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U.S. DEPARTMENT OF COMMERCE**

**OVERSIGHT HEARING ON THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION'S
FY 2008 BUDGET REQUEST**

**BEFORE THE
COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION
UNITED STATES SENATE**

June 28, 2007

Mr. Chairman and members of the Committee, before I begin my testimony I would like to thank you for your leadership and the generous support you have shown the National Oceanic and Atmospheric Administration (NOAA). Your continued support for our programs is appreciated as we work to improve our products and services for the American people. Thank you for the opportunity to testify on the President's Fiscal Year (FY) 2008 Budget Request for NOAA.

The FY 2008 President's Budget supports NOAA's priority to advance mission-critical services. The FY 2008 request is \$3.815 billion, which represents a \$131 million or 3.4% increase over the FY 2007 request. This request includes the level of resources necessary to carry out NOAA's mission, which 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. 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. Before I discuss the details of our FY 2008 budget request, I would like to briefly highlight some of NOAA's notable successes from the past fiscal year (2006).

FY 2006 ACCOMPLISHMENTS

President Designates Largest Fully-Protected Marine Area on Earth

Recognizing the continuing need for resource protection, President Bush designated the Northwestern Hawaiian Islands as a marine national monument on June 15, 2006. Encompassing nearly 140,000 square miles, the monument covers an area larger than all of our national parks put together, including 4,500 square miles of relatively undisturbed coral reef habitat that is home to more than 7,000 species. The creation of the largest

fully-protected marine area in the world is an exciting achievement and recognizes the value of marine resources to our nation.

Successful Launch of NOAA Satellite GOES-13 and New Satellite Operations Facility Ensure Continuity of Improved Data Collection

On May 24, 2006, officials from NOAA and the National Aeronautics and Space Administration (NASA) confirmed that a new geostationary operational environmental satellite, designed to track hurricanes and other severe weather impacting the nation, successfully reached orbit. Upon reaching final orbit, the satellite was renamed GOES-13. This is the first in a new series of satellites featuring a more stable platform enabling improved instrument performance. NOAA instruments were also launched on the European MetOp-A polar-orbiting satellite in October 2006. Combined with NOAA and Department of Defense (DOD) operational satellites, MetOp-A will help provide global data for improving forecasts of severe weather, disaster mitigation, and monitoring of the environment. This launch ushered in a new era of U.S.-European cooperation in environmental observing.

In 2006, NOAA satellite operations and data processing groups began moving into the new NOAA Satellite Operations Facility (NSOF). The NSOF will house the NOAA satellite command and control functions and data and distribution activities that are central to NOAA's mission. The NSOF will also house the U.S. Mission Control Center for the Search and Rescue Satellite-Aided Tracking (SARSAT) program and the National Ice Center (NIC), a joint NOAA/DOD mission to track ice floes and issue warnings to the nation's maritime force. The NSOF officially opened on June 11, 2007.

Enhancements to NOAA's Fleet of Ships and Aircraft

Significant progress is being made in modernizing NOAA's fleet. NOAA took delivery of the Fisheries Survey Vessel (FSV) HENRY B. BIGELOW, the second of 4 new FSV, on July 25, 2006. The BIGELOW has high-tech capabilities that make it one of the world's most advanced fisheries research ships. These ships will be able to perform hydro-acoustic fish surveys and conduct bottom and mid-water trawls while running physical and biological oceanographic sampling during a single deployment — a combined capability unavailable in the private sector that will enable research and assessment to be carried out with greater accuracy and cost efficiency. NOAA also took delivery from the Navy of a "retired" P-3 aircraft in response to the hurricane supplemental bill attached to the FY 2006 Defense appropriations legislation. Rehabilitation of the P-3 is expected to be completed by the start of the 2008 hurricane season.

Magnuson-Stevens Fishery Conservation and Management Act Reauthorized

Congress reauthorized the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in December, 2006, and it was signed into law by President Bush on January 12, 2007. The MSA is the guiding legislation that authorizes fishery management

activities in federal waters. Enactment of this bill was one of the top priorities of the U.S. Ocean Action Plan. The reauthorized MSA strengthens NOAA's ability to end overfishing, rebuild fish stocks, and work collaboratively on conservation.

