

**WRITTEN STATEMENT OF
RDML TIM GALLAUDET, Ph.D., USN Ret.
ASSISTANT SECRETARY OF COMMERCE FOR OCEANS AND ATMOSPHERE
AND ACTING UNDER SECRETARY OF COMMERCE FOR OCEANS AND
ATMOSPHERE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE**

**ON THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION'S
FY 2019 BUDGET REQUEST**

**BEFORE THE
HOUSE APPROPRIATIONS COMMITTEE
SUBCOMMITTEE ON COMMERCE, JUSTICE, SCIENCE, AND RELATED
AGENCIES**

April 11, 2018

Chairman Culberson, Ranking Member Serrano, and members of the Subcommittee, thank you for your leadership and the continued support you have shown for the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). As the Assistant Secretary of Commerce for Oceans and Atmosphere and Acting NOAA Administrator, I am honored to be here to discuss the FY 2019 President's Budget. The FY 2019 budget proposal supports the broad Administration goals of promoting national security, public safety, economic growth, and job creation.

NOAA's FY 2019 budget prioritizes core functions that provide the observational infrastructure, capabilities, and staff to produce timely and accurate weather forecasts and warnings; that recapitalize the NOAA fleet to ensure the continued collection of at-sea data vital to the U.S. economy for fisheries management and nautical charting; that support the government's legal obligations to manage and conserve marine resources; and, that foster safe and efficient ocean and coastal navigation. To ensure we can sustain these core functions and enable critical enhancements to our priorities in FY 2019, NOAA made difficult choices to reduce a number of

programs. The termination and re-scaling of programs is necessary to focus on national security and core government functions.

NOAA operates an integrated observing system of land-based weather platforms, ships, satellites, planes, and in situ stations, and leverages partner observations in order to provide data, products, and services that first responders and emergency managers, our armed services, and millions of Americans depend on each day. These products and services include, daily weather warnings and forecasts, navigational tools to support the nearly \$4.6-trillion in annual economic activity generated at U.S. seaports, management of the Nation's \$208-billion fisheries industry, and disaster response efforts. NOAA provides daily and long-term weather and marine forecasts critical for agricultural planning, emergency response to severe weather, and warning and mitigation of harmful algal blooms that negatively impact public health, tourism and the seafood industry. NOAA puts weather and other environmental information into the hands of people and industries to support the U.S. economy and create jobs.

Below we highlight some of our recent accomplishments, all of which we could not have achieved without your support, and collaboration with our partners in the research, corporate, and conservation communities.

RECENT ACCOMPLISHMENTS

Responded To An Historic Year Of Hurricanes: Devastation from the 2017 Atlantic hurricane season was unprecedented with Hurricanes Harvey, Irma, Maria and Nate impacting roughly 25.8 million people, and Harvey and Irma making U.S. landfall as Category 4 hurricanes, the first in 12 years. From the use of NOAA's weather observation platforms, response teams, and operational weather and water models, to experimental technologies, NOAA mobilized all of its assets to meet the challenge of forecasting these hurricanes. The combined work of NOAA before during and after the storms resulted in saving lives despite Hurricanes Harvey, Irma, and Maria becoming 3 of the top 5 costliest hurricanes on record.

During the storms, NOAA's first class forecasting capabilities enabled state and county officials to better protect communities, critical infrastructure, and general welfare. NOAA made its most accurate track predictions for a hurricane season. Based on preliminary data, track errors for the three landfall Category 4 hurricanes were 25 percent below the most recent 5-year mean. Armed with this information, NOAA's National Water Center in Tuscaloosa, Alabama, supported local officials in Texas during Hurricane Harvey by providing specialized and supplemental river flooding maps for a region that would experience days of excessive rainfall. This tailored information, coupled with accurate and consistent warnings of historic rainfall from NOAA's Weather Prediction Center, allowed Texas emergency managers to clear evacuation areas and safely stage resources, recovery encampments and other relief activities outside the areas of likely flooding.

Following the storms, NOAA collected more than 65,000 aerial images, covering more than 24,000 square kilometers using NOAA's King Air aircraft, uploading the images within 24 hours of their capture. In many cases, these images were useful to alert homeowners to the extent of damage to their property and help officials decide whether or not it was safe for them to return. NOAA rapidly updated nautical charts, protecting lives and property from any underwater dangers that might have entered waterways. NOAA survey operations enabled the major ports affected, including the Ports of Miami and Houston, to reopen within days. Throughout the Caribbean, NOAA Ship Thomas Jefferson was responsible for opening 18 ports in as many days, ensuring mobility of essential relief supplies into heavily impacted areas across the region.

