efforts and should be encouraged and strengthened.

Recommendation: CWA provisions should be strengthened to provide for technology transfer to watershed groups to highlight what has worked for the NEPs.

Effective Collaboration with other Estuary Protection and Restoration Programs

There has been significant collaboration of estuary programs at the local, state, and federal levels, including the NEPs and the Community-based Management Program, National Estuarine Research Reserve System, Coastal and Estuarine Land Conservation Program, and Coastal Zone Management Program within the National Oceanic and Atmospheric Administration (NOAA). There has also been significant collaboration with nongovernmental organizations, including many of Restore America's Estuaries' member groups. NEPs work closely with these programs in the area of restoration in particular. Some examples of collaboration among estuary programs are detailed below.

Collaboration between EPA and the NEPs

As a federal-state partnership program, the NEP involves EPA as the federal partner and a state agency, university, or nonprofit organization as the state partner. For the program to be effective, there must be a collaborative relationship between EPA and the NEPs so that they can work together to set priorities for issues such as funding, future direction of the program, and expansion. One example of a very successful federal-state partnership is the National Estuarine Research Reserve System. NOAA provides system-wide vision and direction for the NERRS, including development of national partnerships, provisions for scientific data, technical support, and financial assistance. NERR sites are managed on a daily basis by a state agency or university. NOAA has worked very collaboratively with the managers of the NERR sites to set annual budgets for the program and determine future initiatives.

Collaboration with Federal Estuary Programs

Community-based Restoration Program

NEPs, through the Association of National Estuary Programs, have collaborated with the Community-based Restoration Program (CRP). CRP is a model program for community collaboration, partnership building, and interagency coordination, and partners with grassroots organizations to encourage hands-on citizen participation in restoration projects. In addition to providing funds for projects, NOAA delivers technical support to help ensure restoration success. Through this partnership, CRP has supported habitat restoration projects at several NEPs. In a similar type of partnership, Restore America's Estuaries has been collaborating with CRP since 2000. This partnership has enabled our member groups to conduct over 500 restoration projects nationwide that have restored more than 3,000 acres, opened up 60 stream miles to fish passage, and involved over 250,000 volunteers.

National Estuarine Research Reserve System

In estuaries where there are both NEPs and National Estuarine Research Reserves (NERR), the sites have close working relationships and have partnered on various education, outreach, and scientific research projects. Narragansett Bay is fortunate to have both an NEP and NERR, and these two programs have collaborated on several issues. The directors of the two programs, for example, serve on each others management and advisory committees. They have also coordinated on the development of the Narragansett Bay NEP's status and trends report for the Bay watershed as well as various monitoring projects. The Narragansett Bay NERR recently conducted a pilot project to bring high-resolution surface water mapping to the Bay and worked with the Narragansett Bay NEP to coordinate with their research on low dissolved oxygen.

Another example of collaboration between the NERRs and the NEPs is in San Francisco Bay. The San Francisco Bay NERR partners with the San Francisco Estuary Project. The newly revised CCMP for the NEP has numerous actions naming the San Francisco Bay NERR as a partner in conducting scientific and management activities for the estuary. In addition, the NERR Manager serves as a member of the implementation committee for the NEP and the NERR research coordinator had contributed to the revision of the CCMP. Presently, the Executive Director of the NEP and the NERR Manager have been discussing more avenues for strengthening the partnership, including work on the "Climate Ready Estuaries Initiative".

Coastal Zone Management Programs

The two NEPs in Massachusetts, Buzzards Bay and Massachusetts Bays Program, are unique in that they are administered through the Massachusetts Coastal Zone Management Program. The Coastal Zone Management Program has a strong wetlands restoration program that the NEPs have worked closely with to prioritize places for habitat restoration. The NEPs have been effective in facilitating stakeholder involvement for habitat restoration projects and getting support from local elected officials and citizens.

Collaboration with Non-Governmental Organizations

Galveston Bay Foundation

In Texas, the Galveston Bay Foundation works closely with the Galveston Bay Estuary Program (GBEP) on nearly all of its restoration and education activities. GBEP facilitates bay-wide collaboration through its subcommittees comprised of stakeholders from across the bay. The GBEP Natural Resources Uses committee has been particularly successful. The East Bay Wetland and Water Quality Protection Project was engineered through the Natural Resources Uses subcommittee and recently received national attention through receipt of a Department of Interior Cooperative Conservation Award.

North Carolina Coastal Federation

In North Carolina, there has been a strong partnership between RAE member group, North Carolina Coastal Federation (NCCF) and the Albemarle Pamlico Sound NEP. NCCF's Executive Director serves on the policy committee of the NEP. NCCF has worked with the NEP from the beginning, including by helping with public education and outreach. In recent years, NCCF has partnered with the NEP to conduct environmental education on oyster habitat restoration projects and to develop an environmental academy for local officials.

Save the Bay—Narragansett Bay

Another example of collaboration between RAE member group, Save the Bay—Narragansett Bay and the Narragansett Bay NEP. A member of the staff of Save the Bay serves on the Narragansett Bay NEP's management committee. Both organizations have been part of the Rhode Island habitat restoration team, and one of the strongest areas of collaboration has been in the area of habitat restoration, particularly opening up barriers to fish passage. In addition, they have collaborated on monitoring and data collection programs such as dissolved oxygen and macroalgae surveys. Recently, the Narragansett Bay NEP has been involved with Save the Bay as a member of a coalition of environmental and economic groups working on freshwater supply management issues in Rhode Island.

Connecticut Fund for the Environment—Save the Sound

In Long Island Sound, RAE member group, Connecticut Fund for the Environment—Save the Sound has collaborated with the Long Island Sound Study, particularly in the area of habitat restoration. Both groups, along with state agencies and nongovernmental organizations, have jointly prioritized and reviewed habitat restoration projects. In addition both organizations have partnered on conducting several restoration projects. Connecticut Fund for the Environment—Save the Sound has participated in several of Long Island Sound Study's efforts, including their Citizens Advisory Committee, the Habitat Restoration Initiative, and the Stewardship Initiative.

Regional NEP Collaboration

In addition to strengthened coordination between federal estuary programs, it is also important to have improved collaboration at the regional level to allow decision makers to address pressing coastal and estuarine issues. Overall, decision-makers involved with the management of our nations coastal and ocean areas recognize the need to plan and collaborate on a regional level, and U.S. policy is beginning to move in that direction. Some NEPs are currently working closely with other NEPs in their regions, but where they are not, it is important that they strengthen their regional collaboration.

Recommendation: CWA provisions should be strengthened to include a specific provision that encourages regional collaboration for NEPs to work with other NEPs in their regions to advance regional approaches to management. This collaboration should be fostered and supported by EPA.

In conclusion, while there are a number of examples of collaboration among these programs, we encourage strengthened coordination and collaboration, particularly by incorporating local priorities such as those articulated in the NEP's CCMPs and annual work plans into local, state, regional, and federal decision-making and priority-setting.

CONCLUSIONS

It is clear that there are many assaults on our nation's estuaries and these threats are only getting more significant, particularly because of the impacts climate change will have. It is also clear that because of the way ecosystems function that it is critical to manage these ecosystems in their entirety. It is also evident that with the growing number of challenges that our coastal areas are facing that addressing those issues will require the involvement and input of a variety of stakeholders. Programs like the NEP will be crucial in convening stakeholders and communities to develop plans, set priorities, and make decisions to improve environmental conditions in estuaries. Adequate funding and targeted priorities will be needed to locally implement these plans for restoring and maintaining water quality and ecological integrity.

Thank you for the opportunity to address you today. I would be happy to answer any questions.