U.S. Tsunami Warning System Improved

NOAA designed easy to deploy Deep-ocean Assessment and Reporting of Tsunamis (DART)-II technology, which provides two-way communication between the buoys and NOAA facilities. This technology allows engineers to troubleshoot these systems from the lab and repair the systems remotely when possible. This functionality can minimize system downtime and save money by not requiring a ship be deployed to make minor repairs. The U.S. Tsunami Warning Program also created tsunami impact forecast models for nine major coastal communities, providing information for inundation maps. With the December 11, 2006 deployment of DART #23 in the Western Pacific Ocean, NOAA achieved initial operating capability (IOC) of the planned expanded U.S. Tsunami Warning Program. NOAA also achieved full 24/7 operations of the nation's two Tsunami Warning Centers. Plans call for the U.S. Tsunami Warning Network to total 39 DART-II buoy stations by mid-summer 2008 (32 in the Pacific, 7 in the Atlantic).

NOAA also continued to monitor sea height through a network of buoys and tide gauges, collecting information critical to understanding the time of arrival and the height of tsunami waves. In 2006, NOAA completed the installation of eight new National Water Level Observation Network (NWLON) stations to fill gaps in the detection network, bringing the two-year total to 15. The 15 stations were installed in California, Oregon, Washington, Alaska, Puerto Rico, and the Virgin Islands. These and other new stations brought the NWLON to 200 stations by the end of calendar year 2006. In addition, NOAA continued to upgrade the entire NWLON to real-time status by replacing over 50 data collection platforms.

Red Tide Monitoring Protects Human Health and Coastal Economics in New England

In the wake of the 2005 New England red tide crisis that forced the closure of most shellfisheries in the region, NOAA provided additional emergency funding in 2006 to provide timely and critical information to state managers to build upon long-term research supported by the Ecology and Oceanography of Harmful Algal Bloom, and Monitoring and Event Response for Harmful Algal Bloom programs at the Woods Hole Oceanographic Institution, as well as other partner institutions. In the spring of 2006, NOAA-sponsored monitoring detected rapid escalations of the bloom, which subsequently closed shellfisheries in Massachusetts, New Hampshire and Maine. Additional NOAA efforts allowed New England managers to make more strategic sampling and shellfish bed closures/openings to protect human health and minimize the economic impacts of harmful algal blooms.

National Estuarine Research Reserve System Adds 27th Reserve

On May 6, 2006, Commerce and Congressional officials dedicated the newest site in the National Estuarine Research Reserve System in Port Aransas, TX, bring the total to 27 reserves. This new reserve introduces a new biogeographic area type into the system, and adds 185,708 acres of public and private land and water. The reserves are federal-state partnerships, where NOAA provides national program guidance and operational funding. These reserves serve as living laboratories for scientists and provide science-based educational programs for students and the public.

Wide Application Potential of Unmanned Aircraft Systems Demonstrated

In 2006, NOAA worked with federal and private sector partners to successfully demonstrate Unmanned Aircraft Systems (UAS) technology. NOAA is interested in UAS as a tool to explore and gather data to help us reach new heights in our ability to understand and predict the world in which we live. Use of UAS could help NOAA achieve our mission goals and provide cost-effective means to: enforce regulations over NOAA's National Marine Sanctuaries, conduct long endurance flights for weather, conduct research over areas that pose significant risks to pilots, validate satellite measurements, provide counts of marine mammal populations, monitor atmospheric composition and climate, and hover above hurricanes and gather critical data for input into hurricane models. NOAA will continue to examine how UAS can assist in the collection of environmental data.

Protecting Habitat Essential to Fish

In 2006, over 500,000 square miles of U.S. Pacific Ocean habitats were protected from damage by fishing practices, particularly bottom-trawling. Combined, these areas are more than three times the size of all U.S. national parks. The historic protections, implemented by NOAA with the support and advice of the regional fishery management councils, fishing industry, and environmental groups, made the protection of essential fish habitat and deep coral and sponge assemblages a significant part of management efforts to conserve fisheries in the Pacific Ocean.

