

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



**BUDGET
ESTIMATES**

FISCAL YEAR 2010

CONGRESSIONAL SUBMISSION

PRIVILEGED

The information contained herein must not be disclosed outside the Agency until made public by the President or by the Congress.

**Budget Estimates, Fiscal Year 2010
Congressional Submission**

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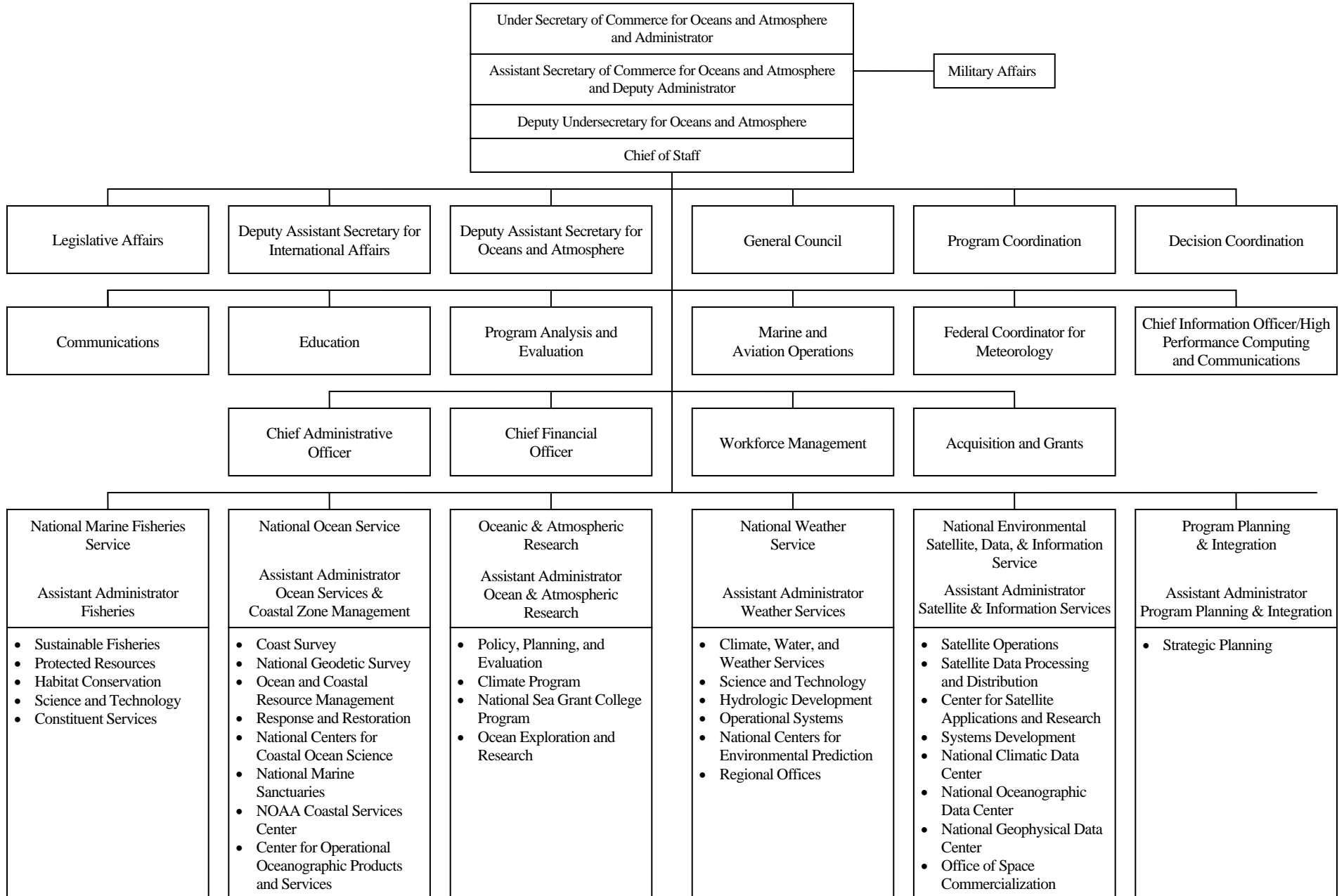
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**U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**



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3. Exhibit 3A

FY 2010 ANNUAL PERFORMANCE PLAN (APP)
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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Section 1.

Mission

The National Oceanic and Atmospheric Administration (NOAA) is an environmental science agency whose mission is to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet the Nation's economic, social, and environmental needs.

Section 2.

Corresponding DOC Strategic Goal and Objective/Outcome

DOC Strategic Goal 3: Promote environmental stewardship

The Department of Commerce works to advance the Nation's role in the global economy through NOAA's responsibilities for maintaining and improving the viability of marine and coastal ecosystems, delivering valuable weather, climate, and water information and services, understanding the processes and consequences of climate change, and supporting the global commerce and transportation upon which everyone depends. The following strategic objectives guide NOAA in its execution of these activities for the Public's safety and well being.

Objective 3.1 - Protect, restore, and manage the use of coastal and ocean resources

Coastal areas are among the most developed in the Nation, with over half of our population living on less than one-fifth of the land in the contiguous United States. At over 230 persons per square mile, the population density of the near shore is three times that of the nation as a whole. The portion of the U.S. economy that depends directly on the ocean is also large, with 2.3 million people employed and over \$117 billion in value added to the national economy in 2000. Approximately 89 million people vacation and recreate along U.S. coasts every year. Consumer expenditures for fishery products total \$62 billion annually with an additional \$1 billion of marine and freshwater aquaculture sales. With its Exclusive Economic Zone of 3.4 million square miles, the U.S. manages the largest marine territory of any nation in the world. Within this context, NOAA works with its partners to achieve a balance between the use and protection of these resources to ensure their sustainability, health, and vitality for the benefit of this and future generations and their optimal contribution to the Nation's economy and society.

NOAA has unique mandates from Congress to protect, restore, and manage, the use of coastal and ocean resources. NOAA's unique and essential services to coastal communities after Hurricanes Wilma, Katrina, and Rita elevated NOAA's vital role in not only preventing and responding to hazards and environmental events, but in anticipating and adapting to incremental environmental changes. In addition NOAA is focusing on forecasting potential coastal impacts to protect human health. NOAA helps restore and maintain the resilience of coastal and marine and Great Lakes ecosystems and communities. To fulfill this mandate, NOAA and its partners contribute world-class information and expertise in oceanography, marine ecology, urban and regional planning, coastal resource management, marine archeology, fisheries management, conservation biology, natural resource management, and risk assessment. NOAA's goal is to use an ecosystems approach to management to balance societal demands with ecosystem requirements. NOAA's approach to ecosystem management will be incremental and collaborative, integrating the concerns, priorities, and expertise of all citizens and sectors in the management of coastal and marine and Great Lakes resources.

Objective 3.2 - Advance understanding of climate variability and change

Weather and climate sensitive industries, ranging from finance, insurance, and real estate to, retail and wholesale trade and manufacturing, directly and indirectly account for about one-third of the Nation's gross domestic product (GDP), or \$3 trillion. Industries directly impacted by weather such as agriculture, construction, energy distribution, and outdoor recreation account for nearly 10 percent of the Nation's GDP. Drought is estimated to result in average annual losses to all sectors of the economy of between \$6-8 billion. Given such stresses as population growth, drought, and increasing demand for fresh water, and emerging infectious diseases, it is essential for NOAA to provide reliable observations, forecasts, and assessments of climate, water, and ecosystems to enhance decision makers' ability to minimize climate risks. This information will support decisions regarding community planning, public policy, business management, homeland security, natural resource and water planning, and public health preparedness. In the U.S. agricultural sector alone, better forecasts can be worth over \$300 million in avoided losses annually.

Climate variability and change will increasingly present risks to people, property and resources, challenge our ability to design and implement adaptive and mitigation strategies, as well as create new opportunities. The Nation and the Globe are facing a warming trend in temperature that along with the associated changes in precipitation and sea-level rise will have important consequences for the U.S. environment and economy. The impact of climate change on the economy of the United States is witnessed through: Drought, which is a growing national concern with \$6B-8B in losses per year; coastal erosion due to storm surges and sea-level rise will claim roughly 1,500 homes in the U.S. each year for several decades, at a cost to property owners of \$530M/year as well as direct damages from erosion of the coastline by 5 percent; Changes in fish stock resulting from climate change will include pole ward shifts in distribution of some marine populations, and shifts in the commercially important species; and lastly, the 1997-1998 El Niño is estimated to have had total U.S. economic impacts on the order of \$25 billion.

Objective 3.3 - Provide accurate and timely weather and water information

On average, hurricanes, tornadoes, tsunamis, and other severe weather events cause \$11 billion in damages per year. Weather, including space weather, is directly linked to public safety and about one-third of the U.S. economy (about \$3 trillion) is weather sensitive. Weather also has influences on public health due to the influence of winds and waves on the fate and transport of pollutants. With so much at stake, NOAA's role in observing, forecasting, and warning of environmental events is expanding, while economic sectors and the public are becoming increasingly sophisticated at using NOAA's weather, air quality, and water information to improve their operational efficiencies, management of environmental resources, and quality of life.

NOAA is committed to improving community resilience — the capacity of a system, community, or society potentially exposed to hazards to adapt, by resisting or changing, in order to reach and maintain an acceptable level of functioning and structure. Resilience is a key to enhancing adaptive capacity and containing the spiraling costs and impacts associated with hazards. NOAA will provide community resilience assessment, planning and policy tools at community, regional, national scales. NOAA will provide information resources such as portal, geospatial data, integrated coastal ocean information time series, and visualization data. NOAA will also offer assessment tools covering hazard risks, vulnerabilities, economic analyses, policy assessments, predictive assessments, and uncertainty assessments. NOAA will give coastal managers and others indispensable decision support tools covering scenario

planning, policy evaluation, cumulative impact assessment, impact modeling, and forecasting. Lastly, NOAA offers capacity building through training, education, and technology transfer and support for local decision-making.

Objective 3.4 - Support safe, efficient, and environmentally sound commercial navigation

Safe and efficient transportation systems are crucial economic lifelines for the Nation. NOAA's information products and services are essential to the safe and efficient transport of goods and people at sea, in the air, on land and in waterways. More accurate and timely warnings associated with severe weather threats, marine navigation products and services, and improved positioning data can better support the growing commerce on our road, rail, and waterways through improvements in transportation safety and just-in-time efficiencies. For example, the U.S. Marine Transportation System (MTS) ships over 95 percent of the tonnage and more than 20 percent by value of foreign trade through America's ports, including 48 percent of the oil needed to meet U.S. energy demands. Merchandise trade valued at over \$729 billion was moved by maritime vessels between U.S. and foreign seaports in 2002. Container shipments increased 86 percent between 1992 and 2002. Every year, 134 million passengers are ferried to work and other destinations on U.S. waterways, along with 5 million cruise ship passengers. Better aviation weather information could significantly reduce the \$5 billion that is lost through economic inefficiencies as a result of weather-related air traffic delays. Improved surface forecasts and specific user warnings would likely reduce the 7,000 weather-related fatalities and 800,000 injuries from vehicle crashes annually.

NOAA partners in the academic, government, and private sectors are essential to realizing this goal. Improved NOAA information will enable the private weather sector to provide better weather-related forecasts and information to their clients for improved efficiencies. NOAA will work with the Federal Aviation Administration and the private sector to reduce the impacts of weather on aviation without compromising safety. Reduced risk of marine accidents and oil spills, better search and rescue capabilities, and other efficiencies that can be derived from improved navigation and coastal and ocean information and services could be worth over \$300 million annually around the Nation's coasts. NOAA will work with port and coastal communities, and with Federal and state partners, to ensure that port operations and development proceed efficiently and in an environmentally sound manner. On land, improvements in weather information will be used more effectively to reduce the \$42 billion annual economic loss and the 500 million vehicle-hour delays attributed to weather-related crashes.

General Goal/Objective Mission Support: Provide critical support for NOAA's Mission

Strong, effective, and efficient support activities are necessary for us to achieve our Mission Goals. Our facilities, ships, aircraft, environmental satellites, data-processing systems, computing and communication systems, financial and administrative offices, and our approach to management provide the foundation of support for all of our programs. This critical foundation must adapt to evolving mission needs and, therefore, is an integral part of our strategic planning. It also must support US homeland security by providing NOAA services, such as civil alert relays through NOAA Weather Radio and air dispersion forecasts, in response to national emergencies. NOAA ships, aircraft, and environmental satellites are the backbone of the global Earth observing system and provide many critical mission support services. To keep this capability strong and current with our Mission Goals, we will ensure that NOAA has adequate access to safe and efficient ships and aircraft through the use of both NOAA platforms and those of other agency, academic, and commercial partners. We will work with academia and partners in the public and private sectors to ensure that future satellite systems are designed, developed, and operated with the latest technology. In addition, safe and adequate

facilities and state-of-the-art information technology are essential to the improvement of NOAA's operations and service delivery. NOAA's long-range facility planning and comprehensive maintenance planning are underway with the goal to ensure right-sized, cost-effective, and safe facilities. State-of-the-art high performance computing and data management systems will be utilized to run highly complex computer simulations of the earth system and manage the extraordinary, and exponentially increasing, amounts of environmental data necessary to meet NOAA's operational requirements and to support underpinning research.

Section 3.

Impact of Recovery Act

Proposed activities supported by \$230 million for the NOAA Operations, Research, and Facilities account include:

- ***Hydrographic Survey Backlog (\$40 million)***: \$40 million to reduce the critical hydrographic survey backlog by approximately 1,700 square nautical miles. This funding will also support improved ingestion of significant increases of data so that nautical charts can be updated faster. Funds are expected to be awarded in 60 days.
- ***Marine and Coastal Habitat Restoration (\$167 million)***: \$167 million for mid-and large-scale restoration projects addressing coral reef conservation, restoring fish habitats and helping endangered species such as salmon and sea turtles. The projects will also contribute to the improvement of coastal resiliency in response to sea level rise and natural hazards. Funds are expected to be awarded in 60 days.

NOAA will fund Marine and Coastal Habitat Restoration Project Grants. This funding will provide Federal financial and technical assistance to shovel-ready projects that meet NOAA's mission to restore marine and coastal habitats and that will result in stimulation of local economies through the creation or retention of restoration-related jobs.

The program priorities for this opportunity support NOAA's Ecosystems mission goal of Protect, Restore, and Manage Use of Coastal and Ocean Resources through an Ecosystem-Approach to Management and lead to NOAA outcomes of a healthy and productive coastal marine ecosystems that benefit society.

There are no new outcomes or objectives associated with Recovery Act funds because the anticipated types of activities to be funded will support NOAA's existing Ecosystems mission goal.

NOAA will support projects that will result in on-the-ground restoration of marine and coastal habitat (including Great Lakes habitat) that are aligned with the objectives of the American Recovery and Reinvestment Act. Large-scale projects in combination with existing conservation efforts will reduce and eliminate habitat threats (e.g., barriers to fish passage; sedimentation of coral ecosystems; impaired flow of tidal waters) in prioritized areas. The funds neither augment non-Recovery funds nor do they create a new program. Augmentation of non-Recovery Act funds with Recovery Act funds is prohibited and this distinction will be demonstrated in the required weekly Financial and Activity reports. Recovery Act funds are one-time funds and complementary of existing programs and outcomes; therefore, a new program to manage and implement the funds is not being created.

- ***ESA Section 7 Consultations (\$3 million)***: \$3 million to conduct any required environmental consultations associated with projects funded by the Recovery Act and to address the current backlog of Endangered Species Act consultations whereby other federal agencies ensure their actions will

not jeopardize a listed species or destroy critical habitat. More than 800 additional consultations are expected to be conducted, which should in turn enable other economic activities and investments to move forward. NOAA has established a goal of 100% completion of all consultations and 70% on-time completion, a significant improvement over the current on-time completion rate.”

- ***NOAA Research Vessel Maintenance and Repair (\$20 million):*** \$20 million for critical repairs and replacements to NOAA’s fleet of research and exploration vessels, specifically major repairs for Rainier and Oregon II, as well as accelerating the replacement of hydrographic survey launches on Rainier and Fairweather. Funding will make the ships more available for critical science and ensure crew and scientist safety and welfare. These funds will be distributed via competitively awarded contracts to the shipbuilding and repair industries.

This project accomplishes industrial work under various contracts for ship repairs and upgrades at shipyards Nationwide. The contracts will be awarded based on contractors past performance, demonstrated ability to perform the work, and financial capability to bond and perform contract requirements. During the contract performance period, the contractor will be required to report physical progress weekly. This progress shall be monitored and verified by onsite COR(s) (contracting officer’s representative). Physical progress will be required to support progress payments against invoices by CLIN (contract line item number).

The *Rainier* and Oregon II /major repair periods will improve reliability resulting in a reduction of lost operating days due to maintenance or failures by 20% within the first year of returning to service. The addition of the third and fourth survey launches aboard NOAA Ship *Fairweather* will allow the ship to decrease the cost per lineal nautical mile by 50%. In 2008, *Fairweather* accomplished 11 hours of hydro survey data acquisition per DAS. The addition of two new, more reliable survey launches should allow the ship to accomplish 16 hours/DAS (which is the same as *Rainier* and *Thomas Jefferson* in 2008), a 68% increase in hours of data acquisition/DAS. Thus, $(16 \text{ hrs./DAS}) \times (180 \text{ DAS}) \times (3 \text{ LNM/hr.}) = 8,640 \text{ LNM}$ for approximately \$7 million. This equates to \$813/LNM – down from \$1,928/LNM in 2008.

Proposed activities supported by \$600 million for the NOAA Procurement, Acquisition, and Construction account include:

- ***NOAA Climate Computing and Modeling (\$170 million):*** \$170 million to accelerate and enhance NOAA’s High Performance Computing capabilities to directly improve capabilities for weather and climate modeling and climate change research. NOAA will start two computing systems in separate locations that will improve the accuracy of seasonal climate and global climate change assessments. The two HPC sites will be selected by a competitive process and create jobs in manufacturing, construction, and software engineering.

In addition to funding enhancements to high performance computing capabilities, the ARRA provides funding to improve the quality and access to climate data records. The National Climatic Data Center (NCDC) has responsibility for an initiative called the Climate Data Record (CDR) Project. This project is a joint NOAA, NASA, and USGS endeavor which seeks to establish as complete and consistent a climate record as possible from remotely sensed and *in situ* measurements in order to provide users with quality climate data and information products. These Climate Data Records (CDRs) and Climate Information Records (CIRs) provide scientifically authoritative global climate reference sets, which are used by scientists to detect, assess, model and predict climate change. Decision-makers use the records to devise strategies to respond, adapt, and mitigate the effects of climate change.

The results of the work funded by the ARRA will support two objectives: 1) “Advance understanding and predict changes in the Earth’s environment to meet America’s economic, social, and environmental needs” and 2) “Enhance the conservation and management of coastal and marine resources to meet America’s economic, social, and environmental needs” under the Department of Commerce Strategic Goal “Observe, protect, and manage the Earth’s resources to promote environmental needs.”

NOAA will competitively award contracts using ARRA funds to acquire two large-scale supercomputing systems and associated networking and storage in support of advanced environmental modeling to address critical gaps in climate modeling and climate data records. ARRA funds will also be utilized to modify data centers to house these systems, which are expected to be in place by late FY10.

NOAA will also competitively award contracts to provide key capabilities required for the Climate Data Record Project. These capabilities will assist and advise the ongoing efforts to prepare and implement a coherent scheme for data handling and preservation of climate data records, associated ancillary data, and calibration and validation data and documentation.

- ***NEXRAD Dual Polarization Radar (\$7.4 million)***: \$7.4 million to accelerate the Dual Polarization effort of the next generation (NEXRAD) Doppler weather radar system that will allow signals to be transmitted and received in two dimensions, resulting in a significant improvement in precipitation estimation; improved ability to discriminate rain, snow, and hail; and a general improvement in data quality. The new system will improve flash flood warnings, improve precipitation estimates and severe weather detection, including snow storms and icing conditions for air and ground transportation.
- ***Weather Forecast Office Construction (\$9 million)***: \$9 million to upgrade the NOAA Weather Forecast Offices in Barrow and Nome, Alaska, as well as repair a number of other such local weather offices around the country.
- ***Accelerate Satellite Observations (\$74 million)***: \$74 million to accelerate development of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) and climate sensors for these satellites. Funding will allow critical development activities and mitigate both cost and schedule risk for this joint Department of Commerce/Department of Defense program. Funding will also be spent on developing instruments that monitor the sun’s energy incident on the Earth and the Earth’s radiation budget, both crucial measurements for monitoring factors that affect climate change.

NESDIS is expected to receive Recovery Act funds for the National Polar-orbiting Operational Environmental Satellite System (NPOESS) and Climate Sensors programs. The NPOESS is the next generation of low earth orbiting environmental satellites that provide global coverage, monitor environmental conditions, collect, disseminate and process data about the Earth’s weather, atmosphere, oceans, land, and near-space environment. The NPOESS system monitors the entire planet and provides data for long-range weather and climate forecasts. The data gathered by the NPOESS aids in reducing the potential loss of human life and property by allowing more efficient disaster planning and response to severe weather conditions such as tornadoes and floods. Citizens will benefit from the satellite’s data in the areas of general aviation, agriculture, and

maritime activities. Military users will benefit from the NPOESS as well, tactically and strategically. The NPOESS will permit the military to capitalize on favorable weather conditions or avoid harsh weather conditions that could hinder maneuverability.

The ARRA funds directly link to the DOC Strategic Plan (FY07-12) under the Strategic Goal 3- Provide critical support for NOAA's mission. There are no Government Performance Results Act (GPRA) measures for the Mission Support objective, since the activities of this objective support the outcomes of the Mission objectives.

The ARRA funds will be used to accelerate funding for the National Polar-orbiting Operational Environmental Satellite System (NPOESS) and two climate sensors for these satellites. These funds augment non-Recovery funds

Recovery Funds used by the NPOESS program will allow NOAA to perform critical NPOESS development activities and address risk mitigation within the program. NOAA will use the funding to mitigate both cost and schedule risk for the NPOESS program.

The Recovery Funds associated with the Climate Sensors program will be used to continue the development and production work for the Total Solar Irradiance Sensor for NPOESS and initiate the procurement and development of the Clouds Earth's Radiant Energy System (CERES). The TSIS provides measurements that monitor the sun's energy incident on Earth, while the CERES measures energy that maintains climate.

- ***Pacific Regional Center (\$142 million)***: \$142 million to complete construction of NOAA's consolidated Pacific Regional Center on Ford Island in Honolulu. This facility consolidates 12 locations in poor shape into one that will improve operations and mission performance, and provide longer-term operational savings and opportunities for greater program collaboration.
- ***Southwest Fisheries Science Center (\$102 million)***: \$102 million to complete the design, construction, and occupancy of the replacement NOAA Southwest Fisheries Science Center in La Jolla, Calif. For employee safety, NOAA was forced to abandon two of its four buildings due to cliff erosion and move into temporary off-site leased facilities. The new facility will be on the University of California, San Diego (UCSD) campus, enabling NOAA to sustain its strategic and functional relationships with UCSD and the Scripps Institute of Oceanography.
- ***Fairbanks Satellite Facility Construction (\$9 million)***: \$9 million to continue the replacement of the at-risk Fairbanks Operations Building in Fairbanks, Alaska. This is one of two NOAA Satellite operations centers that control NOAA's polar orbiting environmental satellites and acquire their data. The current building has been identified as at-risk by the Army Corps of Engineers due to extreme temperatures and seismic activity in the area. Construction of the new facility will allow NOAA to support the NOAA polar-orbiting satellites program through de-orbit of the last polar satellite in 2022, as well as support other ongoing satellite missions through 2026.
- ***Facility Maintenance and Repair (\$8.6 million)***: \$8.6 million to fund necessary facility maintenance and repairs. NOAA will use this funding to address critical facility repair issues in order to ensure the health and safety of its employees and to protect its facility investments. This funding will support asbestos abatement at the NOAA Geophysical Fluid Dynamic Laboratory in Princeton, N.J., and repairs to the NOAA Fisheries Galveston Laboratory in Texas, as well as priority repairs at other NOAA facilities.

- ***Fishery Survey Vessel Construction (\$78 million)***: \$78 million to complete the construction of the sixth Fisheries Survey Vessel that will replace the aged *David Starr Jordan* and support fisheries surveys and related research along the West Coast and Eastern Tropical Pacific Ocean. These surveys support commercial fishery management as well as scientific research into the region's living marine resources and habitat.

The objective of the ARRA funded projects is to improve reliability of NOAA ships and launches in order to accomplish scheduled science days at sea and increase linear nautical miles accomplished during hydrographic surveys. The objectives will be accomplished by accelerating Ship Major Repair Periods (MRP) for NOAA Vessels *Oregon II* and *Rainier*, reducing the existing backlog of deferred maintenance on the NOAA Fleet, and by replacing NOAA Hydrographic Survey Launches that are beyond their service life. The new launches will double the survey capacity of the *Fairweather* and improve reliability of the survey launches. These launches will increase the ship's overall productivity and reduce the cost per survey mile for *Fairweather* data acquisition.

The ARRA funding will involve industrial ship repair, renovation, and new equipment installations on ships. These projects will extend service life, address issues of obsolescence, reduce potential for Hazmat asbestos exposure to NOAA Wage Mariner employees and reduce the backlog of deferred maintenance work on the NOAA Fleet. Reducing the backlog of deferred maintenance on these vessels will address the highest priority repair items whose likelihood of consequences will directly affect ships' ability to meet mission requirements. These improvements will reduce the probability of unplanned breakdowns and the subsequent loss of science days while awaiting the delivery of parts for equipment no longer supported by the original equipment manufacturer. The activities involved are primarily shipyard industrial work in private shipyards in various regions of the U.S. It can be anticipated that these ARRA funded projects will create work for shipyards from New England to the Gulf Coast, West Coast, and Hawaii and suppliers nationwide. The shipyards used by NOAA are small businesses that will also benefit from the additional work in the ARRA project.

Section 4.

Priority /Management Challenges

EXECUTIVE SUMMARY

Introduction

For Fiscal Year (FY) 2010, the National Oceanic and Atmospheric Administration (NOAA) requests a total appropriation of \$4,483,750, an increase of \$109,880 or 2.5% over the Omnibus Appropriations Act, 2009. This request reflects NOAA's continuing effort to better serve the American people through advancing mission-critical services. The NOAA staff of dedicated professionals, working with extramural researchers and our international partners are extending our knowledge of climate change; expanding meteorological prediction capabilities; improving coastal resource management; charting more of our seas and coasts; and enhancing environmental stewardship.

Total requested calculated Adjustments to Base (ATBs) are \$52,080,000. These adjustments focus on maintaining and investing in our workforce and supporting NOAA's most important resource – our people. NOAA leverages this most valuable asset by applying our people's knowledge, experience, ingenuity and dedication to the challenges of the 21st century. With this increase, the FY 2010 base level will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The base level will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

Program Change Highlights by Line Office

National Ocean Service

The FY2010 request includes an additional \$4.0 million to begin data collection for a new national datum which will improve elevation and height information, a foundation for improved commerce, economic efficiencies, and to better protect the public from coastal hazards and flooding. The request also provides an increase of \$2.7 million to develop a national system of forecasts for Harmful Algal Blooms and a national event response capability. An additional \$2.0 million is provided to establish a Coastal Community Task Force to enhance coastal community economies while protecting and conserving ecologically sensitive areas.

National Marine Fisheries Service

The FY 2010 request includes an additional \$60.0 million to establish a national grants program in support of recovery of species listed under the Endangered Species Act (ESA). An additional \$16.5 million is provided to fulfill the conservation and fair harvesting-sharing provisions of the Pacific Salmon Treaty. The FY 2010 President's Budget continues the commitment to end overfishing by 2011 with an increase \$56.5 million for a total of \$98.3 million to support the Magnuson-Stevens Reauthorization Act, including implementation of Annual Catch Limits and additional funding for enforcement and observers.

Office of Oceanic and Atmospheric Research

The FY 2010 request provides increases for oceanic and atmospheric research. This includes an additional \$4.0 million to implement long-term monitoring of ocean acidification. An increase of \$6.5 million is provided for climate research including the National Integrated Drought Information System, development of a Climate Model Portal, expansion of the U.S. Climate Reference Network to Alaska, and funding to develop decadal climate predictions.

National Weather Service

The request provides an increase of \$7.0 million for the acquisition and installation of a NEXRAD Doppler radar to eliminate the coverage gap identified by the National Weather Service in Western Washington. Filling this gap will improve the analysis and prediction of winter storms systems and precipitation estimates. An additional \$6.1 million is provided to improve aviation weather services and support the Next Generation Air Transportation System (NextGen). Funding will begin development of a Weather Information Database, a central repository of weather information, products, and services for aviation users and customers. Studies indicate that improved weather information could save \$6 billion of losses associated with air traffic delays. The request also includes an increase of \$5.3 million for upgrades and reengineering of the NWS service delivery system. This technology improvement will reduce the time required to generate and disseminate warnings leading to potential savings in life and property.

National Environmental Satellite, Data, and Information Service

Development of NOAA's satellites systems is a top priority in the FY 2010 request, including an additional \$272 million for the GOES-R series satellites. The series will provide an uninterrupted, continuous flow of environmental and weather data and information. The request also includes an increase of \$94.2 million to continue development of the NPOESS system. NPOESS will provide global environmental data such as sea surface temperature, atmospheric profiles temperature and moisture and atmospheric ozone concentrations for use in numerical weather prediction models. Additionally, the request provides \$20 million to begin development of a new satellite altimetry mission (Jason-3) that will provide measurements to help determine global sea-level rise, a key indicator of climate change.

Program Support

The FY 2010 request continues NOAA's support for environmental literacy with an increase of \$4.0 million for a national competitive education grant program. This program will fund development of curriculums and environmental educators for formal and informal education. An additional \$8.8 million for NOAA facilities. This includes \$7.7 million for critical facility repairs and \$1.0 million to improve execution of real property leases.

Office of Marine and Aviation Operations

The NOAA Corps, in addition to operating NOAA's vessels and aircraft, support all NOAA Line Offices and missions. The FY 2010 request includes \$2.2 million to increase the end strength to full authorization of 321 officers. The FY 2010 request includes funding to continue NOAA's Ship Recapitalization Plan with a \$3.0 million increase for the design of a shallow-draft Fisheries Survey Vessel.

The changes highlighted above will be addressed in greater detail in the remaining parts of the FY 2010 NOAA Budget Summary. We hope to build on our prior successes by addressing future challenges through implementing the management, operational, and technical enhancements proposed in this Summary.

Section 5.

Target and Performance Summary Table (with brief measure descriptions)

Targets and Performance Summary / FY 2010 Target Description / Measure Descriptions / Validation and Verification

NOTE: Some of the FY 2009 Targets contained in this FY 2010 APP document may differ from the FY 2009 Budget In Brief (BIB) due to budgetary changes between NOAA’s request since the FY 2009 BIB and the amounts enacted in Congress. The FY 2009 Target difference could also be attributed to adjustments made based on FY 2008 Actuals.

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1a: Fish Stock Sustainability Index (FSSI)	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>	481.5	501	524	535	548.5	568
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	548.5	568
Description: The FSSI tracks the rebuilding and maintaining of fish stocks at productive levels, along with critical components of NOAA’s efforts to achieve that outcome, such as managing fish harvest rates and increasing knowledge about the status of fish stocks. It is calculated by assigning a score between 0 and 4 to each of 230 stocks selected for their importance to commercial and recreational fisheries and then adding the scores together. Since effort is required to maintain an FSSI score, the score can fall with insufficient resources, and increasing the score without an increase in resources is a significant accomplishment. For more information: http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm .						
Comments on Changes to Targets: Targets have not changed.						
Impact of Recovery Act: N/A						
Relevant Program Change(s): \$12,000,000 \$4,000,000	Title: Implementation of Annual Catch Limits (ACLs) and Accountability Measures (AMs) Regional Councils and Fisheries Commissions: Annual Catch Limits					Exhibit 13 Page #: 199 221
Validation and Verification						

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
Stock assessments and status determinations	Quarterly	NMFS Stock Information System (SIS)	Results will be reported quarterly in a signed memo from the Fishery Management Program Manager to the NMFS Chief Financial Officer and are housed and made available in a database managed by the NMFS Office of Management and Budget; monthly reporting on performance to NOAA Deputy Under Secretary	Results can only be reported when the SIS is updated with new information from the field	

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1b: Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>	37.5%	38.8%	40.6%	40.2	42.1	42.9
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	42.1	42.9
<p>Description: This measure tracks the percentage of priority fish stocks and protected species stocks for which adequate assessments are available to determine the scientific basis for supporting and evaluating the impact of living marine resource management actions. To reach this standard, which is defined as “Level III” by the Fisheries and Protected Species Stock Assessment Improvement Plans (SAIPs), assessments must be based on recent quantitative information sufficient to determine current stock status (abundance and mortality) relative to established reference levels and to forecast stock status under different management scenarios. This measure covers the same 230 fish stocks tracked by the FSSI as well as the protected species stocks covered by MMPA and listed under ESA.</p>						
<p>Comments on Changes to Targets: Target decreases are due mainly to the loss of sea days as a result of cruise cancellations and the decommissioning of a survey vessel. Note that due to an increase in the number of listed species, this measure covers 478 stocks in 2009 and beyond rather than 472 in 2008.</p>						
<p>Impact of Recovery Act: N/A</p>						
Relevant Program Change(s): \$9,900,000	Title: Expand Annual Stock Assessments: Annual Catch Limits				Exhibit 13 Page #: 215	

\$6,251,000	Survey and Monitoring Projects	224			
\$4,771,000	Fisheries Statistics	223			
\$5,000,000	National Observer Program	244			
\$6,000,000	Cooperative Research	274			
\$3,271,000	Economics and Social Science Research	217			
\$5,104,000	Fisheries Research and Management Restoration and Emergent Needs	213			
\$1,600,000	Charter Days In Lieu of John N. Cobb	210			
Validation and Verification					
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
Stock assessments reports and ESA status reviews	Quarterly	NMFS Stock Information System (SIS) and Excel spreadsheet maintained by NMFS' Office of Protected Resources	Results will be approved by the NMFS Chief Science Advisor and reported quarterly in a signed memo from the Ecosystem Observations Program Manager to the NMFS Chief Financial Officer and are housed and made available in a database managed by the NMFS Office of Management and Budget; quarterly reporting on performance to NOAA Deputy Under Secretary	Results can only be reported when the SIS is updated with new information from the field	The existing requirements table is being developed into a working SIS module to house protected species data using technical assistance from NESDIS-NODC.

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1c: Number of Protected Species Designated as Threatened, Endangered or Depleted with Stable or Increasing Population Levels	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>	24	26	26	24	22	24
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	22	24
Description: This measure tracks progress at achieving partial recovery of endangered, threatened or depleted protected species under the jurisdiction of the National Marine Fisheries Service. These species include those listed as threatened or endangered under the Endangered Species Act (ESA) as well as those marine mammal species listed as “depleted” under the Marine Mammal Protection Act, which includes any listed under ESA. Recovery of threatened,						

endangered or depleted species can take decades, so while it may not be possible to recover or de-list a species in the near term, progress can be made to stabilize or increase the species population. For some, it is trying to stop a steep decline (right whales, stellar sea lions); for others it is trying to increase their numbers/abundance (Ridley turtles).

Two stocks, humpback whales in the Southwest and right whales in the Northeast, are likely to decline from stable to unknown status in FY 2009. NMFS' ability to assess SW humpback whales has been hindered by the decommissioning of the FSV David Starr Jordan, which has created uncertainty regarding the availability of ship time. If the assessment is not renewed on schedule, the status of stable cannot be maintained due to uncertainty regarding its continued validity. In the case of NE right whales, the population is so small that the uncertainty regarding the effects of numerous factors is too great for NMFS to project its status into the future. Right whales were found to be stable just two years ago in 2007, and until the new management measures currently being implemented have been found to be effective in reducing mortality, NMFS cannot say with confidence that the population will remain stable, and so it is targeted as unknown.

Comments on Changes to Targets: Targets have not changed.

Impact of Recovery Act: N/A

Relevant Program Change(s):	Title:	Exhibit 13 Page #:
\$5,550,000	Protected Species Research and Management	177
\$1,500,000	Hawaiian Monk Seals	181
\$1,000,000	Cook Inlet Beluga Whale	182
\$1,300,000	Ice Seals	183
\$60,000,000	Species Recovery Grants	178
\$1,500,000	Marine Mammal Protection Activities (Take Reduction Team)	180
\$7,325,000	Pacific Salmon ESA Recovery and Research	185

Validation and Verification

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
MMPA stock assessment reports and ESA status reviews	Annual	Excel spreadsheet maintained by NMFS' Office of Protected Resources	Results are reported quarterly in a signed memo from the Protected Species Program Manager to the NMFS Chief Financial Officer and are housed and made available in a database managed by the NMFS Office of Management and Budget; quarterly reporting on performance to NOAA Deputy Under Secretary	MMPA stock assessment reports are updated only once a year and ESA status reviews are updated only every one to five years depending on priority and fund availability	The existing requirements table is being developed into a working SIS module to house protected species data using technical assistance from NESDIS-NODC.

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1d: Number of Habitat Acres Restored	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>	8,333	7,598	5,974	11,254	9,000	7,000
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	TBD	TBD
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	TBD	TBD
Description: NOAA restores habitat areas lost or degraded as a result of development and other human activities, as well as specific pollution incidents and sources. Activities are geared toward NOAA trust resources found across the marine environment, including the Great Lakes region, and supportive of anadromous fish species. The intent of this measure is to summarize or project the geographic area over which ecosystem function has been or will be improved as the direct result of habitat restoration efforts.						
Comments on Changes to Targets: Targets for requested FY 2010 appropriated funds have not changed. Augmentations to targets due to Recovery Act funds will be determined once projects have been selected (see below).						
Impact of Recovery Act: Acreage restored as a result of Recovery Act funds cannot be estimated until specific projects have been selected. Total FY 2009 and FY 2010 targets including Recovery Act funds will be set after project selection is completed in May/June 2009.						
Relevant Program Change(s): N/A	Title: N/A					Exhibit 13 Page #: N/A
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken	
Interim and final progress reports from each project	Quarterly	The Restoration Center Database (RCDB)	Results are reported quarterly in a signed memo from the Habitat Program Manager to the NMFS Chief Financial Officer and are housed and made available in a database managed by the NMFS Office of Management and Budget; quarterly reporting on performance to NOAA Deputy Under Secretary.	Data is primarily provided by grantees		

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1e:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
Annual number of Coastal, Marine, and Great Lakes Ecological Characterizations that Meet Management Needs						
<i>Targets based on original Amount</i>	New	62	27	45	50	50
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	50
Description: Sound management of coastal, Great Lakes, and ocean ecosystems requires scientifically based information on their condition. To provide this information, ecosystem characterizations are: 1) inclusive of the identification of the ecosystem boundaries, spatial extent, and biological, chemical, and physical characteristics that improve understanding of the history, current state, and future condition of ecosystems, cornerstones to ecosystem-based approaches to management; 2) the basis for many coastal and ocean forecasts, assessments, and management plans; and 3) conducted in response to user community demand and priorities, including NOAA management programs, significance of issue, and consequences of management action or inaction. Key parameters for characterizing conditions and developing assessments of their present “health” will be identified with the key indicator being characterizations <i>that meet management needs</i> (whether conducted in essential fish habitat, National Marine Sanctuaries, National Estuarine Research Reserves, the Great Lakes, the depths of the oceans, the coastal zone, and coral reef ecosystems, where there are different management needs and associated ecological characterizations)						
Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.						
Impact of Recovery Act: N/A						
Relevant Program Change(s):	Title:				Exhibit 13 Page #:	
N/A	N/A				N/A	
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken	

<p>Characterizations focus on ecosystem sites: National Marine Sanctuaries, National Estuarine Research Reserves, coral reef ecosystems, the coastal zone, Great Lakes, essential fish habitat, ecological species units, and unexplored areas.</p>	<p>Annual</p>	<p>Metadata from all contributing sources to the measure is maintained by managers for the coastal and marine resources and ecosystem research programs and stored in an Excel database with limited access. The final performance data reported in quarterly and annual performance reports is managed in a secure NOS database for annual milestones and annual and long-term performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow approval system).</p>	<p>Results are reported quarterly to the Ecosystems Research program (ERP) program manager and NOAA Chief Financial Officers; quarterly reports on performance data are submitted to the NOAA Deputy Under Secretary.</p>	<p>NOAA focuses on protected areas or areas where NOAA has a clear management mandate. NOAA works to identify key parameters for characterizing their conditions and develop assessments of their present health. Characterizations from all contributors are being tracked in this new measure in addition to criteria defining the indicator of what meets management needs for each ecosystem site because characterizations vary temporally and geographically.</p>	
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Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1f:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
Cumulative number of coastal, marine and Great Lakes issue-based forecasting capabilities developed and used for management						
<i>Targets based on original amount</i>	25	31	35	38	41	41
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	41
<p>Description: NOAA's discrete forecast models allow resource managers to: 1) make decisions based on predicted environmental and socioeconomic impacts related to a particular issue; 2) use issue-based forecasts to predict the impacts of a single ecosystem stressor (e.g., climate change, extreme natural events, pollution, invasive species, and land and resource use) and 3) evaluate the potential options to manage those stressors to fulfill the ultimate goal for resource managers to use NOAA's forecasts to better manage ecosystem use, condition, and productivity. These forecasts will be based on field and laboratory studies, existing data, and models predicting environmental conditions under different scenarios and will have capabilities specific to a geographic area and be counted for each ecosystem as they become operational. For example, harmful algal bloom forecasts in the Gulf of Mexico and Gulf of Maine are two separate forecast capabilities and similarly, multiple, distinct forecast capabilities could be counted within a single ecosystem (i.e., harmful algal blooms, pink shrimp harvest, and hypoxia –all in the Gulf of Mexico).</p>						
Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.						
Impact of Recovery Act: N/A						
Relevant Program Change(s): N/A	Title: N/A					Exhibit 13 Page #: N/A
Validation and Verification						
Data source	Frequency	Data storage	Internal control procedures	Data limitations	Action to be taken	

<p>Ecosystem Research program components that produce forecasting capabilities [National Ocean Service's (NOS) National Centers for Coastal Ocean Science (NCCOS) and the Oceans and Human Health Initiative; three programs of NOAA's Oceanic and Atmospheric Research (OAR) Sea Grant, Atlantic Oceanographic and Meteorological Laboratory (AOML, in part), and Great Lakes Environmental Research Laboratory (GLERL)]</p>	<p>Annual</p>	<p>Metadata from all contributing sources to the measure is managed by the Ecosystem Research program manager and stored in an Excel spreadsheet with limited access. The final performance data reported in quarterly and annual performance reports is managed in a secure NOS database for annual milestones and annual and long-term performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow approval system).</p>	<p>Results are reported quarterly to the Ecosystems Research Program (ERP) Program Manager and NOAA Chief Financial Officers; quarterly reports on performance data are submitted to the NOAA Deputy Under Secretary.</p>	<p>Forecasting capabilities under development focus on 1) habitat impacts from different types of human activity, such as land use; 2) recovery of ecosystem function once habitat restoration efforts have been implemented; and 3) NOAA Fisheries models that predict resource sustainability, such as for managed fisheries and protected species.</p>	<p>NOAA will prioritize its efforts in developing new forecast capabilities and facilitating their transition to operational status based on user community priorities, including those for NOAA management, adequacy of data, significance of issue, and consequences of management action/inaction.</p>
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Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1g: Percentage of Tools, Technologies, and Information Services That are Used by NOAA Partners/Customers to Improve Ecosystem-based Management	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
<i>Targets based on original amount</i>	N/A	N/A	85%	86%	86%	86%
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery</i>	N/A	N/A	N/A	N/A	N/A	86%

<i>Act funds</i>											
<p>Description: This measure tracks NOAA’s success in providing tools, technologies, and information services such as those for coastal and marine resource managers that enable progress toward the principles of ecosystem-based management in coastal, marine, and Great Lakes ecosystems. Tracking accessibility and use of tools, technologies, and information by target audiences allows NOAA to expand its most effective programs and products. NOAA partners and customers include Federal, state, local and tribal authorities who make decisions affecting resources in the U.S. coastal zone, and other users impacting the condition of coastal ecosystems (e.g., private industry).</p>											
Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.											
Impact of Recovery Act: N/A											
Relevant Program Change: N/A		Title : N/A								Exhibit 13 Page #: N/A	
Validation and Verification											
Data source		Frequency		Data storage		Internal control procedures			Data limitations		Action to be taken
NOAA’s Line Offices (OAR and NOS) executing the NOAA programs through the Strategic Plan goal/program structure		Annual		Each Line Office has an internal secure system for tracking the data contributions.		Use values will be reported by program offices as X number of tools, technologies, and information services (TTIS) used out of X number of TTIS provided. Each Line Office will report total annual values to a central repository where a single percentage value will be determined and archived in a secure repository. Data is managed in a decentralized system by contributing line offices with validation and verification on any partner for TTIS to ensure no double counting of data.			NOAA needs to ensure tracking systems are secure and data is validated and verified.		A secure central NOAA repository for matrixed measures is under development for improved management and tracking purposes.

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
Measure 1h:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
Annual Number of Coastal, Marine, and Great Lakes Habitat Acres Acquired or Designated for Long-term Protection.						
<i>Targets based on original Amount</i>	1,705	>86 million	3,020	6,219	2,000	2,000
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	2,000	2,000
<p>Description: Habitat restoration (GPRA 1D) and long-term protection (GPRA 1G) are critically needed to help maintain the function of important coastal and marine ecosystems, and NOAA protects and restores key habitats that provide critical ecosystem functions that support the health of endangered or threatened species, essential fish habitat, and provide other societal or economic benefits. NOAA maintains the health of coastal, marine, and Great Lakes habitats by designating and managing important areas for long-term conservation and by providing support to state and local governments to protect additional key habitats by purchasing land from willing sellers and uses this <i>long-term protection</i> measure to track the number of acres acquired with NOAA funds by state or local government agencies from willing sellers for long-term protection of important coastal habitats, or the number of acres designated for long-term protection by NOAA or by state partners, such as through the National Marine Sanctuary Program (NMSP) and National Estuarine Research Reserve System (NERRS).</p>						
<p>Comments on Changes to Targets: The protected acres are the actual number of acres newly protected in a fiscal year. The cumulative total represents acres acquired or designated to date for the NERRS, NMSP, and Coastal and Estuarine Land Conservation Program (CELCP). Beginning in FY 2008, this will also include acres acquired through the Coastal Zone Management Program. The goal for the long-term protection indicator is ambitious. However, the annual target may vary widely from year to year depending on whether a new reserve or sanctuary is designated or acquired (adding potentially hundreds of thousands of acres in one year) in addition to the steady acquisition or designation of thousands of acres through CELCP.</p>						
<i>Impact of Recovery Act:</i> N/A						
Relevant Program Change(s): N/A	Title: N/A				Exhibit 13 Page #: N/A	

Validation and Verification

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
<p>The cumulative total represents data on acres from the National Estuarine Research Reserve (NERRS) Program; National Marine Sanctuaries Program; and the Coastal and Estuarine Land Conservation Program.</p>	<p>Annually by each Program Manager</p>	<p>Metadata from all contributing sources to the measure is managed by the Coastal and Marine Resources Program Manager and stored in an Excel spreadsheet with limited access. The final performance data reported annually in performance reports is managed in a secure NOS database for annual milestones and annual and long-term performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow approval system).</p>	<p>Results are reported annually to the contributing NOAA program (Coastal and Marine Resources Program (CMRP) and NOAA Chief Financial Officers for approval; monthly reports on performance data are submitted to the NOAA Deputy Under Secretary.</p>	<p>The goal for the long-term protection indicator is variable, as the yearly target can vary from hundreds to thousands of acres each year. For example, the initial designation or acquisition for a new reserve or sanctuary may add hundreds of thousands of acres in one year, while in other years acquisition may result in several hundred or thousand acres protected.</p> <p>Other limitations are the timeliness of reporting by grant recipients, accuracy of conversion from hectares to acres for some data, and the time delay between funding and completion.</p>	<p>Since this measure does not capture all NOAA's activities to protect habitat, NOAA plans to expand the measure in FY 2008 to capture the CZM program contributions.</p> <p>NOAA is looking at the feasibility of further harmonizing methodologies used among contributing program components.</p>

Objective 3.2 – Advance understanding of climate variability and change						
Measure 2a:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
U.S. Temperature Forecasts (Cumulative Skill Score Computed Over the Regions Where Predictions are Made)						
<i>Targets based on original Amount</i>	19	25	29	26	20	24
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	24
<p>Description: For each three month period, seasonal outlooks for U.S. surface temperature are produced by CPC and reported as either above normal, near normal, below normal or, where no definite seasonal guidance can be provided, equal chances. These forecasts are verified using a 48 month running mean of Heidke Skill scores computed for seasonal outlooks for each 3-month seasonal mean (e.g., January-February-March mean; February-March-April mean; March-April-May mean; and so on). It is calculated as follows: Heidke skill score: $S = ((c-e)/(t-e)) \times 100$, where c = number of grid points where forecast was correct and e = number of grid points expected to be correct by chance alone and t = total number of grid points where the forecast was made.</p>						
<p>Comments on Changes to Targets: Changes to help improve out-year targets: CPC has established a Climate Test Bed (CTB) and has redirected nearly 25% of its federal and contract staff to accelerate improvements in seasonal climate prediction. Increased collaboration with EMC, CDC, GFDL and the reorganized NOAA/OAR and its Climate Program Office is expected to enhance opportunities for model diagnostics and testing by teams of internal and external scientists through formal Announcements of Opportunity in support of the CTB. The new Climate Forecast System (completed in August 2004) provides a forecast tool that incorporates global ocean data and has more stability in ENSO cycle prediction. CPC will continue the successful collaborative forecast process, which includes scientists from CDC and IRI and their experimental forecast tools in CPC’s operational seasonal forecast discussions each month. This exposed the CPC operational process to the best nationwide expertise, and an advanced look at cutting-edge science. As a result of the North American Monsoon Experiment (NAME), CPC will begin improving its understanding of warm season precipitation and its predictability. CPC will continue developing its training program for forecasters to take into account the latest science and technology advances and the use of new seasonal climate tools/products. CPC will further upgrade its objective seasonal forecast tool consolidation process to provide a more skillful baseline “first guess” outlook for forecasters to assimilate.</p>						
Impact of Recovery Act: N/A						
Relevant Program Change: N/A	Title: N/A					Exhibit 13 Page #: N/A

Validation and Verification					
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
Forecast data, observations from U.S. Weather Forecast Offices, and from a cooperative network maintained by volunteers across the nation	Annual	NWS' National Centers for Environmental Prediction	NOAA performs quality control on the observed data (for example, error checking, elimination of duplicates, and inter-station comparison) both at the CPC and U.S. Weather Forecast Office level. In 2005, NOAA implemented an objective verification procedure to minimize the impact of human errors in the computation of skill score.	Because of natural (and unpredictable) variability of climate regimes, the skill score can fluctuate considerably from one season to another. For example, for the periods influenced by a strong ENSO forcing, GPRA measure tends to be high. Lower scores occur during the periods when ENSO is in its neutral phase. For example, the FY06 actual was an anomaly as effects from the El Nino and La Nina dropped out of the 48 month averages.	None

Objective 3.2 – Advance understanding of climate variability and change						
Measure 2b: Uncertainty in the magnitude of the North American carbon uptake.	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
<i>Targets based on original Amount</i>	Reduced Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/-	Reduced Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/-	Reduced Uncertainty of Atmospheric Estimates of NA Carbon	Reduce Uncertainty of Atmospheric Estimates of NA Carbon	Reduce Uncertainty of Atmospheric Estimates of NA Carbon	Reduce Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/-

	0.40 Gt. Carbon per Year	0.40 Gt. Carbon per Year	Uptake to +/- 0.40 Gt. Carbon per Year	Uptake to +/- 0.40 Gt. Carbon per Year	Uptake to +/- 0.30 Gt. Carbon per Year	0.40 Gt. Carbon per Year
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: Carbon dioxide is the most important of the greenhouse gases that are undergoing changes in abundance in the atmosphere due to human activity. On average, about one half of all the carbon dioxide emitted by human activity is taken up by the oceans and the terrestrial biosphere (trees, plants, and soils) – reservoirs of carbon known as carbon “sinks” – however, the variation in the uptake from year to year is very large and poorly understood. NOAA needs to assess and quantify the source of this variability if it is to provide scientific guidance to policymakers who are concerned with managing emissions and sequestration of carbon dioxide. NOAA accomplishes this by making regional-scale measurements of the vertical profile of carbon dioxide across the U.S. which, combined with improved transport models, can be used to determine carbon dioxide sources and sinks on a regional scale.</p> <p>Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.</p>						
<i>Impact of Recovery Act:</i> N/A						
Relevant Program Change(s): N/A		Title: N/A			Exhibit 13 Page #: N/A	
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken	
NOAA’s Global Carbon Cycle Research Program	Annual	NOAA’s Earth System Research Laboratory	Quality assurance and calibration against known standards performed by NOAA	Number of tall tower/aircraft sites and our ability to incorporate these data into advanced carbon models	None	

Objective 3.2 – Advance understanding of climate variability and change						
Measure 2c:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
Uncertainty in model simulations of the influence of aerosols on climate.						
<i>Targets based on original Amount</i>	N/A	Established 10% improvement in uncertainty in model simulations of how North American aerosols influence climate	Established 10% improvement in uncertainty in model simulations of how North American aerosols influence climate	Established 15% improvement in uncertainty in model simulations of how North American aerosols influence climate	Establish 20% improvement in uncertainty in model simulations of how North American aerosols influence climate	Establish 15% improvement in uncertainty in model simulations of how North American aerosols influence climate
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: While greenhouse gases warm the atmosphere, aerosols (liquid or solid particles suspended in the atmosphere) and clouds can both counteract greenhouse gases by reflecting incoming solar radiation and cooling the atmosphere, or, under different conditions, some aerosols can absorb solar radiation and some clouds can trap heat, thus heating the atmosphere. The role of aerosols, clouds, and climate is deemed to be the largest single uncertainty in the prediction of how human activities influence climate change (IPCC, 2001). Reductions in the uncertainties surrounding aerosols relate directly to the confidence with which model simulations can support policy decisions on the climate issue therefore the desired outcome is an improved science-vetted set of options for changing the impact of North American aerosols on climate, which can be considered by governments, the private sector, e.g., transportation and energy production, and the public.</p>						
<p>Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.</p>						
Impact of Recovery Act: N/A						
Relevant Program Change(s): N/A	Title: N/A				Exhibit 13 Page #: N/A	

Validation and Verification					
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
NOAA's Atmospheric Composition and Climate Program	Annual	NOAA's Earth System Research Laboratory	Quality assurance and comparisons against 2001 international assessments by leading experts in the aerosol-climate community	Number of monitoring sites for vertical distribution of aerosols, process studies that include intensive field campaigns and laboratory based data, and our ability to include these in global models	None

Measure 2d:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
Reduce the error in global measurement of sea surface temperature.						
<i>Targets based on original Amount</i>	N/A	0.53 C	0.53 C	0.50 C	0.50C	0.53C
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: This measure is intended to document progress in accurately measuring the global sea surface temperature and reflects how improvements in ocean observations will decrease the uncertainty in global sea surface temperature measurements, which will ultimately play a role in calculations of the ocean-atmosphere exchange of heat and the heat storage in the global ocean. The sea surface, covering over 70% of the Earth surface, has a tremendous influence on global climate because it is where the atmosphere responds to the ocean, via the transfer of heat either to or from the atmosphere. Since sea-surface temperature is measured by buoys, ships, and satellites, this performance measure is well-suited as an indicator of the effectiveness of our integrated ocean observing system and the more accurate estimates of sea surface temperature and ocean heat content will improve our ability to respond to changes in the climate system. Success in this performance measure requires the maintenance and increase of in situ ocean sensors. The results of this performance measure reflect the ability of this program to maintain a level of accuracy and consistency in measurements despite an environment of declining budgets.</p>						
<p>Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.</p>						
<p>Impact of Recovery Act: N/A</p>						
Relevant Program Change(s):	Title: N/A				Exhibit 13 Page #: N/A	

N/A					
Validation and Verification					
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
NOAA's Climate Program Office	Quarterly	NOAA's Climate Program Office	Quarterly reporting mechanism on uncertainty in sea surface temperature measurements	Number of deployed observing platforms in the global ocean	None

Objective 3.2 – Advance understanding of climate variability and change						
Measure 2e: Number of regionally focused climate impacts and adaptation studies communicated to decision makers.	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
<i>Targets based on original Amount</i>	N/A	33 regionally-focused climate impacts and adaptation studies communicated to decision makers	32 regionally-focused climate impacts and adaptation studies communicated to decision makers	37 regionally-focused climate impacts and adaptation studies communicated to decision makers	37 regionally-focused climate impacts and adaptation studies communicated to decision makers	41 regionally-focused climate impacts and adaptation studies communicated to decision makers
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description:</p> <p>This measure documents our success in working directly with stakeholders to develop and enhance a suite of climate data, monitoring, and prediction products that are valuable to our customers and stakeholders by measuring the number of peer-reviewed decision support resources – regionally-focused climate impacts and adaptation studies – authored by funded investigators. NOAA provides these state of the art science and discovery information products to a range of key decision makers, from water resource managers and regional forecast offices, to national and international assessments, such as the U.S. Climate Change Science Program (CCSP) and the Intergovernmental Panel on Climate Change (IPCC). In FY 2008, the program exceeded its target (35) by two for a total of 37; for 2009 and outyears the program is maintaining the original profile of targets.</p>						

Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.					
<i>Impact of Recovery Act:</i> N/A					
Relevant Program Change(s): N/A		Title: N/A			Exhibit 13 Page #: N/A
Validation and Verification					
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
NOAA's Climate Program Office	Annual	NOAA's Climate Program Office	Annual examination of grants awarded and research activities undertaken that result in various outputs (e.g. peer review publications, workshops) showing evidence of research-based interactions with decision makers.	Challenge of systematically collecting research-based outputs showing evidence of interactions with stakeholders to communicate risks of climate variability and change and to develop means of coping with impacts.	None

Objective 3.2 – Advance understanding of climate variability and change						
Measure 2f:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
Determine the Actual Long-term Changes in Temperature and Precipitation Over the United States						
<i>Targets based on original Amount</i>	Captured more than 96% of the Annual National Temperature Trend and more than 90% of the National Annual Precipitation	Captured 96.9% of the Annual National Temperature Trend and more than 91.4% of the National Annual	Captured 97.1% of the Annual National Temperature Trend and more than 91.9% of the National Annual	Captured 97.7% of the Annual National Temperature Trend and more than 93.8% of the National Annual	Capture 98% of the Annual National Temperature Trend and more than 95% of the National Annual Precipitation	Discontinued

	Trend for the Contiguous U.S.	Precipitation Trend for the Contiguous U.S.	Precipitation Trend for the Contiguous U.S.	Precipitation Trend for the Contiguous U.S.	Trend for the Contiguous U.S.	
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: This measure captures 98 percent of the long-term changes in the national annual average surface air temperature and 95 percent of the long-term changes in the national annual average precipitation throughout the contiguous U.S. using the U.S. Climate Reference Network (USCRN). The USCRN, a benchmark climate-observing network, provides the nation with long-term (50 to 100 years) high quality climate observations and records with minimal time-dependent biases affecting the interpretation to decadal to centennial climate variability and change. This increases assurance of long-term and bias-free national and global monitoring, including higher-precision, higher-confidence validation of NOAA’s space-based (satellite) measures and monitoring capabilities and overall, reduce the level of uncertainty when government and business decision-makers consider long-range strategic policies and plans.</p> <p>This measure is being discontinued in FY10.</p> <p>Comments on Changes to Targets:</p> <p>Impact of Recovery Act: N/A</p>						
Relevant Program Change(s): N/A	Title: N/A				Exhibit 13 Page #: N/A	
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations		Actions to be Taken
NOAA’s national Climatic Data Center	Quarterly	NOAA’s National Climatic Data Center	Monte Carlo simulations based on operation stations	Number of stations commissioned in the Climate Reference Network		None

Objective 3.3 – Provide accurate and timely weather and water information						
Measure 3a. Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
<i>Targets based on original Amount</i>	28%	32%	32%	32%	32%	A pilot replacement measure target is set (see Section 13) in lieu of setting a target for this measure.
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: NOAA tracked improvements in NOAA's ability to assist coastal areas by estimating the risks of natural hazards through a Coastal Risk Atlas to help coastal communities make more effective hazard mitigation decisions to reduce impacts to life and property (e.g., land use, infrastructure development, and hazard responses). Hazard mitigation planning capabilities were improved, but as the Coastal Risk Atlas is no longer funded, the Coasts, Estuaries, and Oceans Program (CEO) is replacing this GPRA with a more robust pilot measure (see Section 13) to more accurately measure a range of contributions to address coastal community risk, vulnerability, and resilience to coastal hazards.</p>						
<p>Comments on FY 2009 Target: Since the performance indicator, the Coastal Risk Atlas, is no longer funded, the target is not increased for FY 2009. NOAA is reducing coastal hazard impacts in FY 2009 through other strategies and included a new pilot measure in this APP to track results.</p>						
Impact of Recovery Act: N/A						
Relevant Program Change(s): N/A	Title: N/A					Exhibit 13 Page #: N/A
Validation and Verification						

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
National Ocean Service (NOS) Coastal Services Center, National Satellite, Data and Information Service (NESDIS) National Coastal Data Development Center and other Federal and state agencies	Annually	NOS and NESDIS has collected information, conducted assessments, and stored data.	This measure has tracked the cumulative percent of shoreline and inland areas with improved ability to reduce the impact of coastal hazards. Projects included in the reported results differed from one year to the next; therefore, the potential for counting a portion of the shoreline more than once existed. For example, one year a project may improve an area's ability to reduce the impacts of hurricanes, and then another year a separate project may improve the same area's ability to reduce the impacts of another coastal hazard such as inland flooding. To avoid confusion, this measure tracked only the implementation of the Coastal Risk Atlas. All data used in the Coastal Risk Atlas were quality controlled and risk assessment methodologies were peer reviewed with quarterly reporting on performance to NOAA Deputy Under Secretary.	This measure tracked the development and implementation of the Coastal Risk Atlas as an indicator of improved ability to identify the extent and severity of coastal hazards. Reaching these targets depended on activities of other Federal and state entities with management responsibilities in this area. Funding for the Coastal Risk Atlas, the key data source, has not been sustainable.	This APP (Section 13) includes a new pilot measure to replace this GPRA in FY 2011. Percentage of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards (%/yr.) The new pilot measure will accurately reflect the measurement of a range of contributions to address coastal community risk, vulnerability, and resilience to coastal hazards.

Objective 3.3 – Provide accurate and timely weather and water information						
Measure 3b: Severe Weather Warnings Tornadoes – Storm Based	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>						
Lead Time (Minutes),	13	13	13	14	12	12
Accuracy (%)	75	75	78	72	69	70
False Alarm Rate (FAR, %)	77	79	76	75	72	72
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: The lead time for a tornado warning is the difference between the time the warning was issued and the time the tornado affected the area for which the warning was issued. The lead times for all tornado occurrences within the continental U.S. are averaged to get this statistic for a given fiscal year. This average includes all warned events with zero lead times and all unwarned events. Accuracy is the percentage of time a tornado actually occurred in an area that was covered by a warning. The difference between the accuracy percentage figure and 100 percent represents the percentage of events without a warning. The false alarm rate is the percentage of times a tornado warning was issued but no tornado occurrence was verified.</p>						
<p>Comments on Changes to Targets: Comments on 2008 Actual: In FY-08, NOAA National Weather Service fully transitioned from County-Based Tornado Warnings to Storm-Based Tornado Warnings. Storm-Based warnings reduce the geographic area warned during a tornado event, which results in less economic loss and greater lead times. NWS exceeded probability of detection and lead time goals in 2008 under the new verification methodology. Additional training courses on storm based warnings was developed and delivered by the Warning Decision Training Branch in February 2009 to facilitate further improvements.</p>						
<p>Impact of Recovery Act: These funds will accelerate the Dual Polarization effort of the next generation (NEXRAD) Doppler weather radar system that will allow signals to be transmitted and received in two dimensions, resulting in a significant improvement in precipitation estimation; improved ability to discriminate rain, snow, and hail; and a general improvement in data quality. The new system will improve flash flood warnings, improve precipitation estimates and severe weather detection, including snow storms and icing conditions for air and ground transportation.</p>						
Relevant Program Change(s):	Title:					Exhibit 13 Page no:
\$6,110,000	Aviation Weather					443
\$2,230,000	NOAA Profiler Conversion					484
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations		Actions to be Taken
National Weather	Monthly	NWS Headquarters and the Office of	Verification is the process of comparing the predicted	The number of tornado events each fiscal year generally varies from 1,000		Review all warnings and storm data after

Service (NWS) Field Offices		Climate, Water, and Weather Services (OCWWS)	weather to reported event. Warnings are collected from each NWS office, quality controlled, and matched to confirmed flash flood reports. Reports are validated by WFOs using concise and stringent guidelines outlined in NWS Instruction 10-1605. OCWWS monitors monthly performance throughout the NWS, and the regional headquarters monitor performance within their respective regions.	to 1,800. A higher number of events in a fiscal year indicate that one or more large tornadic outbreaks have occurred. Forecasters perform better during large outbreaks due a high level of situational awareness, well defined tornadic radar images, and increased confidence based on tornado reports which verify warnings during these large scale events. These three factors lead to longer lead times and higher accuracy. The peak level of tornadic activity occurs April through June each year. A secondary peak activity time period is October and November in the southeastern United States.	each event to learn from past experiences. Use the information learned to improve forecast skill and product quality in the future.
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Objective 3.3 – Provide accurate and timely weather and water information.						
Measure 3c: Severe Weather Warnings for Flash Floods	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i> Lead Time (Min) Accuracy (%)	54 88	49 89	60 92	77 91	49 90	38 72
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
Description: The lead time for a flash flood warning is the difference between the time the warning was issued and the time the flash flood affected the area for which the warning was issued. The lead times for all flash flood occurrences within the continental United States are averaged to get this statistic for a given fiscal year. This average includes all warned events with zero lead times and all unwarned events. Accuracy is measured by the percentage of times a						

flash flood actually occurred in an area that was covered by a warning. The difference between the accuracy percentage figure and 100 percent represents the percentage of events without a warning.

Comments on Changes to Targets: Beginning in FY 2008, NOAA National Weather Service transitioned from County-Based Flood Warnings to Storm-Based Flood Warnings. As with the transition from County-Based to Storm Based-Tornado Warnings, Storm-Based provide more precious warning capabilities compared to the County-Based methodology and increase forecaster difficulty. NOAA National Weather Service will monitor performance of the new Storm-Based Flood measures and will adjust targets accordingly.

Our plan is to continue reporting these county-based performance metrics through FY09. We are currently compiling performance data based on the new storm-based verification methods. As a result of that decision, OCWWS/HSD has been working to develop new storm-based Flash Flood GPRA goals for FY10 (and beyond) based on the one year (FY08) of storm-based verification data currently available.

Impact of Recovery Act: These funds will accelerate the Dual Polarization effort of the next generation (NEXRAD) Doppler weather radar system that will allow signals to be transmitted and received in two dimensions, resulting in a significant improvement in precipitation estimation; improved ability to discriminate rain, snow, and hail; and a general improvement in data quality. The new system will improve flash flood warnings, improve precipitation estimates and severe weather detection, including snow storms and icing conditions for air and ground transportation.

Relevant Program Change(s): N/A	Title: N/A	Exhibit 13 Page no: N/A
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Validation and Verification

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
National Weather Service (NWS) Field Offices	Monthly	NWS Headquarters and the Office of Climate, Water, and Weather Services (OCWWS)	<p>While long-term performance has shown a steady increase in forecast accuracy, inter-annual scores tend to fluctuate due to varying weather patterns from year to year. Some weather patterns are more difficult to forecast than others.</p> <p>Typically, 1st and 2nd Quarters have higher lead times, while the 3rd and 4th Quarters, during the convective season, bring the annual average down.</p>	<p>There is a natural inter-annual variability for both lead time and accuracy. Typically, 1st and 2nd Quarters have higher lead times, while the 3rd and 4th Quarters, during the convective season, bring the annual average down.</p> <p>Spring/summer mesoscale events (e.g., thunderstorms) are more difficult to predict than larger synoptic scale systems; hence lower scores are expected in the 3rd and 4th quarters.</p>	<p>Review all warnings and storm data after each event to learn from past experiences. Use the information learned to improve forecast skill and product quality in the future.</p>

			Spring/summer mesoscale events (e.g., thunderstorms) are more difficult to predict than larger synoptic scale systems; hence lower scores are expected in the 3 rd and 4 th quarters.		
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Objective 3.3 – Provide accurate and timely weather and water information																								
Measure 3d: Hurricane Forecast Track Error (48 Hour) Nautical Miles	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target																		
<i>Targets based on original Amount</i>	101	97	86	86	108	107																		
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A																		
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A																		
<p>Description: The public, emergency managers, government institutions at all levels in this country and abroad, and the private sector use NOAA hurricane and tropical storm track forecasts to make decisions on life and property. This goal measures the difference between the projected location of the center of these storms and the actual location in nautical miles (nm) for the Atlantic Basin. The goal is computed by averaging the differences (errors) for all the 48-hour forecasts occurring during the calendar year. This measure can show significant annual volatility. Projecting the long-term - trend, and basing out-year goals on that trend, is preferred over making large upward or downward changes to the goals each year.</p> <p>Projecting the long-term trend, and basing out-year goals on that trend is preferred over making large upward or downward changes to the targets. These targets are developed based on analysis of long term performance, thereby taking into account year-to-year natural variability. Therefore, NOAA has extrapolated from the recent downward trend in forecast errors to derive new lower GPRA targets. Data from FY 05-08 is on a downward trend, so therefore targets reflect this year-to-year downward trend motion.</p> <table border="1"> <thead> <tr> <th>FY</th> <th>Targets</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>05</td> <td>128</td> <td>101</td> </tr> <tr> <td>06</td> <td>111</td> <td>97</td> </tr> <tr> <td>07</td> <td>110</td> <td>86</td> </tr> <tr> <td>08</td> <td>109</td> <td>86</td> </tr> <tr> <td>09</td> <td>108</td> <td>TBD</td> </tr> </tbody> </table>							FY	Targets	Actual	05	128	101	06	111	97	07	110	86	08	109	86	09	108	TBD
FY	Targets	Actual																						
05	128	101																						
06	111	97																						
07	110	86																						
08	109	86																						
09	108	TBD																						

10 107 TBD

Comments on Changes to Targets: These targets are developed based on analysis of long term performance thereby taking into account year-to-year natural variability. Therefore, NOAA has not extrapolated from the recent downward trend in forecast errors to derive new lower GPRA targets. Overall, however, NOAA expects forecast errors to decrease as we continue to make improvements to our observing systems and forecast models, and we continue to review and analyze past performance to determine when downward revision of the GPRA goal may be appropriate.

Impact of Recovery Act: N/A

Relevant Program Change(s): N/A	Title: N/A	Exhibit 13 Page no: N/A
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Validation and Verification

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
National Weather Service (NWS)/Tropical Prediction Center (TPC)	Annual	National Weather Service (NWS)/Tropical Prediction Center (TPC)	Verification of actual track and intensity versus forecast is very accurate. However, actual annual scores vary up to 20% in some years due to the type and location of the hurricane events. Some types of systems can be more accurately forecasted than others. For example, hurricanes that begin in the northern sections of the hurricane formation zone tend to be much harder to accurately forecast. Out-year measures depend on a stable funding profile and take into account new satellites, improved forecast models, new and continued research activities of the U.S. Weather Research Program (USWRP), and investments in critical observing systems.	None	NOAA will report on the tracking of forecasts at 24, 48 and 72-hour intervals.

Objective 3.3 – Provide accurate and timely weather and water information						
Measure 3e: Hurricane Forecast Intensity Error (48 hour) Knots	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>	N/A	N/A	N/A	14	13	13
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
Description: The public, emergency managers, government institutions at all levels in this country and abroad, and the private sector use NOAA hurricane intensity forecasts to make decisions on life and property. This measure will represent the difference between the projected intensity of these storms and the actual intensity in knots for all hurricanes, tropical storms, and tropical depressions for the Atlantic basin. The target baseline was computed by averaging the differences for all 48-hour forecast made for tropical cyclones forming during the calendar year.						
Comments on Changes to Targets: FY10 target represents the difference between with increases and current services budget.						
Impact of Recovery Act: N/A						
Relevant Program Change(s): N/A	Title: N/A					Exhibit 13 Page no: N/A
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations		Actions to be Taken
National Weather Service (NWS)/Tropical Prediction Center (TPC)	Annual	National Weather Service (NWS)/Tropical Prediction Center (TPC)	Verification of actual track and intensity versus forecast is very accurate. However, actual annual scores vary up to 20% in some years due to the type and location of the hurricane events. Some types of systems can be more accurately forecasted than others. For example, hurricanes that begin in the northern sections of the hurricane formation zone tend to	None		None

			be much harder to accurately forecast. Out-year measures depend on a stable funding profile and take into account new satellites, improved forecast models, new and continued research activities of the U.S. Weather Research Program (USWRP), and investments in critical observing systems.		
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Objective 3.3 – Provide accurate and timely weather and water information						
Measure 3f:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
Accuracy (%) (Threat Score) of Day 1 Precipitation Forecast						
<i>Targets based on original Amount</i>	29	30	31	33	29	30
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
Description: This performance measure tracks the ability of the weather forecasters of NOAA’s Hydrometeorological Prediction Center to predict accurately the occurrence of one inch or more of precipitation (rain or the water equivalent of melted snow or ice pellets) twenty-four hours in advance across the contiguous U.S. Through this measure, the HPC focuses on relatively heavy amounts of precipitation, usually a half inch or more in a 24-hour period (short-term flood and flash flood warnings), because of the major safety and economic impacts such heavy precipitation can have in producing flooding, alleviating drought, and affecting river navigation.						
Comments on Changes to Targets: During the next several years, NCEP will implement a number of numerical weather prediction enhancements aimed at improving heavy precipitation forecasts, including increasing numerical model resolution, increasing the number of ensemble forecast members for both short- and medium-range forecast models, and improving the assimilation of satellite and other observational data used as the starting point for the numerical forecasts. HPC continues to show strong improvements over the model scores.						
The GPRA targets and actuals for Precipitation from FY 05-10 are on an accurate performance upward trend. The FY 05-08 actuals are showing improvements by an annual average of 1% higher than targets. Once precipitation actuals/final numbers show model score improvements higher than 1%						

above target, HPC will increase targets to match new performance metrics. HPC continues to show improvements over model scores based excellent forecast performance.

Impact of Recovery Act: These funds will accelerate the Dual Polarization effort of the next generation (NEXRAD) Doppler weather radar system that will allow signals to be transmitted and received in two dimensions, resulting in a significant improvement in precipitation estimation; improved ability to discriminate rain, snow, and hail; and a general improvement in data quality. The new system will improve flash flood warnings, improve precipitation estimates and severe weather detection, including snow storms and icing conditions for air and ground transportation.

Relevant Program Change(s): N/A	Title: N/A	Exhibit 13 Page no: N/A
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Validation and Verification

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
National Weather Service/Hydro-meteorological Prediction Center (HPC) and State Agencies	Monthly	HPC	The 40-year record of performance indicates there can be considerable variation in the performance measure from year to year. This variation is heavily dependent on the variation of weather regimes over the course of a year and from year to year. Scores are usually lower, for example, in years with considerable summertime precipitation not associated with tropical cyclones.	The Threat Score varies from 0, no correct forecasts, to 100 when the forecast area exactly matches the observed area of 1 inch rainfall over the entire U.S. The scores vary seasonally during the year with higher values generally occurring during the fall and winter when weather systems are larger and more well-defined and lower values occurring in the spring and summer when precipitation is scattered and on a smaller scale.	NOAA will implement planned weather observation and numerical modeling improvements along with ongoing research projects. The Hydrometeorological Test Bed will be expanded to accelerate the transition of research advancements into the operational prediction of precipitation.

Objective 3.3 – Provide accurate and timely weather and water information						
Measure 3g: Winter Storm Warnings	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>						
Lead Time (Hours)	17	17	18	17	16	15
Accuracy (%)	91	89	90	89	91	90
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: A winter storm warning provides NOAA customers and partners advanced notice of a hazardous winter weather event that endangers life or property, or provides an impediment to commerce. Winter storm warnings are issued for winter weather phenomena like blizzards, ice storms, heavy sleet, and heavy snow. This performance indicator measures the accuracy and advance warning lead time of winter storm events. Improving the accuracy and advance warnings of winter storms enables the public to take the necessary steps to prepare for disruptive winter weather conditions.</p>						
<p>Comments on Changes to Targets: For FY 08 statistics show a lead time of 17 hours vs. the GPRA goal of 15 hours, and an accuracy of 89% vs. GPRA goal of 90%. Thus the lead time was met but accuracy missed by 1% is due unusual storm patterns associated with the La Nina cooler than normal waters in the topical Pacific buffeted the western states bringing frequent storms. This weather pattern has not been seen in many years and is the most difficult pattern for forecasters to predict due to the lack of concise data over the Pacific Ocean.</p> <p>The GPRA targets and actuals for Winter Storms from FY 05-10 have been remaining consistent over the past couple of years. The FY 05-08 actuals are remaining consistent due to inconsistencies in marginal cold air in low levels and local impacts of relatively warm water bodies. Also, some areas, especially in the West, have considerable year to year and sometime multi-year variability. Once winter storm actuals increase, targets will be soon to follow.</p>						
<p>Impact of Recovery Act: These funds will accelerate the Dual Polarization effort of the next generation (NEXRAD) Doppler weather radar system that will allow signals to be transmitted and received in two dimensions, resulting in a significant improvement in precipitation estimation; improved ability to discriminate rain, snow, and hail; and a general improvement in data quality. The new system will improve flash flood warnings, improve precipitation estimates and severe weather detection, including snow storms and icing conditions for air and ground transportation.</p>						
Relevant Program Change(s): N/A	Title: N/A				Exhibit 13 Page no: N/A	
Validation and Verification						

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
National Weather Service (NWS) Field Offices	Quarterly	NWS Headquarters, NWS Regional Headquarters, and the Office of Climate, Water, and Weather Services (OCWWS)	While long-term performance has shown a steady increase in forecast accuracy, inter-annual scores tend to fluctuate due to varying weather patterns from year to year. Some weather patterns are more difficult to forecast than others.	<p>The number of winter storm events each fiscal year varies from 4,500 to 7,800. Forecasters perform better during large winter storm events due to consistency in model guidance, well defined winter storm radar images, and increased confidence based on winter storm reports. These three factors lead to longer lead times and higher accuracy.</p> <p>The peak level of winter storm events occurs December through March—mainly in the second quarter. Storms that occur in the first quarter—early in the winter season (October through December)—are difficult to forecast due to marginal cold air in low levels and local impacts of relatively warm water bodies, including oceans, bays, lakes, and rivers. Storms that occur in the third and fourth quarters (April through September) are rare and difficult to predict due to warming low levels and greater insolation which strongly influences daytime accumulations. Also, some areas, especially in the West, have considerable year to year and sometime multi-year variability.</p>	Review all warnings and storm data after each event to learn from past experiences. Use the information learned to improve forecast skill and product quality in the future.

