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U.S. DEPARTMENT OF COMMERCE**

**ON THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION'S
FY 2013 BUDGET REQUEST**

**BEFORE THE
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
U.S. HOUSE OF REPRESENTATIVES**

March 6, 2012

Chairman Harris, Ranking Member Miller, and members of the Committee, thank you for your leadership and the continued support you have shown the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). I am honored to be here as the Under Secretary of Commerce for Oceans and Atmosphere and Administrator for NOAA to discuss the FY 2013 President's Budget. The FY 2013 budget is essential to ensuring that we can meet the Nation's demands for accurate weather prediction today and in the future, safe, navigable waterways, well managed coastal resources, sustainable fisheries, and robust climate analysis and prediction services. To ensure that we can deliver on these core services, we have prioritized our activities, made limited targeted investments, reduced or terminated activities that while important could not be accommodated in the current fiscal environment without threatening our capacity to deliver our core services and sought out administrative efficiencies to ensure that every dollar is maximized.

President Obama has spoken about moving America forward and laying out a blueprint for an economy that is built to last. Secretary Bryson has answered this charge, tasking the Department of Commerce to assist Americans by fostering economic recovery and increasing U.S. competitiveness. As part of the effort, NOAA will strengthen our core foundational programs, such as the Nation's next generation weather satellites; promote sustainable fisheries and the fishing industries; invest in weather and ocean science; and work to sustain coastal resources, communities, and economies. We will work towards a society that is prepared for, and responds to, weather-related events, and we will provide timely access to environmental information from satellites and other scientific technologies.

Just as every citizen depends on NOAA for timely weather information, from the 5-day forecast to life-saving weather alerts, so too do businesses rely on NOAA. NOAA weather services help airlines save millions of dollars and operate safely by avoiding severe weather. Marine shipping companies (transporting 78 percent of the goods into and out of the United States¹) and

¹ 2003. *U.S. International Trade and Freight Transportation Trends*. May

fishermen (putting healthy seafood on our plates or enjoying a family day out on the water) all trust NOAA's nautical charts and tide and current data to operate safely and efficiently. Farmers rely on our long-range forecasts to decide which crops to plant and when. Coastal communities rely on NOAA's stewardship of fisheries and coastal resources to support local industries, such as tourism and fish processors. The list goes on and on. It is hard to imagine a sector of the economy that does not depend on NOAA in one way or another. We support stewardship that makes economic sense for a healthy environment and economy, and invest in science for today for a better tomorrow.

The FY 2013 President's Budget will:

- (1) Provide life-saving and job-supporting services needed to prepare and protect American citizens, communities, businesses and infrastructure;
- (2) Provide the core scientific information underlying our mission, and
- (3) Invest in the resiliency of our vibrant coastal communities.

The NOAA budget reflects difficult choices and continues our commitment to find efficiencies in our operations while seeking new partnerships.

FY 2013 BUDGET REQUEST AND FY 2011 HIGHLIGHTS

The NOAA FY 2013 proposed budget totals \$5.1 billion, an increase of \$153.9 million, or 3.1 percent above FY 2012. NOAA's staff of dedicated professionals, working with extramural researchers, industries, and domestic and international partners, are expanding meteorological prediction capabilities; enhancing our knowledge of climate change; improving coastal resource management; continuing to chart our seas and coasts; and enhancing environmental stewardship. NOAA is committed to understanding and monitoring our oceans and atmosphere, predicting changes in the Earth's environment, and conserving and managing ocean and coastal resources, while making sure that we deliver as economically as possible the highest level of service.

President Obama has called upon the entire federal government to be more efficient and effective. As a result, the Department of Commerce continues to seek ways to improve the efficiency of programs without reducing their effectiveness. Building on NOAA's FY 2012 savings of \$67.7 million, an additional \$15.8 million in savings is targeted for FY 2013.

NOAA had numerous outstanding accomplishments in FY 2011. NOAA and the Natural Resource Damage co-trustees reached an unprecedented agreement with British Petroleum (BP) to provide \$1 billion for early restoration projects in the Gulf of Mexico, as a down payment for economic and ecological recovery from the 2010 Deepwater Horizon oil spill. NOAA put in place annual catch limits and accountability measures for almost all 528 federally-managed fish stocks and complexes, ensuring that the Nation's fisheries are on the long path to sustainability. NOAA skillfully forecasted Hurricane Irene's track with a 48-hour track error of 71 nautical miles – 20 percent better than the 5-year mean of 90 nautical miles. And NOAA's National Weather Service (NWS) forecasters were able to issue warnings well in advance of numerous record-breaking severe weather events, such as 4-month advanced warnings for emergency managers and citizens about severe flooding in the mid-west. These accomplishments set the stage for our FY 2013 request.

