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U.S. DEPARTMENT OF COMMERCE

ON THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION'S
FY 2014 BUDGET REQUEST

BEFORE THE
SUBCOMMITTEE ON FISHERIES, WILDLIFE, OCEANS, AND INSULAR AFFAIRS
COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

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Chairman Fleming, Ranking Member Sablan, 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). As the Acting Under Secretary of Commerce for Oceans and Atmosphere and the Acting Administrator for NOAA, I am honored to be here to discuss the FY 2014 President's Budget. The FY 2014 budget proposal represents a focused and balanced commitment to our core mission of science, service, and stewardship. The proposal better positions NOAA to help communities across the country safeguard lives, prepare for extreme weather events, adapt to a changing world, ensure environmental sustainability, and enhance economic prosperity.

Let me begin with the bottom line: NOAA was very effective last year providing environmental intelligence to help American citizens, businesses, and governments make smart decisions on a range of issues on local to global scales. The real testament to NOAA's value is not found in a spreadsheet; it is seen in the services rendered to the American people.

For example, this past October, NOAA mobilized programs and efforts from across the agency to help the public prepare for, respond to, and recover from Hurricane/Post-Tropical Cyclone Sandy (Sandy). In the weeks prior to Sandy, NOAA used models informed by satellite, aircraft, and other weather observations to predict the path of the storm. NOAA gave emergency personnel and the public an accurate track forecast a full four days before the October 29 U.S. landfall. We also provided forecasts of total rainfall, storm surge, wave height, and other phenomena that would impact the mid-Atlantic and northeastern states. Our accurate predictions enabled emergency managers to more precisely evacuate coastal areas in the path of this unprecedented storm, saving countless resources and lives.

Once the storm passed through the Northeast, NOAA coordinated with Federal, State, and local agencies to aid on-the-ground responders to help communities get back on their feet. For example, NOAA vessels were instrumental in identifying and clearing marine hazards blocking

New York and New Jersey ports, enabling ships to provide critical fuel resupply just days after the storm. Maritime traffic resumed more quickly thanks in good part to NOAA regional navigation managers embedded within command centers and survey assets we mobilized rapidly after the storm passed. In addition, NOAA planes and scientists conducted aerial surveys of the affected coastlines and immediately published the photos online, allowing emergency managers and residents to examine the damage even before ground inspections were permitted. More than 3,000 miles of coastline were surveyed, and more than 10,000 images processed to document coastal damage and impacts to navigation.

NOAA is now working to help affected communities recover. The President recently signed into law the Sandy Supplemental bill, appropriating $326 million to NOAA that will enhance our ability to help coastal States recover from the impacts of Sandy. The technical tools and information coastal programs provide—such as coastal inundation products, maps, and storm surge modeling capabilities—are helping communities rebuild in a manner that is smarter and safer, and improvements in our forecasting capabilities will ensure that we are better prepared for similar events in the future. NOAA's integrated response to Sandy demonstrates how our agency leverages its diverse capabilities to support the nation from preparedness to response to recovery: **data** collected from a spectrum of platforms enables the development of **environmental intelligence** from science-based models to support a suite of **products** to provide decision support to individuals, communities, and governments. I thank you for recognizing NOAA as a key agency supporting the preparedness, response, and recovery efforts surrounding this extreme weather event.

As mentioned previously, a primary focus in the President's FY 2014 budget request is to move towards a balanced approach to our core missions on several fronts: balancing ocean and atmospheric investments, internal and external funding, research and operational advancements, and short-term and long-term goals. The President's budget rejects the notion of "wet side" programs being pitted against "dry side" programs. We instead embrace both because in reality the success of either is advanced by the achievements throughout the organization. We have evidence from NOAA's 40+ years in operation that our effectiveness and value to the American public stems from rich cross-pollination and effective fusion of capacities and information across all agency programs.

This budget requests support for both work done within NOAA and the work performed by a variety of external partners. This balanced approach allows us to draw from the best expertise no matter where it is found. Similarly, the request better balances our investments in "research and development" and "operations" and supports action to transition R&D to operations, ensuring that long-term scientific inquiry is applied to improve our service to the nation.