Measure 4a: Reduce the Hydrographic Survey Backlog Within Navigationally Significant Areas (square nautical miles surveyed per year)	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY2010 Target
<i>Targets based on original Amount</i>	3,079	2,851	3,198	2,127	3,000	3,2
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	~1700
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	~4700
<p>Description: NOAA conducts hydrographic surveys to determine the depths and configurations of the bottoms of water bodies, primarily for U.S. waters significant for navigation. This activity includes the detection, location, and identification of wrecks and obstructions with side scan and multi-beam sonar technology and the Global Positioning System (GPS). NOAA uses the data to produce traditional paper, raster, and electronic navigational charts for safe and efficient navigation, and in addition to the commercial shipping industry, other user communities that benefit include recreational boaters, the commercial fishing industry, port authorities, coastal zone managers, and emergency response planners.</p>						
<p>Comments on Changes to Targets: The FY 2008 target is based on fuel issues, vessel lay-ups and shortened field season. The FY09 target factors in the revised operational date for the new NOAA Survey Vessel HASSLER and the FY09 President's Request.</p>						
<i>Impact of Recovery Act:</i> N/A						
Relevant Program Change(s):	Title:					Exhibit 13 Page #:
\$1,173,000	Hydrographic Surveying					95
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken	
Progress reports on data collected from hydrographic survey	Monthly	National Ocean Service maintains hydrographic survey performance	National Ocean Service applies its established verification and	NOAA-owned ships and contractor survey assets can be affected	National Ocean Service maintains hydrographic survey performance	

platforms		data at NOAA's Hydrographic Surveys Division.	validation methods. The measure has a +/- 50 square nautical mile variance. Targets are set annually based on resources available; monthly reports on performance to NOAA Deputy Under Secretary.	by changes in vessel availability or condition. Weather can also affect scheduled surveys.	data at NOAA's Hydrographic Surveys Division.
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Measure 4b:	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
Percentage of U.S. counties rated as fully enabled or substantially enabled with accurate positioning capacity						
<i>Targets based on original Amount</i>	32%	43.25%	51.6%	60.17%	75%	74%
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A

Description:
This measure tracks progress of NOAA's Geodesy program in facilitating the capacity of state and local governments and the private sector to utilize accurate positioning information, and NOAA will track county level use of its Online Position User Service (OPUS), submitted accepted bluebook data, county scorecard submissions, and identification of county representatives and State Advisors/Coordinators to determine how well state and local governments and the private sector are enabled with accurate positioning capacity. The level of capacity varies across the nation, and this variation is measured as deficient, substantially enabled, and fully enabled. Deficient capacity to conduct accurate positioning indicates that the county has not demonstrated it has the NOAA-enabled infrastructure, tools, and local capacity needed for accurate positioning, and substantially enabled capacity to conduct accurate positioning indicates the county has demonstrated it has the NOAA-enabled infrastructure, tools, and local capacity needed for accurate positioning, while fully enabled capacity indicates the county has validated NOAA-enabled infrastructure, tools, and local capacity needed for accurate positioning.

<p>Comments on Changes to Targets: This outcome measure demonstrated three outstanding years of performance. Due to current changes in economic conditions, NOAA's Online Position User Service (OPUS) use is increasing, but more slowly than originally predicted. Further, OPUS extends to more parts of the United States, meaning a slower growth of counties that are fully or substantially enabled with accurate positioning capacity. Therefore, NOAA is adjusting targets for FY 09 and FY 10 to remain ambitious, but to better accommodate these changes.</p>					
<p><i>Impact of Recovery Act:</i> N/A</p>					
<p>Relevant Program Change(s): N/A</p>		<p>Title: N/A</p>			<p>Exhibit 13 Page #: N/A</p>
<p>Validation and Verification</p>					
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
NOAA's Online Position User Service (OPUS)	Quarterly	Automated database at National Ocean Service	NOAA will validate a County's capacity for local positioning through direct coordination with localities, such as OPUS project acceptance by NOAA. By assessing the user needs of county surveyors, counties, and their associations through successive limited distributions of a county scorecard, NOAA will validate that the geodesy program is meeting local positioning needs; quarterly reporting on performance to NOAA Deputy Under Secretary.	OPUS customer data is limited and will be expanded through Paperwork Reduction Act-approved surveys of customers.	None

Objective 3.4 – Support safe, efficient, and environmentally sound commercial navigation						
Measure 4c: Marine Wind & Marine Wave Heights	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>						
Marine Wind – Percentage of Accurate Forecasts	57	55	73	72	69	69
Marine Wave Heights – Percentage of Accurate Forecasts	67	79	78	77	74	74
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<p>Description: This performance indicator measures the accuracy of wind and wave forecasts, which are important for marine commerce. The measure represents the Percentage of Accurate Forecasts, and accuracy is defined in terms of error. For the marine wind forecast, if the error is less than 5 knots, the forecast is accurate. This measure was revised two years ago from using a complex skill score that was difficult to deconstruct and analyze to reflect the individual wind speed and wave height components.</p> <p>Marine Wind: This measure was introduced in FY07. The old measure for marine wind accuracy was based upon a skill score. The actuals from FY06 and earlier years should not be compared to the FY07 and later years performance statistics.</p> <p>Marine Wave: This measure is new for FY07. The old measure for marine wave height accuracy was based upon a skill score. The actuals from FY06 and earlier years should not be compared to the FY07 and later years performance statistics.</p> <p>Comments on Changes to Targets: Data prior to FY 2007 are not directly comparable to data subsequent to FY 2007 and beyond.</p>						
<i>Impact of Recovery Act:</i> N/A						
Relevant Program Change(s): N/A	Title: N/A					Exhibit 13 Page no: N/A
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken	

<p>National Weather Service (NWS) Field Offices</p>	<p>Monthly</p>	<p>NWS and the National Centers for Environmental Prediction (NCEP) Ocean Modeling Branch</p>	<p>Due to the large volume of data gathered and computed, documentation for the accuracy of forecast for wind and waves cannot be finalized until well into the following fiscal year. Out-year measures depend on a stable funding profile and take into account improved use of the WSR-88D, new satellites, improved forecast models, new and continued research activities of the USWRP, and investments in critical observing systems, and implementation of AWIPS.</p> <p>Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to forecast than others. Marine wind speed and wave height forecasts scores naturally vary (accuracy +/- 4% per year) due to fluctuations in the number of extreme events measured over NWS marine areas per year.</p>	<p>Marine wind speed forecast scores naturally vary (percent correct +/- 4% per year) due to fluctuations in the number of volatile wind speed conditions from year to year. Wind speed forecasts with an error margin of less than 5 knots are increasingly difficult to make as conditions increase from gale to storm to hurricane force speeds. In general, the more volatile the conditions, the greater the range in observed wind speeds, and the more difficult to forecast wind speeds.</p> <p>Marine wave height forecast scores naturally vary (accuracy +/- 4% per year) due to fluctuations in the number of volatile wave height conditions from year to year. Wave height forecasts with an error margin of less than 2 feet are increasingly difficult to make as swell and wind-driven wave conditions increase and interact. In general, the more volatile the conditions, the greater the range in observed wave heights, and the more difficult to forecast wave heights.</p>	<p>NOAA will continue to deploy enhanced versions of AWIPS, upgrade new forecast models, implement new wave forecast models, and improve communication and dissemination techniques to marine users.</p>
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Objective 3.4 – Support safe, efficient, and environmentally sound commercial navigation						
Measure 4d: Aviation Forecast for Ceiling/Visibility (3mi/1000 ft or less)	FY2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Target	FY 2010 Target
<i>Targets based on original Amount</i>	46	43	40	62	64	65
Accuracy (%)	63	64	61	39	43	42
False Alarm Rate (%)						
<i>Increase in performance as a result of Recovery Act Funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
<i>Total Adjusted Targets reflecting original and Recovery Act funds</i>	N/A	N/A	N/A	N/A	N/A	N/A
Description: Visibility and cloud ceiling forecasts are critical for the safety of aircraft operations. Accurately forecasting the transition between Visual Flight Rule (VFR) and Instrument Flight Rule (IFR) conditions significantly improve general and commercial aviation flight planning capabilities, improving both flight safety and efficiencies. The current measures are interesting with regard to individual forecaster performance, but these conditions are excessively rare at most sites, making the metric unrepresentative and unduly influenced by rare and extreme events.						
Comments on Changes to Targets: In FY 2009, Storminess during January resulted in 11.6% IFR events, Forecaster POD 67.6% and FAR 32.2%; and GFS LAMP POD 63.4% and FAR 41.4%. This resulted in forecasters exceeding the POD and FAR goals for January by 4% and 11% respectively.						
Impact of Recovery Act: N/A						
Relevant Program Change(s): N/A	Title: N/A					Exhibit 13 Page no: N/A
Validation and Verification						
Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken	

<p>Nation Weather Service (NWS) Field Offices</p>	<p>Monthly</p>	<p>NWS Headquarters and Office of Climate, Water, and Weather Services (OCWS)</p>	<p>Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to forecast than others.</p> <p>Year to year variability is plus or minus 3 percent for both Accuracy and FAR. Typically, 3rd and 4th quarter scores during the convective season have lower accuracy scores and increased FARs than the 1st and 2nd Quarter cool season months.</p>	<p>IFR conditions occur much more frequently (by order of magnitude) during the late fall through early spring and are typically associated with winter weather. Performance during the October through March period defines whether the annual targets are met. Year to year variability is plus or minus 3 percent for both POD and FAR. Typically, 3rd and 4th quarter scores during the convective season have lower accuracy scores and increased FARs than the 1st and 2nd quarter cool season months.</p> <p>Bottom line: NWS tends to forecast IFR events more accurately during the cool season due to greater occurrence of low clouds and fog, while the warm season exhibits increased convection and less low clouds and fog. The cool season generally occurs between Oct-May, but may vary by one to two months depending on the prevailing weather patterns.</p>	<p>Forecasters within each WFO will continue to monitor their recent past forecast performance to learn from experience.</p> <p>The regional headquarters and the OCWWS will continue to monitor performance monthly for their respective management areas. The original measure, Aviation Forecast Accuracy of Ceiling/Visibility (1 mi/500 ft to less than 3 mi/1000ft); will be changed to Aviation Forecast Accuracy of Ceiling/Visibility Forecasts (3 mi/1000 ft or less). Similarly, the original measure, Aviation Forecast False Alarm Rate for Ceiling/Visibility (1 mi/500 ft to less than 3 mi/1000ft); will be changed to Aviation Forecast False Alarm Rate for Ceiling/Visibility (3 mi/1000 ft or less)</p>
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Section 6.

Recovery Act (New Metrics)

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
<i>Measure: Percentage of Recovery Act Funds Obligated</i>	<i>FY 2005 Actual</i>	<i>FY 2006 Actual</i>	<i>FY 2007 Actual</i>	<i>FY 2008 Target</i>	<i>FY 2009 Target</i>	<i>FY 2010 Target</i>
	NA	NA	NA	NA	90%	100%
<i>Description: The measure tracks the percentage of the \$167 million Recovery Act funds for habitat restoration that has been obligated. This measure is intended as an interim metric to track the obligation of the \$167 million in ARRA funds allocated for habitat restoration until targets for acres restored can be developed.</i>						
Validation and Verification						
<i>Data Source</i>	<i>Frequency</i>	<i>Data Storage</i>	<i>Internal Control Procedures</i>	<i>Data Limitations</i>	<i>Actions to be Taken</i>	

Objective 3.1: Protect, restore, and manage the use of coastal and ocean resources						
<i>Measure: Percentage of Consultations Performed With Recovery Act Funds Completed On Schedule</i>	<i>FY 2005 Actual</i>	<i>FY 2006 Actual</i>	<i>FY 2007 Actual</i>	<i>FY 2008 Target</i>	<i>FY 2009 Target</i>	<i>FY 2010 Target</i>
	NA	NA	NA	NA	70%	70%
<i>Description: The measure tracks the percentage of EFH and ESA Section 7 consultations on projects funded by and with ARRA funds completed within statutory or targeted timelines.</i>						
Validation and Verification						
<i>Data Source</i>	<i>Frequency</i>	<i>Data Storage</i>	<i>Internal Control Procedures</i>	<i>Data Limitations</i>	<i>Actions to be Taken</i>	

Section 7.

FY 2010 Program Changes

For each program change listed below, we have included a reference to the GPRA Performance Goal/Measure which supports this increase/decrease. It is important to note that many of these increases/decreases may support multiple goals and measures and will not necessarily tie to the APP Program Increases by Goal. Please note the page in the Budget for more information.

Program Change:	Accompanying GPRA		Base		Increase/Decrease		Page of Exhibit 13 Discussion
	APP Page	Performance Measure #	FTE	Amount	FTE	Amount	
Hydrographic Surveying	lx	4a	10	\$30,000,000	0	+\$1,173,000	95
Develop a New National Vertical Reference System	N/A	Non-GPRA	0	\$500,000	0	+\$4,000,000	96
Ocean Research Priorities Plan -- Sensors for Marine Ecosystems	N/A	Non-GPRA	0	\$0	1	+\$3,000,000	107
Ocean Research Priorities Plan – Response of Coastal Ecosystems to Persistent Forcing and Extreme Events	N/A	Non-GPRA	0	\$0	0	+\$3,000,000	109
Gulf of Mexico Regional Collaboration	N/A	Non-GPRA	0	\$4,000,000	0	+\$1,000,000	111
Response and Restoration	N/A	Non-GPRA	110	\$17,734,000	0	+\$1,400,000	112
Harmful Algal Bloom Forecasting	N/A	Non-GPRA	0	\$300,000	2	+\$2,700,000	114
Coastal Storms	N/A	Not Available	0	\$0	0	+\$874,000	116
National Center for Coastal Ocean Science	N/A	Not Available	0	\$0	0	+\$161,000	116
CZMA National Program	N/A	Non-GPRA	0	\$7,295,000	0	+\$1,140,000	127
Coastal Stewardship and Coastal Economies	N/A	Non-GPRA	0	\$0	0	+\$2,000,000	128
Emerging Energy Responsibilities	N/A	Non-GPRA	0	\$0	3	+\$1,900,000	131
Protected Species Research and Management	xxviii	1c	338	\$34,300,000	20	+\$5,550,000	177
Species Recovery Grants	xxviii	1c	0	\$987,000	7	+\$60,000,000	178
Marine Mammal Protection Activities (Take Reduction Team)	xxviii	1c	0	\$0	2	+\$1,500,000	180

Hawaiian Monk Seals	xxviii	1c	7	\$881,000	4	+\$1,500,000	181
Cook Inlet Beluga Whale	xxviii	1c	1	\$211,000	0	+\$1,000,000	182
Ice Seals	xxviii	1c	0	0	4	+\$1,300,000	183
Atlantic Salmon	N/A	Non-GPRA	0	\$5,075,000	0	+\$2,996,000	185
Pacific Salmon ESA Recovery and Research	xxviii	1c	193	\$60,343,000	28	+\$7,325,000	186
Implementation of Annual Catch Limits (ACLs) and Accountability Measures (AMs)	Xxvi	1a	0	\$1,000,000	12	+\$12,000,000	199
International Requirements of MSRA	N/A	Non-GPRA		\$2,500,000	8	+\$3,000,000	201
CAMEO	N/A	Non-GPRA	0	\$0	0	+\$5,000,000	204
Charter Days In Lieu Of John N. Cobb	xxvii	1b	0	0	0	+\$1,600,000	206
Hurricane Environmental Assessments	N/A	Non-GPRA	0	\$0	0	+\$2,500,000	207
Pacific Marine National Monuments	N/A	Non-GPRA	0	\$0	10	+\$3,000,000	209
Pacific Island Region/Center	N/A	Not Available	0	\$0	0	+\$5,003,000	211
Regulatory Streamlining and Modernization	N/A	Non-GPRA	0	\$0	7	+\$1,902,000	211
Fisheries Research and Management Restoration/Emergent Needs	xxvii	1b	0	\$7,444,000	2	+\$5,104,000	213
Expand Annual Stock Assessment: Annual Catch Limits	xxvii	1b	69	\$41,095,000	6	+\$9,900,000	215
Economics and Social Science Research	xxvii	1b	30	\$7,473,000	5	+\$3,271,000	217
Salmon Management Activities (Pacific Salmon Treaty)	N/A	Not Available	0	\$7,438,000	0	+\$16,876,000	219
Regional Councils and Fisheries Commissions: Annual Catch Limits	xvi	1a	0	\$1,600,000	0	+\$4,000,000	221
Fisheries Statistics	xvii	1b	0	\$16,297,000	0	+\$4,771,000	223
Survey and Monitoring Projects	xxvii	1b	0	\$17,508,000	0	+\$6,251,000	224
Fisheries Oceanography	N/A	Non-GPRA	0	\$999,000	3	+\$1,000,000	228
Enforcement	N/A	Non-GPRA	1,098	\$57,473,000	22	+\$7,600,000	241
National Observer Program	xxvii	1b	9	\$33,059,000	19	+\$5,000,000	244

Deep Sea Coral Research and Technology	N/A	Non-GPRA	0	\$1,500,000	1	+\$1,000,000	257
Climate Change and Research Management Activities	N/A	Non-GPRA	0	\$2,105,000	1	+\$1,200,000	269
Ocean Acidification	N/A	Non-GPRA	0	0	0	+\$1,500,000	270
Aquaculture	N/A	Non-GPRA	0	\$4,108,000	1	+\$2,000,000	272
Cooperative Research	xxvii	1b	0	\$11,567,000	0	+\$6,000,000	274
Pacific Coastal Salmon Recovery Fund	N/A	Non-GPRA	0	\$35,000,000	0	(\$35,000,000)	283
National Climate Model Portal	N/A	Non-GPRA	0	\$0	0	+\$2,451,000	379
U.S. Climate Reference Network in Alaska	N/A	Non-GPRA	0	\$0	0	+\$1,300,000	381
National Integrated Drought Information System (NIDIS): Early Warning System Pilot Implementation and Improving Climate Forecasts	N/A	Non-GPRA	0	\$0	1	+\$4,550,000	383
Decadal Climate Predictions and Abrupt Change	N/A	Non-GPRA	0	\$0	4	+\$2,600,000	387
Ocean Acidification Monitoring	N/A	Non-GPRA	0	\$0	0	+\$4,000,000	389
Labs and Cooperative Institute	N/A	Not Available	0	\$0	0	(\$4,000)	391
Competitive Research Program	N/A	Not Available	0	\$0	0	+681,000	391
Weather Research and Forecast (WRF) Model Development Testbed Center (DTC)	N/A	Non-GPRA	0	\$0	1	+\$2,000,000	399
Severe Weather Forecast Improvements	N/A	Non-GPRA	0	\$0	1	+\$2,592,000	401
Multi-Function Phased Array Radar	N/A	Non-GPRA	0	\$0	2	+\$1,000,000	404
Great Lakes Environmental Research Laboratory Operations	N/A	Non-GPRA	0	\$0	0	+\$501,000	417
Ocean Exploration and Research	N/A	Non-GPRA	0	\$0	0	+\$350,000	418
Critical Space Weather Warnings and Services – Transition Numerical Models into Operations	N/A	Non-GPRA	0	\$8,314,000	0	+\$2,700,000	441
Aviation Weather	xlviii	3b	0	\$5,253,000	4	+\$6,110,000	443
Central Forecast Guidance-Hurricane	N/A	Non-GPRA	307	\$69,525,000	1	+\$10,000,000	446

Forecast Improvements							
AWIPS Operations and Maintenance (O&M)	N/A	Not Available	41	\$38,107,000	0	+\$1,239,000	457
ASOS Operations and Maintenance (O&M)	N/A	Not Available	44	\$9,702,000	0	+\$1,500,000	458
NEXRAD Operations and Maintenance (O&M)	N/A	Non-GPRA	103	\$45,219,000	0	+\$1,029,000	460
AWIPS Technology Infusion	N/A	Non-GPRA	15	\$19,064,000	0	+\$5,300,000	437
Next Generation Weather Radar (NEXRAD) Product Improvement- Radar Gaps	N/A	Non-GPRA	5	\$8,376,000	0	(\$400,000)	476
Weather Climate Supercomputing	N/A	Non-GPRA	0	\$26,169,000	0	+\$3,000,000	478
Complete and Sustain NOAA Weather Radio	N/A	Non-GPRA	0	\$10,000,000	0	+\$1,337,000	481
NOAA Profiler Conversion	APP-33	3b	0	\$7,500,000	0	+\$2,230,000	484
Weather Forecast Office (WFO) Construction	N/A	Non-GPRA	0	\$12,054,000	0	(\$9,00,000)	491
NOAA Center for Weather and Climate Prediction (NCWCP)	N/A	Non-GPRA	0	\$3,100,000	0	(\$3,100,000)	491
Sea Ice Data Buy	N/A	Non-GPRA	0	\$1,331,000	0	+\$880,000	505
Climate Data Records	N/A	Non-GPRA	0	\$0	0	+\$7,000,000	515
GOES-N Series	N/A	Non-GPRA	24	\$41,939,000	0	+\$15,662,000	529
GOES-R Series	N/A	Non-GPRA	46	\$465,000,000	0	+\$272,000,000	531
Polar Operational Environmental Satellite Systems (POES) NOAA Polar K-N'	N/A	Non-GPRA	22	\$65,419,000	0	(\$22,284,000)	536
Satellite Altimetry Mission Jason-3	N/A	Non-GPRA	0	\$0	0	+\$20,000,000	540
National Polar-orbiting Operational Environmental Satellite System (NPOESS)/Polar Satellite Acquisition	N/A	Non-GPRA	61	\$287,985,000	0	+\$94,215,000	547
NPOESS Preparatory Data Exploitation	N/A	Non-GPRA	0	\$2,455,000	0	+\$2,000,000	553
Restoration of Climate Sensors-Data Records	N/A	Non-GPRA	0		0	(\$74,000,000)	555
NOAA Wide Corporate Services and Agency Management--HSPD-12	N/A	Non-GPRA	0	\$0	3	+\$1,763,000	569
NOAA Wide Corporate Services and Agency Management	N/A	Non-GPRA	0	\$114,434,000	0	+\$4,345,000	570

Undersecretary and Associate Offices	N/A	Non-GPRA	0	\$41,159,000	0	+\$949,000	574
NOAA Education Programs-Competitive Education Grants	N/A	Non-GPRA	0	\$0	0	+\$4,000,000	581
Facilities Management and Modernization	N/A	Non-GPRA	0	\$0	0	+\$7,776,000	587
Real Property Leases	N/A	Non-GPRA	0	\$0	4	+\$1,000,000	588
Pacific Regional Center	N/A	Non-GPRA	0	\$0	0	(\$54,250,000)	597
NOAA Corps End Strength	N/A	Non-GPRA	299	\$0	16	+\$2,199,000	607
New Vessel Design	N/A	Non-GPRA	0	\$0	0	+\$3,000,000	619
Ship Acquisition, Conversion and Maintenance	N/A	Non-GPRA	0	\$0	0	(\$6,100,000)	620
FSV Calibration	N/A	Non-GPRA	0	\$0	0	(\$1,000,000)	621
Hydro Survey Launch Construction	N/A	Non-GPRA	0	\$0	0	(\$2,400,000)	621

Exhibit 13:

Measure Name, Number, APP Page <i>Relates to Measure 3a (replacement pilot measure under development) and Budget Narrative Program Change X (see p. X of the Budget).</i>		FY 2008 Actual	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
Percentage of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards (%/yr.)							
	With Increase	NA	NA	TBD	TBD	TBD	TBD
	Without Increase	NA	NA	TBD	TBD	TBD	TBD
Description This pilot replacement measure for the coastal hazards GPRA surpasses its predecessor by broadly measuring NOAA's contributions to improving coastal community resilience to climate and weather hazards (improving NOAA's ability to quantify its contributions to this important goal across NOAA's coastal programs, measuring how NOAA is improving the nation's capacity for resilience to hazards and contribute significantly to NOAA's efforts to improve integration of its coastal programs, and expanding beyond the three coastal integration programs (CSC, OCRM, and Sea Grant)							

currently included). “Improvement in resilience capacity” refers to actions that increase the capability of a community to absorb and recover from hazard impacts and adapt to future risks, and include 1) increased knowledge, skills and capabilities (tools, information, resources) of state and local officials; 2) improved understanding of state- and local-scale risks and vulnerabilities; and 3) community-based hazard and climate resilience plans, strategies and policies. This measure tracks performance in reaching targeted coastal communities benefitting from NOAA’s performance such as state and local officials and decision-makers who do risk management, resource management, and make planning and policy decisions that impacts the resilience capacity of communities (targeting to benefit at least 20% of the coastal population in each state).

Comments on FY 2009 Target:

Relevant Program Change(s): N/A	Title	Exhibit 13 Page #:
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Validation and Verification

Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
National Ocean Service (NOS) Coastal Services Center (CSC), and Office of Ocean and Coastal Resource Management (OCRM) Oceanic and Atmospheric Research (OAR) National Sea Grant College Program (NSGP)	Annually	NOS and OAR will collect information, conduct assessments, and store data.	A new “Coastal Resilience Report Card” will assemble and track data to create a cohesive performance audit to track coordinated results at state and local levels. An annual progress calculation in the demonstration phase will translate indicator data into statistically valid annual improvement percentages. The annual progress calculation is the formula for determining whether or not a coastal state meets the 20% improvement target for this performance measure. The current draft calculation defines improvement as either 1) the percentage of a state’s coastal jurisdictions pursuing successful resilience efforts or 2) the percentage of a state’s coastal	One major element of the demonstration phase in FY 2009 will be to establish an accurate performance baseline. Work on the design of the baseline and data collection process will continue in FY 2009 for use in FY 2010 implementation. This process will provide the foundation for the measure’s permanent data collection and validation and verification processes. An advisory group will be established to provide customer input on the measurement collection and validation processes to encourage the effective use of existing data sources and survey mechanisms	In FY2009, NOAA will use this pilot measure to track performance of a relatively small number of targeted activities. During this time, NOAA will work to establish a NOAA-wide baseline from which to set future goals and targets and to further investigate and define data collection methods. The NOAA team will engage state and local partners to help implement and evaluate the pilot resilience measure,

			<p>population impacted by successful resilience efforts. The 20% improvement target will be evaluated during the FY 2009 demonstration phase to ensure that it is an appropriately ambitious goal.</p> <p>As with all our GPRA measures, assessment methodologies will be peer reviewed for validation and verification performance by the NOAA Deputy Under Secretary quarterly and by the Department of Commerce through periodic audits.</p>	<p>wherever possible and to ensure that burdensome new reporting requirements are avoided. NOAA's social science expertise will be used to ensure that the potential use of proxy data sources, customer survey feedback and statistical sampling techniques are scientifically grounded and statistically defensible.</p> <p>Based on a general review of results from NOAA-supported resilience projects and activities, it is estimated that 8 of the 35 coastal states and territories meet the preliminary 20% resilience improvement target in FY 2008. This baseline estimate will be adjusted during the FY 2009 demonstration phase to account for: 1) possible revisions to the preliminary 20% resilience improvement calculation and/or 2) a more detailed assessment of results in coastal states.</p>	<p>pilot data collection and verification requirements, and develop a verifiable long-term process. The demonstration phase will include opportunities to modify language and indicators to ensure that the process is sustainable. The changes made during the FY 2009 demonstration phase will be incorporated into NOAA's Annual Performance Plan as part of the FY 2010 President's Budget.</p>
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Section 8.

Resource Requirements Summary

Obligations, not BA

(\$ in Thousands)

Objective 3.1 - Protect, restore, and manage the use of coastal and ocean resources (EC)	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Enacted	FY 2010 Base	Increase/Decrease	FY 2010 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	340,400	282,207	243,109	270,476	280,358	244,376	13,301	257,677
PAC	-	-	36,768	28,482	41,336	17,750	-	17,750
National Marine Fisheries Service								
ORF	675,000	779,501	800,090	780,623	864,967	660,139	190,649	850,788
PAC	-	-	-	515	7,162	-	-	-
Oceanic and Atmospheric Research								
ORF	147,800	127,181	111,761	124,151	123,553	106,511	851	107,362
PAC	-	-	-	-	-	-	-	-
National Weather Service								
ORF	9,200	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
National Environmental Satellite, Data, & Information Service								
ORF	-	10,137	12,684	11,696	17,620	17,679	-	17,679
PAC	-	-	-	-	-	-	-	-
Program Support								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Direct	1,257,900	1,264,369	1,204,412	1,215,943	1,334,996	1,046,455	204,801	1,251,256
Other-Discretionary and Mandatory	127,300	105,314	95,023	139,818	187,911	71,710	(35,000)	36,710
Procurement, Acquisition, and Construction	85,500	65,343	-	-	-	-	-	-

Recovery Act Funds	N/A	N/A	N/A	N/A	170,000	-	-	-
Less: DARRF Obligations to Reimbursable	(9,383)	(8,762)	(20,969)	(21,416)	(40,765)	-	-	(15,600)
Less: Negative Subsidy Receipts	(10,678)	(6,464)	(4,384)	(1,680)	(4,816)	-	-	(5,969)
Total Obligations, Coastal and Ocean Resources	1,365,139	1,354,457	1,274,082	1,332,665	1,647,326	1,118,165	169,801	1,266,397

Objective 3.2 - Advance understanding of climate variability and change (CL)	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Enacted	FY 2010 Base	Increase/ Decrease	FY 2010 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
National Marine Fisheries Service								
ORF	1,400	1,498	1,490	1,319	1,880	1,880	-	1,880
PAC	-	-	-	-	-	-	-	-
Oceanic and Atmospheric Research								
ORF	176,600	162,298	166,828	203,766	190,570	188,260	15,578	203,838
PAC	-	-	22,834	-	-	-	-	-
National Weather Service								
ORF	56,900	13,438	12,771	8,029	14,578	14,578	-	14,578
PAC	-	-	493	-	-	-	-	-
National Environmental Satellite, Data, & Information Service								
ORF	70,200	49,884	33,032	53,154	57,742	32,078	7,000	39,078
PAC	-	-	7,011	5,571	16,481	6,476	-	6,476
Program Support								
ORF	4,500	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Direct	316,000	236,134	244,459	271,839	281,251	243,272	22,578	265,850
Other-Discretionary and Mandatory	-	-	-	-	-	-	-	-
Procurement, Acquisition, and Construction	6,400	9,016						
Recovery Act Funds	N/A	N/A	N/A	N/A	-	-	-	-
Total Obligations, Climate	316,000	236,134	244,459	271,839	281,251	243,272	22,578	265,850

Objective 3.3 - Provide accurate and timely weather and water information (W&W)	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Enacted	FY 2010 Base	Increase/Decrease	FY 2010 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	40,300	41,384	35,850	35,981	39,414	32,965	874	33,839
PAC	-	-	-	2	-	-	-	-
National Marine Fisheries Service								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Oceanic and Atmospheric Research								
ORF	62,700	67,322	67,447	52,254	58,278	52,478	5,592	58,070
PAC	-	-	10,368	9,858	-	-	-	-
National Weather Service								
ORF	640,400	696,908	713,280	752,697	828,735	814,452	16,468	830,920
PAC	-	-	76,121	67,442	117,214	97,291	(633)	96,658
National Environmental Satellite, Data, & Information Service								
ORF	6,100	14,677	28,887	8,524	4,969	4,989	-	4,989
PAC	-	-	2,138	890	3,445	3,445	2,000	5,445
Program Support								
ORF	2,100	-	-	-	-	-	-	-
PAC	-	-	12,566	-	-	-	-	-
Direct	849,700	926,757	946,657	927,648	1,052,055	1,005,620	24,301	1,029,921

Other-Discretionary and Mandatory	-	-	-	-	-	-	-	-
Procurement, Acquisition, and Construction	98,100	106,466	-	-	-	-	-	-
Recovery Act Funds	N/A	N/A	N/A	N/A	16,400	-	-	-
Total Obligations, Weather and Water	849,700	926,757	946,657	927,648	1,068,455	1,005,620	24,301	1,029,921

Objective 3.4 - Support safe, efficient, and environmentally sound commercial navigation (C&T)	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Enacted	FY 2010 Base	Increase/Decrease	FY 2010 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	149,000	171,546	159,712	164,559	153,593	141,371	8,173	149,544
PAC	-	-	-	1,341	-	-	-	-
National Marine Fisheries Service								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Oceanic and Atmospheric Research								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
National Weather Service								
ORF	10,000	15,756	19,605	18,489	15,614	15,614	6,110	21,724
PAC	-	-	-	-	-	-	-	-
National Environmental Satellite, Data, & Information Service								
ORF	28,600	11,426	10,067	10,625	8,422	8,422	-	8,422
PAC	-	-	-	-	-	-	-	-
Program Support								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Direct	187,600	198,728	189,384	195,014	177,629	165,407	14,283	179,690
Other-Discretionary and Mandatory	-	-	-	-	-	-	-	-
Procurement, Acquisition, and Construction	-	-	-	-	-	-	-	-
Recovery Act Funds	N/A	N/A	N/A	N/A	40,000	-	-	-
Total Obligations, Navigation	187,600	198,728	189,384	195,014	217,629	165,407	14,283	179,690

Performance Goal for Mission Support: Provide critical support for NOAA's mission (MS)	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Enacted	FY 2010 Base	Increase/Decrease	FY 2010 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	2,400	23,668	45,507	22,301	25,222	21,611	-	21,611
PAC	-	-	20,177	24,640	14,704	6,635	-	6,635
National Marine Fisheries Service								
ORF	-	30,264	27,136	33,705	37,974	37,974	-	37,974
PAC	-	-	11,190	4,691	3,168	-	-	-
Oceanic and Atmospheric Research								
ORF	16,700	15,551	17,502	8,202	26,486	24,935	-	24,935
PAC	-	-	1,698	263	11,580	10,379	-	10,379
National Weather Service								
ORF	-	34,706	29,307	29,187	-	-	-	-
PAC	-	-	32,815	38,667	-	-	-	-
National Environmental Satellite, Data, & Information Service								
ORF	61,800	96,063	92,521	95,133	99,448	100,689	880	101,569
PAC	-	-	796,925	770,246	972,674	970,667	274,269	1,244,936
<i>Program Support</i>								
ORF	368,500	367,869	362,242	393,262	273,089	233,659	19,833	255,492
PAC			53,928	41,961	178,181	54,250	(54,250)	-
<i>OMAO</i>								
ORF					70,428	161,969	2,199	164,168
PAC			-		16,817	11,500	(6,500)	5,000
Direct	1,344,700	1,560,414	1,490,948	1,462,358	1,729,771	1,636,268	236,431	1,872,699

Other-Discretionary and Mandatory	17,600	21,315	21,142	23,611	25,946	28,050	-	28,050
Procurement, Acquisition, and Construction	895,300	992,293						
Recovery Act Funds	N/A	N/A	N/A	N/A	603,600			
Total Obligations, Mission Support	1,362,300	1,581,729	1,512,090	1,485,869	2,359,317	1,664,318	236,431	1,900,749

	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Enacted	FY 2010 Base	Increase/ Decrease	FY 2010 Request
<i>Original Funding</i>								
Direct	3,955,900	4,186,402	4,075,860	4,072,801	4,575,702	4,097,022	502,394	4,599,416
Other-Discretionary and Mandatory	144,900	126,629	116,165	163,429	213,857	99,760	(35,000)	64,760
Reimbursable	242,400	209,061	242,444	219,872	364,767	242,000	-	242,000
IT Funding	524,200	375,249	590,413	603,800	777,500	777,500	185,800	963,300
<i>Recovery Act Funding</i>								
<i>Direct</i>	N/A	N/A	N/A	N/A	830,000	-	-	-
<i>Reimbursable</i>	N/A	N/A	N/A	N/A	-	-	-	-
<i>IT Funding</i>	N/A	N/A	N/A	N/A	94,970	-	-	-
Less: DARRF Obligations from Direct to Reimbursable	(9,383)	(8,762)	(20,969)	(21,416)	(40,765)	-	-	(15,600)
Less: Negative Subsidy Receipts from Direct Obligations	(10,678)	(6,464)	(4,384)	(1,680)	(4,816)	-	-	(5,969)
Plus: DARRF Obligations to Reimbursable from Direct	9,383	8,762	20,969	21,416	40,765			15,600
Total NOAA Obligations	4,332,522	4,515,628	4,430,085	4,454,423	5,979,510	4,438,782	467,394	4,900,207
Direct	4,080,739	4,297,805	4,166,672	4,213,135	5,573,978	4,196,782	467,394	4,642,607
Reimbursable	251,783	217,823	263,413	241,288	405,532	242,000	-	257,600
IT Funding	524,200	375,249	590,413	603,800	872,470	777,500	185,800	963,300
Original FTE	12,600	12,784	12,639	12,699	12,826	12,848	199	13,047
Recovery Act FTE	N/A	N/A	N/A	N/A	-	-	-	-
Total FTE	12,600	12,784	12,639	12,699	12,826	12,848	199	13,047

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Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar Amounts in Thousands)

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
NOS											
Navigation Services											
Mapping & Charting	Pos/BA	308	85,514	328	136,560	288	94,713	288	95,886	0	1,173
	FTE/OBL	293	109,410	312	136,750	272	94,713	272	95,886	0	1,173
Geodesy	Pos/BA	143	28,464	192	38,476	163	25,958	163	29,958	0	4,000
	FTE/OBL	136	28,381	183	38,767	154	25,958	154	29,958	0	4,000
Tide & Current Data	Pos/BA	123	27,457	113	31,337	129	29,278	129	29,278	0	0
	FTE/OBL	117	27,966	108	31,365	124	29,278	124	29,278	0	0
Total: Navigation Services	Pos/BA	574	141,435	633	206,373	580	149,949	580	155,122	0	5,173
	FTE/OBL	546	165,757	603	206,882	550	149,949	550	155,122	0	5,173
Ocean Resources Conservation and Assessment											
Ocean Assessment Program (OAP)	Pos/BA	143	105,902	72	94,539	115	75,480	116	83,354	1	7,874
	FTE/OBL	136	105,723	69	95,117	112	75,480	113	83,354	1	7,874
Response and Restoration	Pos/BA	104	25,254	117	27,704	124	22,922	124	24,322	0	1,400
	FTE/OBL	99	25,735	111	27,835	118	22,922	118	24,322	0	1,400
National Centers for Coastal Ocean Science	Pos/BA	195	51,413	253	53,251	207	49,128	210	51,989	3	2,861
	FTE/OBL	187	51,488	241	53,271	195	49,128	197	51,989	2	2,861

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		Actuals		Enacted		Base Program		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Total: Ocean Resources Conservation and Assessment	Pos/BA	442	182,569	442	175,494	446	147,530	450	159,665	4	12,135
	FTE/OBL	422	182,946	421	176,223	425	147,530	428	159,665	3	12,135
Ocean and Coastal Management											
Coastal Management	Pos/BA	60	92,837	59	102,272	69	97,895	73	102,935	4	5,040
	FTE/OBL	57	94,242	56	102,371	66	97,895	69	102,935	3	5,040
Ocean Management (Marine Sanctuary Program)	Pos/BA	185	50,621	151	52,828	190	44,949	190	44,949	0	0
	FTE/OBL	176	50,372	143	53,111	182	44,949	182	44,949	0	0
Total: Ocean & Coastal Management	Pos/BA	245	143,458	210	155,100	259	142,844	263	147,884	4	5,040
	FTE/OBL	233	144,614	199	155,482	248	142,844	251	147,884	3	5,040
TOTAL NOS ORF	Pos/BA	1,261	467,462	1,285	536,967	1,285	440,323	1,293	462,671	8	22,348
	FTE/OBL	1,201	493,317	1,223	538,587	1,223	440,323	1,229	462,671	6	22,348
TOTAL NOS PAC	Pos/BA	26	56,540	1	46,188	1	24,385	1	24,385	0	0
	FTE/OBL	25	54,465	1	56,040	1	24,385	1	24,385	0	0
Damage Assessment and Restoration Revolving Fund	Pos/BA	14	1,194	16	2,000	16	2,000	16	2,000	0	0
	FTE/OBL	13	21,416	16	40,765	16	15,600	16	15,600	0	0

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		Actuals		Enacted		Base Program		Estimate		Personnel	Amt	
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	
Coastal Zone Management Fund	Pos/BA	0	(525)	0	(1,500)	0	(1,500)	0	(1,500)	0	0	
	FTE/OBL	0	0	0	0	0	0	0	0	0	0	
Coastal Impact Assistance Fund	Pos/BA	2	0	0	0	0	0	0	0	0	0	
	FTE/OBL	2	584	0	1,275	0	0	0	0	0	0	
TOTAL NOS	Pos/BA	1,303	524,671	1,302	583,655	1,302	465,208	1,310	487,556	8	22,348	
	FTE/OBL	1,241	569,782	1,240	636,667	1,240	480,308	1,246	502,656	6	22,348	
NMFS												
Protected Species Research and Management												
Protected Species		Pos/BA	764	163,827	706	175,945	706	162,367	792	243,538	86	81,171
		FTE/OBL	727	164,999	670	177,220	672	162,367	737	243,538	65	81,171

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		Actuals		Enacted		Base Program		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Total: Protected Species Research & Management	Pos/BA	764	163,827	706	175,945	706	162,367	792	243,538	86	81,171
	FTE/OBL	727	164,999	670	177,220	672	162,367	737	243,538	65	81,171
Fisheries Research and Management											
Fish	Pos/BA	1,280	327,008	1,570	360,826	1,570	336,289	1,631	421,467	61	85,178
	FTE/OBL	1,218	337,073	1,487	438,367	1,496	336,289	1,542	421,467	46	85,178
Total: Fisheries Research and Management	Pos/BA	1,280	327,008	1,570	360,826	1,570	336,289	1,631	421,467	61	85,178
	FTE/OBL	1,218	337,073	1,487	438,367	1,496	336,289	1,542	421,467	46	85,178
Enforcement and Observers/Training											
Enforcement	Pos/BA	236	53,318	203	56,405	203	57,473	232	65,073	29	7,600
	FTE/OBL	225	53,369	192	57,211	192	57,473	214	65,073	22	7,600
Observers & Training	Pos/BA	115	31,491	66	33,680	66	33,059	92	38,059	26	5,000
	FTE/OBL	109	32,054	63	33,898	63	33,059	82	38,059	19	5,000
Total: Enforcement and Observers/Training	Pos/BA	351	84,809	269	90,085	269	90,532	324	103,132	55	12,600
	FTE/OBL	334	85,423	255	91,109	255	90,532	296	103,132	41	12,600

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		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Habitat Conservation & Restoration											
Habitat Conservation	Pos/BA	143	50,195	245	221,655	245	43,023	246	44,023	1	1,000
	FTE/OBL	136	50,514	234	221,884	234	43,023	235	44,023	1	1,000
Total: Habitat Conservation & Restoration	Pos/BA	143	50,195	245	221,655	245	43,023	246	44,023	1	1,000
	FTE/OBL	136	50,514	234	221,884	234	43,023	235	44,023	1	1,000
Other Activities Supporting Fisheries											
Other Activities Supporting Fisheries	Pos/BA	309	326,794	6	75,494	6	67,782	9	78,482	3	10,700
	FTE/OBL	296	177,371	5	146,241	5	67,782	8	78,482	3	10,700
Total: Other Activities Supporting Fisheries	Pos/BA	309	326,794	6	75,494	6	67,782	9	78,482	3	10,700
	FTE/OBL	296	177,371	5	146,241	5	67,782	8	78,482	3	10,700
Alaska Composite Research and Development											
AK Composite Research and Development Program	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	268	0	0	0	0	0	0	0	0
Total: Alaska Composite Research & Development	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	268	0	0	0	0	0	0	0	0
TOTAL NMFS ORF	Pos/BA	2,847	952,633	2,796	924,005	2,796	699,993	3,002	890,642	206	190,649
	FTE/OBL	2,711	815,648	2,651	1,074,821	2,662	699,993	2,818	890,642	156	190,649

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		Actuals		Enacted		Base Program		Estimate			
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
TOTAL NMFS - PAC	Pos/BA	0	2,019	0	4,600	0	0	0	0	0	0
	FTE/OBL	0	5,204	0	10,330	0	0	0	0	0	0
Pacific Coastal Salmon Recovery Fund	Pos/BA	0	66,933	0	80,000	0	35,000	0	0	0	(35,000)
	FTE/OBL	0	66,933	0	80,009	0	35,000	0	0	0	(35,000)
Fishermen's Contingency Fund	Pos/BA	0	0	1	0	1	0	1	0	0	0
	FTE/OBL	0	228	1	186	1	0	1	0	0	0
Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	261	0	261	0	261	0	0
Fisheries Finance Program Accounts	Pos/BA	0	27,624	0	1,996	0	0	0	0	0	0
	FTE/OBL	0	27,389	0	1,996	0	0	0	0	0	0
Promote and Develop Fishery Products	Pos/BA	3	7,594	4	29,510	4	9,400	4	9,400	0	0
	FTE/OBL	3	8,203	4	29,725	4	9,400	4	9,400	0	0
Federal Ship Financing Fund	Pos/BA	0	(156)	0	(773)	0	0	0	0	0	0

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		Actuals		Enacted		Base Program		Estimate			
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
	FTE/OBL	0	1	0	221	0	0	0	0	0	0
Environmental Improvement and Restoration Fund	Pos/BA	0	9,322	0	1,198	0	3,719	0	3,719	0	0
	FTE/OBL	0	8,650	0	10,520	0	3,719	0	3,719	0	0
Limited Access System Administration Fund	Pos/BA	36	10,268	0	7,444	0	7,444	0	7,444	0	0
	FTE/OBL	34	6,251	0	22,667	0	7,444	0	7,444	0	0
Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	163	0	286	0	286	0	286	0	0
TOTAL NMFS	Pos/BA	2,886	1,076,237	2,801	1,047,980	2,801	755,556	3,007	911,205	206	155,649
	FTE/OBL	2,748	938,670	2,656	1,231,022	2,667	756,103	2,823	911,752	156	155,649
OAR											
Climate Research											
Laboratories & Cooperative Institutes	Pos/BA	169	53,446	261	53,337	261	52,652	261	52,648	0	(4)
	FTE/OBL	161	53,506	249	53,821	249	52,652	249	52,648	0	(4)
Climate Data & Information	Pos/BA	0	0	3	8,299	3	8,329	3	12,080	0	3,751
	FTE/OBL	0	0	3	8,299	3	8,329	3	12,080	0	3,751

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		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Competitive Research Program	Pos/BA	139	129,986	107	132,000	107	132,368	114	144,199	7	11,831
	FTE/OBL	132	138,026	102	132,032	102	132,368	107	144,199	5	11,831
Climate Operations	Pos/BA	0	0	0	900	0	913	0	913	0	0
	FTE/OBL	0	0	0	900	0	913	0	913	0	0
Climate Observations & Services	Pos/BA	1	8,060	0	0	0	0	0	0	0	0
	FTE/OBL	1	893	0	0	0	0	0	0	0	0
Other Partnership Programs	Pos/BA	0	1,127	0	2,000	0	0	0	0	0	0
	FTE/OBL	0	1,123	0	2,004	0	0	0	0	0	0
Total: Climate Research	Pos/BA	309	192,619	371	196,536	371	194,262	378	209,840	7	15,578
	FTE/OBL	294	193,548	354	197,056	354	194,262	359	209,840	5	15,578
Weather & Air Quality Research											
Laboratories & Cooperative Institutes	Pos/BA	209	45,954	195	49,339	195	49,858	198	54,450	3	4,592
	FTE/OBL	199	45,529	186	50,050	186	49,858	188	54,450	2	4,592
Weather & Air Quality Research Programs	Pos/BA	0	2,898	20	8,472	20	8,472	22	9,472	2	1,000
	FTE/OBL	0	3,126	19	8,477	19	8,472	21	9,472	2	1,000
Other Partnership Programs	Pos/BA	3	3,166	0	5,600	0	0	0	0	0	0
	FTE/OBL	3	3,163	0	5,603	0	0	0	0	0	0

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		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Total: Weather & Air Quality Research	Pos/BA	212	52,018	215	63,411	215	58,330	220	63,922	5	5,592
	FTE/OBL	202	51,818	205	64,130	205	58,330	209	63,922	4	5,592
Ocean, Coastal, and Great Lakes Research											
Laboratories & Cooperative Institutes	Pos/BA	91	22,977	126	24,246	126	21,339	126	21,840	0	501
	FTE/OBL	87	23,115	119	24,318	119	21,339	119	21,840	0	501
National Sea Grant College Program	Pos/BA	11	57,043	24	54,997	24	55,085	24	55,085	0	0
	FTE/OBL	11	57,179	23	55,022	23	55,085	23	55,085	0	0
National Undersea Research Program	Pos/BA	6	14,685	0	8,850	0	0	0	0	0	0
	FTE/OBL	6	14,691	0	8,850	0	0	0	0	0	0
Ocean Exploration and Research	Pos/BA	13	19,502	18	18,591	18	27,466	18	27,816	0	350
	FTE/OBL	12	18,884	17	19,280	17	27,466	17	27,816	0	350
Other Ecosystems Programs	Pos/BA	3	9,471	4	2,610	4	2,621	4	2,621	0	0
	FTE/OBL	3	9,464	4	2,618	4	2,621	4	2,621	0	0
Other Partnership Programs	Pos/BA	0	6,593	0	13,465	0	0	0	0	0	0
	FTE/OBL	0	6,596	0	13,465	0	0	0	0	0	0

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		Actuals		Enacted		Base Program		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Total: Ocean, Coastal, and Great Lakes Research	Pos/BA	124	130,271	172	122,759	172	106,511	172	107,362	0	851
	FTE/OBL	119	129,929	163	123,553	163	106,511	163	107,362	0	851
Information Technology R&D											
High Performance Computing & Communications (HPCC)	Pos/BA	11	12,646	14	14,028	14	13,081	14	13,081	0	0
	FTE/OBL	10	13,078	13	14,148	13	13,081	13	13,081	0	0
Total: Information Technology R&D	Pos/BA	11	12,646	14	14,028	14	13,081	14	13,081	0	0
	FTE/OBL	10	13,078	13	14,148	13	13,081	13	13,081	0	0
TOTAL OAR - ORF	Pos/BA	656	387,554	772	396,734	772	372,184	784	394,205	12	22,021
	FTE/OBL	625	388,373	735	398,887	735	372,184	744	394,205	9	22,021
TOTAL OAR - PAC	Pos/BA	0	10,121	0	181,579	0	10,379	0	10,379	0	0
	FTE/OBL	0	10,121	0	181,580	0	10,379	0	10,379	0	0
TOTAL OAR	Pos/BA	656	397,675	772	578,313	772	382,563	784	404,584	12	22,021
	FTE/OBL	625	398,494	735	580,467	735	382,563	744	404,584	9	22,021
NWS											
Operations and Research											
Local Warnings and Forecasts	Pos/BA	4,401	658,618	4,320	682,330	4,320	676,579	4,325	685,389	5	8,810
	FTE/OBL	4,192	662,300	4,114	682,330	4,114	676,579	4,118	685,389	4	8,810

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		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Central Forecast Guidance	Pos/BA	306	62,912	322	67,253	322	69,525	323	79,525	1	10,000
	FTE/OBL	291	51,920	306	78,242	306	69,525	307	79,525	1	10,000
Total: Operations and Research	Pos/BA	4,707	721,530	4,642	749,583	4,642	746,104	4,648	764,914	6	18,810
	FTE/OBL	4,483	714,220	4,420	760,572	4,420	746,104	4,425	764,914	5	18,810
Systems Operation & Maintenance (O&M)											
Systems Operation & Maintenance	Pos/BA	233	93,948	197	98,355	197	98,540	197	102,308	0	3,768
	FTE/OBL	222	94,181	188	98,355	188	98,540	188	102,308	0	3,768
Total: Systems Operation & Maintenance (O&M)	Pos/BA	233	93,948	197	98,355	197	98,540	197	102,308	0	3,768
	FTE/OBL	222	94,181	188	98,355	188	98,540	188	102,308	0	3,768
TOTAL NWS ORF	Pos/BA	4,940	815,478	4,839	847,938	4,839	844,644	4,845	867,222	6	22,578
	FTE/OBL	4,705	808,401	4,608	858,927	4,608	844,644	4,613	867,222	5	22,578
TOTAL NWS PAC	Pos/BA	28	112,001	32	127,351	32	97,291	32	96,658	0	(633)
	FTE/OBL	27	106,110	31	133,614	31	97,291	31	96,658	0	(633)
TOTAL NWS	Pos/BA	4,968	927,479	4,871	975,289	4,871	941,935	4,877	963,880	6	21,945
	FTE/OBL	4,732	914,511	4,639	992,541	4,639	941,935	4,644	963,880	5	21,945

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		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
NESDIS											
Environmental Satellite Observing System											
Satellite Command and Control	Pos/BA	169	43,392	188	46,381	183	47,372	183	47,372	0	0
	FTE/OBL	161	43,432	179	46,433	174	47,372	174	47,372	0	0
Product Processing & Distribution	Pos/BA	94	29,651	129	31,457	129	31,818	129	32,698	0	880
	FTE/OBL	89	29,606	123	31,503	123	31,818	123	32,698	0	880
Product Development, Readiness & Application	Pos/BA	91	26,459	106	27,639	107	27,970	107	27,970	0	0
	FTE/OBL	87	26,925	101	27,879	102	27,970	102	27,970	0	0
Office of Space Commercialization	Pos/BA	14	596	4	634	5	649	5	649	0	0
	FTE/OBL	13	572	4	658	5	649	5	649	0	0
Group on Earth Observations (GEO)	Pos/BA	0	488	0	500	0	500	0	500	0	0
	FTE/OBL	0	488	0	500	0	500	0	500	0	0
Commercial Remote Sensing Licensing & Enforcement	Pos/BA	27	1,231	2	1,285	5	1,301	5	1,301	0	0
	FTE/OBL	26	1,200	2	1,330	5	1,301	5	1,301	0	0

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		Actuals		Enacted		Base Program		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt		
Total: Environmental Satellite Observing Systems	Pos/BA	395	101,817	429	107,896	429	109,610	429	110,490	0	880
	FTE/OBL	376	102,223	409	108,303	409	109,610	409	110,490	0	880
NOAA's Data Centers & Information Services											
Archive, Access & Assessment	Pos/BA	196	54,756	269	56,506	243	40,139	243	47,139	0	7,000
	FTE/OBL	187	54,606	256	56,778	230	40,139	230	47,139	0	7,000
Coastal Data Development	Pos/BA	15	4,394	0	4,559	16	4,597	16	4,597	0	0
	FTE/OBL	14	4,369	0	4,584	16	4,597	16	4,597	0	0
Regional Climate Centers	Pos/BA	2	3,568	0	3,900	0	0	0	0	0	0
	FTE/OBL	2	3,565	0	3,903	0	0	0	0	0	0
Environmental Data Systems Modernization	Pos/BA	23	9,170	14	9,511	24	9,511	24	9,511	0	0
	FTE/OBL	22	9,126	13	9,555	23	9,511	23	9,511	0	0
Other Data and Information Services	Pos/BA	6	5,270	0	5,050	0	0	0	0	0	0
	FTE/OBL	6	5,243	0	5,078	0	0	0	0	0	0
Total: NOAA's Data Centers & Information Services	Pos/BA	242	77,158	283	79,526	283	54,247	283	61,247	0	7,000
	FTE/OBL	231	76,909	269	79,898	269	54,247	269	61,247	0	7,000

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		Actuals		Enacted		Base Program		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
TOTAL NESDIS ORF	Pos/BA	637	178,975	712	187,422	712	163,857	712	171,737	0	7,880
	FTE/OBL	607	179,132	678	188,201	678	163,857	678	171,737	0	7,880
TOTAL NESDIS PAC	Pos/BA	177	775,147	162	1,064,579	162	980,588	162	1,256,857	0	276,269
	FTE/OBL	169	776,708	153	1,066,600	153	980,588	153	1,256,857	0	276,269
TOTAL NESDIS	Pos/BA	814	954,122	874	1,252,001	874	1,144,445	874	1,428,594	0	284,149
	FTE/OBL	776	955,840	831	1,254,801	831	1,144,445	831	1,428,594	0	284,149
Program Support											
Corporate Services											
Under Secretary and Associate Offices	Pos/BA	165	28,814	229	27,676	229	28,489	229	29,438	0	949
	FTE/OBL	157	29,032	219	27,676	219	28,489	219	29,438	0	949
NOAA Wide Corporate Services & Agency Management	Pos/BA	767	158,006	827	156,083	827	166,858	831	172,966	4	6,108
	FTE/OBL	731	154,112	785	156,143	787	166,858	790	172,966	3	6,108
Office of Chief Information Officer (CIO)	Pos/BA	0	975	0	22,050	0	2,089	0	2,089	0	0
	FTE/OBL	0	975	0	22,050	0	2,089	0	2,089	0	0
Total: Corporate Services	Pos/BA	932	187,795	1,056	205,809	1,056	197,436	1,060	204,493	4	7,057
	FTE/OBL	888	184,119	1,004	205,869	1,006	197,436	1,009	204,493	3	7,057
NOAA Education Program											
NOAA Education Program	Pos/BA	15	38,026	11	46,114	11	16,653	11	20,653	0	4,000
	FTE/OBL	14	37,993	10	46,220	10	16,653	10	20,653	0	4,000

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar Amounts in Thousands)

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
Total: NOAA Education Program	Pos/BA	15	38,026	11	46,114	11	16,653	11	20,653	0	4,000
	FTE/OBL	14	37,993	10	46,220	10	16,653	10	20,653	0	4,000
Facilities											
NOAA Facilities Management, Construction and Maintenance	Pos/BA	50	18,482	0	21,000	0	21,570	5	30,346	5	8,776
	FTE/OBL	48	18,524	0	21,000	0	21,570	4	30,346	4	8,776
Total: Facilities	Pos/BA	50	18,482	0	21,000	0	21,570	5	30,346	5	8,776
	FTE/OBL	48	18,524	0	21,000	0	21,570	4	30,346	4	8,776
Total Program Support ORF without OMAO	Pos/BA	997	244,303	1,067	272,923	1,067	235,659	1,076	255,492	9	19,833
	FTE/OBL	950	240,636	1,014	273,089	1,016	235,659	1,023	255,492	7	19,833
Total Program Support PAC without OMAO	Pos/BA	6	23,140	0	331,850	0	54,250	0	0	0	(54,250)
	FTE/OBL	6	25,123	0	332,028	0	54,250	0	0	0	(54,250)
TOTAL Program Support	Pos/BA	1,003	267,443	1,067	604,773	1,067	289,909	1,076	255,492	9	(34,417)
	FTE/OBL	956	265,759	1,014	605,117	1,016	289,909	1,023	255,492	7	(34,417)

Department of Commerce
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PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar Amounts in Thousands)

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
OMAO											
Marine Operations & Maintenance & Aviation Operations											
Marine Operations & Maintenance	Pos/BA	836	109,781	926	118,511	926	115,426	948	117,625	22	2,199
	FTE/OBL	796	110,552	893	118,603	902	115,426	918	117,625	16	2,199
Fleet Planning and Maintenance	Pos/BA	0	16,756	3	48,000	3	17,034	3	17,034	0	0
	FTE/OBL	0	16,772	3	48,000	3	17,034	3	17,034	0	0
Aviation Operations	Pos/BA	103	25,152	109	31,544	109	29,509	109	29,509	0	0
	FTE/OBL	98	25,402	104	31,578	104	29,509	104	29,509	0	0
Total: Marine Operations & Maintenance and Aviation Operations	Pos/BA	939	151,689	1,038	198,055	1,038	161,969	1,060	164,168	22	2,199
	FTE/OBL	894	152,726	1,000	198,181	1,009	161,969	1,025	164,168	16	2,199
Total OMAO ORF	Pos/BA	939	151,689	1,038	198,055	1,038	161,969	1,060	164,168	22	2,199
	FTE/OBL	894	152,726	1,000	198,181	1,009	161,969	1,025	164,168	16	2,199
Total OMAO PAC	Pos/BA	9	5,254	5	89,500	5	11,500	5	5,000	0	(6,500)
	FTE/OBL	8	16,838	5	94,817	5	11,500	5	5,000	0	(6,500)
Medicare Eligible Retiree Health Care Fund	Pos/BA	0	1,802	0	1,674	0	1,934	0	1,934	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar Amounts in Thousands)

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
	FTE/OBL	0	1,802	0	1,674	0	1,934	0	1,934	0	0
	Pos/BA										
NOAA Corp Commissioned Officers Retirement		0	23,119	0	24,272	0	26,116	0	26,116	0	0
	FTE/OBL	0	21,809	0	24,272	0	26,116	0	26,116	0	0
	Pos/BA										
TOTAL OMAO		948	181,864	1,043	313,501	1,043	201,519	1,065	197,218	22	(4,301)
	FTE/OBL	902	193,175	1,005	318,944	1,014	201,519	1,030	197,218	16	(4,301)
	Pos/BA										
NOAA ORF		12,277	3,198,094	12,509	3,364,044	12,509	2,918,629	12,772	3,206,137	263	287,508
	FTE/OBL	11,693	3,078,233	11,909	3,530,693	11,931	2,918,629	12,130	3,206,137	199	287,508
	Pos/BA										
NOAA PAC		246	984,222	200	1,845,647	200	1,178,393	200	1,393,279	0	214,886
	FTE/OBL	235	994,569	190	1,875,009	190	1,178,393	190	1,393,279	0	214,886
	Pos/BA										
NOAA Other		55	147,175	21	145,821	21	84,113	21	49,113	0	(35,000)
	FTE/OBL	52	163,429	21	213,587	21	99,760	21	64,760	0	(35,000)
	Pos/BA										
	FTE/OBL										
	Pos/BA	12,578	4,329,491	12,730	5,355,512	12,730	4,181,135	12,993	4,648,529	263	467,394
Total Direct Obligations	FTE/OBL	11,980	4,236,231	12,120	5,619,559	12,142	4,196,782	12,341	4,664,176	199	467,394

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NATIONAL OCEAN SERVICE
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Navigation Services										
Mapping & Charting										
Mapping & Charting Base	47,639		47,639	59	1,157	48,737		0	262	48,737
Hydrographic Research & Technology Development	7,424		7,424	0	0	7,424		0	0	7,424
Navigation Products		40,000	40,000	40,000	0	0		0	0	0
Electronic Navigational Charts	6,128		6,128	0	0	6,128		0	0	6,128
Shoreline Mapping	2,424		2,424	0	0	2,424		0	0	2,424
Address Survey Backlog/Contracts	30,000		30,000	0	0	30,000		1,173	10	31,173
California Seafloor Mapping, CA	1,500		1,500	1,500	0	0		0	0	0
Ordnance Reef UXO - Buoys, HI	500		500	500	0	0		0	0	0
Extended Continental Shelf Mapping, AK	500		500	500	0	0		0	0	0
Mapping the Hudson River to Build Resiliency to Climate Change, NY	445		445	445	0	0		0	0	0
Subtotal, Mapping and Charting	96,560	40,000	136,560	43,004	1,157	94,713	0	1,173	272	95,886
Geodesy										
Geodesy Base	22,860		22,860	30	587	23,417		4,000	149	27,417
National Height Modernization	2,541		2,541	0	0	2,541		0	5	2,541
Geodesy/Height Modernization - IL	725		725	725	0	0		0	0	0
Regional Geospatial Modeling Grants	7,000		7,000	7,000	0	0		0	0	0
Louisiana Geodetic Spatial Reference Center, LA	700		700	700	0	0		0	0	0
Geo-Spatial Analysis of Weather Phenomena and Disaster Recovery, AL	500		500	500	0	0		0	0	0
Wisconsin Height Modernization Program, WI	2,150		2,150	2,150	0	0		0	0	0
Gulf Coast Flood Evaluation Study, Baldwin County, AL	1,000		1,000	1,000	0	0		0	0	0
Gulf Coast Flood Evaluation Study, Mobile County, AL	1,000		1,000	1,000	0	0		0	0	0
Subtotal, Geodesy	38,476	0	38,476	13,105	587	25,958	0	4,000	154	29,958
Tide & Current Data										
Tide & Current Data Base	31,337		31,337	2,523	464	29,278		0	124	29,278
Subtotal, Tide & Current Data	31,337	0	31,337	2,523	464	29,278	0	0	124	29,278
Total, Navigation Services	166,373	40,000	206,373	58,632	2,208	149,949	0	5,173	550	155,122
Ocean Resources Conservation and Assessment										
Ocean Assessment Program (OAP)										
Ocean Research Priorities Plan Implementation			0	0	0	0	1	6,000	1	6,000
IOOS Regional Observations	20,000		20,000	5,445	0	14,555		0	4	14,555
NOAA IOOS	6,500		6,500	0	55	6,555		0	20	6,555
Gulf of Mexico Regional Collaboration	4,000		4,000	0	0	4,000		1,000	0	5,000
Alliance for Coastal Technologies	1,000		1,000	1,000	0	0		0	0	0
Coastal Storms	2,000		2,000	0	0	2,000		874	0	2,874
Coastal Services Center	20,254		20,254	21	410	20,643		0	82	20,643
Pacific Coastal Services Center	4,500		4,500	4,500	0	0		0	0	0
Hawaii Coral Reef Initiative	700		700	700	0	0		0	0	0
Florida Coral Reef	1,000		1,000	1,000	0	0		0	0	0
Coral Reef - Puerto Rico	240		240	240	0	0		0	0	0
Coral Reef Program	28,900		28,900	2,271	98	26,727		0	4	26,727
Ocean Health Initiative	4,000		4,000	3,000	0	1,000		0	2	1,000
Lake Erie Monitoring	605		605	605	0	0		0	0	0
Maui Coral Reef Preservation and Restoration, HI	185		185	185	0	0		0	0	0
UTMSI - Center for Biological Indicators of Change in Coastal Ecosystems	500		500	500	0	0		0	0	0
Water Quality Improvements in Port Jefferson Harbor, NY	155		155	155	0	0		0	0	0
Subtotal, Ocean Assessment Program (OAP)	94,539	0	94,539	19,622	563	75,480	1	7,874	113	83,354

The FY 2010 Base is the FY 2009 Enacted less Terminations plus Adjustments to Base.

NATIONAL OCEAN SERVICE
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Response and Restoration										
Response and Restoration Base	19,266		19,266	2,025	493	17,734		1,400	110	19,134
Estuary Restoration Program	2,188		2,188	1,000	0	1,188		0	5	1,188
Marine Debris	4,000		4,000	0	0	4,000		0	3	4,000
Aquatic Resources Environmental Initiative	1,000		1,000	1,000	0	0		0	0	0
Lake Pontchartrain Initiatives	250		250	250	0	0		0	0	0
Narragansett Bay and Little Narragansett Bay Watershed Restoration, R	1,000		1,000	1,000	0	0		0	0	0
Subtotal, Response and Restoration	27,704	0	27,704	5,275	493	22,922	0	1,400	118	24,322
National Centers for Coastal Ocean Science (NCCOS)										
Nat'l Ctrs for Coastal Ocean Science (NCCOS)			0	0	33,327	33,327	2	2,861	197	36,188
Competitive Research	15,801		15,801	0	0	15,801		0	0	15,801
Ctr for Coastal Environ Health & Biomolecular Rsch	11,500		11,500	200	(11,300)	0		0	0	0
Oxford, MD	5,000		5,000	2,642	(2,358)	0		0	0	0
Ctr for Coastal Fisheries Habitat Research	5,000		5,000	0	(5,000)	0		0	0	0
Center for Coastal Monitoring & Assessment	5,000		5,000	0	(5,000)	0		0	0	0
Center for Sponsored Coastal Ocean Research	2,700		2,700	0	(2,700)	0		0	0	0
NCCOS Headquarters	3,800		3,800	0	(3,800)	0		0	0	0
Center for Human Health Risk (formerly known as Marine Env Health R	4,100		4,100	1,700	(2,400)	0		0	0	0
Western Pacific Coral Reef Ecosystems Studies Program (CSCOR-NCC	350		350	350	0	0		0	0	0
Subtotal, NCCOS	53,251	0	53,251	4,892	769	49,128	2	2,861	197	51,989
Total, Ocean Resources Conserv. & Assess.	175,494	0	175,494	29,789	1,825	147,530	3	12,135	428	159,665
Ocean and Coastal Management										
Coastal Management										
CZM Grants	66,146		66,146	0	0	66,146		0	0	66,146
CZM and Stewardship	7,000		7,000	0	295	7,295		3,140	57	10,435
Nat'l Estuarine Rsrch Reserve Sys - NERRS	22,326		22,326	0	0	22,326		0	0	22,326
Non-point Pollution Implementation Grants	3,900		3,900	3,900	0	0		0	0	0
Marine Protected Areas	2,900		2,900	772	0	2,128		0	9	2,128
Energy Licensing and Appeals			0	0	0	0	3	1,900	3	1,900
Subtotal, Coastal Management	102,272	0	102,272	4,672	295	97,895	3	5,040	69	102,935
Ocean Management										
Marine Sanctuary Program										
Marine Sanctuary Program Base (Nacy Foster Scholarship 1% of base)	47,378		47,378	3,030	601	44,949		0	182	44,949
Northwest Straits Citizens Advisory Commission	1,600		1,600	1,600	0	0		0	0	0
City of Mobile Nat'l Maritime Museum of the Gulf of Mexico, AL	500		500	500	0	0		0	0	0
Hawaii Inst. Of Marine Biology Coral Research, HI	2,000		2,000	2,000	0	0		0	0	0
Thunder Bay, NMS lease buydown, MI	1,000		1,000	1,000	0	0		0	0	0
Lake Winnepesaukee Watershed Management Plan, NH	100		100	100	0	0		0	0	0
Perdido Pass Inlet Management Study, AL	250		250	250	0	0		0	0	0
Subtotal, Ocean Management	52,828	0	52,828	8,480	601	44,949	0	0	182	44,949
Total, Ocean and Coastal Management	155,100	0	155,100	13,152	896	142,844	3	5,040	251	147,884
Total, National Ocean Service - ORF	496,967	40,000	536,967	101,573	4,929	440,323	6	22,348	1,229	462,671
Other National Ocean Service Accounts										
Total, National Ocean Service - PAC	46,188	0	46,188	21,803	0	24,385	0	0	1	24,385
Total, National Ocean Service - Other	15,600	0	15,600	0	0	15,600	0	0	16	15,600
GRAND TOTAL NOS	558,755	40,000	598,755	123,376	4,929	480,308	6	22,348	1,246	502,656

NATIONAL MARINE FISHERIES SERVICE
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Protected Species Research and Management										
Protected Species Research and Management Programs Base	35,800	2,000	37,800	3,058	(442)	34,300	20	5,550	408	39,850
Species Recovery Grants					987	987	7	60,000	7	60,987
Marine Mammals	41,340		41,340	30	741	42,051	10	5,300	17	47,351
Marine Turtles	10,003		10,003	10	235	10,228		0	26	10,228
Other Protected Species (Marine Fish, Plants, and Invertebrates)	8,257		8,257	0	118	8,375		0	46	8,375
Atlantic Salmon	6,000		6,000	0	83	6,083		2,996	12	9,079
Pacific Salmon (for Salmon Management Activities, see Fisheries Research and Management Programs Base)	59,000		59,000	0	1,343	60,343	28	7,325	221	67,668
Cook Inlet Beluga Whale Research	700		700	700	0	0		0	0	0
SE Seiners Capacity Reduction Program, AK (transfer from FPPA)	495		495	495	0	0		0	0	0
Alaska Sea Life Center, AK	1,500		1,500	1,500	0	0		0	0	0
Alaska Sea Otter and Steller Sea Lion Commission, AK	300		300	300	0	0		0	0	0
Hawaiian Monk Seals, HI	2,600		2,600	2,600	0	0		0	0	0
Hawaiian Sea Turtles, HI	7,100		7,100	7,100	0	0		0	0	0
Ice Seal Research, AK	250		250	250	0	0		0	0	0
Provincetown Center for Coastal Studies Right Whale Conservation, MA	500		500	500	0	0		0	0	0
Seals as Sentinels, ME	100		100	100	0	0		0	0	0
Subtotal, Protected Species Research and Management	173,945	2,000	175,945	16,643	3,065	162,367	65	81,171	737	243,538
Fisheries Research and Management										
Fisheries Research and Management Programs	155,526		155,526	0	2,998	158,524	32	39,109	1,429	197,633
Expand Annual Stock Assessments - Improve Data Collection	40,504		40,504	18	609	41,095	6	9,900	75	50,995
Economics & Social Sciences Research	7,387		7,387	0	86	7,473	5	3,271	35	10,744
Salmon Management Activities	24,000		24,000	0	66	24,066		16,876	0	40,942
Regional Councils and Fisheries Commissions	27,289		27,289	46	612	27,855		4,000	0	31,855
Fisheries Statistics	15,868		15,868	0	429	16,297		4,771	0	21,068
Fish Information Networks	22,013		22,013	5	58	22,066		0	0	22,066
Survey and Monitoring Projects	17,000		17,000	0	508	17,508		6,251	0	23,759
Fisheries Oceanography	995		995	0	4	999	3	1,000	3	1,999
American Fisheries Act	5,351		5,351	6	158	5,503		0	0	5,503
Interjurisdictional Fisheries Grants	2,569		2,569	0	5	2,574		0	0	2,574
National Standard 8	1,035		1,035	0	25	1,060		0	0	1,060
Reduce Fishing Impacts on Essential Fish Habitat (EFH)	517		517	0	12	529		0	0	529
Reducing Bycatch	3,360		3,360	0	38	3,398		0	0	3,398
Product Quality and Safety	7,127		7,127	7	222	7,342		0	0	7,342
Maine and New Hampshire Inshore Trawl Survey	250		250	250	0	0		0	0	0
Reef Fish Monitoring and Research, FL Fish & Wildlife Conservation Commission	1,000		1,000	1,000	0	0		0	0	0
Narragansett Bay Window Program, University of Rhode Island Coastal and Estuarine Science Institute	1,000		1,000	1,000	0	0		0	0	0
Oyster Hatchery Economic Pilot Program, Morgan State University, MD	500		500	500	0	0		0	0	0
Hawaii Seafood Safety and Inspections, HI	1,500		1,500	1,500	0	0		0	0	0
Horseshoe Crab Research, Virginia Tech, VA	400		400	400	0	0		0	0	0
Oregon Salmon Weak Stock Solutions Research, OR	200		200	200	0	0		0	0	0
Scallop Fishery Assessment, MA	1,000		1,000	1,000	0	0		0	0	0
New England Fisheries Assistance	10,000		10,000	10,000	0	0		0	0	0
Chesapeake Bay Blue Crab Disaster Assistance, MD and VA	10,000		10,000	10,000	0	0		0	0	0
Maine Groundfish Industry Emergency Economic Assistance, ME	300		300	300	0	0		0	0	0
Gear Conversion Assistance, ME	100		100	100	0	0		0	0	0
Alaska King Crab Research, AK	200		200	200	0	0		0	0	0
Fishery Advisory Bodies, AK	150		150	150	0	0		0	0	0
Florida Marine Replenishment Program, FL	295		295	295	0	0		0	0	0
Disease Reduction in Klamath River Salmon, OR	640		640	640	0	0		0	0	0
Blue Crab Research, MD	50		50	50	0	0		0	0	0
Bluefin Tuna Tagging and Research Program, CA	250		250	250	0	0		0	0	0
California Marine Fisheries Replenishment Program	250		250	250	0	0		0	0	0
Shrimp Industry Fishing Effort Research Continuation, MD	200		200	200	0	0		0	0	0

NATIONAL MARINE FISHERIES SERVICE
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FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Total, National Marine Fisheries Service - PAC	4,600	0	4,600	4,600	0	0	0	0	0	0
Total, National Marine Fisheries Service - Other	120,369	0	120,369	45,000	(17,263)	56,110	0	(35,000)	5	21,110
GRAND TOTAL NMFS	878,974	170,000	1,048,974	285,878	(4,997)	756,103	156	155,649	2,823	911,752

OFFICE of ATMOSPHERIC RESEARCH
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Climate Research										
Laboratories & Cooperative Institutes										
Laboratories & Cooperative Institutes	51,576		51,576	65	1,141	52,652		(4)	249	52,648
NOAA Joint Institute for Northern Gulf of Mexico	1,761		1,761	1,761	0	0		0	0	0
Subtotal, Laboratories & Cooperative Institutes	53,337	0	53,337	1,826	1,141	52,652	0	(4)	249	52,648
Climate Data & Information										
Climate Data & Information	8,299		8,299	0	30	8,329		3,751	3	12,080
Subtotal, Climate Data & Information	8,299	0	8,299	0	30	8,329	0	3,751	3	12,080
Competitive Research Program										
Competitive Research Program (incl. NIDIS)	132,000		132,000	0	368	132,368	5	11,831	107	144,199
Subtotal, Competitive Research Program	132,000	0	132,000	0	368	132,368	5	11,831	107	144,199
Climate Operations										
Climate Operations	900		900	0	13	913		0	0	913
Subtotal, Climate Operations	900	0	900	0	13	913	0	0	0	913
Other Partnership Programs										
Climate System Research Center	650		650	650	0	0		0	0	0
Climate Change and Air Pollutant Impacts to New England's Rare Alpin	350		350	350	0	0		0	0	0
Advanced Study Institute for Environmental Prediction, MD	1,000		1,000	1,000	0	0		0	0	0
Subtotal, Other Partnership Programs	2,000	0	2,000	2,000	0	0	0	0	0	0
Total, Climate Research	196,536	0	196,536	3,826	1,552	194,262	5	15,578	359	209,840
Weather & Air Quality Research										
Laboratories & Cooperative Institutes										
Laboratories & Cooperative Institutes	49,089		49,089	46	815	49,858	2	4,592	188	54,450
Nutrient & Mercury Speciation Measurement Stations	250		250	250	0	0		0	0	0
Subtotal, Laboratories & Cooperative Institutes	49,339	0	49,339	296	815	49,858	2	4,592	188	54,450
Weather & Air Quality Research Programs										
U.S. Weather Research Program (USWRP) (THORPEX)	5,500		5,500	0	0	5,500		0	17	5,500
Tornado Severe Storm Research / Phased Array Radar	2,972		2,972	0	0	2,972	2	1,000	4	3,972
Subtotal, Weather & Air Quality Research Programs	8,472	0	8,472	0	0	8,472	2	1,000	21	9,472
Other Partnership Programs										
Wind Hazards Reduction Program, IA	850		850	850	0	0		0	0	0
Coastal & Inland Hurricane Monitoring & Protection Program, AL	700		700	700	0	0		0	0	0
National Weather Radar Testbed Phased Array Radar, OK	350		350	350	0	0		0	0	0
Redstone UAS Development for Weather and Atmospheric Research, AL	750		750	750	0	0		0	0	0
Flooding/Storm Surge Disaster Mitigation, MS	500		500	500	0	0		0	0	0
AIRMAP at Univ. of New Hampshire, NH	300		300	300	0	0		0	0	0
Tornado and Hurricane Operations and Research, AL	800		800	800	0	0		0	0	0
Boise Center Aerospace Laboratory (BCAL) Watershed Modeling Utiliz	350		350	350	0	0		0	0	0
Univ of Tennessee - Atmospheric Science Research, TN	500		500	500	0	0		0	0	0
Southeastern Mercury Consortium, FL	500		500	500	0	0		0	0	0
Subtotal, Other Partnership Programs	5,600	0	5,600	5,600	0	0	0	0	0	0
Total, Weather & Air Quality Research	63,411	0	63,411	5,896	815	58,330	4	5,592	209	63,922