The FY 2013 budget request focuses on three core mission areas, beginning with the need for a Weather-Ready Nation.

Weather-Ready Nation: Communities that are Ready, Responsive, and Resilient

Record weather and climate disasters occurred in 2011, including extreme drought, heat waves, floods, unprecedented tornado outbreaks, hurricanes, wildfires, a tsunami, and winter storms. Tornadoes, hail, and severe thunderstorms caused an estimated \$46.5 billion in economic losses (\$25.8 billion in insured losses) in the United States. Sadly, 2011 was the deadliest tornado season since 1936, with 552 direct fatalities.

More and more sectors of the U.S. economy are looking for ways to increase their resilience to severe weather and reduce the potential of significant societal and economic impacts. Even though NOAA was able to provide advanced warning of many severe events this year, the loss of life and property was still too high. To address these issues, NWS launched a new initiative this year called Weather-Ready Nation. NOAA envisions a Weather-Ready Nation as a society that is prepared for, and responds to, weather-related events. The FY 2013 President's Budget supports the highest priority core requirements necessary to address NOAA's Weather-Ready Nation goal, requesting \$972.2 million for the NWS. The request allows the NWS to produce and deliver accurate and timely forecasts, provide services in a cost-effective manner, continue to work with communities and emergency managers to reduce weather-related fatalities, and improve the economic value of weather, water, and climate information.

A nationwide survey indicates that 96 percent of the U.S. public obtains, either actively or passively, 301 billion forecasts each year. Based on an average annual household value of \$286 placed on weather information, the American public collectively receives \$31.5 billion in benefits from forecasts each year.²

The FY 2013 budget includes an increase of \$7 million to support the critical upgrade and update of the NWS Telecom Gateway, the backbone of NWS's information delivery system, and an increase of \$12.4 million for ground system readiness to ensure that the NWS is prepared to ingest data coming from NOAA's new weather satellites. While these increases are required, NWS has developed a new more cost-effective IT service delivery solution for maintaining the IT systems at the 122 Weather Forecast Offices (WFOs). NWS requests a decrease of \$9.7 million to consolidate Information Technology Officer positions at each WFO into regional IT collaboration units reducing staffing requirements by 80 percent without affecting the quality of services including warnings and forecasts. Reducing staff is never easy and NOAA is committed to making every effort to reduce staffing through attrition and explore offering buyouts or early retirement.

NOAA's Office of Oceanic and Atmospheric Research (OAR) oversees the scientific investments that ensure NOAA's weather and climate information is state of the art. The FY 2013 request of \$413.8 million for OAR focuses on the highest priority and most essential services for building a future Weather-Ready Nation. OAR research continually improves our

² J. K. Lazo, R. E. Morss, J. L. Demuth, 300 billion served: sources, perceptions, uses, and values of weather forecasts. *Bulletin of the American Meteorological Society*, 90(6). (June, 2009).

warning systems and predictive capacity with programs such as the on-going development of the next generation of weather radars, Multifunction Phased Array Radar, and hurricane models that are now in operation at the National Hurricane Center. One of the largest investments NOAA is making in FY 2013 is an increase of \$28.1 million for a total of \$212.7 million in climate research in OAR (A total of \$342 million is proposed to support the U.S. Global Change Research Program). These funds—much of which will be competitively awarded to academic institutions-- will improve our understanding of the changing climate system and its impacts through more sophisticated climate modeling, national assessments, external and private-sector partnerships, as well as regional climate information and delivery. Easily accessible and relevant information is required to help communities better prepare for these events and make informed decisions. Within that funding level, continued development and use of state-of-the-art Earth System Models to address urgent climate issues, including sea level rise and Arctic climate change, will be supported by an investment of \$8 million, and an increase of \$4.6 million in Arctic monitoring and full ocean depth profiling floats will improve seasonal forecasts, as well as our ability to chart ocean and sea ice levels. The OAR request also includes an investment of \$855 thousand to support research into wind boundary layers, a fertile area for clean energy generation.

Further support for a Weather-Ready Nation is found in the FY 2013 budget request for NOAA's fleet, with a request of \$241.1 million for the Office of Marine and Aviation Operations. These vessels and airplanes are data acquisition platforms crucial to providing scientific observations and maintaining our observing systems. This budget requests an increase of \$2.0 million to provide for more flight hours that will be used for hurricane reconnaissance and research missions aimed at improving hurricane intensity forecasts, as well as observations for accurate and reliable winter storm warnings and forecasts, snow pack surveys, and ocean wind data.