These investments also reflect a commitment to the final facet of balance: short-term and long-term. Today's priorities may require surges in resource for immediate action, but we cannot ignore the investments in habitat restoration, basic research, and other programs that set the stage for long-term environmental sustainability and future service advancements. The President's budget proposal moves toward equilibrium between the push-pull of responding today and preparing for tomorrow by putting a down payment toward balance in NOAA's activities.

FY 2012 ACCOMPLISHMENTS

NOAA accomplished many noteworthy milestones and outcomes in FY 2012 in each of our mission areas. Natural disasters – Hurricane Isaac, tornadoes, blizzards, droughts, and wildfires – affected communities across the United States, exacting a tremendous toll on life and property. In advance of these events, the National Weather Service (NWS) provided timely and accurate forecasts and extensive decision support services. In the coming years, we expect to provide even better advance warnings due to implementing major improvements to our Global Forecast System that will produce more accurate forecasts out to 16 days.

NOAA's Office of Oceanic and Atmospheric Research (OAR) developed a new-generation weather research model, the High Resolution Rapid Refresh model (HRRR) to improve the reliability and accuracy of NOAA forecasts for high-impact weather events. The potential public safety benefits of this advancement were apparent in the June 29, 2012 Derecho event. Running on research supercomputers in our Earth Systems Research Laboratory, the HRRR model predicted the storm's development and path in excellent detail.

NOAA also further advanced its drought forecasts and services – helping the communities and people most affected by the record drought conditions. 2012 ended as one of the driest years on record with over 60 percent of the contiguous United States in moderate to extreme drought. The National Integrated Drought Information System (NIDIS), an interagency partnership led by NOAA, provided drought information and early warning throughout this crisis. NIDIS was actively engaged throughout the drought to provide the right information to the people who needed it most via its drought portal (Drought.gov) and regular interactions with people in affected counties. NIDIS products gained attention in national media, including the *Wall Street Journal* on January 2, 2012, which carried one of the outlooks created by NIDIS.

On October 28, 2011, NOAA and NASA successfully launched and commissioned the Suomi National Polar-orbiting Partnership (Suomi NPP) environmental satellite. This satellite carries five new instruments, including the Advanced Technology Microwave Sounder (ATMS) that captures atmospheric temperature and water vapor information used to predict weather. Just seven months after Suomi NPP launched, the NWS began using ATMS data in its operational numerical weather prediction models; this is more than three times faster than operational use of similar data in previous missions.

NOAA's National Ocean Service (NOS) continued mapping missions of the Arctic extended continental shelf, mapping more than 600,000 square nautical miles of the ocean bottom that could enable the United States to lay claim to natural resources estimated to be worth $1.2 trillion. NOAA's Physical Oceanographic Real-Time System (PORTS®) improves the safety and efficiency of maritime commerce by integrating real-time environmental observations, forecasts, and other information for mariners transiting the nation's major ports. In FY 2012, two new PORTS® were brought online – one in Humboldt Bay, CA and the other in New London, CT – benefiting commercial, military, and recreational ship traffic. NOAA is planning to bring two additional PORTS® online in FY 2013-2014.

Our Nation's fisheries are a valuable component of the U.S. economy; commercial and recreational saltwater fishing generated more than $199 billion in sales and supported nearly 1.7

million jobs in 2011.[1] In FY 2012, NOAA declared six fish stocks rebuilt—the most in a single year. Overall data show a decrease in the number of both overfished stocks and stocks experiencing overfishing.[2] These results underscore the strength of NOAA's science-based management process and clearly demonstrate that we are actively turning the corner on ending overfishing and rebuilding our Nation's fisheries.

All of these accomplishments set the stage for our FY 2014 request.

FY 2014 BUDGET REQUEST

The NOAA FY 2014 budget request totals $5.4 billion. The topline number is an increase of $541 million over the FY 2012 Spend Plan. This increase during difficult budget times demonstrates the Administration's response to Congressional and stakeholder feedback on the need to achieve a balanced portfolio within NOAA's budget. It also shows confidence that NOAA has strategically focused on its core, essential missions – and that these public funds will be spent to benefit the Nation.