Congress recently appropriated \$400 million in disaster supplemental appropriations to NOAA. These resources will enable NOAA to repair observing assets, facilities, and equipment; help rebuild and restore damaged fisheries; remove debris that pollutes and damages marine resources; make progress in improving severe weather forecasting; and provide critical updates to mapping and charting services.

Improved Detection of Wildfires and Smoke: During 2017's historic fire season, NOAA played a critical role in aiding our federal and state partners in fighting wildfires. NOAA's newest Geostationary satellite, GOES-16, provides an unprecedented look at our Nation from the sky, providing sharper, more defined images of severe storms, hurricanes, wildfires and other weather hazards in near real-time 24/7. In the spring of 2017, GOES-16 imagery spotted new wildfires in California, Kansas, Oklahoma, and Texas, and was used to determine which fires were hottest and where the fires were spreading. This critical information was shared with and used by firefighters and emergency managers allowing them to take immediate action, marking the first time the satellite product has been used in wildfire forecasts. Throughout the wildfire season in the west, NOAA forecasters provided on-site support to Incident Management Teams during large wildfires. These specially-trained Incident Meteorologists (IMETS) provided detailed weather forecasts to the teams as they made plans to attack the wildfires.

Launched GOES-S Satellite: NOAA's GOES-S, the second in a new series of advanced geostationary weather satellites, launched from Cape Canaveral, Florida on March 1, 2018. The satellite will provide more and better data than currently available over the northeastern Pacific Ocean, the birthplace of many weather systems that affect the continental United States. The satellite reached geostationary orbit on March 12, 2018 and is now officially known as GOES-17. It will scan the Earth five times faster, at four times the image resolution, with triple the number of channels than older GOES spacecraft. Later this year, after undergoing a full checkout and validation of its six high-tech instruments, the new satellite will move to the GOES-West position and become operational. From there, it will constantly provide advanced imagery and atmospheric measurements, real-time mapping of lightning activity, and improved monitoring of

solar activity and space weather. In addition to improving weather forecasts, GOES-17 will help locate and track wildfires – invaluable information that emergency response teams need to fight fires and evacuate people who find themselves in harm’s way. GOES-17 will also be an important tool for forecasters to track and predict the formation and dissipation of fog, which can disrupt airport operations. GOES-17 will work in tandem with GOES-16, the first satellite in NOAA’s new geostationary series, now at the GOES-East position.

Launched JPSS-1 Satellite, A Game-Changer For Weather Forecasting: NOAA successfully launched the JPSS-1 satellite on November 18, 2017. Successful operational handover from NASA to NOAA occurred on March 7, 2018. Now known as NOAA-20, the satellite represents a vital piece of our national security and observing system infrastructure, improving the accuracy of three to seven-day weather forecasts. Eighty-five percent of the data that feed weather forecast models comes from polar-orbiting satellites. NOAA-20 includes the Advanced Technology Microwave Sounder and the Cross-track Infrared Sounder, which provide critical data for weather and climate applications, as well as the Ozone Mapping and Profiler Suite which will track the health of the ozone layer. Data from NOAA-20, along with the rest of NOAA’s satellite fleet, provide information that help keep the nation’s airplanes flying and our ships on course, help farmers decide when to plant, manufacturers decide when to ship merchandise, and first responders prepare for and respond to severe weather events such as hurricanes, tornadoes, and wildfires.

Improved Seasonal Forecasts And Explore Sub-Seasonal Prediction: NOAA is working to bridge the forecast gap between the existing two-week predictions and longer term weather outlooks on a seasonal time range, providing data to a wide range of users, including transportation, commerce, public utilities, tourism industries, with the longer term weather information they need to anticipate the months ahead. NOAA is issuing 3- to 4-week probability forecasts for temperature and precipitation. The North American Multi-Model Ensemble System (NMME) seasonal forecast system, transitioned to operational use in 2016, and is used to support NOAA’s Climate Prediction Center (CPC) operational monthly and seasonal temperature and precipitation outlooks.

