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**HEARING ON
PROTECTING AND RESTORING AMERICA'S GREAT WATERS:
ESTUARIES AND COASTS**

**BEFORE THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT
U.S. HOUSE OF REPRESENTATIVES**

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INTRODUCTION

Good afternoon, Madam Chair and Members of the Subcommittee. I am David Kennedy, Director of the Office of Ocean and Coastal Resource Management within the National Oceanic and Atmospheric Administration (NOAA). Thank you for the opportunity to testify on protecting and restoring our nation's estuaries and coasts. My testimony will focus on the health of estuaries in the United States, NOAA's role in protecting and restoring estuaries, and NOAA's coordination with the Environmental Protection Agency's (EPA) National Estuary Program (NEP).

NOAA's mission is to understand and predict changes in the Earth's environment, and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs.

The coastal environment is one of our nation's most valuable assets. It provides food and livelihoods for people and essential habitat for thousands of species of marine animals and plants. A healthy coast is vital to the United States economy. Marine commerce and transportation, commercial and recreational fishing, tourism, and recreation all depend on a vibrant coastal environment. People are drawn to the coast for its raw and wild beauty, recreational opportunities, and economic productivity. Our coastal areas contain the nation's most diverse, valuable, and at-risk habitats. As more of the U.S. population becomes concentrated along the coastline, our coastal ecosystems are becoming stressed. Habitat loss, erosion, pollution, harmful algal blooms, and dead zones are all on the rise. The challenge to the nation and to NOAA is to balance our use of coastal and ocean resources today with the need to protect, preserve, and restore these priceless realms for future generations.

The coasts are home to the nation's estuaries – unique environments that are one of the most productive on earth. They serve as critical infrastructure for the larger marine food web, and can

help protect coastal communities from the effects of coastal hazards and climate change. For example, estuaries provide flood control and water quality protection benefits that can help protect communities from coastal inundation and the future effects of sea level rise.

Coastal and estuarine habitats face many pressures, including coastal development, climate change, and overall habitat degradation. Estuary regions make up only 13 percent of the land area of the United States, but are home to 43 percent of the population, support 40 percent of total U.S. employment, and produce a staggering 49 percent of the nation's Gross Domestic Product¹.

The economy and the coastal environment are closely intertwined. Beaches, coastal communities, ports, and bays are economic engines that drive and support many sectors of the economy, including fishing, shipping, and recreation and tourism. An example of the economic importance of coastal waters is estuarine-dependent fisheries. Many commercial fish and shellfish species such as salmon, herring, and oysters depend on estuaries at some point during their life. According to NOAA's National Marine Fisheries data up to 75 percent of commercial catch² and 80 percent of recreational catch rely on estuarine habitat at some point in their life-cycle³. Further, estuarine-dependent fisheries are among the most valuable across the nation, estimated to be worth \$3.8 billion dollars, as cited in the recent RAE report that used NOAA's National Marine Fisheries Service landing statistics.

These productive regions, however, have experienced a decline in health. The National Estuarine Eutrophication Assessment is a joint report released by NOAA, EPA, and the Department of Agriculture. The most recent national assessment from 2007 found that the majority of estuaries assessed showed signs of eutrophication or nutrient enrichment. Most of these effects were found to be highly influenced by human-related activities attributed to the influence of coastal human populations. In particular these estuaries commonly demonstrated:

- Increased macroalgae and nuisance/toxic blooms, decreased oxygen, and submerged aquatic vegetation loss.
- High concentrations of chlorophyll *a* – an indicator of the abundance of phytoplankton in water.

NOAA scientists and their partners at the University of Maryland Center for Environmental Science found that, overall, eutrophic conditions were not significantly different – neither worse nor improved – between the early 1990s and early 2000s. However, the report predicts a

1 According to a recent NOAA-supported report produced by Restore America's Estuaries (RAE) on "The Economic and Market Value of Coasts and Estuaries". The complete RAE report can be found at: <http://www.estuaries.org/?id=208>

2 National Marine Fisheries Service (NMFS) report: *Our Living Oceans. Report on the Status of the U.S. Living Marine Resources*, 1999. NOAA Tech. Memo. NMFS-F/SPO-41. June 1999, page 47.