We are proposing changes to specific programs within this top line number that demonstrate our commitment to NOAA's multiple missions and needs. We are making targeted investments in ocean and coastal programs while continuing to invest in weather and satellites. We are investing in initiatives to expand and accelerate the transition of weather research to operations ($15 million). We are also continuing to leverage external expertise to support cutting edge research ($184 million), while maintaining our internal abilities to maintain our research portfolio to meet our mission requirements. We are investing in our immediate needs, such as continuing development activities within the GOES-R program, and providing adequate funding NWS labor, while supporting longer-term goals like funding marine debris research ($6 million) and habitat conservation and restoration ($47 million) to ensure the health of NOAA trust resources.

The FY 2014 budget request also reflects thrift and savings, with a targeted $4.2 million in agency-wide administrative savings. Most notably, we have reconfigured the JPSS satellite program resulting in a reduction of approximately $1.6 billion when compared to the FY 2013 President's Budget life-cycle cost estimate of $12.9 billion. An additional $3.2 million reduction is requested for NOAA's Corporate Services. Trimming costs and working smarter makes appropriated dollars go farther and fulfills our obligation to taxpayers.

This proposed budget reflects NOAA's priority investment in three focus areas within our larger mission: Weather-Ready Nation, satellites, and vibrant coastal communities and economies.

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

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[1] *Fisheries Economics of the United States 2011,* available at: http://www.st.nmfs.noaa.gov/economics/publications/feus/fisheries_economics_2011

[2] An "overfished" stock refers to a stock with a population that is too low, below a prescribed threshold. A stock experiencing "overfishing" refers to a stock experiencing a rate of removal that is too high. *Status of Stocks: Report on the Status of U.S. Fisheries for 2011,* available at: http://www.nmfs.noaa.gov/stories/2012/05/docs/status_of_stocks_2011_report.pdf.

When it comes to severe weather preparedness, near-term investments to improve forecasts' accuracy and lead-times can produce dramatic future savings of life, property, and habitat. The great need for such investments was demonstrated over the past two years when 1,500 Americans perished as a direct result of weather-related events. Last year alone, the U.S. experienced 11 disasters, each of which reached the $1 billion threshold in losses, including Sandy, Hurricane Isaac, tornado outbreaks across the Great Plains, Texas, and Southeast/Ohio Valley, the most extensive drought since the 1930's, and wildfires that burned more than 9.2 million acres.[3] Countless other weather events not in the "billion dollar" category caused widespread damage throughout the country. More and more leaders in various sectors of the U.S. economy are looking for ways to increase their resilience to severe weather and reduce the potential for significant societal and economic impacts. NOAA's "Weather-Ready Nation" initiative supports actions that help society prepare for, and respond to, extreme weather-related events.

One of NOAA's paramount obligations to the Nation is the ability to issue accurate, timely, impact-focused weather forecasts and life-saving warnings for communities across the country. Increasing societal and economic impacts of extreme weather demand that NOAA continue to improve forecasting capabilities. The FY 2014 budget requests $1,050.1 million for the NWS and supports the highest priority activities necessary to produce and deliver cost-effective and trustworthy forecasts and warnings that promote preparedness and resilience to weather-related impacts. Specifically, a total of $658.2 million is requested that will fully fund existing field staffing and ongoing operations.

NOAA also continues to assess options for improving efficiencies within our operations. The 2012 National Academy of Sciences report, *Weather Services to the Nation: Becoming Second to None*, found that the current structure of the NWS primarily reflects the functions of the weather, water, and climate enterprise in the 1990s. The current, outdated service delivery model has redundancies and inconsistencies, and significant benefits can be realized through modernization of functions and operational models. Becoming more agile and efficient and promoting wise use of taxpayer dollars is the essence of good government.