Precision navigation enabled the Port of Long Beach to increase its draft limit reducing shipping costs while supporting safe navigation: As cargo ships grow to keep pace with global demand, ports are increasingly in need of accurate, real-time information on conditions to operate effectively. NOAA and partners worked with the Port of Long Beach to build out the precision navigation observing infrastructure around the port and provide integrated data to support the safe navigation of deep draft ships. The success with precision navigation in the Port of Long Beach has led to a four-foot increase in the draft allowance. For every extra foot of draft, tanker ships can load 40,000 more barrels of crude oil, which equates to roughly \$2 million of

extra product per tanker. The Department hopes to expand this product, through innovative public-private partnerships, to other busy ports and waterways in the United States.

Rebuilt three additional fish stocks in 2017: NOAA is proud of its efforts with partners to rebuild fisheries over the past two decades. With three fish stocks rebuilt in 2017, the total number of fish stocks rebuilt since 2000 is now 44. All three fish stocks are West Coast groundfish managed by the Pacific Fishery Management Council: Bocaccio, Darkblotched Rockfish and Pacific Ocean perch. In addition, overfishing rates are near all-time lows (9 percent overfishing and 16 percent overfished, compared to 17 percent and 24 percent in 2007 after MSA reauthorization). By ending overfishing and rebuilding stocks, NOAA is strengthening the value of U.S. fisheries to the economy, our communities, and marine ecosystems.

FY 2019 BUDGET REQUEST

NOAA's FY 2019 budget request of about \$4.6 billion invests in NOAA's core missions and positions the agency for the years ahead. This budget is a decrease of \$1.3 billion, or 23 percent below an FY2018 Consolidated Appropriations Act, 2018 level. This net decrease reflects difficult choices that Secretary Ross made to help reduce the budget deficit and focus resources on NOAA's core mission functions and services. The Administration's Budget sustains and in some cases enhances activities that support Secretary Ross' priorities to reduce the impacts of severe weather and water events and increase the sustainable economic contributions of our fishery and ocean resources.

Reduce the Impacts of Extreme Weather and Water Events

NOAA's FY 2019 budget request invests more than \$1.1 billion to maintain weather forecasting capabilities, focusing on the highest priority weather research and development activities. NOAA will prioritize its core capabilities needed to maintain the current level of services and ongoing operations necessary to issue warnings and forecasts to protect life and property while being smarter and more efficient in the way it does business. The National Weather Service (NWS) will begin implementing a series of operational reforms aimed at increasing staffing flexibility to best match service demands with available resources. NWS will realize \$15 million in workforce savings in FY 2019 as part of a longer term strategy to right-size the organization, it will do this in part by implementing recommendations outlined in the NWS' Operations and Workforce Analysis (OWA). The OWA recognizes inherent inefficiencies associated with the rigid field office structure and provides recommendations to further enable the NWS to evolve and build a Weather Ready Nation.

NOAA's FY 2019 budget also proposes modest increases to improve our ability to get critical weather data into the hands of people at the local level. This includes an additional \$5.1 million

for the Advanced Weather Interactive Processing System (AWIPS) which supports the information processing display and telecommunications system that is the cornerstone of the National Weather Service field operations.

NOAA's FY 2019 budget continues to develop the current generation of polar orbiting satellites to sustain robust weather forecasting capabilities. This budget invests \$878 million in Polar Weather Satellites, which provide the primary data for NOAA's Numerical Weather Prediction models. The Budget proposes to combine the current generation polar orbiting satellites with the planned follow-on satellites to allow more efficient management, thereby lowering costs compared to previous estimates without impacting schedule. NOAA's successful launch of NOAA 20 in November 2017 is a game changer for weather forecasting, as data from this satellite will be used to forecast severe weather like hurricanes, tornadoes and blizzards days in advance. NOAA will invest \$408 million in operations and sustainment and development of the GOES-R series of geostationary weather satellite systems, which support NOAA's weather forecasting, tracking, and monitoring of severe storms.

NOAA is requesting \$10 million in FY 2019 to continue work with the Naval Research Laboratory (NRL) to develop the compact coronagraph (CCOR) for launch readiness by 2024. NASA's Solar and Heliophysics Observatory (SOHO) launched in 1995 and significantly past its mission design lifetime, currently provides coronal mass ejection imagery used operationally by the National Weather Service's Space Weather Prediction Center for geomagnetic storm watches.

The CCOR would continue these observations. NOAA is currently considering options to host the CCOR on the NOAA GOES-U satellite platform or another partnership mission.