NOAA missions, from issuing accurate hurricane warnings to providing timely weather forecasts and accurate seasonal predictions, depend on data from an integrated suite of observing systems. These systems provide a global picture of the atmosphere and oceans, as well as high-definition 3-dimensional views of individual storms. I turn next to a crucial component of the suite - NOAA's geostationary and polar-orbiting satellites.

Satellites: High-tech Environmental Observations that Help Protect Lives and Property

One of the greatest challenges facing NOAA today is ensuring continuity of satellite operations. NOAA's satellites provide the data and information for forecasts and warnings that are vital to every citizen. From safe air, land, and marine transportation to emergency rescue missions, Americans rely on satellite observations daily. Timely and accurate information supports the NWS, federal and state agencies, and local emergency management agencies, enabling advance warnings of emerging severe weather such as hurricanes, flash floods, tsunamis, winter storms, and wild fires. Along with the skill of NOAA meteorologists, NOAA's satellites are critical to the success of national forecasts and are the backbone of the global earth observing system and the global weather prediction capability. Satellite observations also assist NOAA's National Ocean Service (NOS) in monitoring coastal ecosystem health, such as coral bleaching, and identifying and monitoring potential maritime hazards from sea ice – key issues addressed in the National Ocean Policy. Although satellites do not observe fish stocks directly, the National

Marine Fisheries Service (NMFS) can utilize satellite measurements such as sea-surface temperature, sea-surface height, ocean color, ocean winds and sea ice to characterize critical habitat that influences marine resources.

The FY 2013 President's Budget Request of \$2.0 billion for NOAA's National Environmental Satellite Data and Information Service (NESDIS) supports the highest priority and most essential services for developing, acquiring, and managing satellite and satellite data operations. The Joint Polar Satellite System (JPSS) and the Geostationary Operational Environmental Satellite-R Series (GOES-R) programs are two of NOAA's highest priorities. The FY 2013 request reflects the need for increases within the satellite portfolio necessary to maintain these crucial instruments. This includes a planned increase of \$186.4 million for the GOES-R program, as well as an investment of \$9.4 million for data processing and distribution for the Suomi-National Polar-orbiting Partnership mission and the same support for the follow-on program, JPSS.

The next generation of GOES-R is expected to be launched by 2015, and will become fully operational by 2017. The increase in FY 2013 President's Budget for GOES-R is necessary to secure the launch vehicle and support further development of the satellite and its instruments. This series of satellites will include upgraded technology, such as an improved Advanced Baseline Imager (ABI), which will provide faster and higher-resolution image scans, covering a larger geographic area. Enhanced ABI capabilities will help decrease forecast error and expand the list of geostationary products NOAA offers. Improved tropical forecasts from GOES-R products are expected to prevent annual losses to the recreational boating industry valued at \$31 million in 2015.³ The new ABI technology will also enhance volcanic ash plume tracking, so pilots can receive advance warning and be routed around the damaging and deadly plumes. The annual net economic benefit to the airline industry from these enhancements is estimated to be \$58 million in 2015.⁴

NOAA satellites also help forecast energy demands for communities, largely based on temperature forecasts. GOES-R data will allow for more accurate temperature forecasts, thereby enabling energy providers to better prepare for changes in energy demand. Annual savings for the energy sector are expected to be \$256 million in 2015.⁵ Finally, improved information from GOES-R will enable researchers and forecasters to produce more accurate forecasts. That, in turn, will result in irrigation water being used more efficiently by farmers. The projected annual net economic benefit for the agricultural sector is valued at \$30 million in 2015.⁶

Thanks to the Committee's support, the FY 2012 appropriation provides a foundation for NOAA to make significant progress towards developing the Nation's next generation polar orbiting satellite system, the JPSS, and we understand that the overall cost of this program needs to be contained. The FY 2013 President's Budget proposes to cap the total life cycle cost of JPSS at

³⁻⁶ Centrec Consulting Group, LLC. *An Investigation of the Economic and Social Value of Selected NOAA Data and Products for Geostationary Operational Environmental Satellites (GOES)*. Report to NOAA's National Climatic Data Center. Savoy, IL. (February 27, 2007); <http://www.centrec.com/resources/reports/GOES%20Economic%20Value%20Report.pdf>

\$12.9 billion and target a launch date for the second quarter of 2017 to minimize the duration of any gap between the recently launched Suomi NPP satellite and JPSS. However, we are still at significant risk. We are almost certain that a gap in polar observational satellite data will occur from the projected end of life of the current polar mission to the beginning of the operational JPSS mission. The loss of NOAA's polar-orbiting satellite data would result in an immediate degradation to weather forecast models, impacting NOAA's ability to provide advance warnings of severe weather that help to protect lives and property.