OFFICE of ATMOSPHERIC RESEARCH
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Ocean, Coastal, and Great Lakes Research										
Laboratories & Cooperative Institutes										
Laboratories & Cooperative Institutes	20,806		20,806	32	565	21,339		501	119	21,840
NOAA Joint Institute for Northern Gulf of Mexico	3,440		3,440	3,440	0	0		0	0	0
Subtotal, Laboratories & Cooperative Institutes	24,246	0	24,246	3,472	565	21,339	0	501	119	21,840
National Sea Grant College Program										
National Sea Grant College Program Base	54,997		54,997	0	88	55,085		0	23	55,085
Subtotal, National Sea Grant College Program	54,997	0	54,997	0	88	55,085	0	0	23	55,085
Nat'l Undersea Rsrch Program (NURP)										
Nat'l Undersea Research Program (NURP)	8,850		8,850	0	(8,850)	0		0	0	0
Subtotal, National Undersea Research Program (NURP)	8,850	0	8,850	0	(8,850)	0	0	0	0	0
Ocean Exploration and Research										
Ocean Exp & Rsrch (NURP moved in FY08)	18,591		18,591	0	8,875	27,466		350	17	27,816
Subtotal, Ocean Exploration and Research	18,591	0	18,591	0	8,875	27,466	0	350	17	27,816
Other Ecosystems Programs										
Aquatic Invasive Species Program	988		988	0	11	999		0	3	999
Marine Aquaculture Program	1,622		1,622	0	0	1,622		0	1	1,622
Subtotal, Other Ecosystems Programs	2,610	0	2,610	0	11	2,621	0	0	4	2,621
Invasive Species & Partnership Programs										
Lake Champlain Research Consortium	350		350	350	0	0		0	0	0
Lake Champlain Emerging Threats	250		250	250	0	0		0	0	0
Coastal Vulnerability to Climate Change Study, AK	100		100	100	0	0		0	0	0
Collaborate R&D Initiative for the Gulf of Mexico, AL	750		750	750	0	0		0	0	0
National Institute of Undersea Science and Technology, MS	5,000		5,000	5,000	0	0		0	0	0
National Sea Grant Law Center, MS	750		750	750	0	0		0	0	0
Tropical Ecosystem Science and Technology (TEST), MS	850		850	850	0	0		0	0	0
New Hampshire Lakes Association Aquatic Weed Control Program, NH	100		100	100	0	0		0	0	0
Nanotoxicology: The Biological Response to Nanoparticle Exposure, AI	700		700	700	0	0		0	0	0
Coupled Remote Sensing and Biological Monitoring of Invasive Plant S	650		650	650	0	0		0	0	0
Maumee Bay Fish Kill Study, OH	750		750	750	0	0		0	0	0
National Undersea Research Program NURP, CT	350		350	350	0	0		0	0	0
Inner Space Center, RI	300		300	300	0	0		0	0	0
Environmental Center, WV	1,750		1,750	1,750	0	0		0	0	0
Transforming New England, ME	200		200	200	0	0		0	0	0
Great Lakes Water Education STEM Project	500		500	500	0	0		0	0	0
County of Hawaii Coastal Land Use Extension Project	115		115	115	0	0		0	0	0
Subtotal, Other Partnership Programs	13,465	0	13,465	13,465	0	0	0	0	0	0
Total, Ocean, Coastal, & Great Lakes Rsrch	122,759	0	122,759	16,937	689	106,511	0	851	163	107,362
Info Tech, R&D, & Science Education										
High Performance Computing Initiatives	14,028		14,028	1,000	53	13,081		0	13	13,081
Total, Info Tech, R&D, & Science Education	14,028	0	14,028	1,000	53	13,081	0	0	13	13,081

OFFICE of ATMOSPHERIC RESEARCH
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Total, Office of Atmospheric Research - ORF	396,734	0	396,734	27,659	3,109	372,184	9	22,021	744	394,205
Other Office of Atmospheric Research Accounts										
Total, Office of Atmospheric Research - PAC	11,579	170,000	181,579	171,200	0	10,379	0	0	0	10,379
Total, Office of Atmospheric Research - Other	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL OAR	408,313	170,000	578,313	198,859	3,109	382,563	9	22,021	744	404,584

NATIONAL WEATHER SERVICE
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Operations and Research										
Local Warnings and Forecasts Base	601,876		601,876	591	13,857	615,142		2,700	4,088	617,842
Air Quality Forecasting	5,445		5,445	0	0	5,445		0	0	5,445
Alaska Data Buoys	1,683		1,683	0	0	1,683		0	0	1,683
Sustain Cooperative Observer Network	1,871		1,871	0	0	1,871		0	0	1,871
Susquehanna River Basin Flood System	2,000		2,000	2,000	0	0		0	0	0
Urbanet III, MD	11,000		11,000	11,000	0	0		0	0	0
New England Weather Technology Initiative	200		200	200	0	0		0	0	0
NOAA Profiler Network	4,736		4,736	0	20	4,756		0	7	4,756
Pacific Island Compact	3,515		3,515	0	0	3,515		0	0	3,515
Strengthen U.S. Tsunami Warning Network	23,196		23,196	0	68	23,264		0	19	23,264
Western Kentucky Environmental Monitoring Network	700		700	700	0	0		0	0	0
Hawaii Rain Gages for NWS Pacific Region HQ, HI	360		360	360	0	0		0	0	0
Bryan County Oklahoma Nexrad Doppler Radar	175		175	175	0	0		0	0	0
Meteorological Equipment, Pierce College Weather Station, CA	85		85	85	0	0		0	0	0
Storm Surge Model, FL	500		500	500	0	0		0	0	0
Subtotal, Local Warnings and Forecasts	657,342	0	657,342	15,611	13,945	655,676	0	2,700	4,114	658,376
Advanced Hydrological Prediction Services	6,037		6,037	0	0	6,037		0	0	6,037
Aviation Weather	5,253		5,253	0	0	5,253	4	6,110	4	11,363
WFO Maintenance	7,316		7,316	0	0	7,316		0	0	7,316
Improved Hydro Modeling of Water Resources, ID	350		350	350	0	0		0	0	0
Remote Infrasonic Monitoring of Natural Hazards, MS	1,500		1,500	1,500	0	0		0	0	0
Regional Ensembling Sys for Atmosph Dispersion, MS	1,500		1,500	1,500	0	0		0	0	0
Joint Center for Hurricane Research, FL	250		250	250	0	0		0	0	0
Flood Awareness and Emergency Preparedness Education Campaign	250		250	250	0	0		0	0	0
Weather Radio Transmitters	2,297		2,297	0	0	2,297		0	0	2,297
Weather Radio Transmitters Base	2,297		2,297	0	0	2,297		0	0	2,297
Delaware River Enhanced Flood Warning System	235		235	235	0	0		0	0	0
Subtotal, Weather Radio Transmitters	2,532	0	2,532	235	0	2,297	0	0	0	2,297
Subtotal, Local Warnings and Forecasts	682,330	0	682,330	19,696	13,945	676,579	4	8,810	4,118	685,389
Central Forecast Guidance	67,253		67,253	49	2,321	69,525	1	10,000	307	79,525
Central Forecast Guidance	67,253		67,253	49	2,321	69,525	1	10,000	307	79,525
Subtotal, Central Forecast Guidance	67,253	0	67,253	49	2,321	69,525	1	10,000	307	79,525
Total, Operations and Research	749,583	0	749,583	19,745	16,266	746,104	5	18,810	4,425	764,914
Systems Operation & Maintenance (O&M)	45,121		45,121	46	144	45,219		1,029	103	46,248
NEXRAD	45,121		45,121	46	144	45,219		1,029	103	46,248
ASOS	9,657		9,657	13	58	9,702		1,500	44	11,202
AWIPS	38,065		38,065	15	57	38,107		1,239	41	39,346
NWSTG Backup - CIP	5,512		5,512	0	0	5,512		0	0	5,512
Total, Systems Operation & Maintenance	98,355	0	98,355	74	259	98,540	0	3,768	188	102,308
Total, National Weather Service - ORF	847,938	0	847,938	19,819	16,525	844,644	5	22,578	4,613	867,222
Other National Weather Service Accounts	110,951	16,400	127,351	29,060	(1,000)	97,291	0	(633)	31	96,658
Total, National Weather Service - PAC	110,951	16,400	127,351	29,060	(1,000)	97,291	0	(633)	31	96,658
Total, National Weather Service - Other	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL NWS	958,889	16,400	975,289	48,879	15,525	941,935	5	21,945	4,644	963,880

NATIONAL ENVIRONMENTAL SATELLITE, DATA and INFORMATION SERVICE
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Environmental Satellite Observing Systems										
Satellite Command and Control	38,729		38,729	40	873	39,562		0	174	39,562
NSOF Operations	7,652		7,652	6	164	7,810		0	0	7,810
Subtotal, Satellite Command and Control	46,381	0	46,381	46	1,037	47,372	0	0	174	47,372
Product Processing and Distribution										
Product Processing and Distribution	31,457		31,457	29	390	31,818		880	123	32,698
Subtotal, Product Processing and Distribution	31,457	0	31,457	29	390	31,818	0	880	123	32,698
Product Development, Readiness & Application										
Product Development, Readiness & Application	20,415		20,415	21	277	20,671		0	102	20,671
Prod Devel, Read & App (Ocean Remote Sensing)	3,930		3,930	0	49	3,979		0	0	3,979
Joint Center/Accelerate Use of Satellites	3,294		3,294	0	26	3,320		0	0	3,320
Subtotal, Product Development, Readiness & Application	27,639	0	27,639	21	352	27,970	0	0	102	27,970
Interagency Global Positioning System Executive Board Secretarial (IGEB)										
Commercial Remote Sensing Licensing & Enforcement	1,285		1,285	0	16	1,301		0	5	1,301
Office of Space Commercialization	634		634	0	15	649		0	5	649
Group on Earth Observations (GEO)	500		500	0	0	500		0	0	500
Total, Environmental Satellite Observing Sys	107,896	0	107,896	96	1,810	109,610	0	880	409	110,490
Data Centers & Information Services										
Archive, Access & Assessment	35,526		35,526	45	595	36,076		7,000	220	43,076
KY	6,910		6,910	5,549	0	1,361		0	6	1,361
MD	5,236		5,236	4,243	0	993		0	0	993
NC - Quality Assurance/Quality Control	1,504		1,504	1,229	0	275		0	2	275
WV	7,330		7,330	5,896	0	1,434		0	2	1,434
Subtotal, Archive, Access & Assessment	56,506	0	56,506	16,962	595	40,139	0	7,000	230	47,139
Coastal Data Development	4,559		4,559	0	38	4,597		0	16	4,597
Regional Climate Centers	3,900		3,900	3,900	0	0		0	0	0
International Pacific Research Ctr (U of H)	1,750		1,750	1,750	0	0		0	0	0
Environmental Data Systems Modernization	9,511		9,511	6	6	9,511		0	23	9,511
Integrated Environ Applications & Info Ctr	2,500		2,500	2,500	0	0		0	0	0
Coop Insitue for Remote Sensing Applications, AL	800		800	800	0	0		0	0	0
Total, Data Centers & Information Services	79,526	0	79,526	25,918	639	54,247	0	7,000	269	61,247
Total, NESDIS - ORF	187,422	0	187,422	26,014	2,449	163,857	0	7,880	678	171,737
Other NESDIS Accounts										
Total, NESDIS - PAC	990,579	74,000	1,064,579	83,991	0	980,588	0	276,269	153	1,256,857
Total, NESDIS - Other	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL NESDIS	1,178,001	74,000	1,252,001	110,005	2,449	1,144,445	0	284,149	831	1,428,594

PROGRAM SUPPORT
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Corporate Services										
Under Secretary and Associate Offices										
Under Secretary and Associate Offices Base	27,676		27,676	0	813	28,489		949	219	29,438
Subtotal, Under Secretary and Assoc. Ofc	27,676	0	27,676	0	813	28,489	0	949	219	29,438
NOAA Wide Coporate Services & Agency Management										
NOAA Wide Coporate Services & Agency Management Base	109,329		109,329	0	5,414	114,743	3	6,108	790	120,851
DOC Accounting System	10,171		10,171	0	0	10,171		0	0	10,171
Payment to the DOC Working Capital Fund	36,583		36,583	31	5,392	41,944		0	0	41,944
Subtotal, NOAA Wide Coporate Srvc & Agency Mgmt	156,083	0	156,083	31	10,806	166,858	3	6,108	790	172,966
Office of Chief Information Officer										
IT Security	22,050		22,050	20,000	39	2,089		0	0	2,089
Subtotal, Office of Chief Information Officer	22,050	0	22,050	20,000	39	2,089	0	0	0	2,089
Total, Corporate Services	205,809	0	205,809	20,031	11,658	197,436	3	7,057	1,009	204,493
NOAA Education Program										
Education Program / Initiative	1,574		1,574	307	20	1,287		0	10	1,287
JASON Education and Outreach	5,600		5,600	5,600	0	0		0	0	0
BWET California	2,500		2,500	2,500	0	0		0	0	0
BWET Regional Programs	7,200		7,200	7,200	0	0		0	0	0
Educ Partnership Prog/Minority Serving Institutions (EPPMSI)	15,000		15,000	739	62	14,323		0	0	14,323
Chesapeake Bay Interpretive Buoys	500		500	500	0	0		0	0	0
Narragansett Bay Marine Education (Save the Bay)	1,000		1,000	1,000	0	0		0	0	0
Training Next Generation Weather Forecasters - San Jose State Univ.	115		115	115	0	0		0	0	0
Competitive Educational Grants	8,500		8,500	7,500	43	1,043		4,000	0	5,043
Science Education on the Tennessee - Tombigbee Waterway, MS	375		375	375	0	0		0	0	0
Hawaii Education Program, HI	1,500		1,500	1,500	0	0		0	0	0
Base to Campus Conversion, ME	500		500	500	0	0		0	0	0
Partnership to Advance Environmental Literacy, NY	250		250	250	0	0		0	0	0
Sea Grant Education Outreach, AL	500		500	500	0	0		0	0	0
Savannah State Univ HBCU Marine Sciences expansion	450		450	450	0	0		0	0	0
Valapariso University for Meteorological Equipment, IN	250		250	250	0	0		0	0	0
University of Evansville Conservation Park Programs for Environmental	300		300	300	0	0		0	0	0
Total, NOAA Education Program	46,114	0	46,114	29,586	125	16,653	0	4,000	10	20,653
Facilities										
NOAA Facilities Management & Construction and Safety	21,000		21,000	0	570	21,570	4	8,776	4	30,346
Subtotal, NOAA Fac Mgmt, Const& Maint	21,000	0	21,000	0	570	21,570	4	8,776	4	30,346
Total, Facilities	21,000	0	21,000	0	570	21,570	4	8,776	4	30,346
Marine Operations & Maintenance										
Marine Services										
Data Acquisition	118,511		118,511	5,060	1,975	115,426	16	2,199	918	117,625
Subtotal, Marine Services	118,511	0	118,511	5,060	1,975	115,426	16	2,199	918	117,625
Fleet Planning and Maintenance										
Fleet Planning and Maintenance	28,000	20,000	48,000	30,966	0	17,034		0	3	17,034
Subtotal, Fleet Planning and Maintenance	28,000	20,000	48,000	30,966	0	17,034	0	0	3	17,034
Total, Marine Operations & Maintenance	146,511	20,000	166,511	36,026	1,975	132,460	16	2,199	921	134,659

PROGRAM SUPPORT
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Aviation Operations										
Aircraft Services	31,544		31,544	1,509	(526)	29,509		0	104	29,509
Total, Aviation Operations	31,544	0	31,544	1,509	(526)	29,509	0	0	104	29,509
Total, Office of Marine & Aviation Operations	178,055	20,000	198,055	37,535	1,449	161,969	16	2,199	1,025	164,168
Total, Program Support - ORF	450,978	20,000	470,978	87,152	13,802	397,628	23	22,032	2,048	419,660
Other Program Support Accounts										
Total, Program Support - PAC	81,750	339,600	421,350	355,600	0	65,750	0	(60,750)	5	5,000
Total, Program Support - Other	25,946	0	25,946	0	2,104	28,050	0	0	0	28,050
GRAND TOTAL PS	558,674	359,600	918,274	442,752	15,906	491,428	23	(38,718)	2,053	452,710

ORF SUMMARY
LINE OFFICE DIRECT OBLIGATIONS
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	OMNIBUS	American Recovery & Reinvestment Act Act	FY 2009 ENACTED plus ARRA)	0 Terminations	0 ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	Estimate
	0		0							0
National Ocean Service	496,967	40,000	536,967	101,573	4,929	440,323	6	22,348	1,229	462,671
National Marine Fisheries Service	754,005	170,000	924,005	236,278	12,266	699,993	156	190,649	2,818	890,642
Office of Atmospheric Research	396,734	0	396,734	27,659	3,109	372,184	9	22,021	744	394,205
National Weather Service	847,938	0	847,938	19,819	16,525	844,644	5	22,578	4,613	867,222
National Environmental Satellite Data & Information Srv.	187,422	0	187,422	26,014	2,449	163,857	0	7,880	678	171,737
Program Support	450,978	20,000	470,978	87,152	13,802	397,628	23	22,032	2,048	419,660
SUBTOTAL LO DIRECT OBLIGATIONS	3,134,044	230,000	3,364,044	498,495	53,080	2,918,629	199	287,508	12,130	3,206,137

ORF ADJUSTMENTS
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Operations, Research and Facilities	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)							FY 2010 Estimate
				Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	
SUBTOTAL LO DIRECT OBLIGATIONS	3,134,044	230,000	3,364,044	498,495	53,080	2,918,629	199	287,508	12,130	3,206,137
FINANCING										
De-Obligations	(6,000)		(6,000)	0	(5,000)	(11,000)			0	(11,000)
Total ORF Financing	(6,000)	0	(6,000)	0	(5,000)	(11,000)	0	0	0	(11,000)
SUBTOTAL BUDGET AUTHORITY	3,128,044	230,000	3,358,044	498,495	48,080	2,907,629	199	287,508	12,130	3,195,137
TRANSFERS										
Transfer to FFPA	(495)		(495)	0	495	0			0	0
Transfer from P&D to ORF	(79,000)		(79,000)	0	(25,600)	(104,600)			0	(104,600)
Transfer from CZMF to ORF	(3,000)		(3,000)	0	0	(3,000)			0	(3,000)
Total ORF Transfers	(82,495)	0	(82,495)	0	(25,105)	(107,600)	0	0	0	(107,600)
SUBTOTAL APPROPRIATION	3,045,549	230,000	3,275,549	498,495	22,975	2,800,029	199	287,508	12,130	3,087,537

PROCUREMENT, ACQUISITION, and CONSTRUCTION
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Procurement, Acquisition and Construction	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)							FY 2010 Program Changes	FTE	FY 2010 Estimate
				Terminations	ATB's	FY 2010 Base	FTE					
NOS												
CELCP Acquisition												
Coastal and Estuarine Land Conservation Program	15,000		15,000	0	0	15,000			0		1	15,000
Subtotal, Acquisition	15,000	0	15,000	0	0	15,000	0	0	0	0	1	15,000
NERRS Construction:												
National Estuarine Rerch Reserve Construction & Land Acq (NERRS)	7,043		7,043	3,153	0	3,890			0		0	3,890
Great Bay Partnership, NH	3,000		3,000	3,000	0	0			0		0	0
Subtotal, NERRS Construction	10,043	0	10,043	6,153	0	3,890	0	0	0	0	0	3,890
Marine Sanctuaries Construction												
Marine Sanctuaries Base	12,995		12,995	7,500	0	5,495			0		0	5,495
Thunder Bay NMS Exhibit	500		500	500	0	0			0		0	0
Subtotal, Marine Sanctuary Construction	13,495	0	13,495	8,000	0	5,495	0	0	0	0	0	5,495
Other NOS Construction/Acquisitior												
NGI Science Center Bldg - Stennis, MS	4,500		4,500	4,500	0	0			0		0	0
Dauphin Island East End Coastline Restoration Project, AL	400		400	400	0	0			0		0	0
Real Time Satellite Data Receiving Station, DE	750		750	750	0	0			0		0	0
Horn Point Laboratory, MD	2,000		2,000	2,000	0	0			0		0	0
Subtotal, Other NOS Construction	7,650	0	7,650	7,650	0	0	0	0	0	0	0	0
Subtotal, Construction	31,188	0	31,188	21,803	0	9,385	0	0	0	0	0	9,385
Total NOS - PAC	46,188	0	46,188	21,803	0	24,385	0	0	0	0	1	24,385
NMFS												
Construction												
Center for Aquatic Resources Management - AL	1,500		1,500	1,500	0	0			0		0	0
Center for Marine Education and Research, MS	1,500		1,500	1,500	0	0			0		0	0
Mississippi Center for Conservation and Biodiversity, MS	1,600		1,600	1,600	0	0			0		0	0
Subtotal, NMFS Construction	4,600	0	4,600	4,600	0	0	0	0	0	0	0	0
Total, NMFS - PAC	4,600	0	4,600	4,600	0	0	0	0	0	0	0	0
OAR												
Systems Acquisition												
Research Supercomputing/ CCRI	10,379	170,000	180,379	170,000	0	10,379			0		0	10,379
Pell Library and Undersea Exploration Center - research equipment, RI	1,200		1,200	1,200	0	0			0		0	0
Subtotal, OAR Systems Acquisition	11,579	170,000	181,579	171,200	0	10,379	0	0	0	0	0	10,379
Total, OAR - PAC	11,579	170,000	181,579	171,200	0	10,379	0	0	0	0	0	10,379
NWS												
Systems Acquisition												
ASOS	1,635		1,635	0	0	1,635			0		9	1,635
AWIPS	19,064		19,064	0	0	19,064		5,300	15			24,364
NEXRAD	8,376	7,400	15,776	7,400	0	8,376		(400)	5			7,976
NWSTG Legacy Replacement	1,195		1,195	0	0	1,195		0	0			1,195
Radiosonde Network Replacement	4,014		4,014	0	0	4,014		0	0			4,014
Weather and Climate Supercomputing	26,169		26,169	0	0	26,169		3,000	0			29,169
Cooperative Observer Network Modernization (NERON)	3,734		3,734	0	0	3,734		0	2			3,734
Complete and Sustain NOAA Weather Radio	10,000		10,000	0	0	10,000		1,337	0			11,337
NOAA Profiler Conversion	7,500		7,500	0	0	7,500		2,230	0			9,730
Henderson County Weather Sirens, KY	110		110	110	0	0		0	0			0
NOAA West Coast Doppler Radar, WA	2,000		2,000	2,000	0	0		0	0			0
Cooperative Institute and Research Center for Southeast Weather, AL	10,550		10,550	10,550	0	0		0	0			0
Subtotal, NWS Systems Acquisition	94,347	7,400	101,747	20,060	0	81,687	0	11,467	31			93,154
Construction												
WFO Construction	12,504	9,000	21,504	9,000	0	12,504		(9,000)	0			3,504
NOAA Center for Weather & Climate Prediction	4,100		4,100	0	(1,000)	3,100		(3,100)	0			0
Subtotal, NWS Construction	16,604	9,000	25,604	9,000	(1,000)	15,604	0	(12,100)	0			3,504

PROCUREMENT, ACQUISITION, and CONSTRUCTION
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Procurement, Acquisition and Construction	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)					FY 2010 Program Changes	FTE	FY 2010 Estimate
				Terminations	ATB's	FY 2010 Base	FTE			
Total, NWS - PAC	110,951	16,400	127,351	29,060	(1,000)	97,291	0	(633)	31	96,658
NESDIS										
Systems Acquisition										
NOAA Satellite and Climate Sensors				0	0	73,263		(15,662)	24	57,601
Geostationary Systems - N	73,263		73,263	0	0	465,000		272,000	46	737,000
Geostationary Systems - R	465,000		465,000	0	0					
Subtotal, NESDIS - GOES	538,263	0	538,263	0	0	538,263	0	256,338	70	794,601
Polar Orbiting Systems - POES	65,419		65,419	0	0	65,419		(22,284)	22	43,135
JASON-3	0		0	0	0	0		20,000	0	20,000
Polar Orbiting Systems - NPOESS	287,985	26,000	313,985	26,000	0	287,985		94,215	61	382,200
EOS & Advanced Polar Data Processing, Distribution & Archiving Sys	990		990	0	0	990		0	0	990
Subtotal, NESDIS - EOS	990	0	990	0	0	990	0	0	0	990
CIP - single point of failure	2,772		2,772	0	0	2,772		0	0	2,772
Subtotal, NESDIS - CIP	2,772	0	2,772	0	0	2,772	0	0	0	2,772
Comprehensive Large Array Data Stewardship Sys (CLASS)	16,467		16,467	9,991	0	6,476		0	0	6,476
NPOESS Preparatory Data Exploitation	2,455		2,455	0	0	2,455		2,000	0	4,455
Restoration of Climate Sensors - Data Records	74,000	48,000	122,000	48,000	0	74,000		(74,000)	0	0
Subtotal, NESDIS Systems Acquisition	988,351	74,000	1,062,351	83,991	0	978,360	0	276,269	153	1,254,629
Construction										
Satellite CDA Facility	2,228		2,228	0	0	2,228		0	0	2,228
Subtotal, NESDIS Construction	2,228	0	2,228	0	0	2,228	0	0	0	2,228
Total, NESDIS - PAC	990,579	74,000	1,064,579	83,991	0	980,588	0	276,269	153	1,256,857
Program Support / Construction										
Pacific Region Center	60,250	142,000	202,250	148,000	0	54,250		(54,250)	0	0
Southwest Fisheries Science Center		102,000	102,000	102,000	0	0		0	0	0
Fairbanks, AK CDA		9,000	9,000	9,000	0	0		0	0	0
Facilities Maintenance & Repair		8,600	8,600	8,600	0	0		0	0	0
Construction Projects	10,000		10,000	10,000	0	0		0	0	0
Subtotal, Construction	70,250	261,600	331,850	277,600	0	54,250	0	(54,250)	0	0
Program Support / OMAO										
OMAO - Fleet Replacement										
FSV Calibration	1,000		1,000	0	0	1,000		(1,000)	0	0
Hydro Survey Launch Construction	2,400		2,400	0	0	2,400	(5)	(2,400)	0	0
Temporary Berthing for HENRY B. BIGELOW	1,000		1,000	0	0	1,000		0	0	1,000
Fleet Capital Improvements & Tech Infusion (formerly known as Vessel)	1,000		1,000	0	0	1,000		0	0	1,000
Ship Acquisition, Conversion & Maintenance	6,100		6,100	0	0	6,100		(6,100)	0	0
New Vessel Construction		78,000	78,000	78,000	0	0	5	3,000	5	3,000
Subtotal, OMAO Fleet Replacement	11,500	78,000	89,500	78,000	0	11,500	0	(6,500)	5	5,000
Total, Program Support - PAC	81,750	339,600	421,350	355,600	0	65,750	0	(60,750)	5	5,000
GRAND TOTAL PAC	1,245,647	600,000	1,845,647	666,254	(1,000)	1,178,393	0	214,886	190	1,393,279

PAC ADJUSTMENTS
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN Procurement, Acquisition and Construction	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
SUBTOTAL DIRECT OBLIGATIONS	1,245,647	600,000	1,845,647	666,254	(1,000)	1,178,393	0	214,886	190	1,393,279
FINANCING										
De-Obligations	(2,000)		(2,000)	0	0	(2,000)			0	(2,000)
Total PAC Financing	(2,000)	0	(2,000)	0	0	(2,000)	0	0	0	(2,000)
SUBTOTAL BUDGET AUTHORITY	1,243,647	600,000	1,843,647	666,254	(1,000)	1,176,393	0	214,886	190	1,391,279
SUBTOTAL APPROPRIATION	1,243,647	600,000	1,843,647	666,254	(1,000)	1,176,393	0	214,886	190	1,391,279

GRAND TOTAL SUMMARY
Discretionary Appropriations
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN FY 10 PROPOSED OPERATING PLAN ORF, PAC, and Other Discretionary Appropriations	OMNIBUS	American Recovery & Reinvestment Act Act	FY 2009 ENACTED plus ARRA)	0 Terminations	0 ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	Estimate
	0		0							0
Operations, Research and Facilities	3,045,549	230,000	3,275,549	498,495	22,975	2,800,029	199	287,508	12,130	3,087,537
Procurement, Acquisition and Construction	1,243,647	600,000	1,843,647	666,254	(1,000)	1,176,393	0	214,886	190	1,391,279
Coastal Zone Management Fund	3,000	0	3,000	0	0	3,000	0	0	0	3,000
Fisherman's Contingency Fund	0	0	0	0	0	0	0	0	1	0
Pacific Coastal Salmon Fund	80,000	0	80,000	45,000	0	35,000	0	(35,000)	0	0
Medicare Eligible Retiree Health Care Fund	1,674	0	1,674	0	260	1,934	0	0	0	1,934
GRAND TOTAL DISCRETIONARY APPROPRIATION	4,373,870	830,000	5,203,870	1,209,749	22,235	4,016,356	199	467,394	12,321	4,483,750

OTHER ACCOUNTS (DISCRETIONARY)

(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
NOS										
Coastal Zone Management Fund Obligations	0		0	0	0	0		0	0	0
Coastal Zone Management Fund Budget Authority	0		0	0	0	0		0	0	0
Coastal Zone Management Fund Appropriation	3,000		3,000	0	0	3,000		0	0	3,000
Subtotal, NOS Oth Disc Direct Obligation	0	0	0	0	0	0	0	0	0	0
Subtotal, NOS Oth Disc Budget Authority	0	0	0	0	0	0	0	0	0	0
Subtotal, NOS Oth Disc Appropriation	3,000	0	3,000	0	0	3,000	0	0	0	3,000
NMFS										
Fishermen's Contingency Fund Obligations	0		0	0	0	0		0	1	0
Fishermen's Contingency Fund Budget Authority	0		0	0	0	0		0	1	0
Fishermen's Contingency Fund Appropriations	0		0	0	0	0		0	1	0
Foreign Fishing Observer Fund Obligations	0		0	0	261	261		0	0	261
Foreign Fishing Observer Fund Budget Authority	0		0	0	0	0		0	0	0
Foreign Fishing Observer Fund Appropriation	0		0	0	0	0		0	0	0
Fisheries Finance Program Account Obligations	0		0	0	0	0		0	0	0
Fisheries Finance Program Account Budget Authority	(495)		(495)	0	495	0		0	0	0
Fisheries Finance Program Account Appropriation	0		0	0	0	0		0	0	0
Promote and Develop Fisheries Obligations	0		0	0	0	0		0	0	0
Promote and Develop Fisheries Budget Authority	(79,000)		(79,000)	0	(25,600)	(104,600)		0	0	(104,600)
Promote and Develop Fisheries Appropriation	0		0	0	0	0		0	0	0
Pacific Coastal Salmon Fund Obligations	80,000		80,000	45,000	0	35,000		(35,000)	0	0
Pacific Coastal Salmon Fund Budget Authority	80,000		80,000	45,000	0	35,000		(35,000)	0	0
Pacific Coastal Salmon Fund Appropriation	80,000		80,000	45,000	0	35,000		(35,000)	0	0
Marine Mammal Unusual Mortality Event Fund Obligations	0		0	0	286	286		0	0	286
Marine Mammal Unusual Mortality Event Fund Budget Authority	0		0	0	0	0		0	0	0
Marine Mammal Unusual Mortality Event Fund Appropriations	0		0	0	0	0		0	0	0
Subtotal, NMFS Oth Disc Direct Obligation	80,000	0	80,000	45,000	547	35,547	0	(35,000)	1	547
Subtotal, NMFS Oth Disc Budget Authority	505	0	505	45,000	(25,105)	(69,600)	0	(35,000)	1	(104,600)
Subtotal, NMFS Oth Disc Appropriation	80,000	0	80,000	45,000	0	35,000	0	(35,000)	1	0
OMAO										
Medicare Eligible Retiree Healthcare Fund Acct Obligations	1,674		1,674	0	260	1,934		0	0	1,934
Medicare Eligible Retiree Healthcare Fund Acct Budget Authority	1,674		1,674	0	260	1,934		0	0	1,934
Medicare Eligible Retiree Healthcare Fund Acct Appropriations	1,674		1,674	0	260	1,934		0	0	1,934
Subtotal, OMAO Oth Disc Direct Obligations	1,674	0	1,674	0	260	1,934	0	0	0	1,934
Subtotal, OMAO Oth Disc Budget Authority	1,674	0	1,674	0	260	1,934	0	0	0	1,934
Subtotal, OMAO Oth Disc Appropriation	1,674	0	1,674	0	260	1,934	0	0	0	1,934
TOTAL, OTHER DISC DIRECT OBLIGATIONS	81,674	0	81,674	45,000	807	37,481	0	(35,000)	1	2,481
TOTAL, OTHER DISC BUDGET AUTHORITY	2,179	0	2,179	45,000	(24,845)	(67,666)	0	(35,000)	1	(102,666)
TOTAL, OTHER DISC APPROPRIATION	84,674	0	84,674	45,000	260	39,934	0	(35,000)	1	4,934

SUMMARY OF DISCRETIONARY RESOURCES
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
<u>Discretionary Direct Obligations:</u>										
ORF Direct Obligations	3,134,044	230,000	3,364,044	498,495	53,080	2,918,629	199	287,508	12,130	3,206,137
PAC Direct Obligations	1,245,647	600,000	1,845,647	666,254	(1,000)	1,178,393	0	214,886	190	1,393,279
OTHER Direct Obligations	81,674	0	81,674	45,000	807	37,481	0	(35,000)	1	2,481
TOTAL Discretionary Direct Obligations	4,461,365	830,000	5,291,365	1,209,749	52,887	4,134,503	199	467,394	12,321	4,601,897
<u>Discretionary Budget Authority</u>										
ORF Budget Authority	3,128,044	230,000	3,358,044	498,495	48,080	2,907,629	199	287,508	12,130	3,195,137
PAC Budget Authority	1,243,647	600,000	1,843,647	666,254	(1,000)	1,176,393	0	214,886	190	1,391,279
OTHER Budget Authority	2,179	0	2,179	45,000	(24,845)	(67,666)	0	(35,000)	1	(102,666)
TOTAL Discretionary Budget Authority	4,373,870	830,000	5,203,870	1,209,749	22,235	4,016,356	199	467,394	12,321	4,483,750
<u>Discretionary Appropriations</u>										
ORF Appropriations	3,045,549	230,000	3,275,549	498,495	22,975	2,800,029	199	287,508	12,130	3,087,537
PAC Appropriations	1,243,647	600,000	1,843,647	666,254	(1,000)	1,176,393	0	214,886	190	1,391,279
OTHER Appropriations	84,674	0	84,674	45,000	260	39,934	0	(35,000)	1	4,934
TOTAL Discretionary Appropriation	4,373,870	830,000	5,203,870	1,209,749	22,235	4,016,356	199	467,394	12,321	4,483,750

OTHER ACCOUNTS (MANDATORY)
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
NOS										
Coastal Zone Management Fund Obligations	0		0	0	0	0		0	0	0
Coastal Zone Management Fund Budget Authority	(1,500)		(1,500)	0	0	(1,500)		0	0	(1,500)
Coastal Zone Management Fund Appropriation	(3,000)		(3,000)	0	0	(3,000)		0	0	(3,000)
Damage Assessment & Restoration Revolving Fund Obligations	15,600		15,600	0	0	15,600		0	16	15,600
Damage Assessment & Restoration Revolving Fund Budget Authority	2,000		2,000	0	0	2,000		0	16	2,000
Damage Assessment & Restoration Revolving Fund Appropriation	0		0	0	0	0		0	16	0
Subtotal, NOS Oth Mand Direct Obligation:	15,600	0	15,600	0	0	15,600	0	0	16	15,600
Subtotal, NOS Oth Mand Budget Authority	500	0	500	0	0	500	0	0	16	500
Subtotal, NOS Oth Mand Appropriation	(3,000)	0	(3,000)	0	0	(3,000)	0	0	16	(3,000)
NMFS										
Promote and Develop Fisheries Obligations	29,510		29,510	0	(20,110)	9,400		0	4	9,400
Promote and Develop Fisheries Budget Authority	108,510		108,510	0	5,490	114,000		0	4	114,000
Promote and Develop Fisheries Appropriation	0		0	0	0	0		0	4	0
Fisheries Finance Program Account Obligations	1,996		1,996	0	0	0		0	0	0
Fisheries Finance Program Account Budget Authority	1,996		1,996	0	0	0		0	0	0
Fisheries Finance Program Account Appropriation	1,996		1,996	0	0	0		0	0	0
Federal Ship Financing Obligations	221		221	0	(221)	0		0	0	0
Federal Ship Financing Budget Authority	(773)		(773)	0	773	0		0	0	0
Federal Ship Financing Appropriation	(773)		(773)	0	773	0		0	0	0
Environmental Improve & Restoration Fund Obligations	1,198		1,198	0	2,521	3,719		0	0	3,719
Environmental Improve & Restoration Fund Budget Authority	1,198		1,198	0	2,521	3,719		0	0	3,719
Environmental Improve & Restoration Fund Appropriation	1,198		1,198	0	2,521	3,719		0	0	3,719
Limited Access System Administration Fund Obligations	7,444		7,444	0	0	7,444		0	0	7,444
Limited Access System Administration Fund Budget Authority	7,444		7,444	0	0	7,444		0	0	7,444
Limited Access System Administration Fund Appropriation	7,444		7,444	0	0	7,444		0	0	7,444
Subtotal, NMFS Oth Mand Direct Obligation:	40,369	0	40,369	0	(17,810)	20,563	0	0	4	20,563
Subtotal, NMFS Oth Mand Budget Authority	118,375	0	118,375	0	8,784	125,163	0	0	4	125,163
Subtotal, NMFS Oth Mand Appropriation	9,865	0	9,865	0	3,294	11,163	0	0	4	11,163
OMAO										
NOAA Corp Commissioned Officers Retirement Obligations	24,272		24,272	0	1,844	26,116		0	0	26,116
NOAA Corp Commissioned Officers Retirement Budget Authority	24,272		24,272	0	1,844	26,116		0	0	26,116
NOAA Corp Commissioned Officers Retirement Budget Appropriation	24,272		24,272	0	1,844	26,116		0	0	26,116
Subtotal, OMAO Oth Mand Direct Obligation:	24,272	0	24,272	0	1,844	26,116	0	0	0	26,116
Subtotal, OMAO Oth Mand Budget Authority	24,272	0	24,272	0	1,844	26,116	0	0	0	26,116
Subtotal, OMAO Oth Mand Appropriation	24,272	0	24,272	0	1,844	26,116	0	0	0	26,116
TOTAL, OTH MAND DIRECT OBLIGATIONS	80,241	0	80,241	0	(15,966)	62,279	0	0	20	62,279
TOTAL, OTH MAND BUDGET AUTHORITY	143,147	0	143,147	0	10,628	151,779	0	0	20	151,779
TOTAL, OTH MAND APPROPRIATION	31,137	0	31,137	0	5,138	34,279	0	0	20	34,279

NOAA SUMMARY
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
TOTAL Direct Obligations (Discretion & Mand)	4,541,606	830,000	5,371,606	1,209,749	36,921	4,196,782	199	467,394	12,341	4,664,176
TOTAL Budget Authority (Discretion & Mand)	4,517,017	830,000	5,347,017	1,209,749	32,863	4,168,135	199	467,394	12,341	4,635,529
TOTAL Appropriation (Discretion & Mand)	4,405,007	830,000	5,235,007	1,209,749	27,373	4,050,635	199	467,394	12,341	4,518,029
Reimbursable Financing	242,000		242,000	0	0	242,000		0	706	242,000
TOTAL OBLIGATIONS (Direct & Reimbursable)	4,783,606	830,000	5,613,606	1,209,749	36,921	4,438,782	199	467,394	13,047	4,906,176
Offsetting Receipts										(5,969)
TOTAL OBLIGATIONS (Direct, Reimb & Offsetting Receipts)	4,783,606	830,000	5,613,606	1,209,749	36,921	4,438,782	199	467,394	13,047	4,900,207

LINE OFFICE SUMMARY
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
National Ocean Service										
ORF	496,967	40,000	536,967	101,573	4,929	440,323	6	22,348	1,229	462,671
PAC	46,188	0	46,188	21,803	0	24,385	0	0	1	24,385
OTHER	15,600	0	15,600	0	0	15,600	0	0	16	15,600
TOTAL, NOS	558,755	40,000	598,755	123,376	4,929	480,308	6	22,348	1,246	502,656
National Marine Fisheries Service										
ORF	754,005	170,000	924,005	236,278	12,266	699,993	156	190,649	2,818	890,642
PAC	4,600	0	4,600	4,600	0	0	0	0	0	0
OTHER	120,369	0	120,369	45,000	(17,263)	56,110	0	(35,000)	5	21,110
TOTAL, NMFS	878,974	170,000	1,048,974	285,878	(4,997)	756,103	156	155,649	2,823	911,752
Oceanic and Atmospheric Research										
ORF	396,734	0	396,734	27,659	3,109	372,184	9	22,021	744	394,205
PAC	11,579	170,000	181,579	171,200	0	10,379	0	0	0	10,379
OTHER	0	0	0	0	0	0	0	0	0	0
TOTAL, OAR	408,313	170,000	578,313	198,859	3,109	382,563	9	22,021	744	404,584
National Weather Service										
ORF	847,938	0	847,938	19,819	16,525	844,644	5	22,578	4,613	867,222
PAC	110,951	16,400	127,351	29,060	(1,000)	97,291	0	(633)	31	96,658
OTHER	0	0	0	0	0	0	0	0	0	0
TOTAL, NWS	958,889	16,400	975,289	48,879	15,525	941,935	5	21,945	4,644	963,880
NESDIS										
ORF	187,422	0	187,422	26,014	2,449	163,857	0	7,880	678	171,737
PAC	990,579	74,000	1,064,579	83,991	0	980,588	0	276,269	153	1,256,857
OTHER	0	0	0	0	0	0	0	0	0	0
TOTAL, NESDIS	1,178,001	74,000	1,252,001	110,005	2,449	1,144,445	0	284,149	831	1,428,594
Program Support/Corporate Service:										
ORF	205,809	0	205,809	20,031	11,658	197,436	3	7,057	1,009	204,493
PAC	0	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0	0	0
SUB-TOTAL, PS/Corporate Services	205,809	0	205,809	20,031	11,658	197,436	3	7,057	1,009	204,493
Program Support/NOAA Educ Prog										
ORF	46,114	0	46,114	29,586	125	16,653	0	4,000	10	20,653
PAC	0	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0	0	0
SUB-TOTAL, PS/NOAA Educa Prog	46,114	0	46,114	29,586	125	16,653	0	4,000	10	20,653
Program Support/Facilitie										
ORF	21,000	0	21,000	0	570	21,570	4	8,776	4	30,346
PAC	70,250	261,600	331,850	277,600	0	54,250	0	(54,250)	0	0
OTHER	0	0	0	0	0	0	0	0	0	0
SUB-TOTAL, PS/Facilities	91,250	261,600	352,850	277,600	570	75,820	4	(45,474)	4	30,346
Program Support/Corp Srv, Edu, Fac										
ORF	272,923	0	272,923	49,617	12,353	235,659	7	19,833	1,023	255,492
PAC	70,250	261,600	331,850	277,600	0	54,250	0	(54,250)	0	0
OTHER	0	0	0	0	0	0	0	0	0	0
TOTAL, PS/Corp Srv, Edu, Fac	343,173	261,600	604,773	327,217	12,353	289,909	7	(34,417)	1,023	255,492

LINE OFFICE SUMMARY
(\$ in Thousands)

FY 10 PROPOSED OPERATING PLAN	FY 2009 OMNIBUS	American Recovery & Reinvestment Act	FY 2009 ENACTED (Omnibus plus ARRA)	Terminations	ATB's	FY 2010 Base	FTE	FY 2010 Program Changes	FTE	FY 2010 Estimate
Program Support/OMAO										
ORF	178,055	20,000	198,055	37,535	1,449	161,969	16	2,199	1,025	164,168
PAC	11,500	78,000	89,500	78,000	0	11,500	0	(6,500)	5	5,000
OTHER	25,946	0	25,946	0	2,104	28,050	0	0	0	28,050
TOTAL, PS/OMAO	215,501	98,000	313,501	115,535	3,553	201,519	16	(4,301)	1,030	197,218
Total PS ORF	450,978	20,000	470,978	87,152	13,802	397,628	23	22,032	2,048	419,660
Total PS PAC	81,750	339,600	421,350	355,600	0	65,750	0	(60,750)	5	5,000
Total PS Other	25,946	0	25,946	0	2,104	28,050	0	0	0	28,050
TOTAL, PS	558,674	359,600	918,274	442,752	15,906	491,428	23	(38,718)	2,053	452,710
DIRECT OBLIGATIONS										
ORF	3,134,044	230,000	3,364,044	498,495	53,080	2,918,629	199	287,508	12,130	3,206,137
PAC	1,245,647	600,000	1,845,647	666,254	(1,000)	1,178,393	0	214,886	190	1,393,279
OTHER	161,915	0	161,915	45,000	(15,159)	99,760	0	(35,000)	21	64,760
TOTAL, DIRECT OBLIGATIONS	4,541,606	830,000	5,371,606	1,209,749	36,921	4,196,782	199	467,394	12,341	4,664,176
ORF Adjustments (Deobligations / Rescissions)	(6,000)	0	(6,000)	0	(5,000)	(11,000)	0	0	0	(11,000)
ORF Transfers	(82,495)	0	(82,495)	0	(25,105)	(107,600)	0	0	0	(107,600)
PAC Adjustments (Deobligations / Rescissions)	(2,000)	0	(2,000)	0	0	(2,000)	0	0	0	(2,000)
PAC Transfers	0	0	0	0	0	0	0	0	0	0
OTHER Discretionary Adjustment:	3,000	0	3,000	0	(547)	2,453	0	0	0	2,453
Mandatory Accounts Excludec	(80,241)	0	(80,241)	0	15,966	(62,279)	0	0	(20)	(62,279)
TOTAL, DISCRETIONARY APPROPRIATIONS	4,373,870	830,000	5,203,870	1,209,749	22,235	4,016,356	199	467,394	12,321	4,483,750

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2009 Enacted	12,509	11,909	3,276,044	3,358,044	3,530,693
less: Carryover	0	0	-	-	(166,649)
less: Terminations	0	0	(498,495)	(498,495)	(498,495)
plus: 2010 Other Adjustments to Base	0	22	22,480	48,080	53,080
FY 2010 Base	12,509	11,931	2,800,029	2,907,629	2,918,629
plus: 2010 Program Changes	263	199	287,508	287,508	287,508
FY 2010 Estimate	12,772	12,130	3,087,537	3,195,137	3,206,137

Comparison by activity/subactivity		FY 2008 Actuals		FY 2009 Enacted		FY 2010 Base Program		FY 2010 Estimate		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	1,261	467,462	1,285	536,967	1,285	440,323	1,293	462,671	8	22,348
	FTE/OBL	1,201	493,317	1,223	538,587	1,223	440,323	1,229	462,671	6	22,348
National Marine Fisheries Service	Pos/BA	2,847	952,633	2,796	924,005	2,796	699,993	3,002	890,642	206	190,649
	FTE/OBL	2,711	815,648	2,651	1,074,821	2,662	699,993	2,818	890,642	156	190,649
Office of Atmospheric Research	Pos/BA	656	387,554	772	396,734	772	372,184	784	394,205	12	22,021
	FTE/OBL	625	388,373	735	398,887	735	372,184	744	394,205	9	22,021
National Weather Service	Pos/BA	4,940	815,478	4,839	847,938	4,839	844,644	4,845	867,222	6	22,578
	FTE/OBL	4,705	808,401	4,608	858,927	4,608	844,644	4,613	867,222	5	22,578

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate			
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Environmental, Satellite, Data, and Information Service	Pos/BA	637	178,975	712	187,422	712	163,857	712	171,737	0	7,880
	FTE/OBL	607	179,132	678	188,201	678	163,857	678	171,737	0	7,880
Program Support	Pos/BA	997	244,303	1,067	272,923	1,067	235,659	1,076	255,492	9	19,833
	FTE/OBL	950	240,636	1,014	273,089	1,016	235,659	1,023	255,492	7	19,833
Office of Marine and Aviation Ops	Pos/BA	939	151,689	1,038	198,055	1,038	161,969	1,060	164,168	22	2,199
	FTE/OBL	894	152,726	1,000	198,181	1,009	161,969	1,025	164,168	16	2,199
Total	Pos/BA	12,277	3,198,094	12,509	3,364,044	12,509	2,918,629	12,772	3,206,137	263	287,508
	FTE/OBL	11,693	3,078,233	11,909	3,530,693	11,931	2,918,629	12,130	3,206,137	199	287,508

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	11,693	3,078,233	11,909	3,530,693	11,931	2,918,629	12,130	3,206,137	199	287,508
Total Obligations	11,693	3,078,233	11,909	3,530,693	11,931	2,918,629	12,130	3,206,137	199	287,508
Adjustments to Obligations:										
Recoveries	0	(7,970)	0	0	0	0	0	0	0	0
Cash Refunds/Prior Year Recoveries	0	(511)	0	0	0	0	0	0	0	0
Deobligations	0	0	0	(6,000)	0	(11,000)	0	(11,000)	0	0
Unobligated Balance Adj SOY	0	(48,636)	0	(166,649)	0	0	0	0	0	0
Unobligated balance, EOY	0	166,643	0	0	0	0	0	0	0	0
Unobligated balance, Expiring	0	221	0	0	0	0	0	0	0	0
Total Budget Authority	11,693	3,187,980	11,909	3,358,044	11,931	2,907,629	12,130	3,195,137	199	287,508
Financing from Transfers and Other:										
Transfer from P&D	0	(77,000)	0	(79,000)	0	(104,600)	0	(104,600)	0	0
Transfer from CZMF	0	(3,000)	0	(3,000)	0	(3,000)	0	(3,000)	0	0
Transfer from Pacific Salmon	0	(67)	0	0	0	0	0	0	0	0
Transfer to ORF from PAC - Hollings Scholarship	0	(979)	0	0	0	0	0	0	0	0
Transfer to FFPA	0	235	0	0	0	0	0	0	0	0
Transfer - CCSP (USDA Farm Bill)	0	(170,000)	0	0	0	0	0	0	0	0
Unobligated Balance, Rescission	0	5,108	0	0	0	0	0	0	0	0
Net Appropriation	11,693	2,942,277	11,909	3,276,044	11,931	2,800,029	12,130	3,087,537	199	287,508

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Department of Commerce
 National Oceanic and Atmospheric Administration
 NOAA Corps Retirement Pay (Mandatory)
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	24,272	24,272	24,272
plus: 2010 Other Adjustments to Base	0	0	1,844	1,844	1,844
FY 2010 Base	0	0	26,116	26,116	26,116
plus: 2010 Program Changes	0	0	0	0	0
FY 2010 Estimate	0	0	26,116	26,116	26,116

Comparison by activity/subactivity		FY 2008 Actuals		FY 2009 Enacted		FY 2010 Base Program		FY 2010 Estimate		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Corps Retirement Pay (Mandatory)	Pos/BA	0	23,119	0	24,272	0	26,116	0	26,116	0	0
	FTE/OBL	0	21,809	0	24,272	0	26,116	0	26,116	0	0
Total: Office of Marine and Aviation Ops	Pos/BA	0	23,119	0	24,272	0	26,116	0	26,116	0	0
	FTE/OBL	0	21,809	0	24,272	0	26,116	0	26,116	0	0
Total	Pos/BA	0	23,119	0	24,272	0	26,116	0	26,116	0	0
	FTE/OBL	0	21,809	0	24,272	0	26,116	0	26,116	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 NOAA Corps Retirement Pay (Mandatory)
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	0	21,809	0	24,272	0	26,116	0	26,116	0	0
Total Obligations	0	21,809	0	24,272	0	26,116	0	26,116	0	0
Adjustments to Obligations:										
Total Budget Authority	0	21,809	0	24,272	0	26,116	0	26,116	0	0
Financing from Transfers and Other:										
Net Appropriation	0	21,809	0	24,272	0	26,116	0	26,116	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
PROGRAM and PERFORMANCE: REIMBURSABLE OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2009 Enacted	706	706	0	242,000	364,767
less: obligations from prior year balances	0	0	0	00	(122,767)
FY 2010 Base	706	706	0	242,000	242,000
plus: 2010 Program Changes	0	0	0	0	0
FY 2010 Estimate	706	7060	0	242,000	242,000

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	75	20,579	75	20,579	75	20,579	75	20,579	0	0
	FTE/OBL	71	21,516	75	31,019	75	20,579	75	20,579	0	0
National Marine Fisheries Service	Pos/BA	281	81,024	281	81,024	281	81,024	281	81,024	0	0
	FTE/OBL	303	62,711	281	122,128	281	81,024	2,81	81,024	0	0
Office of Atmospheric Research	Pos/BA	82	35,622	82	35,622	82	35,622	82	35,622	0	0
	FTE/OBL	88	32,080	82	53,693	82	35,622	82	35,622	0	0
National Weather Service	Pos/BA	173	58,118	173	58,118	173	58,118	173	58,118	0	0
	FTE/OBL	165	62,966	173	87,601	173	58,118	173	58,118	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
PROGRAM and PERFORMANCE: REIMBURSABLE OBLIGATIONS
 (Dollar Amounts in Thousands)

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate			
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Environmental, Satellite, Data, and Information Service	Pos/BA	41	31,075	41	31,075	41	31,075	41	31,075	0	0
	FTE/OBL	45	26,822	41	46,839	41	31,075	41	31,075	0	0
Program Support	Pos/BA	54	15,582	54	15,582	54	15,582	54	15,582	0	0
	FTE/OBL	47	13,777	54	23,487	54	15,582	54	15,582	0	0
Total	Pos/BA	706	242,000	706	242,000	706	242,000	706	242,000	0	0
	FTE/OBL	719	219,872	706	364,767	706	242,000	706	242,000	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Reimbursable Obligations	719	219,872	706	364,767	706	242,000	706	242,000	0	0
Total Obligations	719	219,872	706	364,767	706	242,000	706	242,000	0	0
Adjustments to Obligations:										
Federal Funds	0	(152,174)	0	(56,000)	0	(56,000)	0	(56,000)	0	0
Non-Federal Sources	0	(77,553)	0	(186,000)	0	(186,000)	0	(186,000)	0	0
Unobligated balance, SOY Reimbursable	0	(112,912)	0	(122,767)	0	0	0	0	0	0
Unobligated balance, EOY Reimbursable	0	122,767	0	0	0	0	0	0	0	0
Unobligated balance, Expiring	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	719	0	706	0	706	0	706	0	0	0
Financing from Transfers and Other:										
Net Appropriation	719	0	706	0	706	0	706	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
SUMMARY OF FINANCING
(Dollar Amounts in Thousands)

	FY 2008	FY 2009	FY 2010	FY 2010	Increase/(Decrease)
	Actuals	Enacted	Base Program	Estimate	over FY 2009 Base
Direct Discretionary Obligation	3,078,233	3,530,693	2,918,629	3,206,137	287,508
Direct Mandatory Obligation	21,809	24,272	26,112	26,112	0
Reimbursable Obligation	219,872	242,000	242,000	242,000	0
Total Obligations	3,319,914	3,796,965	3,186,741	3,474,249	287,508
Adjustments and Obligations:					
Federal funds	(152,174)	(56,000)	(56,000)	(56,000)	0
Non-Federal Sources	(77,553)	(186,000)	(186,000)	(186,000)	0
Cash Refund	(511)	0	0	0	0
Recoveries	(7,970)	0	0	0	0
Enacted Rescissions	0	0	0	0	0
Deobligations	0	(6,000)	(11,000)	(11,000)	0
Other Appropriations Realized	0	0	0	0	0
Unobligated Balance deferred	0	0	0	0	0
Unobligated Balance not apportioned	0	0	0	0	0
Unobligated Balance unavailable	0	0	0	0	0
Unobligated balance, adj. SOY	(48,636)	(166,643)	0	0	0
Unobligated balance, EOY	166,643	0	0	0	0
Unobligated balance, SOY Reimbursable	(112,912)	0	0	0	0
Unobligated balance, EOY Reimbursable	122,988	0	0	0	0
Unobligated balance, Expiring	0	0	0	0	0
Total Budget Authority	3,209,789	3,382,322	2,933,741	3,221,249	287,508

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
SUMMARY OF FINANCING
(Dollar Amounts in Thousands)

	FY 2008	FY 2009	FY 2010	FY 2010	Increase/(Decrease)
	Actuals	Enacted	Base Program	Estimate	over FY 2009 Base
Financing from Transfers and Other:					
Transfer from P&D	(77,000)	(79,000)	(104,600)	(104,600)	0
Transfer from CZMF	(3,000)	(3,000)	(3,000)	(3,000)	0
Transfer from USDA	0	0	0	0	0
Transfer to other accounts	0	0	0	0	0
Transfer to FFPA	235	(495)	0	0	0
Transfer to/from Dept of Interior	0	0	0	0	0
NOAA Corps Retirement Pay (Mandatory)	(21,809)	(24,272)	(26,112)	(26,112)	0
Transfer from Pacific Salmon	(67)	0	0	0	0
Transfer to PAC	0	0	0	0	0
Transfer from PAC	(979)	(6)	0	0	0
Transfer - CCSP (USDA Farm Bill)	(170,000)	0	0	0	0
Net Appropriation	2,937,169	3,275,549	2,800,029	3,087,537	287,508

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
ADJUSTMENTS TO BASE
(Dollar Amounts in Thousands)

	FTE	Amount
Adjustments:		
Unrequested Projects	0	(498,495)
Restoration of FY 2009 deobligations	0	6,000
Subtotal, Adjustments	0	(492,495)
Financing:		
Deobligations	0	(11,000)
Subtotal, Financing	0	(11,000)
Transfers:		
Transfer to NWS ORF from NWS PAC for NCWCP.	0	1,000
Subtotal, Transfers	0	1,000
Other Changes:		
Annualization of Jan., 2009 Pay Raise		11,535
2010 Pay raise		18,332
Pay raise to Working Capital Fund		294
Full year costs of positions financed in part-year in FY 2009	22	2,016
Change in Compensable Days		0
OMAO Wage Marine overtime on NOAA ships		89
Within-grade step increases		0
OAR, NMFS and NESDIS Pay Banding		0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
ADJUSTMENTS TO BASE
(Dollar Amounts in Thousands)

	FTE	Amount
Civil Service Retirement System (CSRS)		(1,894)
Federal Employees Retirement System (FERS)		3,183
Thrift Savings Plan		541
Federal Insurance Contribution Act (FICA) - OASDI		1,612
Health insurance premiums		1,139
Employee Compensation Fund		(219)
Per diem		2,584
Mileage		647
Rental payments to GSA		1,828
Printing and reproduction		68
NARA Storage & maintenance costs		(9)
Other services:		
Working Capital Fund		3,012
GSA Steam		200
PEPCO Electricity		303
Payment to WCF for Utilities		(571)
Postage		57
Commerce Business System		177
Other Services		7,362
Transportation of Things		134
Rental payments to others		163
Comm., Util., and misc.		689
Supplies and Materials		649

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
ADJUSTMENTS TO BASE
(Dollar Amounts in Thousands)

	FTE	Amount
Equipment		397
Grants		587
Fuel Cost - OMAO		(825)
Subtotal, Other Changes	22	54,080
Less: Absorption	0	(2,000)
Subtotal Changes	22	52,080
Total, Changes to Base	22	(450,415)

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
 (Dollar Amounts in Thousands)

	FTE	Amount
<u>Adjustments:</u>		
Less Unrequested Projects	0	(498,495,000)
Restoration of FY 2009 deobligations	0	6,000,000
Subtotal Adjustments	0	(492,495,000)
 <u>Financing:</u>		
In 2009, NOAA expects to realize recoveries of prior year obligations of \$11,000,000. This amount will be used to offset the budget authority in 2010.	0	(11,000,000)
Subtotal Financing	0	(11,000,000)
 <u>Transfers:</u>		
Technical Adjustment-Transfer to NWS ORF from NWS PAC to provide necessary resources for the operations of NOAA Center for Weather and Climate Prediction (NCWCP).	0	1,000,000
Subtotal Transfers	0	1,000,000
 <u>Pay Raises</u>		
Full-year cost of 2009 pay increase and related costs:		
The 2010 President's budget assumes a pay raise of 3.9% to be effective January 1, 2009.		
Total cost is 2009 pay raise		37,265,586

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
 (Dollar Amounts in Thousands)

		FTE	Amount
Less amount funded in 2009	(25,731,000)		
Adjustment for FY 2010 of 2009 pay increase	11,534,586		
2010 pay increase and related costs:			
A general pay raise of 2.0% is assumed to be effective January 1, 2010.			
Total cost in 2010 of pay increase	24,442,000		
Less amount not funded in 2010	(6,110,000)		
Total cost of January 2010 pay increase	18,332,000		
Payment to Working Capital Fund	294,000		
Total, adjustment for 2010 pay increase	18,626,000		
<u>Full-year cost in 2010 of positions financed for part-year in 2009</u>		22	2,015,843
An increase of \$2,015,843 is required to fund the full-year cost in 2010 of positions financed for part-year in 2009. The computation follows:			
Annual salary of new positions in 2010		110	7,491,838

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
(Dollar Amounts in Thousands)

			FTE	Amount
Less 5 percent lapse	(6)	(374,593)		
Full-year cost of personnel compensation	104	7,117,245		
Less personnel compensation included in the 2009 budget				
	(82)	(5,565,208)		
Cost of personnel compensation in 2009	22	1,552,037		
Adjustment for 2009 pay raise (.02 x .75 x 1,552,037)		23,281		
Add'l amount required for personnel compensation	22	1,575,318		
Benefits		440,525		
Total adjustments-to-base	22	2,015,843		
 <u>OMAO Wage Marine overtime on NOAA ships</u>			0	89,000
An increase of \$89,000 is required to cover the cost of overtime for OMAO's Wage Mariners in 2010.				
Total cost in 2010 of Wage Marine overtime		119,000		
Less amount not funded in 2010		(30,000)		
Total cost of January 2010 pay increase		89,000		

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
 (Dollar Amounts in Thousands)

	FTE	Amount
<u>Civil Service Retirement System (CSRS)</u>	0	(1,894,275)
<p>The number of employees covered by the Civil Service Retirement System (CSRS) continues to drop as positions become vacant and are filled by employees who are covered by Federal Employees Retirement System (FERS). The estimated percentage covered by CSRS will drop from 22.6% in 2009 to 19.8% in 2010 for regular employees and increase from 4.2% in 2009 to 0.0% in 2010 for law enforcement employees. Contribution rates will remain the same.</p>		
<p>Regular:</p>		
2010 \$951,178,000 x .198 x .07	13,183,327	
2009 \$951,178,000 x .226 x .07	15,047,636	
Subtotal	(1,864,309)	
<p>Law Enforcement:</p>		
2010 \$9,513,000 x .000 x .075	0	
2009 \$9,513,000 x .042 x .075	29,966	
Subtotal	(29,966)	
 Total adjustment to base		

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
(Dollar Amounts in Thousands)

(1,894,275)

	FTE	Amount
<u>Federal Employees Retirement System (FERS)</u>	0	3,183,000

The number of employees covered by the FERS continues to rise as employees covered by CSRS leave and are replaced by employees covered by FERS. The estimated percentage of payroll for regular employees covered by FERS will rise from 77.4% in 2009 to 80.2% in 2010 for regular. The estimated percentage of payroll for law enforcement employees covered by FERS will increase from 95.8% in 2009 to 100.0% in 2010. The contribution rates will remain the same.

Regular:

2010 \$951,178,000 x .802 x .112	85,438,613	
2009 \$951,178,000 x .774 x .112	82,455,718	
Subtotal	2,982,895	

Law Enforcement:

2010 \$9,513,000 x 1.00 x .249	2,368,737	
2009 \$9,513,000 x .958 x .238	2,169,002	
Subtotal	199,735	

Total adjustment to base		3,182,630
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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
(Dollar Amounts in Thousands)

Thrift Savings Plan

The cost of agency contributions to the Thrift Savings Plan will also rise as FERS participation increases. The contribution rate is expected to remain at 2%.

FTE	Amount
0	541,000

Regular:

2010 \$951,178,000 x .802 x .02	15,256,895
2009 \$951,178,000 x .748 x .02	14,724,235
Subtotal	532,660

Law Enforcement:

2010 \$9,513,000 x .958 x .02	190,260
2009 \$9,513,000 x .774 x .02	182,269
Subtotal	7,991

Total adjustment to base	540,651
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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
(Dollar Amounts in Thousands)

	FTE	Amount
<u>Federal Insurance Contribution Act (FICA)</u>	0	1,612,000
 As the percentage of payroll covered by FERS rises, the cost of OASDI contributions will increase. In addition, the maximum salary subject to OASDI tax will rise from \$106,425 in 2009 to \$110,400 in 2010. The OASDI tax rate will remain 6.2% in 2010.		
 Regular:		
2010 \$951,178,000 x .802 x .968 x .062		45,792,350
2009 \$951,178,000 x .774 x .971 x .062		44,321,421
Subtotal		1,470,929
 Other		
2010 \$76,410,000 x .802 x .968 x .062		3,678,590
2009 \$76,401,000 x .774 x .971 x .062		3,560,427
Subtotal		118,163
 Law Enforcement:		
2010 \$9,513,000 x 1.00 x .968 x .062		571,050
2008 \$9,513,000 x .958 x .971 x .062		548,648
Subtotal		22,402

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
 (Dollar Amounts in Thousands)

	1,611,494	FTE	Amount
Total adjustment to base			
<u>Health insurance premiums</u>		0	1,139,000
<p>Effective January 2010, NOAA's contribution to Federal employees' health insurance premiums increased by 1.7%. Applied against the 2009 estimate of \$66,983,000, the additional amount required is \$1,138,711.</p>			
<u>Employees Compensation Fund</u>		0	(219,000)
<p>Effective January 2008, NOAA's contribution to Federal employees' compensation fund will decrease by \$219,000.</p>			
<u>Mileage rate increase</u>		0	647,000
<p>Effective March 2008, the General Services Administration raised the mileage rate from 48.5 cents to 50.5 cents per mile, a 4.1% rate increase. This percentage was applied to the 2009 estimate of \$3,140,000 to arrive at an increase of \$646,840.</p>			
<u>Per diem increase</u>		0	2,584,200
<p>Effective October 1, 2007, the General Services Administration raised per diem rates. This increase resulted in a 5.2% increase to this bureau. This percentage was applied to the 2009 estimate of \$49,846,000 to arrive at an increase of \$2,584,200.</p>			

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
(Dollar Amounts in Thousands)

	FTE	Amount
<p><u>Rental payments to GSA</u></p> <p>GSA rates are projected to increase 2.50% in 2010. This percentage was applied to the 2009 estimate of \$73,100,000 to arrive at an increase of \$1,827,500.</p>	0	1,828,000
<p><u>Postage</u></p> <p>Effective May 12, 2008, postage rates increases for first-class mail is projected to increase from 41 cents to 42 cents. The percentage increase of 2.4% will be applied to the 2009 estimate of \$2,368,000 to arrive at an increase of \$56,832.</p>	0	57,000
<p><u>GPO Printing</u></p> <p>GPO has provided an estimated rate of 0.8%. This percentage was applied to the 2009 estimate of \$8,460,000 to arrive at an increase of \$67,980.</p>	0	68,000
<p><u>NARA Storage & maintenance costs</u></p> <p>The estimated cost of NARA storage and maintenance for 2010 is projected to decrease by \$9,400.</p>	0	(9,400)
<p><u>Working Capital Fund</u></p> <p>An increase of \$2,944,000 is required for the Working Capital Fund.</p>		2,944,000

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research and Facilities
JUSTIFICATION OF CHANGES TO BASE
 (Dollar Amounts in Thousands)

	FTE	Amount
<u>CBS</u>	0	177,000
An increase of \$177,000 is required for the Commerce Business System.		
<u>General Pricing Level Adjustment</u>	0	9,394,324
This request applies OMB economic assumptions for FY 2010 to object classes where the prices the government pays are established through the market system. Factors are applied to transportation of things (\$133,576); rental payment payments to others (\$163,480); communications, utilities and miscellaneous charges (excluding postage) (\$688,776); other contractual services (\$7,362,408); supplies and materials (\$649,084) and equipment (\$396,560).		
<u>Grants</u>	0	587,400
Grants are projected to increase 3.1% in 2010. This percentage was applied to the 2009 estimate of \$18,947,000 to arrive at an increase of \$587,357.		
<u>Fuel costs - OMAO</u>	0	(825,097)
An decrease of \$825,097 is required by OMAO to adjust the base for fuel prices for NOAA ships (-\$359,372)and aircraft (-\$465,025) operations.		
Subtotal, Other Changes	22	54,079,581
Less: Absorption	0	(2,000,000)
Total Adjustments to Base	22	(450,415,419)

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities (Discretionary)
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

Object Class	FY 2008 Actuals	FY 2009 Currently Available	FY 2010 Base	FY 2010 Estimate	Increase / (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	940,011	965,475	1,002,306	1,015,795	13,489
11.3 Other than full-time permanent	8,472	8,887	8,887	9,067	180
11.5 Other personnel compensation	58,949	66,024	65,824	65,826	2
11.6 Leave Surcharge	199	180	180	2,958	2,778
11.7 Military personnel	25,665	29,542	30,199	30,199	0
11.8 Special personnel services payments	36	0	0	133	133
11.9 Total Personnel Compensation	1,033,332	1,070,108	1,107,396	1,123,978	16,582
12.1 Civilian personnel benefits	279,486	291,570	296,473	302,645	6,172
13 Benefits for former personnel	19,367	20,591	20,515	20,515	0
21 Travel and transportation of persons	49,415	52,986	56,017	59,365	3,348
22 Transportation of things	13,543	16,697	16,831	18,587	1,756
23.1 Rental payments to GSA	63,816	73,100	73,747	73,927	180
23.2 Rental payments to others	15,947	20,435	20,598	20,598	0
23.3 Communications, utilities and miscellaneous charges	67,010	101,011	96,057	101,575	5,518
24 Printing and reproduction	4,427	8,460	9,445	9,735	290
25.1 Advisory and assistance services	154,137	166,054	127,554	173,407	45,853
25.2 Other services	395,972	629,821	534,258	599,452	65,194
25.3 Purchases of goods and services from Govt accounts	122,196	121,562	129,558	131,750	2,192

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities (Discretionary)
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

Object Class	FY 2008 Actuals	FY 2009 Currently Available	FY 2010 Base	FY 2010 Estimate	Increase / (Decrease)
25.4 Operation and maintenance of facilities	945	0	0	0	0
25.5 Research and development contracts	6,599	15,198	19,597	22,453	2,856
26 Supplies and materials	104,925	101,060	95,887	107,385	11,498
31 Equipment	28,481	49,570	49,570	56,487	6,917
32 Lands and structures	3,259	7,900	8,633	8,633	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	736,873	808,600	282,363	401,515	119,152
42 Insurance claims and indemnities	104	115	115	115	0
43 Interest and dividends	207	127	127	127	0
44 Refunds	0	0	0	0	0
99 Total Obligations	3,100,041	3,554,965	2,944,741	3,232,249	287,508
Unobligated Balance Lapse					
Cash Refund	(511)				
Prior Year Recoveries	(7,970)	(6,000)	(11,000)	(11,000)	0
Unobligated Balance, Start of Year	(48,636)				
Unobligated Balance, End of Year	166,643	(166,649)			
Unobligated Balance, Expiring	221				0
Subtotal Budget Authority	3,209,788	3,382,316	2,933,741	3,221,249	287,508

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities (Discretionary)
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Object Class	FY 2008 Actuals	FY 2009 Currently Available	FY 2010 Base	FY 2010 Estimate	Increase / (Decrease)
Less: NOAA Corps	(21,808)	(24,272)	(26,112)	(26,112)	0
Total Discretionary ORF Budget Authority	3,187,980	3,358,044	2,907,629	3,195,137	287,508
Positions	12,306	12,509	12,509	12,772	263
FTE	11,720	11,909	11,931	12,130	199

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
11 Personnel compensation				
11.1 Full-time permanent				
Executive level	20	324	324	0
Senior Executive Service	620	18,905	18,905	0
General schedule	30,420	956,774	969,493	12,719
Commissioned officers	0	659	1,429	770
Wage board/wage marine	89	15,671	15,671	0
Scientific & professional (P.L. 80-313)		0	0	0
Law Enforcement	460	9,973	9,973	0
Students		0	0	0
Subtotal	31,609	1,002,306	1,015,795	13,489
11.3 Other than full-time permanent				
General schedule		7,391	7,391	0
Wage board/wage marine		1,496	1,496	0
Experts & consultants		0	180	180
Hourly		0	0	0
Subtotal	0	8,887	9,067	180
11.5 Other personnel compensation				
Overtime		24,203	24,205	2

Department of Commerce
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Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

	Cash awards		22,465	22,465	0
	Other		19,156	19,156	0
	Subtotal		<u>0</u>	<u>65,824</u>	<u>2</u>
11.6	Leave Surcharge				
	Full-Time Permanent		180	2,958	2,778
	Other		0	0	0
	Subtotal		<u>0</u>	<u>180</u>	<u>2,958</u>
11.7	Military Personnel				
	Military Personnel	657	21,373	21,373	0
	Other	0	8,826	8,826	0
	Subtotal	<u>657</u>	<u>30,199</u>	<u>30,199</u>	<u>0</u>
11.8	Special personnel services payments				
	Foreign service officers (State)		0	0	
	Other		0	133	133
	Subtotal		<u>0</u>	<u>133</u>	<u>133</u>
11.9	Total personnel compensation		<u>32,266</u>	<u>1,107,396</u>	<u>1,123,978</u>
12.1	Civilian personnel benefits				
	Civil service retirement	(1,894)	18,496	18,496	0

Department of Commerce
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Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

	Federal Employee Retirement	3,183	78,619	80,131	1,512
	Medicare		14,883	14,897	14
	Thrift savings plan	541	37,649	39,417	1,768
	Federal insurance contribution act	1,611	45,568	47,539	1,971
	Health insurance	1,139	67,817	68,567	750
	Life insurance		1,609	1,663	54
	Overseas allowance (COLA)		13,523	13,523	0
	Employees comp fund (bec)	(219)	5,126	5,126	0
	Other		13,183	13,286	103
	Subtotal	4,361	296,473	302,645	6,172
13.0	Benefits for former personnel				
	Retired Pay	0	20,241	20,241	0
	Health benefits		0	0	0
	Other		274	274	0
	Subtotal	0	20,515	20,515	0
21	Travel and transportation of persons				
	Aircraft rental		222	222	0
	GSA vehicles		542	542	0
	Program travel	3,231	55,253	58,601	3,348
	Subtotal	3,231	56,017	59,365	3,348

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Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

22	Transportation of things				
	Trans of household goods	134	4,793	6,523	1,730
	GSA trucks		5,811	5,811	0
	Other		6,227	6,253	26
	Subtotal	134	16,831	18,587	1,756
23.1	Rental payments to GSA	647	73,747	73,927	180
23.2	Rental payments to others	163	20,598	20,598	0
23.3	Communications, utilities and miscellaneous charges				
	Utility services	689	36,680	36,686	6
	Aircraft charter		572	3,772	3,200
	Vessel charter	0	8,070	10,175	2,105
	Rental of office copying equipment		1,427	1,427	0
	Rental of ADP equipment		3,693	3,693	0
	Federal telecommunications system	0	12,546	12,549	3
	Other telecommunications services	0	30,644	30,848	204
	Postal services by USPS	57	2,425	2,425	0
	Other		0	0	0
	Subtotal	746	96,057	101,575	5,518
24	Printing and reproduction				

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(Dollar Amounts in Thousands)

	Publications	985	8,129	8,412	283
	Public use forms		0	0	0
	Other		1,316	1,323	7
	Subtotal	985	9,445	9,735	290
25.1	Consulting services	0	127,554	173,407	45,853
25.2	Other services				
	Aircraft repair	0	4,409	4,409	0
	Vessel repair	0	28,190	28,190	0
	Contracts for research	0	1,214	8,316	7,102
	Maintenance of equipment	0	15,173	15,173	0
	Other	2,251	475,173	533,265	58,092
	Training	0	10,099	10,099	0
	Subtotal	2,251	534,258	599,452	65,194
25.3	Other purchases of goods & services from Gov't accounts				
	Purchases of goods & services from Gov't accounts	1,928	72,891	75,083	2,192
	Office of Personnel Management Training	0	15,558	15,558	0
	GSA reimbursable services		0	0	0
	Payments to DM, WCF	6,368	41,109	41,109	0
	Subtotal	8,296	129,558	131,750	2,192

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(Dollar Amounts in Thousands)

25.4	Operation and maintenance of facilities				
	Operation of GOCOs		0	0	0
	Subtotal		0	0	0
25.5	Research and development contracts		0	19,597	22,453
26	Supplies and materials				
	Chart paper		1	1	0
	Met. upper air	8	11,836	11,836	0
	Maintenance of vessel	5	2,526	2,526	0
	Gases	2	1,529	1,529	0
	Fuel	(824)	14,995	16,995	2,000
	ADP supplies	0	15,141	16,781	1,640
	Other	0	49,859	57,717	7,858
	Subtotal		0	95,887	107,385
31	Equipment				
	Office machines and equipment	0	3	573	570
	ADP hardware	0	382	2,710	2,328
	Other capitalized	0	8,107	9,233	1,126
	Depreciation on capitalized equipment		0	0	0
	Non-capitalized	0	40,862	43,755	2,893
	Capital Lease	0	216	216	0

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DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	Subtotal	0	49,570	56,487	6,917
32	Lands and structures				
	Land		400	400	0
	Building and Other Structures		8,233	8,233	0
	Depreciation of Building		0	0	0
	Subtotal lands and structures	0	8,633	8,633	0
33	Investments and loans		0	0	0
41	Grants, subsidies and contributions	0	282,363	401,515	119,152
42	Insurance claims and indemnities		115	115	0
43	Interest/dividends..		127	127	0
44	Refunds		0	0	0
99	Total Direct Obligations	53,080	2,944,741	3,232,249	287,508
	Unobligated Balance Lapse				
	Cash Refund				
	Prior Year Recoveries		(11,000)	(11,000)	
	Unobligated Balance, Start of Year				

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Unobligated Balance, End of Year				
Unobligated Balance, Expiring				
	<hr/>			
Total ORF Budget Authority	53,080	2,933,741	3,221,249	287,508
Less NOAA Corps	(1,840)	(26,112)	(26,112)	0
Total Discretionary ORF Budget Authority	51,240	2,907,629	3,195,137	287,508
Personnel Data				
Full-Time Equivalent Employment:				
Full-time permanent	22	11,931	12,130	199
Other than full-time permanent				
Total	22	11,931	12,130	199
Authorized Positions:				
Full-time permanent	0	12,509	12,772	263
Other than full-time permanent				
Total	0	12,509	12,772	263

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

Appropriation Language and Code Citations

1. For necessary expenses of activities authorized by law for the National Oceanic and Atmospheric Administration,

5 USC 5348	15 USC 1511 b-e	16 USC 1801 et seq.	33 USC 2801 et seq.	PL 111-11, Sec 12502
5 USC 4703	15 USC 1514	16 USC 3645	33 USC 3001 et seq.	
7 USC 1622	15 USC 1517	16 USC 4101 et seq.	33 USC 3044 et seq.	
10 USC 1072	15 USC 1537-40	16 USC 4701 et seq.	42 USC 8902-05	
10 USC 1111-1115	16 USC 661 et seq.	16 USC 5001 et seq.	42 USC 9601 et seq.	
10 USC 2311	16 USC 757a et seq.	31 USC 1105	43 USC 1347e	
	16 USC 1361	33 USC 706 et seq.	44 USC 1307	
15 USC 313	16 USC 1431 et seq.	33 USC 883 a-i et seq.	49 USC 44720	
15 USC 313a	16 USC 1444	33 USC 891 et seq.	97 Stat. 1409	
15 USC 313b	16 USC 1447a et seq.	33 USC 1121-1131	PL 111-11, Sec 12002	
15 USC 313nt	16 USC 1451 et seq.	33 USC 1251	PL 111-11, Sec 12102	
15 USC 325	16 USC 1456a	33 USC 1321	PL 111-11, Sec 12202	
15 USC 330b	16 USC 1464	33 USC 1441-44	PL 111-11, Sec 12304	
15 USC 330e	16 USC 1531 et seq.	33 USC 2706	PL 111-11, Sec 12404	

Organizations and Employees

5 USC 5348 - Crews of Vessels.

“...the pay of officers and members of crews of vessels excepted from chapter 51 of this title by section 5102(c)(8) of this title shall be fixed and adjusted from time to time as nearly as is consistent with the public interest in accordance with prevailing rates and practices in the maritime industry.”