NOAA Continues Efforts to Assist with Gulf Coast Recovery following 2005 Hurricanes Katrina and Rita

In addition to providing the forecasts and immediate response assistance in 2005, following Hurricanes Katrina and Rita, NOAA has continued to assist with Gulf Coast recovery efforts in FY 2006.

NOAA ships and aircraft provided critical response and recovery capabilities in the aftermath of Hurricanes Katrina and Rita. NOAA Ship THOMAS JEFFERSON completed obstruction surveys in the Gulf of Mexico so that busy ports and shipping lanes could be re-opened to traffic. NOAA's Citation aircraft flew post-storm damage assessment surveys along the coasts of the Gulf States. This imagery was downloaded on

the NOAA website, enabling emergency managers, local officials and average citizens to inventory damage and prioritize recovery efforts.

NOAA mounted a multi-pronged effort to address fishery-related impacts in the Gulf of Mexico in FY 2006. In August, 2006, NOAA awarded \$128 million to the Gulf States Marine Fisheries Commission to reseed and restore oyster beds and conduct fisheries monitoring in the Gulf. In addition, NOAA Ship NANCY FOSTER conducted a seafood contamination survey for NOAA Fisheries near the Mississippi Delta to spot potential safety issues. This research monitored the seafood coming in from the Gulf to ensure it was safe for public consumption (free of PCBs, pesticides, and fossil fuels).

Collaboration Enables a NOAA Weather Radio to be Placed in Every Public School in America

NOAA and the Departments of Homeland Security and Education worked to get 97,000 NOAA weather radios placed in every public school in America to aid in protecting our children from hazards, both natural and man-made. In many cases, local Weather Forecast Office staff provided expertise in programming the radios to select specific hazards and geographic areas for which the school wanted to be alerted. This multi-month effort required close collaboration between the Departments of Homeland Security, Education, and Commerce (NOAA). This effort enabled schools to connect to part of the nation's Emergency Alert System and greatly increases environmental situational awareness and public safety.

World Ocean Database 2005

NOAA's National Oceanographic Data Center (NODC) released a major upgrade to its World Ocean Database product. World Ocean Database 2005 (WOD05) is the largest collection of quality-controlled ocean profile data available internationally without restriction. All data are available on-line for public use. Data are available for 29 ocean variables, including plankton data. The database includes an additional 900,000 temperature profiles not available in its predecessor. The database provides the ocean and climate science communities with research-quality ocean profile data sets that will be useful in describing physical, chemical and biological parameters in the ocean, over both time and space. This database is a crucial part of the Integrated Ocean Observing System and the Global Earth Observation System of Systems.

New Arctic Observatory Established for Long-Term Climate Measurements

NOAA's Earth System Research Laboratory in Boulder, Colorado, in conjunction with our Canadian counterparts, established a research site located on Ellesmere Island to make long-term climate measurements of Arctic clouds and aerosols. This observatory supports NOAA's activities for the 2007-2008 International Polar Year.

NOAA Scientists Identify Carbon Dioxide Threats to Marine Life

A report co-authored by NOAA research scientists documents how carbon dioxide is dramatically altering ocean chemistry and threatening the health of marine organisms. The research also uncovered new evidence of ocean acidification in the North Pacific. The report resulted from a workshop sponsored by NOAA, the National Science Foundation, and the U.S. Geological Survey.

First Operational Satellite Products for Ocean Biology

In June, 2006, NOAA began to process and distribute ocean biology products for U.S. coastal waters, using satellite observations. This activity represents a successful transition of NASA research to NOAA operations. These products (e.g. chlorophyll concentration) represent the first satellite-derived biological products generated by NOAA for coastal and open ocean waters. These products are useful in detecting and monitoring harmful algal blooms, assessing regional water quality, and locating suitable habitat for fish and other important marine species. Development of these products prepares NOAA for generating and distributing ocean biology products in the global ocean after 2010.

