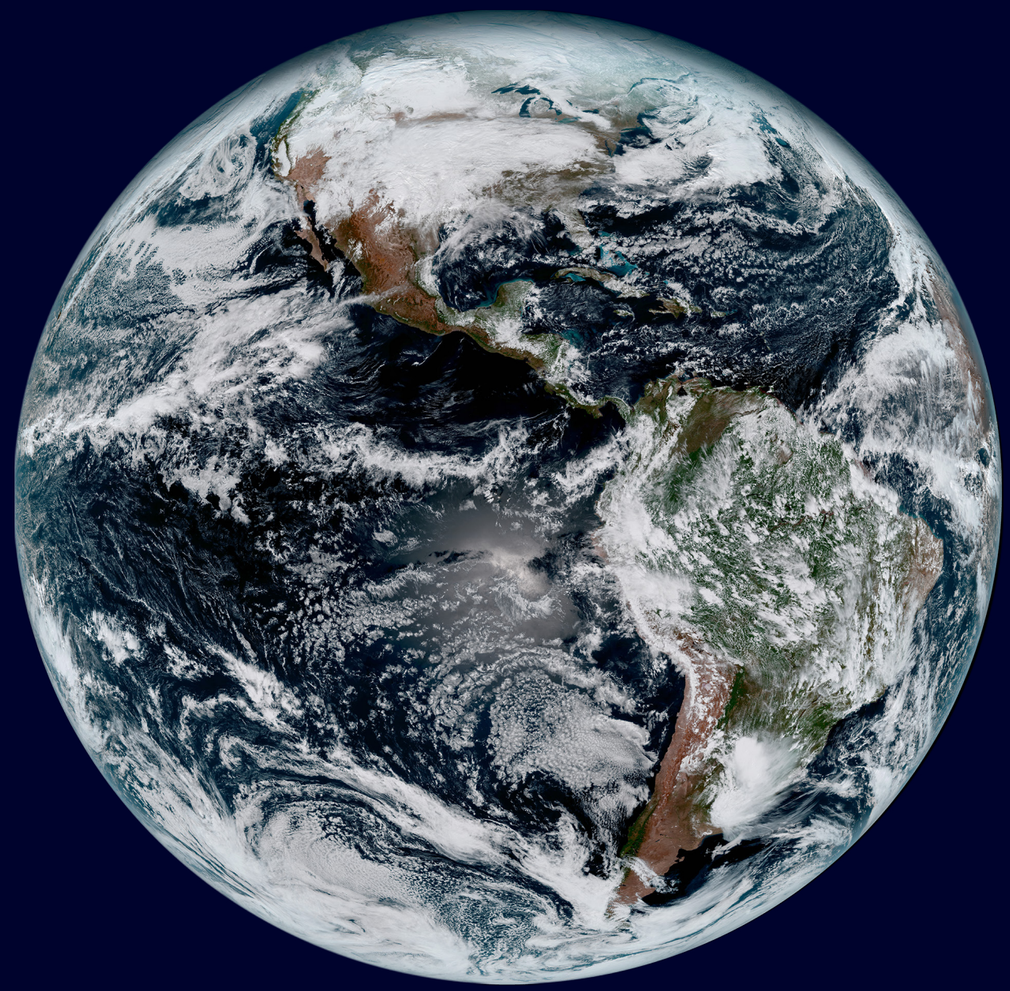
COVER IMAGE On January 15, 2017, the Geostationary Operational Environmental Satellite-R (GOES-R) satellite captured the first composite color full-disk visible image using the 16 spectral channels available on the Advanced Baseline Imager (ABI) instrument.



National Ocean Service
www.oceanservice.noaa.gov

National Marine Fisheries Service
www.fisheries.noaa.gov

Office of Oceanic and Atmospheric Research
www.research.noaa.gov

National Weather Service
www.weather.gov

National Satellite and Information Service
www.nesdis.noaa.gov

Office of Marine and Aviation Operations
www.omao.noaa.gov

United States Department of Commerce

National Oceanic and Atmospheric Administration
14th and Constitution Avenue, NW
Washington, DC 20230
www.noaa.gov

FY2018

NOAA
Budget Summary

The Puma Unmanned Aircraft System lands in the ocean during a test in early 2015 off Kawaihae, HI. Credit: Liquid Robotics

Contents

CHAPTER ONE
Introduction 5

CHAPTER TWO
National Ocean Service 13

CHAPTER THREE
National Marine Fisheries Service 19

CHAPTER FOUR
Office of Oceanic and Atmospheric Research 27

CHAPTER FIVE
National Weather Service 33

CHAPTER SIX
National Environmental Satellite, Data, and Information Service 41

CHAPTER SEVEN
Mission Support 51

CHAPTER EIGHT
Office of Marine and Aviation Operations 55

APPENDIX ONE
Proposed Changes to General Provisions 60

APPENDIX TWO
Control Table 61

Photo Credit: Many of the photos appearing in this publication were taken by NOAA employees, usually during the normal conduct of NOAA activities (unless otherwise noted). Their contribution to this report is gratefully acknowledged.

Layout and Design: Tiffany Small

The white abalone, critically endangered primarily because of historical harvesting practices, is recognized by NMFS as one of eight species most at risk of extinction nation-wide. Here a scientist captures sperm from a male white abalone during a spawning event in a captive breeding program supported by NOAA and its partners. Credit: Joshua Asel, UC Davis

Terminology

The reader should be aware of the specific meaning of several terms as they are used throughout this budget summary:

FY 2016 SPEND PLAN
Fiscal Year (FY) 2016 Consolidated Appropriations Act, 2016 (P.L. 114-113).

FY 2017 ANNUALIZED CONTINUING RESOLUTION (CR)
A full-year 2017 appropriation was not enacted at the time the FY 2018 Budget was prepared; therefore, the Budget is built off of the Further Continuing Appropriations Act, 2017 (P.L. 114–254). The amounts included for 2017 reflect the annualized level provided by the continuing resolution. All other comparisons and discussions of the budget request and policy will use the Annualized CR as the base.

ADJUSTMENTS-TO-BASE
Includes the estimated FY 2018 federal civilian and military pay raise of 1.9 percent. Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from GSA. In addition, ATBs include unique/technical adjustments to the base program, for example transfers of base resources between budget lines.

FY 2018 BASE
FY 2017 CR plus Adjustments-To-Base.

PROGRAM CHANGE
Requested increase or decrease over the FY 2018 base.

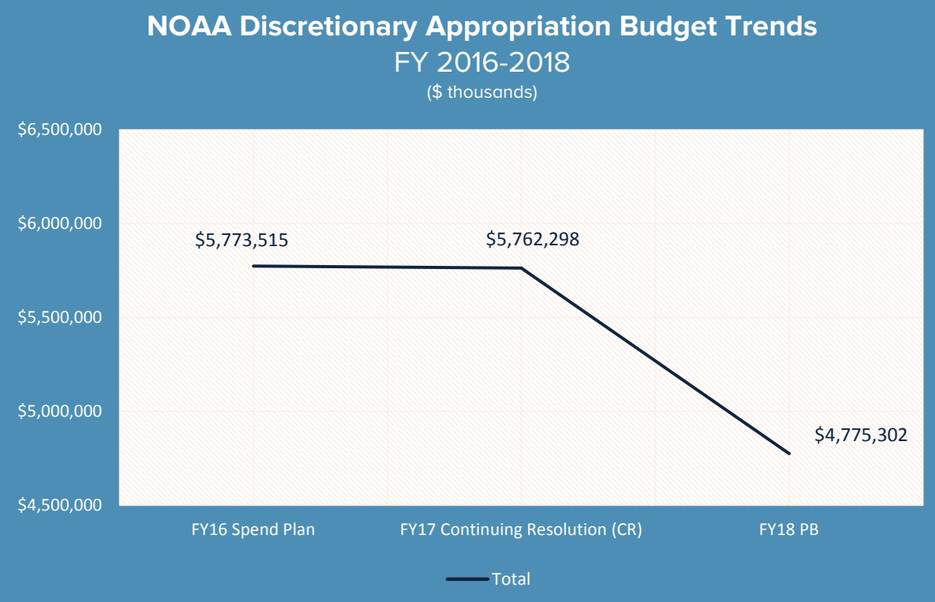
FY 2018 REQUEST
FY 2018 base plus Program Changes.

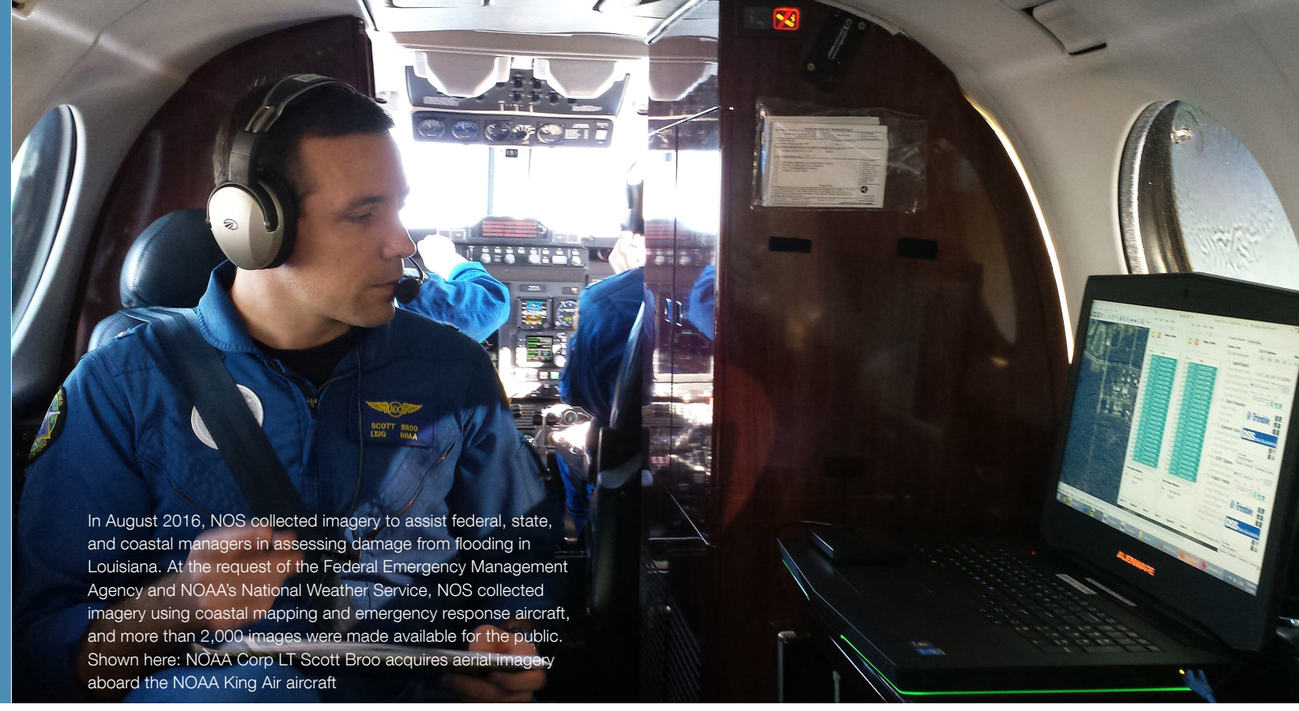
CHAPTER ONE

Introduction

NOAA's Fiscal Year (FY) 2018 budget request includes $4,775,302,000 in discretionary appropriations, a $986,996,000 reduction from the FY 2017 Annualized Continuing Resolution level. The budget supports NOAA's mission: 1) to understand and predict changes in climate, weather, oceans, and coasts; 2) to share that knowledge and information with others; and 3) to conserve and manage coastal and marine ecosystems and resources. The FY 2018 budget recognizes the broad Administration goals of strengthening programs that promote national security and public safety and foster economic opportunity. As such, NOAA's FY 2018 budget prioritizes core government functions that: provide the observational infrastructure, capabilities, and staff to produce timely and accurate weather forecasts and warnings; 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; support the government's legal obligations to manage and conserve marine resources; and, foster safe and efficient ocean and coastal navigation. More information about NOAA's specific FY 2018 initiatives is provided in the chapters and appendices that follow as well as in NOAA's FY 2018 Congressional Justification (http://www.corporateservices.noaa.gov/nbo/).

Ports play an important role in waterfront community resilience. A new NOAA tool, the Ports Resilience Index, is a simple and inexpensive means of undertaking a readiness assessment for maintaining port and marine transportation operations during and after disasters. Shown here: the port of Los Angeles.





In August 2016, NOS collected imagery to assist federal, state, and coastal managers in assessing damage from flooding in Louisiana. At the request of the Federal Emergency Management Agency and NOAA's National Weather Service, NOS collected imagery using coastal mapping and emergency response aircraft, and more than 2,000 images were made available for the public. Shown here: NOAA Corp LT Scott Broo acquires aerial imagery aboard the NOAA King Air aircraft

AS THE NATION'S PREMIER ENVIRONMENTAL intelligence agency, NOAA operates an integrated observing system of ships, satellites, planes, and in situ stations, providing data, products, and services that first responders and emergency managers, men and women in our armed services, and millions of Americans depend on each day. These products and services include, for instance, daily weather warnings and forecasts, navigational tools to support the nearly $4.6 trillion in economic activity generated at U.S. seaports,[1] management of the Nation's $200 billion fisheries industry,[2] and disaster response efforts. NOAA provides daily and long-term weather and marine forecasts critical for agricultural planning, emergency response to severe weather (which causes an estimated $485 billion in annual economic impacts[3]), and warning and mitigation of harmful algal blooms that negatively impact public health, tourism, and the seafood industry.[4] Through NOAA's network of observations, and its models, forecasts, and assessments, NOAA puts environmental information into the hands of the people and industries that need it to support the U.S. economy and create jobs.

NOAA appreciates the continued support of Congress, the Administration, and our broad and diverse base of stakeholders. We will continue to monitor major milestones and accomplishments of our programs and activities to evaluate progress and demonstrate success. Below are some of NOAA's top accomplishments from 2016, which we could not have achieved without Congress; our partners in other federal and state agencies; and our partners in the research, academic, industry, and conservation communities:

LAUNCHED GOES-R SATELLITE, A GAME-CHANGER FOR WEATHER FORECASTING

NOAA successfully launched the GOES-R satellite on November 19, 2016. Now known as GOES-16, the satellite provides continuous imagery and atmospheric measurements of the Earth's western hemisphere that NOAA uses to generate weather forecasts for the public. GOES-16 includes the Geostationary Lightning Mapper, which will improve tornado warning lead times, and the Advanced Baseline Imager, which provides imagery five times faster than the current capability with four times higher-resolution images than its GOES predecessors. These crisper, clearer images allow forecasters to monitor weather and other environmental phenomena, such as smoke, ice, and volcanic ash, at a much more detailed level. In addition, GOES-16 monitors space weather, providing critical information for utility companies, satellite operators, and other customers. GOES-16 is the first spacecraft in the GOES-R series of four new NOAA geostationary weather satellites.

CONTINUED TO REBUILD U.S. FISHERIES

In 2016, the 40th anniversary of the Magnuson-Stevens Act, NOAA's dynamic, science-based, stakeholder-driven management process showed continued success at ending overfishing and rebuilding stocks, providing invaluable benefits to the economy. As a result of the combined efforts of NOAA, the regional fishery management councils, and all NOAA partners, by the end of 2016, the number of stocks listed as subject to overfishing (9%) or overfished (16%) remained near all-time lows. Two additional stocks, barndoor skate and North Atlantic albacore tuna, were also declared rebuilt in 2016, bringing the total to 41 stocks rebuilt since 2000. A 2015 analysis showed that U.S. fisheries contributed $208 billion in sales (a 12% increase from 2011) and supported 1.6 million jobs (a 1% increase from 2011).

IMPLEMENTED NEW NATIONAL WATER MODEL (VERSION 1.0) TO IMPROVE FORECASTING

NOAA implemented the first version of the National Water Model (NWM), which greatly improves and expands flood forecasting across the country. The NWM simulates conditions for 2.7 million stream reaches across the continental U.S. every hour (a 700-fold increase over the ~3600 locations previously available every few hours). The NWM leverages NOAA's full suite of atmospheric models as well as the full network of over 8,000 U.S. Geological Survey (USGS) stream gauges nationwide. Moreover, the NWM produces a high-resolution geospatial representation of the nation's waterways known as the National Hydrography Dataset Plus, which is co-developed by the USGS and the Environmental Protection Agency. NWM improves NOAA's ability to meet the needs of stakeholders – including

Offshore aquaculture is a promising new frontier for U.S seafood production. However, the growth of this industry has been constrained by concerns about negative environmental effects of improperly sited farms. In response, NOS developed a new offshore aquaculture planning tool. This seascape visualization tool contains an image library of aquaculture gear, vessels, buoys, and other infrastructure that can be used to simulate the changes that result from aquaculture development. Shown here: an Aquapod, an enclosed cage for growing finfish offshore.

emergency managers, reservoir operators, first responders, recreationists, farmers, barge operators, and ecosystem and floodplain managers – by providing more frequent, accurate, and expanded water information such as when, where, and how deep floodwaters will be and how fast they flow, saving lives, and protecting property. The NWM is a cornerstone of the new NOAA Water Initiative, designed to improve water predictive capabilities to promote resilience to water risks.

USED AERIAL IMAGERY TO AID SAFE NAVIGATION AND DOCUMENT DAMAGE TO FLOODED COASTAL AREAS IN LOUISIANA

In August 2016, NOAA's coastal mapping and emergency response aircraft collected high resolution digital photographs to assist federal, state, and coastal managers in assessing damage from flooding after an unnamed storm dumped nearly 30 inches of rain on parts of Louisiana over several days. The storm damaged at least 55,000 homes and 20,000 businesses for a combined estimated cost of $10 billion, making it the most damaging U.S. flood event since Superstorm Sandy impacted the northeast in 2012. As soon as conditions allowed, NOAA collected and processed aerial imagery throughout the affected areas at the request of the Federal Emergency Management Agency (FEMA) and NOAA's National Weather Service. Post-disaster aerial imagery provides timely, concise, and cost-effective information for emergency managers to begin their assessment of damage to ports, waterways, coastlines, critical infrastructure, and coastal communities. FEMA used the imagery to analyze the impact of the storm and the suffering of thousands of disaster survivors and to make decisions on appropriate federal assistance to affected populations. The photographs were made publicly available on NOAA's Emergency Response Imagery website (storms.ngs.noaa.gov), allowing displaced residents and business owners to view the storm's effects on their communities. NOAA's National Geodetic Survey Remote Sensing Division supports NOAA's homeland security and emergency response requirements by acquiring and rapidly disseminating a variety of spatially-referenced datasets.