3 NOAA National Marine Fisheries Service (NMFS) report that is in publication prep. The document will be titled: *Estuarine Fish and Shellfish Species in U.S. Commercial and Recreational Fisheries: Economic Value as an Incentive to Protect and Restore Estuarine Habitat*. NOAA Technical Memorandum NMFS-F/SPO-84.

worsening of conditions by 2020 in 65 percent of estuaries and improvements in 20 percent of estuaries. The complete report can be found at: <http://ccma.nos.noaa.gov/publications/eutroudate/>.

In 2007, the National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology released a report entitled *Charting the Course for Ocean Science in the United States in the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy*. This report identified coastal ecosystem quality as a key area for research, and included a near term priority entitled "Coastal Response to Persistent Forcing and Extreme Events." Several interagency actions are underway to address the coastal ecosystem quality issues raised in the report. One example is a pilot project of the National Water Quality Monitoring Network. This network is a collaborative effort led by EPA's Office of Water, and including NOAA and the U.S. Geological Service, which will provide observations of pollution loads conveyed from inland watersheds to coastal waters.

NOAA delivers a dynamic range of nation-wide coastal and Great Lakes scientific, technical, and resource management services in support of safe, healthy and productive oceans and coasts. NOAA is the lead federal agency responsible for the stewardship of the nation's living marine resources and their habitat, including our estuaries and coasts. NOAA works within multiple mandates, including the Magnuson-Stevens Act, Estuary Restoration Act, Coastal Zone Management Act, Oil Pollution Act, Marine Mammal Protection Act, and the Endangered Species Act. NOAA's leadership and expertise on climate change issues, coastal restoration, habitat protection, natural resource damage assessment, hydrodynamic modeling, and invasive species management is leveraged by our federal, state, local, regional, tribal, private, and international partners to make our nation's estuaries and coasts healthy and productive.

NOAA has many programs that work to protect, observe, and restore coastal and estuarine habitats. This testimony will focus on the National Estuarine Research Reserve System, the Coastal Zone Management Program, the Coastal and Estuarine Land Conservation Program, and the Community-based Restoration Program. It will also highlight other relevant NOAA programs.

OVERVIEW OF NOAA'S COASTAL AND ESTUARY-RELATED PROGRAMS

National Estuarine Research Reserve System (NERRS)

Recognizing the value and importance of estuaries and the dangers facing them, Congress created the National Estuarine Research Reserve System (NERRS) as a part of the *Coastal Zone Management Act of 1972*. The NERRS is a network of areas that are protected for long-term research, water quality monitoring, education, and stewardship. There are currently 27 sites in the network. This partnership program between NOAA and the coastal states protects more than 1.3 million acres of estuarine land and water, which provides essential habitat for wildlife; offers educational opportunities for students, teachers and the public; and serves as living laboratories for scientists.

The NERRS program works to identify, monitor and address man-made effects to estuarine resources via a variety of programs and partners. The strength of the system lies in these partnerships and integrated, multi-disciplinary efforts to reach decision-makers. While each reserve is managed on a daily basis by a lead state agency, non-profit organization or university they do so with input from local partners and NOAA.

The NERRS program has been highly successful, and some of the accomplishments include:

- The NERR System-wide Monitoring Program collects abiotic and biotic monitoring data from 108 water quality stations, 27 weather stations, 27 nutrient stations, as well as monitoring data on submerged aquatic vegetation and emergent marsh. Reserves are sentinel sites for monitoring ecosystem change, including impacts from climate change.
- The NERRS Coastal Training Program reaches approximately 9,000 coastal decision-makers annually providing science-based information to enhance their capacity to make informed decisions and provide a forum for networking. Of those trained, 94 percent of coastal decision-makers plan to apply the science-based information received during training.
- The NERRS program provides over 800 advisory and outreach opportunities annually to transfer technical information about reserve science to estuarine stakeholders.
- The NERRS Estuary-Live program, operated in partnership with the NEP, draws over 1 million viewers. This program is a live web-cast from the field where teachers and students can learn about estuaries and make inquiries.
- The robust NERRS education programs reach approximately 80,000 students annually.

