

**WRITTEN STATEMENT OF
JOHN H. DUNNIGAN
ASSISTANT ADMINISTRATOR, NATIONAL OCEAN SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATOR
U.S. DEPARTMENT OF COMMERCE**

**OVERSIGHT HEARING ON
NOAA BUDGET AND PRIORITIES FOR FY 2007**

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

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Mr. Chairman and Members of the Subcommittee, thank you for inviting me to appear today to discuss FY 2007 budget request plans and priorities for National Oceanic and Atmospheric Administration (NOAA) programs of interest to this Subcommittee. My name is Jack Dunnigan and I am the Assistant Administrator for NOAA's National Ocean Service.

At NOAA, we work to protect the lives and livelihoods of Americans, and provide products and services that benefit the economy, environment, and public safety of the Nation. Today, I will highlight programs that help fulfill NOAA's responsibilities for understanding, protecting and restoring coastal and marine resources. Before I discuss the details of our FY 2007 budget request, I would like to briefly highlight some of NOAA's notable successes from the past fiscal year (2005).

FY 2005 ACCOMPLISHMENTS

Critical Information and Support Before and After Hurricanes

In 2005, we experienced the most active hurricane season in recorded history. Hurricanes Katrina, Rita, and Wilma battered the Gulf Coast and Florida, resulting in devastation unlike anything the Nation has witnessed before. NOAA responded immediately:

- The National Geodetic Survey provided more than 9,500 aerial images, aiding emergency responders of all types to save lives and make crucial assessments;
- The Office of Response and Restoration immediately deployed Scientific Support Coordinators to aid in the mitigation and control of nearly 400 hazardous material spills;
- The Office of Coast Survey's Navigation Response Teams surveyed waterways for obstructions, facilitating the delivery of relief supplies and resumption of maritime commerce;

- NOAA diverted its ships THOMAS JEFFERSON and NANCY FOSTER from planned missions to conduct navigation and environmental surveys;
- Tide stations in NOAA's National Water Level Observation Network (NWLON) enabled storm surge predictions and provided emergency responders with real time data for nautical charting and recovery; and
- The National Centers for Coastal Ocean Science joined with other Federal and State agencies to develop and implement a strategy to assess the environmental impacts of the storm; this strategy included measuring contaminant concentrations in water, sediments, and marine life.

NOAA capabilities continue to support the impacted areas with the removal of thousands of vessels, drums, tanks, cylinders and other potentially hazardous containers in marshes and along the shoreline, response to spills and maritime incidents, and work to provide accurate geodetic height information. Accurate land and water level heights are important for determining effective highway evacuation routes, levee heights, storm surge modeling, flood plain mapping, sea level rise calculations, vessel under-keel and bridge clearance, subsidence monitoring, and restoration of coastal habitats.

Office of Response and Restoration

Federal, state, and local agencies rely on NOAA's support in oil and chemical spills and other emergencies that threaten life, property, and natural resources. Our interdisciplinary scientific response team provides the U.S. Coast Guard (USCG) and other response agencies with the best scientific information to prepare for and respond to spills. NOAA forecasts the movement and behavior of spilled oil and chemicals, evaluates the risk to natural resources, and recommends cleanup actions. NOAA is on call 24/7 and is able to provide scientific support within 15 minutes of notification and to respond on scene within 4 hours of notification. NOAA's expertise is critical to making science-based response decisions that prevent further harm, restore adverse effects on natural resources, and promote effective planning for future incidents.

NOAA's Office of Response and Restoration provided scientific response to two significant spills in FY 2005: the M/V *Athos I* in the Delaware River that threatened the Salem nuclear power plant by spilling 265,000 gallons of heavy crude oil, and the M/V *Selendang Ayu* in Unalaska, Alaska that spilled approximately 335,000 gallons of fuel oil. In both cases, NOAA scientists provided trajectory predictions, effects assessments and prioritized cleanup activities.

As a natural resource trustee, NOAA regional coordinators, scientists, and economists work in partnership with government agencies, the public, and industry to assess the impact to NOAA trust resources from oil and hazardous materials releases, and plan and implement restoration. NOAA has protected and restored thousands of acres of wetlands, streams, mangroves, and other vital habitat, including coral reefs, and the services they provide to the public and ecosystem. In Lavaca Bay, Galveston Bay, and Port Arthur, Texas, NOAA and other federal agencies successfully worked in partnership with the State of Texas and industry to develop innovative solutions to eliminate toxic threats and

achieve comprehensive restoration of essential coastal habitats. Through this cooperative approach, more than 300 acres of wetland and oyster reefs will be restored and 2,500 acres of coastal habitat will be preserved and improved in Texas alone.