5 USC 4703- Demonstration Projects

“...the Office of Personnel Management may, directly or through agreement or contract with one or more agencies and other public and private organizations, conduct and evaluate demonstration projects.”

Agriculture7 USC 1622 - Distribution and Marketing of Agricultural Products

“The Secretary ... is directed and authorized: ...

- (a) to determine the needs and develop or assist in the development of plans for the proper assembly, processing, transportation, storage, distribution, and handling of agricultural (fish) products.
- (f) to conduct and cooperate in consumer education for the more effective utilization and greater consumption of agricultural products (fish)...
- (g) to collect and disseminate marketing information... for the purpose of ... bringing about a balance between production and utilization of agricultural (fish) products.
- (h) to inspect, certify, and identify the class, quality, quantity and condition of agricultural (fish) products ...
- (m) to conduct ... research ... to determine the most efficient ... processes for the handling, storing, preserving, protecting...of agricultural (fish) commodities ...”

(h) - Duties of Secretary relating to agricultural products; penalties

“Whoever knowingly shall falsely make, issue, alter, forge, or counterfeit any official certificate, memorandum, or other identification, with respect to inspection, class, grade, quality, size, quantity, or condition, issued or authorized under this section or knowingly cause or procure, or aid, assist in, or be a party to, such false making, issuing, altering, forging, or counterfeiting, or whoever knowingly shall possess, without promptly notifying the Secretary (of Commerce) or his representative, utter, published, or used as true, any such falsely made, altered forged, or counterfeited official certificate, memorandum, mark, identification, or device, or whoever knowingly represents that an agricultural product has been officially inspected or graded...when in fact such commodity has not been so graded or inspected shall be fined not more than \$1,000 or imprisoned not more than one year, or both.”

Armed Forces**10 USC 1072 Medical and Dental Care**

“...The term “uniformed services” means the armed forces and the Commissioned Corps of the National Oceanic and Atmospheric Administration and of the Public Health Service.”

10 USC 1111-1115 Determinations of Contributions to the Fund

PL 108-375, Sec. 725 Revised funding methodology for military retiree health care benefits states: “At the beginning of each fiscal year after September 30, 2005, the Secretary of the Treasury shall promptly pay into the Fund from the General Fund of the Treasury--(1) the amount certified to the Secretary by the Secretary of Defense under subsection (c), which shall be the contribution to the Fund for that fiscal year required by section 1115; and (2) the amount determined by each administering Secretary under section 1111(c) as the contribution to the Fund on behalf of the members of the uniformed services under the jurisdiction of that Secretary.”

10 USC 2311 Assignment and Delegation of Procurement Functions and Responsibilities

(a) In General.--Except to the extent expressly prohibited by another provision of law, the head of an agency may delegate, subject to his direction, to any other officer or official of that agency, any power under this chapter.

(b) Procurements For or With Other Agencies.--Subject to subsection (a), to facilitate the procurement of property and services covered by this chapter by each agency named in section 2303 of this title for any other agency, and to facilitate joint procurement by those agencies--

(1) the head of an agency may delegate functions and assign responsibilities relating to procurement to any officer or employee within such agency;

(2) the heads of two or more agencies may by agreement delegate procurement functions and assign procurement responsibilities from one agency to another of those agencies or to an officer or civilian employee of another of those agencies; and

(3) the heads of two or more agencies may create joint or combined offices to exercise procurement functions and responsibilities.

Banks and Banking**12 USC 1715m - Mortgage Insurance for Servicemen [NOAA Corps].**

This section authorizes payment of Federal Housing Administration (FHA) home mortgage insurance premiums to NOAA Corps Officers.

Commerce and Trade

15 USC 313 - Duties of Secretary of Commerce [National Weather Service].

“The Secretary of Commerce...shall have charge of the forecasting of weather,...issue of storm warnings,...weather and flood signals,... gauging and reporting of rivers,...collection and transmission of marine intelligence.....reporting of temperature and rainfall conditions..., the display of frost and cold-wave signals, the distribution of meteorological information..., and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties.”

15 USC 313a - Establishment of Meteorological Observation Stations in the Arctic Region.

“... The Secretary of Commerce shall ... take such actions as may be necessary in the development of an international basic meteorological reporting network in the Arctic region of the Western Hemisphere...”

15 USC 313b - Institute for Aviation Weather Prediction

“The Administrator of the National Oceanic and Atmospheric Administration shall establish an Institute for Aviation Weather Prediction. The Institute shall provide forecasts, weather warnings, and other weather services to the United States aviation community...”

15 USC 313 note - Weather Service Modernization Act

“(a) As part of the budget justification documents submitted to Congress in support of the annual budget request for the department of Commerce, the Secretary shall include a National Implementation Plan for modernization of the National Weather Service for each fiscal year following fiscal year 1993 until such modernization is complete. The Plan shall set forth the actions, during the 2-year period beginning with the fiscal year for which the budget request is made, that will be necessary to accomplish the objectives described in the Strategic Plan.

15 USC 325 - Spending Authority for the National Weather Service

“...Appropriations now or hereafter provided for the National Weather Service shall be available for: (a) furnishing food and shelter...to employees of the Government assigned to Arctic stations; (b) equipment and maintenance of meteorological offices and stations, and maintenance and operation of meteorological facilities outside the United States... (c) repairing, altering, and improving of buildings occupied by the National Weather Service, and care and preservation of grounds...(d) arranging for communication services... and (e) purchasing tabulating cards and continuous form tabulating paper .

15 USC 330b - Duties of Secretary relating to Weather Modification Activities or Attempts - Reporting Requirement.

- (a) “The Secretary shall maintain a record of weather modification activities, including attempts, which take place in the United States and shall publish summaries thereof from time to time as he determines.”
- (b) “All reports, documents, and other information received by the Secretary under the provisions of this chapter shall be made available to the public to the fullest practicable extent.”

15 USC 330e - Authorization of Appropriations relating to Weather Modification Activities or Attempts - Reporting Requirement.

This section provides funding authority to support the reporting requirements specified in this chapter.

15 USC 1511b - United States Fishery Trade Officers

“For purposes of carrying out export promotion and other fishery development responsibilities, the Secretary of Commerce...shall appoint not fewer than six officers who shall serve abroad to promote United States fishing interests. These officers shall be knowledgeable about the United States fishing industry, preferably with experience derived from the harvesting, processing, or marketing sectors of the industry or from the administration of fisheries programs. Such officers, who shall be employees of the Department of Commerce, shall have the designation of fishery trade officers.”

15 USC 1511c - NOAA Estuarine Programs Office.

“... The Estuarine Programs Office shall develop, coordinate, and implement the estuarine activities of the administration with the activities of other Federal and State agencies. There are authorized to be appropriated to the Administration not to exceed \$560,000 for fiscal year 1989, and \$600,000 for fiscal year 1990.”

15 USC 1511d - Chesapeake Bay Office

The Secretary of Commerce shall establish, within the National Oceanic and Atmospheric Administration, an office to be known as the Chesapeake Bay Office...which shall provide technical assistance on processes impacting the Chesapeake Bay system, its restoration and habitat protection; develop a strategy to meet the commitments of the Chesapeake Bay Agreement; and coordinate programs and activities impacting the Chesapeake Bay, including research and grants.

15 USC 1511e - Office of Space Commercialization

“There is established with the Department of Commerce an Office of Space Commercialization” which shall “promote commercial provider investment in space activities...assist United States commercial providers in [their efforts to] conduct business with the United States Government, [act] as an industry advocate within the executive branch..., ensure that the United States Government does not compete with United States commercial providers..., [promote] the export of space-related goods and services, [represent] the Department of Commerce in the development of United States policies...and [seek] the removal of legal, policy, and institutional impediments to space commerce.”

15 USC 1514 - Basic Authority for Performance of Certain Functions and Activities of Department.

“Appropriations are authorized for the following activities of the Department of Commerce:

- (a) furnishing to employees...and their dependents, in Alaska and other points outside the continental United States, free emergency medical services...and supplies;
- (b) purchasing, transporting, storing, and distributing food and other subsistence supplies for resale to employees...and their dependents, in Alaska and other points outside the continental United States at a reasonable value...; the proceeds from such resales to be credited to the appropriation from which the expenditure was made;
- (c) ...establishment, maintenance, and operation of messing facilities, by contract or otherwise, in Alaska and other points outside the continental United States..., such service to be furnished to employees...and their dependents,...
- (d) reimbursement...of officers or employees in or under the Department...for food, clothing, medicines, and other supplies furnished by them in emergencies for the temporary relief of dislocated persons in remote localities;
- (e) providing motion-picture equipment and film for recreation of crews of vessels..., for recreation for employees in remote localities..., and for training purposes;
- (f) erecting, altering, repairing, equipping, furnishing, and maintaining...such living and working quarters and facilities as may be necessary to carry out its authorized work at remote localities not on foreign soil where such living and working accommodations are not otherwise available.”

15 USC 1517 - Transfer of Statistical or Scientific Work.

“The President is authorized, by order in writing, to transfer at any time the whole or any part of any office, bureau, division, or other branch of the public service engaged in statistical or scientific work, from the Department of State, the Department of the Treasury, the Department of Defense, the Department of Justice, the United States Postal Service, or the Department of the Interior, to the Department of Commerce; and in every such case the duties and authority performed by and conferred by law upon such office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall be thereby transferred with such office, bureau, division, or other branch of the public service, or the part thereof which is so transferred. All power and authority conferred by law, both supervisory and appellate, upon the department from which such transfer is made, or the Secretary thereof, in relation to the said office, bureau, division, or other branch of the public service, or the part thereof so

transferred, shall immediately, when such transfer is so ordered by the President, be fully conferred upon and vested in the Department of Commerce, or the Secretary thereof, as the case may be, as to the whole or part of such office, bureau, division, or other branch of the public service so transferred.”

15 USC 1537 - 1539 Needs Assessment for Data Management.

“Not later than 12 months after October 29, 1992, and at least biennially thereafter, the Secretary of Commerce shall complete an assessment of the adequacy of the environmental data and information systems of NOAA.”

15 USC 1540 – Cooperative Agreements

“The Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, may enter into cooperative agreements and other financial agreements with any nonprofit organization to (1) aid and promote scientific and educational activities to foster public understanding of the National Oceanic and Atmospheric Administration or its programs; and (2) solicit private donations for the support of such activities.”

Conservation

16 USC 661 et seq.- Declaration of Purpose; Cooperation of Agencies; Surveys and Investigations; Donations.

“...the Secretary of the Interior is authorized (1) to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat, in controlling losses of the same from disease or other causes, in minimizing damages from overabundant species, in providing public shooting and fishing areas, including easements across public lands for access thereto, and in carrying out other measures necessary to effectuate the purposes of said sections; (2) to make surveys and investigations of the wildlife of the public domain, including lands and waters or interests therein acquired or controlled by any agency of the United States; and (3) to accept donations of land and contributions of funds in furtherance of the purposes of said sections.”

16 USC 757a et seq.- Anadromous, Great Lakes, and Lake Champlain Fisheries

The Act authorizes cooperative agreements with States “that are concerned with the development, conservation, and enhancement of [anadromous] fish” (section 757a(a)). Section 757d authorizes \$4,250,000 for each of fiscal years 1998, 1999, and 2000.

16 USC 1361 - Congressional Findings.

“The Congress finds that - (1) certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man's activities;”

“The Secretary is authorized to make grants, or to provide financial assistance in such other form as he deems appropriate, to any Federal or State agency, public or private institution, or other person for the purpose of assisting such agency, institution, or person to undertake research in subjects which are relevant to the protection and conservation of marine mammals, and shall provide financial assistance for, research into new methods of locating and catching yellow-fin tuna without the incidental taking of marine mammals.”

16 USC 1431 et seq. - Findings, Purposes, and Policies [The National Marine Sanctuaries Act, as amended].

(b) Purposes and Policies

“The purposes and policies of this title are -

- (1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance;
- (2) to provide authority for ... conservation and management of these marine areas ...
- (3) to support, promote, and coordinate scientific research on, and monitoring of, the resources of these marine areas...
- (4) to enhance public awareness, understanding, appreciation, and wise use of the marine environment;
- (5) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;
- (6) to develop and implement coordinated plans for the protection and management of these areas...;
- (7) to create models of, and incentives for, ways to conserve and manage these areas...”

- (8) to cooperate with global programs ...; and
- (9) to maintain, restore, and enhance living resources ...”

16 USC 1444 - Authorization of Appropriations.

“There are authorized to be appropriated to the Secretary” –

(1) to carry out this chapter

- (A) \$32,000,000 for fiscal year 2001;
- (B) \$34,000,000 for fiscal year 2002;
- (C) \$36,000,000 for fiscal year 2003;
- (D) \$38,000,000 for fiscal year 2004;
- (E) \$40,000,000 for fiscal year 2005; and

(2) for construction projects at national marine sanctuaries, \$6,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005”.

16 USC 1447a et seq. - Regional Marine Research Programs

Authorizes NOAA/EPA and Governors of certain states to appoint members to a number of regional marine research boards. Each board is to develop a comprehensive four year marine research plan and “the Administrator of the National Oceanic and Atmospheric Administration shall administer a grant program to support the administrative functions of each Board.”

Authorization for the Boards expires on October 1, 1999. The authorization for appropriations expired at the end of fiscal year 1996.

16 USC 1451 et seq. - Findings, Purposes, and Policies [Coastal Zone Management Act]

Establishes a voluntary partnership between the Federal Government and coastal States. It also establishes the National Estuarine Reserve Research program, in which the Secretary of Commerce may designate an estuarine area as a national estuarine research reserve in consultation with governor of affected state.

16 USC 1456a – Coastal Zone Management Fund

“(b) (1) The Secretary shall establish and maintain a fund, to be known as the ‘Coastal Zone Management Fund’, which shall consist of amounts retained and deposited into the Fund under subsection (a) of this section and fees deposited into the Fund under section 1456 (i) (3) of this title”

16 USC 1464 - Authorization of Appropriations.

“(a) There are authorized to be appropriated to the Secretary- (1) for grants under sections 1445, 1455A, and 1456b - (A) \$47,600,000 for fiscal year 1997; (B) \$49,000,000 for fiscal year 1998; and (C) \$50,500,000 for fiscal year 1999; (2) for grants under section 1461 \$4,400,00 for fiscal 1997; (B) \$4,500,000 for fiscal year 1998; and (C) \$4,600,000 for fiscal year 1999.

16 USC 1531 et seq. – Congressional Findings and Declaration of Purposes and Policy

The purposes of the Act are “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in [the statute]” (section 1531(b)).

16 USC 1801 et seq. - Magnuson-Stevens Fishery Conservation and Management Act.

The primary purpose of the Act is “to take immediate action to conserve and manage the fishery resources found off the coasts of the United States (section 1801(b)(1)).

16 USC 3645 - Pacific Coastal Salmon Recovery

“(A) For salmon habitat restoration, salmon stock enhancement, and salmon research, including the construction of salmon research and related facilities, there is authorized to be appropriated for each of fiscal years 2000, 2001, 2002, and 2003, \$90,000,000 to the States of Alaska, Washington, Oregon, and California. Amounts appropriated pursuant to this subparagraph shall be made available as direct payments. The State of Alaska may allocate a portion of any funds it receives under this subsection to eligible activities outside Alaska.”

Amended in PL108-447 (FY 2005 Omnibus Appropriations Act) as follows: *Provided*, That section 628(2)(A) of the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 2001 (16 U.S.C. 3645) is amended—

- (1) by striking “2000, 2001, 2002, and 2003” and inserting “2005”, and
- (2) by inserting “Idaho,” after “Oregon,”.

16 USC 4101 et seq. – Interjurisdictional Fisheries

“The purposes of this chapter are - (1) to promote and encourage State activities in support of the management of interjurisdictional fishery resources, and (2) to promote and encourage management of interjurisdictional fishery resources through their range” (section 4101). Section 4107(a) authorizes \$4,400,000 for each of fiscal years 1998, 1999, and 2000.

16 USC 4701 et seq. - Aquatic Nuisance Prevention and Control

Establishes an interagency Aquatic Nuisance species Task Force, of which the Administrator of NOAA is a co-chair. The task force’s responsibilities include developing and implementing “a program for waters of the United States to prevent introduction and dispersal of aquatic nuisance species; to monitor, control and study such species; and to disseminate related information.”

16 USC 5001 et seq. - Purpose of Convention

“It is the purpose ... to implement the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, signed in Moscow, February 11, 1992.”

Money and Finance

31 USC 1105 - Budget Contents and Submission to Congress

(a) On or after the first Monday in January but not later than the first Monday in February of each year, the President shall submit a budget of the United States Government for the following fiscal year. Each budget shall include a budget message and summary and supporting information.

Amended in PL108-447 (FY 2005 Omnibus Appropriations Act) as follows: “*Provided further*, That beginning in fiscal year 2006 and for each fiscal year thereafter, the Secretary of Commerce shall include in the budget justification materials that the Secretary submits to Congress in support of the Department of Commerce budget (as submitted with the budget of the President under section 1105(a) of title 31, 10 United States Code) an estimate for each National Oceanic and Atmospheric Administration procurement, acquisition and construction program having a total multiyear program cost of more than \$5,000,000 and simultaneously the budget justification materials shall include an estimate of the budgetary requirements for each such program for each of the 5 subsequent fiscal years.”

Navigation and Navigable Waters

33 USC 706 et seq. - Department of Commerce; Current Precipitation Information; Appropriation.

“There is authorized an expenditure as required,...., for the establishment, operation, and maintenance by the Secretary of Commerce of a network of recording and non-recording precipitation stations, known as the Hydroclimatic Network, whenever...such service is advisable...”

33 USC 883a et seq. - Surveys and Other Activities.

“...the Secretary...is authorized to conduct the following activities:

- (1) Hydrographic and topographic surveys;
- (2) Tide and current observations;
- (3) Geodetic-control surveys;
- (4) Field surveys for aeronautical charts;
- (5) Geomagnetic, seismological, gravity, and related geophysical measurements and investigations, and observations ...”

33 USC 883b - Dissemination of Data; Further Activities.

“...the Secretary is authorized to conduct the following activities:

- (1) Analysis and prediction of tide and current data;
- (2) Processing and publication of data...;
- (3) Compilation and printing of nautical charts...;
- (4) Distribution of nautical charts...”

33 USC 883c - Geomagnetic Data; Collection; Correlation, and Dissemination.

“To provide for the orderly collection of geomagnetic data...the Secretary ... is authorized to collect, correlate, and disseminate such data.”

33 USC 883d - Improvement of Methods, Instruments, and Equipments; Investigations and Research.

“...the Secretary ... is authorized to conduct developmental work for the improvement of surveying and cartographic methods, instruments, and equipments; and to conduct investigations and research in geophysical sciences...”

33 USC 883e - Cooperative Agreements for Surveys and Investigations; Contribution of Costs Incurred by National Oceanic and Atmospheric Administration.

“(1) The Secretary of Commerce is authorized to enter into cooperative agreements with, and to receive and expand funds made available by... for surveys or investigations... or for performing related surveying and mapping activities... and for the preparation and publication of the results thereof.”

“(2) The Secretary of Commerce is authorized to establish the terms of any cooperative agreement entered into ... including the amount of funds to be received ... which the Secretary determines represents the amount of benefits derived ... from the cooperative agreement.”

33 USC 883f - Contracts with Qualified Organizations.

“The Secretary is authorized to contract with qualified organizations for the performance of any part of the authorized functions of the National Ocean Survey...”

33 USC 883h - Employment of Public Vessels.

“The President is authorized to cause to be employed such of the public vessels as he deems it expedient to employ, and to give such instructions for regulating their conduct as he deems proper in order to carry out the provisions of this subchapter.”

33 USC 883i - Authorization of Appropriations.

“There are hereby authorized to be appropriated such funds as may be necessary to acquire, construct, maintain, and operate ships, stations, equipment, and facilities and for such other expenditures, including personal services at the seat of government and elsewhere and including the erection of temporary observatory buildings and lease of sites therefore as may be necessary...”

33 USC 891 et seq. - Fleet Replacement and Modernization Program

“The Secretary is authorized to implement... a 15-year program to replace and modernize the NOAA fleet.”

33 USC 1121-1124, 1126-1129, 1131 - National Sea Grant College Program Act.

The Sea Grant Act authorizes the awarding of grants and contracts to initiate and support programs at Sea Grant colleges and other institutions for research, education, and advisory services in any field related to the conservation and development of marine resources.

In 2008, PL 110-394 (National Sea Grant College Program Amendments Act of 2008) amended 33 USC 1124 as follows –

(1) by striking “204(c)(4)(F).” in subsection (a) and inserting “204(c)(4)(F) or that are appropriated under section 208(b).”; and (2) by striking the matter following paragraph (3) in subsection (b) and inserting the following -

“The total amount that may be provided for grants under this subsection during any fiscal year shall not exceed an amount equal to 5 percent of the total funds appropriated for such year under section 212.”.

PL 110-394 amended 33 USC 1127 as follows –

(1) by striking “Not later than 1 year after the date of the enactment of the National Sea Grant College Program Act Amendments of 2002, and every 2 years thereafter,” in subsection (a) and inserting “Every 2 years,”; and (2) by adding at the end the following:

“(c) Restriction on Use of Funds.--Amounts available for fellowships under this section, including amounts accepted under section 204(c)(4)(F) or appropriated under section 212 to implement this section, shall be used only for award of such fellowships and administrative costs of implementing this section.”

PL 110-394 amended 33 USC 1131 as follows –

(1) by striking subsection (a)(1) and inserting the following: “(1) In general.--There are authorized to be appropriated to the Secretary to carry out this title—

“(A) \$72,000,000 for fiscal year 2009;

“(B) \$75,600,000 for fiscal year 2010;

“(C) \$79,380,000 for fiscal year 2011;

“(D) \$83,350,000 for fiscal year 2012;

“(E) \$87,520,000 for fiscal year 2013; and

“(F) \$91,900,000 for fiscal year 2014.”.

(2) in subsection (a)(2)—

(A) by striking “fiscal years 2003 through 2008—“ and inserting “fiscal years 2009 through 2014—“;

(B) by striking “biology and control of zebra mussels and other important aquatic” in subparagraph (A) and inserting “biology, prevention, and control of aquatic”; and (C) by striking “blooms, including *Pfiesteria piscicida*; and” in subparagraph (C) and inserting “blooms; and”;

(3) in subsection (c)(1) by striking “rating under section 204(d)(3)(A)” and inserting “performance assessments”; and

(4) by striking subsection (c)(2) and inserting the following: “(2) regional or national strategic investments authorized under section 204(b)(4);”.

33 USC 1251- Water Pollution Prevention and Control

Through the National Shellfish Indicator Program, authorizes the Secretary of Commerce, in cooperation with the Secretary of Health and Human Services and the Administrator of EPA, to establish and administer a 5-year national shellfish research program for the purpose of improving existing classification systems for shellfish growing waters using the latest technological advancements in microbiology and epidemiological methods.

33 USC 1321 - Oil and Hazardous Substances [Clean Water Act]

Authorizes the recovery of damages to natural resources in the event of an oil spill in waters of the United States. This authority has been delegated to several Federal agencies, including the Department, pursuant to an Executive Order.

33 USC 1441 - Monitoring and Research Program [Marine Protection, Research and Sanctuaries Act]

Authorizes the Secretary of Commerce, in coordination with other agencies, to initiate a comprehensive and continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters.

33 USC 1442 - Research Program Respecting Possible Long-range Effects of Pollution, Overfishing, and Man-induced Changes of Ocean Ecosystems

Authorizes the Secretary of Commerce, in consultation with other agencies, to . . . “initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems.”

33 USC 1443 - Regional Management Plans for Waste Disposal in Coastal Areas.

Authorizes the Secretary of Commerce to assist the Environmental Protection Agency in assessing “the feasibility in coastal areas of regional management plans for the disposal of waste materials.”

33 USC 1444 - Annual Report

Requires the Secretary of Commerce to provide Congress with an annual report on the Department’s activities to monitor ocean dumping and research the long-range effects of pollution on ocean ecosystems.

33 USC 2706 - Natural Resources [NOAA Oil and Hazardous Substance Spill Cost Reimbursement].

“...the National Oceanic and Atmospheric Administration acts as trustee of said marine environment and/or resources, shall be deposited in the Damage Assessment and Restoration Revolving Fund ... for purposes of obligation and expenditure in fiscal year 1991 and thereafter, sums available in the Damage Assessment and Restoration Revolving Fund may be transferred, upon the approval of the Secretary ..., to the Operations, Research, and Facilities appropriation of the National Oceanic and Atmospheric Administration.”

33 USC 2801 et seq. - National Coastal Monitoring Act.

“The purposes of this chapter are to -

- (1) establish a comprehensive national program for consistent monitoring of the Nation's coastal ecosystems;
- (2) establish long-term water quality assessment and monitoring programs for high priority coastal waters that will enhance the ability of Federal, State, and local authorities to develop and implement effective remedial programs for those waters;
- (3) establish a system for reviewing and evaluating the scientific, analytical, and technological means that are available for monitoring the environmental quality of coastal ecosystems;
- (4) establish methods for identifying uniform indicators of coastal ecosystem quality;
- (5) provide for periodic, comprehensive reports to Congress concerning the quality of the Nation's coastal ecosystems;
- (6) establish a coastal environment information program to distribute coastal monitoring information;
- (7) provide state programs authorized under the Coastal Zone Management Act of 1972 (16 U.S.C. 1451 et seq.) with information necessary to design land use plans and coastal zone regulations that will contribute to the protection of coastal ecosystems; and
- (8) provide certain water pollution control programs authorized under the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) with information necessary to design and implement effective coastal water pollution controls.”

33 USC 3001 et seq.- NOAA Corps Officers

PL 108-219 states: “All action in the line of duty by, and all Federal agency actions in relation to (including with respect to pay, benefits, and retirement) a de facto officer of the commissioned corps of the National Oceanic and Atmospheric Administration who was appointed or promoted to that office without Presidential action, and without the advice and consent of the Senate, during such time as the officer was not properly appointed in or promoted to that office, are hereby ratified and approved if otherwise in accord with the law, and the President alone may, without regard to any other law relating to appointments or promotions in such corps, appoint or promote such a de facto officer temporarily, without change in the grade currently occupied in a de facto capacity, as an officer in such corps for a period ending not later than 180 days from the date of enactment of this Act.”

33 USC 3044 et seq. -Retirement for Length of Service

PL 107-372 states: “An officer who has completed 20 years of service, of which at least 10 years was service as a commissioned officer, may at any time thereafter, upon application by such officer and in the discretion of the President, be placed on the retired list.

33 USC 3045 - Computation of Retired Pay

PL 107-372 states: “(a) Officers first becoming members before September 8, 1980: Each officer on the retired list who first became a member of a uniformed service before September 8, 1980, shall receive retired pay at the rate determined by multiplying (1) the retired pay base determined under section 1406(g) of title 10; by (2) 2 1/2 percent of the number of years of service that may be credited to the officer under section 1405 of such title as if the officer's service were service as a member of the Armed Forces. The retired pay so computed may not exceed 75 percent of the retired pay base. (b) Officers first becoming members on or after September 8, 1980. Each officer on the retired list who first became a member of a uniformed service on or after September 8, 1980, shall receive retired pay at the rate determined by multiplying (1) the retired pay base determined under section 1407 of title 10; by (2) the retired pay multiplier determined under section 1409 of such title for the number of years of service that may be credited to the officer under section 1405 of such title as if the officer's service were service as a member of the Armed Forces. (c) Treatment of full and fractional parts of months in computing years of service (1) In general, in computing the number of years of service of an officer for the purposes of subsection (a) of this section - (A) each full month of service that is in addition to the number of full years of service creditable to the officer shall be credited as 1/12 of a year; and (B) any remaining fractional part of a month shall be disregarded. (2) Rounding Retired pay computed under this section, if not a multiple of \$1, shall be rounded to the next lower multiple of \$1.”

33 USC 3046 - Retired Grade and Retired Pay

PL 107-372 states: “Each officer retired pursuant to law shall be placed on the retired list with the highest grade satisfactorily held by that officer while on active duty including active duty pursuant to recall, under permanent or temporary appointment, and shall receive retired pay based on such highest grade, if - (1) the officer's performance of duty in such highest grade has been satisfactory, as determined by the Secretary of the department or departments under whose jurisdiction the officer served; and (2) unless retired for disability, the officer's length of service in such highest grade is no less than that required by the Secretary of officers retiring under permanent appointment in that grade.

The Public Health and Welfare42 USC 8902-8905 - Acid Precipitation Program

Authorized the Administrator of NOAA to serve as co-chair of a task force to prepare a comprehensive research plan for a program to study the causes and effects of acid precipitation. Also authorizes the Administrator of NOAA to serve as the director of a related research program.

42 USC 9601 et seq. (CERCLA)

Through associated regulations and delegations, authorizes the Administrator to provide technical assistance to the Administrator, EPA, for hazardous waste response under CERCLA and the National Contingency Plan and authorizes the Administrator to act as a natural resource trustee with authority to bring a cause of action for damages resulting from an injury to, destruction of or loss of resources under NOAA's jurisdiction.

Public Lands43 USC 1347e - Safety and Health Regulations

Authorizes the Secretary of Commerce in cooperation with other Federal entities, to conduct studies of underwater diving techniques and equipment “suitable for protection of human safety and improvement of diver performance....”

Public Printing and Documents44 USC 1307 - Sale and Distribution of NOAA Nautical and Aeronautical Products.

“All nautical and aeronautical products created or published ... shall be sold at ... prices ... the Secretary of Commerce shall establish annually ... so as to recover all costs attributable to data base management, compilation, printing, and distribution of such products.”

Transportation49 USC 44720 - Meteorological services

The Administrator of the Federal Aviation Administration shall make recommendations to the Secretary of Commerce on providing meteorological services necessary for the safe and efficient movement of aircraft in air commerce. In providing the services, the Secretary shall cooperate with the Administrator and give complete consideration to those recommendations.

“To promote safety and efficiency in air navigation to the highest possible degree, the Secretary shall -(1)observe, measure, investigate, and study atmospheric phenomena, and maintain meteorological stations and offices...(2) provide reports to the Administrator (3)cooperate with persons engaged in air commerce in meteorological services...(4)maintain and coordinate international exchanges of meteorological information... (5) participate in developing an international basic meteorological reporting network...(6)coordinate meteorological requirements in the United States to maintain standard observations...;(7)promote and develop meteorological science....

Interjurisdictional Fisheries Act97 Stat. 1409

This Act authorizes NMFS fisheries programs not otherwise authorized by law, including research to reduce entanglement of marine mammals in fishing gear, development of habitat restoration techniques, restoration of Chesapeake Bay, and conservation of Antarctic living marine resources.

Omnibus Public Land Management Act of 2009PL 111-11, Sec 12002

Establishes a national ocean exploration program within the National Oceanic and Atmospheric Administration (NOAA) that promotes collaboration with other federal ocean and undersea research and exploration programs. Requires convening an ocean exploration and undersea research technology and infrastructure task force. Establishes the Ocean Exploration Advisory Board. Authorizes appropriations.:

PL 111-11, Sec 12102

NOAA Undersea Research Program Act of 2009 - Establishes a NOAA undersea research program for the purpose of increasing scientific knowledge essential for the informed management, use, and preservation of oceanic, marine, and coastal areas and the Great Lakes. Requires specified research, exploration, education, and technology programs to be conducted through a network of extramural network regional undersea research centers and the National Institute for Undersea Science and Technology. Authorizes appropriations.

PL 111-11, Sec 12202

Ocean and Coastal Mapping Integration Act - Directs the President to establish a coordinated federal program to develop an ocean and coastal mapping plan for the Great Lakes and coastal state waters, the territorial sea, the exclusive economic zone, and the continental shelf of the United States that enhances ecosystem approaches in decision-making for conservation and management of marine resources and habitats, establishes research and mapping priorities, supports the siting of research and other platforms, and advances ocean and coastal science. Requires a plan for an integrated ocean and coastal mapping initiative within NOAA. Authorizes appropriations.

PL 111-11, Sec 12304

Integrated Coastal and Ocean Observation System Act of 2009 - Directs the President to establish a National Integrated Coastal and Ocean Observation System that is designed to address regional and national needs for **ocean** information, to gather specific data on key coastal, ocean, and Great Lakes variables, and to ensure timely and sustained dissemination and availability of such data. Requires an advisory committee. Authorizes appropriations.

PL 111-11, Sec 12404

Federal Ocean Acidification Research And Monitoring Act of 2009 or the FOARAM Act - Directs the Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council to: (1) coordinate federal activities on ocean acidification and establish an

interagency working group; and (2) develop a strategic plan for federal research and monitoring on ocean acidification. Requires specified ocean acidification programs in NOAA, the National Science Foundation (NSF), and the National Aeronautics and Space Administration (NASA). Authorizes appropriations.

PL 111-11, Sec 12502

Coastal and Estuarine Land Conservation Program Act - (Sec. 12502) Amends the Coastal Zone Management Act of 1972 to authorize the Secretary of Commerce to conduct a Coastal and Estuarine Land Conservation Program to protect important coastal and estuarine areas. Requires related property acquisition grants to coastal states with approved coastal zone management plans or National Estuarine Research Reserve units. Authorizes appropriations.

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DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
CONSULTING AND RELATED SERVICES
(Obligations in thousands)

	2008 <u>Actuals</u>	2009 <u>Estimate</u>	2010 <u>Estimate</u>
Management and Professional Support Services	59,286	60,472	61,681
Studies, Analysis and Evaluations	23,988	24,468	24,957
Engineering and Technical Services	<u>67,992</u>	<u>69,352</u>	<u>70,739</u>
Total	151,266	154,292	157,377

Consulting Services are those services of a pure nature relating to the governmental functions of agency administration and management and agency problem management. These services are normally provided by persons or organizations generally considered to have knowledge and special abilities that are not usually available within the agency. Such services can be obtained through personnel appointments, procurement contracts, or advisory committees.

Management and professional services deal with management data collection, policy review or development, program development, review or evaluation, systems engineering and other management support services. Special studies and analyses deal with the highly specialized areas of agency activity, e.g., air quality, chemical, environmental, geophysical, oceanographic, technological, and etc. Management and support services for research and development are procurement actions that meet the description of management and professional services or special studies and analyses but are funded under research and development.

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DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
PERIODICAL, PAMPHLETS, AND AUDIOVISUAL PRODUCTS
(Obligations in thousands)

	2008 <u>Actuals</u>	2009 <u>Estimate</u>	2010 <u>Estimate</u>
Periodicals	959	978	998
Pamphlets	691	705	719
Audiovisuals	<u>327</u>	<u>334</u>	<u>341</u>
Total	1,977	2,017	2,058

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DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
AVERAGE GRADE AND SALARY

	2008	2009	2010
	<u>Actuals</u>	<u>Estimate</u>	<u>Estimate</u>
Average executive and SES level pay plans	\$161,119	\$167,403	\$170,751
Average GS/GM grade	12	12	12
Average GS/GM salary	\$83,212	\$86,457	\$88,186
Average Pay Band salary	\$86,466	\$89,838	\$91,635
Average Commissioned Officers salary	\$100,020	\$103,921	\$106,935
Average salary for other positions (FWS/Wage Mariner)	\$48,178	\$50,057	\$51,058

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition and Construction
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	200	190	1,843,647	1,875,009
less: Carryover	0	0	-	(23,362)
less: Terminations	0	0	(666,254)	(666,254)
plus: 2010 Other Adjustments to Base	0	0	(1,000)	(1,000)
FY 2010 Base	200	190	1,176,393	1,178,393
plus: 2010 Program Changes	0	0	214,886	214,886
FY 2010 Estimate	200	190	1,391,279	1,393,279

Comparison by activity/subactivity		FY 2008 Actuals		FY 2009 Enacted		FY 2010 Base Program		FY 2010 Estimate		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	26	56,540	1	46,188	1	24,385	1	24,385	0	0
	FTE/OBL	25	54,465	1	56,040	1	24,385	1	24,385	0	0
National Marine Fisheries Service	Pos/BA	0	2,019	0	4,600	0	0	0	0	0	0
	FTE/OBL	0	5,204	0	10,330	0	0	0	0	0	0
Office of Atmospheric Research	Pos/BA	0	10,121	0	181,579	0	10,379	0	10,379	0	0
	FTE/OBL	0	10,121	0	181,580	0	10,379	0	10,379	0	0
National Weather Service	Pos/BA	28	112,001	32	127,351	32	97,291	32	96,658	0	(633)
	FTE/OBL	27	106,110	31	133,614	31	97,291	31	96,658	0	(633)

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition and Construction
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/Decrease	
		Actuals		Enacted		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Environmental, Satellite, Data, and Information Service	Pos/BA	177	775,147	162	1,064,579	162	980,588	162	1,256,857	0	276,269
	FTE/OBL	169	776,708	153	1,066,600	153	980,588	153	1,256,857	0	276,269
Program Support	Pos/BA	6	23,140	0	331,850	0	54,250	0	0	0	(54,250)
	FTE/OBL	6	25,123	0	332,028	0	54,250	0	0	0	(54,250)
Office of Marine and Aviation Ops	Pos/BA	9	5,254	5	89,500	5	11,500	5	5,000	0	(6,500)
	FTE/OBL	8	16,838	5	94,817	5	11,500	5	5,000	0	(6,500)
Less Deobligations	Pos/BA	0	0	0	(2,000)	0	(2,000)	0	(2,000)	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total	Pos/BA	246	984,222	200	1,843,647	200	1,176,393	200	1,391,279	0	214,886
	FTE/OBL	235	994,569	190	1,875,009	190	1,178,393	190	1,393,279	0	214,886

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
SUMMARY OF RESOURCE REQUIREMENTS

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	235	994,569	190	1,875,009	190	1,178,393	190	1,393,279	0	214,886
Total Obligations	235	994,569	190	1,875,009	190	1,178,393	190	1,393,279	0	214,886
Adjustments to Obligations:										
Cash Refunds/PY Recoveries	0	(1,692)	0	0	0	0	0	0	0	0
Recoveries	0	(6,854)	0	0	0	0	0	0	0	0
Deobligations	0	0	0	(2,000)	0	(2,000)	0	(2,000)	0	0
Unobligated Balance Expired	0	160	0	0	0	0	0	0	0	0
Unobligated Balance Adj. SOY	0	(37,587)	0	(29,362)	0	0	0	0	0	0
Unobligated Balance Rescission Adj BA	0	6,264	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	29,368	0	0	0	0	0	0	0	0
Total Budget Authority	235	984,228	190	1,843,647	190	1,176,393	190	1,391,279	0	214,886
Financing from Transfers and Other:										
Transfer to ORF - Hollings Scholarship	0	0	0	0	0	0	0	0	0	0
Unobligated Balance Rescission Adj Approp	0	0	0	0	0	0	0	0	0	0
Transfer to ORF	0	0	0	0	0	0	0	0	0	0
Transfer from ORF to PAC	0	0	0	0	0	0	0	0	0	0
Tranfer from PAC to ORF	0	979	0	0	0	0	0	0	0	0
Net Appropriation	235	985,207	190	1,843,647	190	1,176,393	190	1,391,279	0	214,886

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Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
SUMMARY OF FINANCING
(Dollar Amounts in Thousands)

	FY 2008	FY 2009	FY 2010	FY 2010	Increase/(Decrease)
	Actuals	Enacted	Base Program	Estimate	over FY 2010 Base
Direct Discretionary Obligation	994,569	1,875,009	1,178,393	1,393,279	214,886
Total Obligations	994,569	1,875,009	1,178,393	1,393,279	214,886
Adjustments and Obligations:					
Cash Refund	(1,692)	0	0	0	0
Recoveries	(6,854)	0	0	0	0
Deobligations	0	(2,000)	(2,000)	(2,000)	0
Unobligated balance, adj. SOY	(37,587)	(29,362)	0	0	0
Unobligated balance, EOY	29,368	0	0	0	0
Unobligated balance, expiring	160	0	0	0	0
Unobligated Balance, rescission	6,264	0	0	0	0
Total Budget Authority	984,228	1,843,647	1,176,393	1,391,279	214,886
Financing from Transfers and Other:					
Transfer to ORF	979	0	0	0	0
Transfer from GSA	0	0	0	0	0
Transfer from ORF	0	0	0	0	0
Unobligated Balance, Rescission	0	0	0	0	0
Net Appropriation	985,207	1,843,647	1,176,393	1,391,279	214,886

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition and Construction
ADJUSTMENTS TO BASE
 (Dollar Amounts in Thousands)

	FTE	Amount
Adjustments:		
Unrequested Projects	0	(666,254)
Restoration of FY 2009 adjustments to support level in 2009	0	2,000
Subtotal, Adjustments	0	(664,254)
Financing:		
Deobligations		(2,000)
Subtotal, Financing		(2,000)
Transfer:		
Transfer from NWS PAC to NWS ORF for NCWCP.		(1,000)
		(1,000)
Other Changes:		
Subtotal, Other Changes	0	0
Less Absorption	0	0
Total Adjustments to Base	0	(667,254)

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition and Construction
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
<u>Adjustments:</u>		
Less Unrequested Projects	0	(666,254,000)
Restoration of FY 2009 Deobligations	0	2,000,000
Subtotal Adjustments	0	(664,254,000)
 <u>Financing:</u>		
In FY 2009, NOAA expects to realize recoveries of prior year obligations of \$2,000,000. This amount will be used to offset the budget authority in 2010.	0	(2,000,000)
	0	(2,000,000)
 <u>Transfer:</u>		
Technical Adjustment-Transfer from NWS PAC to NWS ORF to provide necessary resources for the operations of NOAA Center for Weather and Climate Prediction (NCWCP).		(1,000,000)
 <u>Other Changes:</u>		
	0	0
Subtotal, Other Changes	0	0
Absorption	0	0
	0	0
Total Adjustments to Base	0	(667,254,000)

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Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS

Object Class	FY 2008 Actuals	FY 2009 Currently Available	FY 2010 Base	FY 2010 Estimate	Increase / (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	27,411	19,546	19,002	19,002	0
11.3 Other than full-time permanent	178	2	2	2	0
11.5 Other personnel compensation	789	255	255	255	0
11.6 Leave Surcharge	0	2,155	2,155	2,155	0
11.7 Military personnel	100	0	0	0	0
11.8 Special personnel services payments	0	75	75	75	0
11.9 Total Personnel Compensation	28,478	22,033	21,489	21,489	0
12.1 Civilian personnel benefits	8,054	7,084	6,925	6,925	0
13 Benefits for former personnel	1	0	0	0	0
21 Travel and transportation of persons	3,398	3,578	3,377	3,281	(96)
22 Transportation of things	315	330	315	315	0
23.1 Rental payments to GSA	9,628	11,956	6,956	6,956	0
23.2 Rental payments to others	1,292	4,159	1,909	1,909	0
23.3 Communications, utilities and miscellaneous charges	9,783	15,587	5,716	5,716	0
24 Printing and reproduction	73	141	141	141	0
25.1 Advisory and assistance services	55,207	134,781	111,336	51,952	(59,384)
25.2 Other services	121,506	182,724	110,286	128,744	18,458

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS

Object Class	FY 2008 Actuals	FY 2009 Currently Available	FY 2010 Base	FY 2010 Estimate	Increase / (Decrease)
25.3 Purchases of goods and services from Govt accounts	643,904	878,795	764,510	1,038,654	274,144
25.4 Operation and maintenance of facilities	25	0	0	0	0
25.5 Research and development contracts	26,496	30,214	30,214	30,214	0
26 Supplies and materials	8,044	17,679	14,244	12,808	(1,436)
31 Equipment	14,830	210,938	45,528	38,728	(6,800)
32 Lands and structures	7,043	295,503	20,003	20,003	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	56,397	59,491	25,428	25,428	0
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	95	16	16	16	0
44 Refunds	0	0	0	0	0
99 Total Obligations	994,569	1,875,009	1,168,392	1,393,278	224,886
Cash Refund	0	0	0	0	0
Prior Year Recoveries	(8,546)	0	0	0	0
Deobligations	0	(2,000)	(2,000)	(2,000)	0
Unobligated Balance, expiring	160	0	0	0	0
Unobligated Balance, Start of Year	(37,587)	(29,362)	0	0	0
Unobligated Balance, End of Year	29,368	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS

	FY 2008 Actuals	FY 2009 Currently Available	FY 2010 Base	FY 2010 Estimate	Increase / (Decrease)
Unobligated Balance Rescission Adj BA	6,264				
Subtotal Budget Authority	984,228	1,843,647	1,166,392	1,391,278	224,886
Total Discretionary PAC Budget Authority	984,228	1,843,647	1,166,392	1,391,278	224,886
Positions	246	200	200	200	0
FTE	235	190	190	190	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
11 Personnel compensation				
11.1 Full-time permanent	0	501	501	0
Executive level	0	0	0	0
Senior Executive Service	0	0	0	0
General schedule	0	18,306	18,306	0
Commissioned officers	0	195	195	0
Wage board/wage marine	0	0	0	0
Scientific & professional (P.L. 80-313)	0	0	0	0
Law Enforcement	0	0	0	0
Students	0	0	0	0
Subtotal	0	19,002	19,002	0
11.3 Other than full-time permanent	0	0	0	0
General schedule	0	2	2	0
Wage board/wage marine	0	0	0	0
Experts & consultants	0	0	0	0
Hourly	0	0	0	0
Subtotal	0	2	2	0
11.5 Other personnel compensation				
Overtime	0	10	10	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
Cash awards	0	243	243	0
Other	0	2	2	0
Subtotal	0	255	255	0
11.6 Leave Surcharge				
Full-Time Permanent	0	2,061	2,061	0
Other	0	94	94	0
Subtotal	0	2,155	2,155	0
11.7 Military Personnel				
Military Personnel	0	0	0	0
Other	0	0	0	0
Subtotal	0	0	0	0
11.8 Special personnel services payments				
Foreign service officers (State)	0	0	0	0
Other	0	75	75	0
Subtotal	0	75	75	0
11.9 Total personnel compensation	0	21,489	21,489	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
12.1 Civilian personnel benefits	0	3,773	3,773	0
Civil service retirement	0	676	676	0
Federal Employee Retirement	0	7	7	0
Medicare	0	18	18	0
Thrift savings plan	0	25	25	0
Federal insurance contribution act	0	701	701	0
Health insurance	0	584	584	0
Life insurance	0	598	598	0
Overseas allowance (COLA)	0	0	0	0
Employees comp fund (bec)	0	0	0	0
Other	0	543	543	0
Subtotal	0	6,925	6,925	0
13.0 Benefits for former personnel				
Retired Pay	0	0	0	0
Health benefits	0	0	0	0
Other	0	0	0	0
Subtotal	0	0	0	0
21 Travel and transportation of persons				
Aircraft rental	0	0	0	0
GSA vehicles	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
Program travel	0	3,377	3,281	(96)
Subtotal	0	3,377	3,281	(96)
<hr/>				
22 Transportation of things				
Trans of household goods	0	0	0	0
GSA trucks	0	10	10	0
Other	0	305	305	0
Subtotal	0	315	315	0
<hr/>				
23.1 Rental payments to GSA	0	6,956	6,956	0
<hr/>				
23.2 Rental payments to others	0	1,909	1,909	0
<hr/>				
23.3 Communications, utilities and miscellaneous charges				
Utility services	0	683	683	0
Aircraft charter	0	0	0	0
Vessel charter	0	0	0	0
Rental of office copying equipment	0	0	0	0
Rental of ADP equipment	0	666	666	0
Federal telecommunications system	0	870	870	0
Other telecommunications services	0	3,471	3,471	0
Postal services by USPS	0	2	2	0

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
Other	0	24	24	0
Subtotal	0	5,716	5,716	0
<hr/>				
24 Printing and reproduction				
Publications	0	42	42	0
Public use forms	0	0	0	0
Other	0	99	99	0
Subtotal	0	141	141	0
<hr/>				
25.1 Consulting services	0	111,336	51,952	(59,384)
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25.2 Other services				
Aircraft repair	0	0	0	0
Vessel repair	0	4,375	0	(4,375)
Contracts for research	0	51,404	51,404	0
Maintenance of equipment	0	1,655	1,655	0
Other	(1,000)	52,651	75,484	22,833
Training	0	201	201	0
Subtotal	(1,000)	110,286	128,744	18,458
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25.3 Other purchases of goods & services from Gov't accounts				
Purchases of goods & services from Gov't accounts	0	764,467	1,038,611	274,144

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
Office of Personnel Management Training	0	43	43	0
GSA reimbursable services	0	0	0	0
Payments to DM, WCF	0	0	0	0
Subtotal	0	764,510	1,038,654	274,144
25.4 Operation and maintenance of facilities				
Operation of GOCOs	0	0	0	0
Subtotal	0	0	0	0
25.5 Research and development contracts	0	30,214	30,214	0
26 Supplies and materials				
Chart paper	0	0	0	0
Met. upper air	0	3,021	3,021	0
Maintenance of vessel	0	1,470	445	(1,025)
Gases	0	0	0	0
Fuel	0	1,353	953	(400)
ADP supplies	0	3,579	3,579	0
Other	0	4,821	4,810	(11)
Subtotal	0	14,244	12,808	(1,436)

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
31	Equipment			
	0	30	30	0
	Office machines and equipment			
	0	(5,973)	(13,373)	(7,400)
	ADP hardware			
	0	4,081	4,681	600
	Other capitalized			
	0	20,360	20,360	0
	Depreciation on capitalized equipment			
	0	20,396	20,396	0
	Non-capitalized			
	0	6,634	6,634	0
	Capital Lease			
	0	45,528	38,728	(6,800)
	Subtotal			
32	Lands and structures			
	0	(257)	(257)	0
	Land			
	0	18,847	18,847	0
	Building and Other Structures			
	0	1,413	1,413	0
	Depreciation of Building			
	0	20,003	20,003	0
	Subtotal lands and structures			
33	0	0	0	0
	Investments and loans			
41	0	25,428	25,428	0
	Grants, subsidies and contributions			
42	0	0	0	0
	Insurance claims and indemnities			
43	0	16	16	0
	Interest/dividends			
44	0	0	0	0
	Refunds			

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS

	FY 2010 ATBs	FY 2010 Base	FY 2010 Estimate	Increases/ Decreases
99 Total Direct Obligations	(1,000)	1,168,392	1,393,278	224,886
Cash Refund	0	0	0	0
Prior Year Recoveries	0	(2,000)	(2,000)	0
Deobligations	0	0	0	0
Unobligated Balance, expiring	0	0	0	0
Unobligated Balance, Start of Year	0	0	0	0
Unobligated Balance, End of Year	0	0	0	0
Subtotal PAC Budget Authority	(1,000)	1,166,392	1,391,278	224,886
Total PAC Budget Authority	(1,000)	1,166,392	1,391,278	224,886
Positions	0	200	200	0
FTE	0	190	190	0

NATIONAL OCEAN SERVICE FY 2010 OVERVIEW

For FY 2010, NOAA requests an increase of \$22,348,000 and an increase of 6 FTE over the FY 2010 base program for a total of \$502,656,000 and 1,246 FTE for the National Ocean Service.

The National Ocean Service (NOS) is the primary Federal agency working for the Nation through the observation, measurement, assessment, and management of the Nation's coastal and ocean areas, as well as conducting response and restoration activities to protect vital coastal resources. An estimated 154 million people, over 50 percent of the nation's population, lived in coastal counties in 2004. Although coastal population growth has generally reflected the same rate of growth as the entire Nation, the limited land area of coastal counties is increasingly strained by the density of the population growth. This increasing density, coupled with the important economies of coastal areas, makes the task of managing coastal resources increasingly difficult, especially with the Nation's coastal population expected to increase by more than 11 million by 2015 (*Population Trends Along the Coastal United States: 1980-2008*).

As a national leader for coastal stewardship, NOS promotes a wide range of research and operational activities aimed at better understanding ocean, coastal, and Great Lakes ecosystems. Research provides the strong science foundation required to effectively manage and advance the sustainable use of our coastal and ocean systems, improve ecosystem and human health, and support economic vitality. NOS provides improvements in the quality, quantity, geographic distribution, and timeliness of ocean and coastal observations. Observations by NOS assets and partners are critical components of the Nation's Integrated Ocean Observing System (IOOS[®]), as well as fundamental contributors to the Global Earth Observation System of Systems (GEOSS). NOS mapping, charting, geodetic, and oceanographic activities build on marine and coastal observations collected to increase the efficiency and safety of maritime commerce, support coastal resource management and address coastal flooding and water quality concerns. NOS protects and restores coastal resources damaged by releases of oil and other hazardous materials. NOS also protects and manages the special marine areas of the Nations' marine sanctuaries, and the Papahānaumokuākea and Rose Atoll Marine National Monuments, and through partnerships with coastal states, manages and protects the Nation's valuable coastal zones and nationally significant estuarine reserves. NOS helps federal, state, local, and international managers build the suite of skills and capacity needed to protect, restore, and use coastal ecosystems by providing financial and technical assistance, process and technical skill training, and other applied research and capacity-building resources.

NOS delivers a range of nation-wide coastal and Great Lakes scientific, technical, and resource management services in support of safe, healthy and productive oceans and coasts. In carrying out its diverse programs and services, NOS forges partnerships to integrate expertise and efforts across all levels of government and with other interests. This coordinated approach is an essential component of NOS' national effort to protect, maintain, and sustain the viability of coastal communities, economies and ecosystems.

Research and Development Investments:

The NOAA FY 2010 Budget estimates for its activities, including research and development programs, are the result of an integrated, requirements-based Planning, Programming, Budgeting, and Execution System (PPBES) that provides the structure to link NOAA's strategic vision with programmatic detail, budget development, and the framework to maximize resources while optimizing capabilities.

The PPBES process makes specific reference to the objectives and milestones outlined in the NOAA 5 Year Research Plan for 2008-2012. The strict management of planning against these investment criteria, objectives, and milestones leads to NOAA budget proposals that reflect the research and development needs of the organization.

Significant Adjustments-to-Base (ATBs):

NOAA requests a net increase of 0 FTE and \$4,929,000 to fund adjustments to current programs for NOS activities. The increase will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA).

Appropriation: Operations, Research, and Facilities
Subactivity: Navigation Services

The objectives of the Navigation Services subactivity are to:

- Build, maintain, and deliver a Nautical Charting Database
- Update nautical surveys
- Define the national shoreline
- Develop the National Spatial Reference System
- Provide real-time observations and forecasts of water levels, tides, and currents

To achieve these objectives, NOAA conducts activities in several program areas within the Office of Coast Survey, the National Geodetic Survey, and the Center for Operational Oceanographic Products and Services. These activities are conducted under the authority of the Hydrographic Services Improvement Act. NOAA also represents these programs for the Department of Commerce on the interagency Committee for the Marine Transportation System.

The Navigation Services subactivity contains three items: Mapping and Charting, Geodesy, and Tides and Currents.

MAPPING AND CHARTING (<http://nauticalcharts.noaa.gov/>)

NOAA's Mapping and Charting Program is carried out by the Office of Coast Survey. Established by President Thomas Jefferson in 1807, the Coast Survey is the oldest scientific organization in the U.S., with a long history of supporting and facilitating maritime commerce. Today, it continues to support safe and efficient transportation in U.S. waters by delivering navigation products to meet the needs of vastly larger ships carrying people, cargo and hazardous materials. NOAA collects, manages, and maintains a variety of marine data important to navigators, including the nature and form of the coast, the depths of the water, general character and configuration of the sea bottom, locations of dangers to navigation, the rise and fall of the tides, and locations of aids to navigation. These data enable NOAA to construct and maintain the national suite of 1,000 nautical charts, and develop other products such as the Coast Pilot publication, which is a series of books that supplement the nautical charts with valuable information difficult to portray on a chart (e.g. channel descriptions, ice conditions, pilotage). These products support commercial shipping, the fishing industry, U.S. Navy deployment and Coast Guard Homeland Security operations, state and local governments, and recreational boaters throughout the United States. The data this program collects is also used for coastal zone management, climate assessments, coastal research and a host of other uses. The Mapping and Charting Program also conducts research and development activities to improve the accuracy, efficiency, and productivity of data collection, chart compilation and chart production.

The Mapping and Charting Line Item consists of five primary program elements. Each program element within the Mapping and Charting Line directly supports NOAA's Commerce and Transportation, Weather and Water, and Ecosystems goals. These five programs are:

- Nautical Charting Program - NOAA is responsible for surveying and charting U.S. and territorial waters to the limits of the U.S. Exclusive Economic Zone (EEZ), an area of about 3.4 million square nautical miles. NOAA is authorized by the Coast and Geodetic Survey Act of 1947 to provide nautical charts and products for safe maritime commerce.

- Hydrographic Survey Program - The program addresses the critical hydrographic surveys needed in U.S. waters. These hydrographic surveys provide the most basic depth and hazardous obstruction data for the production of nautical charts, as well as other applications such as storm surge and tsunami models, fisheries management and coastal zone land use planning and management.
- Marine Modeling and Geospatial Technology Program - The program studies advancements in the cartographic, hydrographic, and oceanographic systems used by NOAA to provide products and services for the coastal marine community, particularly in support of safe and efficient navigation and the utilization and protection of the coast. The program develops techniques and methods for the analysis, simulation and accurate real-time prediction of oceanographic, atmospheric and water quality parameters.
- Navigation Services Program - This Program provides a focal point for customer requests and associated responses on charting issues, conducts fast-response hydrographic surveys to verify chart changes and accuracies, and maintains the Coast Pilot, a supplemental aid to the nautical chart. NOAA Navigation Managers are regionally based representatives who resolve charting and navigation questions, educate constituents on emerging charting technologies and their uses, and solicit feedback on NOAA's navigation products and services from the commercial maritime industry. This face-to-face contact improves NOAA's response to customer needs and issues. NOAA's Navigation Response Teams (NRTs), which perform rapid response surveys after emergencies to keep commerce moving, are another crucial means of connecting with the maritime community.
- Coastal Mapping Program - The primary objective of the program is to define the national shoreline in support of nautical charting, although the program performs a number of other activities with important applications. The national shoreline is the delineation of the 95,000 miles of U.S. shoreline on a map or in a digital database. Since it is the official U.S. shoreline, measurements must be accurate, consistent, and up-to-date. The national shoreline provides the critical baseline data for defining America's marine territorial limits, including its EEZ, and for the geographic reference needed to manage coastal resources, mitigate and adapt to climate change, support Homeland Security, and many other uses.

GEODESY (<http://geodesy.noaa.gov/>)

The mission of the NOAA Geodesy Program is to evolve and deliver the Nation's foundation of reference for positioning activities to support public safety, economic prosperity, and environmental well being. NOAA's Geodesy Program is carried out by the National Geodetic Survey (NGS), which manages the National Spatial Reference System (NSRS) – the national coordinate system that specifies latitude, longitude, height, scale, gravity, and orientation throughout the Nation. NSRS must continually evolve to meet the growing demand for more accurate, timely, and consistent positioning services. The Geodesy Line Item can be grouped into five major overlapping program elements:

- Permanent Network infrastructure - A major component of NSRS is a network of permanently marked points including the Federal Base Network (FBN), the Cooperative Base Network, and the User Densification Network. These networks form a crucial foundation for all geographically referenced activities conducted in the United States.
- Continuously Operating Reference Stations (CORS) support - NGS manages a National CORS Network of permanently operating GPS receivers. NGS provides access to GPS data from this network free of charge via the Internet. The CORS system enables positioning accuracies that approach a few centimeters relative to the NSRS.

- Height Modernization - Height Modernization is an NGS-led effort to enhance the vertical aspect of NSRS through the establishment of accurate, reliable heights using GPS technology in conjunction with traditional leveling, gravity work, and remote sensing information. Height Modernization will provide better access to accurate and consistent height data at the local level.
- Data Access and Outreach - NOAA's NGS archives and provides access to geodetic control, shoreline, and aeronautical survey data from its own surveys and from cooperating organizations. These data are made available via the Internet. As part of its technology transfer efforts, NGS conducts a series of workshops and constituent forums around the country. NGS also manages the State Geodetic Advisor Program, which is a cost-sharing program that provides a liaison between NOAA and the host state to guide and assist the state's geodetic and surveying programs.
- Tool and Model Development - NOAA's NGS develops standards, specifications, guidelines, and best practices for the surveying and positioning industry, as well as a variety of models describing geophysical and atmospheric phenomena that affect spatial measurements. These tools and models are crucial to scientific and commercial positioning activities.

TIDE AND CURRENTS (<http://tidesandcurrents.noaa.gov/>)

The Tide and Current Data Program (TCDP) is a significant component of the integrated, comprehensive suite of NOAA information products required by the maritime community to ensure safe and efficient navigation, homeland security, improve oil and other hazardous material spill response, and support coastal resource management. NOAA is statutorily authorized to collect, analyze, and provide datums related to tide and water levels. The Coast and Geodetic Survey Act of 1947 (61 STAT, 787, 33 U.S.C. §§ 883 a-f) authorizes collection and dissemination of water level data; Section 883a authorizes NOAA to conduct "Hydrographic ... tide and current observations;" Section 883b authorizes NOAA "to analyze and predict tide and current data, and process and publish data, information, compilations, and reports." The TCDP is operated by NOS' Center for Operational Oceanographic Products and Services (CO-OPS). Observations and predictions of water levels and currents are collected and distributed to the marine transportation community and other users. The Tide and Current Data Line Item is composed of four primary program elements, each of which contributes to NOAA's Commerce and Transportation Goal and Weather and Water Goal. The four elements are:

- NATIONAL WATER LEVEL PROGRAM – CO-OPS operates and maintains the National Water Level Observation Network (NWLON), a system of over 200 observation stations located in U.S. coastal areas, the Great Lakes, and U.S. Territories and possessions. Information from the NWLON ranges from the high frequency content in the record (tsunamis and storm surge) to the long-term content (sea level and lake level trends). It provides vertical reference datums for all marine boundary applications, for national shoreline and nautical chart products, for coastal construction, dredging, for habitat restoration projects and for hurricane evacuation route planning. The NWLON system provides a nation-wide capability for storm surge monitoring, and serves as an observing system for the Tsunami Warning System.
- NATIONAL CURRENT PROGRAM - NOAA's tidal current prediction tables are used by the largest ship operators, as well as the fishing industry, recreational boaters, kayakers, and wind surfers. Updated, accurate predictions are essential for these users to support safe and efficient navigation and for fishers to determine best catch times. In addition, accurate measurements of the currents are essential to test oil spill response strategies and provide onsite response to an emergency spill. The data are used to fine tune strategies and verify current trajectories for models.
- PHYSICAL OCEANOGRAPHIC REAL TIME SYSTEMS (PORTS[®]) - Physical Oceanographic Real Time Systems (PORTS[®]) is a decision support tool that integrates and disseminates real-time environmental observations, forecasts and other geospatial information. In partnership with local port authorities, pilot associations, shippers, the U.S. Coast Guard, the U.S. Army Corps of Engineers, the U.S. Navy, academia, and others, PORTS[®] has been implemented in various bays and harbors in the U.S. to measure and disseminate water levels, currents, salinity, winds, and atmospheric pressure to various users. PORTS[®] is a cost-sharing program requiring local partners to bear the cost of installation, operation and

maintenance of the sensor systems. This recognizes the local benefits of such systems. NOAA's responsibility is to provide the technical expertise required to design the systems and provide ongoing management of the data.

- OPERATIONAL FORECAST MODELS PROGRAM - CO-OPS also operates nowcast and forecast models, typically in conjunction with PORTS[®] due to the need for real time data input, that provide short term water level and other environmental forecasts that enable better planning and decision making, particularly for vessel transits.

PROGRAM CHANGES FOR FY 2010:

Hydrographic Surveying (0 FTE and +\$1,173,000): NOS requests an increase of \$1,173,000 for a total of \$31,173,000 to conduct hydrographic surveys of critical areas of the U.S. Exclusive Economic Zone (EEZ) to support safe and efficient navigation according to the priorities laid out in the “NOAA Hydrographic Survey Priorities” document (NHSP). These funds will support NOAA’s hydrographic services by increasing the number of square nautical miles surveyed annually.

Proposed Actions

NOAA’s charting mandate authorizes NOAA to provide nautical charts and related hydrographic information for the safe navigation of maritime commerce for U.S. territorial waters and the U.S. EEZ, a combined area of 3.4 million square nautical miles (SNM), which extends 200 nautical miles offshore from the nation’s coastline. The requested funds will augment NOAA’s resources focused on surveying the most critical areas.

NOAA conducts survey operations in areas outlined in the 2008 NHSP that identifies and prioritizes areas within NOAA’s scope of navigation safety responsibilities in greatest need of modern hydrographic surveys. The NHSP prioritizes areas in need of surveying in order to maximize the efficiency of the resources available for conducting hydrographic surveys. The NHSP identifies 500,000 square nautical miles of the EEZ as Navigationally Significant. The Navigationally Significant areas are then further prioritized through research regarding shipping tonnage, vintage of survey data, requests from the marine community and other factors to establish Critical Areas and Priority Areas 1-5. Critical Areas are the areas of highest priority followed by Priority 1 through Priority 5; with 5 representing the lowest priority.

NOAA is responsible for surveying the entire 3.4 million SNM of the EEZ, but the priority for commerce and safe transportation is the 500,000 SNM of navigationally significant areas. Of the total Navigationally Significant area, about 4% (~20,000 SNM) have been identified as critical areas in need of survey. These 20,000 SNM are NOAA’s highest survey priority, with further survey requirements captured in tiers as shown in the NHSP. The requested funds will enable NOAA to address additional critical survey areas.

Statement of Need and Economic Benefits

The United States has recognized the importance of accurate nautical charts since 1807, when the Survey of the Coast -- predecessor to NOAA’s Navigation Services programs – began. Marine transportation is still as important today as it was in 1807. More than 95 percent of U.S. trade by volume, and 37 percent by value, moves through our seaports, including nine million barrels of imported oil daily. The economy, national security, and integrity of our coastal environments depend on safe vessel movement throughout the U.S. Marine Transportation System (MTS); NOAA’s navigation products and services are designed to support safe marine transportation and efficient movement of commerce. As our dependence on the MTS grows with the anticipated doubling of container shipping trade by 2020, it is crucial for mariners to know where and when changes occur in our ports, harbors, and waterways to help prevent accidents and groundings. Mariners rely on NOAA’s decision support tools to reduce risk and provide a complete understanding of the marine environment in which they must operate.

NOAA’s goal is to resurvey navigationally significant U.S. waters on a 50-year cycle, which would require NOAA to survey 10,000 square nautical miles (SNM) a year. NOAA’s target is to survey 3,200 SNM of navigationally significant areas in FY 2010. As such, there is a backlog in conducting updated

hydrographic surveys of navigationally significant areas in the United States, including areas identified as critical. These critical areas include high traffic ports, areas with frequent changes, areas with very old survey data, and areas that have never been surveyed. Without such surveys, ocean bottom conditions that are hazardous to navigation may not be located and identified to help mariners navigate safely and avoid accidents, spills, loss of life and cargo, and damage to the environment.

The most important aspect of the nautical chart is the depiction of depths and obstructions that mariners must avoid. NOAA's hydrographic surveying program collects this critical data as mandated by the Coast and Geodetic Survey Act of 1947 and the Hydrographic Services Improvement Act of 1998/2002. Since 1998, NOAA has made significant progress in reducing the backlog from 43,000 SNM of critical areas to the present 20,000 SNM. NOAA has done so through increased contract data collection and the use of new technology, but requires additional resources to continue collecting data.

Performance Goals and Measurement Data

Performance Goal: Commerce and Transportation Performance Measure: Reduce the hydrographic survey backlog within navigationally significant areas, Measure 4a	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	3,260	3,760	3,710	3,710	3,710
Without Increase	3,000	3,200	3,650	3,650	3,650	3,650
Description: NOAA conducts hydrographic surveys to determine the depths and configurations of the bottoms of water bodies, primarily for U.S. waters significant for navigation. This activity includes the detection, location, and identification of wrecks and obstructions with side scan and multi-beam sonar technology and the Global Positioning System (GPS). NOAA uses the data to produce traditional paper, raster, and electronic navigational charts for safe and efficient navigation. In addition to the commercial shipping industry, other user communities that benefit include recreational boaters, the commercial fishing industry, port authorities, coastal zone managers, and emergency response planners.						

Develop a New National Vertical Reference System (0 FTE and +\$4,000,000): NOS requests an increase of \$4,000,000 for a total of \$4,500,000 to collect gravity data to begin a multi-year effort to produce a new national vertical datum by 2018 that will improve elevations and height information as the foundation for improved commerce, economic efficiencies, and to better protect against inundation from storms, flooding, and sea level rise.

Proposed Actions

With the requested increase, NOAA will begin a multi-year effort to collect airborne gravity data and update the nation's gravity-based geoid model from 40 cm of accuracy to 2 cm of accuracy in key areas. This is essential for developing a new national vertical datum based on a geoid model, which will obviate the current need for elevation determination through physical infrastructure and traditional survey techniques and allow GPS to efficiently establish accurate elevations for all types of positioning and navigational needs. The requested increase will enable NOAA to collect gravity data for dramatically improved elevations for communities with a significant need for accurate elevation information. In FY 2010, NOAA will focus on coastal areas of the United States and in the out years will continue to collect airborne gravity measurements according to its 2007 Gravity for the Redefinition of the American Vertical Datum (GRAV-D) plan, which laid out an efficient process to acquire gravity measurements across the nation and redefine the geoid model based on areas of most critical need.

This accurate elevation data is necessary for other NOAA efforts. For example, this increase contributes to NOAA and other federal coastal hazard activities by helping them address escalating economic, societal and environmental costs associated with weather and climate-related natural hazards through improving hazard mitigation strategies, disaster resilience capabilities, and risk and vulnerability assessments. A new national vertical reference system will also be a primary element of Integrated Ocean Observing System (IOOS) infrastructure, because precise positioning information is an essential component of all observing systems.

The funding will ultimately enable NOAA to collect gravity data for dramatically improved elevations across the nation. Geoid accuracy across the nation will improve from 40cm to 2cm, enabling GPS technology to provide centimeter-level heights. Funding will develop standards and specifications, methodology research & development, as well as data processing and aerial data collection. Training will be provided on the proper utilization of the National Spatial Reference System (NSRS) through Geodetic State Advisors and others as well as transfer to local communities of positioning technology, models, tools, standards and guidelines for determining accurate elevations. NOAA will leverage existing interagency working groups to develop a plan and share funding and other resources for a comprehensive data collection project, including the U.S. Geological Survey and National Geospatial-Intelligence Agency. NOAA's State Geodetic Advisors in the proposed regional areas will work closely with the state Spatial Reference Centers, surveying organizations and state and local entities involved in planning and response in order to increase access to NOAA products and services. NOAA will work with coastal managers, emergency planners and responders, GPS and GIS professionals, and others to provide training on the proper utilization of the NSRS. Further, NOAA will transfer positioning technology, as well as knowledge of models, tools, standards and guidelines for determining accurate elevations and depths.

Statement of Need and Economic Benefits

NOAA is responsible for measuring and monitoring the size and shape of the Earth and its gravity field, or geoid, to derive an accurate national positioning framework for latitude, longitude and height. This framework is called the National Spatial Reference System (NSRS), and it is critical for transportation, navigation, and communication systems; land record systems; mapping and charting efforts; and defense operations, among many other position-dependent uses. The NSRS relies on relatively low-accuracy Global Positioning System (GPS) signals and high-tech processing so users can get latitude/longitude positions accurate to within 1-3 centimeters. With additional processing and/or observing times from NOAA, accuracies of less than 1 centimeter horizontally are achievable. This ability to accurately position an object or person has proven to be essential for industries like mining and construction, and for the transportation industry to safely move people and cargo, while reducing costs.

But GPS (even with additional processing) is currently incapable of providing accurate elevations, or heights, relative to sea level. The lack of accurate elevation data is a nationwide problem, and coastal regions are especially disadvantaged because they have unreliable elevation data as the basis for public safety, including evacuation routes, flooding and storm surge prevention efforts, and coastal restoration. Coastal communities in particular require accurate land elevations and water depths to build levees and flood protection infrastructure; harden roads, bridges and observing systems; ensure safe and efficient marine transportation; plan evacuation routes; model tsunami and storm surge; and monitor sea-level rise. With coastal populations expected to continue to grow (estimated at over 160 million in 2008), risks to life, property, businesses and coastal habitats will only increase.

To obtain better heights and establish a new national vertical datum, a more accurate geoid model is required, as the existing vertical datum has meter-level errors due to a poor gravity dataset and outdated technology. A multi-year, national effort to collect and improve the gravity data used in the model will eliminate these errors, and allow efficient, centimeter-level measurement of heights using GPS. The new vertical datum based on a dramatically improved geoid model, will provide a more accurate and easily accessible National Spatial Reference System, providing the foundation for transportation; mapping and charting; and a multitude of scientific and engineering applications development. These improvements were recommended in the 2007 report of NOAA's Hydrographic Services Review Panel Federal Advisory Committee. A 2009 socio-economic benefits study estimated benefits to the nation of the completed GRAV-D effort funded by this increase to be \$4.8 billion over 15 years, including \$2.2 billion in avoidance costs from improved floodplain management.

Performance Goals and Measurement Data

Performance Goal: Commerce and Transportation Performance Measure: % of the U.S. with 2cm geoid accuracy enabling GPS technology to provide centimeter-level heights.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	10%	20%	35%	50%	70%
Without Increase	0	1%	2%	3%	4%	5%
Description: An updated geoid model will dramatically improve elevations and height information in at-risk coastal areas and other parts of the country as the foundation for improved commerce, economic efficiencies, and to better protect against inundation from storms, flooding, and sea level rise. This measure tracks progress towards the redefinition of the American Vertical Datum.						

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Mapping and Charting Base (\$59,000); Navigation Products (\$40,000,000); California Seafloor Mapping (\$1,500,000); Ordnance Reef UXO (\$500,000); Extended Continental Shelf Mapping, AK (\$500,000); Mapping the Hudson River for Build Resiliency to Climate Change (\$445,000); Geodesy Base (\$30,000); Geodesy/Height Modernization – IL (\$725,000); Regional Geospatial Modeling Grants (\$7,000,000); Louisiana Geodetic Spatial Reference Center, LA (\$700,000); Geo-Spatial Analysis of Weather Phenomena and Disaster Recovery, AL (\$500,000); Wisconsin Height Modernization Program, WI (\$2,150,000); Gulf Coast Flood Evaluation Study, Baldwin County, AL (\$1,000,000); Gulf Coast Flood Evaluation Study, Mobile County, AL (\$1,000,000); Tide and Current Data Base (\$2,523,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Ocean Service
 Subactivity: Navigation Services

	Object Class	2010 Increase
21	Travel and transportation of persons	400
23.3	Communications, utilities and miscellaneous charges	3,200
25.2	Other services	1,173
31	Equipment	400
99	Total Obligations	5,173

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Appropriation: Operations, Research, and Facilities
Subactivity: Ocean Resources Conservation and Assessment

The objectives of the Ocean Resources Conservation and Assessment subactivity are to:

- Establish the framework through which the authorities of Federal and state agencies can be focused to protect and restore coastal resources.
- Recommend management actions to minimize the cumulative effects of coastal development on natural resources, especially NOAA's trust resources.
- Conduct research to define the nature and extent of human activities and conditions that threaten the health and productivity of the Nation's coastal resources.
- Conduct damage assessments to support negotiated settlements and litigation for recovering funds for restoration of injuries to NOAA's trust resources.
- Apply scientific expertise to mitigate the effects of human activities and facilitate environmental recovery, and undertake actions to restore ecosystem functions and resource values.
- Facilitate and support resource conservation through sound science and management activities.
- Develop a Federal/state capability to research, monitor, assess, and predict coastal ecosystem structure and function to detect changes, evaluate management strategies, and identify actions to effectively manage threats to ecosystem health.
- Provide continuous, integrated data on our open oceans, coastal waters, and Great Lakes in the formats and at the rates and scales required to support the information needs of government, environmental managers, scientists, business, and the public.
- Develop means for valuing non-market ecological resources and clarify the causes and significance of ecosystem changes.
- Facilitate the development and transfer of tools and technology that provide more effective mechanisms to conserve, protect, restore and use coastal ecosystems.
- Improve public understanding of functions and values of coastal ecosystems and enhance public access to information on coastal environmental quality and health risks from pollutants.
- Support NOAA's and the Nation's obligations under international treaties and conventions, and increase effectiveness of international programs for coastal environmental science and technology, integrated coastal zone management, and sustainability of coastal resources.