DEPLOYED NEW SENSOR TO DETECT HARMFUL ALGAL BLOOMS

NOAA and its partners deployed two Environmental Sample Processors (ESP) to monitor harmful algal blooms (HABs) in coastal waters of the Pacific Northwest and in Lake Erie. The ESP provided earlier warnings than past technology allowed. Scientists used to bring water samples back to a laboratory for analysis. ESPs do that analysis on site, continuously testing water quality and generating near-real time observations on algal toxins to inform water management, fisheries management, and other decisions that are critical to public safety and economic resilience. NOAA supported the Pacific Northwest ESP through a U.S. IOOS Ocean Technology Transition grant to the University of Washington's Applied Physics Lab. The NOAA Great Lakes Environmental Research Laboratory purchased the Lake Erie ESP with funding from the EPA-Great Lakes Restoration Initiative. Before the ESPs, water managers, businesses, and communities relied on periodic sampling, leaving little time to respond to toxic blooms. The ESP data, coupled with NOAA's existing HAB products, now provide managers with more precise information on bloom location, projected direction,

Operational Land Imager (OLI) satellite image of western Lake Erie algal bloom. July 31, 2015. Credit: NASA

Flooding at Rodanthe Pier on Hatteras Island following the passage of Hurricane Arthur. Credit: U.S. Coast Guard Mid-Atlantic

intensity, and toxicity. HAB events can wreak havoc on local economies and communities. In 2014, HAB events contaminated drinking water for nearly 500,000 people in Toledo, Ohio and in 2015, cost Washington state alone an estimated $9 million in revenue from the closure of its razor clam fishery.

CONDUCTED EL NIÑO RAPID RESPONSE FIELD CAMPAIGN

When warm sea surface temperatures in the Tropical Pacific Ocean, the main input for the Oceanic Niño index, indicated a strong El Niño in early 2016, NOAA led the El Niño Rapid Response Field Campaign to improve observations and documentation of meteorological effects during El Niño events. Past El Niño events have caused flooding and landslides, which resulted in $2.8 billion in property losses from 1997 to 1998. NOAA made observations from land, sea, and sky, collecting data from several platforms, including the NOAA G-IV aircraft and the NOAA ship Ronald H. Brown. The 2016 El Niño event prolonged the longest coral die-off on record as well as extreme precipitation events on the west coast. This field campaign provided an unprecedented volume and variety of coordinated data, including intensive observations such as air temperature, pressure, and rainfall estimates gathered in the tropical Pacific and California. Results from this field campaign will enable better understanding of how El Niño influences U.S. weather and will improve forecasting abilities.

IMPROVED FORECAST RESOLUTION WITH NEW GLOBAL WEATHER MODEL (FV3)

Applying some of the latest modeling technology, NOAA continues to add higher resolution to the future U.S. Global Forecast System (GFS) model. Higher resolution will provide forecasters the tools to zoom in on smaller and smaller storm systems, allowing for better understanding of how storms evolve and improved forecasting. As part of an effort to replace the current GFS with a state-of-the-art global weather forecasting model, NOAA selected the Finite-Volume on a Cubed-Sphere (FV3) core as a new engine for GFS's numerical weather prediction model in July 2016. FV3 was developed by NOAA's Geophysical Fluid Dynamics Laboratory in Princeton, New Jersey. It will run in the background of NOAA's suite of weather and climate models, improving skill across all NOAA forecasts. Currently, the GPS has a 13 kilometer resolution. With the FV3 core, NOAA will be able to simulate individual clouds and storms at resolutions as fine as one to three kilometers.

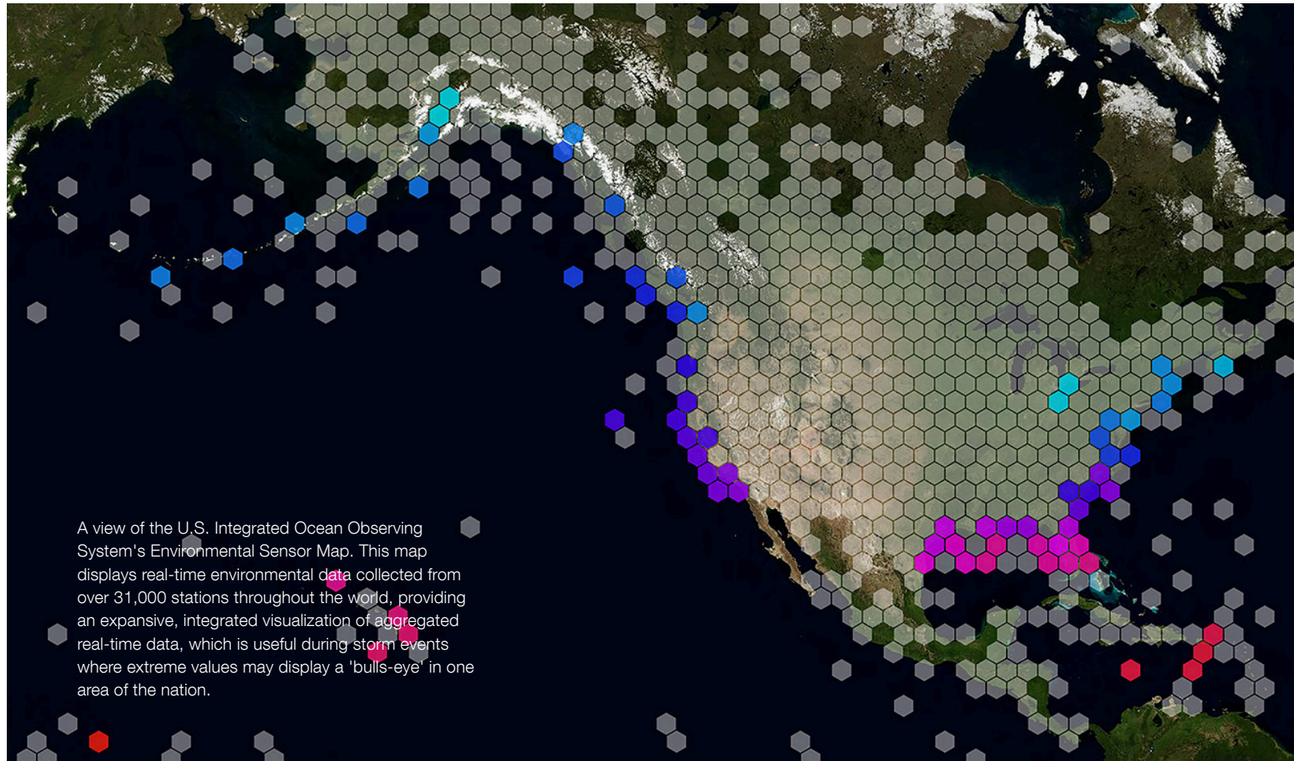
MADE REAL-TIME DATA AVAILABLE TO THREE NEW SEAPORTS AND CELEBRATED 25TH ANNIVERSARY OF NOAA'S PORTS®

NOAA's Physical Oceanographic Real Time System (PORTS®), a suite of sensors that measure precise water levels, currents, salinity, and meteorological data in some of the busiest U.S. seaports, turned 25 years old in 2016. NOAA also expanded its PORTS®, which provide real-time, accurate, and reliable observations in support of safe navigation, to three additional critical commercial seaports in 2016—Savannah, Georgia; Cape Cod, Massachusetts; and on the Cuyahoga River in Cleveland, Ohio—resulting in a total of 28 PORTS® nationwide. Together, Savannah and Cleveland handle 47 million tons of cargo annually. Cape Cod supports significant tourist, recreational boating, and commercial fishing activity. These systems help mariners and port operators navigate more safely and efficiently, reducing risks to life, property, and the coastal environment while maximizing cargo and profit. With some systems supporting more than one seaport, now more than 60 of the Nation's most economically critical seaports are served by PORTS®.

DEVELOPED GULF OF MEXICO AQUACULTURE PLAN

In 2016, NOAA collaborated with partners to create the first-ever framework for commercial-scale aquaculture in U.S. federal waters. This novel permitting program in the Gulf of Mexico will foster an increase in safe and sustainable seafood while promoting vibrant coastal communities and economies. Previously, there was no established framework for commercial-scale aquaculture in federal waters and no model for working with federal or regional fishery management council partners. This program will help increase and diversify the U.S. seafood supply and reduce the $12 billion seafood trade deficit by enabling up to 64 million pounds of cultured product per year (a 70 percent increase in marine aquaculture nationwide).

1 Martin Associates for the American Association of Port Authorities. March 2015 "2014 National Economic Impact of the U.S. Coastal Port System." Retrieved from http://www.aapa-ports.org.
2 National Marine Fisheries Service. 2017. Fisheries Economics of the United States, 2015. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-170, 247p. Retrieved from http://www.fisheries.noaa.gov/stories/2017/04/05_feus_sos_reports.html.
3 Lazo, J.K., M. Lawson, P.H. Larsen, and D.M. Waldman. June 2011 "United States Economic Sensitivity to Weather Variability." Bulletin of the American Meteorological Society. 92: 709-720.
4 Economic Impacts: Red Tide. Woods Hole Oceanographic Institution. Retrieved from https://www.whoi.edu/redtide/impacts/economic.



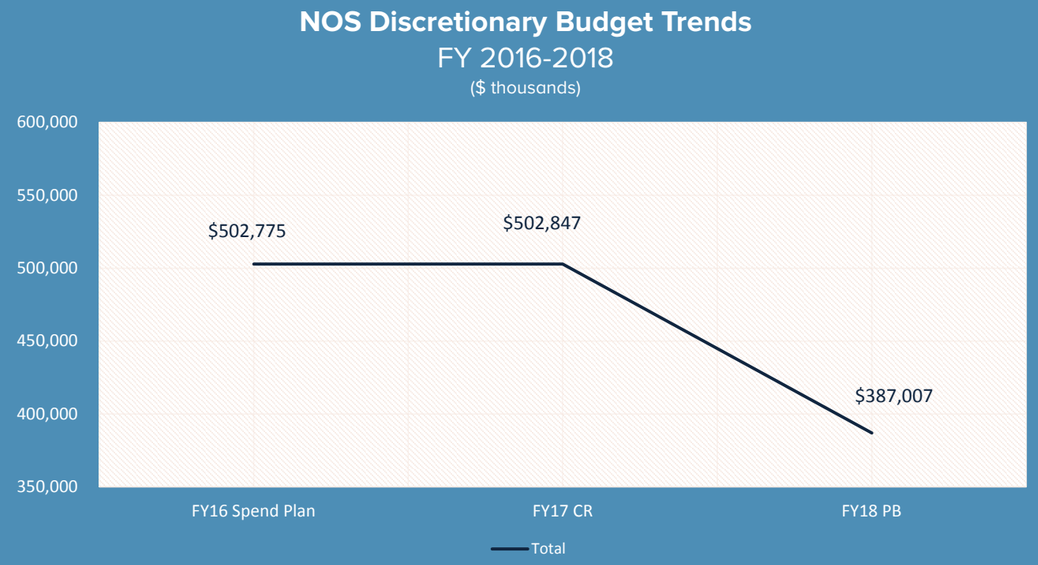
A view of the U.S. Integrated Ocean Observing System's Environmental Sensor Map. This map displays real-time environmental data collected from over 31,000 stations throughout the world, providing an expansive, integrated visualization of aggregated real-time data, which is useful during storm events where extreme values may display a 'bulls-eye' in one area of the nation.

Dames Point Bridge air gap sensor in Jacksonville, Florida. The sensor is part of a Physical Oceanographic Real Time System (PORTS®). In 2016, NOS added three new systems, for a total of 28 PORTS® around the nation.

CHAPTER TWO

National Ocean Service

NOAA's National Ocean Service (NOS) enables safe, sustainable, and efficient use of marine and coastal resources. It does so by gathering oceanographic observations and providing data to users; conducting and applying research for sustainable management, protection, and restoration of ocean and coastal resources; and using place-based approaches to achieve sound resource management. NOS's science-based products and services support coastal economic activity, reduce risk to life and property on the coast, and promote more effective protection and use of coastal resources.



FY 2018 REQUEST $414,798,000

NOAA requests a total of $414,798,000 in discretionary and mandatory funds for NOS mission functions. This total includes Operations, Research, and Facilities (ORF); Procurement, Acquisition, and Construction (PAC); and other mandatory accounts and includes a total decrease of $122,947,000 in FY 2018 program changes. This program change total includes a decrease of $6,467,000 not described below, but represented in the NOAA Control Table in Appendix 2.

FY 2018 ORF BUDGET SUMMARY

NOAA requests a total of $385,011,000 to support the Operations, Research, and Facilities of the NOS. This includes a decrease of $121,250,000 in program changes.

ORF PROGRAM CHANGES FOR FY 2018:
A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

NAVIGATION, OBSERVATIONS AND POSITIONING $197,340,000

NOAA requests a decrease of $10,815,000 for a total of $197,340,000 in the Navigation, Observations, and Positioning sub-program. Program changes include:

Navigation, Observations and Positioning: Hydrographic Research and Technology Development: NOAA requests a decrease of $1,996,000 to discontinue single-year cooperative agreements with academic institutions for joint ocean and coastal mapping centers. NOAA will continue to support research and development of survey, geospatial data management, and cartographic technologies through the Joint Hydrographic Center, the Coast Survey Development Laboratory, and other Navigation, Observations, and Positioning programs.

Navigation, Observations and Positioning: Regional Geospatial Modeling Grants: NOAA requests a decrease of $5,989,000 to terminate the Regional Geospatial Modeling Grants program. NOAA will continue to support a range of regional geospatial requirements through NOS's Coastal Zone Management and Services and Navigation, Observations and Positioning program activities. These regionally significant activities include height modernization, Continuously Operating Reference Stations, data access, and capacity building.

COASTAL SCIENCE AND ASSESSMENT $72,885,000

NOAA requests a decrease of $10,624,000 for a total of $72,885,000 in the Coastal Science and Assessment sub-program. Program changes include:

Competitive Research: NOAA proposes a reduction of $8,983,000 to terminate competitive grants to academic research institutions for ecological research. NOAA will continue its related intramural research program that addresses specific coastal management issues, such as harmful algal blooms, by bringing together academic institutions, businesses and government laboratories. NOAA will use FY 2017 appropriations for the program to complete funding cycles for some existing projects as resources permit.

OCEAN AND COASTAL MANAGEMENT AND SERVICES $114,786,000

NOAA requests a decrease of $99,811,000 for a total of $114,786,000 in the Ocean and Coastal Management and Services sub-program. Program changes include:

Coastal Management Grants: NOAA requests a decrease of $74,858,000 to terminate the Coastal Zone Management (CZM) Grants Program and the Regional Coastal Resilience Grants Program. States and other grantees have used these grants to support a broad range of activities, including coastal planning, habitat conservation and restoration, protection of life and property from coastal hazards, enhancement of public access to the coast for recreation, and urban waterfront and port revitalization. NOAA will continue to support states' participation in the National CZM program by supporting implementation of states' management plans, supporting federal consistency reviews, and providing technical assistance services.

National Estuarine Research Reserves System (NERRS): NOAA requests a decrease of $22,957,000 to terminate federal funding support to states for the management of the National Estuarine Research Reserve System. The NERRS is a network of 29 state-managed coastal sites designated to protect and study estuarine systems. NERRS matching funds from states total approximately $6.5 million per year. Under this proposal, NOAA will continue to provide national-level system coordination and in-kind support to state governments that choose to continue operating the reserves using state funds.

FY 2018 PAC BUDGET SUMMARY

NOAA requests a total of $1,966,000 to support Procurement, Acquisition, and Construction (PAC) activities of the National Ocean Service, a decrease of $1,697,000 in FY 2018 program changes.

PAC PROGRAM CHANGES FOR FY 2018:
A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

NOS CONSTRUCTION $1,966,000

NOAA requests a decrease of $1,697,000 in FY 2018 program changes in the NOS Construction sub-program for a total of $1,966,000. Program changes include:

National Estuarine Research Reserve System (NERRS) Construction: NOAA requests a decrease of $1,697,000 to eliminate the NERRS Construction and Land Acquisition Program. Reserves are publicly owned lands

and onsite facilities that provide opportunities for researchers as well as the public to better understand these estuarine areas. NOAA competitively awards these funds to states for capital construction and land acquisition in or around reserve sites.

MANDATORY FUNDS

DAMAGE ASSESSMENT AND RESTORATION REVOLVING FUND

The Damage Assessment and Restoration Revolving Fund was established in 1990 under Section 1012(a) of the Oil Pollution Act to facilitate (1) natural resources damage assessments and (2) restoration, replacement, or acquisition of injured or lost natural resources, including resources of National Marine Sanctuaries and National Estuarine Research Reserves, tidal wetlands, and other habitats for which NOAA is a trustee. The fund receives proceeds from claims against responsible parties as determined through court settlements or agreements.

SANCTUARIES ENFORCEMENT ASSET FORFEITURE FUND

The Sanctuaries Enforcement Asset Forfeiture Fund receives proceeds from civil penalties and forfeiture claims against responsible parties, as determined through court settlements or agreements, for violations of NOAA sanctuary regulations. Penalties received are spent on resource protection within a sanctuary in which the violation occurred.

GULF COAST ECOSYSTEM RESTORATION SCIENCE, OBSERVATION, MONITORING, AND TECHNOLOGY FUND

The Gulf Coast Ecosystem Restoration Science, Observation, Monitoring, and Technology Fund provides funding for the NOAA RESTORE Act. The purpose of this program is to initiate and sustain an integrative, holistic understanding of the Gulf of Mexico ecosystem and support restoration efforts and the long-term sustainability of the ecosystem.

A diver collects data on the condition of coral reefs in the Mariana Islands. Scientists collected biological, climatic, and socioeconomic data in 2016 to measure changes in U.S. coral reef ecosystems as part of the National Coral Reef Monitoring Program.

The U.S.S Monitor. This famed Civil War ironclad ship sank during a storm on December 31, 1862. Its discovery in 1973 prompted creation of our first national marine sanctuary, the Monitor National Marine Sanctuary.