FY 2008 BUDGET REQUEST HIGHLIGHTS

Supporting the U.S. Ocean Action Plan

Coastal and marine waters help support over 28 million jobs, and the value of the ocean economy to the United States is over \$115 billion. The commercial and recreational fishing industries alone add over \$48 billion to the national economy each year. The FY 2008 President's Budget requests \$123 million in increases for NOAA to support the President's U.S. Ocean Action Plan. This oceans initiative includes \$38 million to protect and restore marine and coastal areas, \$25 million to ensure sustainable use of ocean resources, and \$60 million to advance ocean science and research.

New investments in ocean science are aimed at monitoring and better understanding marine ecosystems. Increased funding of \$16 million is included for the Integrated Ocean Observing System to enhance models and information products through development of regional systems and improved data management and communications. A total increase of \$20 million is provided for NOAA research on four near-term priorities established through the national Ocean Research Priorities Plan. An additional \$8 million will support exploring and defining areas of the continental shelf that are adjacent to, but currently outside of, U.S. jurisdiction. This work will enable a U.S. claim to these areas and the potential \$1.2 trillion worth of resources they are estimated to contain.

The FY 2008 President's Budget builds on NOAA's strong record of investing in projects that embody the spirit of cooperative conservation. Projects to protect and restore valuable marine and coastal areas include funding of \$8 million for enforcement and

management activities in the recently designated Northwestern Hawaiian Islands Marine National Monument, and \$10 million for a project to restore nearly 1,000 stream miles of habitat for endangered Atlantic salmon and other fish species. A total of \$15 million is provided for the Coastal and Estuarine Land Conservation Program, to assist state and local partners in the purchase of high priority coastal or estuarine lands or conservation easements. Increased funding of \$3 million is also included to support Klamath River salmon recovery projects. Finally, an increase of \$5 million will support competitive grant programs focused on the Gulf of Mexico Alliance coastal resource priorities, as identified in the *Governors' Action Plan for Healthy and Resilient Coasts*.

Finally, the FY 2008 NOAA budget provides support to ensure sustainable access to seafood through development of offshore aquaculture and better management of fish harvests. The Administration will propose legislation to establish clear regulatory authority and permitting processes for offshore aquaculture. An increase of \$3 million is included to establish the regulatory framework to encourage and facilitate development of environmentally sustainable commercial opportunities. In addition, \$20 million in increases are provided to improve management of fish harvests, including \$6.5 million in increases to implement the new and expanded requirements of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, \$3 million for observer programs, and \$6 million for market-based approaches to fisheries management. Market-based approaches — such as Limited Access Privilege Programs (LAPPs) that provide exclusive privileges to harvest a quantity of fish — move fisheries management away from cumbersome and inefficient regulatory practices and have been shown to lead to lengthened fishing seasons, improved product quality, and safer conditions for fishermen. The Administration has set a goal of doubling the number of LAPPs in use by the year 2010, and the increased funding of \$6 million for LAPPs in this request supports that goal. Finally, an additional \$2 million in funding is provided to meet the management challenges of assessing and mitigating the impacts of sound from human activities, such as national defense readiness and energy exploration and development, on marine mammals.

Sustaining Critical Operations

As always, I support NOAA's employees by requesting adequate funding for our people, infrastructure, and facilities. NOAA's core values are science, service, and stewardship, as well as people, ingenuity, integrity, excellence, and teamwork. Our ability to serve the nation and accomplish the missions outlined below is determined by the quality of our people and the tools they employ. Our facilities, ships, aircraft, environmental satellites, data-processing systems, computing and communications systems, and our approach to management provide the foundation of support for all of our programs. Approximately \$54.6 million in net increases will support our workforce inflation factors, including \$44.9 million for salaries and benefits and \$6.6 million for non-labor related adjustments such as fuel costs.

This year, we focus on the operations and maintenance of NOAA vessels and necessary enhancements to marine safety, facility repair, and modernization. A funding increase of

\$8.3 million will be used to support marine operations and equipment, including \$5.6 million for new vessel operations and maintenance and \$1.7 million to implement a more effective maritime staff rotation and safety enhancements. This funding will support the operations maintenance for the OKEANOS EXPLORER, NOAA's first dedicated Ocean Exploration vessel. Increased funding of \$5.5 million will support operations and maintenance for NOAA's third P-3 aircraft. NOAA is also moving forward this year with increases in funding for unmanned vehicles, with \$0.7 million in support of Autonomous Underwater Vehicles (AUV) and an increase of \$3 million in funding to support the further use of Unmanned Aircraft Systems (UAS). With this increase, NOAA will evaluate the benefits and potential of using UAS to collect data crucial for climate models, weather research, fisheries enforcement, and coastal zone studies.