As a first step, the NWS has identified improvements and efficiencies to be realized in the delivery of IT support services to field. NOAA proposes to reorganize the current 122 office-specific ITOs to a regional team approach consisting of 24 positions, enabled through commonplace IT industry hardware and software practices that foster innovation and collaboration. NOAA recognizes that any changes to staff structure will affect our employees and their families. Working with our employees' union, we will make every effort to modify the current ITO staffing structure through repurposing into other positions, reducing through attrition, or reassigning to other vacancies to minimize the impact to our affected employees.

The Japan earthquake and Pacific tsunami highlighted the need for advancing tsunami preparedness and forecasting. A total request of $26.9 million expands NOAA's partner funding for tsunami education and awareness programs and, additionally, ensures funding for sustaining the Deep-ocean Assessment and Reporting of Tsunamis (DART) buoy network.

[3] http://www.ncdc.noaa.gov/billions/events.pdf

Our forecasters must have robust, 24/7 environmental data to fulfill our mission. To provide this and also accommodate increases in future weather data from new satellites and other observations, NOAA proposes to invest $16.2 million in the NWS Telecommunications Gateway, the communications hub that collects and distributes weather data and products. An investment of $15.4 million in the Ground Readiness Project will expand the capacity of the organization's current IT infrastructure to ensure critical data is available to forecasters. NOAA also proposes in this budget to formally establish the National Mesonet Program, with a request of $5.5 million to promote the use of mesonet data. This request enables NWS to procure and use surface and near-surface, localized weather data in forecasts and warnings of small-scale, high impact weather events that can quickly threaten lives and property.

The FY 2014 NWS request also recognizes the importance of discovery and innovation, and strengthens our ability to transition advances into operational forecasts. A total request for $94.7 million will help to expand and accelerate R&D on improving global weather prediction models, accelerating data assimilation techniques, and developing new computing platforms. In addition, a request for $44.2 million for weather supercomputing will increase the accuracy and timeliness of operational weather predictions and, along with proposed investments in data assimilation and modeling, will help ensure that the United States keeps pace with the major international weather centers, such as the European Center for Medium Range Weather Forecasts and the United Kingdom Office of Meteorology.

Additional R&D funds that support the NWS mission are requested for the Office of Oceanic and Atmospheric Research (OAR). OAR's atmospheric programs oversee the scientific investments needed to ensure NOAA's weather and climate information is state-of-the-art.

OAR research continually improves our weather warning systems and predictive capacity with the next generation of observing platforms, such as multifunction phased array radar and unmanned aircraft systems. The FY 2014 budget requests $18 million to support the development and use of these observing platforms, and for system assessment methodologies to ensure that NOAA has the most cost effective mix of observing assets for weather forecasting and related missions. The FY 2014 request also includes $13.6 million to develop Regional Drought Early Warning Information Systems by supporting drought impacts research and developing applications for underserved regions in the United States. And finally, an investment of $2.9 million is requested to improve weather forecasts through wind layer boundary research. Better forecasts can provide certainty, and therefore opportunities, to the clean energy industry.

The FY 2014 budget also recognizes a need to continue improving our understanding of climate change and its impacts on society. NOAA requests $65 million for our climate research laboratories and Cooperative Institutes to implement climate research and activities that align with the U.S. Global Change Research Program priorities, such as monitoring the deep ocean, better understanding carbon sources and sinks, and developing hydroclimate models for drought prediction. Research in these areas will improve our ability to assess current and future states of climate systems that in turn helps people across the country consider and develop mitigation and adaptation choices. The increased demand for projections of climate change at regional scales requires greater resolution, realism, and reliability in models. OAR requests $9.6 million to improve modeling and predictions, including developing state-of-the-art earth system models to better address urgent climate issues, such as Arctic climate change and sea level rise.

Satellites: Global Environmental Observations that Help Protect Lives and Property

NOAA's satellites provide critical and unique data. Americans rely on satellite observations every day: from providing warnings for severe weather, to enabling safe transportation, to understanding ecological systems, and even contributing directly to life-saving rescue missions. NOAA appreciates the Congressional support we have received for the Nation's operational weather satellite programs, and we are committed to maintaining and managing them well to ensure life- and property-saving forecasts to the Nation.