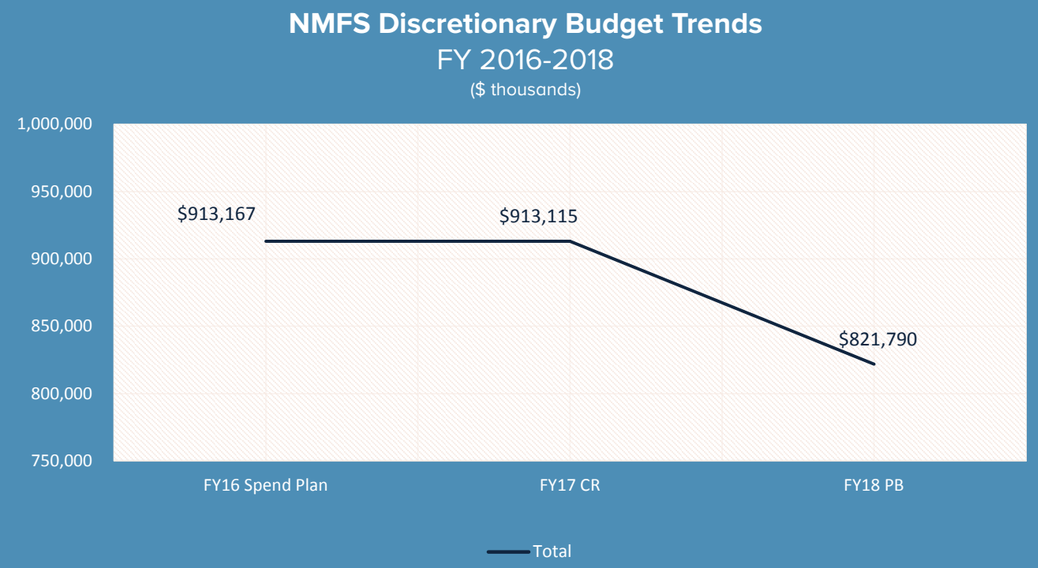
The Programmatic Damage Assessment and Restoration Plan/ Programmatic Environmental Impact Statement for the Deepwater Horizon oil spill in 2016 was the basis for the record settlement of $8.8 billion between the natural resource trustees and British Petroleum for the restoration of injured natural resources. Shown here: Marsh restoration at the Paul J. Rainey Wildlife Sanctuary in Louisiana.

CHAPTER THREE

National Marine Fisheries Service

NOAA's National Marine Fisheries Service (NMFS) is responsible for the stewardship of the Nation's living marine resources and their habitats. NMFS uses sound science and an ecosystem-based approach to management to promote productive and sustainable fisheries; safe sources of seafood; the recovery and conservation of protected resources; and healthy ecosystems. NMFS manages 474 marine and anadromous fish stocks within the U.S. Exclusive Economic Zone (EEZ) as well as invertebrates, sea turtles, marine mammals, and other marine and coastal species and their habitats.

Jay Stryon, owner of Carolina Mariculture Co., is shown culling and grading oysters in Cedar Island, North Carolina. Oysters are a top U.S. marine aquaculture species, valued at $136 million in 2014.



FY 2018 REQUEST $845,114,000

NOAA requests a total of $845,114,000 in discretionary and mandatory funds for NMFS mission functions. This total includes Operations, Research, and Facilities (ORF) and other accounts, and represents a total decrease of $107,779,000 in FY 2018 program changes. This program change total includes a decrease of $13,862,000 not described below, but represented in the NOAA Control Table in Appendix 2.

FY 2018 ORF BUDGET SUMMARY

NOAA requests a total of $821,441,000 to support the Operations, Research, and Facilities of NMFS, reflecting a decrease of $42,903,000 in FY 2018 program changes.

ORF PROGRAM CHANGES FOR FY 2018: A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

PROTECED RESOURCES SCIENCE AND MANAGEMENT $179,020,000

NOAA requests a decrease of $6,658,000 in FY 2018 program changes in the Protected Resources Science and Management sub-program for a total of $179,020,000. Program changes include:

Marine Mammals, Sea Turtles, and Other Species: Prescott Grants Program: NOAA proposes a decrease of $3,044,000 to eliminate funding for the John H. Prescott Marine Mammal Rescue Assistance Grants program in FY 2018. With this reduction there would be no funding for competitive grants to marine mammal stranding network organizations to rescue, rehabilitate, or investigate sick or injured marine mammals or to determine the cause of death of marine mammals. This is the only federal funding source for the stranding network; however, some network members may still operate in the absence of Prescott Grants, depending on the availability of private funding. Eliminating funding for this program will also decrease data and resources from the stranding network, which helps NOAA establish links between marine mammal health and the condition of coastal ecosystems.

FISHERIES SCIENCE AND MANAGEMENT $522,144,000

NOAA requests a decrease of $24,462,000 in FY 2018 program changes in the Fisheries Science and Management sub-program for a total of $522,144,000. Program changes include:

Fisheries Data Collections, Surveys, and Assessments: Reef Fish Stock Assessments: NOAA requests a decrease of $5,000,000 to eliminate funding for an agency-independent reef fish assessment in the Gulf of Mexico. Congress initially provided this funding in FY 2016, in coordination with OAR's National Sea Grant Program, to support innovative strategies to improve abundance estimates for Gulf of Mexico red snapper and other reef fish. NOAA anticipates that final funding will be awarded and implementation will begin for this assessment work by October 2017. NOAA will continue to produce stock assessments for the Gulf of Mexico reef fish complex as part of its national stock assessment process.

Fisheries Data Collections, Surveys, and Assessments: Cooperative Research: NOAA requests a decrease of $3,001,000 for its Cooperative Research program, which will reduce the number of projects from approximately 39 to 29 in FY 2018. The Cooperative Research program enables commercial and recreational fishermen to participate in the collection of fundamental fisheries information that supports the development and evaluation of management options. NOAA values cooperative research as an important part of fisheries data collection and will continue to execute this research with industry, fishermen, and other stakeholders with available funding.

Fisheries Management Programs and Services: National Catch Share Program: NOAA requests a decrease of $5,002,000 for its National Catch Share Program, which will reduce efforts to improve data collection in catch share fisheries and implementation of new catch share programs. "Catch share" programs allocate a specific portion of the total allowable fishery catch to individuals, cooperatives, communities, or other entities. The national program implements management improvements requested by the fishing industry and Regional Councils. NOAA will continue to provide support for the 16 programs currently under catch share management.

Students of NOAA Office of Law Enforcement's training on implementation of Port State Measures Agreement standards practicing techniques for properly measuring vessel markings. Credit: NOAA/OLE

Interjurisdictional Fisheries Grants: NOAA requests a decrease of $2,994,000 to eliminate funding for the Interjurisdictional Fisheries Grants program in FY 2018. With this reduction grants to states and territories to aid in interjurisdictional fisheries management would be terminated. This program supports the management of interjurisdictional fisheries resources throughout their habitat range, and research used to inform ecosystem approaches to conservation and management.

ENFORCEMENT $68,943,000

NOAA requests a decrease of $1,057,000 in the Enforcement sub-program for a total of $68,943,000.

HABITAT CONSERVATION AND RESTORATION $51,334,000

NOAA requests a decrease of $10,726,000 in FY 2018 program changes in the Habitat Conservation and Restoration sub-program for a total of $51,334,000. Program changes include:

A new rule authorizes NMFS to issue permits to grow native species—such as this red drum—in federal waters in the Gulf of Mexico for an initial period of 10 years. Credit: Katie Johnson, Florida Fish and Wildlife

Habitat Conservation and Restoration: Coastal Ecosystem Resiliency Grants: NOAA requests a decrease of $10,000,000 to eliminate funding for the Coastal Ecosystem Resiliency Grants program in FY 2018. These grants support on-the-ground habitat restoration (e.g., of wetlands, rivers, shorelines), which protects life and property and reduces communities' vulnerability to extreme weather, while supporting protected and managed species. With this and NOS' Regional Coastal Resilience Grants reduction (within the Coastal Zone Management Program, see p. 15, Chapter 2), funding for the coordinated, competitive resilience grants program would be terminated.

DISCRETIONARY FUNDS

PACIFIC COASTAL SALMON RECOVERY FUND

The Pacific Coastal Salmon Recovery Fund (PCSRF) was established by Congress in FY 2000 to protect, restore, and conserve Pacific salmon and steelhead and their habitats through competitive funding to states and Tribes. NOAA requests a decrease of $64,876,000 to eliminate funding for this grant program in FY 2018. The agency will continue its federal commitment to advancing Pacific salmon and steelhead recovery and Tribal treaty fishing rights through other NOAA programs as resources allow.

FISHERMEN'S CONTINGENCY FUND

The Fishermen's Contingency Fund allows NOAA to compensate U.S. commercial fishermen for damage or loss of fishing gear, vessels, or revenues caused by oil and gas-related obstructions in any area of the Outer Continental Shelf (OCS). The funds are derived from fees collected annually by the Secretary of the Interior.

FOREIGN FISHING OBSERVER FUND

The Foreign Fishing Observer Fund is financed through fees collected from owners and operators of foreign fishing vessels fishing within the U.S. EEZ. The fund is used by NOAA to pay salaries, administrative costs, data editing and entry costs, and other costs incurred for observers.

Hawaiian monk seals are one of the most endangered animal species in the world. NMFS and its partners have made significant headway in reducing extinction risks thus far, although much more work remains before the species is recovered. Credit: Brian Russo

FISHERIES FINANCE PROGRAM ACCOUNT

The Fisheries Finance Program is a national loan program that makes long-term, fixed-rate financing available to U.S. citizens who otherwise qualify for financing or refinancing for the construction, reconstruction, reconditioning, or the purchasing of fishing vessels, shoreside processing, aquaculture, mariculture facilities, or individual fishing quota.

MARINE MAMMAL UNUSUAL MORTALITY EVENT FUND

An unusual mortality event is defined under the Marine Mammal Protection Act (MMPA) as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." This fund supports efforts to examine carcasses and live stranded animals allowing understanding of threats and stressors and the ability to determine when a situation is "unusual."

MANDATORY FUNDS

PROMOTE AND DEVELOP AMERICAN FISHERY PRODUCTS & RESEARCH PERTAINING TO AMERICAN FISHERIES FUND

NOAA will transfer $154,199,000 from the Promote and Develop account to offset the appropriation requirements of NMFS' ORF account. The transfer to ORF will support data collection, data management, and fisheries stock assessment production within the Fisheries Data Collections, Surveys, and Assessments PPA. With this transfer, no funds will be available for the Saltonstall-Kennedy (S-K) program in FY 2018. The Promote and Develop account funds are derived from a transfer of thirty percent of duties on imported fisheries products from the Department of Agriculture.

FISHERIES FINANCE PROGRAM ACCOUNT

The mandatory component of the Fisheries Finance Program Account authority is subject to the Federal Credit Reform Act of 1990 (FCRA) (2 U.S.C. 661). The FCRA requires estimated loan costs to be appropriated in cash when Congress authorizes annual credit ceilings.

FEDERAL SHIP FINANCING FUND

This account manages the loan guarantee portfolio that existed prior to the enactment of the FCRA.

ENVIRONMENTAL IMPROVEMENT AND RESTORATION FUND

The Environmental Improvement and Restoration Fund was created by the Department of the Interior and Related Agencies Appropriations Act of 1998 for the purpose of carrying out marine research activities in the North Pacific.

LIMITED ACCESS SYSTEM ADMINISTRATION FUND

Under the authority of the MSA Section 304(d)(2)(A), NMFS must collect a fee to recover incremental costs of management, data collection, and enforcement of Limited Access Privilege programs. Fees are deposited into the Limited Access System Administration Fund. Fees shall not exceed three percent of the ex-vessel value of fish harvested under any such program.

WESTERN PACIFIC SUSTAINABLE FISHERIES FUND

Section 204(e) of the 2006 amendments to the MSA authorizes the establishment of the Western Pacific Sustainable Fisheries Fund to allow foreign fishing within the U.S. EEZ in the Western Pacific through a Pacific Insular Area Fishery Agreement.

FISHERIES ASSET FORFEITURE FUND

Section 311(e)(1) of the MSA authorizes the Secretary of Commerce to pay certain enforcement-related expenses from fines, penalties, and forfeiture proceeds received for violations of the MSA, MMPA, National Marine Sanctuaries Act, or any other marine resource law enforced by the Secretary. NOAA has established a Civil Monetary Penalty/Asset Forfeiture Fund.

NORTH PACIFIC OBSERVER FUND

The North Pacific Groundfish Observer Program places all vessels and processors in the groundfish and halibut fisheries off Alaska into one of two observer coverage categories: (1) a full coverage category, and (2) a partial coverage category. In the partial coverage category, landings from all vessels will be assessed a 1.25 percent fee on standard ex-vessel prices of the landed weight of groundfish and halibut. Money generated by this fee will pay for observer coverage in the partial coverage category in the following year.

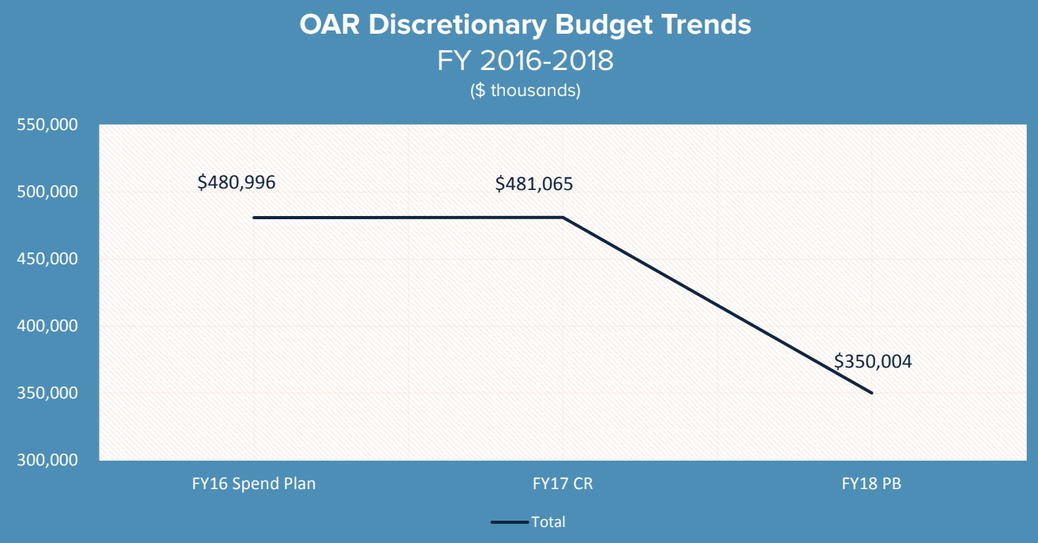
A humpback whale mother with her calf in the waters of the Hawaiian Islands Humpback Whale National Marine Sanctuary.

Chapter 4

Office of Oceanic and Atmospheric Research

NOAA's Office of Oceanic and Atmospheric Research (OAR) conducts and integrates research across NOAA. OAR's interdisciplinary research promotes better understanding of the Earth and its scientific results improve NOAA science and services and strengthen decision-making across the country. OAR research improves the accuracy of weather forecasts; enables communities to plan for and respond to short- and long-term weather-related events, such as tornadoes and drought; and enhances the protection and management of the Nation's coastal and ocean resources.

Parallel cloud bands converge at the horizon over a landscape of ice floes, melt pools, and a polynya to the right.



FY 2018 REQUEST $350,004,000

In FY 2018, NOAA requests a total of $350,004,000 to support OAR's continued and sustained operations. This total includes Operations, Research, and Facilities (ORF) and Procurement, Acquisition, and Construction (PAC) accounts and is composed of a net decrease of $139,028,000 in FY 2018 program changes. This program change total includes a decrease of $4,402,000 not described below, but represented in the NOAA Control Table in Appendix 2. OAR's FY 2018 request prioritizes OAR's core functions and reduces extramural grants. OAR will continue to provide robust science that is instrumental to preventing the loss of human life, managing natural resources, and maintaining a strong economy.

FY 2018 ORF BUDGET SUMMARY

NOAA requests a total of $324,004,000 to support the Operations, Research, and Facilities of OAR, reflecting a decrease of $144,987,000 in FY 2018 program changes.

ORF PROGRAM CHANGES FOR FY 2018: A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

CLIMATE RESEARCH $128,000,000

NOAA requests a decrease of $31,116,000 in FY 2018 program changes in the Climate Research sub-program for a total of $128,000,000. Program changes include:

Climate Research: Reduce Competitively Funded Research: NOAA requests decreases of $2,230,000 from Regional Climate Data and Information and $21,472,000 from Climate Competitive Research to reduce competitively funded climate research. This will reduce NOAA's funding for Cooperative Institutes, universities, NOAA laboratories, and other partners that advance understanding of the Earth's climate system.

Climate Research: Eliminate Arctic Research: NOAA requests decreases of $2,230,000 from Climate Laboratories and Cooperative Institutes and $3,770,000 from Regional Climate Data and Information. This reduction will terminate Arctic research focused on improvements to sea ice modeling and predictions that support the safety of fishermen, commercial shippers, cruise ships, and local communities. NOAA will also terminate modeling of ecosystem and fisheries vulnerabilities.

WEATHER & AIR CHEMISTRY RESEARCH $84,887,000

NOAA requests a decrease of $23,417,000 in FY 2018 program changes in the Weather & Air Chemistry Research sub-program for a total of $84,887,000. Program changes include:

Weather and Air Chemistry Laboratories and Cooperative Institutes: Close the Air Resources Laboratory: NOAA requests a decrease of $4,699,000 to close the Air Resources Laboratory (ARL). ARL's research on air chemistry, mercury deposition, and atmospheric dispersion of harmful materials will be terminated, and its remaining research functions will be consolidated into other NOAA laboratories. NOAA will also no longer support upgrades to the Hybrid Single Particle Lagrangian Integrated Trajectory (HYSPLIT) model, a particle model that has emergency response applications, including tracking mercury deposition and anthrax bioterrorism.

Weather and Air Chemistry Laboratories and Cooperative Institutes: Close the Unmanned Aircraft Systems Program Office: NOAA requests a decrease of $5,375,000 to terminate the Unmanned Aircraft Systems (UAS) Program Office. This program office coordinates UAS research and development, and provides intramural grants to explore the use of UAS for current and future weather, polar, and marine observing operations across NOAA.

Weather and Air Chemistry Laboratories and Cooperative Institutes: End Vortex-Southeast: NOAA requests a decrease of $5,000,000 to terminate Vortex-Southeast, a program used to detect, respond to, and warn against tornadoes in the Southeastern United States.

Joint Technology Transfer Initiative: Terminate the Joint Technology Transfer Initiative: NOAA requests a reduction of $5,989,000 to terminate the Joint Technology Transfer Initiative (JTTI) used to transition the latest technological advances in weather research into products and services for communities and businesses.

OCEAN, COASTAL & GREAT LAKES RESEARCH $98,996,000

NOAA requests a decrease of $90,393,000 in FY 2018 program changes in the Ocean, Coastal, and Great Lakes Research sub-program for a total of $98,996,000. Program changes include:

Ocean, Coastal and Great Lakes Laboratories and Cooperative Institutes: Eliminate Autonomous Underwater Vehicle Demonstration Testbed: NOAA requests a decrease of $2,000,000 to eliminate the autonomous underwater vehicle demonstration testbed. NOAA will retain its fleet of autonomous vehicles, but will reduce funding for ongoing development, testing, and evaluation.