This subactivity contains programs managed by the National Centers for Coastal Ocean Science (NCCOS), the Office of Response and Restoration (ORR), the Coastal Services Center (CSC), the Office of Ocean and Coastal Resource Management (OCRM), and the NOAA Integrated Ocean Observing System (IOOS) Program. The objectives of this subactivity are implemented under the authorities established in the Clean Water Act, Coastal Zone Management (CZM) Act, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund), Oil Pollution Act, National Coastal Monitoring Act, Harmful Algal Bloom and Hypoxia Research and Control Act, Estuaries Restoration Act, Coral Reef Conservation Act, Oceans and Human Health Act, Marine Debris Research, Prevention, and Reduction Act, and other legislation to protect, conserve, and restore natural resources and the environmental quality of the Nation's coastal ecosystems.

The Ocean Resources Conservation and Assessment subactivity contains three items: Ocean Assessment Program, Response and Restoration, and National Centers for Coastal Ocean Science.

OCEAN ASSESSMENT PROGRAM

NOAA's National Ocean Service (NOS) promotes healthy coastal ecosystems by ensuring that economic development in coastal areas of the U.S. is managed in ways that maintain biodiversity and long-term productivity necessary for sustained use. Working in partnerships with Federal and State agencies NOAA provides coastal managers with the scientific understanding, information, products and services needed to balance the environmental, social, and economic goals of coastal communities and NOAA. There are several NOS programs located with the Ocean Assessment Program line including:

COASTAL SERVICES CENTER (<http://csc.noaa.gov>) - The NOAA Coastal Services Center's (Center) mission is to build capacity for informed decision making about our coasts. The Center's primary customers are the Nation's coastal managers, including natural resource managers, planners, and emergency officials. Working with other NOAA programs, the Center provides geospatial data and tools, training, social science information, and partnership building at the national, regional and state levels to this community that would otherwise be unavailable or unaffordable. By doing so, the Center is effectively "buying down" the cost of improving state and local coastal management programs, thereby enabling more effective and targeted implementation of the Coastal Zone Management Act and other relevant coastal legislation. Partnerships between the Center and state and local coastal management organizations and their partners give rise to more than 100 projects each year. These projects produce new tools and approaches that often are applied nationwide. The Center has developed a collaborative strategy, building effective working relationships not only across NOAA but also with other federal mission agencies.

CORAL REEF PROGRAM (<http://coralreef.noaa.gov>) - The NOAA Coral Reef Conservation Program (CRCP) implements high-impact actions to fulfill the Coral Reef Conservation Act and the U.S. Coral Reef Task Force's *National Action Plan to Conserve Coral Reefs*. NOAA is undertaking a series of activities to restore resilient reef environments and reduce human impacts on coral reefs, with a particular emphasis on land-based sources of pollution, fishing impacts, and climate change. The rapid decline and loss of these valuable marine ecosystems has significant social, economic, and environmental consequences in the U.S. and around the world. With government and non-government partners, the program supports a wide variety of priority activities including mapping and monitoring of reef ecosystems, state/territorial coral reef management, improved management of reef fisheries, implementation of coral reef marine protected areas, and developing forecasts and adaptation strategies for impacts of climate change on reef ecosystems and the communities that depend on them. The CRCP is a matrix program that works with 30 programs across 4 NOAA line offices to harness NOAA tools and expertise for coral reef conservation.

COASTAL STORMS (<http://csc.noaa.gov/csp/>) - The Coastal Storms Program harnesses and leverages NOAA and community resources to reduce the adverse impacts of coastal storms by developing improved and integrated products and services that address specific state/local decision-maker needs. The Coastal Storms Program brings NOAA-wide expertise, products, and services to address the challenges unique to the regions the program is working in, and targets tools and outreach to the needs of local stakeholders. Efforts to integrate existing product service lines to meet unique needs are also included. The Coastal Storms Program is currently working in the Gulf of Mexico and Southern California and is developing plans to expand to the Pacific Islands.

INTEGRATED OCEAN OBSERVING SYSTEM (<http://ioos.noaa.gov>) - The goal of U.S. Integrated Ocean Observing System (IOOS®) is to provide continuous data on our open oceans, coastal waters, and Great Lakes to inform decision-making. NOAA is leading efforts to design, operate, and improve

national and regional networks of ocean observations and data management, in partnership with 17 federal agencies and 11 regions. NOAA is implementing standard procedures and integration services to make its ocean data interoperable. These procedures and services are being extended to the regions and federal partners to achieve increased data compatibility. The integration of IOOS data contributes to product enhancements and improves model accuracy for a suite of existing NOAA products and services. NOAA is also managing development of the IOOS regional component, which complements Federal ocean observing assets by providing additional data, models, and information products tailored to the economic and environmental requirements of the local communities. Increased compatibility of Federal and regional observing system assets will improve our understanding, forecasting, stewardship, and use of coastal waters. IOOS enhances our nation's contribution to the Global Ocean Observing System (GOOS)—the ocean component of the Global Earth Observation System of Systems (GEOSS).

GULF OF MEXICO REGIONAL COLLABORATION - The Gulf of Mexico Alliance is working to advance regional coastal resource priorities defined by the five Gulf States -- Alabama, Florida, Louisiana, Mississippi, and Texas. To support this effort, NOAA provides competitive grants to state and local agencies and organizations to accomplish the regional coastal resource priorities identified in the *Governors' Action Plan for Healthy and Resilient Coasts*. Grant funds are distributed across six priority areas: create hazard resilient coastal communities, ensure healthy beaches and shellfish beds, support wetland and coastal restoration, increase environmental education, identify and characterize Gulf habitats, and reduce nutrient inputs to coastal ecosystems -- with a focus on strengthening regionally collaborative solutions.

OCEANS AND HUMAN HEALTH (<http://www.eol.ucar.edu/projects/ohhi/>) - NOAA implements the Oceans and Human Health Act (P.L. 108-447) through its Ocean and Human Health Initiative (OHHI). The goal of the OHHI is to understand and predict the connections between the condition of oceans, coasts, Great Lakes waters, and human health while providing information focused on reducing current and future risks to public health and enhancing efforts to provide curative agents and natural products from the sea. The OHHI supports NOAA's National Centers of Excellence in Oceans and Human Health, which serve as a core capacity to conduct and coordinate OHH research, outreach, education, and data management programs across NOAA and with a host of external partners. NOAA also supports competitive grants, distinguished scholars, and traineeship activities in the external community to augment NOAA's research and build a network of scientists skilled in working at the interface of ocean and biomedical disciplines.

OCEAN RESEARCH PRIORITIES PLAN IMPLEMENTATION - *Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy*, released by the National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology in January 2007, describes the national ocean research efforts that must be pursued over the next ten years. NOS is currently implementing two near-term priorities - Response of Coastal Ecosystems to Persistent Forcing and Extreme Events and Sensors for Marine Ecosystems. NOAA is developing and integrating decision-support tools to help policy makers and managers (coastal, resource, and emergency) anticipate and prepare for responses to extreme weather events, natural disasters, and changing natural and human influences, including the potential impacts of climate change. In addition, NOS is developing sensors for rapid detection of pathogens, harmful algae, and their toxins and to identify marine organisms. The ability to rapidly and accurately monitor and assess biodiversity and marine ecosystem health, from the genetic to the ecosystem level, is an essential component of any effort to protect human health and to more effectively implement an ecosystem approach to resource management.

RESPONSE AND RESTORATION (<http://response.restoration.noaa.gov>)

NOAA responds to approximately 100 significant oil or chemical spills each year as scientific advisors to the U.S. Coast Guard, and provides solutions to cleanup agencies that protect and restore coastal resources at more than 200 hazardous waste sites each year along the Nation's ocean and Great Lakes coasts. When oil or hazardous substances threaten or injure coastal and marine resources, NOAA and other state and federal natural resource trustees are responsible for ensuring that cleanup actions protect those resources from further injury; for assessing and recovering natural resource damages to restore the injured resources; and for seeking compensation on behalf of the public for the loss of services that the natural resources provided. NOAA's Office of Response and Restoration (OR&R) provides interdisciplinary scientific response to releases of oil, chemicals, and contaminants; protecting and restoring NOAA trust resources; and extending core expertise to address critical local and regional coastal challenges.

There are three major programs within Response and Restoration:

EMERGENCY RESPONSE PROGRAM - OR&R's interdisciplinary scientific response team responds to oil and chemical spills and other emergencies. It is a key part of the NOAA Emergency Response Program. The team provides scientific advice to support of federal response efforts. OR&R scientists forecast the movement and behavior of spilled oil and chemicals, evaluate the risk to natural resources, and recommend protection priorities and appropriate cleanup actions. OR&R strengthens the Nation's response capabilities by conducting research and monitoring in areas impacted by spills, developing software and technical guidance, and passing on these tools and expertise via local, national, and international training programs.

OR&R field staff is co-located with regional U.S. Coast Guard offices to ensure close cooperation and coordination for planning and responding to spill events and other emergencies. In addition to maintaining a highly prepared response team that coordinates on-scene scientific activities and provides scientific support for operational decisions during oil or hazardous material spills or other threats, OR&R supports local communities in developing and evaluating oil and hazardous materials response plans, fulfills trustee responsibilities as the Department of Commerce Regional Response Team representative, serves as the Department of Commerce's representative on the National Response Team (NRT), and chairs the NRT's Science and Technology Committee.

HABITAT PROGRAM - OR&R assessment, protection, and restoration activities carry out NOAA's trust mission as part of the agency's Habitat Program. OR&R regional coordinators, scientists, and economists work in partnership with government agencies, the public, and industry to:

- Provide technical advice on ecological risk, contaminated sediments, brownfields, and remedial issues to accelerate natural resource recovery and community and waterfront revitalization.
- Assess impacts to NOAA trust resources by collecting data and conducting studies to determine whether coastal resources have sustained injury.
- Develop cooperative settlements to resolve liability for that damage.
- Plan for restoration and determine how much restoration is required for each injury.
- Work with co-trustees, responsible parties, and communities to implement resource restoration.

To improve protection of trust resources and to advance the field of restoration, OR&R develops and tests new approaches, techniques, and procedures for improved and cost-effective protection and cleanup strategies, damage assessment and remediation, and restoration of trust resources. This knowledge is passed on to other natural resource trustees, coastal managers, and decision-makers through training, technical assistance, and decision-making tools that promote planning—and so efficiencies in protection, clean up, and restoration--within a watershed management context.

MARINE DEBRIS PROGRAM (<http://marinedebris.noaa.gov/>) - The NOAA Marine Debris Program coordinates marine debris activities across NOAA and conducts debris research, prevention, and removal activities to implement the Marine Debris Research, Prevention, and Reduction Act of 2006. The program serves as a centralized marine debris capability within NOAA in order to coordinate, strengthen, and increase the visibility of marine debris issues and efforts within the agency, its partners, and the public. This program is undertaking a national and international effort focusing on identifying, reducing, and preventing debris in the marine environment.

NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE (<http://coastalscience.noaa.gov/>)

NOAA's National Centers for Coastal Ocean Science (NCCOS) provide national leadership in ocean, coastal, and Great Lakes science by conducting research, monitoring, and assessments to build the strong scientific foundation essential for sustainable use of coastal resources. NCCOS supports NOAA's coastal mission and builds better linkages among the coastal programs of NOS by developing and maintaining a broad base of scientific experts and science capabilities through both intramural and extramural research. Coastal ecosystems are subjected to a variety of stressors including climate change, extreme natural events, invasive species, land and resource use, and pollution. NCCOS research responds to the needs of other NOAA programs and its legal mandates, including the Oceans and Human Health Act, the reauthorized Harmful Algal Bloom and Hypoxia Research and Control Act, the Coastal Zone Management Act, the Coral Reef Conservation Act, and the Great Lakes Task Force Executive Order. As part of NOAA's Ecosystem Goal Team and Ecosystem Research Program, NCCOS conducts integrated assessments and ecological forecasts at a regional scale to inform ecosystem-based management. As part of the Ecosystem Observations Program, NCCOS conducts a long term monitoring program of toxic contaminants in water, biota, and sediments.

Three of NCCOS's centers have on-site research facilities, while two centers conduct research through analyses of field data or sponsored extramural research.

COASTAL MONITORING AND ASSESSMENT (Silver Spring, MD) - Through monitoring, applied research, and assessment programs, NCCOS' Center for Coastal Monitoring and Assessment (CCMA) evaluates the environmental quality of U.S. coastal, estuarine, and Great Lakes areas and the ecosystem consequences of current and potential anthropogenic stresses on these areas. CCMA monitors toxic contaminants, nutrients, and related properties in biota, water, and sediments at over 300 sites through the National Status and Trends program. The data are used to evaluate the environmental quality at each site, to detect changes, and to determine associated biological effects of chemical contaminants. CCMA also conducts programs in applied research, monitoring, biogeography, and assessment to determine: the distribution of anoxia/hypoxia; the occurrences and environmental relationships of harmful algal blooms (HABs); and the biodiversity, habitat and other ecological characteristics of U.S. estuarine, coastal, and Great Lakes areas.

COASTAL FISHERIES AND HABITAT RESEARCH (Beaufort, NC) – The Center for Coastal Fisheries and Habitat Research (CCFHR) has been a focal point for coastal habitat and fisheries research for nearly a century. The Center's research efforts are focused on estuarine processes, near-shore ocean ecosystems, biological productivity, dynamics of reef fishery resources, harmful algal blooms, and the effects of anthropogenic influence on resource

productivity. Results of the Center's research are utilized by coastal managers at the Federal, state, and local level to address important environmental issues, such as controversial permit applications, environmental litigation, and the development of effective management policies.

COASTAL ENVIRONMENTAL HEALTH AND BIOMOLECULAR RESEARCH (Charleston, SC and Oxford, MD) – The Center for Coastal Environmental Health and Biomolecular Research (CCEHBR) conducts applied research programs to: develop methods to characterize and detect marine biotoxins and harmful algal blooms (e.g. red tides) and identify hazards to marine resources and seafood consumers; develop and implement new techniques for field assessment of environmental quality and marine ecosystem health; improve detection and measurement of contaminants and evaluation of their significance to marine species and their habitats; and understand the factors linking land use in the coastal zones with the distribution and effect of environmental contaminants on living marine resources and habitats. The CCEHBR Forensics program supports law enforcement agencies by providing technical support and analyses for cases involving protected, threatened, or endangered species, consumer fraud, violation of fisheries closures, and illegal taking of game fish. Identification analyses are used to prosecute illegal activities such as importing and selling sea turtle eggs and meat, selling illegal game fish, and fishing during closure periods, as well as determination of wild versus cultured marine animals.

The Cooperative Oxford Lab in Oxford, MD is affiliated with CCEHBR and provides scientific information required to resolve important issues related to the health of coastal ecosystems. The Oxford Lab specializes in shellfish pathology and habitat restoration research. Scientists investigate the role of disease in the distribution, abundance, marketability, and edibility of marine animal resources, determine the influence of natural and man-made environmental factors on the occurrence and persistence of diseases, and explore the use of marine animal health as an indicator of environmental health. The Oxford laboratory is the only Federal aquatic research facility on the Chesapeake Bay.

HUMAN HEALTH RISK (Charleston, SC) – The Center for Human Health Risk (CHHR) includes the Hollings Marine Lab (HML) and provides science and biotechnology applications to sustain, protect, and restore coastal ecosystems, emphasizing linkages between oceans and human health. HML was formed to integrate the knowledge of marine scientists with that of the medical community and is designated as a Center of Excellence in Oceans and Human Health. As a part of NOAA's Oceans and Human Health Initiative, research conducted through the center is focused on: genomics; environmental chemistry and toxicology; and pathogen source tracking, monitoring, and assessment. Technologies developed for human health are being applied to better understand and assess the state of marine ecosystems, and to examine the interrelationships between human health and marine environmental health.

SPONSORED COASTAL OCEAN RESEARCH (Silver Spring, MD) – The Center for Sponsored Coastal Ocean Research (CSCOR) addresses emerging coastal ocean issues across NOAA's mission responsibilities. CSCOR supports competitive, peer-reviewed, interdisciplinary research investigations with finite life cycles conducted on a regional scale over a 3-5 year period. The program relies upon established processes that reflect the requirements and advice of both the management and science communities in setting its priorities to ensure the utility and credibility of its research. CSCOR coordinates NOAA's research efforts on a number of issues critical to effective coastal resource management. Research funded by CSCOR is designed to improve our ability to forecast the ecological effects of ecosystem stressors to support coastal management decisions.

PROGRAM CHANGES FOR FY 2010:

Ocean Research Priorities Plan -- Sensors for Marine Ecosystems (1 FTE and +\$3,000,000): NOAA requests an increase of \$3,000,000 and 1 FTE to develop and improve sensors for ocean biological and physical parameters at multiple spatial (from individual cells to the global ocean) and temporal (from seconds to decades) scales. These multi-scale oceanographic observations, combined with existing data, will provide a new way of “seeing” and better understanding ecosystem function and response to environmental stressors including climate variability and change.

Proposed Actions

Over the next five years, NOAA and its partners will markedly increase our efforts to develop and apply genomic microarrays and other technologies that will allow rapid and accurate detection, identification, and quantification of disease-causing microbes in marine waters and seafood and in sentinel marine organisms which may indicate health risks to humans, investigate changes in gene expression in oysters, shrimp, marine mammals, and other species in response to climate change, environmental conditions and disease, and develop and share DNA libraries for numerous marine organisms.

With the requested funding NOAA will:

- Develop *in situ* sensors for rapid detection of pathogens, harmful algae and their toxins and evaluate how such sensors can be deployed within the Integrated Ocean Observing System (\$1,000,000)
- Develop microarrays and other genomic tools to elucidate effects of multiple environmental stressors on key marine organisms, leading to new levels of understanding of ecosystem processes and impacts of climate change (\$1,000,000)
- Develop DNA-based identification of marine organisms to advance knowledge of marine biodiversity and its role in ecosystem processes, (\$600,000)
- Improve video plankton recorders and demonstrate utility for recruitment process studies, leading to improved resource management (\$400,000)

The first four years of the proposed activity would be spent in laboratory and field studies, while the fifth year would be used to synthesize, assess, and report findings and identify the most useful new technologies, including documentation of accuracy, precision, and reliability. The program would be managed through the NOAA Oceans and Human Health Initiative (OHHI) and coordinated with other Ocean Research Priorities Plan (ORPP) activities. Funds would be distributed both internally within NOAA and externally through the OHHI external grant competition or in collaboration with other agencies.

Information gained will be used to support improved ecosystem management strategies and protection of public health, including use for beach closure forecasts related to pathogens and harmful algal blooms, fisheries and protected species management, and coastal ecosystem health assessments. This request is in direct response to the near-term priorities in the ORPP and consistent with the 2007 Interagency Oceans and Human Health Research Implementation Plan.

Statement of Need and Economic Benefits

Through recreation, residential and commercial development, and employment, human populations are coming into increasing contact with our oceans and coastal waters. Continued coastal development, changes in land use, a varying climate, and altered ecosystem diversity add a complexity of environmental

and human stresses, the consequences of which we do not yet fully understand and are ill prepared to manage. Approximately 100 million Americans use coastal and Great Lakes waters for recreation each year, many of them multiple times, and they are exposed to an increasing and increasingly dangerous array of ocean health threats. These threats come from seafood- and water-borne infectious diseases, antibiotic resistant bacteria, toxins from harmful algae, and a wide range of chemical contaminants. In 2004, there were nearly 20,000 days of closings and advisories at ocean, bay and Great Lakes beaches, of which 73 percent were attributed to unknown sources and cost millions to local economies. The naturally occurring bacterium, *Vibrio parahaemolyticus*, long linked to seafood-borne infections, appears to be increasing in US waters; a recent outbreak in Prince William Sound was attributed in part to warmer than usual ocean temperatures (*Outbreak of Vibrio parahaemolyticus: Gastroenteritis Associated with Alaskan Oysters*, McLaughlin et al. 2005). According to the Climate Change Science Program, such incidences are likely to increase (CCSP Synthesis and Assessment Product 4.6: *Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems* 2008).

Our abilities to rapidly and accurately monitor and assess ocean health threats, biodiversity and other indicators of marine ecosystem health, and biological effects of climate change have lagged far behind our capacity to detect physical changes in the oceans and atmosphere. Yet, it is in the biological realm that most people are likely to first encounter serious effects of climate change, such as through increased health threats from a variety of sources and changed distributions and perhaps loss of marine and other food sources. This significant capability gap is the target of the “Sensors for Marine Ecosystems” priority described here. This work will enable rapid and cost-effective identification of ocean-borne health threats, thereby enabling actions to protect public and animal health, advance our understanding of how multiple stressors – including climate change – affect coastal ecosystems, and enhance our knowledge of recruitment processes for marine organisms of particular interest.

These funds will allow NOAA and its external partners to advance the development of marine biological sensors to initial operational phases and begin testing their use for operational beach closure forecasts and coastal ecosystem health assessments. The development of multi-scale oceanographic biological sensors, genomic and proteomic tools, and plankton recorders, and initiating the transition of these to operational status, will significantly improve NOAA’s ability to support ecosystem-based management of critical marine and coastal systems and protected species, provide crucial information to safeguard public health and provide useful beach forecasts, and support IOOS and GEOSS societal goals.

Performance Goals and Measurement Data

Performance Goal: Ecosystem	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Performance Measure: Number of new marine sensors and ecosystem tools developed or applied to enhance ecosystem-based management for fisheries, protected species, and public health						
With Increase	N/A	1	1	2	3	3
Without Increase	0	0	0	0	0	0
Description: This measure tracks efforts to develop and apply genomic microarrays and other technologies that will allow rapid and accurate detection, identification, and quantification of numerous species of microbes in marine waters and seafood, and of health threats in sentinel marine organisms which may indicate health risks to humans.						

Ocean Research Priorities Plan – Response of Coastal Ecosystems to Persistent Forcing and Extreme Events (0 FTE and +\$3,000,000): NOAA requests an increase of \$3,000,000 to support end-to-end development and integration of observations, research, and forecast models. Development and integration will focus on bringing to bear capabilities across federal agencies (NOAA and USGS led) to improve understanding of the impacts of extreme weather events, natural disasters and changing natural and human influences.

Proposed Actions

With the requested funding, NOAA will work across federal agencies to provide and integrate observations, research results, and forecasts at regional and system-scales for the Ocean Research Priority Plan’s near-term opportunities. Initial implementation of this research priority will require assessment of Federal, regional and state programs, needs and capabilities, as well as the “state of knowledge,” to identify the requirements for specific forecasts and tools. Initial activities will build on ongoing agency activities and focuses on three primary capability areas: observations, forecasting and applications. Specific actions include the following:

- Acquisition, integration and assimilation of monitoring and mapping data from existing and enhanced observation platforms (including tide and water levels). These observation networks would serve as building blocks to understand coastal inundation and validate sophisticated forecasting models for a variety of applications such as wave impacts. Workshops conducted with stakeholders to develop specific regional requirements for forecasts, and tools for preparedness, planning, response, and recovery. Collaborate directly with USGS on the geospatial framework and implementation of the National Water Quality Monitoring Network. Specifically, observation parameters collected by the Regional Coastal Ocean Observing Systems (RCOOS) (e.g., tides, water levels) will be important contributors to this effort. (\$900K)
- Research on inundation and ecosystem modeling to provide critical information for anticipating coastal inundation (including sea level rise) and ecological and human dimension impacts, including interoperability of agency modeling technology. (\$1,100K)
- Building a geospatial framework and leverage funding for digital elevation models (DEM) in pilot areas essential for decision support tools including socio-economic indices to address regional decision making, planning and community awareness. A key component of this effort would include a warehouse and delivery mechanism to ensure seamless access, regardless of the source. For example, DEMs would eventually contribute to the development of GIS based decision support tools that include model output and real time and historical observations related to coastal inundation (e.g., storm surge) for emergency, floodplain and coastal managers. (\$1,000K)

Effective integration of observational and forecast systems with research products will provide coastal resource managers, and emergency, and public health officials with short and long-term forecasts of changing coastal conditions. Key federal partners include USGS, EPA, U.S. Army Corps of Engineers, and the National Science Foundation. This near-term priority identified in the Ocean Research Priorities Plan (ORPP) will initially focus on two pilot regions: the northern Gulf of Mexico (focus on coastal inundation) and the Great Lakes (focus on water quality) beginning in FY 2010. A pilot for the Pacific Northwest would begin in FY 2012. For the pilot regions, these managers and officials will have the tools and knowledge to ensure that decisions about land and resource use, management practices, and development in the coastal zone and adjacent watersheds will be evaluated with a complete understanding of the probable effects on public health, coastal ecosystems, and community hazard resilience. The leveraging of capabilities across federal agencies and the development of regionally relevant products will be clearly demonstrated in the pilot areas with lessons learned identified for broader national implementation.

Statement of Need and Economic Benefits

Every year, natural and technological hazards in the United States cost an estimated \$52 billion in the form of lives lost and public and private properties destroyed (*Disasters by Design: A Reassessment of Natural Hazards in the United States*, NAS 1999). In 2008, more than 75 major disasters, including floods, hurricanes, earthquakes, tornadoes, and wildfires struck the United States (FEMA Annual Disaster Declaration Totals by State, 2009). The 2005 hurricane season was the costliest ever, with losses estimated at \$200 billion, due to the impacts of storm surge, flooding and wind (*Hurricane Season of 2005: Impacts on US P/C Insurance Markets in 2006 and Beyond*, Insurance Information Institute). Although we have greatly reduced the number of lives lost each year to natural disasters, the costs of major disasters continue to rise, as 71 percent (\$7B) of annual U.S. disaster losses occur in coastal areas where dense populations live and work in the paths of strong storms (*The Hidden Costs of Coastal Hazards: Implications for Risk Assessment and Mitigation* 2000).

As demonstrated by the devastating impacts of Hurricanes Katrina and Rita in 2005, coastal communities need improved, robust products and services to help them plan for, respond to, and recover from coastal storms. Faced with increasing vulnerability of coastal communities, coastal and emergency managers have expressed a need for comprehensive, timely and accessible information to aid in making decisions at critical times. As such, this increase will support priorities identified by State, regional, and interagency alliances and working groups (including, for example, the Gulf of Mexico Alliance, Great Lakes Interagency Task Force, and the US Group on Earth Observations, Joint Subcommittee on Ocean Science and Technology, and NSTC Subcommittee on Disaster Reduction).

Reducing economic, environmental and social losses requires collaboration at all levels and a coordinated, interagency approach. Integration of existing federal and non-federal programs and capabilities will provide the full suite of observational, research, and modeling assets required for meaningful application of research results in support of coastal policy, planning, management, and response. High-priority research and technology investments, coupled with sound decision-making at all levels, will dramatically enhance community resilience and reduce vulnerability. In particular, improved understanding and integration of information related to the ecosystem impacts of coastal storms (water quality, transport of nutrients, sediment, and contaminants, waves /water levels, and the coastal response to hurricane processes) will be addressed. In five years, coastal planners, resource and emergency managers, and policy makers at all governmental levels will have a wider variety of decision support tools, borne of diverse observations and models, at their disposal to make the best decisions for their coastal constituents and economies regarding to coastal hazards.

Performance Goals and Measurement Data

Performance Goal: Weather & Water	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Performance Measure: Number of regions with benchmark data, models and decision support tools to address watershed impacts of coastal storms.						
With Increase	N/A	1	1	2	2	3
Without Increase	0	0	0	0	0	0

Description: This measure tracks the number of regions in the U.S. where coastal planners, resource and emergency managers, and policy makers have cross agency integrated benchmark data and decision support tools to make the best decisions for their coastal constituents and economies regarding coastal hazards.

Gulf of Mexico Regional Collaboration (0 FTE and +\$1,000,000): NOS requests an increase of \$1,000,000 for a total of \$5,000,000 to support a targeted, competitive grant program to advance regional coastal resource priorities defined collaboratively by the five Gulf States in the Gulf of Mexico Alliance's June 2009 regional action plan, *The Governors' Action Plan II for Healthy and Resilient Coasts*.

Proposed Actions

With the requested funding NOAA will continue to support competitive grants awarded to accomplish regional coastal resource priorities in the *Governors' Action Plan II* that are aligned with NOAA's mandates and mission. The NOAA grant program is strategically-designed to solicit and competitively fund applications representing each priority area in the action blueprint steps listed in the *Governors' Action Plan II*. Eligible grant recipients will include state, local, and tribal governments, institutions of higher education, and non-profit organizations. Project awards typically range from \$750,000 to \$1,000,000 each, for one to three year projects. This increase will provide resources to fully fund project awards across the six priority areas – create hazard resilient coastal communities; ensure healthy beaches and shellfish beds; support habitat conservation and restoration; increase environmental education; promote ecosystem integration and assessment; and reduce nutrient inputs to coastal ecosystems. The review of grant applications will use strict criteria with assigned weights, and will be conducted by at least three independent reviewers, with a focus on strengthening regionally–collaborative solutions. NOAA's grant program will coordinate closely with other federal partners supporting the Gulf of Mexico Alliance and *Governors' Action Plan II*, and will not cover action steps where the Gulf States indicate that implementation is guaranteed by another partner or source of funding.

Statement of Need and Economic Benefits

The Gulf of Mexico Alliance is a partnership among state and federal agencies across the states of Alabama, Florida, Louisiana, Mississippi, and Texas, with the goal of significantly increasing regional collaboration to enhance the environmental and economic health of the Gulf of Mexico. At the request of the Council on Environmental Quality (CEQ), NOAA and EPA co-chaired a Federal Workgroup coordinating support from 13 federal agencies to the Gulf of Mexico Alliance to implement the first Governor's Action Plan. The US Department of Interior (DOI) has now joined NOAA and EPA as a co-chair to support implementation of the Action Plan II. In this role, NOAA, EPA and DOI work to increase collaboration among all federal partners, thereby increasing the effectiveness and efficiency of federal action in the Gulf of Mexico region.

The socioeconomic need for a regional, ecosystem-based, collaborative approach – as devised by the Gulf of Mexico Alliance – is compelling, and is strongly linked to NOAA mission goals. The Gulf of Mexico's population grew by 103 percent from 1970 to 2008, making it the second fastest growing coastal region in the United States (*Population Trends Along the Coastal United States: 1980-2000*, NOAA 2004). As demonstrated by the devastating impacts of hurricanes in recent years, coastal communities need improved, robust products and services to help them plan for, respond to, and recover from coastal storms. Keeping the Gulf of Mexico's beaches safe and clean is an economic imperative, as the Gulf tourist industry region tourism and recreational industries provide over 600,000 jobs and pay over \$9 billion in annual wages. Of the Nation's ten leading ports in waterborne tonnage, six are found in the Gulf of Mexico. The average annual commercial fish and shellfish harvest from the five Gulf States is 1.3

billion pounds, valued at \$662 million; over 83 percent of the total U.S. shrimp harvest and over 56 percent of the total U.S. oyster landings come from the Gulf region (NOAA 2008). Twenty-eight percent of the total U.S. marine recreational fishing trips are taken in the Gulf of Mexico, yielding over 40 percent of all U.S. marine recreational fishing catch (*The Gulf of Mexico at a Glance*, http://gulfofmexicoalliance.org/pdfs/gulf_glance_1008.pdf, NOAA 2008).

The benefits of a regional, ecosystem-based, collaborative approach are numerous, and are particularly germane in the Gulf of Mexico given the region’s historical hurdles to collaboration, including lack of resources. The regional approach put forth by the five Gulf State governors greatly increased coordination at the state and federal level, resulting in more efficient and effective government. All actions in the *Governors’ Action Plan II* directly support Gulf Coast recovery and contribute to more resilient coastal communities that protect lives and livelihoods. By working together, the five Gulf State Governors are building regional political strength, and are providing a working model of regional ocean governance called for in the U.S. Commission on Ocean Policy report. The federal agencies represented on the Federal Workgroup bring diverse expertise and established experience – coordinating and integrating these capabilities will maximize the impact of federal resources. Federal Workgroup support to the Gulf of Mexico Alliance focuses on providing Gulf managers with information and knowledge rather than just data. The Federal Workgroup will advance federal collaboration using the Gulf of Mexico as a laboratory for exploring better mechanisms for regional management, applying ecosystem-based management principles, applying integrated coastal and ocean observations for management purposes, and strengthening state-local-federal collaboration.

Performance Goals and Measurement Data

Performance Goal: Ecosystems Performance Measure: Percent outcomes accomplished in the Gulf of Mexico Alliance <i>Governors’ Action Plan II</i> .	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase*	N/A	65	75	80	85	90
Without Increase	25	35	35	45	55	55
Description: The <i>Governors’ Action Plan II</i> includes specific, measurable 60-month outcomes to track progress and completion of the plan’s actions. This increase will directly support the accomplishment of all of these outcomes. The five Gulf States, with support from NOAA, EPA, and DOI will track implementation progress using these measures on an annual basis, and report this progress to the Gulf State Governors, CEQ, and the general public.						

* Assumes funding provided by the U.S. EPA Gulf of Mexico Program

Response and Restoration (0 FTE and +\$1,400,000): NOS requests an increase of \$1,400,000 for a total of \$19,134,000 to support response and restoration activities. This increase will address critical shortfalls in NOAA’s ability to respond to oil spills and releases of hazardous materials. The funding will support the development of tools and techniques related to response and natural resource damage assessment with a strong focus on building and maintaining state-of-the-art 3-D models to predict contaminant movement in the environment.

Proposed Actions

NOAA has two roles related to contaminant release. The first is to inject science into the response framework at the point where it will produce better response decisions. The second is to assess natural resource injuries and ensure that these injuries are ultimately restored to baseline. The requested increase will advance these missions by supporting critical NOAA activities mandated by the Oil Pollution Act (OPA), the Superfund Act, and the NCP that cannot be conducted at current base funding levels. With the requested funds, NOAA will develop tools and techniques to increase the effectiveness of oil spill response with a strong focus on updating and maintaining oil prediction tools such as oil fate and trajectory models and 3-dimensional visualization. These models, and OR&R's response organization, are unique in their ability to produce trajectory predictions for spills within 2 hours of notification, 24 hours a day, 7 days a week.

Statement of Need and Economic Benefits

In 2008, NOAA received requests for scientific assistance related to 169 environmental incidents. Three-quarters of these were oil spills. NOAA's involvement in spill response helps keep the Marine Transportation System (MTS) running by bringing objective science to the decision-making process. For example, soon after Barge DM 932 spilled about 300,000 gallons of oil into the Mississippi River last July, oil was found in sediments dredged from a channel 100 miles downstream of the spill. At this time of year, constant dredging is needed to keep the channel open and prevent a shipping closure. But with oiled sediments, a dredging stoppage was imminent unless a dredged material disposal solution could be brokered. NOAA was able to negotiate a solution with other environmental agencies by defining standards that protected the environment and allowed shipping to continue. This is just one example of the challenges that are met and overcome by NOAA scientists responding to oil spills and other environmental incidents. In this case, a 3-D modeling capability would have allowed NOAA to anticipate the oily dredged sediment issue and resolve it even more quickly.

In another example, 3-D modeling would have been valuable during the 2004 *M/V Athos* spill in the Delaware River where submerged oil resulted in contamination of water intakes and the closure of the Salem Nuclear Power Plant, causing considerable economic impact. Better modeling and understanding of submerged oil behavior could have prevented the closure. The requested funds will allow NOAA to develop and maintain some of these tools and techniques, principally 3-D models, needed to improve NOAA's effectiveness and efficiency on future oil spill responses.

NOAA's response activities deliver payoffs in many areas including reduced environmental harm, reduced impact from shipping and fisheries closures, lowering costs of cleanup by finding the most cost-effective approaches, and reduced cost of restoring natural resources realized by cutting transaction costs. The Nation's dependence on the MTS creates an ongoing need to carry out preparedness and response actions that reduce the risks of spills and minimize the impact on commerce and the environment. With the very real possibility of increasing offshore oil development, the need for preparedness and response will continue to grow. Federal, State, and local agencies across the country rely on NOAA's support and scientific expertise in oil and chemical spills and other emergencies that threaten life, property and trust resources. To ensure a quick and effective response to mitigate any harmful effects and restore injured resources, NOAA must be prepared for spills by having adequate response capacity and capabilities on hand. As part of this function, OR&R fulfills Department of Commerce (DOC) natural trustee responsibilities, serves as the DOC representative on the National Response Team (NRT), and chairs the NRT's Science and Technology Committee, thus playing a unique science-based role in the National Response System.

Performance Goals and Measurement Data

Performance Goal: Commerce and Transportation Performance Measure: Number of resources and/or technologies available for emergency application to 3D forecasting of pollutant fate and transport.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	5	9	13	15	15
Without Increase	0	1	2	2	2	2
Description: This measure tracks NOAA’s ability to acquire or develop resources and/or technologies for the following critical 3D modeling areas: source strength, mapping, gridding, access to IOOS-sponsored hydrodynamic models and observations, high-resolution bathymetry, chemical behavior integrated with Lagrangian Element behavior, water property database for high priority estuaries, and improved visualization/distribution of 3D forecasts.						

Harmful Algal Bloom Forecasting (2 FTE and +\$2,700,000): NOS requests an increase of \$2,700,000 and 2 FTE for a total of \$3,000,000 to develop and implement operational forecasts of harmful algal blooms (HABs) by creating a national system of operational forecasts for HABs, and a national HAB event response capability. This increase builds on the capabilities developed through the current operational forecast system for the eastern Gulf of Mexico. The forecast system will be a collaborative effort of NOAA’s National Centers for Coastal Ocean Science (NCCOS), Center for Operational Oceanographic Products and Services (CO-OPS), Integrated Ocean Observing System (IOOS) Program, the National Marine Fisheries Services (NMFS), and the NOAA CoastWatch program (NESDIS) with state, local and federal management agencies, and the research community. Accurate, reliable, and timely information is critical to ensure public health is protected and to reduce the economic impacts.

Proposed Actions

With the requested funding, NOAA will develop and maintain a national system of operational forecasts of HABs in partnership with state, local, and federal managers. This system will be implemented regionally starting with the western Gulf of Mexico (operational in 2010), the lower Great Lakes (operational in 2011), the Gulf of Maine (operational in 2012), California (operational in 2013), and the Pacific Northwest (operational in 2014), and will provide (based on user input) twice weekly comprehensive forecasts and 8/5 support. NOAA will also develop and maintain a national HAB “event response” nowcast (operational in 2014) —a capability of providing data to managers who are responding to unusual HAB impacts. This capability can be deployed to regions without a full operational system in order to respond to incidents such as mass mortality of endangered species. The system will consist of several “forecasts”: nowcasts and forecasts of both location and intensity, the potential impact (swimming or respiratory risk, shellfish closures), and forecasts of start of events. These will be distributed through bulletins and web-sites that maximize value to managers. The total system effort will involve: transition of existing research capabilities to an operational status; leveraging national and regional capabilities for models and observations (especially those of IOOS); development of products and forecasts that are relevant and valuable to managers; production of forecasts; maintenance of the forecast production system, forecast validation and product improvement and evaluation of the socio-economic and public health impacts of the forecasts.

The existing operational system for the eastern Gulf of Mexico has been in place for three years and NOAA has issued nearly 400 bulletins in that time in response to HABs that have impacted over 1000 km of coast, with 90% weekly utilization by over 190 resource managers representing more than 50 organizations. The bulletins have been used managers for purposes such as guiding sampling and improving public advisories. The Forecasts reach a broad audience of the general public through the South Florida Poison Information Center hotline (most of the 5000 calls per year are on Florida HABs), and through the NOAA HAB Web-site (2000 hits per month during events).

The HAB forecasts and associated models, data, and analysis will permit coastal managers and emergency responders to make sound decisions on reducing the direct human health risk, protecting shellfisheries and shellfish industries by timely changes in management strategies, and reducing economic loss by designing mitigation strategies that are not possible without advance planning. These include precise identification of areas that will and will not be impacted, advanced planning for removal of dead fish, advisories to Chambers of Commerce, and public education. Each event can produce tens of millions of dollars in losses, both immediate and long term. The forecasts will reduce the uncertainties in scale, location, and lack of public information that produce these losses. In addition, the data and models will have value for other aspects of coastal management, such as ecosystem management strategies and managing protected species.

Statement of Need and Economic Benefits

Harmful algal blooms (HABs) are one of the most scientifically complex and economically significant coastal issues facing the nation. HAB toxins can cause human illness and death, close waters to recreation or seafood harvesting, severely impact tourist economies, alter habitats, and adversely impact fish, endangered species, and other marine organisms. HABs affect virtually every coastal state and have caused an estimated \$1 billion in economic losses over the past decade. One study in Florida estimated losses of \$6 million per month per county in tourism and seafood industries (*Harmful Algal Blooms and Coastal Business: Economic Consequences in Florida*, Larkin and Adams 2007). Current monitoring at the state level for shellfish safety and recreational water quality does not enable response until events occur and, as a result, cannot fully protect human health, or mitigate for socio-economic and cultural losses. As a result of the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA), NOAA has invested \$5-10 million per region over the last 10 years on research into understanding, control and mitigation of HABs, primarily through the Ecology and Oceanography of Harmful Algal Blooms (ECOHAB) and the Monitoring and Event Response of Harmful Algal Blooms (MERHAB) programs, with some additional support from the Oceans and Human Health Initiative. Significant research investments have also come from other agencies (NSF, NASA, EPA, NIEHS). Currently, there is no program to transition this important investment into operational forecasts that could reduce the impact of HABs, or to maintain and validate operational forecasts. While the state management agencies have a mandate and capability for determining HAB concentrations from water samples, they do not have the capabilities for running models, processing imagery, or managing and interpreting data from multiple observing systems.

This request addresses the U.S. Ocean Action Plan, which calls for the establishment of a "Forecasting System for Harmful Algal Blooms and implementation of HABHRCA and Oceans and Human Health Act, vital components to understanding the causes and impacts of HABs and in developing products to prevent, control, mitigate, or forecast HAB events." The request is consistent with recommendations for Ecosystem and Human Health found in the Ocean Research Priorities Plan and Implementation Strategy (ORPP), and supports the transition of products and sensors developed through the Oceans and Human Health Initiative (OHHI), Ecology and Oceanography of Harmful Algal Blooms (ECOHAB), Monitoring and Event Response of Harmful Algal Blooms (MERHAB), and the ORPP near-term priority "sensors for marine ecosystems."

Performance Goals and Measurement Data

Performance Goal: Ecosystems Performance Measure: Increase forecast skill of new regional Operational HAB Forecast Systems (% over regional baseline)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	establish baseline skill	+10%	+20%	+30%	+40%
Without Increase	N/A	N/A	N/A	N/A	N/A	N/A
Description: This measure tracks a combination of forecast accuracy (whether the event will happen) and resolution (i.e. whether it will happen in a 50km area or within a 10km area) in order to measure improvements in the operational forecast system.						

Performance Goal: Ecosystems Performance Measure: % of regions susceptible to HABs with Operational HAB Forecast Systems	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	32%	48%	64%	80%	90%
Without Increase	16%	16%	16%	16%	16%	16%

Description: NOAA is working towards a national system of operational forecasts for harmful algal blooms targeted at susceptible regions. This measure tracks the implementation of the system.

Performance Goal: Ecosystems Performance Measure: Improve forecast accuracy of Gulf of Mexico Operational HAB Forecast System	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	80%	82%	84%	86%	88%
Without Increase	78%	78%	78%	78%	78%	78%

Description: This measure tracks the improvement in forecast accuracy for the existing operational system in the Eastern Gulf of Mexico.

Coastal Storms (0 FTE and \$874,000): NOAA requests an increase of 0 FTE and \$874,000. This increase is requested to support existing program requirements within this subactivity but not provided for in the Omnibus Appropriations Act, 2009.

National Centers for Coastal Ocean Science (0 FTE and \$161,000): NOAA requests an increase of 0 FTE and \$161,000. This increase is requested to support existing program requirements within this subactivity but not provided for in the Omnibus Appropriations Act, 2009.

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: IOOS Regional Observations (\$5,445,000); Alliance for Coastal Technologies (\$1,000,000); Coastal Services Center (\$21,000); Pacific Coastal Services Center (\$4,500,000); Hawaii Coral Reef Initiative (\$700,000); National Coral Reef Institute (\$1,000,000); Coral Reef – Puerto Rico (\$240,000); Coral Reef Program (\$2,271,000); Ocean Health Initiative (\$3,000,000); Lake Erie Monitoring (\$605,000); Maui Coral Reef Preservation and Restoration, HI (\$185,000); UTMSI - Center for Biological Indicators of Change in Coastal Ecosystem Health, TX (\$500,000); Water Quality Improvements in Port Jefferson Harbor, NY (\$155,000); Response and Restoration Base (\$2,025,000); Estuary Restoration Program (\$1,000,000); Aquatic Resources Environmental Initiative (\$1,000,000); Lake Pontchartrain Initiatives (\$250,000); Narragansett Bay and Little Narragansett Bay Watershed Restoration, RI (\$1,000,000); National Centers for Coastal Ocean Science (\$4,542,000); Western Pacific Coral Reef Ecosystems Studies Program (CSCOR-NCCOS), Guam (\$350,000).

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Ocean Service
 Subactivity: Ocean Resources Conservation and Assessment

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Physical Scientist	Silver Spring, MD	ZP-04	1	86,927	86,927
Oceanographer/Physical Scientist	Silver Spring, MD	ZP-04	1	86,927	86,927
IT Specialist	Silver Spring, MD	ZP-03	1	60,989	60,989
Oceanographer/Physical Scientist	Silver Spring, MD	ZP-03	1	60,989	60,989
Total			4		295,832
less Lapse		25.0%	1		73,958
Total full-time permanent (FTE)			3		221,874
2010 Pay Adjustment (2.0%)					4,437
TOTAL					226,311

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	3
Other than full-time permanent	0
Total	3
Authorized Positions:	
Full-time permanent	4
Other than full-time permanent	0
Total	4

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity:	National Ocean Service	
Subactivity:	Ocean Resources Conservation and Assessment	
	Object Class	2010 Increase
11	Personnel Compensation	
11.1	Full-time permanent	226
11.5	Other personnel compensation	2
11.9	Total personnel compensation	228
12	Civilian personnel benefits	61
21	Travel and transportation of persons	150
22	Transportation of things	20
24	Printing and reproduction	35
25.2	Other services	6,911
25.3	Purchases of goods & services from Government accounts	1,900
26	Supplies and materials	170
31	Equipment	160
41	Grants, subsidies and contributions	2,500
99	Total Obligations	12,135

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Appropriation: Operations, Research, and Facilities
Subactivity: Ocean and Coastal Management

The objectives of the Ocean and Coastal Management subactivity are to:

- Maintain and improve the quality of the Nation’s coastal lands and waters through a national network of Federally-approved, coordinated, and supported state management programs.
- Maintain the balance between resource protection and coastal-dependent economic activity.
- Provide technical assistance to states in the development, implementation, and improvement of state CZM programs and estuarine research reserves.
- Identify areas of the marine environment of special national significance due to their resource or human-use values.
- Implement the framework for a national network of Federal, state, tribal and local marine protected areas.
- Support and coordinate scientific research on, and monitoring of, resources in protected areas.
- Coordinate the development of information, tools, strategies, and guidance to enhance and expand the protection of marine protected areas.
- Protect and manage a system of nationally significant special marine areas through a comprehensive conservation program.
- Enhance public awareness and understanding of the marine environment.
- Facilitate public/private uses of the resources of special marine areas compatible with resource protection.

To achieve these objectives, NOAA conducts activities in several program areas within the Office of Ocean and Coastal Resource Management (OCRM), the Marine Protected Areas Center and the Office of National Marine Sanctuaries (ONMS). These activities are conducted under the authority of the Coastal Zone Management Act (CZMA), the National Marine Sanctuaries Act, Executive Order 13158 on Marine Protected Areas, and Presidential Proclamations 8031 and 8337.

The Ocean and Coastal Management subactivity contains two items: Coastal Management and Ocean Management.

COASTAL MANAGEMENT (<http://coastalmanagement.noaa.gov>)

The Nation's coastal and ocean areas represent some of its most ecologically and economically important regions. Congress recognized this fact in 1972 when it passed the CZMA. This act created a national framework for coastal protection through the Coastal Zone Management program and National Estuarine Research Reserve System. Executive Order 13158 recognized the importance of these areas as well, by directing the federal government to significantly strengthen and expand the national system of marine protected areas (MPAs), working closely with state, territorial, local and tribal trustees and other stakeholders.

OCRM supports this national framework for coastal management and provides leadership to balance the use and protection of the Nation's coasts and oceans. All programs administered by this Office directly support NOAA's Strategic Plan Mission Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

CZM GRANTS - The purpose of the national Coastal Zone Management (CZM) Program is to maintain and improve the Nation's coastal lands and waters through a national network of federally-approved, coordinated, and supported state management programs. This program seeks to maintain the balance between the needs of resource protection and coastal-dependent economic activity. This program recognizes the significance of coastal resources to our Nation's population and economy and promotes improved management of these important assets. Federal matching funds are provided through cooperative agreements to support state staff and community projects that address the broad spectrum of coastal management issues ranging from habitat conservation and protection of life and property from coastal hazards, to urban waterfront and port revitalization (Section 306/306A CZMA). There are currently 34 (out of 35 eligible) coastal and Great Lakes states, territories and commonwealths with federally-approved coastal management programs, protecting more than 99 percent of the nation's 95,331 miles of ocean and Great Lakes coastline. This state based component is supported by the National Program.

The 2010 budget continues efforts to increase the effectiveness of the coastal management program by better targeting grant funding to address significant national issues. NOAA has been working with the coastal management community to undertake a visioning effort to better define and prioritize those significant national issues. The results of this visioning effort will be reflected in the grants awards process, including increased competition in the Coastal Zone Enhancement grants.

NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM (NERRS) (<http://www.nerrs.noaa.gov/>) - NERRS (Section 315 CZMA) is a national network of estuarine protected areas representing the diverse biological and physical characteristics of estuarine systems of the United States. Reserves are owned and operated by state agencies or universities. Reserves serve as living laboratories and local, regional, and national sources of technical information, training, and education on estuaries. A new National Estuarine Research and Technology Program was instituted in FY 2009. The reserve system serves as a testing ground for the improvement of coastal resource management. There are currently 27 designated reserves in 22 states and territories covering over one million acres of estuarine lands and waters. This state based component is also supported by the National Program.

CZMA NATIONAL PROGRAM - The programs described above, CZM Grants and NERRS, as well as the NERRS Acquisition and Construction grants (under Procurement and Acquisition), are implemented with the resources provided in the budget for the CZMA National Program. In addition to negotiating and processing more than 100 grants and cooperative funding agreements each year, OCRM staff carry out numerous critical functions necessary to execute these programs. These functions include:

- Providing management assistance to states in the development, implementation, and improvement of state CZM programs and estuarine research reserve management plans, which are assessed or updated every five years to reflect changing circumstances;
- Analyzing national issues and trends in coastal resource management and measuring the results of the CZMA programs;
- Conducting programmatic evaluations of each state CZM program and NERR every three to five years;
- Reviewing federal agency actions for compliance with the federal consistency provisions of Section 307 of the CZMA;
- Conducting training, outreach, and education activities concerning coastal issues;
- Providing technical leadership, coordination, and management of NERRS system-wide education, training, research, monitoring, and technology development programs;

- Providing policy guidance and assistance to states on interpretation of CZMA requirements, as well as those of other federal statutes and programs, and;
- Administering outstanding loans and repayments to the Coastal Zone Management Fund from the Coastal Energy Impact Assistance Program.

MARINE PROTECTED AREAS (MPA) PROGRAM (<http://mpa.gov/>) NOAA's MPA Program, in coordination with the Department of the Interior, fills a long-standing need for objective science, policy, and management tools to advance the effective use of MPAs in meeting diverse conservation and management objectives. The MPA Center's primary goal is to work with MPA programs, managers and stakeholders to develop a comprehensive and integrated national system of MPAs that more effectively conserves and protects our significant areas of natural and cultural marine heritage. Moreover, the Center facilitates coordination among the various federal, state and tribal MPA programs to improve the effectiveness of existing MPAs and accomplish conservation goals that could not otherwise be achieved. The MPA Center is headquartered in Silver Spring, Maryland, with scientific support in Monterey, California. A diverse MPA Federal Advisory Committee -- including representatives of industry, user groups, scientists, and others -- was established in 2003 to provide advice on the establishment and management of the national system.

OCEAN MANAGEMENT

The goal of the National Marine Sanctuaries Act (NMSA), as amended (16 U.S.C. 1431 *et seq.*), is to designate, manage, and protect areas of the marine environment which possess conservation, recreational, ecological, historical, research, educational or aesthetic qualities which give them special national significance. The primary purpose of the NMSA is resource conservation and protection.

In the Ocean Management Line Item, NOAA administers the National Marine Sanctuary System (NMSS) under authority of the NMSA. There are 13 designated national marine sanctuaries, and two marine national monuments including the recently designated Rose Atoll Marine National Monument. The Papahānaumokuākea Marine National Monument (established by the President on June 15, 2006 as the NWHI Marine National Monument) is the largest marine protected area in the world and stretches 1,200 miles, the distance from Chicago to Miami. The Rose Atoll Marine National Monument (established January 6, 2009) is one of the most pristine atolls in the world, its 1600 acres of marine area supporting a dynamic reef ecosystem characterized by a pink hue from crustose coralline algae. The 13 designated sanctuaries include: Monitor (NC), Channel Islands (CA), Gray's Reef (GA), Gulf of the Farallones (CA), Fagatele Bay (AS), Cordell Bank (CA), Florida Keys (FL), Flower Garden Banks (TX/LA), Gerry Studds Stellwagen Bank (MA), Monterey Bay (CA), Olympic Coast (WA), Thunder Bay Underwater Preserve (MI) and Hawaiian Islands Humpback Whale (HI). The sanctuaries range in size from one-quarter square mile in Fagatele Bay to over 5,300 square miles in Monterey Bay. Together, these sanctuaries encompass over 18,000 square miles of waters and marine habitats. The monuments and sanctuaries protect special habitats that include deep ocean and near-shore coral reefs, live bottom, whale migration corridors, deep sea canyons, areas of deep water upwelling, submerged banks that rise close to the ocean surface, kelp forests, and sea grass beds, as well as special maritime heritage assets. With the increasing environmental pressures on our Nation's coastal areas, the importance of maintaining a system of marine protected areas is evident. The NMSS is increasing our knowledge and understanding of complex marine ecosystems. By monitoring human and natural changes in these sentinel sites, NOAA's marine sanctuaries and marine monuments help preserve the Nation's marine environments.

NATIONAL MARINE SANCTUARY SYSTEM (NMSS) (<http://sanctuaries.noaa.gov/>)

The ONMS operates and manages the Nation's system of marine sanctuaries and two marine national monuments. Individual sanctuary and monument offices are responsible for the daily operation of a wide variety of education, research, monitoring and management programs. The activities that each site undertakes include: development, implementation, and systematic review of comprehensive management plans to protect these unique areas; development and implementation of local research and monitoring programs to better understand the resources and potential impacts on those resources; development and implementation of cultural resource programs to survey and inventory resources to ensure their long-term protection; development and implementation of education and outreach activities to inform the public about the value of marine resources and how human activities impact the marine environment; coordinating through partnerships to ensure enforcement of sanctuary regulations; permitting of otherwise prohibited activities to allow valuable research and education activities; management of volunteer programs that monitor and educate on marine resources; and management of citizen advisory councils to ensure that each sanctuary is responsive to community needs. In addition, each site is engaged in a number of partnership relationships with other federal agencies, state agencies, local universities, and other local institutions.

Regional offices work to capitalize on potential regional opportunities and partnerships, and coordinate with other federal agencies, many of which operate at a regional level. The regions help to more efficiently coordinate various programs and assets among the sites, regions and headquarters. The regions also provide an improved basis for program integration with NOAA's evolving ecosystem management approach.

Programmatic oversight, guidance, and support from the headquarters office ensure that the sites function as a coordinated system. Headquarters functions include the development of programmatic initiatives, such as system-wide research, monitoring, cultural resource, education, and outreach programs; policy development; budget development and tracking; legislative and regulatory initiatives; review and revisions of management plans; development and designation of new sites; and overall guidance and program direction. These functions ensure that the NMSS is an integrated system that has greater national impact than the sum of the individual site actions.

PROGRAM CHANGES FOR FY 2010:

CZMA National Program (0 FTE and +\$1,140,000): NOS requests an increase of \$1,140,000 for a total of \$8,435,000 to provide national leadership in implementation of the Coastal Zone Management Act (CZMA). These funds support critical needs as NOAA works with numerous partners to implement cooperative agreements with 34 coastal states, as well as operational and construction grants for the 27 National Estuarine Research Reserves.

Proposed Actions

In order to implement the requirements of the CZMA, including the Coastal Zone Management (CZM) Program and the National Estuarine Research Reserve System (NERRS), and to advance national objectives, NOAA must have a strengthened Federal role in coastal management. These funds will enable NOAA to review environmental impact statements and conduct program and document review in preparation for designation of a National Estuarine Research Reserve in Wisconsin; as well as the proposed Illinois coastal zone management program; begin developing new management approaches that better integrate coastal management programs across all levels of government and disciplines, particularly in the areas of policy and management, and technical assistance and training, as well as in the area of federal consistency; all with a focus on establishing and achieving specific targeted outcomes from NOAA's coastal programs. NOAA will enhance its ability to understand and respond to national issues and trends in coastal resource management; and build capacity to enhance programmatic evaluations of CZM programs through the establishment of state-level performance goals.

Statement of Need and Economic Benefits

The Nation's coastal communities and economies depend on healthy coastal resources and these assets are threatened by inadequate, fragmented planning for and management of societal use of coastal lands and waters. Coastal communities and economies face risks from a number of stressors, including explosive population growth, resource depletion and degradation, associated negative human health impacts, and use of high-hazard areas. Increased demands for offshore energy, aquaculture, and marine transportation, coupled with increased interest in area-based conservation, have enhanced the need to sustainably manage finite coastal and ocean areas and competing uses. Climate change is expected to amplify these challenges.

While only 17% of the Nation's land area is coastal, it supports over 50 percent of our population and generates nearly 60% of the U.S. gross domestic product (*Population Trends Along the Coastal United States: 1980-2000*, NOAA 2004). Coastal areas support 90% of ocean-dependent commercial and sport fish species, generate billions of recreation and tourism dollars annually, and protect coastal communities from storms, floods and other hazards (*The Economic and Market Value of Coasts and Estuaries: What's at Stake?*, Pendelton 2008). U.S. coastal wetlands reduce the damaging effects of hurricanes and other storms on coastal communities, providing more than \$23 billion in annual storm protection services to cities and regions most vulnerable to hurricane and tropical storm surges (*The Value of Coastal Wetlands for Hurricane Protection*, Costanza et al. 2008).

The Congress recognized many of these issues in 1972 when it passed the Coastal Zone Management Act (CZMA). This act created a national framework for coastal protection through the Coastal Zone Management program and National Estuarine Research Reserve System. NOAA's Office of Ocean and Coastal Resource Management (OCRM) is responsible for implementing the CZMA, supporting the national coastal management framework, and

providing leadership to balance the use and protection of the Nation's coasts and oceans. All programs administered by this Office directly support NOAA's Strategic Plan Mission Goal to “protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

Performance Goals and Measurement Data

Performance Goal: Ecosystems Performance Measure: Multi-year CZ state-specific performance goals established.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	0	10	20	34	34
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number of states with grant-based multi-year performance goals and targets established.						

Performance Goal: Ecosystems Performance Measure: Federal Consistency Workshops Delivered	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	6	6	6	6	6
Without Increase	3	3	3	3	3	3
Description: This measure tracks the ability of the program to provide critical training to enhance partner understanding and competencies in applying federal consistency regulations.						

Coastal Stewardship and Coastal Economies (0 FTE and +\$2,000,000): NOS requests an increase of \$2,000,000 and 0 FTE for a total of \$2,000,000 to convene a task force of representatives of key public, private, non-governmental, and university communities to revise the future of the nation’s coasts and NOAA’s role. The group, the Coastal Communities Task Force or CCTF, would specifically address enhancing coastal community economies while protecting and conserving ecologically sensitive areas. America’s coastal cities and communities face a diverse range of environmental and economic challenges such as marine renewable energy development, coastal habitat loss, and climate change. The purpose of the CCTF is to chart a new course of effective, meaningful action for management of the nation’s valuable coasts based on policy reform and strategic action at the local planning level.

The CCTF will directly address and coordinate the implementation of major recommendations of the Ocean Commission, Pew Commission, the Joint Ocean Commission Initiative (JOCI), regional ocean governance initiatives, and various climate change reports. In particular, this effort will increase NOAA’s effectiveness in implementing Coastal Zone Management Act (CZMA) goals and objectives and NOAA’s coastal strategy. This Task Force will be more than just a study or advisory commission but a major step forward in implementing strategies and delivering on a national commitment to and investment in America’s coastal cities and communities to safeguard their environmental and economic future.

NOAA has an important role to play in improving the health of coastal ecosystems and communities. Under the CZMA, NOAA has a responsibility to assist states and federal agencies in planning and development in state and federal waters. As part of this role, NOAA is well-positioned to coordinate various federal agency programs that affect coastal ecosystems and communities and help reduce the current confusion resulting from fragmented policies and regulations. NOAA's role is to bring leadership in interagency coordination and strong state and regional ties through the Coastal Zone Management Program, Sea Grant, National Estuarine Research Reserves, Office of Habitat Conservation and other partnerships and programs to support the CCTF and to develop shared strategies that advance local and national priorities for advancing alternative energy development, adapting to climate change, promoting ecosystem-based approaches, and identifying, protecting and restoring special coastal and marine areas. Additionally, NOAA will contribute management and scientific expertise in coastal zone management, marine mapping and planning, remote sensing, and observing, in support of the Task Force.

NOAA will benefit from this effort because we cannot realize the goals of the CZMA at a national level without the coordinated management, community planning, and effective laws and regulations at the local and state level. To address the varied and complex coastal issues they face, local leaders need good information about the biophysical environment, about how their quality of life and economy depend on specific coastal and ocean resources, and about how key components of ecosystems relate to and depend on each other.

Proposed Actions

With the requested funds, NOAA will establish and convene the CCTF. NOAA's CCTF will galvanize the governance, science and private sector communities to address current and emerging coastal management needs by:

- Identifying key issues and goals – The Task Force will convene a diverse group of experts, including state level policy makers, scientists, academics, and a broad range of federal agencies in specific geographic areas based on ecological and socioeconomic characteristics (Local Planning Area) to identify priority coastal issues and set management goals to address these issues on the appropriate scale, building on previous reports and recommendations.
- Assessing coastal conditions - Building on existing information from a range of sources, including NOAA, Federal and State agencies, and academia, the Task Force will conduct workshops to elaborate on existing information and fill gaps to ensure goal-setting and implementation strategies are based on the best available information. NOAA will provide training to ensure coastal decisionmakers understand how to use NOAA information and tools. These assessments will identify a baseline for setting and achieving local and regional objectives; be based on the best available science; articulate current conditions of coastal and ocean ecosystems; and identify current and anticipated threats and vulnerabilities to the sustainability of coastal ecosystems and communities. The assessments would identify factors for mitigation and adaptation, analyze the direct, indirect and cumulative impacts on coastal resources and communities of anticipated future development and growth, and describe the existing governance structures that impact the coastal resources and any weaknesses of the current governance structure.
- Integrating local information to create local planning area action agendas - These action agendas will be dependent on the results of the first two activities, but NOAA envisions the Task Force initiating coordinated planning with coastal States, communities, emerging regional efforts, and other interests to guide economically and environmentally smart development decisions at the local level. The planning guidance would be based

on an understanding of the economic and environmental impacts associated with coastal adaptation to climate change, marine renewable energy development, and coastal habitat protection and restoration and area conservation at the local level gathered in the assessment phase.

- Training and assistance to communities on marine spatial planning - To effectively meet the growing challenge of balancing competing coastal and ocean uses, NOAA will lead engagement in comprehensive marine spatial planning to support states and local communities needs. NOAA will contribute relevant spatial data and provide a planning framework to guide analyses, trade-offs, and decisions about specific ocean areas. NOAA will combine policy leadership with targeted management assistance to assist the CCTF and stakeholders.

The CCTF will take a regional approach, starting in one local planning area to set the process in motion and then moving to the next local planning area. The CCTF will provide recommendations to a range of entities—federal, state, and local governments, as well as nongovernmental, academic, and private sector interests—to improve the environmental health and resilience of coastal communities and the ecosystems they depend on. More importantly, this Task Force will be a catalyst for positive change by identifying and coordinate the implementation of strategies that can be used at the local level to address the highest coastal community needs.

Statement of Need and Economic Benefits

The need for federal coordination and leadership in sustainable management of the nation’s coasts has been clearly articulated by local and state officials. Examples include the 2008 National Action Agenda on Environment and Energy for the Next President of the United States, where the Council of Mayors remarked that “Actions are needed now if we have any hope to curtail the negative environmental impacts that climate change will have on this nation and the world. For too long, we have dealt with these issues in a piecemeal fashion and have not addressed our environmental and energy needs in a comprehensive manner. These are national issues that require national solutions, including increased federal investment and coordination.” In addition, in 2007 nineteen local and state elected officials from California, Oregon, and Washington requested guidance from the JOCI on high priority actions that they could take to improve the health of coastal and ocean ecosystems. The JOCI provided recommendations on actions local leaders could take to implement an integrated approach to coastal community health and sustainability. Many of the JOCI recommendations are directly pertinent to the creation and mandate of the proposed NOAA CCTF, including coordinating citizens, agencies, and stakeholders across jurisdictions and sectors in identifying and implementing strategies to achieve goals based on local and regional needs; collect and integrate locally–relevant information that is critical for informed decision making; and plan for climate change impacts at all levels of government including development of local climate change adaptation plans to prepare coastal communities and ecosystems.

The Nation’s coastal communities and economies depend on healthy coastal resources and these assets are threatened by inadequate, fragmented planning for and management of societal use of coastal lands and waters. Coastal communities and economies face risks from resource depletion and degradation, associated negative human health impacts, and use of high-hazard areas. At the same time, increased demands for offshore energy, aquaculture, and marine transportation, coupled with increased interest in area-based conservation, have enhanced the need to sustainably manage finite coastal and ocean areas and competing uses. Climate change is expected to amplify these challenges.

Coastal natural resources and communities are at risk. Coastal wetlands continue to be lost at a rate of approximately 60,000 acres per year, principally due to coastal development and inundation (Stedman and Dahl, 2008). If the frequency and intensity of hurricanes increases in the future, as some are

predicting as a result of climate change, the value of coastal wetlands for protection of these storms will also increase (Costanza 2008). In fact, local governments spend an estimated \$15 billion annually for Great Lakes restoration (Great Lakes Commission 2008).

The convergence of increasing population, natural resource use and loss, and increasing coastal hazards will affect the daily lives of Americans as they use products shipped into U.S. ports, consume seafood, and vacation along the coasts. Coastal health and community resilience also can affect the federal budget in terms of disaster losses, public health issues, and impacts on local economies. The magnitude, scope, complexity, and urgency of these issues require national leadership at multiple levels. This Task Force is a key component in NOAA’s effort to lead the Nation to meet these environmental and economic challenges.

Performance Goals and Measurement Data

Performance Goal: Ecosystems Performance Measure: Cumulative number of planning areas participating in locally-based coastal planning Task Force efforts	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	2	4	6	8	10
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number of local planning areas participating in this effort. A Local Planning area is defined as specific geographic area based on ecological and socioeconomic characteristics at a scale appropriate to the issue and goal. NOAA will identify these areas based on proposals using criteria such as: need; extent of science-based data available, governance structures in place, etc.						

Emerging energy responsibilities (3 FTE and +\$1,900,000): NOS requests an increase of \$1,900,000 and 3 FTE to meet statutory, regulatory, and mission requirements relating to historical, new, and alternative ocean and coastal energy development responsibilities.

Proposed Actions

The requested increase will enable NOAA to more effectively administer its current legal authorities and respond to anticipated requirements related to ocean and coastal energy development. As a result, NOAA will be able to make sound decisions on behalf of the public and NOAA trust resources while providing timely and complete responses to interested parties seeking to exercise their rights under the law. Specifically, through the Office of Ocean and Coastal Resource Management (OCRM), NOS proposes to:

- Provide additional technical assistance to meet an increase in coastal states updating their ocean and coastal energy-related laws and regulations. Incorporate the updated laws and regulations into state coastal zone management programs, as required by the Coastal Zone Management Act (CZMA), and build a database of all these laws and regulations. This will provide a necessary legal underpinning for the application of the Federal Consistency provisions of the CZMA and improve federal agency and private sector awareness of state requirements for energy projects.
- Increase training for states, federal agencies, and the private sector to improve the understanding of and application of the Federal Consistency provisions of the CZMA.

- Expand expertise needed to coordinate with and respond to state and federal agencies, energy sectors, and other stakeholders on proposed ocean and coastal energy projects, as required by numerous federal statutes. This will result in energy project proposals that are consistent with the needs of trust resources and coastal communities, a more streamlined project approval process, and help resolve more Federal Consistency issues prior to appeals to the Secretary of Commerce.
- Lead policy coordination of Federal Consistency appeals to provide increased management input and to meet significant new, stricter time and process requirements of the Energy Policy Act of 2005.

New resources will be used to hire staff and enter into contracts to augment existing policy, management, and legal capabilities and to begin adding expertise in scientific and/or technical fields. Requested funds would allow OCRM to better meet its statutory requirements, consultative responsibilities, and more proactively address potential negative impacts for coastal areas.

Statement of Need and Economic Benefits

As the Nation strives to address current and projected energy needs, it is increasingly turning to the ocean and coasts to provide and transport traditional energy supplies and emerging alternative methods to harness ocean power. Examples of energy activities occurring or being proposed in coastal areas include oil and natural gas, liquefied natural gas (LNG), hydropower, offshore wind, tidal, and ocean thermal energy. Energy projects have real or potential impacts on the coastal biological and physical environment, plus have important socio-economic impacts. These demands are increasing the need to assess new technologies, facilitate the appropriate siting of energy-related activities, and to coordinate authorities of states and federal agencies and the interests of affected parties.

NOAA is responsible for assessing the potential effects on trust resources and existing coastal uses of concern. OCRM has direct decision-making responsibilities under the Coastal Zone Management Act, Ocean Thermal Energy Conversion Act, and the National Environmental Policy Act. OCRM also has responsibilities for consultation or other assistance under the, Energy Policy Act, Deepwater Ports Act, and National Marine Sanctuaries Act among others. Federal agencies, states, and the energy sector are increasingly requesting expertise in coastal policy and management implications, Federal Consistency, and mediation among disputing parties. There are many challenges to reviewing new energy technologies deployed in the ocean and coastal environment. Likewise there is recognition of the need to develop adaptive management strategies, and the need to work with industry in a manner that allows the industry to move forward with commercially, financially feasible projects while fulfilling NOAA's trust responsibilities.

However, an increase in the types and volume of coastal energy projects has exceeded OCRM's capacity to meet these requests and the gap in capacity will continue to widen with growth in these activities. For example, energy-related federal consistency activities by state coastal programs have increased by 2 – 3 times in the past two years, and the trend is still going up. Additional funds are needed address energy-related policy, management, research, and legal needs.

Performance Goals and Measurement Data

Performance Goal: Ecosystems	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Performance Measure: Average number of days required to review and approve or deny proposed changes to state enforceable policies.						
With Increase	N/A	100	75	75	60	60
Without Increase	100	100	105	110	110	110
Description: Before a change can be made to the enforceable policies (laws and regulations) of a state or territory's federally approved Coastal Zone Management Program, it must be submitted to NOAA for review and approval. This measure tracks NOAA's efforts to reduce the time needed to review and reach a decision on proposed changes to state enforceable policies.						

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Non-point Pollution Implementation Grants (\$3,900,000); Marine Protected Areas (\$772,000); Marine Sanctuary Program Base (\$3,030,000); Northwest Straits Citizens Advisory Commission (\$1,600,000); City of Mobile Nat'l Maritime Museum of the Gulf of Mexico, AL (\$500,000); Hawaii Institute Of Marine Biology Coral Research, HI (\$2,000,000); Thunder Bay, NMS lease buydown, MI (\$1,000,000); Lake Winnepesaukee Watershed Management Plan, NH (\$100,000); Perdido Pass Inlet Management Study, AL (\$250,000).

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Ocean Service
 Subactivity: Ocean and Coastal Management

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Coastal Management Specialist	Silver Spring, MD	ZA-03	3	60,989	182,967
Program Analyst	Silver Spring, MD	ZA-04	1	86,927	86,927
Total			<u>4</u>		<u>269,894</u>
less Lapse		25.0%	1		67,474
Total full-time permanent (FTE)			<u>3</u>		202,421
2010 Pay Adjustment (2.0%)					4,048
TOTAL					<u>206,469</u>

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	3
Other than full-time permanent	0
Total	<u>3</u>
Authorized Positions:	
Full-time permanent	4
Other than full-time permanent	0
Total	<u>4</u>

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: National Ocean Service
Subactivity: Ocean and Coastal Management

Object Class	2010 Increase
11 Personnel Compensation	
11.1 Full-time permanent	207
11.9 Total personnel compensation	207
12 Civilian personnel benefits	53
21 Travel and transportation of persons	200
22 Transportation of things	5
24 Printing and reproduction	75
25.2 Other services	4,433
26 Supplies and materials	34
31 Equipment	33
99 Total Obligations	5,040

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**Appropriation: Procurement, Acquisition, & Construction
Subactivity: Construction**

The NOS Procurement, Acquisition, & Construction subactivity includes three line items.

Coastal and Estuarine Land Conservation Program (<http://coastalmanagement.noaa.gov/land/welcome.html>)

The Coastal and Estuarine Land Conservation Program (CELCP) provides grants to state and local governments to protect important coastal and estuarine areas that have significant conservation, recreation, ecological, historical or aesthetic values, or that are threatened by conversion from their natural or recreational state. The federal grants require matching funds, which leverage additional state, local or private contributions. NOAA has developed and issued guidelines delineating criteria for grant awards and a process for conducting a national competitive grants program under the CELCP. Through this program, NOAA supports efforts to protect important stream corridors and habitats, reduce the flow of polluted runoff into coastal waters, lessen the impacts of coastal flooding from severe storm events, and provide opportunities for coastal recreation and nature-based tourism.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Estimate to complete*	Total Program Estimate
CELCP								
Change from FY 2010 Base		0	0	0	0	0	-	
Total Request	231,424	15,000	15,000	15,000	15,000	15,000	N/A	N/A

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

National Estuarine Research Reserve System Construction/Acquisition (<http://www.nerrs.noaa.gov/>)

The National Estuarine Research Reserve System (NERRS) is a Federal-state partnership established under the CZMA designed to protect and understand valuable estuarine resources through research and education. Reserves are publicly owned lands and onsite facilities that provide opportunities for researchers as well as the public to better understand these estuarine areas. Supplementing or updating facilities at the 27 reserves will be carried on in conjunction with the development of system-wide construction plans. All construction activities are carried out based on the current needs for implementing core NERRS programs and external opportunities for partnerships. When it is available, reserves will acquire additional, previously identified near-by critical habitat to increase protection and provide places for conducting long-term science, education, and demonstration programs. The facilities and land of the reserves are owned and managed by the states in this Federal-state partnership.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Estimate to Complete*	Total Program Estimate
National Estuarine Research Reserve Construction and Land Acquisition								
Change from FY 2010 Base		0	0	0	0	0		
Total Request	87,646	3,890	3,890	3,890	3,890	3,890	N/A	N/A

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

National Marine Sanctuary Program Construction/Acquisition (<http://sanctuaries.noaa.gov/>)

NOAA administers the National Marine Sanctuary System under authority of the National Marine Sanctuaries Act. The National Marine Sanctuary Program (NMSP) operates and manages the nation's system of 13 marine sanctuaries and the Papahānaumokuākea Marine National Monument. The program is implementing a comprehensive facilities plan that prioritizes needs and opportunities at individual sites for constructing exhibits, collaborative education and visibility projects and operational needs. In order to help establish understanding and appreciation for sanctuary resources by the public, the program is constructing a network of exhibits, signage and kiosks. Whenever possible, sanctuaries will utilize existing aquaria, museums and other appropriate facilities to develop cooperative centers, where the public and environmental decision makers can gain direct, objective and focused information on conservation issues. These facilities serve as important windows into the resources of the sanctuaries. The goal of these exhibits is to share with the public these ocean treasures. In addition to these efforts, PAC funding supports operational facility requirements for NOAA-owned facilities, including safety improvements, ADA (Americans with Disabilities Act) upgrades, and replacement and repair.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Estimate to Complete*	Total Program Estimate
National Marine Sanctuaries Construction Base								
Change from FY 2010 Base		0	0	0	0	0	0	
Total Request	83,856	5,495	5,495	5,495	5,495	5,495	N/A	N/A

PROGRAM CHANGES FOR FY 2010:

No program changes are proposed for FY 2010.

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: National Estuarine Research Reserve Construction & Land Acq (\$3,153,000); Great Bay Partnership, NH (\$3,000,000); Marine Sanctuaries Construction Base (\$7,500,000); Thunder Bay NMS Exhibit (\$500,000); NGI Science Center Bldg - Stennis, MS (\$4,500,000); Dauphin Island East End Coastline Restoration Project, AL (\$400,000); Real Time Satellite Data Receiving Station, DE (\$750,000); Horn Point Laboratory, MD (\$2,000,000).

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Appropriation: Damage Assessment and Restoration Revolving Fund

A National Oceanic and Atmospheric Administration (NOAA) Damage Assessment and Restoration Revolving Fund was established, under Section 1012(a) of the Oil Pollution Act of 1990, for deposit of sums provided by any party or governmental entity for response to discharges of oil or releases of hazardous substances, for assessment of damages to NOAA trust resources resulting from those discharges and releases, and for the restoration of the injured natural resources.

- Retain funds that are recovered through settlement or awarded by a court for restoration of injured natural resources, and retain reasonable costs of conducting spill response and damage assessment that are recovered by NOAA through negotiated settlement, court award, or other reimbursement.
- Ensure funds so deposited shall remain available to the trustee, without further appropriation, until expended to pay costs associated with response, damage assessment, and restoration of natural resources.