Harmful Algal Blooms and Hypoxia

Both Congress and the Administration recognize Harmful Algal Bloom (HAB) and hypoxic events (i.e., severe oxygen depletion) as some of the most complex phenomena currently challenging management of aquatic and marine ecosystems. Impacts have affected almost every coastal state and have included the devastation of important coastal habitats, loss of economically and culturally vital shellfish resources, illness and death in populations of protected marine species, and serious threats to human health. Last year (2005) was particularly problematic with extreme harmful algal bloom events occurring along the New England Coast (the largest recorded in New England waters since 1972 forcing shellfish closures from Maine to Rhode Island) and off the west coast of Florida (causing respiratory distress, fish and marine mammal mortalities, and widespread hypoxia in bottom waters damaging vast areas of coral reefs). These events were in addition to the recurring “dead zone” in the Gulf of Mexico with management implications for 31 states and a watershed that encompasses greater than 40 percent of the conterminous U.S.

NOAA’s mandate to address national issues related to HABs and hypoxia in the Nation’s coastal waters is primarily provided by the recently reauthorized Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 (HABHRCA). Through the auspices of the U.S. Ocean Action Plan, and in coordination with our federal partners, NOAA has made considerable progress in the ability to detect, monitor, assess, and predict HABs and hypoxia in coastal ecosystems. This progress has been accomplished through a mix of extramural and intramural research, long-term regional ecosystem-scale studies supported by short-term targeted studies, collaborations between academic and federal scientists, and multiple partnerships with federal, state and tribal managers. These advances are helping coastal managers undertake short- and long-term efforts to reduce and ultimately to prevent the detrimental effects of these phenomena on human health and valuable coastal resources.

In FY 2005 NOAA:

- Provided assistance in response to the HAB events along the New England coast and Western coast of Florida by enhancing ongoing research and providing assistance to monitor and map the movement of the events and to provide managers with early warnings of shellfish toxicity to protect public health in the region.
- Made laboratory investments that have led to developments that are now aiding coastal scientists and managers with timely information on the occurrence of HABs and the production of toxins.
- Sea Grant researchers studied the biological and physical processes that underlie HAB formation, including which environmental conditions favor algal blooms.

Sea Grant investigators also conducted research on the biology and behavior of toxic alga in order to further the development of new strategies for HAB control. NOAA Great Lakes Environmental Research Laboratory scientists monitored the presence of toxin-producing HABs in western Lake Erie, Saginaw Bay and inland lakes. During summer months, the public was alerted to potential health threats via the web. The data will also be used to identify areas where potential for human exposure to toxic HABs is high, to forecast the movement of toxic HABs, and to assist managers seeking to further understand the implications of the presence of toxic HAB species in water supplies.

Ballast Water and Invasive Species

NOAA made progress in reducing the impacts of invasive species and preventing new species invasions during FY 2005. In FY 2005 NOAA:

- Improved understanding of the ballast water management practices of ships with ballast and No Ballast On Board (NOBOB), and identified a number of procedures that can further increase the effectiveness of these practices against invasive species in the Great Lakes and other areas;
- Supported the development of several treatment technologies for ballast water now being tested on commercial ships;
- Worked with federal, state, and private interests to eradicate the invasive seaweed *Caulerpa taxifolia* from southern coastal California;
- Partnered with other agencies and the private sector to initiate the "Habitattitude" public awareness campaign, to reach millions of aquarium and water garden hobbyists and vendors with an invasive species message; and
- Made progress in documenting the status and trends of invasive Indo-Pacific lionfish populations, and in determining possible ecological impacts.

Ballast water is the most significant pathway for introduction of aquatic invasive species into coastal waters and NOAA recognizes its specific statutory responsibilities to develop new ballast water treatment technologies.