Global Hawk in air during Sensing Hazards with Operational Unmanned Technology (SHOUT) Range Flight.

Nicki Powell, a Sea Grant intern, collecting invertebrates from seagrass at low tide in Newport's Yaquina Bay.

Ocean, Coastal and Great Lakes Laboratories and Cooperative Institutes: End Genomics Research: NOAA requests a decrease of $1,880,000 to eliminate the environmental genomics program at the Atlantic Oceanographic and Meteorological Laboratory (AOML), which studies genetic material to better understand how organisms are distributed and how they are affected by changing ocean conditions. This research supports coral monitoring and restoration, fisheries assessments for species such as Bluefin tuna larvae, and recruitment models of endangered species.

National Sea Grant College Program: Terminate the National Sea Grant Program: NOAA requests decreases of $63,951,000 in the National Sea Grant College Program base and $8,989,000 in Marine Aquaculture to terminate the National Sea Grant College Program. This budgetary decrease will end federal support for the network of 33 Sea Grant programs located in coastal States and territories and will terminate Sea Grant's Marine Aquaculture Program.

Ocean Exploration and Research: Reduce Ocean Exploration: NOAA requests a decrease of $12,500,000 to reduce mapping and exploration of unknown and poorly understood areas of the ocean. With its $19.4 million request in FY 2018, NOAA will continue to fund a limited number of days for Extended Continental Shelf mapping and conduct a limited number of exploration missions. NOAA will prioritize activities that support the nation's security, economy, environmental health, and increasing seafood demand.

FY 2018 PAC BUDGET SUMMARY

NOAA requests a total of $26,000,000 to support Procurement, Acquisition, and Construction activities for OAR, reflecting an increase of $5,959,000 in FY 2018 program changes.

PAC PROGRAM CHANGES FOR FY 2018: A summary of funding by Program, Project and Activity (PPA) is located in Appendix 2. Detailed descriptions of all program changes by PPA are located in the NOAA FY 2018 Congressional Justification.

SYSTEMS ACQUISITION $26,000,000

NOAA requests an increase of $5,959,000 in FY 2018 program changes in the Systems Acquisition sub-program for a total of $26,000,000. Program changes include:

Research Supercomputing: Recapitalize Research & Development High Performance Computing: NOAA requests an increase of $5,959,000 to continue recapitalization of its research and development (R&D) High Performance Computing (HPC) infrastructure. Building on previous requests, this would complete the recapitalization of Gaea, a NOAA R&D supercomputer located in Oak Ridge, TN, and establish a new funding model to regularly upgrade NOAA's computing capacity. Regular recapitalization and refresh for NOAA's R&D HPC will provide more stable computing capacity and accelerate scientific discovery across NOAA's missions in weather, climate, oceans, and costs.

Research Supercomputing/CCRI (Budget Authority in Thousands)	
FY 2018 REQUEST	$26,000
FY 2019	$30,341
FY 2020	$34,341
FY 2021	$34,341
FY 2022	$34,341

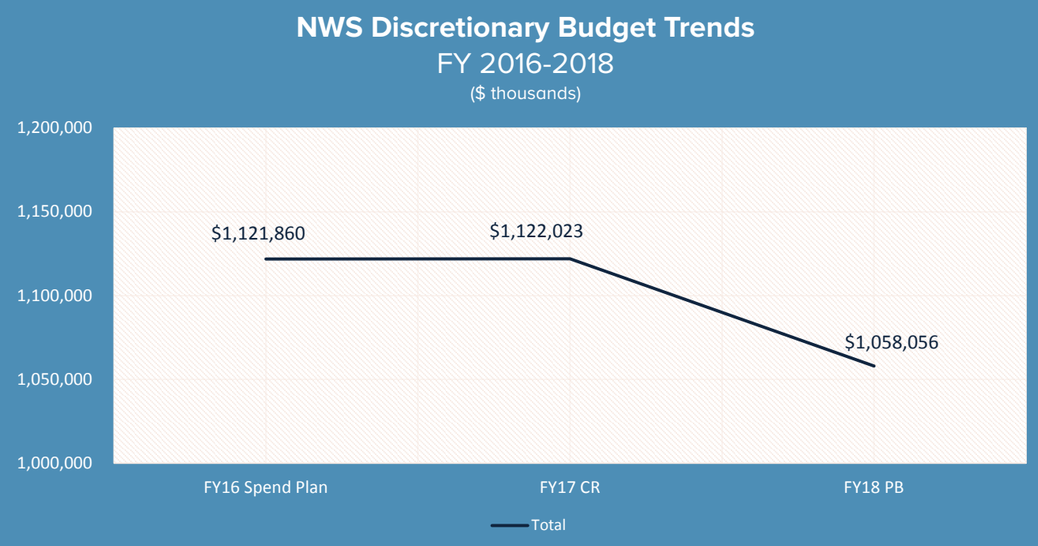
The global flotilla of more than 3,600 robotic profiling floats provides crucial information on upper layers of the world's ocean currents. Credit: Alicia Navidad/CSIRO

CHAPTER FIVE

National Weather Service

NOAA's National Weather Service (NWS) is the official government authority for issuing warnings during life-threatening weather events. Every day, NWS forecasters issue public, aviation, marine, fire weather, climate, space weather, river, and flood forecasts and warnings for the protection of life, property, and the enhancement of the national economy. NWS forecasters work with local partners and communities to understand and manage risk, formulate emergency response plans, and promote community preparedness and public safety. Each year, NWS collects approximately 76 billion observations and issues approximately 1.5 million forecasts and 50,000 warnings. NWS data and products are publicly available through a national information infrastructure used by the public, governmental agencies, the private sector, and the global community.

Doppler in morning light.



FY 2018 REQUEST $1,058,056,000

In FY 2018, NOAA requests a total of $1,058,056,000 to focus on NWS's core mission, which is to provide weather, water, and climate forecasts and warnings that protect lives and property. NWS will continue to pursue its Weather-Ready Nation goals, including activities to improve forecast accuracy and consistency and enhance forecast collaboration with core partners.

This total includes Operations, Research, and Facilities (ORF) and Procurement, Acquisition, and Construction (PAC) accounts and is composed of a net decrease of $83,993,000 in program changes. This program change total includes a decrease of $8,135,000 not described below, but represented in the control table in Appendix 2.

FY 2018 ORF BUDGET SUMMARY

NOAA requests a total of $936,056,000 to support the Operations, Research, and Facilities of the NWS, composed of a net decrease of $70,934,000 in program changes.

ORF PROGRAM CHANGES FOR FY 2018:
A summary of funding by PPA is located in Appendix 2. Detailed descriptions of program changes provided below are located in the NOAA FY 2018 Congressional Justification.

OBSERVATIONS $207,660,000

NOAA requests a decrease of $28,925,000 in program changes for a total of $207,660,000 in the Observations sub-program. Program changes include:

Observations: Reduce Surface and Marine Observations: NOAA will reduce surface and marine observations by $25,989,000, including the National Mesonet Program, Weather and Ocean Platform, and the Tropical Atmosphere Ocean (TAO) array. This reduction will require the NWS to limit mesoscale meteorological observations to the highest-priority geographic areas. It also will reduce marine observations that inform forecasts and warnings as well as understanding of global environmental patterns, such as El Niño. Funding for the Deep-ocean Assessment and Reporting of Tsunamis (DART®) moorings will be eliminated.

CENTRAL PROCESSING $86,144,000

NOAA requests a net decrease of $8,901,000 in program changes for a total of $86,144,000 in the Central Processing sub-program. Program changes include:

Central Processing: Advanced Weather Interactive Processing System Cyclical Refreshment: NOAA requests an increase of $5,130,000 for minimal funding levels required for Advanced Weather Interactive Processing System (AWIPS) cyclical replacement for AWIPS servers, workstations, monitors, and printers. AWIPS is the interactive computer system that integrates all meteorological, hydrological, satellite, and radar data, and that forecasters use to prepare and issue accurate and timely forecasts and warnings. This investment will reduce the risk of hardware failure and component degradation, which results in system downtime that can impede critical weather forecasts and warnings.

Central Processing: Establishment of Regional Enterprise Application Development and Integration Teams: NOAA requests a decrease of $10,100,000 to implement significant efficiencies that can be achieved by transitioning to a new information technology (IT) service delivery model for Weather Forecast Offices (WFO). Consolidating IT support functions (along with upgrading systems and new technologies) is a critical part of evolving the NWS, right-sizing the workforce and creating an appropriate organizational structure.

Central Processing: Slow Advanced Hydrologic Prediction Services Expansion: NOAA requests a decrease of $2,000,000 to forgo additional development and implementation of the Hydrologic Ensemble Forecast Service (HEFS) at Advanced Hydrologic Prediction Services (AHPS) locations. The HEFS improves the reliability of ensemble forecasts of precipitation, temperature, and streamflow by providing a better understanding of uncertainty ranges for hydrologic forecasts at all time scales. This effort will enable better informed decisions regarding water management risk.

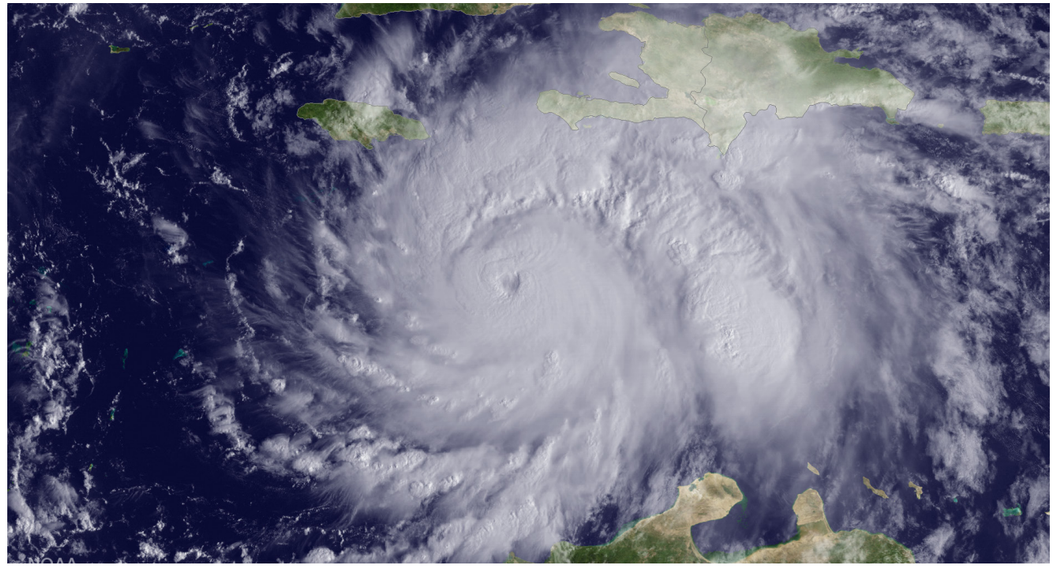
ANALYZE, FORECAST, AND SUPPORT $476,099,000

NOAA requests a decrease of $15,594,000 in program changes for a total of $476,099,000 in the Analyze, Forecast, and Support sub-program. Program changes include:

Analyze, Forecast, and Support: Reduce Tsunami Warning Program: NOAA requests a decrease of $11,000,000 to reduce or eliminate components of its Tsunami Research and Operational Warning program. This reduction will affect monitoring, reporting, modeling research, and support to partners. NOAA will retain forecast and warning capacity through a single operational Tsunami Warning Center. Support for preparedness education, outreach, and innovation research will cease. This program change request is consistent with the elimination of the DART® moorings and the sea level and seismic networks formerly supported through the NWS Observations PPA.

Analyze, Forecast, and Support: Terminate Aviation Science Research to Operations: NOAA requests a decrease of $1,806,000 to terminate its aviation science research-to-operations (R2O) effort. NOAA will be able to maintain the current level of operational aviation weather forecast products and services provided to users. However, NOAA will stop further efforts to develop and implement aviation tools and capabilities needed by the Federal Aviation Administration to support the Next Generation Air Transportation System (NextGen). This program change is consistent with the aviation science R2O termination request from the Science and Technology Integration PPA.

Analyze, Forecast, and Support: Consolidate Climate Prediction Center/Weather Prediction Center Functions: NOAA requests a decrease of $1,200,000 to consolidate National Centers for Environmental Prediction functions of the Climate Prediction Center (CPC) into the Weather Prediction Center (WPC). This consol-



Hurricane Matthew shortly before its Haitian landfall.

idation will result in a more continuous suite of products and greater consistency in presentation of data and forecast information at one national center, as well as reduced capacity for some sub-seasonal to seasonal weather predictions and real-time blended weather observations.

DISSEMINATION $49,985,000

NOAA requests a net increase of $4,020,000 in program changes for a total of $49,985,000 in the Dissemination sub-program. Program changes include:

Dissemination: Enhance the Resilience and Reliability of Integrated Dissemination Program Applications: NOAA requests an increase of $4,000,000 to fund upgrades and enhancements to the Integrated Dissemination Program (IDP) systems in College Park, MD and Boulder, CO. IDP systems provide scalable, robust, secure, and commonly shared IT infrastructure to ensure resilience and reliability during critical weather events. The requested funding will help NOAA integrate mission-critical applications and enhance systems reliability.

Dissemination: Restore Funding to Weather Information Distribution Services: NOAA requests an increase of $1,996,000 to fully fund the operations and maintenance of the Weather Information Distribution Services. Distribution networks such as NOAA Weather Radio (NWR) rely on the Weather Information Distribution Services to communicate weather-related warnings directly to emergency managers and the American public. Without this funding, NWR would decommission transmitter sites at highest-cost locations in rural and urban areas. This request funds NWR at minimum levels to operate all 1,029 current transmitter stations.

Dissemination: Reduce Support for NextGen IT Web Services: NOAA requests a decrease of $1,100,000 to reduce NOAA information technology (IT) support to the Federal Aviation Administration Next Generation Air Transportation System (NextGen) program. NOAA will maintain existing support to accommodate data providers and users and increase data throughput. However, enhancements such as providing Himawari satellite data, new ensemble model parameters, new observations, volcanic ash advisories, and graphical aviation products will not be provided.

SCIENCE AND TECHNOLOGY INTEGRATION $116,168,000

NOAA requests a decrease of $21,534,000 in program changes for a total of $116,168,000 in the Science and Technology Integration sub-program. Program changes include:

Science and Technology Integration: Terminate Investment in Mid-Range Weather Outlooks: NOAA requests a decrease of $5,000,000 to terminate all development, testing, and implementation of experimental products to extend operational weather outlooks, including temperature and precipitation outlooks, from 16 days to 30 days. This decrease will terminate efforts to support the transition of new research to operational use as well as efforts to develop and implement improved coupled global weather prediction models.

Science and Technology Integration: Consumer Option for an Alternative System to Allocate Losses Act: NOAA requests a decrease of $4,629,000 to terminate actions associated with the implementation of the Consumer Option for an Alternative System to Allocate Losses (COASTAL) Act of 2012. The COASTAL Act requires NOAA to produce detailed “post-storm assessments” in the aftermath of a damaging tropical cyclone that strikes the United States or its territories. NWS will continue to further COASTAL Act objectives to the extent possible with existing resources and will continue to make available observational and model data related to land-falling tropical cyclones.

Science and Technology Integration: Reduce Investment in Numerical Weather Prediction Modeling: NOAA requests a reduction of $5,000,000 to slow the transition of advanced modeling research into operations for improved warnings and forecasts. This affects the Next Generation Global Prediction System, Hurricane Forecast Improvement Program, NOAA Environmental Modeling System, and other model coupling, data assimilation, and collaborative research efforts.

Science and Technology Integration: Reduce Investment in the National Water Model: NOAA requests a reduction of $3,101,000 to slow the incorporation of upgrades into the National Water Model. In FY 2016, NOAA launched the first operational National Water Model, which significantly improved flood forecasting. NOAA will continue to provide valuable river forecast guidance to emergency managers and the public.

Science and Technology Integration: Reduce Testing, Evaluation, and Implementation of Operations and Workforce Analysis Recommendations: NOAA requests a decrease of $2,000,000 as the Operations and Workforce Analysis (OWA) is completed and NOAA’s efforts have shifted to testing, evaluation, and implementation phases. NOAA will prioritize field demonstrations aimed at supporting consistent implementation of Impact-Based Decision Support Services (IDSS).

Science and Technology Integration: Terminate Aviation Science Research to Operations: NOAA requests a decrease of

Flying through an atmospheric river to study cloud and precipitation properties during the CalWater 2 field campaign of the NOAA WP-3D “Miss Piggy”.

$1,000,000 to terminate aviation science research and development and R2O efforts within NWS. NOAA will be able to maintain the current level of operational aviation weather forecast products and services provided to users. However, NOAA will terminate efforts to further develop and implement key aviation tools and capabilities required by the Federal Aviation Administration to support the Next Generation Air Transportation System (NextGen). This program change is consistent with the aviation science R2O termination request from the Analyze, Forecast, and Support PPA.

FY 2018 PAC BUDGET SUMMARY

NOAA requests a total of $122,000,000 to support Procurement, Acquisition, and Construction activities of the NWS, composed of a net decrease of $13,059,000 in program changes.

PAC PROGRAM CHANGES FOR FY 2018:
A summary of funding by PPA is located in Appendix 2. Detailed descriptions of all program changes provided below are included in the NOAA FY 2018 Congressional Justification.

SYSTEMS ACQUISITION $113,366,000

NOAA requests a net decrease of $13,059,000 in program changes for a total of $113,366,000 in the Systems Acquisition sub-program. Program changes include:

Observations: Automated Surface Observing System Service Life Extension Program: NOAA requests an increase of $3,986,000 to support its portion of the Service Life Extension Program (SLEP) on the aging Automated Surface Observing System (ASOS), which serves as the Nation's primary surface weather observing network. This is a multi-year, tri-agency effort that is anticipated to be completed in 2024. ASOS data increases accuracy and timeliness of NWS forecasts and warnings, particularly near airports, enhancing aviation safety and efficiency. Without this investment, ASOS availability will degrade rapidly beginning in 2018, causing data outages and regional gaps in service and undermining NOAA's ability to provide aviation and general forecasts.

Observations (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$20,674
FY 2019	$22,909
FY 2020	$22,199
FY 2021	$21,944
FY 2022	$20,611

Central Processing: Reduce Research and Development High Performance Computing: NOAA requests a decrease of $6,000,000 in NWS funding of NOAA's Research and Development High Performance Computing system, paired with a $5,959,000 increase in OAR. This decrease will eliminate one of NOAA's supercomputing systems (Jet) located in Boulder, CO and will reduce NWS's supercomputing use and associated contract support in Fairmont, WV.