NOAA's operational weather satellite programs are composed of satellites in geostationary and polar orbits, supporting the wide array of services alluded to above, but with a primary purpose of weather forecasting. Data from the geostationary satellites are vital to short-term weather surveillance and warnings. Instruments aboard the polar-orbiters provide the data—chiefly global atmospheric profiles of temperature and moisture—that are critical to numerical weather prediction and longer-range forecasting. Data from both are needed to deliver complete global weather monitoring. These systems support the NWS, the U.S. military, Federal and State agencies, local emergency management and the commercial weather industry, enabling advance warnings and tracking of developing severe weather, such as hurricanes, flash floods, tsunamis, winter storms, and wildfires. Along with the skill of NOAA meteorologists, NOAA's satellites are vital to the success of our weather enterprise—both the public and private sector elements. But, in addition to their key role in weather prediction, they also provide a myriad of other benefits. Satellite observations assist the NOS in monitoring coastal ecosystem health, such as coral bleaching, harmful algal blooms, and identifying and monitoring potential maritime hazards from sea ice. The National Marine Fisheries Service (NMFS) designates critical habitat for endangered species by using satellites to track migratory movements and identify critical feeding and breeding areas. Partner agencies such as the U.S. Geological Survey use NOAA satellites to relay vital information from thousands of river flood gauges and seismic monitoring stations in remote, inaccessible areas.

The FY 2014 President's Budget Request of approximately $2.2 billion for the National Environmental Satellite Data and Information Service (NESDIS) supports the highest priority and most essential satellite missions that generate the environmental intelligence our Nation needs to make sound decisions. The request reflects the result of an integrated, requirements-based strategic planning process with the goal to deliver disciplined focus on top-priority requirements and to optimize resources. The FY 2014 request continues development of NOAA's two most critical satellite programs, the Joint Polar Satellite System (JPSS) and the Geostationary Operational Environmental Satellite-R Series (GOES-R). The overall FY 2014 request also provides $9.6 million to support data processing and distribution for the Suomi NPP satellite; $37 million for NOAA's satellite altimetry mission, Jason-3; and $23.7 million for NOAA's operational space weather mission, the Deep Space Climate Observatory (DSCOVR).

NOAA is proposing $954.8 million for GOES-R, which will launch in the first quarter of FY 2016 and become fully operational by FY 2017 if adequate funding is maintained in future years to ensure the needed production and testing tempo. The FY 2014 President's Budget request is necessary to continue satellite and instruments engineering development and continue the ramp-up of the ground system integration and test activities. The GOES-R Series satellites will include

upgraded technology, such as an Advanced Baseline Imager (ABI), which will provide faster and higher-resolution image scans, covering a larger geographic area. Enhanced ABI capabilities will help decrease weather forecast errors and expand the list of products NOAA offers. For example, the new ABI technology is expected to enhance volcanic ash plume tracking, so pilots can receive advance warning and safely re-route around the damaging and deadly plumes.[4] Other economic sectors will also benefit, including the agricultural industry that can use the improved forecasts to develop more efficient crop irrigation plans, potentially gaining water and energy savings.[5] Overall, the combined annual economic benefit from GOES-R is projected to exceed $1.2 billion.[6] NOAA recognizes these potentially significant benefits to society of the GOES satellites and has prioritized accordingly.

The FY 2014 JPSS request totals $824 million and will enable NOAA to meet a launch readiness date in the second quarter of FY 2017. This request reflects feedback received over the past year, including from Congress and the July 2012 Independent Review Team (IRT) report, concluding that NOAA should refocus the program on the weather mission. NOAA continuously re-examines its satellite programs to improve performance and control costs, but the IRT, Congressional, and Administration concerns galvanized even more urgent action over the past year. As a result of these findings, and these concerns, we have taken steps to improve the JPSS program:

- **Sharpened our focus on the weather mission.** The FY 2014 President's Budget proposes reducing the scope of JPSS-2, and transfers select climate sensors formerly planned for JPSS-2 and Free Flyer-2 to NASA . The budget request also proposes transferring the Free Flyer-1 mission out of the JPSS program to stand as a separate program within the NESDIS line office, so that the JPSS program can focus on its primary weather mission.