The backbone of the NOAA infrastructure is our integrated Earth observation effort. NOAA, NASA and the Office of Science and Technology Policy (OSTP) serve as the lead agencies for the federal government in developing our U.S. integrated Earth observing strategy. In addition, I serve as one of four intergovernmental co-chairs of the effort to develop the Global Earth Observation System of Systems. Building and maintaining state of the art satellite programs is an important component of NOAA's integrated observation efforts. An increase of \$25 million in the Polar Operational Environmental Satellite (POES) program continues support for development and acquisition of polar-orbiting weather satellites to improve weather forecasting and our understanding of the climate. This increase will allow NOAA to complete acquisition of this series of polar satellites and install and maintain instruments important to U.S. Government interests on the European MetOp partner satellite. Following the completion of the POES program, it will be replaced by the tri-agency National Polar-orbiting Operational Environmental Satellite System (NPOESS). This transition is expected in 2013. We will continue to partner with the Europeans on their MetOp satellite as NPOESS replaces our current POES satellites.

Improving Weather Warnings & Forecasts

Severe weather events cause \$11 billion in damages and approximately 7,000 weather-related fatalities yearly in the United States. Nearly one-third of the economy is sensitive to weather and climate. Realizing this, NOAA seeks to provide decision makers with key observations, analyses, predictions, and warnings for a variety of weather and water conditions to help protect the health, lives, and property of the United States and enhance its economy. Increased funding of \$2 million will accelerate research to improve hurricane intensity forecasts through targeted research for new models and observations. Another \$3 million will support the operations and maintenance of 15 hurricane data buoys in the Caribbean, Gulf of Mexico, and the Atlantic Ocean. Finally, NOAA continues to strengthen the U.S. Tsunami Warning Program with an increase of \$1.7 million to deploy additional deep ocean buoy (DART) stations. Strengthening the U.S. Tsunami Warning Program provides effective, community-based tsunami hazard mitigation actions including required inundation flood mapping, modeling, forecasting efforts and evacuation mapping, and community-based public education/awareness/preparedness for all U.S. communities at risk.

Climate Monitoring & Research

Society exists in a highly variable climate system, and major climatic events can impose serious consequences on society. The FY 2008 Budget Request contains investments in several programs aimed at increasing our predictive capability, enabling NOAA to provide our customers (farmers, utilities, land managers, weather risk industry, fisheries resource managers and decision makers) with assessments of current and future impacts of climate events such as droughts, floods, and trends in extreme climate events. NOAA is building a suite of information, products and services to enable society to understand, predict, and respond to changing climate conditions. These activities are part of the U.S. Climate Change Science Program and are being conducted in collaboration and coordination with our important interagency partners including NASA, NSF, and the Department of Energy. We will continue to expand and improve access to global oceanic and atmospheric data sets for improved climate prediction and development of climate change indicators. NOAA will support the critical National Integrated Drought Information System with increases of \$4.4 million to develop an integrated drought early warning and forecast system to provide earlier and more accurate forecasts of drought conditions. This request also supports the Administration's efforts to create a U.S. Integrated Earth Observation System. With an increase of \$0.9 million, we will support research on water vapor to refine climate models. In support of the Ocean Research Priorities Plan, NOAA will enhance our understanding of the link between ocean currents and rapid climate change with an increase of \$5 million in support of research on this topic. Finally, an additional \$1 million in funding will provide additional computational support for assessing abrupt climate change.

Critical Facilities Investments

The FY 2008 President's Budget Request also includes important increases for critical facilities, necessary to provide a safe and effective working environment for NOAA's employees. Of particular importance this year is the \$3 million funding increase to begin design of a replacement facility at the La Jolla Southwest Fisheries Science Center. NOAA is also requesting \$20.3 million for continued construction of the new Pacific Region Center on Ford Island in Honolulu, Hawaii. This increase in funding will allow NOAA to complete the exterior renovation of one of the Ford Island buildings, a crucial next step in the construction process.