Central Processing (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$58,139
FY 2019	$58,139
FY 2020	$58,139
FY 2021	$58,139
FY 2022	$58,139

Dissemination: Re-architected NWS Telecommunications Gateway: NOAA requests a decrease of $7,604,000 to reflect the completion of a re-architected NWS Telecommunications Gateway (NWSTG) at the Integrated Dissemination Program (IDP) information technology infrastructure primary and backup sites in College Park, MD and Boulder, CO. The re-architected NWSTG fully eliminates a single point of failure for the collection and dissemination of timely weather, climate, and hydrologic products. It also ensures modern, scalable, extensible, and reliable dissemination and infrastructure services using best practices.

NOAA implemented the first version of the National Water Model to greatly improve flood forecasting and NOAA's ability to meet the needs of stakeholders by providing more frequent, accurate, and expanded water information.

Dissemination: Ground Readiness Project: NOAA requests a decrease of $3,441,000 to reflect the completion of the NWS Ground Readiness Project (GRP), which has enabled NOAA to accommodate substantially increased environmental satellite, radar, and model data to improve weather warnings and forecasts. Improvements to information technology infrastructure associated with GRP ensure that data and information are available, accessible, and timely. Preparing for this substantial increase in data volume is critical to NOAA's priority to promote a Weather-Ready Nation.

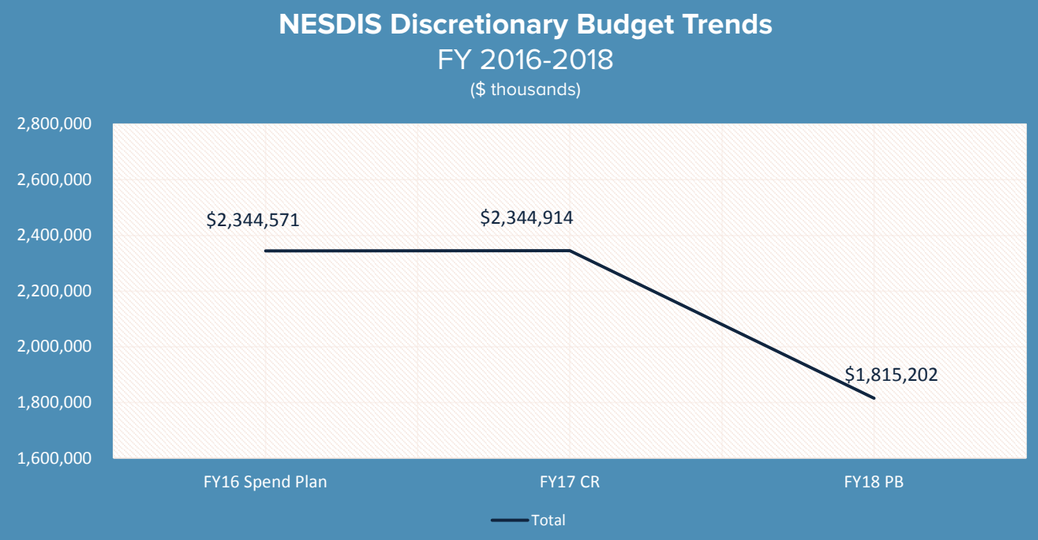
Dissemination (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$34,553
FY 2019	$34,553
FY 2020	$34,553
FY 2021	$34,553
FY 2022	$34,553

CHAPTER SIX

National Environmental Satellite, Data and Information Service

The National Environmental Satellite, Data, and Information Service (NESDIS) provides timely access to global environmental data from satellites and other sources to promote, protect, and enhance the Nation's economy, security, environment, and quality of life. Along with launching and operating NOAA's satellites, NESDIS manages the product development, archiving, and distribution of vast amounts of environmental data. NOAA satellites support the weather forecasting enterprise by providing timely, high quality data for model outputs and publicly disseminated weather forecasts. NESDIS also works to develop the next generation of satellites to avoid gaps in satellite coverage that could affect NOAA's primary mission essential functions.

On January 15, 2017, GOES-16 captured this view of the moon as it looked across the surface of the Earth. Like earlier GOES satellites, GOES-16 will use the moon for calibration.



FY 2018 REQUEST $1,815,202,000

NOAA requests a total of $1,815,202,000 to support the continued and enhanced operations of NESDIS. This total includes Operations, Research, and Facilities (ORF) and Procurement, Acquisition, and Construction (PAC) accounts and includes a net decrease of $534,027,000 in FY 2018 program changes. This program change total includes a decrease of $3,321,000 not described below, but represented in the NOAA Control Table in Appendix 2. Of particular note, this request includes continued support for development of NOAA's polar-orbiting and geostationary satellite programs, and increased support for satellite operations and Commercial Remote Sensing Regulatory Affairs. In addition, NOAA's FY 2018 budget includes funds to support further evaluation and testing of commercial space-based data for NOAA operations.

FY 2018 ORF BUDGET SUMMARY

NOAA requests a total of $234,575,000 to support the Operations, Research, and Facilities of NESDIS, reflecting a net decrease of $751,000 in FY 2018 program changes.

ORF PROGRAM CHANGES FOR FY 2018: A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

ENVIRONMENTAL SATELLITE OBSERVING SYSTEMS $178,056,000

NOAA requests a net increase of $5,533,000 for a total of $178,056,000 in the Environmental Satellite Observing Systems sub-program. Program changes include:

Satellite and Product Operations: NESDIS IT Security: NOAA requests an increase of $4,530,000 to improve data flow resiliency across critical information technology (IT) systems and infrastructure. Specifically, this request will fund the Office of Satellite and Product Operations' efforts to identify and mitigate vulnerabilities affecting the availability, integrity, security, and delivery of NOAA's data. NOAA will use these funds to continue to implement recommendations made in the 2014 DOC Office of Inspector General report (OIG-14-025-A) and address known deficiencies. NOAA uses complex IT systems to produce weather forecasts; issue advisories, watches, and warnings; and disseminate environmental information. IT system failures caused by cyber-attacks, equipment malfunctions, or disasters threaten NOAA's ability to collect and process raw meteorological data, analyze and model weather, and disseminate the information and warnings that save lives and preserve property.

Satellite and Product Operations: Jason-3 Operations: NOAA requests an increase of $3,138,000 for technical and engineering assistance and a planned system refresh of the current ground system. Following the successful launch of Jason-3 on January 17, 2016, NOAA assumed responsibility for sustaining post-launch activities to assure continued observations from the U.S. instruments aboard the satellite. This request will provide technical and engineering support to monitor U.S. instruments and conduct a planned system refresh on the current ground system, which was built and implemented as part of the Jason-2 mission. Technical and engineering assistance, monitoring of U.S. instruments, and continued on-orbit support along with the planned ground system refresh are critical to maintaining the production of Jason-3 altimetry products and ensuring the continuity of the 20-year record of sea level observations. Jason satellite data support scientific, commercial, and operational applications, including hurricane intensity forecasting, fisheries management, and oil spill response, for both the marine and atmospheric environments.

The Jason-3 satellite carries instruments that will measure the surface height of the global ocean, monitor the rate of sea-level rise and help forecast the strength of tropical cyclones that threaten America's coasts.

Satellite and Product Operations: DSCOVR Operations: NOAA requests an increase of $2,421,000 to continue on-orbit support for the DSCOVR satellite, which launched on February 11, 2015. Since July 2016 DSCOVR has provided critical space weather information to NOAA's Space Weather Prediction Center for use in the development of accurate and early warnings of potentially destructive space weather events. Ensuring safe operations for the DSCOVR satellite has required a higher level of engineering and management support than anticipated, and has resulted in an increase in the day to day support required to continue operations. This request will provide the Office of Satellite and Product Operations with the resources to conduct timely recovery actions when an anomaly occurs, and will mitigate the risk of a delay or disruption in the flow of solar wind data to users. Space weather events can disrupt electrical grids, communications systems, Global Positioning System navigation, air travel, satellite operations, and human spaceflight.

Product Development, Readiness & Application: Decrease Data Products Developed: NOAA requests a decrease of $3,629,000, which will reduce the number of data products, applications, techniques, and systems developed within the Product Development, Readiness & Application (PDR&A) program. Funding at the proposed level will limit NESDIS's capacity to: identify new requirements for

satellite data and environmental information, conduct necessary research, and validate the accuracy of products disseminated to customers.

NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION $56,519,000

NOAA requests a decrease of $6,284,000 for a total of $56,519,000 in the National Centers for Environmental Information sub-program. Program changes include:

National Centers for Environmental Information: Termination of Big Earth Data Initiative: NOAA requests a decrease of $1,686,000 to terminate the Big Earth Data Initiative (BEDI) program. BEDI was established to maximize public access to NOAA's environmental observations. The FY 2018 proposal will not affect NOAA's support of other data stewardship priorities in the Environmental Data Management Framework, and NOAA will continue to leverage other partnerships and programs within NCEI to continue to improve data access, compatibility, and documentation.

National Centers for Environmental Information: Regional Climate Centers: NOAA requests a decrease of $3,000,000 to the Regional Climate Centers (RCC) program. The RCCs contribute to the production and delivery of climate data and information for decision makers and other users at the local, state, regional, and national levels. With this reduction, NOAA will rely on state and local service providers to cover the necessary services.

The Geostationary Operational Environmental Satellite-R (GOES-R) going through final testing on November 18, 2016 prior to launch.

FY 2018 PAC BUDGET SUMMARY

NOAA requests a total of $1,580,627,000 to support the Procurement, Acquisitions, and Construction (PAC) activities of NESDIS, reflecting a decrease of $533,276,000 in FY 2018 program changes.

PAC PROGRAM CHANGES FOR FY 2018: A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of all program changes by PPA are located in the NOAA FY 2018 Congressional Justification.

SYSTEMS ACQUISITION: NOAA requests a decrease of $533,502,000 for a total of $1,579,479,000 in the Systems Acquisition sub-program. Program changes include:

Geostationary Systems–R: NOAA requests a planned decrease of $317,711,000 in the Geostationary Operational Environmental Satellites - R (GOES-R) Series program. The remaining funding of $518,532,000 is needed to sustain the instruments, satellite, and launch vehicle activities, to maintain launch schedules and ensure the continuity of the GOES-R Series program's geostationary observing platforms. The GOES program, which has provided essential observational data since 1975, supports the National Weather Service (NWS) in forecasting, tracking, and monitoring severe storms. The GOES-R Series will provide observational data continuity through 2036 and significant enhancements to legacy GOES data to all operational users of geostationary observations. GOES-R Series observations provide coverage of the western hemisphere from a geostationary orbit, allowing continuous monitoring from the same angle during the detection and tracking of tropical cyclones, volcanic eruptions, fire hot spots, cloud and atmospheric moisture changes, lightning, currents flow dynamics, and atmospheric smoke and dust.

The Geostationary Operational Environmental Satellite-R Series (GOES-R) launched on November 19, 2016 at 6:42pm from Cape Canaveral, Florida.

GOES-R Series (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$518,532
FY 2019	$408,979
FY 2020	$296,374
FY 2021	$292,500
FY 2022	$292,500

*This profile reflects the PAC budget for the GOES-R Series program.

The Jason-3 satellite undergoes tests prior to being launched on January 17, 2016. Many of the tests take place at Thales Alenia Space in France.

Joint Polar Satellite System (JPSS): NOAA requests a planned decrease of $31,662,000 in the JPSS program. The remaining $775,777,000 will allow NOAA to operate and sustain the Suomi National Polar-orbiting Partnership (Suomi-NPP); continue the launch preparation activities for JPSS-1 satellites (anticipated to launch during Q4 FY 2017); continue development of the instruments and spacecraft for JPSS-2; and continue operations, maintenance, and sustainment of the ground system for the JPSS constellation. In FY 2018 NOAA will continue to prioritize maintaining the accelerated JPSS-2 launch commitment date of Q1 FY 2022. JPSS provides meteorological data and observations of the atmosphere, ocean, and land for weather forecasting. Data from civilian polar-orbiting satellites are the primary input (approximately 85 percent) for all Numerical Weather Prediction (NWP) models. JPSS allows for accurate forecasts three to seven days in advance of a severe weather event. These early warnings allow emergency managers and communities to make timely decisions to protect lives and property.

JPSS (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$775,777
FY 2019	$548,035
FY 2020	$445,082
FY 2021	$376,061
FY 2022	$263,013

Polar Follow On (PFO): NOAA requests a decrease of $189,344,000 for a total request of $179,956,000 to continue development activities for the PFO/JPSS-3 and PFO/JPSS-4 missions. These missions will allow for continuity of polar observations in the afternoon orbit beyond JPSS-2. NOAA will initiate a re-plan of the PFO program and will work to improve its constellation strategy considering all the polar satellite assets to ensure polar weather satellite continuity while seeking cost efficiencies, managing and balancing system technical risks, and leveraging partnerships. In FY 2018, NOAA will also identify new launch dates for JPSS-3 and JPSS-4 consistent with the revised budget profile. Continuing support for the polar satellite system will enable scientists and forecasters to monitor and predict weather patterns with greater accuracy and to study long-term trends. Information from the polar satellite constellation supports every area of NOAA's mission, including ensuring a Weather-Ready Nation, healthy coasts, and resilient coastal communities.

PFO (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$179,956
FY 2019	TBD
FY 2020	TBD
FY 2021	TBD
FY 2022	TBD

Constellation Observing System for Meteorology, Ionosphere and Climate -2 (COSMIC-2)/ Global Navigation Satellite System Radio Occultation (GNSS RO): Ground System to Process Radio Occultation Data: NOAA requests a decrease of $3,981,000 for this program, which will continue to support ground system development necessary for the launch and operation of the COSMIC-2A constellation in the equatorial low earth orbit. COSMIC-2A will be launched in 2017, and data will be received by a combination of international ground stations (Taiwan, Brazil, Australia), Air Force Mark IV-B ground stations (Hawaii, Honduras, Guam, Kuwait), and commercial ground stations (Ghana and Mauritius). Data latency, or the time it takes to receive the data, is greatly improved for weather applications with each additional ground reception station. In FY 2018, NOAA will continue to fund the procurement of services for at least one additional commercial ground station to reduce data latency and increase data reliability at low cost. NOAA will also continue to provide data processing and archiving of COSMIC-2A data.

GNSS RO Ground System (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$6,100
FY 2019	TBD
FY 2020	TBD
FY 2021	TBD
FY 2022	TBD

Satellite Ground Services (SGS): Satellite Ground Services Sustainment: NOAA requests a decrease of $3,153,000, which will limit Ground Enterprise Architecture Services activities to the existing ground systems as well as those in development. NOAA will continue sustainment, including technology refresh and hardware/software upgrades, of the existing unique ground systems as well as those in development. This request also supports the GOES-R Series and JPSS Program offices by providing engineering and project management support for all ground system design, development, integration and testing, and infrastructure. SGS staff are also participating in the completion of the new GOES-R Series ground system.

Satellite Ground Services (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$53,000
FY 2019	$80,974
FY 2020	$95,000
FY 2021	$95,000
FY 2022	$95,000

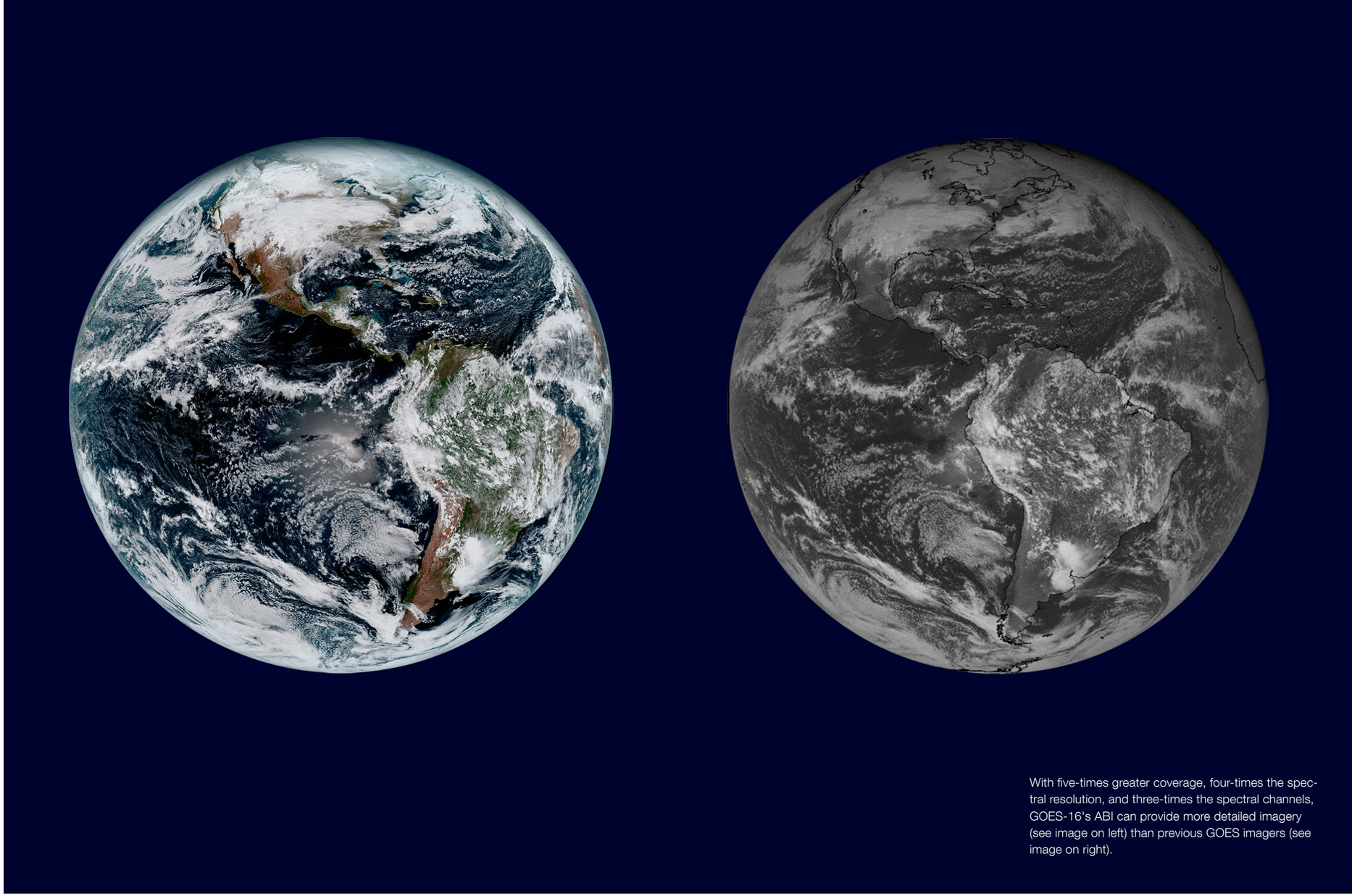
* In FY 2018, NOAA requests a technical adjustment to transfer SGS funding to operate and maintain the Wallops, VA backup facility for the NSOF Environmental Satellite Processing Center. See the FY 2018 Congressional Justification.