- **Reduced the cost of JPSS.** The Administration, the Department of Commerce, and NOAA have assessed the JPSS mission scope to propose a more economical polar satellite program. The results from the assessment identified $1.6 billion in reductions from the FY 2013 President's Budget life cycle cost estimate of $12.9 billion through year 2028. The new life cycle cost is $11.3 billion or less through year 2025.

- **Improved program management.** NOAA has increased emphasis on systems engineering and common ground services and has improved risk management integration.

NOAA has also taken steps to mitigate the effects of a possible gap in polar orbiter data by adopting more aggressive strategies:

[4-6] 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).

- Accelerating the launch of JPSS-2 to calendar year 2021 to reduce the likelihood of a data gap between the JPSS-1 and JPSS-2 satellites.

- Investing in other activities to mitigate potentially degraded forecasts if a polar satellite data gap occurs. NOAA commissioned an independent analysis of gap mitigation options.[7] The Sandy supplemental appropriation provided $111 million to fund the actions highlighted in this study including: using existing data from the Defense Meteorological Satellite Program and observed wind information and expanding the use of data from aircraft observations, unmanned aerial systems, and other satellites including COSMIC-2 and satellites operated by our international partners. NOAA will also invest in data assimilation, observing system simulation experiments to measure the contribution of new observation data, and new processes to incorporate data on model performance.

- Accelerating High Performance Computing upgrades to enable top-priority mitigation measures within the weather forecast enterprise. The NWS and OAR plan for complementary investments in research and operational high performance computing will enable next-generation weather modeling with improved transition of proven models from research to operations.

We believe this new program addresses the main concerns of Congress, the IRT, and the Administration, and we welcome the opportunity for further dialogue to ensure the continued viability of this critical satellite program. NESDIS will continue to efficiently achieve its goals by pursuing collaborative opportunities with other national and international agencies and organizations, and partnering 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. One particularly noteworthy example is our partnership with the European Organization for the Exploitation of Meteorological Satellites for polar-orbiting satellites. This partnership gives each party responsibility for maintaining a fixed orbit and ensures sharing of 100 percent of each orbit's data, essentially allowing each party to receive all the data while only paying for half. These types of efficiencies are a win-win situation.

Vibrant Coastal Communities and Economies

NOAA's third core mission area, Vibrant Coastal Communities and Economies, encompasses vital work that advances the economic and environmental health of America's coastal zones; areas where the majority of Americans live and work. Coastal watershed counties were home to 163.8 million people (52 percent of the U.S. population) in 2010, and this number is expected to increase by more than 15 million by 2020.[8] NOAA plays a critical role in supporting healthy ocean and coastal habitats that benefit coastal industries and jobs through economic engines, such as tourism and fisheries. By investing in the management of vital coastal activities now, NOAA works to ensure these resources will contribute to thriving communities and their economies long into the future.

[7] Riverside Technology, Inc., *JPSS Gap Mitigation Analysis of Alternatives Report*, February 15, 2013.
[8] *National Coastal Population Report*, available at: http://stateofthecoast.noaa.gov

Commercial and recreational fishing industries depend on healthy and abundant fish stocks, and NOAA's science and management work has been vital to turning the corner on overfishing and getting fisheries onto a sustainable and profitable path. In FY 2014 NOAA requests $929.3 million for NMFS for targeted investments in fisheries science, fisheries observers, and habitat restoration and conservation programs. This includes investments of $69.3 million to expand stock assessments and $24.8 million for survey and monitoring projects. Funding will focus on high-priority commercially and recreationally valuable stocks and those that were previously experiencing overfishing (to verify that overfishing has, indeed, ended). Funds will be used to improve fishery-independent surveys through advanced sampling technologies such as optical and acoustical methods. The FY 2014 President's Budget includes a request for $43.6 million for the 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 FY 2014. This funding will allow NOAA to provide coverage in approximately 48 fisheries nationwide that benefit from the knowledge gained by observers.