In FY 2005, the NOAA Great Lakes Environmental Research Laboratory completed a three-year multi-institutional assessment to characterize the biota found in NOBOB vessels entering the Great Lakes and to evaluate the effectiveness of at-sea ballast water exchange. NOBOB vessels are exempt from the U.S. Coast Guard's mandatory ballast exchange requirements, but the residual water and sediment in the ballast tanks of NOBOB vessels can contain a wide assortment of potentially invasive plants, animals, and microorganisms. Results of the assessment are reported in "Assessment of Transoceanic NOBOB vessels and Low-Salinity Ballast Water as vectors for Non-indigenous Species Introductions to the Great Lakes," available at http://www.glerl.noaa.gov/res/Task_rpts/2001/nsreid10-1.html. The study found that the risk of NOBOB-related invasive species introductions may be lowered with good management practices, especially flushing NOBOB tanks with saltwater on the open

ocean. Following the release of the report and NOAA participation in a U.S. Coast Guard sponsored public hearing and a technical workshop, the U.S. Coast Guard issued voluntary NOBOB management guidelines in August 2005 calling for ships to take steps to assure that the salinity of their residual ballast water is over 30 parts per thousand, either through ballast water exchange or tank flushing, as appropriate and safe (Federal Register Vol. 70, No. 168 Wednesday, August 31, 2005, pp 51831-51836; see also <http://www.uscg.mil/hq/g-m/mso/nobob.htm>).

In September 2005 NOAA conducted an interagency workshop to work towards integration and coordination of Federal and federally-funded invasive species databases. Also in FY 2005, NOAA began efforts to identify the potential and realized socio-economic threats associated with the presence of invasive species. In addition, NOAA initiated an Integrated Assessment of the occurrence and potential spread of an invasive tunicate in the fertile fishing grounds of Georges Bank and sponsored a cruise to monitor and assess its impacts. These efforts will also assist the NOAA Invasive Species Program in making future resource allocation decisions based on current and relevant invasive species impacts.

NOAA is leading research and monitoring to understand the consequences of the recent Indo-Pacific lionfish invasion in the southeast Atlantic shelf of the United States through its National Centers for Coastal Ocean Science. NOAA plans to continue research and monitoring to help elucidate the impacts as well as expand efforts to include public education and outreach directed in particular to anglers, scuba divers, and the health care community. The National Center for Coastal Ocean Science is also supporting efforts by NOAA's Chesapeake Bay Office to assess environmental, economic, and human health risks of introducing the non-native asian oyster (*Crassostrea ariakensis*) into the Chesapeake Bay.

Estuary Habitat Restoration

South Florida Ecosystem Restoration

NOAA has been actively supporting South Florida Ecosystem Restoration (SFER) since its inception as part of supporting efforts to the Comprehensive Everglades Restoration Plan (CERP). The restoration-related goal of the SFER is to develop the capability to provide ecological forecasts that allow managers to determine the downstream effects on key natural resource responsibilities (e.g. Florida Keys National Marine Sanctuary) as a result of different restoration scenarios in South Florida. NOAA provided research and development that enabled an ecosystem approach to management, including characterization of the availability and penetration of sunlight and the movement of water within the Florida Bay.

Coastal Nonpoint Pollution

NOAA and EPA entered into a Coastal Community Development Memorandum of Agreement in January 2005. NOAA is also investing in monitoring, research, and modeling to support state nonpoint pollution source management programs. We are

actively pursuing efforts to link coastal growth and development management with water quality protection by fostering a greater emphasis on community development and planning efforts to address growth issues in a sustainable manner. Existing Coastal Zone Management Act funding mechanisms can be used to support these efforts.

Navigation

NOAA's Mapping and Charting Program is carried out by the Office of Coast Survey. Established by President Thomas Jefferson in 1807, the Coast Survey celebrates its 200th anniversary in 2007 as the oldest scientific organization in the U.S., with a long history of supporting and facilitating maritime commerce. NOAA is responsible for surveying and charting U.S. and territorial waters to the limits of the Exclusive Economic Zone (EEZ), an area of about 3.4 million square nautical miles. Over 500,000 square nautical miles of this area is considered navigationally significant; it is this area that has become NOAA's primary survey priority. In FY 2005, NOAA and its contractors surveyed over 3000 square nautical miles in waters important to navigation.