System Architecture and Advanced Planning: Strengthening NOAA's Future Satellite Capabilities: NOAA requests an increase of $1,007,000 to begin pre-acquisition activities informed by the NOAA Satellite Observing System Architecture (NSOSA) study to ensure continuity of NOAA's environmental satellite data following the current GOES-R Series and JPSS programs. These activities include engaging industry, analyzing implementation options, and program planning. The NSOSA study will allow NOAA to develop the future architecture of satellite observing systems to meet weather, space weather, and environmental remote sensing requirements. The continuity of observations from NOAA's space borne capabilities is vital to our ability to understand, predict and warn of changes in weather and the environment – the key capabilities that enable NOAA to meet its mission to deliver timely, actionable, and reliable

information to protect citizens, businesses and communities.

SAAP (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$4,929
FY 2019	TBD
FY 2020	TBD
FY 2021	TBD
FY 2022	TBD

Projects, Planning and Analysis: MetOp-C Instrument Testing and Launch Support: NOAA requests an increase of $12,033,000 to support the pre-launch testing, launch activities, and Ground Support Equipment of U.S. instruments on the European MetOp-C satellite, which is scheduled to launch in October 2018. The launch of the NOAA suite of U.S. instruments on MetOp-C is critical to maintaining the quality of Numerical Weather Prediction (NWP) models as this satellite will provide mid-morning polar observations for weather forecasting. The three instruments, which are currently flying on MetOp-A and –B in the mid-morning orbit, provide polar observations similar to the Joint Polar Satellite System (JPSS) in the afternoon orbit. Together, the MetOp and JPSS satellite constellations provide timely coverage of the globe. Forecasters rely on data collected from the two different, yet complementary, orbits (mid-morning and afternoon) to produce the 3-7 day outlook. Delay or loss of access to the data from Metop-C in the mid-morning orbit would directly impact the quality of NWP model forecasts in the United States.



With five-times greater coverage, four-times the spectral resolution, and three-times the spectral channels, GOES-16's ABI can provide more detailed imagery (see image on left) than previous GOES imagers (see image on right).

MetOp-C (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$14,033
FY 2019	$2,000
FY 2020	$2,000
FY 2021	$2,000
FY 2022	$2,000

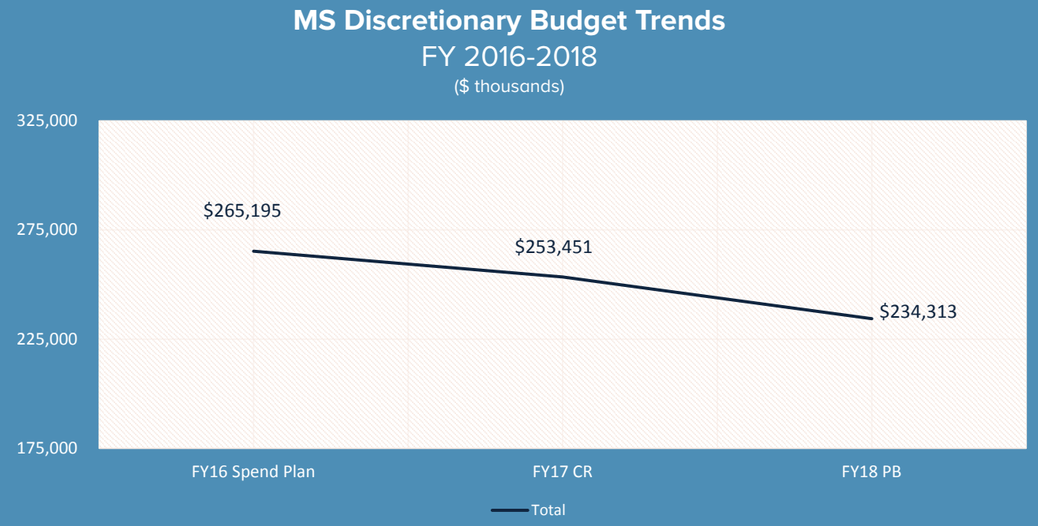
*MetOp-C efforts began before the NESDIS reorganization that created the Projects, Planning and Analysis PPA.

CHAPTER SEVEN

Mission Support

NOAA's Mission Support services are the backbone of NOAA's programs and mission. These services provide the planning, administrative, financial, procurement, information technology, human resources, and infrastructure support that is essential to the efficient and effective execution of NOAA's mission. To support the Department of Commerce's Operational Excellence priority, NOAA will continue transitioning its mission services to the Enterprise services model, a new Department-wide customer-focused, service delivery model that will increase efficiencies related to acquisitions, financial management, human resources, and information technology (IT) services. Specifically, in FY 2017, NOAA's Workforce Management Office (WFMO) began to outsource staffing, recruitment and hiring actions, and compensation and benefits functions to the Department's new Enterprise Services model of human resources delivery. This has provided improved transparency of human capital actions and provided greater consistency of services by 1) capitalizing on economies of scale and efficiencies and 2) improving the quality of services provided.

Fifth grade students in Bayfield, Wisconsin learn to operate an ROV with Amie Egstad from the Wisconsin Department of Natural Resources. This Lake Superior-focused activity is part of ongoing meaningful watershed education experiences provided by the NOAA Bay Watershed Education and Training (B-WET) funded Rivers2Lake education program. Credit: Toben Lafrancois/Bad River Watershed Association.



FY 2018 REQUEST $234,313,000

NOAA requests a total of $234,313,000 to position NOAA's Mission Support for effective execution of NOAA's diverse mission. This total includes Operations, Research, and Facilities (ORF) and Procurement, Acquisition, and Construction (PAC) accounts and represents a total decrease of $31,624,000 in FY 2018 program changes. This program change total includes a decrease of $4,963,000 not described below, but represented in the NOAA Control Table in Appendix 2.

FY 2018 ORF BUDGET SUMMARY

NOAA requests a total of $233,315,000 to support the Operations, Research, and Facilities of Mission Support. This includes a decrease of $31,624,000 in FY 2018 program changes.

ORF PROGRAM CHANGES FOR FY 2018:
A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

EXECUTIVE LEADERSHIP $27,027,000

NOAA requests a decrease of $1,060,000 in the Executive Leadership sub-program for a total of $27,027,000.

MISSION SERVICES AND MANAGEMENT $137,605,000

NOAA requests a decrease of $3,843,000 in the Mission Services and Management sub-program for a total of $137,605,000.

IT SECURITY $9,984,000

NOAA requests a decrease of $60,000 in the IT Security sub-program for a total of $9,984,000.

PAYMENT TO THE DOC WORKING CAPITAL FUND $58,699,000

NOAA requests an increase of $15,780,000 for the Payment to the DOC Working Capital Fund sub-program for a total of $58,699,000.

OFFICE OF EDUCATION $0

NOAA requests a decrease of $26,661,000 in FY 2018 program changes in the Office of Education sub-program for a total of $0. Program changes include:

Office of Education: NOAA Office of Education: NOAA requests a decrease of $5,071,000 to terminate the Competitive Education Grants program and NOAA's Office of Education. These terminations will limit NOAA's education and outreach coordination effort across the agency and with external partners.

Office of Education: Educational Partnership Program with Minority Serving Institutions (EPP/MSI) grants: NOAA requests a decrease of $14,404,000 to terminate the Educational Partnership Program with Minority Serving Institutions (EPP/MSI) grants program. This termination will end NOAA grants focused on increasing the number of students, particularly from underrepresented groups, who are trained and earn degrees in NOAA mission sciences. Each year NOAA's EPP/MSI program supports cooperative agreements with four EPP Cooperative Science Centers (CSCs) at Minority Serving Institutions, and provides funds to students in Minority Serving Institutions.

Office of Education: NOAA Bay-Watershed Education and Training (B-WET) Regional Program: NOAA requests a decrease of $7,186,000 to terminate the Bay-Watershed Education and Training (B-WET) Program. In FY 2018, NOAA will continue to provide watershed educational experiences for students through other programs, including the National Marine Sanctuaries program.

FY 2018 PAC BUDGET SUMMARY

NOAA requests a total of $998,000 to support the Procurement, Acquisition, and Construction (PAC) functions of Mission Support. There are no program changes within PAC for Mission Support in FY 2018. In FY 2018, funds will be used to complete the design phase for the Office of Marine and Aviation Operations (OMAO) US Naval Station (NAVSTA) Newport Pier project initiative in Newport, Rhode Island.

NOAA Construction (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$998
FY 2019	$998
FY 2020	$14,707
FY 2021	$14,962
FY 2022	$1,709

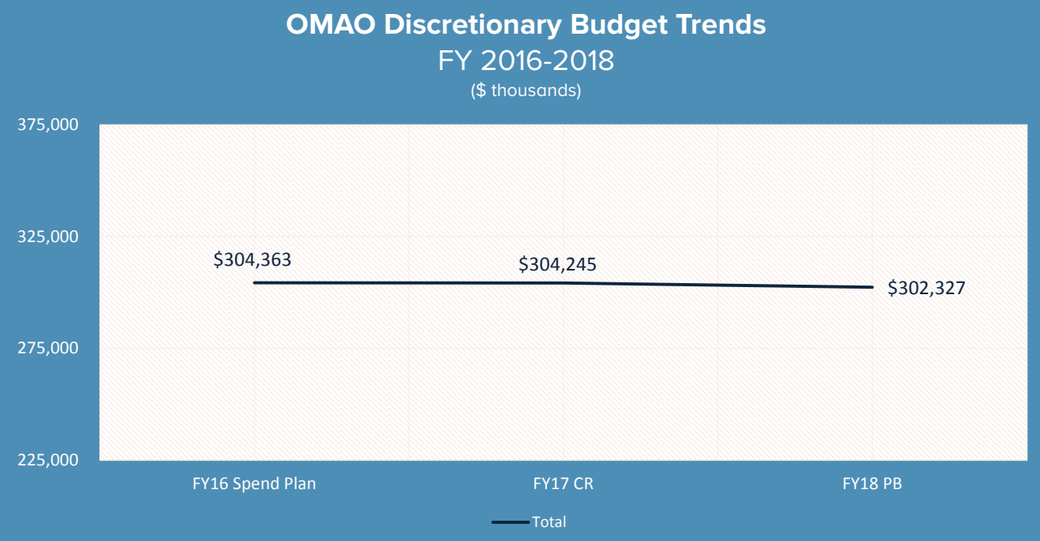
*Increases in FY 2020-FY2022 reflect estimated funding for the Mukilteo Research Station.

CHAPTER EIGHT

Office of Marine and Aviation Operations

NOAA's Office of Marine and Aviation Operations (OMAO) supports an array of specialized ships and aircraft that gather oceanographic, atmospheric, hydrographic, and fisheries data in support of NOAA's public safety, environmental stewardship, and scientific missions, which are vital to the Nation's economic security. OMAO includes civilians, mariners, and officers of the NOAA Commissioned Officer Corps, one of the seven uniformed services of the United States. NOAA is currently authorized for 321 Corps officers. OMAO civilians and NOAA Corps officers operate, manage, and maintain NOAA's active fleet of 16 research and survey ships and nine specialized aircrafts.

NOAA Corps Officers train alongside the U.S. Coast Guard.



FY 2018 REQUEST $331,702,000

NOAA requests a total of $331,702,000 in discretionary and mandatory funds to support the continued operations of OMAO, and specifically to ensure the continuity of NOAA's at-sea data collection capability through continued recapitalization and sustainment of NOAA's ship fleet. This total includes Operations, Research, and Facilities (ORF); Procurement, Acquisition, and Construction (PAC); and other accounts and represents a net decrease of $5,798,000 in FY 2018 program changes. This program change total includes a decrease of $4,099,000, not described below, but represented in the NOAA Control Table in Appendix 2. Without these investments, the NOAA ship fleet will continue to decline and aircraft operations will be reduced by nearly one-third.

FY 2018 ORF BUDGET SUMMARY

NOAA requests a total of $212,846,000 to support the Operations, Research, and Facilities activities of OMAO. This includes a net decrease of $2,099,000 in FY 2018 program changes.

ORF PROGRAM CHANGES FOR FY 2018:
A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

MARINE OPERATIONS AND MAINTENANCE $178,614,000

NOAA requests a decrease of $4,048,000 in the Marine Operations and Maintenance sub-program for a total of $178,614,000.

AVIATION OPERATIONS AND AIRCRAFT SERVICES $34,232,000

NOAA requests a net increase of $1,949,000 in FY 2018 program changes for the Aviation Operations and Aircraft Services sub-program for a total of $34,232,000. Program changes include:

Aircraft Operations and Aircraft Services: Interim Facility for NOAA Aircraft: NOAA requests an increase of $2,000,000 for increased lease and fuel costs for NOAA's Aircraft Operations Center (AOC) at Lakeland Linder Regional Airport. NOAA has begun relocating the AOC from MacDill Air Force Base in Tampa, Florida, to Lakeland Linder Regional Airport in Lakeland, Florida on a 10-year lease, and will have higher operating costs at this site. NOAA is expected to be fully operational at the Lakeland site beginning in June 2017. The program increase will allow NOAA to continue support for 4,305 planned flight hours. This will enable NOAA to continue its observations for hurricane surveillance, flood and drought prediction, and extreme weather forecasts.

FY 2018 PAC BUDGET SUMMARY

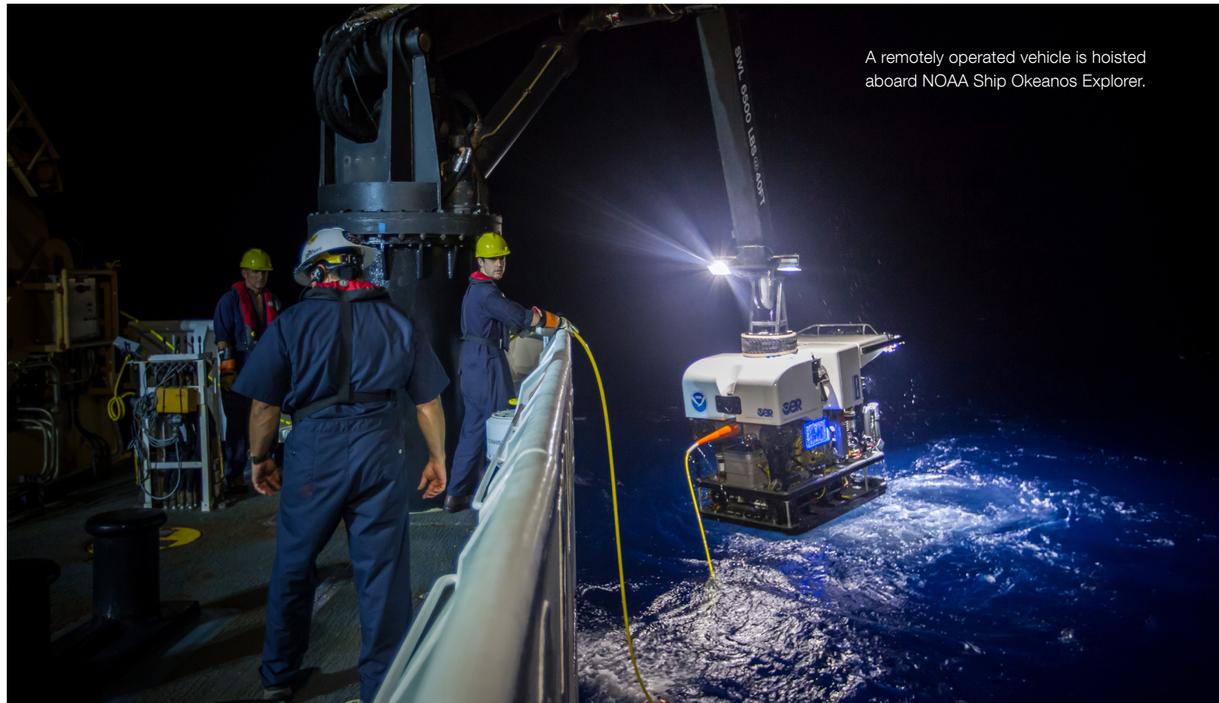
NOAA requests a total of $87,878,000 to support the Procurement, Acquisition, and Construction functions of OMAO. This includes a net decrease of $3,699,000 in FY 2018 program changes.

PAC PROGRAM CHANGES FOR FY 2018:
A summary of funding by Program, Project, and Activity (PPA) is located in Appendix 2. Detailed descriptions of the program changes below are located in the NOAA FY 2018 Congressional Justification.

OMAO FLEET REPLACEMENT $87,878,000

NOAA requests a net decrease of $3,699,000 in FY 2018 program changes for a total of $87,878,000 in the OMAO Fleet Replacement sub-program. Program changes include:

Fleet Capital Improvements and Technology Infusion: Progressive Lifecycle Maintenance Program: NOAA requests an increase of $1,200,000 to increase capital repairs to NOAA's ship fleet under the Progressive Lifecycle Maintenance Program. Progressive lifecycle maintenance is a core component of NOAA's October 2016 report, The NOAA Fleet Plan: Building a 21st Century Fleet,[1] which describes the need for regular capital investment to proactively maintain vessels before systems fail. Funding will allow NOAA to address its growing backlog of needed repairs and help extend the service life of NOAA ships.


A remotely operated vehicle is hoisted aboard NOAA Ship Okeanos Explorer.

NOAA Ship Ronald H. Brown crew members service a Tropical Atmosphere Ocean buoy.

Fleet Capital Improvements and Technology Infusion (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$12,878
FY 2019	$16,700
FY 2020	$16,700
FY 2021	$16,700
FY 2022	$16,700

New Vessel Construction: Fleet Recapitalization: NOAA requests a decrease of $4,899,000 for a total of $75,000,000 in New Vessel Construction in FY 2018 as part of an ongoing multi-year NOAA ship fleet recapitalization initiative. Since 2007, the NOAA fleet has declined from 19 ships to the current fleet of 16 ships. Without recapitalization, the fleet will decrease to eight ships by 2028. In FY 2018, funding will support construction of a second NOAA vessel (N/V) Class A. This vessel will be a variant of the Navy's existing Auxiliary General Oceanographic Research vessel, serving a primary mission of oceanographic monitoring, research, and modeling. NOAA will also continue planning for additional ships.

New ship construction consists of four acquisition phases: requirements analysis, concept design, preliminary design, and detailed design and construction. Efforts will be made throughout the process to leverage design aspects of previous ship classes and to create standardization across the fleet to meet multiple core mission requirements.