NOAA is conducting a comprehensive reevaluation of its space-based observation requirements with a goal to maintain and acquire critical services that meet the Nation's national environmental data needs. NESDIS will continue to pursue collaborative opportunities with other national and international agencies and organizations and partner with industry, academia, and other research and development agencies. These partnerships will bring robust information and service delivery to our customers and invest in effective relationships with stakeholders. In particular, NESDIS will continue participating in global partnerships, such as with the European Organization for the Exploitation of Meteorological Satellites, to help the United States and Europe provide increased capability to monitor global weather and climate.

The third core mission area I wish to highlight grows out of NOAA's services, stewardship, and scientific work to restore vitality to the Nation's coastal population and economy.

Vibrant Coastal Communities

The Nation's coastal population is expected to increase by more than 13.6 million by 2020.⁷ In addition, over half of the U.S. Gross Domestic Product is generated in coastal counties.⁸ To meet the demands of a burgeoning coastal population and a productive economy, NMFS and NOS play critical roles in supporting sustainable resources that in turn support sustainable industries and jobs and also provide services that make businesses more efficient and safe. NMFS serves the Nation through a science-based stewardship of living marine resources, while NOS activities support sound decision-making for human, ecological, and economic health.

The FY 2013 President's Budget reflects some difficult choices. The budget proposes reductions to or closures of programs in order to support core coastal and ocean stewardship programs. Our coastal economies provide the Nation with goods through our ports, food from the sea, and vacation destinations for our families and international travelers. Our coastal communities help make our economy strong. Despite the cuts in this area, NOAA's commitment to providing services that support, protect, and serve our coasts is strong.

The commercial and recreational fishing industries depend on healthy and abundant fish stocks, habitats, and marine ecosystems to provide lasting jobs, food and recreational opportunities. In total, our Nation's fisheries supported 1.5 million full and part-time jobs and contributed \$79 billion to GDP, \$183 billion in sales in 2010.⁹ Further, the jobs supported by the commercial fishing industry

⁷ NOAA's State of the Coast, <http://stateofthecoast.noaa.gov>

⁸ State of the U.S. Ocean and Coastal Economies, NOEP 2009

increased from 2009 to 2010 by 16 percent, from 1 million to 1.2 million.¹⁰ Fully rebuilt, U.S. fisheries are anticipated to contribute \$92 billion to GDP and support 2 million jobs.¹¹ Recreational fishing is also an important industry as trip related expenditures contributed \$23 billion to GDP, \$50 billion in national sales impacts, and supported more than 326,000 full and part-time jobs across the U.S. in 2010.¹² In 2010, an estimated 11 million recreational saltwater anglers took 73 million saltwater fishing trips, spending \$4.3 billion on trips and \$15 billion on durable fishing equipment, such as rods and reels, boats, second homes and other goods.¹³

NOS products and services, which are derived from surveys and observations, are perhaps the most visible example of NOS support for the American economy and workforce. More than 78 percent of U.S. overseas trade (by volume) and 43.5 percent (by value), including nine million barrels of imported oil daily, transits through our seaports¹⁴. Port activities alone are responsible for 8.4 million American jobs and nearly \$2 trillion in economic output¹⁵. NOS navigation charts, tide data, and other tools serve as the marine transportation “information infrastructure” that enables marine transportation users to optimize economic opportunity.

NOAA serves as the trustee for thirteen national marine sanctuaries. Across all national marine sanctuaries, about \$4 billion is generated annually in local coastal economies from diverse activities which include: commercial and recreational fishing, research, recreation-tourist activities such as whale watching, snorkeling and diving on coral reefs and recreational boating. The National Marine Sanctuaries support about 50,000 jobs in diverse activities ranging from fishing and diving to research and hospitality.¹⁶ A study completed in 2000 estimated that Massachusetts alone accounted for nearly 80 percent of New England whale watching tour totals, generating \$31.3 million; virtually all of Massachusetts whale watching occurs in Stellwagen Bank National Marine Sanctuary.¹⁷