NOAA's Center for Operational Oceanographic Products and Services' (CO-OPS) provides tide and current data, products and services that support safe and efficient marine navigation, emergency response efforts, storm surge and tsunami warnings and forecasts, long-term sea level rise monitoring, marine boundary determination, habitat restoration, coastal zone management and other NOAA strategic mission goal outcomes. In FY 2005, NOAA installed a Physical Oceanographic Real-Time System (PORTS[®]) on the Columbia River. PORTS[®] support safe, cost-efficient marine transportation by providing accurate real-time oceanographic and meteorological data. Nearly 48 million tons of cargo transits through the Columbia River annually; vessel operators must know the depth of the water in order to maximize ship efficiency and minimize groundings and accidents. A 2005 economic study revealed that the Tampa Bay economy receives more than \$7 million a year in savings and direct income from the operation of its PORTS[®]. A number of ports important to the transport of vital energy supplies to the Nation have expressed strong interest in establishing PORTS but cannot be accommodated with current funding.

Precise positioning is needed for the safe navigation of our waterways, roads and air space. NOAA maintains the National Spatial Reference System (NSRS), which provides the foundation for transportation and communication; mapping and charting; and a multitude of scientific and engineering applications. NOAA provides many models and tools that allow the public to obtain highly accurate positions relative to the NSRS. In 2005, NOAA registered the 300,000th use of the Online Positioning User Service (OPUS), after only three years of OPUS operation. OPUS allows users, such as professional surveyors, to submit their GPS observations to NOAA, where the data is processed to determine a position. Each OPUS solution is estimated to save the user approximately \$600 over traditional positioning methods.

FY 2007 BUDGET REQUEST

Office of Response and Restoration (OR&R)

The FY 2007 President's Budget Request supports NOAA's priority to restore our response and restoration capacity. In the FY 2006 appropriation, OR&R activities were funded at \$3.0 million below the President's request, which reduced NOAA's ability to respond to emergencies and carry out its restoration mission. This funding is restored in the FY 2007 request, with the President requesting \$16.3 million for response and restoration activities. The President's request will allow NOAA to rebuild capacity for natural resource damage assessment, coastal protection and restoration, and emergency response activities, which have been eroded by two consecutive years of budget reductions. Further, the FY 2007 request will ensure that NOAA continues to meet its responsibilities under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Oil Pollution Act (OPA).

In FY 2007, NOAA will focus on restoring the Nation's capability to respond to oil and hazardous substance releases through the most cost effective methods. NOAA will increase pre-spill and post-spill planning and coordination and training for national preparedness and response, develop tools and techniques to improve response efficiency, increase scientific accuracy, and decrease harm to life, property, and the environment. Funding in FY 2007 will continue to support damage assessment and restoration efforts for sites around the Nation.

NOAA will continue to provide technical assistance, training, and support to states and communities to strengthen local and regional capabilities to restore or redevelop contaminated sites. Funding in FY 2007 will also allow NOAA to increase capacity to conduct emergency response and restoration activities in the Great Lakes region, providing a focused effort on habitat protection and restoration through an ecosystem-based approach.

Harmful Algal Blooms and Hypoxia

In FY 2007, NOAA requests an increase of \$5.96 million to restore funding for extramural research to maintain NOAA's longstanding investments to develop harmful algal bloom (HAB) and hypoxia ecological forecasting and response capabilities. These efforts are conducted through NOAA's competitive extramural research programs which have a proven track record of developing the understanding and tools necessary for managers to respond to and predict HAB and hypoxia events, such as those affecting the New England and Florida coasts last year. The NOAA FY 2007 request includes funding essential to meeting the objectives of the recently reauthorized HABHRCA legislation and will greatly accelerate progress toward the prediction and mitigation of these devastating events. The funds specified by this request, when leveraged with ongoing intramural and extramural efforts on HABs and hypoxia, will: (1) help to maintain and strengthen the suite of NOAA competitive, peer-reviewed programs focused on HAB and

hypoxia research; (2) accelerate the development and transition to operations of tools and forecasts for the prediction, control, and mitigation of HABs and hypoxia; (3) facilitate the assessment of and response to HAB and hypoxia events; and (4) help to deliver the biological components key to making developing regional ocean observing systems relevant to coastal resource and public health managers.

Ballast Water and Invasive Species

The FY 2007 President's budget requests a total of \$5.7 million to continue NOAA's work to prevent the spread of invasive species through efforts of the Aquatic Invasive Species Program, Sea Grant, the Great Lakes Environmental Research Lab, and the National Centers for Coastal Ocean Science. Of this funding, \$3.2 million would support on-going Sea Grant and Great Lakes Environmental Research Laboratory invasive species efforts.