New Vessel Construction (BUDGET AUTHORITY IN THOUSANDS)	
FY 2018 Request	$75,000
FY 2019	$80,000
FY 2020	$80,000
FY 2021	$80,000
FY 2022	$80,000

DISCRETIONARY FUNDS

MEDICARE-ELIGIBLE RETIREE HEALTHCARE FUND CONTRIBUTION

The FY 2003 Department of Defense Authorization Act requires all uniformed services, including NOAA, to participate in an accrual fund for Medicare-eligible retirees. Payments into this accrual fund will cover the future healthcare benefits of present, active-duty NOAA officers and their dependents and annuitants. FY 2018 payments to the accrual fund are estimated to be $1,603,000.

MANDATORY FUNDS

NOAA CORPS COMMISSIONED OFFICERS RETIREMENT

The retirement system for the uniformed services provides a measure of financial security after release from active duty for service members and their survivors. It is an important factor in the choice of a career in the uniformed services and is mandated by Federal statutes under Title 10, United States Code. NOAA transfers retirement pay funds to the U.S. Coast Guard, which handles the payment function for retirees and annuitants. Health care funds for non-Medicare-eligible retirees, dependents, and annuitants are transferred to the U.S. Public Health Service, which administers the health care program.

1 More information about the 2016 NOAA Fleet Plan can be found at: https://www.omao.noaa.gov/sites/default/files/documents/The%20NOAA%20Fleet%20Plan_Final_31OCT.pdf

APPENDIX 1

Proposed Changes to General Provisions

NOAA seeks the following changes to the General Provisions in its FY 2018 budget submission. For a more detailed discussion of the justification for these proposed changes, please consult the FY 2018 Congressional Justification.

1. NOAA COST RECOVERY LANGUAGE

SEC. 110. To carry out the responsibilities of the National Oceanic and Atmospheric Administration (NOAA), the Administrator of NOAA is authorized to: (1) enter into grants and cooperative agreements with; (2) use on a non-reimbursable basis land, services, equipment, personnel, and facilities provided by; and (3) receive and expend funds made available on a consensual basis from: a Federal agency, State or subdivision thereof, local government, tribal government, territory, or possession or any subdivisions thereof, foreign government, international or intergovernmental organization, public or private organization, or individual: Provided, That funds received for permitting and related regulatory activities pursuant to this section shall be deposited under the heading "National Oceanic and Atmospheric Administration—Operations, Research, and Facilities" and shall remain available until expended for such purposes: Provided further, That all funds within this section and their corresponding uses are subject to section 505 of this Act.

JUSTIFICATION

NOAA proposes to clarify NOAA's ability to receive and expend funds from, and to engage in agreements with, external entities to carry out its responsibilities related to permitting and other regulatory activities.

APPENDIX 2

Control Table

NATIONAL OCEAN SERVICE

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Navigation, Observations and Positioning						
Navigation, Observations and Positioning	148,697	148,718	3,044	151,762	(10,815)	140,947
Hydrographic Survey Priorities/Contracts	26,945	26,949	0	26,949	0	26,949
IOOS Regional Observations	29,440	29,444	0	29,444	0	29,444
Total, Navigation, Observations and Positioning	205,082	205,111	3,044	208,155	(10,815)	197,340
Coastal Science and Assessment						
Coastal Science, Assessment, Response and Restoration	72,452	72,463	2,063	74,526	(1,641)	72,885
Competitive Research	8,982	8,983	0	8,983	(8,983)	0
Total, Coastal Science and Assessment	81,434	81,446	2,063	83,509	(10,624)	72,885
Ocean and Coastal Management and Services						
Coastal Zone Management and Services	39,919	39,924	779	40,703	(779)	39,924
Coastal Management Grants	74,847	74,858	0	74,858	(74,858)	0
Coral Reef Program	25,947	25,951	100	26,051	(96)	25,955
National Estuarine Research Reserve System	22,953	22,957	0	22,957	(22,957)	0
Sanctuaries and Marine Protected Areas	48,900	48,907	1,121	50,028	(1,121)	48,907
Total, Ocean and Coastal Management and Services	212,566	212,597	2,000	214,597	(99,811)	114,786
Total, NOS - Discretionary ORF	499,082	499,154	7,107	506,261	(121,250)	385,011
Total, NOS - Discretionary PAC	3,693	3,693	0	3,693	(1,697)	1,996
Total, NOS - Other Discretionary Accounts	0	0	0	0	0	0
Discretionary Total - NOS	502,775	502,847	7,107	509,954	(122,947)	387,007
Total, NOS - Mandatory Accounts	**98,047**	**63,797**	**(36,006)**	**27,791**	**0**	**27,791**
GRAND TOTAL NOS	**600,822**	**566,644**	**(28,899)**	**537,745**	**(122,947)**	**414,798**

NATIONAL MARINE FISHERIES SERVICE BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Protected Resources Science and Management						
Marine Mammals, Sea Turtles, and Other Species	110,005	110,037	2,029	112,066	(5,073)	106,993
Species Recovery Grants	5,987	5,989	7	5,996	(7)	5,989
Atlantic Salmon	6,150	6,151	91	6,242	(91)	6,151
Pacific Salmon	59,869	59,887	1,487	61,374	(1,487)	59,887
Total, Protected Resources Science and Management	182,011	182,064	3,614	185,678	(6,658)	179,020
Fisheries Science and Management						
Fisheries and Ecosystem Science Programs and Services	139,184	139,225	4,671	143,896	(2,573)	141,323
Fisheries Data Collections, Surveys, and Assessments	162,962	162,962	2,106	165,068	(10,107)	154,961
Observers and Training	43,559	43,572	568	44,140	(568)	43,572
Fisheries Management Programs and Services	115,741	115,776	2,322	118,098	(6,945)	111,153
Aquaculture	6,286	6,288	107	6,395	(107)	6,288
Salmon Management Activities	31,431	31,440	160	31,600	(160)	31,440
Regional Councils and Fisheries Commissions	33,470	33,407	1,008	34,415	(1,008)	33,407
Interjurisdictional Fisheries Grants	3,000	2,994	0	2,994	(2,994)	0
Total, Fisheries Science and Management	535,633	535,664	10,942	546,606	(24,462)	522,144
Enforcement						
Enforcement	68,849	68,870	1,130	70,000	(1,057)	68,943
Total, Enforcement	68,849	68,870	1,130	70,000	(1,057)	68,943
Habitat Conservation and Restoration						
Habitat Conservation and Restoration	61,274	61,292	768	62,060	(10,726)	51,334
Subtotal, Habitat Conservation & Restoration	61,274	61,292	768	62,060	(10,726)	51,334
Total, NMFS - Discretionary ORF	847,767	847,890	16,454	864,344	(42,903)	821,441
Total, NMFS - Discretionary PAC	0	0	0	0	0	0
Total, NMFS - Other Discretionary Accounts	65,400	65,225	0	65,225	(64,876)	349
Discretionary Total - NMFS	913,167	913,115	16,454	929,569	(107,779)	821,790
Total, NMFS - Mandatory Accounts	56,806	73,316	(49,992)	23,324	0	23,324
GRAND TOTAL NMFS	**969,973**	**986,431**	**(33,538)**	**952,893**	**(107,779)**	**845,114**

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Climate Research						
Laboratories & Cooperative Institutes						
Laboratories & Cooperative Institutes	59,878	59,887	1,264	61,151	(3,494)	57,657
Subtotal, Laboratories & Cooperative Institutions	59,878	59,887	1,264	61,151	(3,494)	57,657
Regional Climate Data & Information						
Regional Climate Data & Information	37,922	37,928	72	38,000	(6,072)	31,928
Subtotal, Regional Climate Data & Information	37,922	37,928	72	38,000	(6,072)	31,928
Climate Competitive Research						
Climate Competitive Research	59,878	59,887	78	59,965	(21,550)	38,415
Subtotal, Climate Competitive Research	59,878	59,887	78	59,965	(21,550)	38,415
Total, Climate Research	157,678	157,702	1,414	159,116	(31,116)	128,000
Weather & Air Chemistry Research						
Laboratories & Cooperative Institutes						
Laboratories & Cooperative Institutes	75,845	75,856	5,280	81,136	(16,356)	64,780
Subtotal, Laboratories & Cooperative Institutes	75,845	75,856	5,280	81,136	(16,356)	64,780
Weather & Air Chemistry Research Programs						
U.S. Weather Research Program (USWRP)	7,984	7,985	50	8,035	(550)	7,485
Tornado Severe Storm Research / Phased Array Radar	13,131	13,133	11	13,144	(522)	12,622
Joint Technology Transfer Initiative	5,988	5,989	0	5,989	(5,989)	0
Subtotal, Weather & Air Chemistry Research Programs	27,103	27,107	61	27,168	(7,061)	20,107
Total, Weather & Air Chemistry Research	102,948	102,963	5,341	108,304	(23,417)	84,887

continues to next page

CON'T

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Ocean, Coastal, and Great Lakes Research						
Laboratories & Cooperative Institutes						
Laboratories & Cooperative Institutes	31,935	31,939	656	32,595	(4,536)	28,059
Subtotal, Laboratories & Cooperative Institutes	31,935	31,939	656	32,595	(4,536)	28,059
National Sea Grant College Program						
National Sea Grant College Program Base	63,870	63,879	72	63,951	(63,951)	0
Marine Aquaculture Program	8,982	8,983	6	8,989	(8,989)	0
Subtotal, National Sea Grant College Program	72,852	72,862	78	72,940	(72,940)	0
Ocean Exploration and Research						
Ocean Exploration and Research	31,935	31,939	122	32,061	(12,622)	19,439
Subtotal, Ocean Exploration and Research	31,935	31,939	122	32,061	(12,622)	19,439
Other Ecosystems Programs						
Integrated Ocean Acidification	9,980	9,981	89	10,070	(89)	9,981
Subtotal, Other Ecosystems Programs	9,980	9,981	89	10,070	(89)	9,981
Sustained Ocean Observations and Monitoring						
Sustained Ocean Observations and Monitoring	41,511	41,517	206	41,723	(206)	41,517
Subtotal, Sustained Ocean Observations and Monitoring	41,511	41,517	206	41,723	(206)	41,517
Total, Ocean, Coastal, & Great Lakes Research	188,213	188,238	1,151	189,389	(90,393)	98,996
Innovative Research & Technology						
High Performance Computing Initiatives	12,119	12,121	61	12,182	(61)	12,121
Total, Innovative Research & Technology	12,119	12,121	61	12,182	(61)	12,121
Total, OAR - Discretionary ORF	460,958	461,024	7,967	468,991	(144,987)	324,004
Total, OAR - Discretionary PAC	20,038	20,041	0	20,041	5,959	26,000
Discretionary Total - OAR	**480,996**	**481,065**	**7,967**	**489,032**	**(139,028)**	**350,004**

NATIONAL WEATHER SERVICE BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Observations	215,923	215,954	20,631	236,585	(28,925)	207,660
Central Processing	92,682	92,695	2,350	95,045	(8,901)	86,144
Analyze, Forecast and Support	493,021	495,094	(3,401)	491,693	(15,594)	476,099
Dissemination	46,652	44,658	1,307	45,965	4,020	49,985
Science and Technology Integration	138,543	138,563	(861)	137,702	(21,534)	116,168
Total, NWS - Discretionary ORF	986,821	986,964	20,026	1,006,990	(70,934)	936,056
Total, NWS - Discretionary PAC	135,039	135,059	0	135,059	(13,059)	122,000
Discretionary Total - NWS	**1,121,860**	**1,122,023**	**20,026**	**1,142,049**	**(83,993)**	**1,058,056**

NATIONAL ENVIRONMENTAL SATELLITE DATA AND INFORMATION SERVICE

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Environmental Satellite Observing Systems						
Office of Satellite and Product Operations (OSPO)						
Satellite and Product Operations	**91,311**	**92,824**	**30,191**	**123,015**	**8,465**	**131,480**
NSOF Operations	**8,982**	**8,983**	**4,800**	**13,783**	**467**	**14,250**
Subtotal, Office of Satellite and Product Operations (OSPO)	**100,293**	**101,807**	**34,991**	**136,798**	**8,932**	**145,730**
Product Development, Readiness & Application						
Product Development, Readiness & Application	**24,032**	**25,951**	**7,678**	**33,629**	**(4,203)**	**29,426**
Subtotal, Product Development, Readiness & Application	**24,032**	**25,951**	**7,678**	**33,629**	**(4,203)**	**29,426**
Commercial Remote Sensing Regulatory Affairs	**998**	**998**	**0**	**998**	**202**	**1,200**
Office of Space Commerce	**599**	**599**	**0**	**599**	**601**	**1,200**
Group on Earth Observations (GEO)	**499**	**499**	**0**	**499**	**1**	**500**
Total, Environmental Satellite Observing Systems	**126,421**	**129,854**	**42,669**	**172,523**	**5,533**	**178,056**
National Centers for Environmental Information						
National Centers for Environmental Information	**58,866**	**58,874**	**3,929**	**62,803**	**(6,284)**	**56,519**
Total, National Centers for Environmental Information	**58,866**	**58,874**	**3,929**	**62,803**	**(6,284)**	**56,519**
Total, NESDIS - Discretionary ORF	**185,287**	**188,728**	**46,598**	**235,326**	**(751)**	**234,575**
Total, NESDIS - Discretionary PAC	**2,159,284**	**2,156,186**	**(42,283)**	**2,113,903**	**(533,276)**	**1,580,627**
Discretionary Total - NESDIS	**2,344,571**	**2,344,914**	**4,315**	**2,349,229**	**(534,027)**	**1,815,202**

MISSION SUPPORT

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Executive Leadership	27,000	26,949	1,138	28,087	(1,060)	27,027
Mission Services and Management	148,000	147,720	(6,272)	141,448	(3,843)	137,605
IT Security	8,300	8,284	1,760	10,044	(60)	9,984
Payment to the DOC Working Capital Fund	54,320	42,919	15,780	58,699	0	58,699
Office of Education	26,577	26,581	80	26,661	(26,661)	0
Total, MS - Discretionary ORF	264,197	252,453	12,486	264,939	(31,624)	233,315
Total, MS - Discretionary PAC	998	998	0	998	0	998
Discretionary Total - MS	**265,195**	**253,451**	**12,486**	**265,937**	**(31,624)**	**234,313**

OFFICE OF MARINE AND AVIATION OPERATIONS

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Marine Operations and Maintenance	178,474	178,500	4,162	182,662	(4,048)	178,614
Aviation Operations and Aircraft Services	32,227	32,232	51	32,283	1,949	34,232
Total, OMAO - Discretionary ORF	210,701	210,732	4,213	214,945	(2,099)	212,846
Total, OMAO - Discretionary PAC	91,726	91,577	0	91,577	(3,699)	87,878
Total, OMAO - Other Discretionary Accounts	1,936	1,936	(333)	1,603	0	1,603
Discretionary Total - OMAO	304,363	304,245	3,880	308,125	(5,798)	302,327
Total, OMAO - Mandatory Accounts	29,375	29,375	0	29,375	0	29,375
GRAND TOTAL OMAO	**333,738**	**333,620**	**3,880**	**337,500**	**(5,798)**	**331,702**

LO DIRECT DISCRETIONARY ORF OBLIGATIONS

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
National Ocean Service	499,082	499,154	7,107	506,261	(121,250)	385,011
National Marine Fisheries Service	847,767	847,890	16,454	864,344	(42,903)	821,441
Office of Oceanic and Atmospheric Research	460,958	461,024	7,967	468,991	(144,987)	324,004
National Weather Service	986,821	986,964	20,026	1,006,990	(70,934)	936,056
National Environmental Satellite, Data and Information Service	185,287	188,728	46,598	235,326	(751)	234,575
Mission Support	264,197	252,453	12,486	264,939	(31,624)	233,315
Office of Marine and Aviation Operations	210,701	210,732	4,213	214,945	(2,099)	212,846
SUBTOTAL LO DIRECT DISCRETIONARY ORF OBLIGATIONS	**3,454,813**	**3,446,945**	**114,851**	**3,561,796**	**(414,548)**	**3,147,248**

ORF ADJUSTMENTS

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
SUBTOTAL ORF DIRECT OBLIGATIONS	3,454,813	3,446,945	114,851	3,561,796	(414,548)	3,147,248
FINANCING						
Deobligations	(17,500)	(17,500)	(10,000)	(27,500)	0	(27,500)
Total ORF Financing	(17,500)	(17,500)	(10,000)	(27,500)	0	(27,500)
SUBTOTAL ORF BUDGET AUTHORITY	3,437,313	3,429,445	104,851	3,534,296	(414,548)	3,119,748
TRANSFERS						
Transfer from P&D to ORF	(130,164)	(130,164)	(24,035)	(154,199)	0	(154,199)
Total ORF Transfers	(131,500)	(130,164)	(24,035)	(154,199)	0	(154,199)
SUBTOTAL ORF APPROPRIATION	**3,305,813**	**3,299,281**	**80,816**	**3,380,097**	**(414,548)**	**2,965,549**

PROCUREMENT, ACQUISITION, AND CONSTRUCTION BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
NOS						
Construction						
National Estuarine Research Reserve Construction (NERRS)	1,697	1,697	0	1,697	(1,697)	0
Marine Sanctuaries Construction Base	1,996	1,996	0	1,996	0	1,996
Subtotal, NOS Construction		3,693	0	3,693	(1,697)	1,996
Total, NOS - PAC	3,693	3,693	0	3,693	(1,697)	1,996
Total, NMFS - PAC	0	0	0	0	0	0
OAR						
Systems Acquisition						
Research Supercomputing/ CCRI	20,038	20,041	0	20,041	5,959	26,000
Subtotal, OAR Systems Acquisition	20,038	20,041	0	20,041	5,959	26,000
Total, OAR - PAC	20,038	20,041	0	20,041	5,959	26,000
NWS						
Systems Acquisition						
Observations	16,686	16,688	0	16,688	3,986	20,674
Central Processing	64,130	64,139	0	64,139	(6,000)	58,139
Dissemination	45,591	45,598	0	45,598	(11,045)	34,553
Subtotal, NWS Systems Acquisition	126,407	126,425	0	126,425	(13,059)	113,366
Construction						
Facilities Construction and Major Repairs	8,632	8,634	0	8,634	0	8,634
Subtotal, NWS Construction	8,632	8,634	0	8,634	0	8,634
Total, NWS - PAC	135,039	135,059	0	135,059	(13,059)	122,000