With the FY 2013 budget request of \$880.3 million for NMFS, NOAA remains committed to putting America’s fishing industry on a sustainable and profitable path through targeted investments in fisheries science, observer, and enforcement programs. Additional targeted funding for NMFS includes increases of \$4.3 million to expand stock assessments and \$2.3 million for Survey and Monitoring projects. Funds will be targeted at high priority commercially and recreationally valuable stocks, those that limit the catch of these valuable stocks due to high scientific or management uncertainty, and those that were previously experiencing overfishing to verify that overfishing has ended. Funds will be used to improve fishery-independent surveys using advanced sampling technologies such as optical and acoustical methods. The FY 2013 President’s Budget includes an increase of \$4.2 million for the NMFS National Observer Program. The requested increase will support observing and monitoring for fisheries currently under catch share management and those expected to transition to catch shares in FY2013. This

^{9,10,12} Fisheries Economics of the United States, 2010 (*forthcoming, not yet published*)

¹¹ NOAA Fisheries internal analysis based upon NMFS Commercial Fishing and Seafood Industry Input-Output Model (see: <https://www.st.nmfs.noaa.gov/apex/f?p=160:1:916796370801116::NO>)

¹³ Fisheries Economics of the United States, 2010 (*forthcoming, not yet published*)

¹⁴ 2003 Pocket Guide to Transportation Table 5-5, U.S. Department of Transportation

¹⁵ <http://www.economics.noaa.gov/>

¹⁶ <http://sanctuaries.noaa.gov/science/socioeconomic>

¹⁷ Hoagland, Porter and Andrew E. Meeks. The Demand for Whale watching at Stellwagen Bank National Marine Sanctuary. Marine Policy Center, Woods Hole Oceanographic Institution. 2000

funding will allow NOAA to provide coverage in approximately 47 fisheries nationwide. Investment in enforcement activities will sustain the hard work to implement reforms following the 2010 Inspector General Report while also maintaining focus on the important work of enforcement. To make these targeted investments, the FY 2013 budget proposes to consolidate and streamline certain activities to reduce costs and decrease or terminate funding for lower priority programs. For example, NOAA's request includes a \$5.0M reduction across numerous programs to consolidate and reconfigure NMFS' West Coast regional management offices. Under this proposal, the Southwest and Northwest Regional Offices will be reconfigured into a single West Coast Regional Office. NOAA also proposes to close the James J. Howard Lab at Sandy Hook and the Pacific Environmental Research Lab at Pacific Grove, relocating staff to other facilities. Activities that are supported at these facilities are necessary for the NMFS mission, however it can be conducted more cost-effectively at other NOAA facilities.

In the FY 2013 Budget, NOAA requests \$478.1 million for NOS to support the economic sustainability of coastal communities. NOAA has made a few targeted investments in the FY 2013 budget submission for NOS including a \$10 million increase to develop and improve marine sensors that will monitor changing conditions in the oceans, coasts, and Great Lakes. This, along with our existing observational capabilities, will enhance our stewardship capabilities across a wide range of objectives outlined in the National Ocean Policy. A \$2.0 million increase to expedite the restoration of polluted sites subject to natural resource damage assessments. Some of these cases represent hundreds of millions of dollars in potential settlements. Finally, a \$2.0 million investment in extramural research is requested to strengthen our continued focus on harmful algal bloom, hypoxia, and ecosystem research.

NOAA's fleet is crucial to providing scientific platforms in support of NMFS and NOS. An increase of \$10.7 million will allow NOAA to perform a Major Repair Period on the *Thomas Jefferson*, NOAA's primary hydrographic survey vessel. Major Repair Periods are critical to ensuring the ongoing health and well-being of NOAA's fleet; without these periodic refurbishments, ships would be taken out of service. Finally, an additional \$1.5 million is requested to complete the post-construction evaluation of FSV 6, our newest fisheries survey vessel.

Conclusion

Overall, NOAA's FY 2013 Budget Request reflects the commitment that Secretary of Commerce Bryson and I have made to the President to contribute to growing a strong economy that is built to last while being fiscally responsible and helping to reduce the Nation's deficit. As we make tough choices, we remain committed to our core mission because we know that Americans rely upon us each and every day. The resources that are requested in this budget are critical to the ongoing success in creating a Weather-Ready Nation, ensuring access to reliable scientific data, and achieving vibrant coastal communities. I look forward to working with the Members of this Committee and our partners and constituents to achieve the goals I articulated through the implementation of the FY 2013 budget. Thank you for the opportunity to present NOAA's FY 2013 Budget Request. I am happy to respond to any questions from the Committee.