The NOAA Damage Assessment and Restoration Revolving Fund facilitates and sustains: (1) natural resource damage assessment while the Departments of Commerce and Justice seek full reimbursement from potentially responsible parties; and (2) restoration, replacement or acquisition of the equivalent 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 trustee. These program functions are conducted jointly within NOAA by the Office of General Counsel, the National Ocean Service, and the National Marine Fisheries Service.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Damage Assessment and Restoration Revolving Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	2,000	40,765
less: 2010 Other Financing	0	0	0	0
less: Unobligated balance transferred, Dept. of Interior	0	0	0	0
less: Obligations from prior year balances	0	0	0	(25,165)
FY 2010 Base	0	0	2,000	15,600
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	2,000	15,600

		FY2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate			
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Damage Assessment and Restoration Revolving Fund	Pos/BA	14	1,194	16	2,000	16	2,000	16	2,000	0	0
	FTE/OBL	13	21,416	16	40,765	16	15,600	16	15,600	0	0
Total: Damage Assessment and Restoration Revolving Fund	Pos/BA	14	1,000	16	2,000	16	2,000	16	2,000	0	0
	FTE/OBL	13	21,416	16	40,765	16	15,600	16	15,600	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Damage Assessment and Restoration Revolving Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	14	21,416	16	40,765	16	15,600	16	15,600	0	0
Total Obligations	14	21,416	16	40,765	16	15,600	16	15,600	0	0
Adjustments to Obligations:										
Federal funds	0	0	0	0	0	0	0	0	0	0
New offsetting collections	0	(14,781)	0	(7,600)	0	(7,600)	0	(7,600)	0	0
Recoveries	0	(14)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(24,985)	0	(25,165)	0	0	0	0	0	0
Unobligated balance, transferred (From DOI)	0	(5,605)	0	(6,000)	0	(6,000)	0	(6,000)	0	0
Unobligated balance, EOY	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	14	1,194	16	2,000	16	2,000	16	2,000	0	0
Financing from Transfers and Other:										
Transfer from Other Accounts	0	5,606		0		0		0		
Transfer to/from Dept of Interior	0	(6,800)	0	(2,000)	0	(2,000)	0	(2,000)	0	0
Net Appropriation	14	0	16	0	16	0	16	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Damage Assessment and Restoration Revolving Fund
SUMMARY OF FINANCING
 (Dollar amounts in thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	21,416	40,765	15,600	15,600	0
Offsetting collections from:					
Estimated Collections	(14,781)	(7,600)	(7,600)	(7,600)	0
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	(14)	0	0	0	0
Unobligated balance, start of year	(24,985)	(25,165)	0	0	0
Unobligated balance transferred	(5,605)	(6,000)	(6,000)	(6,000)	0
Unobligated balance, end of year	25,163	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	1,194	2,000	2,000	2,000	0
Financing:					
Transfer to other accounts	5,606	(1,000)	(1,000)	(1,000)	0
Transfer, BA from DOI	(6,800)	(2,000)	(2,000)	(2,000)	
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
11 Personnel compensation					
11.1 Full-time permanent	1,402	1,402	1,335	1,335	0
Other than full-time					
11.3 permanent	20	20	18	18	0
Other personnel					
11.5 compensation	37	37	3	3	0
11.8 Special personnel services payments	0	94	94	0	0
11.9 Total personnel compensation	1,553	1,553	1,356	1,356	0
12.1 Civilian personnel benefits	1,058	1,058	455	455	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	174	174	257	257	0
22 Transportation of things	29	29	75	75	0
23.1 Rental payments to GSA	34	34	11	11	0
23.2 Rental payments to others	7	7	14	14	0
23.3 Commun., util., misc. charges	112	112	84	84	0
24 Printing and reproduction	14	14	9	9	0
25.1 Advisory and assistance services	1,311	1,311	202	202	0
Other					
25.2 services	13,546	19,900	5,569	5,569	0
Other purchases of goods and services from					
25.3 Govt accounts	33	33	2,167	2,167	0
26 Supplies and materials	224	224	114	114	0
31 Equipment	53	53	8	8	0
32 Lands and structures	0	0	119	119	0

Department of Commerce
National Oceanic and Atmospheric Administration
Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
42 Insurance claims and indemnities	3,268	16,263	5,160	5,160	
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total Obligations	21,416	40,763	15,600	15,600	0
Less collections	(14,781)	(7,600)	(7,600)	(7,600)	0
Less recoveries	(14)	0	0	0	0
Less unobligated balance, SOY	(24,985)	(25,163)	0	0	0
Plus unobligated balance, EOY	25,163	0	0	0	0
Plus unobligated balance transferred	(5,605)	(6,000)	(6,000)	(6,000)	0
Total Budget Authority	1,194	2,000	2,000	2,000	0
Transfers:					
Transfers from Other Accounts	5,606				
From DOI	(6,800)	(2,000)	(2,000)	(2,000)	0
Discretionary Budget Authority	0	0	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	14	16	16	16	0
Other than full-time permanent	0	0	0	0	0
Total	14	16	16	16	0
Authorized Positions:					

Department of Commerce
 National Oceanic and Atmospheric Administration
 Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar amounts in thousands)

Full-time permanent	14	16	16	16	0
Other than full-time permanent	0	0	0	0	0
Total	14	16	16	16	0

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Appropriation: Coastal Zone Management Fund

Section 308 of the Coastal Zone Management Act authorizes the CZMF to be used for the following purposes:

- Expenses incident to the administration of the Coastal Zone Management Act;
- Projects to address management issues which are regional in scope, including interstate projects;
- Demonstration projects which have high potential for improving coastal zone management, especially at the local level;
- Emergency grants to State coastal zone management agencies to address unforeseen or disaster-related circumstances;
- Appropriate awards recognizing excellence in coastal management;
- Program Development Grants; and
- Financial support to coastal States for use in investigating and applying the public trust doctrine to implement State management programs.

As a part of the FY 2010 appropriations process, NOAA proposes to transfer funding from the CZMF for obligation in the ORF account.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Coastal Zone Management Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	(1,500)	0
plus: 2010 Adjustments to Base	0	0	0	0
FY 2010 Base	0	0	(1,500)	0
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	(1,500)	0

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate		Personnel	Amount
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Coastal Zone Management Fund	Pos/BA	0	(525)	0	(1,500)	0	(1,500)	0	(1,500)	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total: Coastal Zone Management Fund	Pos/BA	0	(525)	0	(1,500)	0	(1,500)	0	(1,500)	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Coastal Zone Management Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Adjustments to Obligations:										
New offsetting collections	0	(525)	0	(1,500)	0	(1,500)	0	(1,500)	0	0
Unobligated balance, adj. SOY	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	0	(525)	0	(1,500)	0	(1,500)	0	(1,500)	0	0
Financing from Transfers and Other:										
Previously unavailable unobligated balances	0	(2,475)	0	(1,500)	0	(1,500)	0	(1,500)	0	0
Transfer to ORF	0	3,000	0	3,000	0	3,000	0	3,000	0	0
Net Appropriation	0	0	0	0	0	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease over 2010 Base
Total Obligations	0	0	0	0	0
Offsetting collections from:					
Federal funds	(525)	(1,500)	(1,500)	(1,500)	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	0	0	0	0	0
Unobligated balance, start of year	0	0	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	0	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	(525)	(1,500)	(1,500)	(1,500)	0
Financing:					
Previously unavailable unobligated balances	(2)	(1,500)	(1,500)	(1,500)	0
Transfer to other accounts	3,000	3,000	3,000	3,000	0
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class		2008	2009	2010	2010	Increase/ Decrease over 2010 Base
		Actuals	Enacted	Base	Estimate	Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
	Other than full-time					
11.3	permanent	0	0	0	0	0
	Other personnel					
11.5	compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
	Other					
25.2	services	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	0	0	0	0
43	Interest and dividends	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Zone Management Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

Object Class		2008	2009	2010	2010	Increase/ (Decrease) over 2010Base
		Actuals	Enacted	Base	Estimate	
44	Refunds	0	0	0	0	0
99	Total Obligations	0	0	0	0	0
	Less prior year recoveries	0	0	0	0	0
	Less unobligated balance, SOY	0	0	0	0	0
	Plus unobligated balance, EOY	0	0	0	0	0
	Offsetting collections, Mandatory	(525)	(1,500)	(1,500)	(1,500)	0
	Total Budget Authority	(525)	(1,500)	(1,500)	(1,500)	0
Personnel Data						
	Full-Time equivalent Employment:					
	Full-time permanent	0	0	0	0	0
	Other than full-time permanent	0	0	0	0	0
	Total	0	0	0	0	0
	Authorized Positions:					
	Full-time permanent	0	0	0	0	0
	Other than full-time permanent	0	0	0	0	0
	Total	0	0	0	0	0

Appropriation: Coastal Impacts Assessment Fund

Congress authorized the Coastal Impact Assistance Program (CIAP) under §903 of the Commerce, State, Justice FY2001 appropriations act to assist states in mitigating the impacts from Outer Continental Shelf (OCS) oil and gas production. Congress appropriated \$150,000,000 in fiscal year 2001 to seven coastal states -- Alaska, California, Texas, Louisiana, Mississippi, Alabama, and Florida -- to implement this program. Funds were expended according to Coastal Impact Assistance Plans developed by the states.

The National Ocean Service (NOS) within the National Oceanic and Atmospheric Administration (NOAA) was charged with implementing this program at the federal level.

FY 2001 was the only year NOAA received an appropriation for these activities, but NOAA continues to receive deobligations from this grant program, which are deposited in this account.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Coastal Impacts Assessment Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	0	1,275
less: obligations from prior year balances	0	0	0	(1,275)
FY 2010 Base	0	0	0	0
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2008 Actuals		FY 2009 Enacted		FY 2010 Base Program		FY 2010 Estimate		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Coastal Impact Assistance Fund	Pos/BA	2	0	0	0	0	0	0	0	0	0
	FTE/OBL	2	584	0	1,275	0	0	0	0	0	0
Total: Fishermen's Contingency Fund	Pos/BA	2	0	0	0	0	0	0	0	0	0
	FTE/OBL	2	584	0	1,275	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Coastal Impacts Assessment Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	2	584	0	1,275	0	0	0	0	0	0
Total Obligations	2	584	0	1,275	0	0	0	0	0	0
Adjustments to Obligations:										
Non-Federal Sources	0	(81)	0	0	0	0	0	0	0	0
Recoveries	0	(1,186)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(592)	0	(1,275)	0	0	0	0	0	0
Unobligated balance, EOY	0	1,275	0	0	0	0	0	0	0	0
Total Budget Authority	2	0	0	0	0	0	0	0	0	0
Financing from Transfers and Other:										
Net Appropriation	2	0	0	0	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Coastal Impacts Assessment Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	584	1,275	0	0	0
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	(81)	0	0	0	0
Recoveries	(1,186)	0	0	0	0
Unobligated balance, start of year	(592)	(1,275)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	1,275	0	0	0	0
Unobligated balance, rescission	0	0	0	0	0
Budget Authority	0	0	0	0	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Coastal Impacts Assessment Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
(Dollar amounts in thousands)

<u>Object Class</u>	2008	2009	2010	2010	Increase/ (Decrease) over 2010
	Actuals	Enacted	Base	Estimate	Base
11 Personnel compensation					
11.1 Full-time permanent	246	0	0	0	0
11.3 Other than full-time permanent	2	0	0	0	0
11.5 Other personnel compensation	11	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	259	0	0	0	0
12.1 Civilian personnel benefits	63	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	2	0	0	0	0
22 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	7	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Commun., util., misc. charges	8	0	0	0	0
24 Printing and reproduction	1	0	0	0	0
25.2 Other service	203	1,275	0	0	0
26 Supplies and materials	6	0	0	0	0
31 Equipment	28	0	0	0	0
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	7	0	0	0	0
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Coastal Impacts Assessment Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar amounts in thousands)

<u>Object Class</u>	2008	2009	2010	2010	Increase/ (Decrease) over 2010
	Actuals	Enacted	Base	Estimate	Base
99 Total Obligations	584	1,275	0	0	0
Non-Federal Sources	(81)	0	0	0	0
Less prior year recoveries	(1,186)	0	0	0	0
Less unobligated balance, SOY	(592)	(1,275)	0	0	0
Plus unobligated balance, EOY	1,275	0	0	0	0
Total Budget Authority	0	0	0	0	0
 Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	2	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	2	0	0	0	0
Authorized Positions:					
Full-time permanent	2	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	2	0	0	0	0

NATIONAL MARINE FISHERIES SERVICE FY 2010 OVERVIEW

For FY 2010 NOAA requests an increase of \$155,649,000 and 156 FTE over the FY 2010 base program for a total of \$911,752,000 and 2,823 FTE for the National Marine Fisheries Service (NMFS).

NMFS is responsible for the management and conservation of living marine resources within the U.S. Exclusive Economic Zone (EEZ) extending from 3 to 200 nautical miles offshore. NMFS also provides critical support and scientific and policy leadership in the international arena, and plays a key role in the management of living marine resources in coastal areas under state jurisdiction. NMFS implements international agreements on conservation and management measures through science-based conservation and management actions aimed at sustaining long-term use and promoting the health of coastal and marine ecosystems. The result is maximized benefits to the Nation from the use of living marine resources. Programmatic authority for fisheries management, species protection, and habitat conservation activities is derived primarily from the Magnuson-Stevens Fishery Conservation and Management Act of 2006, Marine Mammal Protection Act (MMPA), and Endangered Species Act (ESA). Other acts provide additional authority for enforcement, seafood safety, habitat restoration, and cooperative efforts with states, interstate fishery commissions, and other countries. All of these activities rely on a strong scientific and research competency to support the challenging public policy decision process associated with NMFS' stewardship responsibility.

In partnership with other federal agencies and state and local governments, NMFS is responsible for managing living marine resources along the Nation's coastal zone and protected areas; planning for, mitigating, and responding to hazardous events; restoring degraded habitats; protecting and ensuring wise and appropriate use of ocean, coastal, and Great Lakes living resources; and providing advice, technical tools, information, and training to coastal residents, communities, and other decision makers and users of ocean, coastal, and Great Lakes areas. NMFS is also responsible for protecting, restoring, and managing species listed under the ESA and MMPA, as well as their habitats, and for managing and rebuilding fish stocks to population levels that will support economically viable and sustainable harvest opportunities.

Ecosystem-based management is an important component of NMFS' conservation and management practices. By understanding the complex ecological and socioeconomic environments in which living marine resources exist, managers may be able to better anticipate and predict the effects of management actions on a given coastal or marine ecosystem. NOAA will invest across its line offices in improving our understanding of ecosystems; identifying regional ecosystems; developing ecosystem health indicators; and applying new methods of governance to establish the necessary knowledge, tools, and capabilities to fully implement an ecosystem approach to management. The following are strategies for implementing ecosystem-based management:

- Engage and collaborate with partners to achieve regional objectives by delineating regional ecosystems, working with regional ecosystem councils, and implementing cooperative strategies to improve regional ecosystem health.

- Manage uses of ecosystems by applying scientifically sound observations, assessments, and research findings to ensure the sustainable use of resources and to balance competing uses of coastal and marine ecosystems.
- Improve management of living marine resources by advancing the understanding of ecosystems through better simulation and predictive models. Build and advance the capabilities of an ecological component of the NOAA global environmental observing system to monitor, assess, and predict national and regional ecosystem health, and to gather information consistent with established social and economic indicators.
- Develop coordinated regional and national outreach and education efforts to improve public understanding and involvement in stewardship of coastal and marine ecosystems.
- Engage in technological and scientific exchange with domestic and international partners to protect, restore, and manage marine resources within and beyond the Nation's borders.

Work is conducted by NMFS field elements with oversight, review, and direction provided by NMFS headquarters in Silver Spring, Maryland. The field structure consists of six Regional Offices, each with a Science Center that conducts research and directs the work carried out by the other laboratories and satellite/special purpose facilities in that region.

Major NMFS facilities are located at the following sites:

- | | |
|------------|---|
| Northeast: | Regional Office - Gloucester, MA
Science Center - Woods Hole, MA
Major Laboratories - Milford, CT; Narragansett, RI; J.J. Howard, Sandy Hook, NJ
Satellite/Special Purpose Facilities - Smithsonian (National Systematics Lab), Washington, DC |
| Southeast: | Regional Office - St. Petersburg, FL
Science Center - Miami, FL
Major Laboratories - Beaufort, NC; Galveston, TX; Panama City, FL; Pascagoula, MS
Satellite/Special Purpose Facilities - Stennis Space Center (Bay St. Louis, MS) |
| Southwest: | Regional Office - Long Beach, CA
Science Center - La Jolla, CA
Major Laboratories - Santa Cruz, CA
Satellite/Special Purpose Facilities - Pacific Grove, CA |

Northwest: Regional Office - Seattle, WA at Sand Point
 Science Center - Seattle, WA at Montlake
 Satellite/Special Purpose Facilities - Manchester, WA; Mukilteo, WA; Pasco, WA; Newport, OR; Hammond, OR

Alaska: Regional Office - Juneau, AK
 Science Center - Seattle, WA at Sand Point
 Major Laboratories – Ted Stevens Marine Research Institute, AK; Auke Bay, AK; Kodiak, AK
 Satellite/Special Purpose Facilities - Little Port Walter, AK

Pacific Islands: Regional Office – Honolulu, HI
 Science Center – Honolulu, HI

Research and Development Investments

The NOAA FY 2010 Budget estimates for its activities, including research and development programs, are the result of an integrated, requirements-based Planning, Programming, Budgeting, and Execution System (PPBES) that provides the structure to link NOAA's strategic vision with programmatic detail, budget development, and the framework to maximize resources while optimizing capabilities.

The PPBES process makes specific reference to the objectives and milestones outlines in the NOAA 5 Year Research Plan for 2008-2012. The strict management of planning against these investment criteria, objectives, and milestones leads to NOAA budget proposals that reflect the research and development needs of the organization.

Significant Adjustments to Base:

NOAA requests a net increase of 11 FTE and a net decrease of \$4,997,000 to fund adjustments to current programs for NMFS. The increase will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA). This includes a decrease of \$17,263,000 from the Promote and Develop Fisheries account.

NOAA also requests the following transfer for a net change to NOAA of \$0.

From Office	Line	To Office	Line	FTE	Amount
NMFS	Protected Species Research & Management	NMFS	Species Recovery Grants	0	\$987,000

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Appropriation: Operations, Research, and Facilities
Subactivity: Protected Species Research and Management

The objectives of the Protected Species Research and Management subactivity are 1) to provide accurate and timely information and analyses for the conservation of the Nation's living marine resources and 2) implement and monitor living marine resource management measures to recover protected species. The ultimate desired outcome is to recover and sustain all protected species (all species listed under the Endangered Species Act (ESA) and all marine mammal populations) to be fully functioning components of their ecosystems.

NMFS is responsible for the conservation of species through implementation of the ESA, Marine Mammal Protection Act (MMPA), and other statutes and international treaties and conventions. For NMFS to administer the conservation and management activities required to meet these mandates, NMFS conducts scientific investigations into the status of protected species populations and the potential impacts of human activities (e.g., commercial fishing, commercial and military shipping, hydroelectric dams and power plants, polluted effluents, ocean dumping dredging, and logging) on protected species.

Protected Species Conservation and Management:

NMFS shares the responsibility for implementing the ESA and MMPA with the Department of the Interior's Fish and Wildlife Service. In general, the Department of the Interior is responsible for the conservation of terrestrial and aquatic (freshwater) organisms and some marine mammals, and NOAA is responsible for conservation of living marine resources, which includes most marine mammals, most marine and anadromous fish (both commercially valuable and non-harvested species), turtles at sea, seabirds that interact with fisheries, marine invertebrates (including corals), and marine plants. NMFS is charged with three main tasks: pursuing proactive conservation efforts, formally listing species in need of protection, and recovering and conserving marine mammals and marine ESA-listed species. NMFS also coordinates outreach and education activities, and international activities related to protected species. This work cuts across all program sectors, from proactive conservation efforts to recovery.

Proactive conservation efforts help species that are approaching the need for listing as "depleted" under the MMPA, or as "threatened" or "endangered" under the ESA. Species in this category are referred to as "species of concern," some of which are also "candidate species" that NMFS is actively considering for listing. Because the prescriptive measures of the ESA and MMPA can prove costly, proactive conservation often is more cost-effective than recovering a population once it is listed. Once a species has met the criteria for listing as threatened or endangered under the ESA, NMFS is responsible for formally listing the species and designating its critical habitat. Recovery planning and conservation for a listed species involves management and planning to remove or minimize human impacts and provide for population increase to functional levels, much of it in collaboration with federal, state, tribal, local, international, and private partners.

Federal agency consultations: Section 7 requires federal agencies, in consultation with the Secretary of Commerce and the Secretary of the Interior, to ensure that any action they fund, authorize, or undertake is not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat that has been designated for such species. In addition to conducting section 7 consultations,

NMFS performs training, quality control, and guidance development. NMFS is required to complete consultation with action agencies under strict timeframes, and these demands are especially high for consultations on the registration of pesticides and on Clean Water Act criteria. NMFS requires additional resources as demand for these consultations increases, and has invested heavily in efficiency improvements.

Permitting and take authorizations: NMFS issues permits related to direct and indirect take of listed species under sections 4(d) and 10 of the ESA and sections 101, 104, and 118 of the MMPA. An increased demand for permits has been accompanied by a need to improve the quality of National Environmental Policy Act (NEPA) analyses related to permit actions. This permitting activity applies to the general public, whereas ESA section 7 consultations apply only to federal activities. NMFS also works to develop Habitat Conservation Plans under the ESA with non-federal entities wishing to receive permission to incidentally take listed species as part of otherwise lawful activities.

Ongoing recovery and conservation activities: ESA recovery plans and MMPA conservation plans are constantly under development or undergoing updates for all ESA-listed species and for all marine mammals designated as depleted under the MMPA. NMFS recently developed guidance for recovery planning efforts to ensure that all recovery plans meet the requirements of the ESA. Recovery plans inform management decisions under ESA section 7 and are key to analyzing the effects of scientific research and enhancement permits. As recovery plans are completed, NMFS works with federal, state, and local agencies and the public to implement recovery actions.

Recovery actions and partnerships with states and tribes: NMFS administers agreements with states and territories under section 6 of the ESA and provides limited funding in the form of grants to implement conservation actions for listed, recently de-listed, and candidate species. Funding may support the development and implementation of management strategies, scientific research, or public outreach and education activities. NMFS currently has section 6 agreements with 14 states, and is working to develop additional agreements. NMFS has also entered into agreements with West Coast states and tribes to implement the Pacific Coastal Salmon Recovery Fund (PCSRF). (In FY 2010, NOAA proposes to eliminate funding for PCSRF. Resources will continue to be provided for ESA-listed salmon and steelhead populations through the proposed expansion of the Species Recovery Grants Program). Under the MMPA, NMFS has entered into agreements with Alaska Native groups regarding the management of harvested marine mammal stocks in Alaska; these agreements provide funding for cooperative management of these stocks.

Marine animal health and stranding response: NMFS' Marine Animal Health and Stranding Response program coordinates response activities through marine mammal and sea turtle stranding networks, using funds from the MMPA Prescott Grant program and other sources. This program also administers the National Marine Mammal Tissue Bank, and maintains databases for tracking marine mammal stranding response and health assessment activities.

Fishery interactions: NMFS works collaboratively with the fishing industry and other stakeholders to identify measures to reduce the impact of commercial and recreational fisheries on protected species. Efforts include management of the NMFS Tuna/Dolphin program, MMPA fishery registration and authorization, MMPA take reduction plan development and implementation, and take reduction of sea turtles in fisheries.

Protected Species Science: NMFS conducts ongoing population surveys and assessments for research to answer specific questions about protected species and their environment. NMFS protected species science is directed toward protection, conservation, and recovery of protected living marine resources, including understanding the dynamics of these resources within their ecosystems and the environment. Surveys systematically gather information on species, including regional densities and overall abundance, seasonal distributions and movements, and sources and levels of human-related mortality and serious injury. Systematic, statistically based surveys collect information on the seasonal distribution of, and habitat types used by, protected species.

Assessments use surveys and other information to develop “status of stocks” assessments in the short term; over the long term they use time series of those assessments and predictive statistical modeling methods to forecast protected species population trends in the context of conservation actions and natural environmental factors. Status of stock assessments, analyses of population trends over time, and assessments of human-induced mortality and serious injury provide the biological basis for management actions to effectively recover and conserve protected species and minimize the impacts of human activities. NMFS is responsible for completing timely assessments of all marine mammals yearly and of ESA-listed species every 5 years. Assessments inform management on the status of protected species populations, sources and levels of human-induced mortality and serious injury, and the effects of regulatory actions (e.g., seasonal area closures, bycatch reduction measures, and ocean noise reduction) designed to mitigate harm to and improve the status of protected species.

Research to address management questions focuses on specific questions concerning the effects of human activities on protected species and the resources on which they depend. These research programs expand and implement novel research and analyses to: 1) identify and quantify the effects of anthropogenic and natural factors on protected species populations and the variability of these effects over time and space; 2) identify and evaluate various science-based management tools (e.g., fishing gear modifications, passive acoustic monitoring devices) to be used to recover and conserve protected species; and 3) conduct ecosystem and habitat research (e.g., environmental change, food requirements, and habitat requirements) to support an ecosystem approach to protected species management.

PROPOSED LEGISLATION:

The Administration will work with Congress to reauthorize the Marine Mammal Protection Act, P.L. 103-238.

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PROGRAM CHANGES FOR FY 2010:

Protected Species Research and Management – (+20 FTEs and +\$5,550,000): NOAA requests an increase of \$5,550,000 and 20 FTEs for the Protected Resources Research and Management Programs line item. The requested funding will increase NMFS' capacity to deliver scientifically sound and legally defensible Endangered Species Act (ESA) consultations under Section 7 and thereby enhance conservation of listed species by other federal agencies.

Proposed Actions

With these funds, NMFS will: (1) conduct ESA Section 7 consultations with the Bureau of Reclamation, U.S. Army Corps of Engineers, U.S. Forest Service, and Bureau of Land Management on various land management activities including large scale management plans, timber sales, and water management projects; (2) conduct ESA Section 7 consultations for transportation projects including those associated with the Safe Accountable Flexible Efficient Transportation Equity Act (SAFETEA-LU); (3) conduct ESA Section 7 consultations on energy projects, including additional new workload to complete consultations with the Office of Pipeline Safety; (4) conduct consultations with the U.S. Navy on their training activities, as well as day-to-day operations of military installations; (5) conduct consultations with the National Ocean Service, the U.S. Navy, and other Federal agencies operating vessels in the marine environment to address the potential to strike marine mammals, including the North Atlantic Right Whale (6) and provide technical assistance to EPA and other federal agencies to implement conservation measures and revise national water quality standards.

Statement of Need and Economic Benefits

NMFS has important mandates to protect and recover threatened or endangered species. The Endangered Species Act (ESA) requires the Secretary of Commerce to act to protect and recover listed species. In addition, Section 7 of the ESA requires all federal agencies to ensure that their actions will not jeopardize a listed species or destroy or adversely modify habitat designated as critical to species survival. Agencies accomplish this by consulting with NMFS, and tailoring their actions to avoid further peril to and help conserve those species. In 2010 and for the foreseeable future, NMFS expects to face an increase in the number of interagency consultations on economically critical federal actions. In order to provide technical assistance and consultation services to the EPA, USDA, DOI and other federal agencies in a timely manner and avoid litigation, additional capacity is required. Additionally, for the services provided to EPA extensive knowledge of conservation biology and environmental toxicology is required to meet the increased need for consultation and technical assistance to develop national water quality standards and effective pollution control measures. Current ESA Section 7 capability to assess the effects of contaminants and Clean Water Act (CWA) standards are insufficient to provide timely consultation on CWA standards that conserve protected species and habitats.

In 2008, 1,382 Section 7 consultations were requested and NMFS completed 608 of these on time (44 percent on-time completion rate). Consultations range from informal to formal, vary in their complexity, and are usually preceded by staff providing technical assistance to federal agencies to help minimize or eliminate adverse effects to ESA-listed species or their critical habitat. Based on FY 2008 data, NMFS estimates an increase of \$5.6 million would allow the timely completion of 81 additional consultations, improving the on-time completion rate from 44 percent to 49 percent.

Responding to other federal agencies’ needs for Section 7 consultations will result in implementation of important measures for endangered species, and allow federal agencies, whose activities may affect listed species, to fulfill their missions without delay. The EPA is currently undertaking extensive revisions to its CWA regulations for national standards of water quality. These revisions may have significant impacts on listed species in rivers, estuaries, and coastal waters. This increase will allow NMFS to improve its capacity to provide technical assistance to EPA, and ensure changes to CWA regulations are protective of listed species or their critical habitats. Failure to fund this capacity gap creates significant litigation risk to both EPA and NOAA, and could result in significant changes in water chemistry that would impose significant costs on communities and industry for remediation.

Performance Goals and Measurement Data

Achieving stable or increasing populations of ESA-listed species is a long-term effort because of the time it takes to observe responses to specific actions that affect the species. With the requested increase, NMFS will be able to improve its performance in achieving DOC, NOAA, and program goals.

Performance Goal: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	22	24	24	26	26	27
Without Increase	22	24	24	26	25	26

Species Recovery Grants (+7 FTE and +\$60,000,000) – NOAA requests an increase of \$60,000,000 and 7 FTEs for a total of \$60,987,000 for the conservation and recovery of marine and anadromous species under NMFS jurisdiction and listed under the Endangered Species Act (ESA) through the Species Recovery Grants Program. This includes a technical adjustment, transferring the base funds of \$987,000 from Conservation and Recovery with States to this new program.

Proposed Actions

Recovery and conservation of ESA-listed marine and anadromous species under NMFS jurisdiction are largely implemented through the Cooperative Conservation with States Program. This increase will provide additional grants to states that enter into a Cooperative Agreement (i.e., a Section 6 agreement) with NOAA, and grants to tribes and other entities assisting in protected species recovery under the Fish and Wildlife Coordination Act. These grant funds will be used by states, tribes, and other entities to conduct priority recovery actions for listed species, which may include activities such as restoring habitat necessary for the recovery of listed species, assessing and monitoring species status and trends, partnering with others to conduct cross-jurisdictional conservation actions, developing conservation plans to mitigate incidental take of listed species, and educating the public about the conservation of ESA-listed species. States and tribes with ESA-listed salmon may apply for these funds, similar to funding for salmon recovery projects through the Pacific Coastal Salmon Recovery Fund. Increased staffing will allow NMFS to work with a wider range of partners who can leverage funds, provide technical expertise, and otherwise contribute to the recovery of listed species. Funding would support an FTE at NMFS Headquarters to assist with the grant processing workload.

Statement of Need and Economic Benefits

NMFS currently has jurisdiction over 68 threatened or endangered species, two species that have been proposed for listing, and 14 candidates for listing under the ESA. Although highly variable, species continue to be added to these lists at a rate of about four per year. Addition of species to these lists without corresponding investments in, and implementation of, recovery and conservation actions results in increasing pressure on all ESA programs within NMFS and an increasing regulatory burden on the public.

Cooperative Conservation envisions that states, tribes, and other entities partner with the Federal Government in the conservation of listed species. Since 2003, NMFS has funded Cooperative Conservation. In response to that funding, NMFS was able to attract interest from states by establishing Section 6 Agreements with 14 states (DE, FL, GA, HI, ME, MD, MA, NJ, NY, NC, PR, SC, USVI, WA) to fund small research and management projects.

Recovery of listed species is dependent on collaboration and cooperation with various partners. However, most partners do not have adequate resources to address necessary recovery actions, and federal assistance is necessary to ensure their ability to engage in an effective partnership. Also, by partnering with states, tribes, and other entities, the Federal Government can leverage additional resources from these entities by including matching requirements in grant solicitations. For example, the Section 6 Program leverages additional funding in support of listed species recovery: the ESA requires a 25 percent matching of federal funding, or a 10 percent matching when two or more states partner on a particular project (states routinely provide more than the statutory minimum). This request would strategically leverage funds with other partners and coordinate the recovery prioritization of protected species by working with the widest possible range of partners with mandates or interests in species and ecosystem health. With increased funding and program support, the Cooperative Conservation Grant Program could be expanded to include additional state and tribal partners, and other entities and experts, especially along the West Coast and Gulf of Mexico, and address recovery needs of listed species that are not reached by the current program (e.g., Pacific salmon, green sturgeon, gulf sturgeon, abalone, and southern resident killer whales). Such cooperation is particularly needed for these and other listed species for which NMFS does not have scientific expertise and depends on state, local, and academic experts to assist in recovery and conservation actions.

By leveraging the financial, technical, and educational resources of partners, NMFS can achieve a greater level of conservation of listed species. Specifically, matching funds offer additional financial resources that NMFS would not need to spend on recovery, thus allowing for larger or more complex conservation and habitat restoration projects. Closely involving partners in the recovery of listed species also increases the buy-in for NMFS regulatory actions, since partners can aid NMFS in understanding the most effective means of conservation to reduce and eliminate threats to species. Finally, fostering relationships with other entities through cooperative conservation effectively utilizes local expertise and is therefore a more effective approach to protect and recover listed species.

Performance Goals and Measurement Data

Changes to the GPRA measure will occur no earlier than FY 2012, as it takes several years for projects completed with these funds to show benefits to listed species, which in many cases have generation times exceeding several years to decades. In addition, because NMFS cannot predetermine which grant proposals it will fund in a given year, it is unknown at this time which marine mammal, sea turtle, invertebrate, or fish species would make up this

expected change. NMFS expects this increase could benefit any or all of the ESA-listed salmon, as well as listed sturgeon, abalone, corals, Hawaiian monk seals, and southern resident killer whales.

Performance Goal: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	22	24	24	27	27	28
Without Increase	22	24	24	26	25	26

Marine Mammal Protection Activities (+2 FTEs and +\$1,500,000) – NOAA requests an increase of \$1,500,000 and 2 FTEs to enhance its capacity to implement the Marine Mammal Take Reduction program to reduce incidental takes of marine mammals in commercial fishing gear by convening a new Take Reduction Team (TRT) and conducting marine mammal stock assessments and monitoring of fisheries interactions in Alaska and the Gulf of Mexico.

Proposed Actions

This increase will implement the recommendations of the December 2008 GAO Report, “Improvements are Needed in the Federal Process Used to Protect Marine Mammals from Commercial Fishing” by: (1) developing a comprehensive strategy for assessing the effectiveness of each take reduction plan; (2) collecting and analyzing data necessary to address incidental take of additional marine mammal stocks not yet addressed; and (3) convening additional TRTs to develop plans that reduce incidental take of stocks not yet addressed.

Statement of Need and Economic Benefits

The Marine Mammal Protection Act (MMPA) requires NMFS to develop and implement Take Reduction Plans (TRPs) designed to reduce serious injuries and deaths of marine mammals incidental to commercial fishing. The Act prescribes strict timelines for convening teams to develop such plans, as well as deadlines by which these serious injuries and deaths must be reduced below sustainable levels. NMFS currently addresses incidental take of 16 marine mammal stocks (six of which are ESA-listed) under six TRTs. GAO’s report identified several shortcomings; specifically that NMFS has not successfully implemented TRPs for the current TRTs and should develop comprehensive strategies to assess the effectiveness of these plans. Additionally, GAO found that NMFS has not addressed incidental take of more than 10 other stocks (four are ESA-listed) that are injured/killed in commercial fisheries despite meeting MMPA requirements. GAO noted that NMFS lacks the data necessary to convene TRTs and evaluate the success of TRPs.

Before NMFS can convene a TRT to address incidental takes, the agency must have estimates of abundance and fishery mortality. NMFS will use part of these funds to conduct stock assessments and implement fishery observer programs, which result in abundance and fishery mortality estimates, respectively. NMFS would focus the majority of these efforts to fill data gaps in Alaska, the Pacific Islands, and the Gulf of Mexico. Further, fishery

observer programs are the most reliable way to determine compliance rates and evaluate the effectiveness of existing TRPs. Thus, NMFS would bolster existing programs to increase the precision of fishery mortality estimates and enhance our ability to evaluate effectiveness per GAO’s recommendations.

NMFS was recently sued by an environmental organization to address false killer whale bycatch in the Hawaii longline fishery. NMFS will use part of these funds to convene this TRT and implement a TRP. These activities include convening several stakeholder meetings, conducting gear research, conducting stock assessments (including genetics analysis), monitoring the fishery, and enforcing the resulting regulations. Funding for these activities will directly help reduce injuries and deaths of marine mammals in commercial fishing gear, as well as increase NMFS’ ability to evaluate what additional efforts may be needed. If NMFS does not address this incidental take, fisheries could be subject to harsh restrictions if NMFS is sued and the courts intervene. By working with the commercial fishing industry through the TRT process, NMFS can develop take reduction measures that protect marine mammals without over-regulating and over-burdening the fishing industry.

Performance Goals and Measurement Data

Achieving stable or increasing populations of ESA- and MMPA-listed species requires a long-term effort because of the time it takes to observe responses to specific actions that affect the species. With the requested increase, NMFS will be able to improve its performance in achieving DOC, NOAA, and program goals and promote the survival and conservation of listed species, particularly with respect to species in the Gulf of Mexico or Alaska region.

Performance Goal: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	22	24	24	26	26	27
Without Increase	22	24	24	26	25	26

Hawaiian Monk Seals (+4 FTEs and +\$1,500,000) – NOAA requests an increase of \$1,500,000 and 4 FTEs to recover Hawaiian monk seals from the brink of extinction, guided by the Hawaiian Monk Seal Recovery Plan.

Proposed Actions

These funds will implement the recommendations of the 2007 Hawaiian Monk Seal Recovery Plan to enhance survival of juvenile monk seals by: (1) transporting seals to areas with higher survivability potential; (2) bringing juveniles into captive care to improve their nutritional status and then releasing them; (3) providing medical care to free-roaming seals; and (4) managing shark predation on juvenile seals. Specific management activities are required within the main Hawaiian Islands as well, and include eliminating take of this endangered species by commercial and recreational fisheries and protecting mother-pup pairs from disturbance on beaches by humans and domestic animals.

Statement of Need and Economic Benefits

Hawaiian monk seals are endangered, with a downward population trajectory expected to fall below 1,000 individuals within 10 years. The species may become extinct within 50 years without human intervention. NMFS must implement methods to increase survival of female monk seals because current survival rates are insufficient to promote survival or recovery of the species. The establishment of the Papahānaumokuākea Marine National Monument provides an additional impetus for undertaking these activities, as the primary breeding population of Hawaiian monk seals is located within the Monument. Seal pups and yearlings in these remote, well-protected areas are starving to death at increasing rates. In addition, monk seal numbers, while decreasing throughout most of the species’ range, are increasing in the highly populated main Hawaiian Islands, which brings additional management challenges.

Funding for these activities will help avoid the extinction of Hawaiian monk seals and serve as a building block for the species’ recovery. Increased support will also help promote continued tourist and other economic activities within the main Hawaiian Islands in a manner consistent with the recovery of this species.

Performance Goals and Measurement Data

Achieving stable or increasing populations of ESA- and MMPA-listed species such as the Hawaiian monk seal requires a long-term effort because of the time it takes to observe responses to specific actions affecting the species. With the requested increase, however, NMFS will be able to improve its performance in achieving DOC, NOAA, and program goals and promote the survival and conservation of the Hawaiian monk seal.

Performance Goal: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	22	24	24	26	26	27
Without Increase	22	24	24	26	25	26

Cook Inlet Beluga Whale (+0 FTEs and +\$1,000,000) – NOAA requests an increase of \$1,000,000 and 0 FTEs for recovery of the endangered Cook Inlet beluga whale.

Proposed Actions

The requested increase of \$1,000,000 will supplement the existing \$600,000 in permanent funding and will allow NOAA to develop timely, accurate, and precise biological information needed to monitor the status of this species and develop and conduct conservation programs, including providing technical assistance and advice to federal, state, and local partners; Alaska Native communities; and other constituents to ensure their actions promote whale recovery. Funding will allow NOAA to continue abundance estimates, investigate the cause(s) of decline and lack of recovery in Cook Inlet beluga whales, and continue development and implementation conservation actions.

Statement of Need and Economic Benefits

Under the mandates of the MMPA and ESA, NMFS must work to conserve and recover marine mammals. The Cook Inlet beluga whale has been severely reduced in numbers over the past several decades. NMFS estimates this population had once numbered as many as 1,300 whales, and the most current estimate is 375 whales. The recovery of Cook Inlet beluga whales may be hindered by continued development within and along upper Cook Inlet and the cumulative effects on important beluga habitat; oil and gas exploration, development, and production; industrial activities that discharge or accidentally spill pollutants; disease; and predation by killer whales. To promote recovery of the whales, funds are necessary to support research on population characteristics and factors that hinder recovery, conservation actions to promote recovery, enforcement activities, and annual monitoring.

Funding for Cook Inlet beluga whales has several benefits. First, it will be used to clarify the factors slowing recovery and allow NOAA to target its conservation measures to recover this species. Second, through the Section 7 interagency consultation process, proposed federal actions within Cook Inlet will be assessed to ensure they do not jeopardize the survival and recovery of the species or adversely modify any habitat designated as critical to its survival. NOAA will provide technical and consultative services to all partners to help ensure their actions are conducted in a manner compatible with the recovery of Cook Inlet beluga whales. Finally, when the numbers of this species are steadily increasing and it is on a clear trajectory to recovery, NOAA may allow a sustainable take of beluga whales in Cook Inlet by Alaska Natives for subsistence and handicraft purposes.

Performance Goals and Measurement Data

Achieving stable or increasing populations of ESA- and MMPA-listed species such as the Cook Inlet beluga whale requires a long-term effort because of the time it takes to observe responses to specific actions affecting the species. With the requested increase, however, NMFS will be able to improve its performance in achieving DOC, NOAA, and program goals and promote the survival and conservation of Cook Inlet beluga whales.

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c						
With Increase	22	24	24	26	25	27
Without Increase	22	24	24	26	25	26

Ice Seals (+4 FTEs and +\$1,300,000) – NOAA requests an increase of \$1,300,000 and 4 FTEs to continue recovery science and conservation actions for ice seals. Because of the decreasing number of these seals and dramatic reductions in Arctic sea ice, these seals are identified as Species of Concern, which have the potential to be listed as threatened or endangered under the Endangered Species Act (ESA).

Proposed Actions

The requested increase will be used to study abundance and distributions, seasonal migrations and habitat requirements, and genetic discreteness and stock structures of three species of ice seals (bearded, ringed, and spotted). Many of these attributes are highly sensitive to suitable habitats and sea ice conditions and may be particularly vulnerable to climatic change and other disruptions from more direct anthropogenic effects, such as offshore oil and gas development, fishing, and subsistence take by Alaska Natives. This request will allow NOAA to develop timely and accurate biological information needed to determine the status of each species and develop and conduct conservation programs, including providing technical assistance and advice to federal partners, Alaska Native communities, and other constituents to ensure their actions minimize impacts on ice seals.

Statement of Need and Economic Benefits

In 2008, NMFS received a petition to list ribbon seals (an ice-dependent seal species) under Section 4(a) of the ESA. The threats listed in the petition included the decreases in the species numbers due to loss of habitat as a result of climate change; a similar threat faced by the recently listed polar bear. NMFS determined that ribbon seals should not be listed as “endangered,” but as a result of the petition, NMFS also determined that a status review of all ice seal species was warranted to evaluate whether purported threats to ribbon seals may also threaten other ice seals. Should NMFS list any of the other ice seals under the ESA, a recovery plan (required under Section 4(f) of the ESA) will be prepared, and recovery measures may be required pursuant to Section 9 of the ESA. At present, NMFS has limited knowledge of the life history and ecological requirements of ice seals and limited capacity to conduct recovery planning, recovery plan implementation, and regulation of ice seals under Sections 7 and 9 of the ESA.

Funding for ice seal conservation has several benefits. First, it will be used to identify the most important threats to ice seals and enable NOAA to develop a plan to conserve these species. Second, it will allow NOAA to continue to work with affected Alaska Native organizations to provide critical subsistence use of a food resource critical to nutritional and cultural needs of Native inhabitants of this harsh and changing region. Lastly, if the species were to be listed under the ESA, federal actions vital to energy independence, economic growth, and national security will be allowed to proceed in a manner consistent with the ESA. Without the enhanced ability to conduct a thorough status review, NOAA may be forced to adopt a conservative regulatory stance for ice seals, thereby slowing economic activity in the Arctic. Lack of additional funding for these activities will likely preclude NOAA from collecting sufficient information to accurately assess ice seal status.

Performance Goals and Measurement Data

Performance Goal: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	22	24	24	26	25	27
Without Increase	22	24	24	26	25	26

Atlantic Salmon (+0 FTEs and \$2,996,000) – NOAA requests an increase of \$2,996,000 and 0 FTEs for Atlantic salmon. This request will be used to support Atlantic salmon recovery and to address habitat needs in key watersheds historically used by Atlantic salmon.

Proposed Actions

NOAA seeks to restore connectivity to fragmented habitats to address recovery of Atlantic salmon on an ecosystem basis. These funds would be used to increase and restore Atlantic salmon habitat by facilitating, assessing, and evaluating connectivity and recovery of salmon through technical assistance to restoration efforts on salmon habitat and life cycle needs, including monitoring and evaluation of pre- and post- removal of barriers to fish passage and habitat restoration. These funds will support on-the-ground projects to address blockages that prohibit Atlantic salmon from accessing high quality upstream habitat, stream channel complexity, and elements needed to restore proper ecosystem function (e.g., water temperature, water flow, sedimentation, erosion) that support all life stages of Atlantic salmon. Key watersheds historically used by Atlantic salmon span five New England states.

Statement of Need and Economic Benefits

Atlantic salmon populations were historically abundant throughout New England’s major rivers. As a result of dam construction, pollution, over-harvest, and other impacts over the last two centuries, Atlantic salmon populations have declined precipitously. Aggressive efforts to restore these populations and reverse the decline are necessary throughout the species range. The Gulf of Maine Distinct Population segment of Atlantic salmon was listed as endangered on November 17, 2000. This species is managed jointly with the U.S. Fish & Wildlife Service. Adult returns, juvenile abundance estimates, and survival have continued to remain at low levels and recovery is dependent upon a conservation hatchery program. In 2006, a total of only 79 adult Atlantic salmon were estimated to return to the currently listed distinct population segment in Maine. Recovery of ecosystems upon which listed species depend is a goal of the Endangered Species Act. This request supports work specified under the 2005 *Final Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon (Salmo salar)* for habitat modification/manipulation to increase/restore the habitat types and connectivity most needed by Atlantic salmon.

Increased funding for Atlantic salmon will provide for strategic watershed scale investments to address barriers to upstream habitats historically used by Atlantic salmon. This funding will further implement the Atlantic Salmon Recovery Plan and will supplement ongoing management and research recovery efforts. Addressing habitat needs are a priority for reversing this species’ decline and achieving recovery.

Performance Goals and Measurement Data

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of projects benefiting Atlantic salmon (cumulative)						
With Increase	0	10	20	30	40	50
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number of on-the-ground projects funded to increase and restore Atlantic salmon habitat.						

Performance Goal: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	22	24	24	26	26	27
Without Increase	22	24	24	26	25	26

Performance Goal: Stream miles opened for use by Atlantic salmon (cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	100	200	300	400	500	
Without Increase	0	0	0	0	0	

Description: This performance measure tracks stream miles made accessible (through implemented projects, prescriptions, or consultations) for fish passage across hydrological barriers such as dams, water control structures, culverts, impoundments, etc. These stream and river miles are counted when fish access is physically restored by barrier removal or installation/improvement of fish passage structures such as fish ladders. Newly opened miles include those upstream of the barrier and extend to the next upstream barrier, or, in the absence of additional upstream barriers, to the limit of the species’ historical range. Miles counted include the mainstem of the waterway, and where appropriate, tributary miles.

Pacific Salmon ESA Recovery and Research (+28 FTEs and +\$7,325,000): NMFS requests an increase of \$7,325,000 and 28 FTEs to augment the Pacific salmon ESA Recovery and Research Program for: (1) coast-wide priority recovery implementation and management actions, including watershed and river restoration to enable salmonid recovery in the San Joaquin and Ventura Rivers of California; and (2) coast-wide salmon science support, including expanded capability for genetic stock identification.

Proposed Actions

Recovery Implementation and Management Actions (14 FTEs and \$1,900,000)

- *Habitat Conservation Planning* – Ensure the successful development and implementation of Habitat Conservation Plans for Pacific salmon. These plans are essential to the recovery of Pacific salmon, as a majority of existing and potential high-quality salmon habitat occurs on private lands.
- *Recovery Implementation with Local Partners* – Continue implementing the ESA recovery plans for Puget Sound and the Upper Columbia River. The full implementation of these plans relies on a cooperative effort from local partners. NMFS will help guide recovery efforts and provide expert advice to those looking to implement recovery actions.
- *Klamath Salmon Recovery and Planning* – Provide specific, directed funding for Klamath River salmon recovery projects and support efforts to establish and implement the governmental/non-governmental Klamath Conservation Implementation Program. Specific actions include: completion of

recovery planning and recovery implementation plans for Klamath River coho salmon; completion of the larger, region-wide Southern Oregon/Northern California coho salmon recovery plan; and funding “on the ground” recovery and restoration projects that address limiting factors and threats, including fish passage, water availability, water quality, hatcheries, and harvest activities.

- *Section 7 Consultations with the Environmental Protection Agency* – Section 7 consultations are required by rulings on pesticide lawsuits in California, Oregon, Idaho, and Washington, which impact pesticide use adjacent to ESA-listed salmon habitats. This increase would augment NMFS Section 7 capacity in three areas: (1) address the increased consultation workload; (2) conduct risk assessments of environmental pollutants; and (3) acquire, evaluate, and produce data and information associated with the chemistry and toxicology of environmental pollutants, the impact of pollutants on aquatic ecosystems, and the physiological responses of living marine resources to those pollutants.

San Joaquin River and Ventura River Salmonid Watershed Recovery (5 FTEs and \$1,500,000)

- Provide technical assistance to Department of the Interior necessary to implement the conditions defined in the legal settlement regarding the San Joaquin River Restoration Program and PL 111-11.
- Prepare an analysis and recommendation to establish an experimental population of spring-run Chinook salmon in the San Joaquin River below Friant Dam.
- Provide technical assistance to U.S. Army Corps of Engineers and various agencies implementing the Matilija Dam Ecosystem Restoration Project and PL 110-114.
- Facilitate implementation of the biological opinion on the removal of Matilija Dam.
- Facilitate development of section 10 habitat conservation plans to ensure compliance of non-federal partners with the ESA and promote recovery of steelhead throughout the Ventura River watershed.

Pacific Salmon Science and Genetics Support (9 FTEs and \$1,925,000)

- *Evaluation of Management Actions on Salmon Production and Survival Using New Technologies* – Fund fish tagging and tracking technology projects to improve the evaluation of the efficacy of restoration actions at a watershed level. These projects will provide critical new information on salmon life history and survival and may alter estimates of salmon response to restoration. This new information could affect policy and greatly improve future management of Pacific salmon recovery.
- *Cost-effectiveness of Salmon and Steelhead Recovery Actions* – Collect data necessary to assess the cost-effectiveness of recovery actions, including harvest reductions, hatchery reforms, modifications to hydropower facilities and operations, and habitat restoration and protection. These data will facilitate recovery planning and the results will be incorporated into recovery planning implementation documents.

Genetic Stock Identification (0 FTEs and \$2,000,000)

- *Genetic Tools and Stock Indicators* – Funding will support activities such as: (1) increase at-sea sample collection of Chinook salmon by fishermen; (2) genetically analyze up to 10,000 additional Chinook salmon samples annually to provide stock origin information for salmon caught in California, Oregon, and Washington coastal fisheries; (3) expand research on the development of additional genetic tools to reduce costs and increase efficiency of genetic analysis; (4) develop improved methods of fishery management and stock assessment that fully utilize the spatially explicit genetic information

collected; and (5) develop a regional integrated data system that facilitates movement of data from fishing boats, genetics laboratories, and oceanographic sensors into a centralized database accessible on-line.

Statement of Need and Economic Benefits

The Pacific salmon ESA Recovery and Research Program is required to conduct ESA listings, develop recovery plans, conduct research, issue incidental take permits, develop habitat conservation plans, complete ESA Section 7 consultations, and implement recovery actions for Pacific salmon. The funding for the habitat conservation and implementation and recovery actions will provide a solid foundation for Pacific salmon recovery on the West Coast. The Klamath funding is needed to advance recovery for the Southern Oregon/Northern California Coast Coho Evolutionarily Significant Unit to restore the Klamath River salmon fishery resources. In 2002, EPA initiated consultation with NMFS on its registration or re-registration of several pesticides in response to legal challenges in the states of Washington and California. In response, EPA plans to routinely consult with NMFS on its registration and re-registration of pesticides. Pesticide consultations are extremely complex and require specialized technical expertise (e.g., toxicology) that NMFS currently lacks, and this increase would allow NMFS to obtain toxicological expertise. Increasing NMFS' capacity to conduct and complete consultations with EPA will allow NMFS to fulfill its statutory mandates and, by reducing the impact of water pollution on Pacific salmon, these consultations will make substantial contributions to the recovery of Pacific salmon.

NMFS has important mandates under the San Joaquin River Settlement Agreement and PL 111-11 to exercise its responsibilities under the ESA to protect and recover threatened or endangered species, and additionally to authorize and establish an experimental population of spring-run Chinook salmon in the San Joaquin River. NMFS is a party to the settlement agreement, in addition to the Department of the Interior. The initial reintroduction of salmon to the river must occur in 2012, and interim experimental flows are scheduled to begin in October 2009. This requires NMFS to promulgate regulations to allow an experimental population of the threatened spring-run Chinook to be established. The San Joaquin River has been de-watered for 100 miles owing to Friant Dam operations, and restoration of flows to the river will require significant, highly complex channel improvement and creation. These modifications will require NMFS to consult on these actions as they may affect listed anadromous fish lower in the river system. It is particularly important that NMFS deliver on-time, scientifically sound, and legally defensible Section 7 consultations for this program in order to minimize impacts to the local agricultural economy, which is already seriously impacted by current economic conditions. Additionally, there are significant gaps in knowledge regarding how such a reintroduction of a previously extirpated species can be accomplished and its biological consequences to other existing listed populations in the Sacramento River system. To address these gaps, NMFS needs to conduct genetic evaluations, monitoring of population responses, hydrological analyses, and other studies.

NMFS also has important mandates under the Matilija Dam Ecosystem Restoration Project as defined under the Water Resource and Development Act of 2007 (PL 110-114). The removal of Matilija Dam is a significant project that entails numerous federal, state, local, and non-governmental agencies, which requires NMFS technical and biological expertise and support. The successful removal of this dam will open habitat in the Ventura River watershed for the critically endangered population of steelhead. Because of its unique combination of physical and biological characteristics, restoring essential instream habitat functions to this watershed has been identified as crucial for conserving populations of this species throughout southern California. NMFS' ability to partner with stakeholders on this activity, and other habitat improvement activities

throughout the watershed (e.g., section 10 Habitat Conservation Plans), will affect the likelihood of survival for this species. The Report of the Chief of Engineers (December 20, 2004) estimates the total cost for the Matilija project at \$144.5 million in federal and non-federal funds. NMFS’ ability to ensure regulatory compliance and provide technical assistance is essential to ensuring this project, with its associated conservation and economic benefits, is implemented.

Improving the scientific information for Pacific salmon will provide managers with adequate information to focus recovery efforts on those actions with the highest likelihood of success. Salmon managers will be better able to predict ocean abundance and develop improved harvest and protection strategies, improve prioritization of restoration projects, and understand the benefits and risks of hatchery supplementation. In turn, better management of the salmon fishery should provide greater fishing opportunity and sustainability for recreational and commercial fleets that have been stressed by recent fishery closures.

Performance Goals and Measurements Data

Achieving stable or increasing populations of ESA-listed species is a long-term effort because of the time it takes to observe responses to specific actions that affect the species. The request benefits the status of Salmon ESUs in the Northwest region as well as the status of ESUs in Northern California.

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c						
With Increase	22	24	24	27	26	28
Without Increase	22	24	24	26	25	26

TERMINATIONS FOR 2010:

The following programs within the Protected Species Research & Management subactivity, or portions thereof, have been terminated in FY 2010: Protected Resources Research and Management Programs Base (\$3,058,000); Marine Mammals (\$30,000); Marine Turtles (\$10,000); Cook Inlet Beluga Whale Research (\$700,000); Alaska Sea Life Center (\$1,500,000); Alaska Sea Otter and Stellar Sea Lion Commission, AK (\$300,000); Hawaiian Monk Seals (\$2,600,000); Hawaiian Sea Turtles (\$7,100,000); Ice Seals Research (\$250,000); Provincetown Center for Coastal Studies Right Whale Conservation, MA (\$500,000); and Seals as Sentinels (\$100,000).

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service

Subactivity: Protected Species Research and Management

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Marine Resource Management Specialist	Gloucester, MA	ZP-4	4	87,548	350,192
Marine Resource Management Specialist	St. Petersburg FL	ZP-4	4	80,402	321,608
Marine Resource Management Specialist	Long Beach, CA	ZP-4	9	89,335	804,015
Marine Resource Management Specialist	Seattle WA	ZP-4	5	85,487	427,435
Marine Resource Management Specialist	Anchorage, AK	ZP-4	6	80,402	482,412
Marine Resource Management Specialist	Honolulu, HI	ZP-4	4	80,402	321,608
Fishery Biologist	Honolulu, HI	ZP-4	4	80,402	321,608
Marine Resource Management Specialist	Honolulu, HI	ZP-4	1	80,402	80,402
Fishery Biologist	Seattle, WA	ZP-4	4	85,487	341,948
Marine Resource Management specialist	Anchorage, AK	ZP-4	2	80,402	160,804
Marine Resource Management Specialist	Gloucester, MA	ZP-3	2	61,425	128,850
Marine Resource Management Specialist	St. Petersburg, FL	ZP-3	2	56,411	112,822
Marine Resource Management Specialist	Long Beach, CA	ZP-3	19	62,678	1,190,882
Marine Resource Management Specialist	Seattle WA	ZP-3	16	59,978	954,848
Marine Resource Management Specialist	Anchorage, AK	ZP-3	1	56,411	56,411
Marine Resource Management Specialist	Honolulu, HI	ZP-3	2	56,411	112,822
Marine Resource Management Specialist	Silver Spring, MD	ZP-3	1	60,989	60,989
Total			86		6,229,656

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
 Subactivity: Protected Species Research and Management

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Total			86		6,229,656
less Lapse		25.0%	22		823,289
Total full-time permanent (FTE)			65		4,672,242
2010 Pay Adjustment (2.0%)					93,445
TOTAL					4,765,687

Personnel Data

	Number
Full-Time Equivalent Employment	
Full-time permanent	65
Other than full-time permanent	0
Total	65
Authorized Positions:	
Full-time permanent	86
Other than full-time permanent	0
Total	86

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS

Activity: National Marine Fisheries Service
Subactivity: Protected Species Research and Management

	Object Class	FY 2010 Increase
11.1	Full-time permanent	4,766
11.6	Leave Surcharge	1,354
11.9	Total Personnel Compensation	6,120
12.1	Civilian personnel benefits	2,125
21	Travel and transportation of persons	195
25.1	Advisory and assistance services	3,062
25.2	Other services	8,803
31	Equipment	695
41	Grants, subsidies and contributions	60,171
99	Total Obligations	81,171

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Subactivity: Fisheries Research and Management

Fisheries Research

The goal of the Fisheries Research and Management program is to provide accurate and timely information and analyses on the biological, ecological, economic, and social aspects of the Nation's fisheries resources and develop, implement, and monitor living marine resource management measures to support the NOAA Strategic Plan goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

NMFS develops scientific information needed for the stewardship of the Nation's living marine resources. NMFS' regional Science Centers encompass 30 principal laboratories, employing more than 1,550 scientific and support personnel. They provide the scientific knowledge base for NMFS' Regional Offices and for the fishery management councils, interstate fishery commissions, and other agencies to facilitate informed decision-making about marine resource management decisions for sustainable fisheries, aquaculture, protected resources, endangered species, and habitat.

Fishery Stock Assessments: One of NMFS' core functions is to determine the changes in the abundance of fishery stocks in response to fishing and predict future trends of stock abundance. Assessments provide the technical basis for setting annual fishery quotas and other fishery management measures that will achieve optimum yield from the fishery while avoiding overfishing and ecosystem harm. Confidently achieving this balance between exploitation and conservation requires substantial information about the fish stock and its ecosystem from fishery resource surveys. These assessments provide direct technical guidance to fisheries managers and stakeholders managing key fish species. For example, NMFS' stock assessments provide the technical basis for setting annual catch limits (ACL), a requirement of Magnuson-Stevens Act, and an integral component of the U.S. Ocean Action Plan, which advocates the wider implementation of limited access privilege programs.

Fishery Resource Surveys: Understanding the factors affecting the abundance and life history of fish stocks requires collecting catch and effort data, measuring biological characteristics, and developing biostatistical analyses for a variety of Fishery Management Plan (FMP) and non-FMP species of exploited fish and invertebrates. Fishery-dependent and fishery-independent resource surveys provide age and size samples, catch composition, and indices of relative abundance. These data are key inputs to stock assessments, fishery management regulations, and the production of status reports for living marine resources and their fisheries.

A fishery-independent survey is data collected independently of the activity of the commercial or recreational fishing sector. This approach avoids biases when collecting data on life history characteristics for a species, such as age, natural mortality, growth rates, and reproductive capacity. Conversely, a fishery-dependent survey collects data on a fishery from commercial or sport fishermen and from seafood dealers. Collection methods include the use of logbooks, portside sampling of catch, fishery observers, and telephone surveys to recreational fishermen.

Focus on Ecosystems: NMFS' resource management focuses on the connectivity of living and non-living resources within a determined ecosystem. This ecosystems approach to management relies upon research and analyses that integrate biological, socioeconomic, environmental, and oceanographic data

into predictive models that improve the Nation's forecasting capabilities for fisheries management. NMFS' use of an ecosystems approach increases the ability to make scientifically sound management decisions that are less prone to risk and more likely to succeed. Improved scientific analyses ensure that constituents receive the most accurate and complete analyses, thereby fostering a constructive public stewardship process.

Social and Economic Data Collection: To understand human uses of ecosystems and their impact, NMFS collects socioeconomic data, which enables NMFS to develop options to manage fisheries for economic as well as biological growth and sustainability. Integration of socioeconomic indices into NMFS' forecasts allows for improved baseline data that managers from all sectors can use to make better informed decisions. NMFS' social and economic assessments are crucial for the successful development of market-based systems for fisheries management.

Use of the Best Available Science: Managing the nation's marine fisheries at sustainable harvest rates and rebuilding depleted fish stocks requires the best available scientific information to implement sound management and conservation actions. NMFS is responsible for ensuring that management decisions are based on the highest-quality scientific information on the biological, social, and economic status of the fisheries. This includes species' responses to environmental changes, species interactions, exploitation, and other human activities that affect species and their habitat. Social, cultural, and economic behaviors and incentives that influence human-marine interactions are also addressed.

Fisheries Management

Commercial and recreational marine fisheries are an important source of revenue and jobs in the United States. U.S. commercial fishermen landed 9.2 billion pounds of seafood valued at \$4.1 billion in 2007. Overall, it is estimated that the commercial fishing industry contributed \$34.2 billion (in value added) to the U.S. Gross National Product. U.S. recreational fishermen took almost 87 million fishing trips, and harvested over 196 million fish weighing 255.1 million pounds. In total, U.S. consumers spent an estimated \$68.4 billion for fishing products in 2007 (Report to MAFAC from NOAA Fisheries: Enhancing NOAA Fisheries Seafood Safety, Quality, and Outreach Programs, July 2008.) The NOAA Fisheries Management Program, through the NMFS Office of Sustainable Fisheries, applies ecosystem approaches to conserving and managing sustainable fisheries within the U.S. EEZ. The central focus of the Program is to maintain and restore productive stocks important to commercial, recreational, tribal, and subsistence fisheries. Coastal and marine fisheries form an integral component of the Nation's heritage and economy. The elimination of overfishing and the rebuilding of overfished stocks through sustainable fisheries management are essential to increasing the long-term economic and social benefits to the Nation.

Management and Rulemaking Process:

Domestic marine? fisheries within the U.S. EEZ are managed regionally by regional Councils. Atlantic highly migratory species (e.g., tunas, sharks, swordfish, and billfish) are managed directly by the Fisheries Management Program. The Fisheries Management Program partners with the Interstate Marine Fisheries Commissions and states to manage coastal marine fisheries. Regional Councils, their advisory bodies, interstate Commissions, and states meet regularly during the year to conduct a transparent decision-making process for recommending fishery management actions. Before final action is taken, comprehensive ecological and socioeconomic analyses are prepared using NMFS' fisheries research and presented at public hearings during Council, Advisory Panel, and Commission meetings. These bodies and the Fisheries Management Program are charged with developing and implementing Limited Access Privilege Programs (LAPPs) in addition to addressing overfishing, bycatch, essential fish habitat, and rebuilding issues through the

development of fishery management plans and amendments. Goals of the Fisheries Management Program include increasing the number of fisheries managed with LAPPs and improving the status of fish stocks by ending overfishing and increasing stock biomass.

NMFS reviews management programs proposed by the Councils and, if they are approved, NMFS implements the required federal regulations. The six NMFS Regional Offices facilitate and expedite the approval and implementation of fishery management plans and amendments, including the preparation of analytical documents and management of other activities in support of rulemaking (e.g., implementing regulations, in-season actions, permits, etc.) for fisheries and fishery trade activities managed by the Fisheries Management Program under multiple authorities. The Fisheries Management Program considers comments from private-sector organizations (commercial and recreational fishing organizations, environmental groups, fishermen, and the general public) regarding management of U.S. commercial and recreational fisheries activities. The Fisheries Management Program also partners with the Interstate Marine Fisheries Commissions and states to manage coastal marine fisheries through regulatory analysis, evaluation, and implementation.

Consistency Requirements: Management of marine fisheries requires coordination and consistency with legislation, NMFS, and the eight Councils. The Fisheries Management Program develops legislative proposals; reviews, comments on, and works with Congress on new bills; provides technical drafting assistance to Congress; and interprets and evaluates the implications of new legislation. The Fisheries Management Program ensures that NOAA's fishery management activities comply with over a dozen legislative and policy drivers. The Magnuson-Stevens Act is the primary authority for fisheries management in the U.S. EEZ. The Act establishes authority within the U.S. Department of Commerce, through NMFS and the Councils, for management of U.S. fishing operations and imposes strict timelines for review and implementation of fishery management plans and regulations submitted by Councils and approved by the Secretary of Commerce.

Managing Seafood Quality: The Fisheries Management Program promotes the economic sustainability of fishermen and fishing communities and provides for healthy seafood. The Fisheries Management Program provides for improvements in the fishing fleet and shoreside processing operations, reductions in overcapacity in fisheries, and a voluntary seafood inspection service to ensure compliance with all applicable food regulations. The National Seafood Inspection Laboratory provides an analysis laboratory, data management, regulatory compliance risk analysis, and information transfer expertise to support the Department of Commerce's National Seafood Inspection Program. The Program provides voluntary services such as sanitation evaluation, product inspection and certification, auditing of food quality and safety programs, and training. Approximately 10% of the industry uses NOAA services, and 20% of the seafood consumed in the United States is processed by facilities that are inspected by the Program.

International and Transboundary Management: The Fisheries Management Program is responsible for the conservation and management of certain fish stocks that, because of their life cycle, require international cooperation and engagement to ensure their long-term sustainable use. Fish stocks included in this category are anadromous fish (such as Atlantic and Pacific wild salmon), straddling fish species (such as pollock), and highly migratory species including tunas, sharks, swordfish, and billfish. Consequently, the Fisheries Management Program must participate in international negotiations to achieve international agreements for such fish species. In addition, the Program provides coordination and support for the U.S. commissioners to bilateral and multilateral commissions responsible for the management of these fish, including the Inter-American Tropical Tuna Commission, International Commission for the Conservation of Atlantic Tunas, International Pacific Halibut Commission, Northwest Atlantic Fisheries Organization, North Atlantic

Salmon Conservation Organization, North Pacific Anadromous Fish Commission, Pacific Salmon Commission, the Commission on the Conservation of Antarctic Marine Living Resources, and the Western and Central Pacific Fisheries Commission. The Fisheries Management Program formulates strategies and positions on fishery trade for bilateral and multilateral negotiations and participates as the Department of Commerce fishing industry sector staff, providing technical expertise and negotiating skills to reduce barriers to trade of fish and fishery products. Given opportunities to expand trade and competitiveness, and the use of trade measures to support conservation objectives, the Fisheries Management Program provides policymakers with the best information possible to form decisions and evaluate their impact.

PROGRAM CHANGES FOR FY 2010:

Implementation of Annual Catch Limits (ACLs) and Accountability Measures (AMs) (+12 FTEs and +\$12,000,000) – NOAA requests an increase of \$12,000,000 and 12 FTEs to implement ACLs and AMs established by the Regional Fisheries Management Councils and the Secretary of Commerce to end and prevent overfishing as required under the Magnuson-Stevens Reauthorization Act (MSRA) of January 2007. Within this \$12,000,000 increase, \$5,400,000 will support the transition of fisheries to catch-share management where a council has determined that a sector management scheme is appropriate. The remaining \$6,600,000 will be provided to the regions and NMFS' Atlantic Highly Migratory Species Division to establish and monitor ACLs and AMs and analyze data nationwide.

Proposed Actions

Resources will be provided to each of the six NMFS Regions and to the Atlantic Highly Migratory Species Division, to establish and monitor Annual Catch Limits (ACLs) and Accountability Measures (AMs), process and analyze catch data, and to report annual data for national performance monitoring. Analysis of this data will determine management action and lead to the development or improvement of ACL management systems. Resources will be directed to coordinate and oversee the implementation of ACLs and AMs nationally to ensure consistency; to support national performance monitoring and annual tracking of target catch levels, ACLs, and overfishing levels for all stocks and stock complexes; and to evaluate the success of ACLs and AMs at meeting the MSRA requirements to end and prevent overfishing.

Statement of Need and Economic Benefits

Overfishing is a rate of harvest that is too high for the fishery to achieve its maximum sustainable yield. Overfishing can lead to declines in stock size so that the stock becomes overfished and requires a rebuilding plan. Overfishing has a detrimental impact on the ecological and economic sustainability of fisheries, negatively affecting fishing communities, industry and recreational interests and other marine resources. The MSRA requires that ACLs and AMs be implemented in all fisheries by 2011 such that overfishing does not occur. For fisheries where overfishing is currently occurring, ACLs and AMs must be implemented by 2010. An ACL limits the amount of catch in a particular year at a level that ensures long-term stability. AMs are used to correct for instances where the ACL is exceeded. The requested resources are needed to implement new regulations and enhanced fishery management systems in the six NOAA Fisheries regions, including: (1) implementing necessary regulations to establish and upgrade fishery data collections to provide the information necessary to monitor ACLs; (2) improving regional ACL management systems to ensure that timely management action can be taken to prevent ACLs from being exceeded; (3) analyzing fishery data throughout the season to determine whether management action is needed (e.g., to close a fishery when it reaches its ACL or implement accountability measures); (4) implementing AMs as needed; and (5) monitoring the performance of ACLs and AMs each year and continuing to improve management systems if they are underperforming.

For overfished fisheries, implementing fishery rebuilding plans that incorporate ACLs and AMs is crucial to restoring fish populations to levels that can produce maximum sustainable yields, ensuring long-term sustainability of commercial and recreational harvests and maximizing the economic and social

benefits of fisheries. There is high potential for increased net economic benefits for U.S. stocks that are currently overfished. A recent study (Sumaila, U.R., Suatoni, E. *Fish Economics: The Benefits of Rebuilding U.S. Ocean Fish Populations*. Fisheries Economics Research Unit, Oct. 2005) showed that the net present value (NPV) of 17 stocks that have implemented rebuilding plans is estimated to be three times higher than the NPV of the same stocks if they are not rebuilt, but continue to be harvested at current levels. The total catch in rebuilt stocks was estimated to be 2.5 times greater than if the stocks are not rebuilt. Positive economic factors from rebuilding included the catch from higher-value stocks increasing proportionally more than catches from less valuable stocks and the catch per unit of the rebuilt stocks delivering higher net benefits because it cost less to catch the fish. Effective ACLs and AMs will ensure that stocks can rebuild and these benefits can be realized.

Sector management and “catch shares” allocation give fishermen maximum flexibility in choosing when to fish by setting a science-based total allowable catch and then allocating shares of that limit to fishermen. These techniques improve the safety of fishing operations and allow fishermen to time their landings for maximum economic benefit. The techniques also increase the benefit to fishermen of conserving fish stocks, as catch shares rise when fish stocks increase. The transition to these self-management techniques will require extensive monitoring and new methods of processing data. The long-term benefits of improved conservation and greater economic benefit for industry justify this effort to shift to a catch share management system. This funding will also allow NOAA to develop and integrate systems to monitor landings and discards, and track permit transfers in catch share and sector-managed fisheries. Catch-shares provide a mechanism for capacity reduction through consolidation, help to address bycatch issues, simplify management, give industry greater control over their own fate, providing a mechanism for economics to shape the fleet rather than regulations (while working to achieve fishing and biomass targets), and to prevent excessive consolidation that could eliminate the day boat fishery.

This request to implement ACLs and AMs complements the request for Regional Fishery Management Councils for resources to develop ACL and AM measures through their regionally-based public process and amend 45 federal fishery management plans with the ACL and AM provision. This request also complements efforts described within the Enforcement and the Other Activities Supporting Fisheries subactivities. Both requests are needed for ACLs and AMs to be fully effective in meeting the objective to end and prevent overfishing in all U.S. federal fisheries. If both requests are funded, the Fish Stocks Sustainability Index is projected to increase by 16 points by 2014, compared to the level without the increase.

Performance Goals and Measurement Data

The increase supports the Ecosystem Performance Goal and Proposed GPRA measure, “Fish Stock Sustainability Index.”

Performance Goal: The Fish Stock Sustainability Index (FSSI), Measure 1a	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	548.5	568	578	597	604.5	610
Without Increase	548.5	568	578	589.5	597	602.5
Note: This shows the effect of this program change (+\$12.0M) on the FSSI. This is a component of the total number reported in the Annual Performance Plan (APP). * Effects of FY 2010 funding request on the FSSI will not occur until FY12 due to lag time in verifying stock status changes from pending management decisions and planned stock assessments.						

Performance Goal: The Fish Stock Sustainability Index (FSSI), Measure 1a	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	548.5	568	578	606.5	615	621.5
Without Increase	548.5	568	578	589.5	597	602.5
Note: This shows the combined effect of the ACL and AM Implementation (+\$12.0M) and the Regional Councils Support (+\$4.0M) program changes on the FSSI.						

International Requirements of the Magnuson-Stevens Reauthorization Act (+8 FTEs and +\$3,000,000) – NOAA requests an increase of 8 FTE and \$3,000,000 to implement the international requirements of the Magnuson-Stevens Reauthorization Act (MSRA).

This increase will support participation and leadership for international obligations under the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean as mandated by the reauthorized MSRA. This increase builds on the \$1.0 million provided in the FY 2009 President’s budget. This will allow NOAA to provide leadership for the U.S. delegation to the Western and Central Pacific Fisheries Commission (WCPFC). The WCPFC is responsible for the conservation and management of highly migratory fish stocks in the Western and Central Pacific Ocean which is an important component of our overall FY 2010 MSRA funding proposal.

This increase will also support NMFS’ implementation of IUU/ bycatch identification, consultation and certification procedures, and collection of data to support the identification, consultation and certification actions with IUU/bycatch nations and governing RFMOs. In the event that any nation fails to take MSRA-required actions, the Department of Commerce, working through NOAA and in coordination with State Department, the U.S. Trade Representative, and other agencies, is required to take remedial steps. Such actions could lead to the eventual implementation of fishery-product trade prohibitions. Related to these issues, the increase would improve NOAA’s ability to address trade issues and monitoring compliance with complex and politically sensitive World Trade Organization rules and addressing fishery-related trade issues that arise in negotiated free trade agreements. International cooperation and assistance will improve foreign stewardship capacity by promoting best practices and developing U.S.-comparable fishery management regulatory systems aimed at stemming IUU/unregulated bycatch fishing which can trigger the MSRA-required identification/certification processes and possible trade prohibitions. This is an important component of our overall FY 2010 MSRA funding request.

Proposed Actions

With this increase, NMFS will address the implementation of MSRA requirements for international coordination. NMFS will represent U.S. interests at negotiations at the Western and Central Pacific Fisheries Commission (WCPFC), provide U.S. representation and participation in annual, scientific, and technical meetings of the Commission; and provide technical support, outreach, and education that advances agency objectives with other domestic and international stakeholders. Together with the FY 2009 request, this request will provide for full support to the U.S. Commissioner to the WCPFC and the Advisory Panel that gives U.S. stakeholders the opportunity to participate in WCPFC management decisions. This request also supports agency analysis and research to identify, consult and certify nations whose vessels engage in illegal, unregulated and unreported (IUU) fishing and bycatch of Protected

Living Marine Resources (PLMRs) and to submit to Congress IUU/Bycatch Identification/Certification Reports (beginning in FY 2009, and on a biennial basis thereafter). In the event of countries engaging in IUU or bycatch of PLMRs fails to take necessary action following bilateral consultation, NMFS will coordinate with other Federal agencies and provide recommendations to the Secretary of Commerce on possible fishery-product trade prohibitions, and other actions, on nations whose vessels engage in IUU and bycatch of PLMRs. NMFS will also implement and monitor a worldwide international technical assistance program, accomplished through use of bilateral and regional workshops, invitational travel to NOAA facilities and technology transfer to advance and achieve MSRA international objectives. NMFS will publish a final rule in FY 2010 on its IUU/Bycatch certification procedures.

Statement of Need and Economic Benefits

The MSRA mandated that NOAA represent U.S. interests in the WCPFC. The WCPFC is a new treaty-based regional fishery management organization established to conserve and manage tunas and other highly migratory fish stocks across a vast range of the Pacific Ocean. The WCPFC manages highly migratory fish stocks valued at \$2 billion annually. The United States has the largest exclusive economic zone (EEZ) within the WCPFC Convention Area (including waters of Hawaii, Guam, America Samoa and Northern Mariana Islands). The Commission manages stocks of bigeye, yellowfin, and skipjack tuna; swordfish; and marlins – stocks whose range includes the high seas and areas under U.S. management jurisdiction. Addressing these fisheries issues directly supports the U.S. economic and environmental interests. Some stocks under WCPFC management, including bigeye and yellowfin tuna are being overfished. Because these are shared stocks found in U.S. waters, failure by the United States to actively address this problem at the international level will have adverse repercussions on U.S. fishermen, U.S. consumers of these tuna resources, and the island economies that are highly dependent on the sustainable management of high-value marine resources.

Sustainable management of these stocks is critical to the economies of the U.S. Pacific islands (including Hawaii, Guam, America Samoa, and the Northern Mariana Islands). With the increase, the United States will be able to serve in a strong leadership role to advance U.S. conservation, management, enforcement, and economic interests within the Commission and to safeguard U.S. management measures within our EEZ. Sustainable management of highly migratory species is the defining economic, environmental, cultural, and security issue for the Western and Central Pacific Ocean and the wider Pacific basin. Appropriate fishery management measures, resulting from Commission negotiations, will prevent overfishing across the range of the stocks and ensure the long-term viability of the fisheries.