CON'T

PROCUREMENT, ACQUISITION, AND CONSTRUCTION BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
NESDIS						
Systems Acquisition						
Geostationary Systems - R	870,016	870,143	(33,900)	836,243	(317,711)	518,532
Jason-3	7,443	7,444	(7,444)	0	0	0
Joint Polar Satellite System (JPSS)	807,319	807,439	0	807,439	(31,662)	775,777
Polar Follow On	369,247	369,300	0	369,300	(189,344)	179,956
Cooperative Data and Rescue Services (CDARS)	499	499	0	499	1	500
DSCOVR	7,808	3,194	(3,194)	0	0	0
Space Weather Follow On	1,198	1,198	0	1,198	(698)	500
COSMIC 2/GNSS RO	8,879	10,081	0	10,081	(3,981)	6,100
Satellite Ground Services	53,890	53,898	2,255	56,153	(3,153)	53,000
System Architecture and Advanced Planning	3,921	3,922	0	3,922	1,007	4,929
Projects, Planning and Analysis	25,149	25,152	0	25,152	12,033	37,185
Commercial Weather Data Pilot	2,994	2,994	0	2,994	6	3,000
Subtotal, NESDIS Systems Acquisition	2,158,363	2,155,264	(42,283)	2,112,981	(533,502)	1,579,479
Construction						
Satellite CDA Facility	2,223	2,224	0	2,224	226	2,450
Subtotal, NESDIS Construction	2,223	2,224	0	2,224	226	2,450
Transfer to OIG	(1,302)	(1,302)	0	(1,302)	0	(1,302)
Total, NESDIS - PAC	2,159,284	2,156,186	(42,283)	2,113,903	(533,276)	1,580,627
Mission Support						
Construction						
NOAA Construction	998	998	0	998	0	998
Subtotal, Mission Support Construction	998	998	0	998	0	998
Total, Mission Support - PAC	998	998	0	998	0	998

continues to next page

CON'T

PROCUREMENT, ACQUISITION, AND CONSTRUCTION BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
OMAO						
Fleet Replacement						
Fleet Capital Improvements & Tech Infusion	11,676	11,678	0	11,678	1,200	12,878
New Vessel Construction	80,050	79,899	0	79,899	(4,899)	75,000
Subtotal, Fleet Replacement		91,577	0	91,577	(3,699)	87,878
Total, OMAO - PAC	91,726	91,577	0	91,577	(3,699)	87,878
GRAND TOTAL PAC DISCRETIONARY OBLIGATIONS	**2,410,778**	**2,407,554**	**(42,283)**	**2,365,271**	**(545,772)**	**1,819,499**

PAC ADJUSTMENTS BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
SUBTOTAL PAC DIRECT OBLIGATIONS	2,410,778	2,407,554	(42,283)	2,365,271	(545,772)	1,819,499
FINANCING						
Deobligations	(13,000)	(13,000)	0	(13,000)	0	(13,000)
Total PAC Financing	(13,000)	(13,000)	0	(13,000)	0	(13,000)
SUBTOTAL PAC BUDGET AUTHORITY	2,397,778	2,394,554	(42,283)	2,352,271	(545,772)	1,806,499
TRANSFERS						
Transfer to OIG	1,302	1,302	0	1,302	0	1,302
Total PAC Transfers	2,638	1,302	0	1,302	0	1,302
SUBTOTAL PAC APPROPRIATION	**2,400,416**	**2,395,856**	**(42,283)**	**2,353,573**	**(545,772)**	**1,807,801**

OTHER ACCOUNTS DISCRETIONARY BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
NMFS						
Fishermen's Contingency Fund Obligations	350	349	0	349	0	349
Fishermen's Contingency Fund Budget Authority	350	349	0	349	0	349
Fishermen's Contingency Fund Appropriations	350	349	0	349	0	349
Foreign Fishing Observer Fund Obligations	0	0	0	0	0	0
Foreign Fishing Observer Fund Budget Authority	0	0	0	0	0	0
Foreign Fishing Observer Fund Appropriation	0	0	0	0	0	0
Fisheries Finance Program Account Obligations	0	0	0	0	0	0
Fisheries Finance Program Account Budget Authority	0	0	0	0	0	0
Fisheries Finance Program Account Appropriation	0	0	0	0	0	0
Promote and Develop Fisheries Obligations	0	0	0	0	0	0
Promote and Develop Fisheries Budget Authority	(130,164)	(130,164)	(24,035)	(154,199)	0	(154,199)
Promote and Develop Fisheries Appropriation	0	0	0	0	0	0
Pacific Coastal Salmon Recovery Fund Obligations	65,000	64,876	0	64,876	(64,876)	0
Pacific Coastal Salmon Recovery Fund Budget Authority	65,000	64,876	0	64,876	(64,876)	0
Pacific Coastal Salmon Recovery Fund Appropriation	65,000	64,876	0	64,876	(64,876)	0
Marine Mammal Unusual Mortality Event Fund Obligations	50	0	0	0	0	0
Marine Mammal Unusual Mortality Event Fund Budget Authority	0	0	0	0	0	0
Marine Mammal Unusual Mortality Event Fund Appropriation	0	0	0	0	0	0
Subtotal, NMFS Other Discretionary Direct Obligations	65,400	65,225	0	65,225	(64,876)	349
Subtotal, NMFS Other Discretionary Budget Authority	(64,814)	(64,939)	(24,035)	(88,974)	(64,876)	(153,850)
Subtotal, NMFS Other Discretionary Appropriation	65,350	65,225	0	65,225	(64,876)	349

CON'T

OTHER ACCOUNTS DISCRETIONARY BUDGET AUTHORITY IN THOUSANDS

OMAO						
Medicare Eligible Retiree Healthcare Fund Obligations	1,936	1,936	(333)	1,603	0	1,603
Medicare Eligible Retiree Healthcare Fund Budget Authority	1,936	1,936	(333)	1,603	0	1,603
Medicare Eligible Retiree Healthcare Fund Appropriation	1,936	1,936	(333)	1,603	0	1,603
Subtotal, OMAO Other Discretionary Direct Obligations	1,936	1,936	(333)	1,603	0	1,603
Subtotal, OMAO Other Discretionary Budget Authority	1,936	1,936	(333)	1,603	0	1,603
Subtotal, OMAO Other Discretionary Appropriation	1,936	1,936	(333)	1,603	0	1,603
TOTAL, OTHER DISCRETIONARY DIRECT OBLIGATIONS	67,336	67,161	(333)	66,828	(64,876)	1,952
TOTAL, OTHER DISCRETIONARY BUDGET AUTHORITY	(62,878)	(63,003)	(24,368)	(87,371)	(64,876)	(152,247)
TOTAL, OTHER DISCRETIONARY APPROPRIATION	**67,286**	**67,161**	**(333)**	**66,828**	**(64,876)**	**1,952**

SUMMARY OF DISCRETIONARY RESOURCES

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Direct Discretionary Obligations						
ORF Direct Obligations	3,454,813	3,446,945	114,851	3,561,796	(414,548)	3,147,248
PAC Direct Obligations	2,410,778	2,407,554	(42,283)	2,365,271	(545,772)	1,819,499
OTHER Direct Obligations	67,336	67,161	(333)	66,828	(64,876)	1,952
TOTAL Direct Discretionary Obligations	5,932,927	5,921,660	72,235	5,993,895	(1,025,196)	4,968,699
Discretionary Budget Authority						
ORF Budget Authority	3,437,313	3,429,445	104,851	3,534,296	(414,548)	3,119,748
PAC Budget Authority	2,397,778	2,394,554	(42,283)	2,352,271	(545,772)	1,806,499
OTHER Budget Authority	(62,878)	(63,003)	(24,368)	(87,371)	(64,876)	(152,247)
TOTAL Discretionary Budget Authority	5,772,213	5,760,996	38,200	5,799,196	(1,025,196)	4,774,000
Discretionary Appropriations						
ORF Appropriation	3,305,813	3,299,281	80,816	3,380,097	(414,548)	2,965,549
PAC Appropriation	2,400,416	2,395,856	(42,283)	2,353,573	(545,772)	1,807,801
OTHER Appropriation	67,286	67,161	(333)	66,828	(64,876)	1,952
TOTAL Discretionary Appropriation	**5,773,515**	**5,762,298**	**38,200**	**5,800,498**	**(1,025,196)**	**4,775,302**

GRAND TOTAL SUMMARY DISCRETIONARY APPROPRIATIONS

BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Operations, Research, and Facilities	3,305,813	3,299,281	80,816	3,380,097	(414,548)	2,965,549
Procurement, Acquisition, and Construction	2,400,416	2,395,856	(42,283)	2,353,573	(545,772)	1,807,801
Fisherman's Contingency Fund	350	349	0	349	0	349
Foreign Fishing Observer Fund	0	0	0	0	0	0
Fisheries Finance Program Account	0	0	0	0	0	0
Pacific Coastal Salmon Recovery Fund	65,000	64,876	0	64,876	(64,876)	0
Marine Mammal Unusual Mortality Event Fund	0	0	0	0	0	0
Medicare Eligible Retiree Health Care Fund	1,936	1,936	(333)	1,603	0	1,603
GRAND TOTAL DISCRETIONARY APPROPRIATION	**5,773,515**	**5,762,298**	**38,200**	**5,800,498**	**(1,025,196)**	**4,775,302**

OTHER ACCOUNTS MANDATORY BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
NOS						
Damage Assessment and Restoration Revolving Fund Obligations	97,568	56,962	(34,994)	21,968	0	21,968
Damage Assessment and Restoration Revolving Fund Budget Authority	5,968	5,962	6	5,968	0	5,968
Damage Assessment and Restoration Revolving Fund Appropriation	0	0	0	0	0	0
Sanctuaries Enforcement Asset Forfeiture Fund Obligations	125	120	0	120	0	120
Sanctuaries Enforcement Asset Forfeiture Fund Budget Authority	125	120	0	120	0	120
Sanctuaries Enforcement Asset Forfeiture Fund Appropriation	120	120	0	120	0	120
Gulf Coast Ecosystem Restoration Fund Obligations	354	6,715	(1,012)	5,703	0	5,703
Gulf Coast Ecosystem Restoration Fund Budget Authority	0	0	0	0	0	0
Gulf Coast Ecosystem Restoration Fund Appropriation	0	0	0	0	0	0
Subtotal, NOS Other Mandatory Direct Obligations	98,047	63,797	(36,006)	27,791	0	27,791
Subtotal, NOS Other Mandatory Budget Authority	6,093	6,082	6	6,088	0	6,088
Subtotal, NOS Other Mandatory Appropriation	120	120	0	120	0	120
NMFS						
Promote and Develop Fisheries Obligations	16,225	14,909	(14,909)	0	0	0
Promote and Develop Fisheries Budget Authority	146,389	145,073	9,126	154,199	0	154,199
Promote and Develop Fisheries Appropriation	0	0	0	0	0	0
Fisheries Finance Program Account Obligations	11,819	30,764	(30,764)	0	0	0
Fisheries Finance Program Account Budget Authority	11,819	30,764	(30,764)	0	0	0
Fisheries Finance Program Account Appropriation	11,819	30,764	(30,764)	0	0	0

CON'T

OTHER ACCOUNTS MANDATORY BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Federal Ship Financing Fund Obligations	0	0	0	0	0	0
Federal Ship Financing Fund Budget Authority	0	0	0	0	0	0
Federal Ship Financing Fund Appropriation	0	0	0	0	0	0
Environmental Improvement & Restoration Fund Obligations	8,815	6,451	(4,582)	1,869	0	1,869
Environmental Improvement & Restoration Fund Budget Authority	9,359	6,451	(4,582)	1,869	0	1,869
Environmental Improvement & Restoration Fund \Appropriation	10,042	6,929	(4,921)	2,008	0	2,008
Limited Access System Administration Fund Obligations	12,636	13,218	109	13,327	0	13,327
Limited Access System Administration Fund Budget Authority	12,507	13,218	109	13,327	0	13,327
Limited Access System Administration Fund Appropriation	12,492	13,457	(140)	13,317	0	13,317
Western Pacific Sustainable Fisheries Fund Obligations	391	622	28	650	0	650
Western Pacific Sustainable Fisheries Fund Budget Authority	391	622	28	650	0	650
Western Pacific Sustainable Fisheries Fund Appropriation	400	650	0	650	0	650
Fisheries Enforcement Asset Forfeiture Fund Obligations	2,870	3,537	91	3,628	0	3,628
Fisheries Enforcement Asset Forfeiture Fund Budget Authority	4,020	3,996	4	4,000	0	4,000
Fisheries Enforcement Asset Forfeiture Fund Appropriation	4,000	4,000	0	4,000	0	4,000
North Pacific Observer Fund Obligations	4,050	3,815	35	3,850	0	3,850
North Pacific Observer Fund Budget Authority	4,050	3,815	35	3,850	0	3,850
North Pacific Observer Fund Appropriation	3,970	3,850	0	3,850	0	3,850
Subtotal, NMFS Other Mandatory Direct Obligations	56,806	73,316	(49,992)	23,324	0	23,324
Subtotal, NMFS Other Mandatory Budget Authority	188,535	203,939	(26,044)	177,895	0	177,895
Subtotal, NMFS Other Mandatory Appropriation	42,723	59,650	(35,825)	23,825	0	23,825

continues to next page

CON'T
OTHER ACCOUNTS MANDATORY BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
OMAO						
NOAA Corp Commissioned Officers Retirement Obligations	29,375	29,375	0	29,375	0	29,375
NOAA Corp Commissioned Officers Retirement Budget Authority	29,375	29,375	0	29,375	0	29,375
NOAA Corp Commissioned Officers Retirement Appropriation	29,375	29,375	0	29,375	0	29,375
Subtotal, OMAO Other Mandatory Direct Obligations	29,375	29,375	0	29,375	0	29,375
Subtotal, OMAO Other Mandatory Budget Authority	29,375	29,375	0	29,375	0	29,375
Subtotal, OMAO Other Mandatory Appropriation	29,375	29,375	0	29,375	0	29,375
TOTAL, OTHER MANDATORY DIRECT OBLIGATIONS	184,228	166,488	(85,998)	80,490	0	80,490
TOTAL, OTHER MANDATORY BUDGET AUTHORITY	224,003	239,396	(26,038)	213,358	0	213,358
TOTAL, OTHER MANDATORY APPROPRIATION	**72,218**	**89,145**	**(35,825)**	**53,320**	**0**	**53,320**

NOAA SUMMARY BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
TOTAL Direct Obligations (Discretionary & Mandatory)	6,117,155	6,088,148	(13,763)	6,074,385	(1,025,196)	5,049,189
TOTAL Budget Authority (Discretionary & Mandatory)	5,996,216	6,000,392	12,162	6,012,554	(1,025,196)	4,987,358
TOTAL Appropriation (Discretionary & Mandatory)	5,845,733	5,851,443	2,375	5,853,818	(1,025,196)	4,828,622
Reimbursable Financing	393,089	367,012	450	242,000	0	242,000
TOTAL OBLIGATIONS (Direct & Reimbursable)	6,510,244	6,455,160	(13,313)	6,316,385	(1,025,196)	5,291,189
Offsetting Receipts	(3,835)	(390)	0	(2,762)	0	(2,762)
TOTAL OBLIGATIONS (Direct, Reimbursable & Offsetting Receipts)	**6,506,409**	**6,454,770**	**(13,313)**	**6,313,623**	**(1,025,196)**	**5,288,427**

*Prior to the FY 2018 President's Budget Submission, offsetting receipts represented Fisheries Finance subsidy budget authority. Beginning with this submission, offsetting receipts now represent Fisheries Finance subsidy outlays.

LINE OFFICE SUMMARY BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
National Ocean Service						
ORF	499,082	499,154	7,107	506,261	(121,250)	385,011
PAC	3,693	3,693	0	3,693	(1,697)	1,996
OTHER	98,047	63,797	(36,006)	27,791	0	27,791
TOTAL, NOS	600,822	566,644	(28,899)	537,745	(122,947)	414,798
National Marine Fisheries Service						
ORF	847,767	847,890	16,454	864,344	(42,903)	821,441
PAC	0	0	0	0	0	0
OTHER	122,206	138,541	(49,992)	88,549	(64,876)	23,673
TOTAL, NMFS	969,973	986,431	(33,538)	952,893	(107,779)	845,114
Oceanic and Atmospheric Research						
ORF	460,958	461,024	7,967	468,991	(144,987)	324,004
PAC	20,038	20,041	0	20,041	5,959	26,000
TOTAL, OAR	480,996	481,065	7,967	489,032	(139,028)	350,004
National Weather Service						
ORF	986,821	986,964	20,026	1,006,990	(70,934)	936,056
PAC	135,039	135,059	0	135,059	(13,059)	122,000
TOTAL, NWS	1,121,860	1,122,023	20,026	1,142,049	(83,993)	1,058,056
National Environmental Satellite, Data and Information Service						
ORF	185,287	188,728	46,598	235,326	(751)	234,575
PAC	2,159,284	2,156,186	(42,283)	2,113,903	(533,276)	1,580,627
TOTAL, NESDIS	2,344,571	2,344,914	4,315	2,349,229	(534,027)	1,815,202
Mission Support						
ORF	264,197	252,453	12,486	264,939	(31,624)	233,315
PAC	998	998	0	998	0	998
SUBTOTAL, Mission Support	265,195	253,451	12,486	265,937	(31,624)	234,313

CON'T

LINE OFFICE SUMMARY BUDGET AUTHORITY IN THOUSANDS

FY 2018 Proposed Operating Plan	FY 2016 Spend Plan	FY 2017 Annualized CR	FY 2018 Total ATBs	FY 2018 Base	FY 2018 Total Program Changes	FY 2018 President's Budget
Office of Marine and Aviation Operations						
ORF	210,701	210,732	4,213	214,945	(2,099)	212,846
PAC	91,726	91,577	0	91,577	(3,699)	87,878
OTHER	31,311	31,311	(333)	30,978	0	30,978
TOTAL, OMAO	333,738	333,620	3,880	337,500	(5,798)	331,702
DIRECT DISCRETIONARY OBLIGATIONS						
ORF	3,454,813	3,446,945	114,851	3,561,796	(414,548)	3,147,248
PAC	**2,410,778**	**2,407,554**	**(42,283)**	**2,365,271**	**(545,772)**	**1,819,499**
OTHER	251,564	233,649	(86,331)	147,318	(64,876)	82,442
TOTAL, DIRECT DISCRETIONARY OBLIGATIONS	6,117,155	6,088,148	(13,763)	6,074,385	(1,025,196)	5,049,189
ORF Adjustments (Deobligations/Rescissions)	(17,500)	(17,500)	(10,000)	(27,500)	0	(27,500)
ORF Transfers	(131,500)	(130,164)	(24,035)	(154,199)	0	(154,199)
PAC Adjustments (Deobligations/Rescissions)	(13,000)	(13,000)	0	(13,000)	0	(13,000)
PAC Transfers	2,638	1,302	0	1,302	0	1,302
OTHER Discretionary Adjustments	(50)	0	0	0	0	0
Mandatory Accounts Excluded	(184,228)	(166,488)	85,998	(80,490)	0	(80,490)
TOTAL, DISCRETIONARY APPROPRIATIONS	**5,773,515**	**5,762,298**	**38,200**	**5,800,498**	**(1,025,196)**	**4,775,302**