Coastal Zone Management Program

The national Coastal Zone Management (CZM) Program is a voluntary partnership between the NOAA and U.S. coastal states and territories and is authorized by the *Coastal Zone Management Act of 1972*. The CZM Program is led by NOAA through the Office of Ocean and Coastal Resource Management, a division of NOAA's National Ocean Service. State Coastal Zone Management Plans are a key asset for protecting and restoring estuaries. The goals of the national CZM Program are to:

- Preserve, protect, develop, and, where possible, restore and enhance the resources of the nation's coastal zone for this and succeeding generations;
- Encourage and assist the states to exercise effectively their responsibilities in the coastal zone to achieve wise use of land and water resources;

- Encourage the preparation of special area management plans to provide increased specificity in protecting significant natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas and improved predictability in governmental decision-making; and
- Encourage the participation, cooperation, and coordination of the public, federal, state, local, interstate and regional agencies, and governments affecting the coastal zone.

Thirty-four coastal and Great Lakes states, territories and commonwealths have approved coastal management programs. Together, these programs provide for the protection and management of more than 99 percent of the nation's 95,331 miles of ocean and Great Lakes coastline. Of particular relevance to this hearing, state programs must meet a number of requirements, including a demonstrated capacity to protect natural resources, manage development to achieve quality coastal waters, and coordinate state and federal actions to support these objectives.

The CZM Program is in the process of implementing a national performance measurement system. We are currently in the final phase of implementation, and can point to some positive results relevant to this hearing. For example, preliminary results from the 2006 – 2007 period indicate that the CZM program:

- Restored 2,491 acres and created 88 acres of coastal habitat;
- Protected an additional 2,077 acres of habitat through acquisitions or easements;
- Supported over 4,300 volunteer monitoring events in coastal watersheds; and
- Assisted 258 coastal communities in developing or implementing improved policies and plans to reduce polluted runoff to coastal waters.

Coastal and Estuarine Land Conservation Program

The Coastal and Estuarine Land Conservation Program (CELCP) was created in 2002 for the purpose of protecting important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic value, or that are threatened by conversion from their natural or recreational state to other uses. Congress directed the Secretary of Commerce to establish the program and to delineate criteria for awards under the program. In 2003, NOAA published the *CELCP Final Guidelines*, which set the framework for administration of the program. NOAA administers the program in accordance with these guidelines, including: working with states and territories to develop land conservation plans to guide selection of projects; administering the national competitive ranking and project selection process; and working with grant recipients to successfully complete projects.

Through CELCP, states and local communities purchase and protect coastal and estuarine lands for future generations. These projects often have strong community support, including local public and private financial contributions. CELCP helps states address the wide range of national objectives of the *Coastal Zone Management Act*, including:

- Protecting ecologically important coastal and estuarine habitats and species,
- Protecting natural beach and dune systems to reduce effects from erosion and storms,
- Controlling non-point source pollution, and
- Improving public access and recreational opportunities in coastal areas.

CELCP funds are distributed on a competitive basis and provide a means to leverage limited conservation dollars through matching contributions. As required by statute, federal funding under CELCP is matched 1:1 with non-federal funds. In a number of cases, local governments have also established stewardship agreements in partnership with non-governmental organizations, such as local land trusts, to help manage the properties for long-term protection.

To date, NOAA has worked with state and local governments to administer more than 150 CELCP grants in 27 coastal states to procure and protect more than 35,000 acres through land acquisitions or easements. Projects have ranged in size from a quarter of an acre to more than 10,000 acres, which included protecting small urban waterfront properties to large complexes of wetlands and forested uplands. In addition to habitat conservation, these projects have also been used to provide recreational access to the coast by the public.

Community-based Restoration Program

The NOAA Community-based Restoration Program began in 1996, under the authority of the *Fish and Wildlife Coordination Act*. The *Magnuson-Stevens Fishery Conservation and Management Reauthorization Act* of 2006 further codified the program's mandate to work with communities to conduct meaningful, on-the-ground restoration of marine, estuarine, and riparian habitat.