However, short-term management is for naught unless accompanied by habitat conservation measures that assure long-term viability of the fish populations and marine ecosystems. Overall, this budget proposes $47 million to continue long-term investments in habitat restoration that support species recovery and sustainable fisheries. Through NOAA's Habitat Blueprint, and ongoing coordination with interagency landscape-scale conservation initiatives, we are prioritizing our work to maximize benefits to trust resources and responsibilities.

NOAA does not undertake these actions alone and relies on the considerable expertise and observations of local external partners. For example, NOAA is requesting $17.8 million in FY 2014 to support the Species Recovery Grant program, which draws on local expertise and provides support to States, tribes, and other partners for cost-effective projects to benefit endangered species and their habitats. The Species Recovery Grant program, and other habitat conservation and restoration efforts will be administered in close coordination with the Pacific Coastal Salmon Recovery Fund ($50 million) to achieve conservation benefits on a national scale. By targeting our work in priority areas and leveraging actions of local partners, NOAA can achieve greater results.

Additionally, if we are to achieve long-term sustainability, we must understand fishery trends within the context of long-term changes in our climate. Record-high sea surface temperatures were recorded in 2012 in the Northeast, as well as above-average temperatures from the ocean bottom to the surface across the region. The annual spring plankton bloom was intense, starting earlier and lasting longer than normal, and Atlantic cod continued to shift northeastward in distribution. These changes have economic consequences for the fisheries and communities that depend on them. To better understand these connections, OAR requests $10 million in support of extramural research on climate impacts on fish stocks, with a focus on the Northeast groundfish region.

With a FY 2014 Request of $529.2 million for the National Ocean Service, NOAA will increase its investment in observing, measuring, assessing, and managing the Nation's coastal, ocean and Great Lakes areas, providing critical navigation products and services, and conducting response and restoration activities to protect vital coastal resources. NOAA will support the Integrated

Ocean Observing System Regional Observations with a total investment of $34.5 million. This investment will provide additional funding for high-priority ocean and coastal observing efforts, including a competitive grant program for the development, demonstration, testing, and evaluation of marine sensor technologies that will provide real-time ecosystem data to inform a range of management decisions that can affect fisheries, tourism, public health, and much more. NOS is also requesting $175.7 million to invest in NOAA's Coastal Services Center, Coastal Zone Management Program, the National Estuarine Research Reserves and the National Marine Sanctuary Program, all of which work with their local partners to provide the information and tools needed to help coastal communities make smart decisions as they plan for their future. The FY 2014 request will support NOAA Procurement, Acquisition, and Construction (PAC) programs for the NOS. These funds will support construction and land acquisition in the National Estuarine Research Reserves, capital maintenance on infrastructure and vessels that support our National Marine Sanctuaries, and grants to state and local governments to protect and restore important coastal and estuarine areas through the Coastal and Estuarine Land Conservation Program (CELCP).

NOAA's Navigation Response Teams (NRT) program is sustained at $2 million. Ports and harbors around our coastline rely on NOAA's NRTs to collect data that ensure nautical charts are up-to-date and that navigational waterways are clear and safe. In addition to providing routine support, our 6 NRT's also provide 24/7 emergency hydrographic survey support to the U.S. Coast Guard, port officials, and other first responders in the wake of accidents and natural events that create navigation hazards, which impede safe and efficient marine transportation and commerce. For example, the underwater obstruction surveys completed by the NRT's in the Port of New York and New Jersey after Sandy were instrumental in helping the port quickly reopen, restoring the flow of fuel, relief supplies, and over half a billion dollars' worth of trade that moves through the port daily. As another example, over $1.3 billion worth of foreign trade moves through the four major Gulf Coast ports on a daily basis, emphasizing the importance of NRT's in maintaining safe and efficient maritime commerce.

The FY 2014 budget request of $472.4 million for the Office of Oceanic and Atmospheric Research provides critical environmental information and tools through climate, weather, ocean, coastal, and Great Lakes research, technology development, and related services. NOAA science is focused on an integrated earth-systems approach that examines the connectivity among our oceans, atmosphere, natural resources, and economy, all within the context of climate variability. This enhanced understanding will allows us to evolve management approaches and services into the future.