The balance of this funding request, \$2.5 million, would support the Aquatic Invasive Species Program, which focuses on prevention, detection, monitoring and control of aquatic invasive species. The program's overarching goal is to develop an effective, proactive strategy for addressing aquatic invasive species by minimizing their establishment through early detection. The request includes funding to improve early detection and monitoring capabilities and will contribute to an interagency crosscut initiative led by NOAA, the United States Geological Survey, and Smithsonian Environmental Research Center. As part of this initiative, NOAA is leading the development of an early warning system for coastal and marine invasive species through its National Centers for Coastal Ocean Science. The system aims to provide coastal resource managers and scientists with information on control measures and alerts when new species are introduced. Work on the Pilot Project was just completed in Hawaii. As part of the continuing development of the Pilot Project, efforts in FY 2006 will begin to incorporate the state of Texas.

Coastal Nonpoint Pollution

The President has not requested funding for the Coastal Nonpoint Source Pollution Control Program since FY 2004. While there is not a Nonpoint Source Pollution line in the NOAA budget, states can receive assistance from NOAA through funding from section 306 of the Coastal Zone Management Act or through NOAA's ongoing development and dissemination of management tools and scientific research on nonpoint source pollution problems and responses. The FY 2007 President's Budget includes nonpoint source pollution control funding in the requests for the U.S. Environmental Protection Agency and the U.S. Department of Agriculture. NOAA continues to support state Coastal Nonpoint Source (NPS) Management Programs by fostering program integration, and by helping coastal states focus on managing the cumulative and secondary impacts of development to prevent NPS pollution.

Navigation

NOAA's products and services help maintain the efficient flow of transportation and commerce. A fundamental lifeline for the nation's economy, the U.S. Marine Transportation System (MTS) is growing rapidly. From 1990 to 2003, the value of U.S. international merchandise trade increased an average 6% annually, from \$889 billion to about \$2 trillion (in current dollars). The MTS carried as much as 95% of this trade by volume and 41% by value in 2003, more than any other transportation mode. MTS stakeholders repeatedly state that their highest priority is obtaining accurate, timely and reliable navigation information required for a complete picture of the dynamic environment in which they operate. NOAA's FY 2007 budget request includes \$2.0 million to continue implementation of the National Vertical Datum Transformation Tool database, or VDATUM. VDATUM allows federal, state, and local government agencies to accurately share geospatial data more effectively and benefits NOAA's modernization efforts. The FY 2007 budget request also includes \$1.9 million to continue NOAA's efforts to provide Electronic Navigational Charts (ENCs). Sustained funding at this level will enable NOAA to cover all U.S. waters by 2010. In addition, \$2.7 million is requested for tide and current data; \$2.0 million of these funds will be used to rebuild and strengthen the National Water Level Observation Network's (NWLON) ability to provide navigation and storm tide information throughout extreme weather and water events such as hurricanes. Several stations were damaged or destroyed during the 2005 hurricane season, though stations that had been "hardened," or strengthened, showed significantly greater resiliency.

The FY 2007 President's Budget Request continues to focus on increasing the Nation's accurate positioning capacity, which includes the National Spatial Reference System (NSRS). These activities enable surveyors, emergency planners and responders, transportation planners, GIS professionals, to map the shoreline and promote safe navigation. The President's budget also continues to support Height Modernization efforts nationally.

The FY 2007 President's Budget Request includes increases of \$10.5 million for contract surveys to collect hydrographic data and \$1.8 million to support the expansion from 6 to 8 Navigation Response Teams (NRTs) staged regionally around the nation. This will provide adequate coverage and the capacity to respond within 24 hours to multiple incidents in all ports in the contiguous United States. Surveys conducted by the NRTs of key waterways for navigation hazards immediately after last year's hurricanes helped the U.S. Coast Guard and Army Corps of Engineers reopen ports to commercial shipping and recovery operations within days rather than weeks or months.

Conclusion

NOAA has made great progress to address our mandates and fulfill our missions in FY 2005. Our efforts will continue in FY 2006, and we ask the committee to support the President's FY 2007 Budget Request for NOAA's programs. NOAA's programs provide

products and services that benefit the economy, environment, and public safety of the Nation

Mr. Chairman and Members of the Subcommittee, I thank you for the opportunity to testify before you.