The Community-based Restoration Program provides technical and funding assistance to local, regional, and national partners to restore coastal and estuarine habitats and accomplish community-driven priorities. NOAA helps communities and partners design projects, ensure compliance with environmental requirements, and evaluate the success of restoration projects in their community. Restoration projects range from wetlands restoration to small dam removals, coral and oyster reef restoration, to the building and restoring of natural, living shorelines that help buffer coastal communities from erosion. In addition to the benefits to the coastal environment, the Community-based Restoration Program promotes environmental stewardship through hands-on participation and educational opportunities.

Since the Community-based Restoration Program began, it has:

- Restored more than 30,000 acres of habitat.
- Developed scores of national and regional partnerships, and collaborated with more than 1,500 organizations.
- Awarded \$50 million through a competitive review process, and generated an additional \$120 million in non-NOAA resources for projects in 26 states, Canada, the Caribbean, and the Pacific Islands.

- Included hundreds of communities and more than 130,000 volunteers in restoration efforts.

Other NOAA Efforts

Some of the nation's largest cities are located adjacent to estuaries and house some of the busiest commercial trade and shipping ports in the world. High traffic in these fragile areas increases the threat of oil spills, ship groundings, and exposure to hazardous substances. Through the Damage Assessment Remediation and Restoration Program, NOAA collaborates with other agencies, industry, and citizens to protect and restore coastal and marine resources injured by oil spills, hazardous substances, and vessel groundings. Proper restoration after injury requires the careful calculation of effects on fish, wildlife, and the places they live. By holding industry accountable for loss and injury, over time, NOAA ensures the full recovery of habitat health.

NOAA also works on coastal and estuarine habitat restoration and protection activities through the *National Fish Habitat Action Plan (Plan)*. The *Plan* provides a strategic focus on key fish habitats to ensure better investment of time, resources and funding. Through regional Fish Habitat Partnerships, federal and state agencies, conservation organizations, and private entities, use scientific assessments to determine where protection and restoration is most needed and most likely to benefit fish and their habitat, including estuaries. A key component of the *Plan* is identifying the causes of habitat loss and degradation, and taking action to correct problems rather than treating only the symptoms.

NOAA is also taking significant steps to support regional efforts to restore the nation's estuarine and coastal environment. In the Chesapeake Bay, NOAA supports the Chesapeake Bay Program, which uses an ecosystem approach to the protection, restoration, and management of the Bay's diverse resources. The West Coast Governors' Agreement on Ocean Health highlights the need for additional federal-state-local collaboration in Puget Sound and San Francisco and partners, in particular, have requested NOAA guidance on habitat conservation in these areas.

Another critical aspect of protecting our coasts and estuaries is the NOAA Fisheries Essential Fish Habitat Program, which identifies, describes, and protects habitats essential to federally managed fisheries. As noted, estuaries provide important spawning and rearing habitat for commercially and recreationally harvested fish. Under the *Magnuson-Stevens Fishery Conservation and Management Reauthorization Act*, NOAA consults with other federal agencies and provides them with technical recommendations to help them avoid and minimize adverse impacts to essential fish habitat. These consultation activities are a key component of NOAA's efforts to ensure that coastal development activities maintain the integrity of the coastal ecosystem.

NOAA also has a key role in the *Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA)* which provides critical funding and technical support in the restoration, protection, conservation and enhancement of threatened wetlands in the Louisiana coastal zone. Under

CWPPRA, NOAA, as well as all other federal and state agencies, plan and implement large-scale coastal wetlands restoration projects which are significant on a local and national level. For NOAA and the state of Louisiana, CWPPRA provides the hope of sustaining a resource that is important to the local and national economic, recreational and cultural base.

Finally, the *Estuary Restoration Act (ERA)*, as modified in 2007 by the Water Resources Development Act, allows NOAA to collaborate and coordinate with other federal agencies, state and local governments, and the private sector to accomplish targeted estuarine habitat restoration. With the goal of restoring a million acres of estuarine habitat by 2010, representatives from NOAA, Department of the Interior, EPA, U.S. Department of Agriculture and U.S. Army work together to implement the *ERA*. The *ERA* also directs NOAA to develop and maintain a database of restoration projects, and establish standards for monitoring restoration projects. The database (http://era.noaa.gov/htmls/era/era_nerd.html), called the National Estuaries Restoration Inventory, tracks estuary habitat restoration projects around the country. Under *ERA*, NOAA also works to outline monitoring protocols that serve as guidelines for evaluating the success of estuarine restoration projects in meeting proposed goals.