NOAA requests $10 million for an ocean "Grand Challenge", as part of President Obama's Strategy for American Innovation. NOAA is launching this challenge as a way to focus innovative thinkers on exploration, mapping, and observing needs that would further NOAA's missions. The challenge model allows us to leverage our funds to spur even greater investments from the academic community and industry. New technologies in these fields that modernize our at sea research, monitoring, and application methods will save us money in the future.

We are requesting $72.7 million to fund high priority ocean, coastal, and climate research and development through OAR's National Sea Grant College program and $8.4 million for ocean acidification research and development to improve our understanding of its ecological drivers, its

impacts on fisheries and other marine organisms, and the best means of adapting to and mitigating this emerging ocean hazard. $9.3 million is also requested for the Great Lakes Environmental Research laboratory, which supports internal and external research to advance understanding of the physical, chemical, and biological processes in the Great Lakes and how these ecosystem dynamics affect Great Lakes communities. NOAA's FY 2014 budget request includes $29.1 for OAR's Ocean Exploration Program to support ocean exploration and mapping of our U.S. extended continental shelf.

NOAA missions – from mapping the seafloor to measuring snow pack – depend upon ship and aircraft fleets as essential observational platforms. We are investing significantly in these important assets to increase use and mission readiness. NOAA is requesting a total of $176.6 million for Marine Operation and Maintenance. This will fund 3,517 Days at Sea to carry out critical missions to support fisheries and marine mammal surveys, nautical charting, and studies related to climate and ocean health. This is an increase of 1,386 Days at Sea above FY 2012 levels increasing the fleet utilization rate to about 94%. To maintain fleet readiness efficiency, we are investing $11.7 million to establish a Progressive Lifecycle Maintenance Fund for the Fleet. The stabilization of capital investments is critical to extending fleet life. Without timely periodic refurbishments, ship operations can be suspended and costs increased. Finally, we expect to complete FSV 6, our newest fisheries survey vessel, and to begin deploying it for fisheries research off the coast of California.

In addition to NOAA's marine fleet, we are requesting $31.5 million in Aircraft Services for an estimated 2,760 flight hours to support scientific endeavors studying global climate change and air quality, assessing marine mammal populations, surveying coastal erosion, investigating oil spills, conducting coastal mapping, surveying snowpack levels, and improving hurricane prediction models. The re-winging of the Hurricane Hunters will be staggered, beginning in FY 2015, and we expect them to continue operations until FY 2033 and FY 2034. We are also investing $1 million for a third-party study to investigate the next-generation of areal observations; we seek to be ready to transition this vital research to new platforms when these aircraft are no longer airworthy.

This budget also reflects the importance this agency places STEM education. In FY 2014, NOAA will increase its investment in the Office of Education for a total of $16.3 million. The increased funding will support the Environmental Partnership Program, a program that specifically targets minority-serving institutions of higher education. NOAA supports the Administration's efforts to strengthen STEM education and will stay engaged to work toward the success of the proposed FY 2014 STEM consolidation initiative. The Budget terminates NOAA funding for specific STEM components of NOAA's Sea Grant, Ocean Exploration, and Office of Education programs, as well as the Teacher at Sea program and the Nancy Foster Scholarship Program, as part of this initiative.

CONCLUSION

Overall, NOAA's FY 2014 Budget Request reflects the commitment Deputy Secretary of Commerce Blank and I have made to the President to growing a strong economy that is built to last, while being fiscally responsible and focusing on priority initiatives. NOAA is a vital component of the U.S. Government, helping to maximize U.S. competitiveness, enable economic

growth, foster science and technological leadership, and promote environmental stewardship. Americans – civilians, the military, and businesses – rely upon the services NOAA provides on a daily basis. The resources that are requested in this budget are critical to the ongoing success of NOAA's mission in creating a Weather-Ready Nation, sustaining high-tech satellite observations, and achieving vibrant coastal communities. Essential to each of these focus areas is ongoing research and development, as well as restoring investments across NOAA's programs. 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 2014 budget. Thank you for the opportunity to present NOAA's FY 2014 Budget Request. I am happy to respond to any questions from the Committee.