As a nation that imports about 83% of the seafood it consumes, the United States has an obligation to combat IUU fishing around the world. In enacting the MSRA, Congress noted that unsustainable fishing practices of foreign fleets adversely impact fish stocks and protected species and undermine the effectiveness of U.S. management measures. Congress noted further that the U.S. fleet is disadvantaged when other countries do not impose the same stringent regimes on their fishing fleets, either within their EEZs or on the high seas. The MSRA mandated that NOAA address the international problem of IUU fishing and bycatch of protected living marine resources, problems that impact shared living marine resources that are economically and ecologically important to the US. According to the United Nations Food and Agriculture Organization (FAO), IUU fishing thwarts attempts by States and regional organizations to manage fisheries in a responsible manner, and also affects the ability of governments to support sustainable livelihoods for fishers and, more broadly, to achieve food security. The United Nations General Assembly has termed IUU fishing, “one of the greatest threats to marine ecosystems [that] continues to have serious and major implications for the conservation and management of

ocean resources.” Since IUU activities are often carried out covertly, monitoring and detection are difficult. This renders precise quantification of the problem illusive. The FAO notes that although the exact extent of IUU fishing is not known, it is known that for some important fisheries IUU fishing accounts for about 30 percent of the total catch. The amount of IUU fishing worldwide appears to be increasing as some fishing vessels try to avoid strict fishing rules put in place to address declining catches in a growing number of fisheries. The best estimate of IUU fishing is that this activity generates about \$5-\$9 billion in gross revenues each year. This illegal fishing can undermine U.S. domestic fishery management practices and has implications for sustainable international fisheries management, which benefit the world’s marine ecosystems, the U.S. fishing industry, and the American seafood consumer.

The unintentional catch (bycatch) of protected living marine resources is also a serious issue in international fisheries. The problems of bycatch have been recognized consistently by the FAO Committee on Fisheries and in United Nations General Assembly for well over a decade. Bycatch of protected living marine resources in fisheries limits the ability of the United States and other nations to conserve those resources. Examples of bycatch of protected living marine resources include incidentally caught or harmed sea turtles, sharks, dolphins and other marine mammals. Without proper measures to address such bycatch, fishing can lead to serious injury or mortality of protected species. Such bycatch can also have significant negative consequences for marine ecosystems and biodiversity.

Deliverables and Performance Goals

The MSRA also requires the Secretary of Commerce to identify nations, through a biennial report to Congress, whose vessels are engaged in IUU fishing or bycatch activities of protected living resources, and to positively certify those nations that have taken certain appropriate corrective action. Failure to positively certify that a nation is taking appropriate corrective action may lead to prohibitions on the importation of certain fisheries products into the United States, the denial of port privileges, and/or other measures, under specified circumstances against that particular nation. The MSRA also calls on the Secretary to provide assistance to nations whose vessels are involved in bycatch of living marine resources to assist them in addressing such activities.

A performance measure currently under development for IUU will address “international engagement to combat illegal, unregulated and unreported (IUU) fishing.” The measure stems from Title VI of the Magnuson-Stevens Reauthorization Act (MSRA), which calls on the Secretary of Commerce to take international action to end IUU fishing and to reduce bycatch of protected living marine resources. The measure will address the percentage of nations with IUU fisheries, or fisheries with bycatch of protected living marine resources, which have received a positive certification for having taken appropriate corrective action. However, there is insufficient baseline and targeting data for full implementation of this measure until FY 2011. The performance measure will provide an indication of the return on investment to combat IUU fishing and the taking of bycatch of protected living marine resources. It would do so by measuring biannually, in conjunction with the report to Congress, the percentage of identified nations, as described above, which receive a positive certification for having taken appropriate corrective action. With regard to nations identified as having vessels engaged in IUU fishing activity, corrective action will focus on the offending activities, or whether the relevant international fishery management organization has implemented measures that are effective in ending the IUU fishing activity by vessels of that nation.

Until this preferred performance measure has been finalized with an established baseline and can be used to support budget increases, an interim performance measure will be used to evaluate progress in building NOAA capacity to conduct analysis and investigations to identify nations whose vessels are engaged in IUU fishing or bycatch of PLMRs. With the resources available for investigations leading up to the first round of identifications in 2009, NOAA was only able to effectively analyze and investigate nations for violations of conservation and management measures required under an international fishery management agreement. However, the MSRA indicates that nations could be identified under three other IUU and bycatch criteria: (a) overfishing of stocks shared by the United States for which no international conservation and management measures are in place, (b) fishing activity that has adverse impacts on vulnerable marine ecosystems for which no international conservation and management measures are in place, and (c) fishing activities that result in bycatch of PLMRs in international waters or bycatch of PLMRs shared by the United States. The interim performance measure will consider the full suite of nations that should be investigated with respect to each of these criteria and then calculate the percentage of those nations that actually have been investigated. The baseline is currently being calculated, and it will indicate that all nations that are members of international fishery management organizations to which the United States is a party were investigated with respect to violations of the organizations' conservation and management measures—but very few if any nations were investigated with respect to the other criteria.

Comparative Analysis of Marine Ecosystem Organization (CAMEO) (+0 FTE and +\$5,000,000): NMFS is requesting an increase of \$5,000,000 and 0 FTE to strengthen the scientific basis for an ecosystem approach to the stewardship of our living marine resources by supporting existing program requirements within this subactivity not provided for in the Omnibus Appropriations Act, 2009.

Statement of Need

NOAA's request to restore funding to this program, which was initiated in FY 2008, will enable NOAA to fully fund this national initiative. NOAA's increase will advance regional ecosystem observation and characterization efforts as recommended by the MSRA.

The purpose of CAMEO is to strengthen the scientific basis for an ecosystem approach to the stewardship of our ocean and coastal living marine resources. The program will support fundamental research to understand complex dynamics controlling ecosystem structure, productivity, behavior, resilience, and population connectivity, as well as effects of climate variability and anthropogenic pressures on living marine resources and critical habitats. Non-linear, dynamic models may perform better than linear, equilibrium models used for single species fisheries stock assessments today. Today's ecosystem models use thousands of variables to represent all parts of the ecosystem – this may lead to false conclusions and the complexity of the model makes it difficult to transfer knowledge into management. Understanding the structure and organization of ecosystems will produce ecosystem models without these flaws. CAMEO encourages the development of multiple approaches, such as ecosystem models and comparative analyses of managed and unmanaged areas (e.g., marine protected areas (MPAs)) that can ultimately form a basis for forecasting and decision support.

CAMEO represents a unique partnership among NOAA and the National Science Foundation that connects the mission of the stewardship of living marine resources with the Nation's ocean science community. The main objective of the CAMEO program is to improve management of marine ecosystems by understanding how biological components are linked and by evaluating the effectiveness of MPAs as a management tool. This new program will provide a

greater basic understanding of processes controlling ecosystem productivity, and practical tools for understanding how various management regimes may affect those ecosystems.

Proposed Actions

The 2008-2009 projects provide a strong foundation for CAMEO in 2010. Researchers have i.) used a novel approach to predict salmon survival from plankton samples; ii.) determined how climate-induced dewatering of estuaries effects ecosystem productivity; and iii.) established a new, broad set of cutting –edge modeling tools. New 2010 projects will apply the models to other locations, make new comparisons, and refine approaches. NMFS will also use the funds to form and support a science steering committee that will develop a comprehensive science plan. Grants and work at NMFS Science Centers will advance the development of methodologies for comparative analyses, including modeling frameworks that can be applied consistently across ecosystems and that facilitate design of decision support tools.

For FY 2010, CAMEO will focus on:

- Development of strategies and methodologies for comparative analyses that can be applied consistently across spatial and temporal scales and ecosystems, and that facilitate the design of decision support tools for marine populations, ecosystems and habitats.
- Development of models that address key scientific questions by comparing ecosystems and ecosystem processes. Models that are geographically and temporally portable, and that incorporate assessment of modeling skill, are particularly encouraged.
- Retrospective studies that analyze, re-analyze or synthesize existing information (historic, time-series, ongoing program, etc.) using a comparative approach.
- Studies that integrate the human dimension within ecosystem dynamics. The CAMEO program seeks to promote interdisciplinary research using comparative approaches to link marine ecosystem research with the social and behavioral sciences in new and vital ways.
- Empirical or retrospective projects that evaluate and compare the effectiveness and design of Marine Protected Areas or other spatially-explicit management strategies.

Benefits

NOAA's request for CAMEO will improve the management of the Nation's marine ecosystems by elucidating the underlying dynamics that affect ecosystem processes at a variety of scales. This request will not only provide a greater basic understanding of these processes, but will support enhanced coordination between resource management communities and the ocean science community by providing an important basis to evaluate existing management strategies (e.g., MPAs, closed fishing areas) and develop new management strategies. Results from CAMEO work will ultimately provide the information necessary to effectively adapt management to mitigate the ecological, social, and economic impacts of major shifts in ecosystems and the productivity of living marine resources.

Performance Goals and Measurement Data

This increase will support the objective "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce strategic goal to "Observe, protect, and manage the Earth's resources to promote

environmental stewardship.” Specifically, this increase supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

Number of coastal, marine, and GL ecological characterizations*	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase (cumulative)	0	0	3	4	5	6
Without Increase	0	0	0	0	0	0

* These targets represent only the increase attributable to this program change.

Charter Days in Lieu of *John N. Cobb* (+0 FTE and +\$1,600,000): NOAA requests an increase of \$1,600,000 and 0 FTEs to fund commercial vessel charter days in lieu of the NOAA Vessel *John N. Cobb*, which was decommissioned on August 13, 2008.

Proposed Actions

This request will provide charter vessel support for the NMFS Alaska Fisheries Science Center’s fishery-independent surveys, habitat assessments, longstanding marine mammal research, and logistical support of the Little Port Walter remote field station in southeast Alaska. This level of funding will provide approximately 160 days at sea annually, depending upon fuel costs.

Statement of Need and Economic Benefits

NOAA Ship *John N. Cobb* was retired on August 13, 2008. There are currently no plans to replace the vessel with another NOAA vessel. This has left the Southeast Alaska region without vessel assets to support the conservation and sustainable management of living marine resources or the means to support ecosystem-based approaches to management. Vessel support for the Alaska Fisheries Science Center’s Auke Bay Laboratory and National Marine Mammal Laboratory is critical to the mission.

This funding will ensure that important NMFS missions that were supported by the *COBB* are completed. These missions are diverse, including ecosystem studies on sablefish and rockfish recruitment and migrations, ground-truth documentation of shoreline and estuarine habitats correlated with aerial mapping of broad regional areas, humpback whale feeding and prey composition studies, forage fish ecology, cetacean and harbor seal surveys and behavioral ecology, long-term biophysical oceanographic surveys with trawling to study recruitment indices of several species, and ocean survey and supply cruises to support studies underway on juvenile rockfish, Chinook salmon, and steelhead at the Little Port Walter Marine Station.

Performance Goals and Measurement Data

Performance Goal: Percentage of Living Marine resources with Adequate Population Assessments and Forecasts, Measure 1b	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	42.1%	42.9%	42.3%	41.8%	42.3%	42.9%
Without Increase	42.1%	42.9%	41.6%	40.4%	40.2%	40.2%

Hurricane Environmental Assessments (+0 FTE and +\$2,500,000): NOAA requests \$2,500,000 and 0 FTE for data collection and analysis to improve our understanding of the fishery impacts of hurricanes, our efforts to mitigate those impacts, and our ability to minimize the impacts of future storms. The funding will support time on ships and other platforms for surveys of fish, shrimp, other living marine resources, and social and economic surveys of the fishing industry and fishing communities.

Proposed Actions

This program provides the data and core assessments needed to support fisheries management in the hurricane-prone areas. NMFS will build upon ongoing activities in the following areas:

- Prioritize fisheries and areas for field surveys and assessments, based on input of local experts on the sensitivity to hurricane impacts and economic value to fishing communities.
- Design and conduct select field surveys, including biological and environmental sampling and habitat mapping, to characterize vulnerable resources.
- Adapt current ecosystem models to assess storm impacts.
- Predict the benefits and costs associated with specific habitat recovery and restoration programs.
- Expand community assessment activities to include economic surveys of shoreside firms and inventories of marine infrastructure and, in turn, assess the direct and indirect impacts (e.g., sales, income, and jobs) of marine-related activities on local, state, and national economies.

Statement of Need and Economic Benefits

Hurricanes devastate estuarine and coastal fishery habitats and the infrastructure that support the fishing industry. Shallow habitats are highly vulnerable to the impacts of erosion and winds that accompany landfalling storms. They also support large populations of shrimp, crabs, and oysters, which are harvested in some of the most valuable fisheries in the Nation. NOAA's mandates in the Magnuson-Stevens Fishery Management and Conservation Act require an ecosystem approach to management, which requires in-depth understanding of the biology and ecology of the managed species and the habitats that support them, and of the fisheries and fishing communities that harvest them.

Conserving and restoring functioning ecosystems and their habitats will ensure that the ecological support structure for fish stocks will provide sustained economic value in the future. As a component of NOAA’s ecosystem approach to management, core habitat assessments are conducted to determine whether the available habitat can support fishery resources to the mandated levels for optimizing societal benefits and ensuring coastal communities’ sustained participation in fishing. NOAA’s ability to conduct these assessments is constrained by the lack of the requisite data and the tools needed for data interpretation and modeling.

Performance Goals and Measurement Data

Performance Goal: Biological data collection and analysis activities performed on habitat impacted by hurricanes (Cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	0	2	4	6	8	10
Without Increase	0	0	0	0	0	0
Description: This metric tracks the following activities in areas impacted by hurricanes: habitat field surveys executed, GIS maps completed, and ecosystem models developed.						

Performance Goal: Economic assessments of habitats (Cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	0	0	1	6	8	10
Without Increase	0	0	0	0	0	0
Description: This number tracks the number of economic analyses conducted of habitat. Assessments will include economic impact analyses (jobs, sales and income), and cost-benefit analyses of habitat recovery and restoration projects.						

Performance Goal: Number of states in which economic surveys of shoreside firms in fishing communities have been conducted (Cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	0	0	1	2	3	5
Without Increase	0	0	0	0	0	0
Description: This number tracks the number of states for which we have conducted economic surveys of shoreside firms in fishing communities. These						

surveys will help NMFS estimate the economic impacts of management measures on other sectors dependent upon business from commercial harvesters and anglers, which is required under NEPA. This information is also useful for social impact assessments because it will provide additional information on a community's engagement in fishing.

Pacific Marine National Monuments (+10 FTEs and +\$3,000,000): NOAA requests \$3,000,000 and 10 FTEs to sustainably manage three new Marine National Monuments (MNM) in the Pacific Ocean. These new Monuments will encompass nearly 200,000 square miles, and together represent the largest marine reserve in the world. This requires that NOAA conduct fisheries and living marine ecosystem observation and monitoring, support the scientific and administrative needs associated with expanding the Fagatele Bay National Marine Sanctuary, develop a management plan and monument advisory council, conserve Essential Fish Habitat (EFH) designations, and consult on protected species.

Proposed Actions

Under Presidential Proclamations 8335, 8336 and 8337, NOAA must sustainably manage three new Marine National Monuments (MNM) in the Pacific Ocean: the Marianas Trench Monument, the Pacific Remote Islands Monument, and the Rose Atoll Monument. NOAA is required to take action immediately to prohibit commercial fishing in the marine waters of the monuments. To meet this requirement, NOAA must complete by 2011 the development, analysis, and evaluation of fisheries management actions taken under the Fishery Management Council process pursuant to the Magnuson-Stevens Fishery Conservation and Management Act.

NOAA will: (1) conduct integrated living marine resource (LMR) habitat and oceanographic surveys and biogeographic characterization to establish baseline status of marine ecosystems in the MNMs; (2) deploy moored instruments to support a time series of observations that will enable monitoring of ecosystem status and health; (3) collect biological samples to support development of improved LMR population assessments and ecosystem models to define the ecological roles and vital rates of fish components of MNM ecosystems; (4) design and initiate studies to establish baseline and examine potential socioeconomic changes associated with MNM designation. In addition, NOAA will assess the potential impacts to EFH and protected species from any proposed fisheries management actions or any proposed non-fishing activities within the monuments, including ecotourism, shoreline stabilization projects, or development of infrastructure.

Funding is included to perform ecosystem research, issue permits, and collaborate with the territory, the U.S. Coast Guard and NOAA's Office of Law Enforcement to properly enforce the requirements and restrictions of the proclamation. The request also supports developing and implementing education and outreach programs and fostering strategic partnerships.

If appropriate, NOAA will approve and implement those changes necessary for the care and management of the monument resources and fulfill the specific provisions of the monument proclamations. As a separate action, NOAA will develop a management plan and, with the Department of the Interior, establish an advisory council for the Marianas Monument. These actions will require the preparation of associated NEPA documentation.

The action supports goals, articulated in the Proclamations establishing the MNMs, to establish programs for “monitoring...to ensure that scientific exploration and research, tourism, and recreational and commercial activities do not degrade the monument's coral reef ecosystem or related marine resources or species or diminish the monument's natural character”, and to “assess and promote monument-related scientific exploration and research.” These actions are the “on-the-ground” manifestation of those goals.

Statement of Need and Economic Benefits

Funding to conduct fisheries ecosystem monitoring and assessment will provide critical baselines necessary to develop MNM management plans; understand the benefits and impacts of the MNMs on the American Samoa, Guam, and Commonwealth of the Northern Mariana Islands populations; determine sustainable use levels for traditional fisheries and other allowed uses; assess any future potential degradation to the coral reefs and other MNM resources; and otherwise assess the impacts of the MNM restrictions. Importantly, these scientific activities are necessary to enable NOAA to provide advice for the required preparation of management plans and promulgation of implementing regulations for noncommercial fishing as well as the scientific need to document baseline resource status so that ecological and social changes over time can be determined. Data collected from ecosystem monitoring and assessments will support the development of a management plan that understands and incorporates the benefits and impacts of the monuments, such as the preservation of the high level of coral diversity and potentially increased tourism due to monument designation on the people of American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

The economic benefits from this funding request primarily involve NOAA’s ability to implement a cost-effective management structure in the new monuments, minimizing economic and social impacts where possible, and maximizing opportunities for participation in the monuments. Constituents using the monument areas may be affected by fishery closures, changes in the permitting, and other management measures. Understanding how the proposed management of the monuments will alter their access to monument areas, affect local tourism, and affect their local ecosystems, as well as how to mitigate any negative impacts are a key component to ecosystem-based management of the monuments.

Performance Goals and Measurement Data

Designating marine areas as national marine sanctuaries contribute to increases in the NOAA’s GPRA measure, Goal 1: Protect, restore and manage the use of coastal and ocean resources through ecosystem approach to management, specifically the objective of: “Cumulative Number of Coastal and Marine Habitat Acres Restored and/or Designated or Acquired for Long-term Protection.” The actions also contribute to the NOAA strategic outcomes for the Ecosystem Goal (NOAA Strategic Plan 2009 -2014): 1) Healthy and productive coastal and marine ecosystems that benefit society, and 2) A well-informed public that acts as a steward of coastal and marine ecosystems.

Commercial fishing closures are consistent with continued increases in NOAA’s GPRA measure, the “Fish Stock Sustainability Index” and with sustaining the status of those fish stocks. Monitoring and assessment increases will support the science needed to increase the “Percentage of Living Marine Resources with Adequate Population Assessments” measure and the “Forecasts and Annual Number of Coastal, Marine, and Great

Lakes Ecological Characterizations that Meet Management Needs” measure. EFH increases will support increased consultations to conserve EFH, the “Percentage of projects adversely affecting NOAA trust resources reviewed to assess potential effects” measure and the “NMFS percent success modifying projects that would adversely affect fish habitat” measure.

Pacific Island Region/Center (+ 0 FTE and +\$5,003,000): NOAA requests \$5,003,000 to support the NOAA National Marine Fisheries Service (NMFS) Pacific Islands Regional Office (PIRO) and Pacific Islands Fisheries Science Center (PIFSC) in Hawaii. The increase supports more effective science-based fishery management decisions, improves grants management, advances peer-reviewed ecosystem science, and institutes overall organizational management efficiency.

NOAA’s request provides for enhanced outreach and education capabilities, and our constituents will directly benefit from the requested increase. The capability particularly enables PIRO and PIFSC to efficiently respond to the informational needs of the Western Pacific Fishery Management Council (WPFMC). Furthermore, the increase supports increased administrative capabilities thereby enhancing the ability of NOAA and the WPFMC to deliver timely, accurate advice and scientific input to inquiries from the Department of Commerce, NOAA, NMFS, the State of Hawaii, academia, other federal agencies, and nongovernmental organizations.

The capability will support NOAA’s commitment to the following U.S. Ocean Action Plan recommendations: “advance regional fisheries management” and “advance the use of large marine ecosystems.”

Regulatory Streamlining and Modernization (+0 FTEs and +\$1,902,000): NOAA requests \$1,902,000 and 0 FTEs to support the fishery plan development and regulatory analysis, evaluation, and implementation capabilities of the Fisheries Management Program, which encompasses the complete process of developing fishery management recommendations through their eventual analysis, approval, and implementation. These funds support existing program requirements within this subactivity not provided for in the Omnibus Appropriations Act, 2009.

With the implementation of the Regulatory Streamlining Program (RSP), NOAA will improve the quality and timeliness of regulatory processes and policy development for its Fishery Management Program through comprehensive impact analyses, full and timely consideration of all relevant issues, and compliance with all applicable laws and procedures. RSP will enable NOAA to efficiently address policy issues early in the regulatory process, rather than later when it becomes difficult to comprehensively address a new and possibly contentious issue.

NMFS has been working with the Regional Fishery Management Councils for the past few years to improve the timeliness and quality of its fishery management actions through the RSP. The increase will enable the Councils to develop fishery management recommendations with thorough analyses and public input. The increase will also enable NOAA to assist in the development, review, and implementation of Council-proposed actions and in the implementation efforts of NMFS regional offices. Improved quality and timeliness of regulatory processes combined with policy development will result in better-managed stocks and decreased litigation. All Regional Fishery Management Councils and NMFS regions will receive support to frontload

development, analysis, evaluation, and implementation of fishery management actions. Deliverables will include fishery management plans, plan amendments, implementation regulations (proposed and final rules), annual harvest specifications, and in-season management actions.

NOAA will assist in the development, review, and implementation of Council-proposed actions. Additional staff will be used to expand regional capacity to meet Council demands, including efforts to facilitate and expedite Secretarial approval and implementation of Fishery Management Plans (FMPs) and amendments and to prepare analytical documents in support of rulemaking. The RSP is a fundamental reconsideration and redesign of the regulatory process within NMFS due to the unique challenges the MSRA creates for fishery managers. It broadly supports the capability of “achieving sustainable marine fisheries” in the President’s U.S. Ocean Action Plan by seeking to improve the underlying fisheries management processes. It does this by providing resources to meet increased demands on Councils, and to expedite the process of approving and implementing FMPs and amendments.

Statement of Need

NMFS works closely with Regional Fishery Management Councils, states, other federal agencies, and numerous constituencies to implement regulations for the management of sustainable fisheries; recovery and protection of endangered and threatened species, including marine mammals; and conservation of marine habitat.

NMFS regulatory activities account for 50% (by number) of Department of Commerce annual rulemakings—fourth among federal agencies in the number of regulations issued. In 2004, NMFS was successful in 93% of its legal challenges—an increase from a 45% success rate between 1997 through 2001. However, legal activities require intensive inputs of funding and personnel to produce analyses that will withstand legal challenge. To implement the law as intended, it is imperative that NOAA succeeds in withstanding legal challenges.

NMFS needs additional capacity to complete thorough and timely regulatory analyses and reviews within time frames required by applicable laws, particularly in the Regional Offices. Regulations issued by NMFS affect not only marine resources but also the people, businesses, and communities associated with these resources. This regulatory workload is complex and leads to frequent legal challenges. Extensive analyses and documentation are required to comply with the Magnuson-Stevens Act, Endangered Species Act, Marine Mammal Protection Act, Administrative Procedure Act, National Environmental Policy Act, Regulatory Flexibility Act, Paperwork Reduction Act, Coastal Zone Management Act, and various Executive Orders.

The RSP was created at the request of Congress. In 2002, a National Academy of Public Administration (NAPA) report gave recommendations to NMFS for regulatory improvements, and the RSP seeks to continue implementing NAPA’s suggested improvements.

Proposed Actions

NOAA will use the increase to support national oversight and NOAA-wide integration at NMFS headquarters and regional oversight and technical assistance at the field level. NOAA will coordinate fishery management action development and impacts with other federal activities, as appropriate.

Benefits

NOAA will improve the quality and timeliness of regulatory processes and policy development for its Fishery Management Program through comprehensive impact analyses, full and timely consideration of all relevant issues, and compliance with all applicable laws and procedures.

Performance Goals and Measurement Data

This increase supports the Department objective and NOAA goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce strategic goal to “Promote environmental stewardship.”

Performance Goal: The percentage of overfished stocks with rebuilding plans implemented as required	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target *	FY 2014 Target
With Increase	N/A	100%	100%	100%	100%	100%
Without Increase	N/A	66%	66%	66%	57%	64%
Description: Includes only stocks whose overfished status is currently unknown, with expectation that the initial assessment will result in an overfished determination.						

* Stocks assessed in FY 2011 or after and have 2 years from the time the stock is declared overfished to implement a rebuilding plan

Restorations/Emergent Needs (+2 FTEs and +\$5,104,000) – NMFS requests an increase of \$5,104,000 and 2 FTEs to support emergent needs in the areas of pelagic fisheries, West Coast groundfish, and Atlantic bluefin tuna research.

Proposed Actions

Pelagic Fisheries Research Program (0 FTE and \$1,250,000)

This request will support the Pelagic Fisheries Research Program (PFRP) under the NOAA–University of Hawaii Joint Institute for Marine and Atmospheric Research (JIMAR). Under JIMAR, NOAA collaborates with academic and research institutions that provide resources and opportunities relevant to NOAA’s mission, but generally extend beyond the agency’s own capacities. Projects under this program are determined via a competitive proposal process. Examples of previously funded projects include: research to improve the assessments of tuna and billfish populations in the Pacific; studies on the biology and ecology of sea turtles, seabirds, sharks and other non-target key open ocean ecosystem inhabitants that interact with or are incidentally taken in these fisheries; research on essential habitat for open ocean animals; and studies on fisheries economics and sociocultural profiles of the Pacific Islands region fishing communities.

West Coast Groundfish (2 FTEs and \$2,164,000)

The West Coast groundfish program provides the key science support needed for management of these 80+ fish stocks along the coasts of Washington, Oregon, and California. The full-service program conducts resource surveys to track trends in fish abundance; manages the coastwide observer program; conducts needed biological studies on fish habitat, bycatch, and other pertinent issues; and prepares stock assessments that provide the information needed to track rebuilding of seven overfished stocks and to guide sustainable catch levels for all stocks. With this increase, key program improvements will include: assessment staff to support implementation of the U.S.–Canada treaty for allocation of Pacific hake; augmentation of the fish age determination laboratory to process more biological samples; and expanded survey coverage, using Autonomous Underwater Vehicles and other technologies, to measure fish abundance and ecosystem conditions over a broader range of habitats.

Atlantic Bluefin Tuna (0 FTE and \$1,100,000)

The increase will support observer coverage of pelagic longline fishery in the Gulf of Mexico where Atlantic bluefin tuna (ABFT) are incidentally caught. ABFT is an extremely valuable and severely overfished stock for which management measures have been demonstrably inadequate. Observers have been trained in documenting ABFT bycatch, collecting and preserving biological samples, and evaluating the performance of commercial and experimental fishing gear in reducing ABFT bycatch. This increase would allow NMFS to achieve 40% of the observer coverage required for the Gulf of Mexico pelagic longline fleet.

Regional Science and Operations (0 FTE and \$590,000)

This increase will allow NMFS to improve marine ecosystem based management strategies, a goal of the Ocean Action Plan. Ecosystem data will be collected in concert with fish monitoring data and by addressing ecosystem interactions in fishery management. The work helps support NMFS' regulatory processes and policy development through comprehensive impact analyses, and full and timely consideration of relevant issues.

Statement of Need and Economic Benefits

Pelagic Fisheries Research Program - This increase contributes key scientific information for the development of fisheries management policies and the development of research on the ecosystem approach to fisheries management for pelagic fisheries.

West Coast Groundfish – The increase will support necessary periodic updates to West Coast groundfish stock assessments to guide regulation of catch levels as fish stocks respond to fishing pressure and changes in climate, habitat, and ecosystem conditions.

Atlantic Bluefin Tuna - Support for observer coverage of Atlantic pelagic fisheries will improve monitoring of ABFT bycatch, which, despite time and area closures, continues at an unacceptable rate and urgently needs to be addressed. Without accurate bycatch estimates, the U.S. pelagic longline fleet and the ABFT commercial and recreational fisheries are likely to be subject to highly restrictive management measures, with appreciable economic consequences.

Regional Science and Operations - Without addressing ecosystem interactions, current monitoring and management actions will drift off-track as climate and other ecosystem factors change. This increase will support collection of ecosystem data in conjunction with current single-species focused monitoring

activities. Management actions will be designed to account for more ecosystem interactions. By addressing ecosystem interactions, current monitoring and management actions will enable benefits of broader ecosystem services.

Performance Goals and Measurements Data

In addition to supporting calculation of ACLs, the increased assessment activity will improve the performance metric for percentage of stocks with adequate assessments. There is not a one-to-one correspondence, because in some cases it will be possible to support ACLs without achieving all the standards for a fully adequate assessment, and in other cases regional management needs require more timely assessments than the generic five year adequacy standard.

Performance Goal: Percentage of Fish Stocks with Adequate Population Assessments and Forecasts Measure 1b	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	42.1%	57.0%	57.0%	57.0%	57.0%	57.0%
Without Increase	42.1%	57.0%	55.7%	54.3%	53.0%	51.7%
Description: This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

Expand Annual Stock Assessments: Annual Catch Limits (+6 FTEs and +\$9,900,000): NOAA requests an increase of \$9,990,000 and 6 FTEs to update fish stock assessments to support implementation of annual catch limits (ACLs). NMFS will conduct resource surveys over larger geographic areas and habitats to monitor the abundance of more fish stocks; refine mathematical and statistical models that will produce forecasts of ACLs; hire highly specialized staff to conduct assessments with these models; and include ecosystem considerations in more assessments. This is an important component of our overall FY 2010 Magnuson-Stevens Reauthorization Act (MSRA) funding request, but the level of funding for other program components does not allow for increased program output.

Proposed Actions

NMFS will take a multifaceted, tiered approach to update stock assessments to implement ACLs. The tiered approach directs the best level of assessment for each stock:

- For stocks that are already periodically assessed at an adequate level, NMFS will update these assessments so that ACLs set in 2010–2011 will reflect current stock conditions and will have a well-estimated probability of preventing overfishing.
- Where sufficient information exists, these assessments will take into account ecosystem conditions.
- For stocks with currently inadequate assessments, NMFS will expand resource surveys and assessment efforts so as many stocks as possible are assessed by 2011 and can be used for ACL adjustments shortly thereafter.

- For those stocks that lack sufficient data to conduct an adequate assessment in the near term, NMFS will analyze data from more data-rich stocks to develop proxies that can be used to set ACLs for the data-limited stocks.

The multiple facets of this approach highlight the diversity of work needed to produce adequate stock assessments and ACL advice. More data need to be collected and assessment models optimized for producing the required ACL advice. Systems must be established to quickly translate the assessment results into ACL advice while maintaining adequate peer review to ensure accuracy and garner public trust.

Statement of Need and Economic Benefits

The MSRA requires the establishment of ACLs that prevent overfishing by 2011. Without additional investments, NMFS cannot provide a current knowledge base for understanding which stocks are overfished and what potential ACL levels would prevent future overfishing. Without adequate stock assessments, fishery managers are faced with the dilemma of basing ACLs on less-robust and data-limited methods, risking overfishing, ecosystem harm, and long-term loss of fishing opportunities. As a result, fishery managers may need to set ACLs lower than recent catch levels, which may impose significant constraints on short-term fishing opportunities.

Scientific stock assessments and fishery monitoring programs are specifically designed to provide objective advice regarding the balance between obtaining maximum fishery potential and preventing overfishing. With the value of U.S. fisheries in the billions of dollars, the economic consequences of a possible 25 percent reduction in ACLs to prevent overfishing in data-limited situations vastly exceeds the magnitude of this \$9.9 million investment in FY 2010.

NMFS's approach to fishery monitoring and scientific stock assessments is supported by the Marine Fish Stock Assessment Improvement Plan (NMFS, 2001); Science and its Role in the NMFS (National Research Council (NRC), 2002); Improving Fish Stock Assessments (NRC, 1998); and Recruiting Fishery Scientists (NRC, 2000). The U.S. Commission on Ocean Policy and the 2005 report on Managing Our Nation's Fisheries (Regional Fishery Management Councils, Interstate Marine Fisheries Commissions, and NOAA) acknowledged the fundamental role of scientific information for sustainable management of fisheries.

When ACLs are based on adequate and timely stock assessments, NMFS can allow greater fishing opportunity while still confidently preventing overfishing and allowing for the rebuilding of previously overfished stocks. This initiative provides a knowledge base for NMFS to work with Regional Fishery Management Councils to promote the use of a market-based system for fisheries management.

This investment will prevent overfishing for currently assessed fish stocks, and provide more timely determinations when currently overfished stocks have been rebuilt. NMFS' stock assessment research will provide a comprehensive understanding of living marine ecosystems to meet the environmental, economic, and public safety needs of the Nation.

Performance Goals and Measurements Data

In addition to supporting calculation of ACLs for all managed stocks, the increased assessment activity will maintain the performance metric for percentage of Fish Stock Sustainability Index stocks with adequate assessments relative to the projected slow decline under static funding. There is not a one-to-one correspondence, because in some cases it will be possible to support ACLs without achieving all the standards for a fully adequate assessment.

Performance Goal: Percentage of Fish Stocks with Adequate Population Assessments and Forecasts Measure 1b	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	42.1%	57.0%	57.0%	57.0%	57.0%	57.0%
Without Increase	42.1%	57.0%	55.7%	54.3%	53.0%	51.7%
Description: This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

Economics & Social Sciences Research (+5 FTEs and +\$3,271,000): NOAA requests an increase of 5 FTEs and \$3,271,000 to implement economic analyses projects to bring the total request to support existing program requirements. This request will enable NOAA to address significant economic and social data gaps in major federal fisheries and to develop decision support tools to conduct MSRA-mandated cost-benefit analyses of regulatory options such as Annual Catch Limits (ACLs) and Limited Access Privilege Programs (LAPPs). This investment ensures that conservation standards are achieved at the lowest cost to society and directly supports efforts to identify market-based solutions to fishery management issues as called for under the *U.S. Ocean Action Plan*. Specifically, this request enables NMFS to: (1) develop decision support tools that will enable NMFS to efficiently assess the management impacts on fishery participants, shoreside firms, and fishing communities (sales, income, and employment) in a timely manner; and (2) significantly expand NMFS’ economic and social data that enable NMFS to identify management options that impose the least cost on stakeholders and achieve the greatest benefit to society.

The funding request will also be used to facilitate any fisheries transition to a catch share-based management scheme to ensure the long term sustainability and profitability of the fisheries. This funding request complements other efforts described within the Enforcement and the Other Activities Supporting Fisheries subactivities.

Statement of Need

The MSRA requires NOAA to consider the effects of regulations on the fishing industry and on fishing communities. The requested increase will enable NMFS to fill 100 percent of its economic data collection needs in all commercial and recreational fisheries by FY 2010, including the commercially important Gulf shrimp and reef fish fisheries; the Pacific Coast groundfish fishery, which alone supports a \$1-billion industry; the Alaska and Northeast groundfish fisheries; and Atlantic sea scallop fishery.

In recent years, NMFS' economic analyses of management decisions have been challenged in every major federal fishery, including, in 2006 alone, the Alaska salmon, Alaska groundfish, New England groundfish, South Atlantic snapper-grouper, and Gulf reef fish fisheries. Although NMFS is mandated to provide fishery managers with economic and social impact assessments of all proposed management options prior to the management decision, NMFS has a limited pool of economists and social scientists to cover 47 fishery management plans (FMPs), many of which have multiple management actions in a single year. Thus, for the majority of fisheries, including those that support multi-billion-dollar industries, NMFS must rely upon qualitative analyses of management options, an approach that lacks the precision, accuracy, and transparency of quantitative analyses. Lack of staff and funding for data collections stymies NMFS' ability to achieve conservation goals at the lowest cost to society and threatens the long-term economic and social welfare of coastal communities as well as the economic viability of the Nation's seafood, marine recreation, and marine tourism industries.

Proposed Action

The proposed data collection activities and assessments will close significant information gaps. Insufficient economic and social data and assessments currently hamstrings NMFS' ability to adopt regulations, including moving to market-based incentives programs such as LAPPs and implementing rebuilding programs.

- **Expand Data Collection Efforts** (\$2,600,000): Partnering with state agencies and fishing commissions, as appropriate, NMFS will expand its economic and social data collection programs. This investment will result in phased growth of NMFS economic and social data collection holdings that directly support management decisions and decision support tools for assessing economic and social impacts of management decisions.

Develop Decision Support Tools for Socioeconomic Assessments (\$671,000): NMFS will develop quantitative methods for conducting benefit-cost analyses. Specific tasks include: (1) predicting the benefits and costs associated with specific stock rebuilding programs, (2) developing inventories of the use values of marine ecosystems to their respective industries, and (3) developing values associated with particular types of habitats, including the scope and sale of the ecosystems services provided by a habitat.

Statement of Need and Economic Benefits

Closing existing data and assessments gaps will enable NMFS to perform rigorous, legally defensible, and timely economic and social assessments, including:

- Developing indicators describing the status and trends of fishery participants and shoreside firms and communities, which will help detect economic and social hardship.
- Assessing the benefits/cost-effectiveness of fisheries rebuilding programs and habitat and protected species recovery programs.
- Assessing the economic and social impacts of management options and current policies on fishery participants, firms, and communities.
- Implementing LAPPs that do not result in excessive market share, are mindful of potential harmful effects on fishing communities, and ensure fair and equitable initial allocations of harvest privileges.

Performance Goals and Measurement Data

Performance Goal: Percentage of Fish Stocks with Adequate Population Assessments and Forecasts Measure 1b	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	42.1%	57.0%	57.0%	57.0%	57.0%	57.0%
Without Increase	42.1%	57.0%	55.7%	54.3%	53.0%	51.7%
Description: This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

Salmon Management Activities (+0 FTEs and +\$16,876,000): NOAA requests an increase of 0 FTEs and \$16, 500,000 to support new requirements under the Pacific Salmon Treaty. In addition, 0 FTE and \$376,000 to support existing program requirements within this subactivity, but not provided for in the Omnibus Appropriations Act, 2009.

Statement of Need

The 1985 Pacific Salmon Treaty provides for the conservation and harvest-sharing of salmon that originate and migrate through U.S. and Canadian waters and hence are harvested in both countries. Because most of the fishery arrangements negotiated under the Treaty in 1999 were set to expire at the end of 2008, the Pacific Salmon Commission undertook negotiations spring of 2008 to develop new regimes. The Commission successfully concluded these negotiations and on May 22, 2008, finalized its recommendations to the governments of Canada and the United States on new arrangements that would be in effect through 2018.

The new regimes are comprehensive and intended to fulfill the conservation and harvest-sharing provisions of the Treaty. The Chinook salmon provisions of the Agreement have been revised significantly to ensure the conservation and fair harvest-sharing of thousands of separate Chinook salmon stocks, ranging from healthy and abundant stocks to threatened and declining ones, and even stocks listed under the Endangered Species Act (ESA). The Chinook regime represents a major step forward in bilateral cooperation, science-based conservation, and sustainable harvest-sharing of the salmon resource, but will require new funding from both the United States and Canada, and thus is contingent on new Congressional authority and appropriations. If either Party fails to provide the new funding called for in the Chinook Agreement, the entire Chinook regime will be suspended, resulting in loss of the benefits of the Agreement, worsening of the conservation status of ESA-listed salmon populations, and a requirement to negotiate a different regime with Canada, with uncertain but likely less beneficial outcomes.

The new Agreement significantly reduces Chinook harvests in Southeast Alaska (SEAK) and off Canada's west coast of Vancouver Island (WCVI). These reductions are coupled with coordinated constraints on other fisheries and other recovery efforts designed to rebuild depressed natural spawning Chinook stocks originating in both countries. The Agreement also includes new bilateral programs designed to improve scientific knowledge of Chinook

stocks and to monitor their status over time. New federal funding is necessary to implement the new research and monitoring programs and to support a number of critical stock projects designed to improve the conservation status of certain ESA-listed Chinook originating in Puget Sound, thus increasing the likelihood that the requirements of the ESA will be met throughout the 10-year term of the new Agreement.

Proposed Actions

This request seeks to implement the new requirements under the Pacific Salmon Treaty agreements and is focused on new research and monitoring programs and support for critical stock augmentation projects in the Puget Sound of Washington State. This request specifically includes the following:

- **CWT Program Improvements in United States:** An increase of \$1,500,000 is needed and as specifically called for in the new Agreement to bolster the coast-wide coded wire tagging (CWT) program to improve salmon data collection and fishery monitoring in the United States. Sustainable management of salmon depends on accurate and timely data to estimate fishery impacts and conservation status. Targeted investments are required in data collection and research to improve our ability to predict and monitor fishery impacts and assess stock status.

Under the new Agreement, Canada must provide a similar amount of funding (\$7,500,000) to bolster its portion of this integrated, coast-wide program. If either Party fails to provide this funding, the Agreement is subject to suspension.

- **Puget Sound Critical Stocks Augmentation:** An increase of \$7,500,000 is required to support projects to assist in recovery of critical Puget Sound salmon stocks listed under the ESA. The projects will augment the benefits from harvest reductions provided in the new Agreement. These actions have been specifically designed to help ensure the continued survival with an adequate potential for recovery for the most troubled listed Chinook salmon stocks in Puget Sound. While the new Agreement will significantly reduce fishery impacts on all listed stocks, a few are currently so depressed, have migratory patterns across so many fisheries, and have such challenges to their habitat that additional actions with immediate conservation benefits will improve their status during the Agreement. The details of the Puget Sound critical stock program are subject to further refinements, but will likely include the following hatchery actions: captive brood and supplementation programs for the Dungeness, Nooksack, and Stillaguamish river stocks; and habitat projects (e.g., barrier removals, stream stabilization, estuary rehabilitation) in the Nooksack River and tributaries of Hood Canal.
- **Alaska Fishery Adjustment Mitigation:** The new provisions of the Pacific Salmon Treaty significantly reduce allowable annual Chinook harvests in Southeast Alaska (SEAK) and off Canada's west coast of Vancouver Island (WCVI). Over the 10-year life of the Agreement, approximately 1,000,000 fewer Chinook will be caught in these fisheries as a result of the approximately 500,000-fish catch reduction in each of these two fisheries. The reduction in allowable catch in the SEAK and WCVI fisheries will have serious local and regional economic consequences that would be mitigated in part with new federal funding. Additional funding of \$7,500,000 in FY 2010 will partially mitigate these economic consequences for Alaska.

Benefits

Implementation of these projects will contribute immediately to the improved conservation status of depressed and ESA-listed salmon stocks by lessening fishing impacts, improving scientific knowledge of the stocks, and strengthening bilateral management of the resource. Over the longer term, these expenditures will lead to a healthier salmon resource and increased numbers of harvestable fish for U.S. and Canadian fishermen. The requested funding is essential for meeting U.S. commitments under the Agreement and ensuring that the new Chinook regime will remain in effect through 2018.

Performance Goals and Measurement Data

The increase supports the NOAA Strategic Plan goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management,” the NOAA Ecosystem goal outcome of “Healthy and productive coastal and marine ecosystems,” and the GPRA measure of “Number of protected species at stable or increasing levels” by supporting the rebuilding of ESA-listed stocks. In the short term, the projects will prevent the extinction of local salmon populations that need to be maintained in order for recovery to occur.

Regional Councils and Fisheries Commissions, Annual Catch Limits (+0 FTEs and +\$4,000,000): NOAA requests an increase of \$4,000,000 and 0 FTEs to provide the eight Regional Fishery Management Councils with the additional resources necessary to set, evaluate, and revise annual catch limits (ACLs) and accountability measures (AMs) to end overfishing on stocks subject to overfishing by 2010 and for all other stocks by 2011, as required under the Magnuson-Stevens Reauthorization Act (MSRA) of January 2007.

Proposed Actions

The Councils will use the funds to develop amendments to their Fishery Management Plans (FMPs) that implement ACLs and AMs. The Council process involves the public and fishery stakeholders. Analysis of alternative management approaches is conducted consistent with the National Environmental Policy Act (NEPA). This analysis will determine the preferred alternatives for the annual catch limits, accountability measures, and improvements to data collection systems necessary to implement ACLs and AMs. The Councils will also use the funds for the annual process of reviewing the best available scientific information and setting the appropriate ACLs for stocks in every fishery. The Councils’ Scientific and Statistical Committees are required to recommend the acceptable biological catch which is the basis for the Council’s ACL recommendation. The annual process of setting ACLs for stocks in all fisheries is critical to ensuring that overfishing is prevented and that optimum yield is achieved.

Statement of Need and Economic Benefits

Overfishing has a detrimental impact on the ecological and economic sustainability of fisheries, negatively affecting fishing communities, industry and recreational interests and other marine resources. The MSRA requires that annual catch limits (ACLs) and accountability measures (AMs) be implemented in all fisheries by 2011 such that overfishing does not occur. ACLs and AMs must be implemented by 2010 for fisheries where overfishing is currently occurring. The Councils are relying on Agency support for their evaluation of 45 FMPs to determine the appropriate ACL, AM, and tracking systems needed to sustainably manage the Nation’s fisheries. The Councils are among NMFS’ most important partners for successful fisheries management, yet they face funding shortfalls for their increased responsibilities under MSRA. The views and experiences of the Council membership—which includes commercial and recreational industry, federal agencies, the conservation community, and State fishery managers—are required for sound decision making

during revisions to the Fishery Management Plans required under MSRA. The FMPs are complex documents that must address requirements of the MSRA, NEPA, and numerous other laws and executive orders. This will require extensive analyses of fisheries data and use of stakeholder input, as well as ongoing evaluation and revision of the FMPs. Lack of funding will result in slower and more limited implementation of ACLs and AMs.

The elimination of overfishing and rebuilding of overfished stocks through sustainable fisheries management are essential to increasing the long-term economic and social benefits to the Nation. The funding increase will be used to evaluate the 45 Fishery Management Plans to determine appropriate ACLs, AMs and tracking systems to allow the Councils to sustainably manage the fisheries. One role of the Councils is to foster partnerships and incorporate the needs of fishing communities and industry, recreational, federal, and state interests into fishery management decisions. Incorporating fisheries data analysis and stakeholder input for evaluation and revision of the Plans is crucial in meeting legislated requirements to end and prevent overfishing, ensure long-term sustainability of commercial and recreational harvests, and maximize the economic and social benefits of U.S. fisheries. Implementing fishery rebuilding plans will likely result in increased net economic benefits for U.S. stocks that are currently overfished. A recent study (Sumaila, U.R., Suatoni, E. *Fish Economics: The Benefits of Rebuilding U.S. Ocean Fish Populations*. Fisheries Economics Research Unit, Oct. 2005) showed that the net present value (NPV) of 17 stocks that have implemented rebuilding plans is estimated to be three times higher than the NPV of the same stocks if they are not rebuilt, but continue to be harvested at current levels. The total catch in rebuilt stocks was estimated to be 2.5 times greater than if the stocks are not rebuilt.

This request to support Regional Fishery Management Council development of ACLs and AMs, and annual recommendations for ACL, complements the request for Implementation of Annual Catch Limits and Accountability Measures. Both requests are needed for ACLs and AMs to be effective in meeting the objective to end and prevent overfishing in all U.S. federal fisheries. If both requests are funded, the FSSI is projected to increase by 16 points by 2014, compared to the level without the increase.

Performance Goals and Measurement Data

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
The Fish Stock Sustainability Index (FSSI), Measure 1a						
With Increase	548.5	568	578	597	604.5	610
Without Increase	548.5	568	578	589.5	597	602.5
Note: This shows the effect of the Regional Councils program change (+\$4.0M) on the FSSI. This is a component of the total number reported in the Annual Performance Plan (APP). * Effects of FY 2010 funding request on the FSSI will not occur until FY12 due to lag time in verifying stock status changes from pending management decisions and planned stock assessments.						

Performance Goal: The Fish Stock Sustainability Index (FSSI), Measure 1a	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	548.5	568	578	606.5	615	621.5
Without Increase	548.5	568	578	589.5	597	602.5
Note: This shows the combined effect of the ACL and AM Implementation (+\$12.0M) and the Regional Councils Support (+\$4.0M) program changes on the FSSI.						

Fisheries Statistics (+0 FTE and +\$4,771,000): NOAA requests an increase of \$4,500,000 to address Magnuson-Stevens Reauthorization Act (MSRA) requirements for enhanced monitoring of recreational and commercial fisheries. NMFS also requests an increase of \$271,000 for a total request of \$4,771,000 for the Fisheries Statistics line item to support existing program requirements within this subactivity not provided for in the Omnibus Appropriations Act, 2009. Funds will be used to further development of a state–federal national registry program for marine recreational fishing participants, expand commercial fisheries biological sampling programs, and expand electronic reporting of commercial fisheries landings. These activities are important components of our overall FY 2010 MSRA funding request.

NMFS will use \$2.5 million to support state efforts needed to expand the federal registry into a state–federal National Registry of recreational fishing participants for both federal and state waters. Funding will help states to (1) collect more complete and reliable phone contact information for current license holders, (2) register fishing participants currently excluded from licensing, and (3) provide more timely delivery of up-to-date participant contact information to the National Registry.

NMFS will use \$2.0 million to support expansion of commercial fisheries biological sampling and electronic reporting programs.

Proposed Actions

With this request, NMFS will upgrade the quality and timeliness of the fisheries statistics used in fish stock assessments and fishery management decisions by expanding efforts to:

- Develop and maintain more complete, up-to-date registries of anglers and for-hire fishing vessel operators in all states.
- Collect more samples of commercially caught fish for size measurements and age determination.
- Report commercial fisheries landings in a more timely manner.

Without these new investments in recreational and commercial fisheries monitoring programs, NMFS will not be able to provide a sufficient knowledge base for understanding which stocks are undergoing overfishing and for assessing potential ACL levels.

Statement of Need and Economic Benefits

The continued development of the federal registry program is essential for the successful implementation of more efficient telephone surveys of fishing effort and is therefore considered to be a necessary component of the improved marine recreational fisheries monitoring program mandated by the MSRA. MSRA also requires the establishment of annual catch limits (ACLs) that prevent overfishing by 2011. Without additional investments in recreational and commercial fisheries monitoring programs, NMFS will not be able to provide a sufficient knowledge base for understanding which stocks are undergoing overfishing and to implement timely accountability measures to prevent overfishing in the future. Expansion of biological sampling programs is essential for providing better information on the size and age structure of commercial fishing catches. Integrated electronic reporting programs for seafood dealers and vessel operators are needed to support more timely and effective monitoring of commercial catches relative to ACLs.

A National Registry is important for improving the efficiency, coverage, and cost-effectiveness of recreational fishery telephone surveys. The registry will provide a current "phone book" of anglers and for-hire vessel operators that could be used for surveys of fishing effort. MSRA mandated that NMFS start development of such a phone book by implementing a federal registry program in 2009, but it also specified that states could be exempted if they could provide the necessary phone contact information from their own angler licensing programs. Many states have expressed interest in helping NMFS develop a more complete registry, but most will need funding support to deliver needed information in required formats and time frames.

Performance Goals and Measurement Data

In addition to supporting calculation of ACLs for all managed stocks, enhanced monitoring of commercial and recreational fishing catches will maintain the performance metric for percentage of FSSI stocks with adequate assessments relative to the projected slow decline under static funding. There is not a one-to-one correspondence, because in some cases it will be possible to support ACLs without achieving all the standards for a fully adequate assessment.

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Percentage of Fish Stocks with Adequate Population Assessments and Forecasts, Measure 1b,						
With Increase	42.1%	57.0%	57.0%	57.0%	57.0%	57.0%
Without Increase	42.1%	57.0%	55.7%	54.3%	53.0%	51.7%
Description: This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

Survey and Monitoring Projects (+0 FTE and +\$6,251,000): NOAA requests an increase of \$6,251,000 for a total of \$23,759,000 for the Survey and Monitoring Projects line item to increase NOAA’s ability to administer programs for fishery-independent surveys, fishery monitoring, and research in the Pacific Ocean, Alaskan waters, the Gulf of Mexico, and the Northwest Atlantic and to support existing program requirements within this subactivity not provided for in the Omnibus Appropriations Act, 2009. This increase will enable NOAA and partners to generate scientific data needed to improve the scientific basis for managing fisheries toward optimum yield and to determine annual catch limits (ACLs) in accordance with the Magnuson-Stevens Reauthorization Act of 2006 (MSRA).

Statement of Need

Many fisheries lack adequate and timely monitoring of catch, effort, and fish abundance. Under the MSRA, NMFS must quickly address this deficiency. Without these funds, NOAA will be unable to meet the requirements for science-based ACLs in all fisheries. NOAA must continue to expend the resources necessary to maintain and expand its survey and monitoring capabilities.

Bluefin Tuna Tagging

Atlantic bluefin tunas (*Thunnus thynnus*) are managed under the dual authority of the MSRA and the Atlantic Tunas Convention Act, which authorizes the Secretary of Commerce to implement the binding recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT). Under this agreement, NMFS scientists submit statistical data on bluefin tuna catch and distribution to the ICCAT. To fulfill these requirements, NMFS must conduct research that improves current satellite tracking technologies and that addresses questions concerning the population dynamics and migration patterns of bluefin tunas.

Red Snapper Monitoring

The Gulf of Mexico red snapper (*Lutjanus campechanus*) population is currently overfished. NMFS managers require more data to accurately determine the population size of the South Atlantic population. Estimation of red snapper discard mortality is a critical component for future stock assessments in the Gulf of Mexico. Monitoring data will help set Total Allowable Catch, which ultimately influences the determination of individual shares for commercial fishermen (e.g., the red snapper Individual Fishing Quota).

West Coast Groundfish

The West Coast groundfish fishery is experiencing severe curbs on fishing because of seven severely overfished stocks. The West Coast groundfish program provides the only biomass estimates for all West Coast groundfish stock assessments, and the assessments developed by this program are critically needed by NMFS and the Pacific Fishery Management Council to rebuild these stocks. Several species whose assessments are supported by data from this survey are managed under rebuilding plans, and some of these have been the subject of litigation. NMFS' longstanding survey provides data on abundance, spatial distributions, sex ratios, length, weight, and age structure of groundfish. This survey is a vital, fishery-independent source for these data, which are necessary to integrate into stock assessments of managed groundfish species inhabiting trawlable and untrawlable habitats along the U.S. West Coast.

Maine and New Hampshire Inshore Trawl Survey

This fishery-independent survey of living resources inside the coastal waters of Maine and New Hampshire fills a significant information gap that hampers accurate stock assessment and effective management of Maine's fishing industry. The combination of inshore and offshore survey efforts ensures that Maine and New Hampshire's resources are managed based on comprehensive resource survey information.

FMP Extended Jurisdiction

The State of Alaska's overall objective for the FMP Extended Jurisdiction projects is to continue cooperative management of the federal fishery management plans (FMP) associated with shared crab, scallop, and rockfish stocks. Projects funded support research, management, and Extended Jurisdiction coordination.

Bering Sea Crab

The Bering Sea Crab project supports survey and research activities that provide information to fishery managers, the Alaska Board of Fisheries, and the North Pacific Fishery Management Council that is needed to manage Bering Sea crab fisheries.

Chesapeake Bay Multi-Species Management

This program supports ecosystem-based fisheries and habitat research important to the management of a variety of commercially and ecologically significant species. This work has a direct impact on state fishery management programs that use the data for their fisheries assessments and management activities, and supports research conducted by multiple academic recipients of competitive grants and cooperative agreements. This funding also supports NOAA's role as a principal partner of the Chesapeake Bay Program.

Bering Sea Pollock

The program is directed at assessing the status of the Bering Sea pollock resources of the Aleutian Basin and the Eastern Bering Sea shelf area. The assessment is based on NMFS survey data from winter spawning around the Bogoslof Island and summer survey of the eastern Bering Sea shelf stock, analysis of the fishery statistics and catch-at-age data from the U.S. pollock fisheries, and data exchanged with international scientists.

Proposed Action

Bluefin Tuna Tagging – NMFS requests these funds to continue tagging activities currently related to bluefin tuna research. The request will enable NMFS to improve estimations on the abundance and distribution of bluefin tuna. NMFS can use the tagging data in combination with catch data from U.S. pelagic longline observer logbooks to reduce incidental catch mortalities in tuna spawning grounds in the Gulf of Mexico.

Red Snapper Monitoring - This increase will support an FY 2010 assessment for red snapper. This is a critical assessment because it will assess the impacts of regulations imposed on the fishery.

West Coast Groundfish – This increase will restore NMFS's capabilities to provide an assessment program for the West Coast groundfish fisheries, which include many overfished stocks.

Maine and New Hampshire Inshore Trawl – NMFS requests these funds for research to fill a significant information gap that hampers efficient management of Maine's fishing industry. This increase will support the assessment and management of coastal stocks.

FMP Extended Jurisdiction – This increase will support state-federal cooperative management of fisheries under federal fishery management plans.

Bering Sea Crab –The increase will support multi-year Bering Sea Crab research projects.

Chesapeake Bay Multi-Species Management – This program change restores funding for NOAA Chesapeake Bay Office's competitive Fisheries Science Program, which is mandated under the NOAA Authorization Act of 2002. This increase will support surveys and research that have a direct impact on state fishery management programs that use the data for their fisheries assessments, which provide the scientific basis for regulating commercially and recreationally important species.

Bering Sea Pollock Research –This request includes a decrease of \$33,000 to the Bering Sea Pollock Research line.

Statement of Need and Benefits

The field surveys, fishery monitoring, and research supported by this line fills substantial current gaps in the data needed to manage the Nation’s valuable marine resources. Data from these sources are used in stock assessments that provide the Regional Fishery Management Councils and NOAA with the scientific information needed to implement the MSRA requirement for ACLs that prevent overfishing, rebuild overfished stocks, and obtain optimum yield from the fisheries. The surveys collect standardized observations of fish abundance over the range of the stock according to a rigorous statistical design. These data provide a direct measure of changes in stock abundance. Fishery monitoring provides direct measures of fish catch and bycatch, which are needed to estimate fishing mortality. Research provides data on fish age, growth, movement, and reproduction, and also provides direct evidence of ecosystem changes. The request for the Survey and Monitoring line will restore NMFS’ ability to manage fisheries by improving (1) estimates of the distribution and abundance of the stocks, (2) estimates of fishing mortality, (3) information on ecosystem changes that can affect fish stocks, and (4) value-added analyses in stock assessments provided to the Fishery Management Councils for developing ACLs as mandated by the MSRA.

Performance Goals and Measurement Data

In addition to supporting calculation of ACLs, the increased assessment activity will improve the performance metric for percentage of stocks with adequate assessments. There is not a one-to-one correspondence, because in some cases it will be possible to support ACLs without achieving all the standards for a fully adequate assessment.

Performance Goal: Percentage of Fish Stocks with Adequate Population Assessments and Forecasts Measure 1b	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	42.1%	57.0%	57.0%	57.0%	57.0%	57.0%
Without Increase	42.1%	57.0%	55.7%	54.3%	53.0%	51.7%
Description: This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

Fisheries Oceanography (+3 FTEs and +\$1,000,000): NOAA requests an increase of \$1,000,000 and 3 FTEs to support the creation of integrated ecosystem assessments (IEAs) for three regional ecosystems (California Current, Northeast Shelf, and Gulf of Alaska).

Proposed Actions

With this increase, NOAA will continue to develop scientific tools to support ecosystem considerations in the Magnuson-Stevens Reauthorization Act (MSRA) and ecosystem-based management in the form of integrated ecosystem assessments (IEAs), as well as to coordinate IEA efforts in three regional ecosystems. IEAs are a synthesis and quantitative analysis of information on relevant physical, chemical, ecological, and human processes in relation to specified ecosystem management objectives. Just as weather forecast models integrate physical data (e.g. temperature, barometric pressure, etc.) into weather forecasts the public can use to make decisions, the IEA will integrate ocean biological (e.g., plankton, fish, marine mammals), physical (e.g., currents, climate), chemical (e.g., pollution, nutrients), and human (e.g., fishing pressure, coastal development) data into ecological assessments that managers can use for managing coastal and ocean ecosystems. The FY 2010 budget request starts the development of IEAs in three regional ecosystems (California Current, Northeast Shelf, and Gulf of Alaska) including data access and integration into ecological models and assessments. The data and modeling tools will be expanded to the remaining five regional ecosystems for nationwide assessment in the future, for completion by FY 2014.

In FY2010, NOAA will:

- Assemble, catalog, and make accessible regional ecosystem data for use in three regional ecosystems.
- Continue development of data access and integration tools to integrate ecosystem data into ecological models for three of eight regional ecosystems.

Statement of Need and Benefits

IEAs provide the science for NOAA's ocean and coastal zone management and legislative mandates by integrating ecological, climatic, and economic data into assessments and decision support tools. NOAA's stakeholders are demanding improved stock assessments and finer-scale spatial and temporal information because of new MSRA requirements. The IEAs will relay critical information on the status of marine ecosystems to regional management bodies (e.g., Regional Fishery Management Councils, marine sanctuary managers, and coastal zone managers), industry, and the public, which will prepare them for coastal and marine ecosystem change. Current single-species or single-discipline ecosystem models do not account for natural environmental change or influences (e.g., climate change, sea surface temperature change, ocean acidification). The lack of ecosystem considerations prevents the Councils and coastal managers from adapting business plans that prepare their constituents for business disruptions due to environmental change. IEAs provide managers with specific tools and assessments to improve the management of NOAA's ecosystem resources.

NOAA must initiate IEAs as soon as possible for the following reasons: (1) it will take 2 to 3 years for data and model infrastructure investments to deliver ecosystem forecasts/assessments; (2) the MSRA mandates the Councils to include ecosystem considerations into their management plans; (3) information from IEAs will provide the NOAA leadership requested in several regional governance structures (e.g., Gulf of Mexico Alliance) and governors' agreements (West Coast Governors Agreement); (3) IEAs are required to support the design and development of major

projects such as the Integrated Ocean Observing System and the Census of Marine Life; and (4) assessments provide the context for new NOAA climate data products planned for delivery in FY 2011 (e.g., how climate impacts fishing and coastal environments). IEAs will relay the status of marine ecosystems to regional management bodies (e.g., Councils, marine sanctuary managers, and coastal zone managers), industry (e.g. fishermen and associated businesses), and the public that can prepare them for environmental changes to the ecosystem.

IEAs have the potential to improve management actions, as well as reduce costs to agencies and the public of complying with environmental regulations. For example, the closure of the 2008 California salmon fishery was due in part to poor ocean conditions and will cost over \$100 million in lost revenue to fishermen and the coastal communities that rely on the fishery for processing, fuel, recreational anglers, etc. The closure was announced to the commercial fishermen 1 month before the fishery was scheduled to open, causing them to scramble to obtain permits to enter another fishery. In addition, litigation costs over large water infrastructure projects (most recently the 2008 California state water project decision against NOAA) require an environmental impact statement (EIS) to operate. NOAA is required by the National Environmental Policy Act (NEPA) to write Biological Opinions outlining the potential effects of these projects on the ecosystem—an often costly effort that has led to lawsuits for the agency. NOAA envisions that compliance with requirements will be enhanced by the online data and information provided by IEAs, representing millions of dollars in cost savings.

NMFS’ approach to implementing IEAs is validated by the Ocean Research Priorities Plan of the Joint Subcommittee on Ocean Science and Technology (CEQ, 2007); Evolving an Ecosystem Approach to Science and Management Throughout NOAA and its Partners (External Ecosystem Task Team, 2006); and the MSRA.

Performance Goals and Measure Data:

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of coastal, marine, and GL ecological characterizations						
With Increase (cumulative)	0	0	0	0	1	1
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number ecological characterizations the agency has completed. The operational product definition of an ‘Ecological Characterization’ is: data, graphic, and/or text descriptions of the important components and processes comprising an ecosystem that considers their functional relationship.						

TERMINATIONS FOR 2010:

The following programs within the Fisheries Research and Management subactivity, or portions thereof, have been terminated in FY 2010: Expand Annual Stock Assessments – Improve Data Collection (\$18,000); Regional Councils and Fisheries Commissions (\$46,000); Maine and New Hampshire Inshore Trawl Survey (\$250,000); Reef Fish Monitoring and Research, FL Fish & Wildlife Conservation Commission (\$1,000,000); Narraganset Bay Window Program (\$1,000,000); Oyster Hatchery Economic Pilot Program (\$500,000); Hawaii Seafood Inspections (\$1,500,000); Horseshoe Crab Research (\$400,000); Oregon Salmon Weak Stock Solutions Research (\$200,000); Scallop Fishery Assessment (\$1,000,000); New England Fisheries Assistance (\$10,000,000); Chesapeake Bay Blue Crab Disaster Assistance (\$10,000,000); Maine Groundfish Industry Emergency Economic Assistance (\$300,000); Gear Conversion Assistance, ME (\$100,000); Alaska King Crab Research, AK (\$200,000); Fisheries Advisory Bodies, AK (\$150,000); Florida Marine Replenishment Program, FL(\$295,000); Disease Reduction in Klamath River Salmon, OR (\$640,000); Blue Crab Research (\$50,000); Bluefin Tuna Tagging and Research Program, CA (\$250,000); California Marine Fisheries Replenishment Program (\$250,000); Shrimp Industry Fishing Effort Research Continuation, MD (\$200,000); Virginia Trawl Survey, VA (\$150,000); West Coast Weak Stock Salmon Solutions (\$200,000); Ecosystem Based Fisheries Management, AL (\$900,000); and Hawaii Fisheries Development, HI (\$750,000).

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
Subactivity: Fisheries and Research Management

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Fishery Biologist	Gloucester, MA	ZP-4	1	87,548	87,548
Fishery Biologist	St. Petersburg FL	ZP-4	1	80,402	80,402
Fishery Biologist	Long Beach, CA	ZP-4	1	89,355	89,355
Fishery Biologist	Seattle WA	ZP-4	1	85,487	85,487
Fishery Biologist	Anchorage, AK	ZP-4	1	80,402	80,402
Fishery Biologist	Honolulu, HI	ZP-4	1	80,402	80,402
Fishery Biologist	Silver Spring, MD	ZP-4	1	86,927	86,927
Foreign Affairs Specialists	Silver Spring, MD	ZA-5	1	120,830	120,830
Foreign Affairs Specialists	Silver Spring, MD	ZA-4	2	86,297	172,594
Foreign Affairs Specialists	Silver Spring, MD	ZA-3	3	60,989	182,967
Clerk	Silver Spring, MD	ZS-4	1	41,210	41,210
International Fisheries Div Ch	Honolulu, HI	ZP-5	1	111,760	111,760
Senior Policy Analyst	Honolulu, HI	ZP-4	1	80,402	80,402
Policy Analyst	Honolulu, HI	ZP-3	1	56,411	56,411
Program & Mgmt Analyst	Honolulu, HI	ZA-3	1	56,411	56,411
Fisheries Biologist	Honolulu, HI	ZP 4	1	80,402	80,402
Fisheries Biologist	Seattle, WA	ZP 4	2	85,487	170,974
Fisheries Biologist	La Jolla, CA	ZP 4	1	87,167	87,167
Fisheries Biologist	Miami, FL	ZP 4	1	84,886	84,886
Fisheries Biologist	Woods Hole, MA	ZP 4	1	87,548	87,548
Fisheries Biologist	Honolulu, HI	ZP 3	1	80,402	80,402

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Fisheries Biologist	Silver Spring, MD	ZP 3	1	60,989	60,989
Fisheries Biologist/Ecologists	Seattle, WA	ZP 3	2	59,978	119,956
Fisheries Biologist/Ecologists	La Jolla, CA	ZP 3	1	61,157	61,157
Fisheries Biologist/Ecologists	Woods Hole, MA	ZP 3	1	61,425	61,425
Economist	Miami, FL	ZP-4	1	84,886	84,886
Economist	San Diego, CA	ZP-4	2	87,167	174,334
Economist	Seattle, WA	ZP-4	2	85,487	170,974
Economist	Woods Hole, MA	ZP-4	1	87,548	87,548
Economist	Honolulu, HI	ZP-4	1	80,402	80,402
Regional Fisheries Management Specialist	Honolulu, HI	ZP-4	3	80,402	241,206
Regional Fisheries Biologist	Honolulu, HI	ZP-4	3	80,402	241,206
Fisheries Biologist	Honolulu, HI	ZP-3	2	56,411	112,822
Fisheries Biologist	Pago Pago, AS	ZP-3	2	56,411	112,822
Program Analyst	Pago Pago, AS	ZA-3	1	56,411	56,411
Scientist	Pago Pago, AS	ZP-3	2	56,411	112,822
Fishery Biologist	Woods Hole, MA	ZP-3	9	61,425	552,825
Fishery Biologist	Seattle, WA	ZP-4	1	85,487	85,487
Fishery Biologist	Seattle, WA	ZP-3	1	59,978	59,978
Fishery Biologist	Gloucester, MA	ZP-4	1	87,548	87,548
Fishery Biologist	St. Petersburg FL	ZP-4	1	80,402	80,402
Fishery Biologist	Long Beach, CA	ZP-4	1	89,355	89,355
Fishery Biologist	Seattle WA	ZP-4	1	85,487	85,487
Total			61	4,481,737	
less Lapse		25.0%	15	1,120,434	

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Total full-time permanent (FTE)	46	3,361,303
2010 Pay Adjustment (2.0%)		67,226
TOTAL		3,428,529
Personnel Data	Number	
Full-Time Equivalent Employment		
Full-time permanent	46	
Other than full-time permanent	0	
Total	46	
Authorized Positions:		
Full-time permanent	61	
Other than full-time permanent	0	
Total	61	

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS

Activity:	National Marine Fisheries Service	
Subactivity:	Fisheries Research and Management	
		FY 2010
	Object Class	Increase
11.1	Full-time permanent	3,429
11.6	Leave Surcharge	1,059
11.9	Total Personnel Compensation	4,488
12.1	Civilian personnel benefits	1,963
21	Travel and transportation of persons	1,742
23.3	Communications, utilities and miscellaneous charges	2,105
24	Printing and reproduction	163
25.1	Advisory and assistance services	22,450
25.2	Other services	24,740
25.5	Research and development contracts	1,420
26	Supplies and materials	8,330
31	Equipment	2,114
41	Grants, subsidies and contributions	15,663
99	Total Obligations	85,178

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Line Item: Enforcement and Observers / Training

The goal of the NMFS Enforcement Program is to provide a comprehensive program for the protection of the Nation's living marine resources through the enforcement of a variety of federal laws and regulations. The primary objective of the NMFS Office for Law Enforcement (OLE) is to ensure compliance with the laws and regulations promulgated to conserve and protect our Nation's living marine resources. OLE activities support the NOAA Ecosystems goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

The NOAA Enforcement Program resides within the NMFS OLE. OLE implements three primary capabilities: investigations, monitoring (which includes conducting patrols and inspections), and outreach and education. OLE special agents and officers detect, deter, investigate, and document for prosecution any violations of federal laws and regulations under the Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, Endangered Species Act, Lacey Act, and other federal statutes and international agreements relating to living marine resources. Under current monitoring capabilities OLE manages the vessel monitoring system program (VMS), which provides real-time data that significantly increase the ability to monitor and enforce closed areas for protection of endangered species and critical habitat, and rebuilding and maintenance of sustainable fisheries.

OLE currently expands enforcement and monitoring capabilities and resources by carrying out joint enforcement agreements (JEAs) with marine resource enforcement agencies of coastal states and U.S. territories. OLE has implemented JEAs with 22 coastal states and five U.S. territories. This program provides land-based patrols, nearshore patrols, and some offshore vessel patrols. While OLE is currently authorized to employ 160 Special Agents and 18 Enforcement Officers assigned to 59 offices in the coastal United States and U.S. territories, the Cooperative Enforcement Program makes available more than 2,000 state and territorial enforcement personnel to support OLE. The work performed by the state and territorial agencies under these agreements not only augments the federal enforcement effort, but also supports enforcement missions of U.S. states and territories.

The goal of the Observers & Training Program is to provide accurate and timely information and analyses on the biological, ecological, economic, and social aspects of the Nation's fisheries resources and develop, implement, and monitor living marine resource management measures to support the NOAA Strategic Plan goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

Since 1972, NMFS has deployed fishery observers to collect catch and bycatch data from U.S. commercial fishing and processing vessels. Observers monitor fishing activities on all U.S. coasts, collecting data for a range of conservation and management issues. Observers are fishery biologists deployed at sea onboard commercial fishing vessels to collect data and information on fishery catch and bycatch (i.e., the incidental capture of unintended fish species and protected species). This includes information on fishing practices, vessel and gear characteristics, fishing locations and times, environmental conditions on the fishing grounds, compliance with fishing regulations, and, for some fisheries, socioeconomic data. Observers also collect biological samples and may assist in fish tagging and tag recovery, or in special data collections for stock assessment programs.

NMFS implements observer programs in each of its six regions. In addition, improvements in data collection, observer training, and the integration of observer data with other research are coordinated by the Office of Science and Technology in NMFS headquarters. Collectively, the regional programs and

the headquarters office comprise the National Observer Program, which supports observer programs and increases their contribution to NMFS' overall goals. Nearly 40 fisheries are monitored by observer programs each year, and the data they collect are often the best means to gather current information on fisheries status. Without these programs, many fisheries would lack sufficient data for effective management. The authority to place observers on commercial fishing and processing vessels operating in particular fisheries is provided by the Magnuson-Stevens Act and the Marine Mammal Protection Act.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act, as amended through the reauthorized Act of 2006, authorizes the placement of observers to collect information needed for fishery management and conservation. In addition, the Act requires that all fishery management plans establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery. Fishery observers are one of the most reliable methods for reporting bycatch and are a critical component of the reporting methodologies required in several fisheries with known levels of bycatch.

The information collected by fishery observers ensures that Fishery Management Plans (FMPs) are consistent with the requirement for a standardized bycatch reporting methodology. Observer programs also provide data for fishery managers to ensure that national standards for fishery conservation and management identified in Section 301 of the Act are met.

- National Standard 1: “Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.”
- National Standard 2: “Conservation and management measures shall be based upon the best scientific information possible.”
- National Standard 9: “Conservation and management measures shall, to the extent practicable, (a) minimize bycatch and (b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.”

Marine Mammal Protection Act (MMPA)

MMPA Section 118 governs the incidental taking of marine mammals in the course of commercial fishing operations. It states that the immediate goal shall be to reduce the incidental mortality or serious injury of marine mammals to insignificant levels approaching rates of zero for mortality and serious injury. To achieve this goal, Section 118(d) directs NMFS to deploy observers on fishing vessels or remote vessels to monitor incidental mortality and serious injury of marine mammals during commercial fishing operations.

Section 118 describes the duties of observers, establishes guidelines for the distribution of observers among fisheries and among vessels within a fishery, and establishes priorities for the placement of observers. Observers are mandatory for fishermen participating in Category I and II fisheries (fisheries that have frequent or occasional incidental mortalities or serious injuries of marine mammals, respectively), and are voluntary for fishermen participating in Category III fisheries (fisheries that have a remote likelihood of or no known incidental mortality or serious injury to marine mammals). Section 118 also directs NMFS to develop and implement take reduction plans for marine mammal stocks that interact with Category I or II fisheries. These plans shall include an estimate of marine mammals incidentally killed or seriously injured each year during the course of commercial fishing operations. Onboard fisheries observers are the most reliable source of this information.

Endangered Species Act (ESA)

ESA requires the Federal Government to protect and conserve species and populations that are endangered or threatened with extinction. Federal or state actions that may impact endangered species, such as permitted fishing operations, must be minimized. Endangered species taken as bycatch in fishing operations include sea turtles, Pacific salmon, seabirds, and marine mammals. Observers monitor impacts and certify that takes of endangered species do not exceed the authorized incidental take limit. Observer data are also used to prepare recovery plans, and generally include a requirement to reduce incidental capture of protected species in commercial fishing operations for marine species. Fisheries may be restricted or terminated if they impose mortality rates on protected species that impede the recovery of the listed population.

PROPOSED LEGISLATION:

NOAA, together with the Administration, will work with Congress to reauthorize the Marine Mammal Protection Act (MMPA), P.L. 103-238

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PROGRAM CHANGES FOR FY 2010:

Enforcement (+22 FTE and +\$7,600,000) – NOAA requests an increase of \$7.6 million and 22 FTEs to satisfy the enforcement requirements of the Magnuson-Stevens Reauthorization Act (MSRA). This is an important component of the overall FY 2010 MSRA funding request.

Within the Enforcement and Surveillance program, \$900,000 is requested to increase NMFS' capacity to monitor commercial and recreational fisheries. Four FTEs will be distributed to the field, based on NMFS priorities to address overfished stocks. This will increase NOAA's capacity to monitor compliance with annual catch limits and other management measures, increase investigations of violations, and encourage voluntary compliance through a combination of education, monitoring and inspections, and effective prosecutions by DOC's General Counsel for Enforcement and Litigation and/or the U.S. Department of Justice.

Within the Cooperative Enforcement Program \$1.0 million will be distributed among state enforcement partners to increase their efforts to end overfishing in federally managed fisheries. State partners will be directed to perform specific enforcement services, monitoring those fisheries judged to be overfished or experiencing overfishing. Enforcement services may include off load monitoring, at-sea boardings and inspections, fish processing plant inspections, or other tasks required by the specific fishery management plan.

Within the Enforcement and Surveillance program, \$3.2 million and 10 FTEs will be used to implement limited access privilege programs (LAPPs) and the use of a sector management approach. Funding will be used for increasing capacity to monitor vessel off loads, trip reports, quota management, compliance with closed area restrictions and to investigate quota overages, fraud and closed area incursions.

Within the Vessel Monitoring Program \$900,000 and one FTE is requested to expand the infrastructure that supports the monitoring of vessels and associated electronic monitoring measures to support NOAA's efforts to end overfishing. The infrastructure created will provide a mechanism for other reporting mechanisms to support catch monitoring and management.

Also within Enforcement and Surveillance, \$1.6 million and 7 FTEs is requested to build on the program initiated in FY 2009 to create a focused analytical and investigative capacity within the Office for Law Enforcement (OLE) to combat illegal, unregulated and unreported (IUU) fishing. While the FY 2009 action focuses on core analytical and program development and coordination aspects, this FY 2010 program change will expand field enforcement capacity to address direct investigative and monitoring activity. Deploying positions at primary U.S. ports of entry that experience the highest volume of import activity will increase screening and investigations of IUU product before it enters the U.S. market.

During FY 2010, additional enforcement staff will be deployed to regions experiencing the most significant incidence of overfishing and overfished stocks and to ports of importation handling the greatest volume of foreign fishery products. Analysis of domestic fishing management regimes and international

trade in fishery products will be used to determine the most effective methods of gaining compliance and will guide distribution of Cooperative Enforcement funds. Vessel monitoring system expansion will be directed to these same fisheries as management schemes require.