Expand Commercial Space Activities

The FY19 budget will increase by 50 percent the Department's investment in the Office of Space Commerce (OSC) to improve OSC's ability to serve commercial space services. The Department plans to invest \$1.8 million in the Commercial Remote Sensing and Regulatory Affairs (CRSRA) Office to facilitate commercial remote sensing licensing actions, allow revision of outdated regulations, and promote the national economy. Investment in Space Commerce activities will also help the Department to take on a leading role in the Administration's efforts to make America the "flag of choice" for commercial space companies. Finally, it will enable the Department to prepare to implement the recommendations and goals of the recently revived National Space Council.

Increase the Sustainable Economic Contributions of Our Fishery and Ocean Resources

Currently, NOAA's fleet includes 16 research and survey ships, which comprise 50 percent of the Federal Oceanographic Fleet. Every year, NOAA's ships conduct more than 100 missions critical to national security, public safety and the national economy. Communities and businesses rely on NOAA data to keep U.S. ports open to commerce, monitor the status of fish stocks, and plan for severe storm events. However, the NOAA ship fleet faces declining capacity without recapitalization. Eight of NOAA's 16 ships currently exceed their design service life and are due to retire by 2028. The loss of these eight ships would undermine NOAA's mission, resulting in reduced mapping capabilities and the inability to conduct fishery stock assessments in multiple regions. NOAA's ships are a vital national infrastructure critical to fulfilling the Nation's primary mission essential functions and legal mandates. NOAA's FY 2019 budget addresses this need for critical infrastructure, investing \$75 million in fleet recapitalization, continuing an effort that started in FY 2016. The FY 2019 budget provides funding for construction of a second NOAA Class A vessel to support oceanographic monitoring and research. NOAA will also further plan for Class B and Class C vessels as part of NOAA's Fleet Recapitalization Plan.

NOAA's FY 2019 budget recognizes the need to promote safe and efficient navigation to support and maximize the economic return of marine commerce flowing through the U.S. NOAA surveys and charts the navigationally significant waters of the U.S. Exclusive Economic Zone (EEZ), which extend 200 miles from our coasts. NOAA continually improves hydrography and charting technology through ongoing applied research and development. The importance of accurate charts will only increase given that the volume of traffic, and value of exports and imports via water, in U.S. seaports is expected to double by 2021 and double again shortly after 2030. To support this growing industry, NOAA's FY 2019 budget invests nearly \$200 million in hydrographic survey, charting, mapping, and related efforts.

Assessments and monitoring efforts are the backbone of fisheries management. They provide the assurance that NOAA is managing fisheries to maximize fishing opportunity, while maintaining healthy stocks, so that the Nation's fisheries provide the maximum benefit to the U.S. economy and its fishing industry. NOAA's FY 2019 budget includes approximately \$529 million to continue to invest in core fisheries management and scientific research functions including expansion of and improvements to fisheries stock assessments, which provide the technical basis for regional and local fishery management decisions.

NOAA's FY 2019 budget continues investments in domestic seafood production by supporting marine aquaculture. Currently, the U.S. imports more than 80 percent of its seafood, of which over half is from foreign-produced aquaculture. This reliance on foreign imports moves potential seafood jobs overseas and poses a risk to food security. Given wild fish stocks are at or near maximum harvest levels, the greatest opportunity to increase the seafood supply is through domestic aquaculture. The Nation has a large untapped potential for safe and sustainable aquaculture development, and the seafood industry is calling for NOAA to take steps to help

realize this potential. NOAA's FY 2019 budget invests \$9.3 million in its National Marine Fisheries Aquaculture program to increase regulatory efficiency for the marine aquaculture sector and encourage sustainable marine aquaculture practices.

CONCLUSION

NOAA's FY 2019 Budget request reflects the President's commitment to advance national security and the economy. NOAA contributes to those priorities every day by putting data in the hands of those who need it to protect our communities and grow the economy.

America relies on NOAA to know when floods, forest fires, hurricanes and severe weather threaten our communities. The growing maritime industry looks to NOAA data to safely and efficiently maximize the value of U.S. ports, fisheries, and coastal economies. All of these are enabled by NOAA's supercomputers, satellites, ships, aircraft, laboratories, facilities, and most importantly, our world class workforce. In my short time at NOAA, I have come to know that we have the most competent and committed people across the entire Federal Government. This FY19 budget request will assure the core infrastructure and capabilities that these superior professionals at NOAA need to provide critical services for the American people.

Thank you for the opportunity to present NOAA's FY 2019 budget request. Secretary Ross and I look forward to working with the members of this Committee to achieve our shared goals. I am happy to respond to any questions from the Subcommittee.