NOAA's coordination with EPA's National Estuary Program

The successes of NOAA's programs are built on the strength of its many national and regional partnerships. Several partners, including the EPA's National Estuary Program (NEP) and Restore America's Estuaries (RAE) are dedicated to restoration and conservation of estuarine habitats. NOAA's collaboration with RAE has resulted in the completion of more than 500 projects nationwide, resulting in more than 3,000 acres of estuarine habitats restored and 2,000 acres protected. NOAA's collaboration with the NEP includes educational activities for teachers and students, local coastal training programs, working with states coastal zone management plans, CELCP acquisitions that complement and support NEP goals and efforts, and a new community-based restoration partnership with the Association of National Estuary Programs. More details on the specifics of this partnership are highlighted below.

- At the national level, the NERRS program and the NEP have coordinated to produce Estuaries Live (E-Live), an interactive field trip to estuaries for students and teachers to learn about estuaries and ask questions in real-time. The program features a live web-cast of researchers and educators in estuaries explaining estuarine concepts and describing flora and fauna. The program draws 15,000 teachers and students participating and over 1 million viewers.
- As an example of state level coordination, the New Hampshire Coastal Zone Management Program, the Great Bay NERR and the New Hampshire SeaGrant program are partnering with the New Hampshire Estuaries Project and other organizations in the region that address nonpoint source pollution to form the National Resources Outreach Coalition (NROC). NROC provides directed technical assistance to local governments to manage growth pressures and reduce nonpoint source pollution impacts to New

Hampshire's estuarine and coastal environments through municipal land use planning, regulatory review and development, and education.

- NEP-designated estuary programs (NEPs) also play a role in NOAA's CELCP program. State CELCP plans, which are required for participation in the CELCP funding competition, often recognize NEPs among their partner organizations and/or reference NEP management plans in identifying priorities for protection. These CELCP plans are an integral part of the CELCP application process and form the basis of identifying priorities for protection. In many cases, NEP staff have also participated in development of the CELCP plan.
- CELCP acquisitions also complement and support NEP goals and efforts by providing direct and indirect benefits to lands and waters within designated NEPs. Past CELCP acquisitions have shared benefits with NEPs in eight states: New Jersey, Massachusetts, California, Rhode Island, New Hampshire, New York, Washington, and Oregon. For example, the acquisition through the CELCP program of 142 acres in Oregon around Tillamook Bay, which is also an NEP site, sought to protect and restore coastal wetlands, provide habitat for salmon and migratory birds, provide passive recreational opportunities to the public, and re-establish floodplain function in a watershed that had lost over 90 percent of its historic intertidal wetlands.
- In 2007, NOAA established a new Community-based Restoration Partnership with the Association of National Estuary Programs (ANEP). The partnership is working to fund, implement, and monitor restoration projects within watersheds of the 28 NEPs. The EPA is the federal administrator for the NEP, and has worked with each estuary program to develop Comprehensive Conservation and Management Plans, which are used to help identify and prioritize projects funded through the NOAA-ANEP partnership and many others. In fact, more than half of all Community-based Restoration Program projects are located in the NEPs. In the first year of the NOAA-ANEP partnership, projects were funded in Mobile Bay, Alabama; Narragansett Bay, Rhode Island; and Indian River Lagoon, Florida. These projects addressed restoration of oyster reefs and marsh habitats, improved fish passage, erosion control, and public education.

NOAA has a good working relationship with the NEP at both the national and local levels. NOAA will continue to collaborate with the NEPs to accomplish our collective goals related to protecting and restoration the Nation's coast and estuaries.

CONCLUSION

NOAA will continue to meet our mission by managing, protecting, conserving, and restoring the nation's estuaries. These nurseries of life are vital habitats for the health and well-being of our coasts, and the peoples who depend upon them. Thank you again for the opportunity to highlight

the work that NOAA does to protect and sustain our nations estuaries and coasts. I will be glad to answer any questions.