NOAA's LEGISLATIVE INITIATIVES

We appreciate the Committee's interest in reauthorizing the *Hydrographic Services Improvement Act*, and we thank Senators Inouye and Stevens for introducing S. 1584 on behalf of the Administration. We support enactment of S. 1584, the *Hydrographic Services Improvement Act Amendments of 2007*, and look forward to working with the Committee to reauthorize this important legislation.

The *Hydrographic Services Improvement Act (HSIA)* was first enacted in 1998 and amended in 2002. The Administration's proposed bill to reauthorize the *HSIA* was

drafted to better ensure safe, efficient, and environmentally sound marine transportation, and to enhance and promote international trade and interstate commerce vital to the nation's economic prosperity via the Marine Transportation System. The Administration's bill clarifies the importance of NOAA's hydrographic data and services not only to navigation but also to habitat conservation, coastal resource management, emergency response, and homeland security.

NOAA provides the nation with nautical charts, as well as information on tides, sea surface water levels, and shoreline and geodetic positioning. NOAA's primary area of responsibility for charting is the U.S. Exclusive Economic Zone, an area including 3.4 million square nautical miles and 95,000 miles of national shoreline. NOAA's hydrographic and shoreline mapping programs deliver precise depths and positions of coastal features. The remote sensing technologies used reveal hazards to navigation such as rocks, wrecks and changes in man-made features. To aid 21st Century navigation, NOAA is now building a suite of Electronic Navigational Charts comparable to the paper nautical charts for U.S. waters. NOAA's tide and current measurements along with Physical Oceanographic Real Time Systems and coastal ocean forecasts inform mariners about changing weather and navigation conditions. NOAA's work on high accuracy positioning, using the Global Positioning System, delivers centimeter-level accuracy to navigate hazards and avoid overhead obstructions, such as bridges. Should an emergency occur, such as a hurricane or vessel collision, NOAA responds rapidly with surveys to find navigation hazards and reopen ports to maritime traffic, and with scientific support for hazardous material spill response and remediation.

The purpose of the Administration's bill is to reauthorize the *HSIA* for five years, and make changes to better ensure safe, efficient, and environmentally sound marine transportation and commerce. The marine transportation system is becoming increasingly congested, with the volume of international maritime commerce expected to double within the next 20 years. The programs and activities authorized by the *HSIA* also play an important role in the national response to natural and man-made disasters. For example, NOAA experts discovered the submerged wreckage of TWA Flight 800, took some of the first aerial images of Ground Zero after 9/11, and provided a substantial and vital response to hurricanes Katrina and Rita, including surveying affected waterways to facilitate the reopening of 13 major ports to commerce and relief efforts.

In addition to the *Hydrographic Services Improvement Act Amendments of 2007*, the Administration, through the Department of Commerce, has also transmitted two additional legislative proposals: the *National Offshore Aquaculture Act of 2007* and the *Coral Reef Ecosystem Conservation Amendments Act of 2007*. Again we thank Senators Inouye and Stevens for introducing these bills on behalf of the Administration, as S. 1609 and S. 1583, respectively. Enactment of each of these bills is a priority for NOAA and the Department of Commerce. We appreciate the actions taken by Members of the Committee to begin work on these pieces legislation and look forward to working with you to enact these important pieces of legislation in the 110th Congress.

CONCLUSION

NOAA's FY 2008 Budget Request provides essential new investments in our priority areas while maintaining critical services, reflecting NOAA's vision, mission, and core values. The work NOAA accomplished in 2006 impacted every U.S. citizen. We will build on our successes from last year, and stand ready to meet the challenges that will surface in FY 2008 and beyond. NOAA is dedicated to enhancing economic security and national safety through research and accurate prediction of weather and climate-related events, and to providing environmental stewardship of our Nation's coastal and marine resources. That concludes my statement, Mr. Chairman. Thank you for the opportunity to present NOAA's FY 2008 Budget Request. I am happy to respond to any questions the Committee may have.