Proposed Actions

With the requested \$5.7 million for Enforcement and Surveillance, NOAA will increase enforcement capacity, increase compliance with management measures designed to end overfishing in the United States, and reduce the amount of international IUU product entering U.S. markets.

The \$1.0 million requested for Cooperative Enforcement with States will be used to increase the capacity of state enforcement partners to address local marine conservation enforcement requirements and to perform federal enforcement by directing more enforcement services.

The requested \$900,000 for the Vessel Monitoring Program will support program management and expansion of capabilities. Increases in staff and non-labor expenditures will allow expansion of the basic program and the ability of the infrastructure to support communication and some data processing requirements of other management regimes.

Statement of Need and Economic Benefits

The MSRA mandates that NOAA end overfishing and imposes annual catch limits on fisheries experiencing overfishing by 2010 and on all managed fisheries by 2011. The Act further authorizes the implementation of limited access privilege programs (LAPPs) as a management regime designed to limit fishing capacity and maintain fishing at sustainable levels. The Act further requires improved monitoring of recreational fisheries to better determine impact on fish stocks. NMFS' Status of U.S. Fisheries, Fourth Quarter Update, indicates that of 230 domestically managed fish stocks, 44 are considered overfished and overfishing is occurring in 39. The Atlantic Ocean, Gulf of Mexico, and Caribbean are home to 68 percent of the overfished stocks and approximately 70 percent of the stocks experiencing overfishing. Increasing enforcement staff capacity is needed to monitor commercial and recreational fisheries in support of the requirement to end overfishing.

Maintaining sustainable fish stocks within the current environment of increasing demand for fishery products is of critical importance. The long-term economic health of fishing communities relies on sustainable harvests. Failure to gain compliance with management measures can lead to stock collapse and economic failure for fishermen and the businesses sustaining them. If NOAA does not expand enforcement capacity in FY 2010, the ability to ensure compliance with annual catch limits and other measures to end overfishing will be compromised.

The United States imported \$28.8 billion of fishery products in 2007 (Fisheries of the United States 2007). The United Nations, the U.S. Government, foreign governments, and numerous private organizations have identified IUU as the most serious threat to the sustainability of fish stocks. The U.S. Ocean Action Plan, the U.S. National Plan of Action for Control of International IUU Fishing, and the MSRA direct NOAA to identify and seek to end IUU fishing.

A detailed economic analysis of the impact of IUU product on legitimate product in the marketplace has not been conducted. However, the existence of IUU product in the marketplace, estimated by some to exceed \$4 billion annually, depresses the value of legitimately harvested and traded product. While work to be performed under the program planned through the FY 2009 budget will address data analysis and information gathering/verifications to support NOAA's interactions with other nations on IUU, the FY 2010 program focuses on closing U.S. markets to IUU product by expanding resources to monitor imports and investigate violations.

Performance Goals and Measurement Data

This increase will support the objectives to increase fisheries investigations initiated, and to increase hours monitoring and inspections for fisheries regulations.

Performance Goal: Fisheries Investigations Initiated	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	2,400	2,400	2,580	2,700	2,850	2,950
Without Increase	2,400	2,000	2,000	2,000	2,000	2,000
Description: This measures records the number of incidents reported to or discovered by the Office of Law Enforcement which appear to involve violations of the resource protection laws enforced by NOAA. All incidents are reviewed for substance and full investigations conducted depending on priorities, available resources, and the presence or lack of sufficient information to sustain further investigative investment.						

Performance Goal: Hours monitoring and inspections for Fisheries regulations (NOAA)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	6,000	7,500	8,500	9,500	10,500	11,000
Without Increase	6,000	6,000	6,000	6,000	6,000	6,000
Description: This measure tracks the number of man hours expended by Office of Law Enforcement staff in any of these monitoring functions. These functions almost exclusively involve the highly visible presence of enforcement staff in the businesses and areas in which regulated activity is occurring. These activities are designed to deter and/or detect violations.						

Performance Goal: Hours monitoring and inspections for Fisheries regulations (State Partners)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With increase	104,166	111,466	111,466	111,466	111,466	111,466
Without increase	104,166	104,166	104,166	104,166	104,166	104,166
Description: This measure tracks the number of man hours expended by the staff of State and U.S. Territorial conservation law enforcement partner agencies conducted under Joint Enforcement Agreements with NOAA in any of these monitoring functions. These functions almost exclusively involve the highly visible presence of enforcement staff in the businesses and areas in which regulated activity is occurring. These activities are designed to deter and/or detect violations.						

National Observer Program (+19 FTE and +\$5,000,000): NOAA requests \$5.0 million and 19 FTE to provide increased funding for observer coverage in an increasing number of fisheries requiring improvements in bycatch data. Funding will specifically be targeted to meeting the requirements of the Magnuson-Stevens Reauthorization Act (MSRA) for implementation of annual catch limits in six regional fisheries. The funding request will also be used to develop systems to monitor landings and discards, and track allocations, balances, and allocation transfers in the New England Multi-species fishery to ensure the long term sustainability and profitability of the fisheries. This is an important component of our overall FY 2010 MSRA funding request.

Proposed Actions

This funding will allow the National Observer Program to supplement observer coverage in approximately three fisheries to provide adequate observer coverage levels, and to implement pilot observer programs for three additional fisheries. The specific actions to be taken include:

Cost Share Programs:

- The Observer Program will evaluate and incorporate cost-effective monitoring of catch and bycatch by evaluating the complexities of each fishery. Fisheries with minimal bycatch and habitat effects can be effectively monitored simply by counting product landed at the dock. More complex fisheries, such as groundfish trawls, require onboard observers in combination with new technologies, such as video monitoring systems and satellite tracking, to track bycatch and discards and to prevent fishing in closed areas. This will help the observer program to optimize efficiency while meeting information needs for management of the fishery.

Enhancements to Existing Programs:

- Increase observer coverage in the American Samoa pelagic longline observer program from 7 percent to approximately 15 percent (approximately 450 days at sea). The observer coverage in the American Samoa pelagic longline fishery will focus on quantifying fish bycatch levels and also meet the requirements of the 2004 Biological Opinion.
- Increase observer coverage in the Gulf of Mexico reef fish fishery by 315 days at sea. The observer coverage in this fishery will focus on quantifying fish bycatch levels. However, this level of coverage will be insufficient to monitor the red snapper Individual Fishing Quota program.

- Increase observer coverage in the Southwest coastal pelagic species observer program from 2 percent to approximately 15 percent (300 days at sea). Observer coverage will allow quantification of fish bycatch levels and monitoring of protected species interactions.

Pilot Programs:

- Expand observer coverage in the North Pacific groundfish fishery to unobserved fisheries (for instance, fishing vessels less than 30 feet in length) (approximately 375 days at sea).
- Implement a new observer program in the mid-Atlantic open access scallop fishery to provide 7 percent observer coverage (312 days at sea). The observer coverage in the mid-Atlantic region will mainly target the sea scallop trawl and dredge fisheries, with a focus on quantifying fish bycatch levels and sea turtle interactions.
- Develop a new electronic monitoring program for the Northwest small fixed gear fishery, which is currently unable to take observers due to the small size of the fishing vessels.
- Expand observer coverage in the Multi-species fishery in New England to implement an expanded sector-based management system.

The increase in the number of fisheries observed coverage levels and the resulting increase in the number of sea days on board fishing vessels with observers will translate to an increase in the number of protected species and Fish Stock Sustainability Index (FSSI) stocks with adequate population assessments. The bycatch information collected through these improved observer programs will also provide essential information for development of annual catch limits for a variety of species taken as bycatch in these fisheries.

Statement of Need and Economic Benefits

Fisheries observer programs are a proven, valuable source of information on the Nation's fisheries, unobtainable by any other means. Reliable catch and bycatch information, as well as associated biological information and gear characteristics, is collected by at-sea observers through regional observer programs implemented in all six NMFS regions. Economic information is also collected through at-sea observers. Current funding supports collection of this information in 40 fisheries nationwide, 23 of which are at adequate levels of observer coverage. The current baseline estimate for fisheries requiring observer coverage is 85 fisheries, indicating that NMFS currently observes only half the fisheries requiring coverage.

The information collected through at-sea observer programs is an essential component of fisheries and protected resource stock assessments and for development of effective management measures. The MSRA requires implementation of annual catch limits for all federally managed fisheries. Improvements in the collection of bycatch information are necessary to effectively meet the MSRA requirements to implement and monitor annual catch limits. Bycatch data collected by at-sea observer programs is an essential component in the estimation of total catch, since bycatch may exceed total landings in many fisheries. Observer information also supports recommendations of Take Reduction Plans, Biological Opinions, Fishery Management Plans, and monitoring of bycatch reduction technologies. The 17 fisheries currently observed at pilot or baseline levels will require additional observer coverage to meet the requirements for adequate observer coverage and to provide reliable estimates of bycatch. With this funding NOAA will decrease the number of fisheries at pilot levels of observer coverage by three fisheries. Other fisheries

currently having no observer coverage may require implementation of new observer programs if bycatch in these fisheries is determined to be a major source of mortality.

The major impact of improved collection of catch and bycatch information is improvements in the population assessments and forecasts for fish, marine mammals, sea turtles, and seabirds. Increasing the number of observed days at sea will decrease the gaps in knowledge where bycatch may be occurring but is not documented. With the requested funding, NOAA will increase the number of fisheries with adequate observer coverage by six fisheries; increasing the number of observed sea days by 1,752. Increasing the number of observed days at sea will enable NOAA to effectively manage many of the economically valuable fisheries in the United States. Observer information will also be integrated with other information to support ecosystem assessments and forecasts, since a variety of associated environmental and biological information is collected through these observer programs. The majority of regional observer programs also collect economic information that will support valuation and expenditure analyses.

With respect to the New England Multi-species fishery, the transition to sector-based management may require that every fishing vessel, fishing with catch shares, have an observer at sea for catch verification. These funds partially support at-sea observer monitoring of sectors, the remaining portion of cost to be borne by the industry. This funding request complements other efforts described within the Fisheries Research and Management and the Other Activities Supporting Fisheries subactivities.

Performance Goals and Measurement Data

Increasing coverage by observer programs through additional funding will help NOAA to manage the oceans holistically (by collecting biological data that can be used to understand the impacts of fishing activities on marine ecosystems); protecting imperiled species (by providing data on fisheries interactions with protected species); and establishing healthy national and global fisheries (by providing catch and bycatch data critical to effectively manage the Nation’s fish stocks, end overfishing, and rebuild overfished stocks).

This increase will support the Departmental objective and NOAA Strategic Plan goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management" under the Department of Commerce Strategic Plan goal to “Promote environmental stewardship.”

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of fisheries at adequate or near-adequate coverage levels.						
With Increase	23	26	26	26	26	26
Without Increase	23	23	23	23	23	23
Description: This performance measure tracks the number of fisheries for which an optimal sampling allocation scheme has been implemented and observer coverage is representative of actual fishing effort. The increase is an important part of the Agency’s high-priority MSRA funding increase requested for FY 2010. Data collected by observer programs will contribute to the GPRA measure:						

Performance Goal: Percentage of Fish Stocks with Adequate Population Assessments and Forecasts	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase (cumulative)	42.1%	57.0%	57.0%	57.0%	57.0%	57.0%
Without Increase	42.1%	57.0%	55.7%	54.3%	53.0%	51.7%
Description: This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

TERMINATIONS FOR 2010:

The following programs, within the Enforcement and Observers/Training subactivity, or portions thereof, have been terminated in FY 2010: Enforcement (\$30,000); Observers/Training (\$18,000); and Pilot Red Snapper Observer Program (\$1,000,000).

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
Subactivity: Enforcement & Observers/Training

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Supervisory Criminal Investigator	St. Petersburg, FL	ZA-4	1	80,402	80,402
Supervisory Criminal Investigator	Long Beach, CA	ZA-4	1	89,355	89,355
Supervisory Criminal Investigator	Wall, NJ	ZA-4	1	90,359	90,359
Enforcement Officer	St. Petersburg, FL	ZA-2	3	38,117	114,351
Enforcement Officer	Gloucester, MA	ZA-2	8	41,505	332,040
Enforcement Officer	Wall, NJ	ZA-2	2	42,837	85,674
Program Analyst	St. Petersburg, FL	ZA-4	2	80,402	160,804
Program Analyst	St. Petersburg, FL	ZA-3	1	56,411	56,411
Program Analyst	Long Beach, CA	ZA-4	1	89,355	89,355
Program Analyst	Gloucester, MA	ZA-3	1	61,425	61,425
Program Analyst	Silver Spring MD	ZA-4	2	86,297	172,594
Criminal Investigator	Seattle, WA	ZA-3	2	59,978	119,956
Criminal Investigator	New Bedford, MA	ZA-4	2	87,548	175,096
Criminal Investigator	Long Beach, CA	ZA-3	1	62,678	62,678
Criminal Investigator	Miami, FL	ZA-3	1	59,557	59,557
Fishery Biologist	TBD	ZP-2	15	41,505	622,575
Fishery Biologist	TBD	ZP-3	11	61,425	675,675
Total			55		3,048,307
less Lapse		25.0%	14		762,077

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Total full-time permanent (FTE)	41	2,286,230
2010 Pay Adjustment (2%)		45,725
TOTAL		2,331,955

Personnel Data

	Number
Full-Time Equivalent Employment	
Full-time permanent	41
Other than full-time permanent	0
Total	41
 Authorized Positions:	
Full-time permanent	55
Other than full-time permanent	0
Total	55

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS

Activity: National Marine Fisheries Service
Subactivity: Enforcement & Observers/Training

Object Class	FY2010 Increase
11.1 Full-time permanent	2,332
11.5 Other personnel compensation	180
11.6 Leave surcharge	313
11.9 Total Personnel Compensation	2,825
12.1 Civilian personnel benefits	485
21 Travel and transportation of persons	242
22 Transportation of things	1,500
23.1 Rental payments to GSA	180
23.3 Communications, utilities and miscellaneous charges	203
25.1 Advisory and assistance services	1,682
25.2 Other services	4,235
26 Supplies and materials	231
31 Equipment	669
99 Total Obligations	12,600

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Subactivity: Habitat Conservation & Restoration

The goal of the Habitat Conservation and Restoration Program is to conduct a habitat program in partnership with government agencies, the public, academia, non-governmental organizations, and industry to maintain high economic and ecological productivity of the Nation's living marine resources and support the NOAA Strategic Plan goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

Habitat conservation and restoration are key components of the NOAA Habitat Program (www.habitat.noaa.gov) and are integral to NOAA's Fisheries Management, Coral Reef Conservation, and Protected Species Programs. The Habitat Program is committed to protecting and restoring marine, coastal, and riverine habitats vital to NOAA trust resources; improving the data and techniques to accomplish these ends; and enhancing the interests and abilities of citizens to play active roles in these endeavors. Achieving these goals requires strengthening internal and external partnerships; leveraging resources available to government, the private sector, academic institutions, and individual citizens; and applying up-to-date information together with the best available science to produce management decisions that support sustainable and productive marine, coastal, and riverine habitats.

Sustainable Habitat Management

Habitat protection activities are the first step in ensuring the long-term survival and health of fishery resources and the habitats that support them. Habitat protection is integral to ensuring healthy regional ecosystems and the host of societal benefits derived from robust, productive marine, coastal, and riverine habitats. Sustainable habitat management integrates sound science and management expertise to influence private applicants and federal agency policies and decision-making by 1) requiring passage for migratory fish past hydropower dams that block valuable habitat; 2) consulting with federal agencies on the impacts of proposed actions on habitats that are essential to federally managed species; 3) supporting Regional Fishery Management Councils and interstate commissions in developing management positions on specific projects; 4) increasing overall habitat conservation awareness within federal, state, and local agencies; and 5) improving our scientific understanding of the habitat requirements for managed species.

Among the most basic tools in NOAA's habitat protection kit is consultation—working with federal action agencies and their constituents to ensure that proposed actions posing threats to marine, coastal, and riverine habitats are undertaken in a manner that prevents, minimizes, or compensates for adverse effects. NOAA uses a streamlined consultation process over 5,000 times per year to provide recommendations and other measures for construction projects, applications for dredging and filling wetlands, licenses for hydroelectric power plant operation, waste discharge permits, renewable energy proposals, and other federal funding and permit activities. Under the Federal Power Act and Energy Policy Act of 2005, NOAA provides fish passage measures and protection, mitigation, and enhancement recommendations to address the impacts of hydropower dams on migratory fish (such as salmon) and their habitats. The Habitat Program also coordinates agency efforts to describe and identify essential fish habitat (EFH), designate habitat areas of particular concern (HAPC), and evaluate the effects of fishing activity or proposed projects on EFH/HAPC.

NOAA also uses its expertise to influence decisions at the ecosystem or watershed level, where protection and restoration successes can be more efficient, lasting, and profound. Using a regional ecosystem approach to management—evidenced in the Habitat Program's Chesapeake Bay program and Great

Lakes program—regional research is coupled with on-the-ground conservation with the assistance of local partners to enhance watersheds and coastal systems. These efforts provide large-scale benefits to resources and to the goals of no net habitat loss, increased yields, streamlined efficiencies, and sustained societal benefits.

The reauthorized Magnuson-Stevens Act authorized NOAA to implement a Deep Sea Coral Research and Technology Program and provided new discretionary authority to designate zones to protect deep sea corals identified by the Program from physical damage from fishing gear. NOAA's FY 2009 budget request included funds to begin implementation of this Program to identify, understand, and provide information needed to protect deep sea coral habitats. Activities will be undertaken under the auspices of NOAA's Coral Reef Conservation Program (www.coralreef.noaa.gov) and in coordination with the Fishery Management Councils, other federal agencies, and research institutions.

Fisheries Habitat Restoration

NMFS habitat restoration efforts provide technical expertise, coordination, and financial support for habitat restoration and science. The NOAA Restoration Center oversees activities under this line item through four programs: 1) Community-based Restoration Program; 2) Damage Assessment, Remediation, and Restoration Program; 3) Open Rivers Initiative; and 4) Large-scale Ecosystem Restoration, which includes the Coastal Wetlands Planning, Protection, and Restoration Act Program.

The Community-based Restoration Program (CRP) catalyzes partnerships at national and local levels by providing on-site technical expertise, funding, and research capabilities in addition to engaging volunteers to restore coastal and estuarine fish habitat. A model for community collaboration, partnership building, and interagency cooperation, NOAA's CRP partners encourage hands-on citizen involvement in restoration projects, leading to long-term stewardship of the Nation's coastal and marine resources. The effectiveness of CRP is demonstrated in its ability to build partnerships that leverage funding and emphasize volunteer involvement to restore the diverse habitats crucial to recreational and commercial fishing industries. This highly successful national effort encourages partnerships with industry, nonprofit organizations, and state and local governments and has regularly leveraged non-federal funding to federal funds by factors of 5:1.

The Damage Assessment, Remediation, and Restoration Program (DARRP) addresses damages to coastal trust resources. Through legal settlements with responsible parties, NOAA claims damages on behalf of the public for injuries to marine resources resulting from oil spills, hazardous releases, ship groundings, or other human-induced environmental disturbances. After successful settlement of natural resource damage claims, the NOAA Restoration Center manages the portion of DARRP activities that directs the planning, implementation, and monitoring of case-specific projects to restore NOAA trust resources.

The Open Rivers Initiative (ORI) is a comprehensive program that provides project oversight and management, technical expertise, and funding to remove small and large dams and fish passage barriers in coastal states. ORI builds on NOAA's existing restoration capabilities and uses a model similar to the CRP to identify priority projects through merit-based competitions. Over 2 million dams block the passage of migratory fish in U.S. streams and rivers.

Dams provide numerous benefits for modern society, but they also contribute to the habitat and water quality degradation occurring in estuaries, deltas, and riverine environments. Although most U.S. dams serve their intended functions, many no longer provide the benefits for which they were built or may provide greater watershed-level benefit to fish and communities upon their removal or bypass, which is the case for such dams as those on the Shasta River in California and Rogue River in Oregon. ORI restores fish passage to upstream spawning and rearing habitat and conducts primary restoration at the site of barrier removal or bypass.

The Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) was enacted in 1990 to address the wetland loss in Louisiana, which is so severe that it threatens infrastructure (i.e., energy, ports, and natural resources) critical to the Nation as well as the safety of its citizens, local traditions and cultures, economy, and environment. CWPPRA is a multi-agency reimbursable program administered by the U.S. Army Corps of Engineers. As a member of this multi-agency federal and state effort, NMFS, through the coordination of the NOAA Restoration Center, conducts all aspects of the restoration process, from site selection and engineering design to construction, evaluation, and maintenance. The NMFS portion of CWPPRA has managed approximately \$10 million each year for on-the-ground restoration that has benefited thousands of acres of threatened wetlands and marine habitat.

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PROGRAM CHANGES FOR FY 2010:

Deep Sea Coral Research and Technology Program (+1 FTEs and \$1,000,000): NMFS requests an increase of \$1 million to support priority activities of the Magnuson-Stevens Reauthorization Act (MSRA) mandated *Deep Sea Coral Research and Technology Program*.

Statement of Need

Recent research has revealed that coral and sponge habitats with very high biological diversity exist in deep ocean areas of many U.S. marine ecosystems. These areas are vulnerable to damage from bottom-tending fishing gears, especially from bottom trawling. They can also be vulnerable to energy exploration and production, deployment of cables and pipelines, and other human activities. Recovery from damage may take decades to centuries, as most deep sea corals grow slowly.

The need for the proposed activities was identified in the Report of the U.S. Commission on Ocean Policy and supported by national and international scientific workshops, the Marine Fisheries Advisory Committee's recommendations, and peer-reviewed literature. The activities will directly support the call for increased research on resources in deep water settings in the Ocean Research Priorities Plan and Implementation Strategy. Additionally, Regional Fishery Management Councils have specifically identified the need for deep sea coral information to implement additional conservation measures and new MSRA authorities to protect deep sea coral areas. Funding is required in FY 2010 to more fully implement the MSRA mandated program, and to provide information to the Councils in a timely manner to protect these ecosystems.

Proposed Action

Funding will allow NOAA to identify, understand, and provide information needed to protect deep sea coral habitats. Some deep sea corals serve as habitat for rich and diverse fish and invertebrate communities, including some commercially important species such as grouper, snapper, sea bass, rockfish, and crab. Funding in FY 2009 will initiate pilot activities in one region (the Southeast United States). The FY 2010 request will allow NOAA to expand limited activities to one additional region (the California Current, i.e., the West Coast of the continental United States), benefiting additional fisheries and ecosystems, and to build an integrated national program as called for in the MSRA. Specific actions proposed are:

- *Conduct research, including cooperative research with fishing industry participants, on deep sea corals.* Field research and habitat characterization cruises will focus on improving our understanding of the ecology of deep sea corals and their role and function in supporting various life stages of managed fish stocks. FY 2010 funds will allow the program's research and habitat characterization to expand to a second ecoregion (the California Current). The emphasis for the West Coast will be on research, ground-truthing, and finer-scale characterization focused on addressing major impacts, using remotely operated vehicles (ROVs), autonomous underwater vehicles, or submersibles and other instruments.
- *Consolidate existing research and information on deep sea coral ecosystems.* NOAA will analyze existing data, integrate new findings, and make data available in a usable format for the research, management, and education communities.
- *Monitor fishing activities in locations where deep sea corals are known or are likely to occur.* In cooperation with fishing industry participants, NOAA will use currently collected information to map the distribution and intensity of fishing practices known to impact deep sea coral

communities and analyze reports of coral bycatch, while ensuring appropriate confidentiality of fishing statistics. Observers in existing programs will be trained in deep sea coral and sponge identification to document coral and sponge bycatch.

Funding will support activities needed to implement priority mandates of the *Deep Sea Coral Research and Technology Program*, including but not limited to: (1) targeted new field research and habitat characterization activities; (2) development of databases and analyses, management, and reporting of existing information; (3) development of management-driven research products; (4) training and workshops with observers, fishermen, and the scientific community; and (5) the development and implementation of management actions through prescribed processes such as the Regional Fishery Management Councils and the system of National Marine Sanctuaries. Activities will be undertaken cooperatively under the Coral Reef Conservation Program by multiple NOAA offices, and in coordination and consultation with the Regional Fishery Management Councils and other partners. This initiative will help NOAA and the Councils identify deep sea coral zones and enhance conservation of these ecosystems. Deep sea research requires specialized equipment (ROVs, submersibles, etc.) that increase data collection costs (a 17-day cruise costs around \$1 million), so every effort will be made to leverage NOAA resources with those of other agencies and extramural partners.

Benefits:

The benefits of the Deep Sea Coral Research and Technology Program will be:

- Improved assessments of potential fisheries impacts through increased acres of deep sea coral habitat mapped.
- Increased number of accurate habitat distribution maps to differentiate among areas with deep sea coral communities (vulnerable) and other areas (fishable).
- Maps of fishing activity and deep sea coral bycatch to enhance understanding of the effects of human activities on deep sea coral habitats.
- Improved accuracy of models predicting the occurrence of deep sea coral and sponge habitat in order to facilitate management decisions.
- Increased number of deep sea coral and sponge species taxonomically described to improve understanding of deep sea corals.
- Improved descriptions of deep sea coral and sponge associations, and the role of these organisms as habitat for managed fish stocks.
- Enhanced understanding of the effects of human activities on deep sea coral and sponge habitats.
- Estimates of deep sea coral and sponge habitat recovery, which are central to conservation efforts.

In addition, information from long-lived and slow-growing deep sea coral is used to track long-term climate trends. Data from deep sea coral specimens gathered through this program will contribute to improving climate models.

Performance Goals and Measurement Data

Performance Goal: Square Kilometers of Seafloor High Resolution Mapped for Deep Sea Coral Habitat (cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	700	700	1000	1300	1800	2200
Without Increase	700	600	800	1000	1300	1600
Description: The MSRA directs NOAA, <i>inter alia</i> , to “Locate and map locations of deep sea corals and submit such information to the Councils,” and to “Conduct research...on deep sea corals and related species, and on survey methods.” This measure tracks the area mapped and characterized for the presence of deep corals. Priority will be given to mapping areas “where scientific modeling or other methods predict deep sea corals are likely to be present,” and where the maps will be most likely to support future fishery management measures. Note: area mapped “without increase” reflects expected mapping that is conducted under other programs for other purposes that can nonetheless be utilized to identify the locations of deep sea corals.						

Performance Goal: High Coral Bycatch Areas Identified and Proposed for Review (cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	2	2	4	7	9	11
Without Increase	2	2	3	5	7	8
Description: The MSRA directs NOAA, <i>inter alia</i> , to “to monitor activity in locations where deep sea corals are known or likely to occur, based on best scientific information available.” The Program will allow NOAA to monitor fishery bycatch of corals and utilize this information to identify areas where high bycatch indicates areas of potential conservation concern or needed management. This measure tracks the number of such areas identified and submitted to the Regional Fishery Management Councils. This will allow NOAA and the Regional Fishery Management Councils to utilize this information to reduce fishery interactions with deep sea corals.						

Performance Goal: Exploration and research products developed to meet management needs (annual)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	0	0	2	3	5	5
With Increase	0	0	4	6	8	8
Description: The MSRA directs NOAA, inter alia, to “identify existing research on, and know locations of, deep sea coral and submit such information to the Councils,” and to “locate and map locations...[and to] submit such information to the Councils.” This measure tracks efforts to coordinate research activities, support the collection and analysis of all relevant data, and to prepare the necessary documentation for appropriate management of deep sea coral communities. NOAA will develop interpretive products to seamlessly disseminate data and information-rich products to enable appropriate management actions to be taken by NOAA and the Regional Fisheries Management Councils.						

TERMINATIONS FOR 2010:

The following programs within the Habitat Conservation line item, or portions thereof, have been terminated in FY 2010: Sustainable Habitat Management (\$15,000); Fisheries Habitat Restoration (\$169,508,000); Bronx River Restoration (\$1,000,000); Port Aransas Nature Preserve (\$300,000); Chesapeake Bay Oyster Restoration, MD (\$4,600,000); Alabama Oyster Bed Reseeding & Fishery Habitat Enhancement (\$800,000); Merrimack River Fish Habitat, NH (\$100,000); Pioneer Valley Planning Commission to establish Lower Connecticut River Joint Commission (\$150,000); NU Great Lakes Restoration (\$1,000,000); Southern New England Seagrass Research and Restoration Project (\$500,000); Natural Stream Restoration Program, WV (\$750,000); and Chesapeake Bay Blue Crab Research (\$550,000)

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
 Subactivity: Habitat Conservation & Restoration

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Program Coordinator	Washington, DC	ZP-4	1	86,297	86,297
Total			1		86,297
less Lapse		25.0%	0		21,574
Total full-time permanent (FTE)			1		64,723
2010 Pay Adjustment (2%)					1,294
TOTAL					66,017

Personnel Data

	Number
Full-Time Equivalent Employment	
Full-time permanent	1
Other than full-time permanent	0
Total	1
Authorized Positions:	
Full-time permanent	1
Other than full-time permanent	0
Total	1

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS

Activity:	National Marine Fisheries Service	
Subactivity:	Habitat Conservation & Restoration	
	Object Class	FY 2010 Increase
	<hr/>	
11.1	Full-time permanent	66
11.6	Leave Surcharge	65
11.9	Total Personnel Compensation	<hr/> 131
12.1	Civilian personnel benefits	79
21	Travel and transportation of persons	15
24	Printing and reproduction	10
25.1	Advisory and assistance services	4
25.2	Other services	335
25.3	Purchases of goods & services from gov't. accounts	51
31	Equipment	3
41	Grants, subsidies and contributions	372
99	Total Obligations	1,000

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Subactivity: Other Activities Supporting Fisheries

“Other Activities Supporting Fisheries” includes items that cross multiple NMFS programs and therefore do not fit under one specific subactivity. Activities funded include aquaculture, Antarctic research, climate research, computer hardware and software, cooperative research, information analysis and dissemination, the National Environmental Policy Act (NEPA), Chesapeake Bay Studies, and facilities maintenance.

Aquaculture

NOAA is at the forefront of a national initiative to help the United States become more self-sufficient in the production of seafood. This initiative is based on sustainable commercial marine fisheries complemented by robust domestic aquaculture production. NOAA's overall aquaculture efforts are focused on creating domestic supply to meet the nation's growing demand for seafood; establishing aquaculture and as a viable technology for replenishment of important commercial and recreational marine fisheries; and creating opportunities for the United States to engage the global aquaculture community through scientific and technological exchange.

NOAA's Aquaculture Program draws on managerial, policy, and scientific expertise from across the agency and from among its federal, state, local, tribal, and academic partners. Coordinated out of NMFS headquarters in Silver Spring, Maryland, the Aquaculture Program works with personnel in NOAA's other line offices, including:

- NOAA's Office of Oceanic and Atmospheric Research (OAR), which includes the national and state Sea Grant programs;
- NOAA's National Environmental Satellite, Data, and Information Service (NESDIS), which includes the NOAA Library's Aquaculture Information Center; and
- NOAA's National Ocean Service (NOS), which includes the National Centers for Coastal Ocean Science

Base funds support the operation of the NMFS Aquaculture Program staff office to lead and coordinate regulatory, research, and outreach activities for marine aquaculture. Furthermore, the Aquaculture Program supports aquaculture and stock enhancement science activities at NMFS laboratories. In addition to base funds in NMFS, base funds requested through NOAA Research support the National Marine Aquaculture Initiative. This initiative is a competitive grants program that resides within OAR and is also considered part of the NOAA Aquaculture Program.

In FY 2008, NOAA finalized and adopted the 10-Year Plan for Marine Aquaculture as an agency-wide policy document. The plan is intended to guide the agency as it works toward establishing marine aquaculture as an integral part of the U.S. seafood industry and as a viable technology for replenishing important commercial and recreational fisheries. The plan provides specific goals for the NOAA Aquaculture Program and an assessment of the challenges the agency will face in its efforts to reach four distinct goals:

- develop a comprehensive regulatory program for environmentally sustainable marine aquaculture;
- foster commercial marine aquaculture and replenish wild stocks;
- increase public understanding of marine aquaculture; and
- increase collaboration and cooperation with international partners.

NOAA's involvement in marine aquaculture is conducted under a number of legislative and policy drivers. These include the reauthorized Magnuson-Stevens Act, National Aquaculture Act of 1980, Marine Mammal Protection Act, Endangered Species Act, Coastal Zone Management Act, and National Environmental Policy Act. Under these laws, NOAA is responsible for considering the potential environmental impacts of planned marine aquaculture facilities on its trust resources through formal permit reviews and consultations. Lastly, the National Sea Grant College Program Act, the Saltonstall-Kennedy Act (as amended), and the Merchant Marine Act gave NOAA the authority to develop and provide assistance for both public- and private-sector aquaculture.

The Aquaculture Program will work with the regional Fishery Management Councils and other regional management bodies to develop regulations and/or permitting requirements through existing mandates (e.g., Magnuson-Stevens Act) until Congress passes a National Offshore Aquaculture bill.

Cooperative Research

Cooperative research is the partnering of the fishing industry, fishermen, and other stakeholders with federal and university scientists to collect fundamental fisheries information. The program assists scientists and managers by providing information to supplement data currently collected through existing federal research programs.

The information collected through cooperative research programs is useful in improving the information base for ecosystem assessment models. Ultimately, this supplemental information will improve stock assessments and the management of fishery resources. The information provided can cover a wide range of research areas, including but not limited to fishery-dependent data, life history studies, conservation engineering, species abundance and distribution, habitat studies, and socioeconomic studies.

NOAA's cooperative research program is conducted under a number of mandates including the reauthorized Magnuson-Stevens Act. The Act requires NMFS to encourage partnerships among federal, state, and tribal managers and scientists, fishing industry participants, and educational institutions.

Regional Studies

Chesapeake Bay Studies and the Southeast Area Monitoring and Assessment Program (SEAMAP) were moved under the Regional Studies budget line in the FY 2009 President's Budget Request. The NOAA Chesapeake Bay Program (www.habitat.noaa.gov) serves as a model for regional collaboration by identifying and applying NOAA's full range of capabilities to address specific needs in the mid-Atlantic. NOAA is a principal partner in the cooperative, intergovernmental Chesapeake Bay Program, identifying science-based management options for restoration and protection of critical habitats, monitoring and assessing the status of living resources, evaluating the effectiveness of management actions, and implementing high-quality watershed educational programming. SEAMAP is a model cooperative federal/state program to facilitate the collection, management, and dissemination of long-term fisheries-independent data from the waters of the southeastern United States. These data provide information for evaluating the status of the Nation's fisheries.

Facilities Maintenance

The NMFS Facilities Operations and Maintenance line supports the lease costs for the Kodiak, Alaska, facility and for the Sandy Hook, New Jersey, facility. This line also funds operations and maintenance costs for the Santa Cruz, California, laboratory, one of the NMFS Southwest Science Center's laboratories, and the Juneau facility in Alaska. The primary mission of the Sandy Hook laboratory is to conduct ecological research for the Northeast Fisheries Science Center to improve understanding of both coastal and estuarine organisms and the effects of human activities on nearshore marine populations. Research for the Southwest Fisheries Science Center is focused on Pacific Coast groundfish and Pacific salmon. Groundfish under study include rockfishes, flatfishes, Pacific whiting, sablefish, and lingcod; salmon include coho, Chinook, and steelhead. The Kodiak Fisheries Research Center (KFRC) is the primary facility for the Alaska Fisheries Science Center's (AFSC) Resource and Conservation Engineering (RACE) Shellfish Assessment Program. The KFRC facility also provides offices and research support for other NMFS program activities, including: Groundfish Assessment Program, North Pacific Groundfish Observer Program, National Marine Mammal Laboratory, and Alaska Regional Office, Sustainable Fisheries Division. Lena Point consists of 66,000 square feet of office and laboratory space and is the new home for the Auke Bay Laboratories.

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PROGRAM CHANGES FOR FY 2010:

Climate Change Research and Management Activities (+1 FTE and +\$1,200,000) - NOAA requests \$1,200,000 and 1 FTE to increase the number of charter days to cover the expanded area of commercially fished stocks in the Bering Sea. This requested increase also supports NOAA's FY 2010 funding increases for Protected Resources.

Proposed Actions

In FY 2010, NOAA will assess how changes in the distribution of seasonal sea ice are affecting the distributions of economically important fish and shellfish and ice-dependent marine mammals, enabling scientists to distinguish between changes due to commercial fisheries and those due to natural causes. With this information, NOAA's scientific advice to the North Pacific Fisheries Management Council will allow for the continued sustainable management of commercially important fish and shellfish, and the conservation of marine mammal species as climate change influences the productivity of the Bering Sea. This increase will enable NOAA to increase by 20 the number of charter days to cover the expanded area of commercially fished stocks in the Bering Sea.

Statement of Need and Economic Benefits

Bering Sea commercial fisheries account for more than 40 percent of the total U.S. fisheries catch, and average summer water temperature there is now 2° to 3°C higher than during the 1990s. Some commercially important species have shifted to areas outside of NOAA's current surveys in the Bering Sea and thus are incompletely monitored.¹ Some marine mammal species, such as ice seals, depend on sea ice, and no baseline abundance information is available for these species. Ecosystem Observations Program will conduct stock assessments for ice seals, which will produce the biological information needed to determine the status of each stock or population and design effective and efficient conservation programs to promote ice seal recovery. This program is integral to Protected Resources' request for a \$1.3 million increase for ice seals, as the proposed surveys will fill these monitoring gaps. Without improved fish stock assessment capability and reduced uncertainty regarding stock levels, Bering Sea harvests will be reduced, causing a substantial economic impact (e.g., a 10 percent reduction in pollock harvest would result in an \$80 million loss to the U.S. economy).

Deliverables and Performance Goals

This increase will support the objective "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce strategic goal to "Observe, protect, and manage the Earth's resources to promote environmental stewardship." Specifically, this increase supports the NOAA Goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

¹ Proceedings, Bering Sea Interagency Working Group. 2006. Climate Change and the Bering Sea Ecosystem: An Integrated Interagency/Multi-institutional Approach Workshop

While no increase in this performance measure can be directly attributed to this funding, the requested funds will contribute to maintaining the current level of performance.

Performance Goal: Number of coastal, marine, and GL ecological characterizations	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	0	2	3	3	4	4
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number ecological characterizations the agency has completed. The operational product definition of an 'Ecological Characterization' is: data, graphic, and/or text descriptions of the important components and processes comprising an ecosystem that considers their functional relationship.						

Ocean Acidification (+0 FTE and +\$1,500,000) - In FY 2010, NMFS requests an increase of \$1,500,000 and 0 FTE to implement an integrated Ocean Acidification (OA) initiative to provide understanding, monitoring, and forecasting of how OA affects the Nation's ecosystems and living marine resources.

Proposed Actions

Ocean acidification (OA) is expected to alter marine ecosystems and fisheries by impairing growth, reproduction, and other physiological processes in a broad range of organisms including shellfish, corals, some plankton, and possibly finfish. These physiological effects have the potential to reverberate throughout the marine food web with expected, albeit unknown, repercussions for the abundance and distribution of fish and protected species and, in turn, for the coastal communities that depend on harvested living marine resources.

NOAA's Ecosystem Observations Program (EOP) provides the assessments required to manage the Nation's \$30 billion commercial and recreational fishing industry as well as threatened and endangered species, in addition to conducting research required to understand how those assessments are influenced by climatic and environmental processes. Regardless of whether OA affects NOAA-managed species directly or indirectly through food web effects, EOP must be able to account for them in its ecosystem assessments. If EOP cannot modify its assessments and harvest advice in response to OA, this will increase the potential for inaccurate assessments, lost economic benefit to the fishing industry, and delay the recovery of threatened and endangered species. Specific actions proposed are:

1. Physiological response research – Assess the vulnerability of NOAA-managed resources and their supporting ecosystems to OA. This will be done by conducting controlled laboratory and field experiments, both in-house and through competitive research grants.
2. Biological surveys – Support a coordinated effort across multiple NOAA offices to conduct surveys to (1) better characterize the changes in ocean chemistry and biological responses in deep ocean and coastal environments and (2) investigate OA effects on the Nation's living marine resources.

Statement of Need and Economic Benefits

The world oceans absorb nearly half of atmospheric CO₂. Increased CO₂ emissions to the atmosphere increase the amount absorbed by the oceans, leading to increased acidity of the oceans. This increased OA is expected to continue over the next century), and the resulting change to the marine ecosystem may affect marine nutrient cycles, phytoplankton growth, and living marine resources. Examples of possible changes are:

- Disruption of the reproductive success of commercially important species by reducing demersal egg adhesion or the fertilization success of eggs broadcast into the ocean
- Dissolution of coldwater corals, which provide shelter for many fish species.

The numerous pathways for effects (both direct and indirect) imply that OA may have important and widespread impacts on many marine species.

NOAA has specific management responsibilities for U.S. marine ecosystems and living marine resources. To meet these responsibilities requires an understanding of the status of these ecosystems and resources, as well as the environmental changes likely to affect them. NOAA's understanding of OA effects is limited and needs to be rapidly increased. NOAA must undertake a comprehensive, sustained, interdisciplinary program of observations, research, modeling, and assessments to understand OA and its effects on NOAA-managed resources.

Deliverables and Performance Goals

This initiative will:

- Support intensive field and laboratory physiological response research required to formulate OA-ecosystem impacts on associated living resources and socioeconomic models.
- Target OA physiological research on managed resources.
- Provide forecasts of OA impacts on the marine food web.
- Provide forecasts of the socioeconomic consequences of OA.

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of coastal, marine, and GL ecological characterizations						
With Increase	0	0	1	2	3	5
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number ecological characterizations the agency has completed. The operational product definition of an 'Ecological Characterization' is: data, graphic, and/or text descriptions of the important components and processes comprising an ecosystem that considers their functional relationship.						

Aquaculture (+1 FTE and +\$2,000,000) – NOAA requests an increase of \$2,000,000 and 1 FTE to increase NOAA’s aquaculture research capacity at NMFS’ Northeast Fisheries Science Center and Northwest Fisheries Science Center. NMFS will add staff and funding in these two science centers to bolster existing expertise and capacity in commercial marine aquaculture and marine stock enhancement research.

Proposed Actions

NOAA’s aquaculture research enterprise focuses on providing information to effectively assess marine aquaculture permit applications, developing aquaculture feeds that use less fish meal and fish oil, evaluating disease and other risks to coastal aquaculture, evaluating environmental impacts of coastal aquaculture, and developing stock enhancement to rebuild depleted species.

The proposed actions will provide the Northwest Fisheries Science Center and Northeast Fisheries Science Center \$1.0 million each to:

- Hire a scientist in each science center to initiate new aquaculture research projects.
- Replace outdated and/or inoperable tanks, filters, and feed production and other equipment needed to initiate new aquaculture research projects.
- Purchase laboratory instruments needed for genetic, physiological, and other analyses.
- Conduct collaborative research with other partners through grants and contracts.
- Maintain four new broodstocks for species that show promise for stock enhancement or commercial aquaculture (beginning with one new species in FY 2010 and adding one additional species per year in FY 2011–2012).

Statement of Need and Economic Benefits

Because the United States cannot meet current seafood demand with its existing seafood supply, over 80 percent of all seafood consumed in the United States is imported. With U.S. seafood demand expected to grow by over 2 million metric tons by 2025, the United States must either increase its reliance on imported seafood or increase its domestic seafood production. Increasing production of safe and sustainable seafood through domestic marine aquaculture is a proven and viable, as it would improve food security, provide domestic jobs, and ensure aquaculture operations operate in an environmentally sustainable manner.

Expansion of marine aquaculture requires a robust science and technology development effort to foster increased aquaculture production in a manner that ensures nutritional health and safeguards the environment. For example, additional science is needed to develop environmental protocols, develop alternative feeds, assess and minimize risks from disease, monitor and evaluate permit requests from commercial operations, conduct economic and social analysis, and explore the use of stock enhancement to rebuild depleted species and restore habitats.

A recent economic analysis indicates that adding just 25 domestic fish and shellfish farms over the next 10 to 15 years could yield tens of thousands of direct and indirect jobs and hundreds of millions of dollars in dockside value. Unfortunately, domestic companies have increasingly been forced to relocate overseas because it is too difficult to obtain permits to operate in the United States. Currently, there is no comprehensive permitting scheme for offshore aquaculture, and it is difficult to obtain permits for aquaculture in state waters due to numerous overlapping

regulatory requirements, competition for coastal land uses, and public perceptions of the potential risks. With this budget increase, NOAA will be able to develop permitting guidelines, review marine aquaculture permit applications, support stock enhancement programs, and inform habitat and other regulatory consultations, resulting in significant advances in NOAA’s capacity to issue or consult on marine aquaculture permits.

NMFS’ approach to strengthening aquaculture capacity is supported by the U.S. Commission on Ocean Policy and the U.S. Ocean Action Plan (2006); NOAA’s 10-Year Plan for Marine Aquaculture (DOC and NOAA, 2007); Summary of the National Marine Aquaculture Summit (DOC and NOAA, 2007); Food and Agriculture Organization World Review of Fisheries and Aquaculture (UN, 2006); the Government Accountability Office report on Offshore Marine Aquaculture (GAO, 2008); the Administration’s National Offshore Aquaculture Act of 2007 (proposed); the National Aquaculture Act of 1980 (as amended); and the DOC and NOAA Aquaculture Policies (1999 and 1998, respectively).

It is important that this increase be funded in FY 2010, because several important and time-sensitive research projects are required in FY 2010. For example:

- In January 2009, the Gulf of Mexico Fishery Management Council approved a fishery management plan (FMP) that authorizes NMFS to issue aquaculture permits for most species managed by the Gulf Council under the authority of the Magnuson-Stevens Fishery Conservation and Management Act. Given limited in-house capability for aquaculture science in the Gulf region, NFMS will require additional expertise and analysis from its Northwest and Northeast Fishery Science Centers to implement the FMP.
- Additional research is necessary in FY 2010 to understand why populations of wild and hatchery oysters on the West Coast are not reproducing normally, perhaps due to changing ocean climate in the region. This situation poses a significant risk to the entire West Coast oyster industry, as well as to efforts to restore wild populations.
- Additional research is necessary in FY 2010 to continue NOAA’s Alternative Feeds Initiative, which seeks to reduce the amount of fish meal and fish oil used in finfish aquaculture. This effort is strongly supported by a wide range of industry and enviromental groups.
- Additional research is necessary in FY 2010 to continue NOAA’s Shellfish and the Environment Initiative, which seeks to reduce impacts of coastal shellfish farming on the environment. This effort is strongly supported by a wide range of industry and enviromental groups.

Performance Goals and Measurement Data

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of disseminated (e.g. published in journals, publicized on websites, presented at meetings) results from scientific research, reviews, and analyses.						
With Increase	23	25	26	28	29	29
Without Increase	23	23	23	23	23	23

Cooperative Research (+0 FTE and +\$6,000,000) — NOAA requests an increase of \$6,000,000 and 0 FTE to expand cooperative research programs as required in the Magnuson Stevens Fishery Conservation and Management Reauthorization Act of 2006 (MSRA) Section 318(a). This funding will increase the number of fish assessments helping annual catch limits (ACL) decisions and help reduce bycatch and unintended and marine mortality with a focus on northeast groundfish. This is an important component of our overall FY 2010 MSRA funding request.

Proposed Activities

With this request, NMFS will expand its regionally-based cooperative research and management program consistent with the reauthorized MSRA 2006 Section 318(a). This program is required to address needs identified under this Act and other marine resource laws enforced by the Secretary. NMFS will provide funds on a competitive basis to address needs identified by the Councils in consultation with the Secretary and fisheries managers. Section 318 calls for cooperative efforts to specifically focus on the following key areas:

- collecting data to improve, supplement, or enhance stock assessments, including the use of fishing vessels or acoustic or other marine technology;
- assessing the amount and type of bycatch or post-release mortality occurring in a fishery;
- conducting conservation engineering projects designed to reduce bycatch, including avoidance of post-release mortality, reduction of bycatch in high seas fisheries, and transfer of such fishing technologies to other nations;
- identifying habitat areas of particular concern as well as conducting projects relevant to the conservation of habitat; and
- collecting and compiling economic and social data.

This funding request complements other efforts described within the Enforcement and the Fisheries Research and Management subactivities.

Statement of Need and Economic Benefits

MSRA Section 318 requires the cooperative research program to be conducted through partnerships among federal, state, and tribal managers and scientists (including interstate fishery commissions), fishing industry participants (including use of commercial charter or recreational vessels for gathering data), and educational institutions. This request will assist the agency in responding to recommendations made in the March 2009 OIG report calling for more targeted cooperative research with the Northeast groundfish industry.

Cooperative research provides a means for commercial and recreational fishermen to become involved in the collection of fundamental fisheries information. This involvement provides a means for stakeholders and fishermen to trust NOAA science and leads to well-informed fishing communities that are more supportive of management actions.

Performance Goals and Measure Data

Cooperative research is an important part of our high-priority MSRA funding increase requested for FY 2010. This increase will contribute the scientific and technical basis for setting Annual Catch Limits, a new requirement of the MSRA and support the GPRA measure:

Performance Goal: Percentage of Fish Stocks with Adequate Population Assessments and Forecasts, Measure 1b	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	57.0%	57.0%	57.0%	57.0%	57.0%	57.0%
Without Increase	57.0%	57.0%	55.7%	54.3%	53.0%	51.7%

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Cooperative Research (\$7,000); Information Analysis & Dissemination (\$19,000); National Environmental Policy Act (\$7,000); National Marine Fisheries Maintenance (\$20,000); Regional Studies (\$924,000); Bering Sea Fishermen's Association (\$190,000); Yukon River Drainage Association (\$180,000); Gulf of Alaska Coastal Communities Coalition (\$150,000); New England Multispecies Survey (\$3,000,000); Science Consortium for Ocean Replenishment (\$500,000); Lobster Institute CORE Initiative – University of Maine (\$150,000); Summer Flounder Initiative, NJ (\$1,000,000); Consortium for Wildlife Bycatch Reduction, MA & NH (\$1,250,000); Joint Institute for Marine and Atmospheric Research, HI (\$1,250,000); and James J. Howard Marine Science Laboratory (\$300,000).

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Marine Fisheries Service
 Subactivity: Other Activities Supporting Fisheries

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Research Biologist	Milford, CT	ZP-3	1	61,425	61,425
Research Biologist	Manchester, WA	ZP-3	1	59,978	59,978
Fisheries Biologist	Seattle, WA	ZP 2	2	40,527	81,054
Total			4		202,457
less Lapse			25.0%	1	50,614
Total full-time permanent (FTE)			3		151,843
2010 Pay Adjustment (2%)					3,037
TOTAL					154,880

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	3
Other than full-time permanent	0
Total	3
Authorized Positions:	
Full-time permanent	4
Other than full-time permanent	0
Total	4

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS

Activity: National Marine Fisheries Service
Subactivity: Other Activities Supporting Fisheries

Object Class	FY 2010 Increase
11.1 Full-time permanent	155
11.6 Leave Surcharge	36
11.9 Total Personnel Compensation	191
12.1 Civilian personnel benefits	66
21 Travel and transportation of persons	226
24 Printing and reproduction	2
25 Other contractual services	2
25.1 Advisory and assistance services	3
25.2 Other services	1,001
25.5 Research and development contracts	726
26 Supplies and materials	1,348
31 Equipment	380
41 Grants and fixed charges	6,755
99 Total Obligations	10,700

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Appropriation: Pacific Coastal Salmon Recovery Account
Activity: Pacific Coastal Salmon Recovery

The Pacific Coastal Salmon Recovery Fund account was established in 2000 to augment state, tribal, and local programs to conserve and restore sustainable Pacific salmon populations and their habitats. Through FY09, over \$800M has been provided to the states of California, Oregon, Washington, Alaska, and Idaho and the Pacific Coastal and Columbia River Tribes to supplement state and federal programs and promote the development of federal-state-tribal-local partnerships in salmon conservation efforts. The states and tribes have used these funds for restoration of salmon and steelhead populations that are listed as threatened or endangered, or identified by a state as at risk of such listing; for maintaining populations necessary for exercise of tribal treaty fishing rights or native subsistence fishing; or for restoration and conservation of Pacific coastal salmon and steelhead habitat.

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PROGRAM CHANGES FOR FY 2010:

Pacific Coastal Salmon Recovery Fund (+0 FTE and -\$35,000,000): NOAA requests a decrease of \$35,000,000 and 0 FTE from the Pacific Coastal Salmon Recovery Fund (PCSRF).

Statement of Need and Economic Benefits

Since 2000, NOAA's investment in cooperative salmon recovery efforts in Washington, Oregon, California, Idaho, and Alaska has restored nearly 650,000 acres of habitat and have protected and made accessible other habitat important to ESA-listed salmonids.

Proposed Actions

NOAA proposes to eliminate funding for this item. Resources will continue to be provided for ESA-listed salmon and steelhead populations through the expansion of the Species Recovery Grants Program. Grant funds will be used by partners to implement priority actions identified in NMFS Recovery Plans for listed species. Such actions may include restoring degraded habitat necessary for species recovery, mitigating incidental take of listed species, assessing status and monitoring population trends of listed and candidate species, conducting scientific research to evaluate threats to listed species and develop mitigation measures, educating the public about the conservation of ESA-listed species, and supporting multi-state and cross-jurisdictional conservation actions. Additional support for salmon conservation and recovery is provided through program increases for Pacific Salmon, the Species Recovery Grant program, and Salmon Management Activities.

PROPOSED LEGISLATION:

None.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Pacific Coastal Salmon Recovery Account
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	80,000	80,009
less: Terminations	0	0	(45,000)	(45,000)
less: obligations from prior year balances			0	(9)
FY 2010 Base	0	0	35,000	35,000
plus: 2010 Program Changes	0	0	(35,000)	(35,000)
FY 2010 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Pacific Coastal Salmon Recovery Account	Pos/BA	0	66,933	0	80,000	0	35,000	0	0	0	(35,000)
	FTE/OBL	0	66,933	0	80,009	0	35,000	0	0	0	(35,000)
Total: Pacific Coastal Salmon Recovery Account	Pos/BA	0	66,933	0	80,000	0	35,000	0	0	0	(35,000)
	FTE/OBL	0	66,933	0	80,009	0	35,000	0	0	0	(35,000)

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Account
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	66,933	0	80,009	0	35,000	0	0	0	(35,000)
Total Obligations	0	66,933	0	80,009	0	35,000	0	0	0	(35,000)
Adjustments to Obligations:										
Unobligated balance, expiring	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(9)	0	(9)	0	0	0	0	0	0
Unobligated balance, adj. EOY	0	9	0	0	0	0	0	0	0	0
Total Budget Authority	0	66,933	0	80,000	0	35,000	0	0	0	(35,000)
Financing from Transfers and Other:										
Transfer to ORF	0	67	0	0	0	0	0	0	0	0
Net Appropriation	0	67,000	0	80,000	0	35,000	0	0	0	(35,000)

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Account
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	66,933	80,009	35,000	0	(35,000)
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(9)	(9)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	9	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	66,933	80,000	35,000	0	(35,000)
Financing:					
Transfer to other accounts	67	0	0	0	0
Appropriation	67,000	80,000	35,000	0	(35,000)

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Pacific Coastal Salmon Recovery Account
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Activity: National Marine Fisheries Service
 Subactivity: Pacific Coast Salmon Recovery Fund

	Object Class	FY2010 Decrease
41	Grants, subsidies and contributions	(35,000)
99	Total Obligations	(35,000)

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Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

Object Class	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
11 Personnel compensation					
11.1 Full-time permanent	0	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	0	0	0	0	0
12.1 Civilian personnel benefits	0	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	0	0	0	0	0
22 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	0	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Commun., util., misc. charges	0	0	0	0	0
24 Printing and reproduction	0	0	0	0	0
25.2 Other services	0	0	0	0	0
26 Supplies and materials	0	0	0	0	0
31 Equipment	0	0	0	0	0
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	66,933	80,009	35,000	0	(35,000)
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total Obligations	66,933	80,009	35,000	0	(35,000)

Department of Commerce
 National Oceanic and Atmospheric Administration
 Pacific Coastal Salmon Recovery Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(9)	(9)	0	0	0
Plus unobligated balance, EOY	9	0	0	0	0
Unobligated Balance, expiring	0	0	0	0	0
Total Budget Authority	66,933	80,000	35,000	0	(35,000)

Personnel Data

<u>Full-Time equivalent</u>					
Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Appropriation: Fishermen's Contingency Fund

The Fishermen's Contingency Fund is authorized under Section 402 of Title IV of the Outer Continental Shelf Lands Act Amendments of 1978. NOAA compensates U.S. commercial fishermen for damage or loss of fishing gear, vessels, and resulting economic loss caused by obstructions related to oil and gas exploration, development, and production in any area of the Outer Continental Shelf. The funds used to provide this compensation are derived from fees collected on an annual basis by the Secretary of the Interior from the holders of leases, exploration permits, easements, or rights-of-way in areas of the Outer Continental Shelf.

This activity is funded totally through user fees. Disbursements can be made only to the extent authorized in appropriation acts.

PROGRAM CHANGES FOR FY 2010:

No program change is requested in this activity.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Fishermen's Contingency Fund
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	1	1	0	186
plus: obligations from prior year balances	0	0	0	(186)
FY 2010 Base	1	1	0	0
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	1	1	0	0

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals	Personnel	Enacted	Personnel	Base Program	Personnel	Estimate	Personnel	Personnel	Amount
Fishermen's Contingency Fund	Pos/BA	0	0	1	0	1	0	1	0	0	0
	FTE/OBL	0	228	1	186	1	0	1	0	0	0
Total: Fishermen's Contingency Fund	Pos/BA	0	0	1	0	1	0	1	0	0	0
	FTE/OBL	0	228	1	186	1	0	1	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fishermen's Contingency Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	228	1	186	1	0	1	0	0	0
Total Obligations	0	228	1	186	1	0	1	0	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(414)	0	(186)	0	0	0	0	0	0
Unobligated balance, EOY	0	186	0	0	0	0	0	0	0	0
Total Budget Authority	0	0	1	0	1	0	1	0	0	0
Financing from Transfers and Other:	0	0	0	0	0	0	0	0	0	0
Net Appropriation	0	0	1	0	1	0	1	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fishermen’s Contingency Fund
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	228	186	0	0	0
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(414)	(186)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	186	0	0	0	0
Unobligated balance, rescission	0	0	0	0	0
Budget Authority	0	0	0	0	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

		2008	2009	2010	2010	Increase/ (Decrease) over 2010 Base
Object Class		Actuals	Enacted	Base	Estimate	Base
42	Insurance claims and indemnities	228	186	0	0	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total Obligations	228	186	0	0	0
	Less prior year recoveries	0	0	0	0	0
	Less unobligated balance, SOY	(414)	(186)	0	0	0
	Plus unobligated balance, EOY	186	0	0	0	0
	Total Budget Authority	0	0	0	0	0
Personnel Data						
Full-Time equivalent						
Employment:						
	Full-time permanent	0	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	0	1	1	1	0
Authorized Positions:						
	Full-time permanent	0	1	1	1	0
	Other than full-time permanent	0	0	0	0	0
	Total	0	1	1	1	0

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Appropriation: 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 (such fishing requires a permit issued under the Magnuson-Stevens Act). This includes longline vessels fishing in the Atlantic billfish and shark fishery and other foreign vessels fishing in the EEZ. The fund is used by NOAA to pay salaries, administrative costs, data editing and entry costs, and other costs incurred in placing observers aboard foreign fishing vessels. The observer program is conducted primarily through contracts with the private sector. NOAA/NMFS places these observers aboard foreign fishing vessels to monitor compliance with U.S. fishery laws and to collect fishery management data. Amounts available in the fund can be disbursed only to the extent and in amounts provided in appropriation acts.

In FY 1985 Congress approved the establishment of a supplemental observer program. The program provided that foreign vessels without federally funded observers are required to obtain the services of private contractors certified by the Secretary of Commerce.

PROGRAM CHANGES FOR FY 2010:

No program changes are requested for this activity.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Foreign Fishing Observer Fund
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	0	261
plus: 2010 Obligations from prior year balances	0	0	0	0
FY 2010 Base	0	0	0	261
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	0	261

Comparison by activity/subactivity		FY 2008 Actuals		FY 2009 Enacted		FY 2010 Base Program		FY 2010 Estimate		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	261	0	261	0	261	0	0
Total: Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	261	0	261	0	261	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Foreign Fishing Observer Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	0	0	261	0	261	0	261	0	0
Total Obligations	0	0	0	261	0	261	0	261	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(522)	0	(522)	0	(261)	0	(261)	0	0
Unobligated balance, EOY	0	522	0	261	0	0	0	0	0	0
Total Budget Authority	0	0	0	0	0	0	0	0	0	0
Financing from Transfers and Other:	0	0	0	0	0	0	0	0	0	0
Net Appropriation	0	0	0	0	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Foreign Fishing Observer Fund
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	0	261	261	261	0
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(522)	(522)	(261)	(261)	0
Unobligated balance, end of year	522	261	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, rescission	0	0	0	0	0
Budget Authority	0	0	0	0	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Foreign Fishing Observer Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

		2008	2009	2010	2010	Increase/ (Decrease) over 2010 Base
<u>Object Class</u>		Actuals	Enacted	Base	Estimate	Base
11	Personnel compensation					
11.1	Full-time permanent	0	0	0	0	0
11.3	Other than full-time permanent	0	0	0	0	0
11.5	Other personnel compensation	0	0	0	0	0
11.8	Special personnel services payments	0	0	0	0	0
11.9	Total personnel compensation	0	0	0	0	0
12.1	Civilian personnel benefits	0	0	0	0	0
13	Benefits for former personnel	0	0	0	0	0
21	Travel and transportation of persons	0	0	0	0	0
22	Transportation of things	0	0	0	0	0
23.1	Rental payments to GSA	0	0	0	0	0
23.2	Rental payments to others	0	0	0	0	0
23.3	Commun., util., misc. charges	0	0	0	0	0
24	Printing and reproduction	0	0	0	0	0
25.2	Other services	0	0	0	0	0
26	Supplies and materials	0	0	0	0	0
31	Equipment	0	0	0	0	0
32	Lands and structures	0	0	0	0	0
33	Investments and loans	0	0	0	0	0
41	Grants, subsidies and contributions	0	0	0	0	0
42	Insurance claims and indemnities	0	261	261	261	0
43	Interest and dividends	0	0	0	0	0
44	Refunds	0	0	0	0	0
99	Total Obligations	0	261	261	261	0
	Less prior year recoveries	0	0	0	0	0
	Less unobligated balance, SOY	(522)	(522)	(261)	(261)	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Foreign Fishing Observer Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Plus unobligated balance, EOY	522	261	0	0	0
Unobligated balance, rescinded	0	0	0	0	0
Total Budget Authority	0	0	0	0	0

Personnel Data

Full-Time equivalent					
Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Appropriation: Fisheries Finance Program

The Fisheries Finance Program (FFP) is a national loan program that makes long-term fixed-rate financing available to U.S. citizens who otherwise qualify for financing or refinancing the construction, reconstruction, reconditioning, and, in some cases, the purchasing of fishing vessels, shoreside processing, aquaculture, and mariculture facilities. The purpose of these loans is to provide stability to at least one aspect of an otherwise volatile industry. The FFP also provides fishery-wide financing to ease the transition to sustainable fisheries through its fishing capacity reduction programs and provides financial assistance in the form of loans to fishermen who fish from small vessels and entry-level fishermen to promote stability and reduce consolidation in already rationalized fisheries. Additionally, FFP can provide loans for fisheries investments of Native American Community Development Quota groups.

The FFP operates under the authority of Title XI of the Merchant Marine Act of 1936, as amended; Section 303(a) of the Sustainable Fisheries Act amendments to the Magnuson-Stevens Act; and, from time to time FFP-specific legislation. FFP lending practices are guided by Title XI, general rules implementing Title XI (found at 50 CFR part 253, subpart B), NOAA's sustainable fisheries policy, and the practical considerations of a program that has continually not required an appropriation of loan loss subsidy under the Federal Credit Reform Act, as discussed below. The overriding guideline for all FFP financings is that they cannot contribute or be construed to contribute to an increase in existing fishing capacity.

All FFP authority is subject to the Federal Credit Reform Act of 1990 (FCRA) (2 U.S.C. 661) which requires the estimated loan losses (FCRA cost) be appropriated in cash at the time Congress authorizes annual credit ceilings. Some types of FFP loans require no FCRA subsidy appropriations because these types of loans have historically not required additional loan subsidy. However, specific loan ceilings for each type of loan authority must be included in appropriation language or other bill language regardless of the need for cash appropriations.

PROPOSED LEGISLATION:

2 U.S.C. 661

Subject to section 502 of the Congressional Budget Act of 1974, during fiscal year 2009 2010, obligations of direct loans may not exceed \$8,000,000 for Individual Fishing Quota loans and not to exceed \$59,000,000 for traditional direct loans as authorized by the Merchant Marine Act of 1936: Provided, That none of the funds made available under this heading may be used for direct loans for any new fishing vessel that will increase the harvesting capacity in any United States fishery. (Department of Commerce Appropriations Act, 2009)

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PROGRAM CHANGES FOR FY 2010:

NOAA proposes no funds for the Fisheries Finance Program (FFP) account. The FY 2010 budget proposal includes two loan cohorts that have an estimated negative subsidy rate.

Statement of Need

The first proposed loan program is for \$8 million for Individual Fishing Quota (IFQ) Loans. The Sustainable Fisheries Act (SFA), Public Law 104-297, Section 108, October 11, 1996, authorized the North Pacific Loan Program under the FFP to finance and refinance IFQ in the Northwest Halibut and Sablefish Fisheries. The Fisheries of the Exclusive Economic Zone Off Alaska; Allocating Bering Sea and Aleutian Islands King and Tanner Crab Fishery Resources; Final Rule, 15 CFR Part 90 and CFR 679 and 6805 authorized financing and refinancing of the purchase cost of IFQ in Bering Sea and Aleutian Islands crab fisheries, under the provision of the SFA, Section 108. Financing under this program is available to entry-level fishermen and fishermen who fish from small vessels. The loan program is part of the limited entry fisheries management program that stabilized these fisheries.

In addition to the financing and refinancing of IFQ, the FFP provides long-term financing and refinancing for fisheries facilities and aquaculture facilities, and refinancing under varying conditions for fishing vessels (FFP traditional lending). Under the Federal Credit Reform Act (FCRA), both the historic FFP IFQ lending and FFP traditional lending activity have resulted in negative subsidy rates as calculated under FCRA. Because the program's subsidy rate is negative, a subsidy cost appropriation is not required to conduct lending activity; only an annual authorization of loan ceiling is required. Historically, the FFP traditional lending has received annual authorized credit ceiling of \$59 million. This lending authority has benefited highly qualified fisheries businesses in the seafood processing, harvesting, and aquaculture sectors.

The availability of these loan tools allows NOAA to work with the industry and help them continue their operations during difficult periods of reduced catch caused by natural events or fisheries management requirements. Also, payment of some of the costs associated with the foreclosure of assets requires the use of loan authority. Traditional FFP direct loan financing offers the fishing industry slightly better interest rates and longer-term loans than are available elsewhere. The longer term allows the industry to amortize their capital investment over the actual economic life of the fisheries asset. Lower debt service reduces economic pressure, thus allowing the borrower to more easily accommodate more restrictive fishery management initiatives.

Benefits

Three major benefits will accrue from this action. First, the IFQ loan program is part of the Northwest Halibut and Sablefish and BSAI Crab limited entry fisheries management program that continues to stabilize these fisheries. Second, FFP traditional lending is harvesting-capacity-neutral and supports qualified established U.S. seafood companies operating in a sustainable fisheries environment. Last, FFP lending to marine aquaculture facilities contributes to the development of a promising avenue of seafood production and greater economic sustainability from U.S. ocean resources.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Finance Program Account
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted		0	1,996	1,996
less: 2010 Adjustments to Base	0	0	(1,996)	(1,996)
less: Negative Subsidy Receipts Adjustment	0	0	0	0
FY 2010 Base	0	0	0	0
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Financing Program Account	Pos/BA	0	27,624	0	1,996	0	0	0	0	0	0
	FTE/OBL	0	27,389	0	1,996	0	0	0	0	0	0
Total: Fisheries Financing Program Account	Pos/BA	0	27,624	0	1,996	0	0	0	0	0	0
	FTE/OBL	0	27,389	0	1,996	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Finance Program Account
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Cost Loan Subsidy	0	0	0	0	0	0	0	0	0	0
Credit Reestimates	0	27,389	0	1,996	0	0	0	0	0	0
Total Obligations	0	27,389	0	1,996	0	0	0	0	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(2,928)	0	(3,163)	0	(3,163)	0	(3,163)	0	0
Unobligated balance, EOY	0	3,163	0	3,163	0	3,163	0	3,163	0	0
Unobligated balance, expiring	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	0	27,624	0	1,996	0	0	0	0	0	0
Financing from Transfers and Other:										
Less: Permanent Indefinite Authority (Mandatory)	0	(27,389)	0	(1,996)	0	0	0	0	0	0
Transfer from ORF	0	(235)	0	(495)	0	0	0	0	0	0
Transfer from Pacific Salmon	0	0	0	0	0	0	0	0	0	0
Net Appropriation	0	0	0	(495)	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Finance Program Account
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Cost Loan Subsidy	0	0	0	0	0
Credit Re-estimates	27,389	1,996	0	0	0
Total Obligations	27,389	1,996	0	0	0
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(2,928)	(3,163)	(3,163)	(3,163)	0
Unobligated balance transferred	0	3,163	3,163	3,163	0
Unobligated balance, end of year	3,163	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Mandatory Appropriation	0	0	0	0	0
Budget Authority	27,624	1,996	0	0	0
Financing:					
Less: Permanent Indefinite Authority (Mandatory)	(27,389)	(1,996)	0	0	0
Transfer to other accounts	(235)	(495)	0	0	0
Appropriation	0	(495)	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Finance Program Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

Object Class	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
11 Personnel compensation					
11.1 Full-time permanent	0	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	0	0	0	0	0
12.1 Civilian personnel benefits	0	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	0	0	0	0	0
22 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	0	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Commun., util., misc. charges	0	0	0	0	0
24 Printing and reproduction	0	0	0	0	0
25.2 Other services	0	0	0	0	0
26 Supplies and materials	0	0	0	0	0
31 Equipment	0	0	0	0	0
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	27,389	1,996	0	0	0
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total Obligations	27,389	1,996	0	0	0
Less prior year recoveries	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Finance Program Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Less unobligated balance, SOY	(2,928)	(3,163)	(3,163)	(3,163)	0
Plus unobligated balance, EOY	3,163	3,163	3,163	3,163	0
Mandatory Appropriation	0	0	0	0	0
Total Budget Authority	27,624	1,996	0	0	0

Personnel Data

Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Appropriation: Promote and Develop Fisheries Products

The American Fisheries Promotion Act (AFPA) of 1980 amended the Saltonstall-Kennedy (S-K) Act to authorize a grants program for fisheries research and development projects to be carried out with S-K funds. S-K funds are derived from a transfer from the Department of Agriculture to NOAA from duties on imported fisheries products. An amount equal to 30% of these duties is made available to NOAA and, subject to appropriation, is available to carry out the purposes of the AFPA. The S-K grants program has provided substantial assistance to address impediments to the management, development, and utilization of the Nation's living marine resources. Each year a *Federal Register* notice is published announcing the program. The annual notice outlines priority areas, such as research on reduction/elimination of bycatch and aquaculture. The remainder of the S-K funds transferred is used to offset the appropriation requirements of the Operations, Research, and Facilities account.

PROGRAM CHANGES FOR FY 2010:

None

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Promote and Develop Fisheries Products
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Mandatory Authority	4	4	29,510	29,725
less: Obligations from prior year balances	0	0	0	(215)
<i>plus: 2010 Adjustments to Base</i>	0	0	<i>(20,110)</i>	<i>(20,110)</i>
FY 2010 Base	4	4	9,400	9,400
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	4	4	9,400	9,400

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate		Personnel	Amount
Promote and Develop Fisheries Products	Pos/BA	3	7,594	4	29,510	4	9,400	4	9,400	0	0
	FTE/OBL	3	8,203	4	29,725	4	9,400	4	9,400	0	0
Total: Promote and Develop Fisheries Products	Pos/BA	3	7,594	4	29,510	4	9,400	4	9,400	0	0
	FTE/OBL	3	8,203	4	29,725	4	9,400	4	9,400	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Promote and Develop Fisheries Products
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	3	8,203	4	29,725	4	9,400	4	9,400	0	0
Total Obligations	3	8,203	4	29,725	4	9,400	4	9,400	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(666)	0	(215)	0	0	0	0	0	0
Recoveries	0	(158)	0	0	0	0	0	0	0	0
Unobligated balance, adj. EOY	0	215	0	0	0	0	0	0	0	0
Total Budget Authority	3	7,594	4	29,510	4	9,400	4	9,400	0	0
Financing from Transfers and Other:										
Transfer from Other Accounts	0	(84,594)	0	(108,510)	0	(114,000)	0	(114,000)	0	0
Transfer to ORF	0	77,000	0	79,000	0	104,600	0	104,600	0	0
Net Appropriation	3	0	4	0	4	0	4	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Promote and Develop Fisheries Products
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	8,203	29,725	9,400	9,400	0
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	(158)	0	0	0	0
Unobligated balance, start of year	(666)	(215)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	215	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	7,594	29,510	9,400	9,400	0
Financing:					
Transfer from other accounts	(84,594)	(108,510)	(114,000)	(114,000)	0
Transfer to other accounts	77,000	79,000	104,600	104,600	0
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

Object Class	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
11 Personnel compensation					
11.1 Full-time permanent	0	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	0	0	0	0	0
12.1 Civilian personnel benefits	0	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	0	0	0	0	0
22 Transportation of things	0	0	0	0	0
23.1 Rental payments to GSA	0	0	0	0	0
23.2 Rental payments to others	0	0	0	0	0
23.3 Commun., util., misc. charges	0	0	0	0	0
24 Printing and reproduction	0	0	0	0	0
25.2 Other services	0	0	0	0	0
26 Supplies and materials	0	0	0	0	0
31 Equipment	0	0	0	0	0
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	8,203	29,725	9,400	9,400	0
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total Obligations	8,203	29,725	9,400	9,400	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Promote and Develop Fisheries Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Less prior year recoveries	(158)	0	0	0	0
Less unobligated balance, SOY	(666)	(215)	0	0	0
Plus unobligated balance, EOY	215	0	0	0	0
Total Budget Authority	7,594	29,510	9,400	9,400	0

Personnel Data

Full-Time equivalent

Employment:

Full-time permanent	3	4	4	4	0
Other than full-time permanent	0	0	0	0	0
Total	3	4	4	4	0

Authorized Positions:

Full-time permanent	3	4	4	4	0
Other than full-time permanent	0	0	0	0	0
Total	3	4	4	4	0

Appropriation: Federal Ship Financing Fund

GOAL STATEMENT:

To provide for a liquidating account necessary for the collection of premiums and fees under the Fishing Vessel Obligations Guarantee program for loan commitments made prior to October 1, 1991. These collections are for operations of this program, loans, and for use in case of default.

BASE DESCRIPTION:

The Federal Ship Financing Fund manages the loan guarantee portfolio that existed prior to FY 1992. Administrative expenses for management of the loan guarantee portfolio were charged to the Federal Ship Financing Fund prior to the enactment of the Federal Credit Reform Act of 1990. Currently administrative expenses are charged to the Operations, Research, and Facilities (ORF) account.

PROPOSED LEGISLATION:

No legislation is proposed.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Federal Ship Financing Account
PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	(773)	221
plus: 2010 Adjustments to Base	0	0	773	(221)
FY 2010 Base	0	0	0	0
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2008 Actuals		FY 2009 Enacted		FY 2010 Base Program		FY 2010 Estimate		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Federal Ship Financing Fund	Pos/BA	0	(156)	0	(773)	0	0	0	0	0	0
	FTE/OBL	0	1	0	221	0	0	0	0	0	0
Total: Federal Ship Financing Fund	Pos/BA	0	(156)	0	(773)	0	0	0	0	0	0
	FTE/OBL	0	1	0	221	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Federal Ship Financing Account
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount		
Direct Discretionary Obligation	0	1	0	221	0	0	0	0	0	0
Offsetting collections, mandatory	0	0	0	0	0	0	0	0	0	0
Total Obligations	0	1	0	221	0	0	0	0	0	0
Adjustments to Obligations:										
Offsetting Collections	0	(157)	0	(994)	0	0	0	0	0	0
Total Budget Authority	0	(156)	0	(773)	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Federal Ship Financing Account
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	1	221	0	0	0
Offsetting collections from:					
Federal funds	(157)	(994)	0	0	0
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
Unobligated balance, start of year	0	0	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	0	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	(156)	(773)	0	0	0
Financing:					
Transfer to other accounts	156	0	0	0	0
Appropriation	0	(773)	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Federal Ship Financing Account
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

Object Class	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
Investments and loans	1	221	0	0	0
Total Obligations	1	221	0	0	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	0	0	0	0	0
Plus unobligated balance, EOY	0	0	0	0	0
Mandatory Appropriation	0	0	0	0	0
Less Offsetting Collections	(157)	(994)	0	0	0
Total Budget Authority	(156)	(773)	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

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Appropriation: Environmental Improvement & Restoration Fund

GOAL STATEMENT:

The Environmental Improvement & Restoration Fund (EIRF) was created by the Department of Interior and Related Agencies Appropriations Act of 1998 for the purpose of carrying out marine research activities in the North Pacific. These funds will provide grants to Federal, State, private or foreign organizations or individuals to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean.

BASE DESCRIPTION:

The EIRF provides funds for the purpose of carrying out marine research activities in the North Pacific. These funds will provide grants to Federal, State, private or foreign organizations or individuals to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean.

PROPOSED LEGISLATION:

None

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Environmental Improvement and Restoration Fund
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	1,198	10,520
less: obligations from prior year balances	0	0	0	(9,322)
plus: 2010 Adjustments to Base	0	0	2,521	2,521
FY 2010 Base	0	0	3,719	3,719
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	3,719	3,719

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Environmental Improvement & Restoration Fund	Pos/BA	0	9,322	0	1,198	0	3,719	0	3,719	0	0
	FTE/OBL	0	8,650	0	10,520	0	3,719	0	3,719	0	0
Total: Environmental Improvement & Restoration Fund	Pos/BA	0	9,322	0	1,198	0	3,719	0	3,719	0	0
	FTE/OBL	0	8,650	0	10,520	0	3,719	0	3,719	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
SUMMARY OF RESOURCE REQUIREMENTS
(Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	8,650	0	10,520	0	3,719	0	3,719	0	0
Total Obligations	0	8,650	0	10,520	0	3,719	0	3,719	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(8,650)	0	(9,322)	0	0	0	0	0	0
Unobligated balance, EOY	0	9,322	0	0	0	0	0	0	0	0
Total Budget Authority	0	9,322	0	1,198	0	3,719	0	3,719	0	0
Financing from Transfers and Other:										
Net Appropriation	0	9,322	0	1,198	0	3,719	0	3,719	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
SUMMARY OF FINANCING
(Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	8,650	10,520	3,719	3,719	0
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(8,650)	(9,322)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	9,322	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	9,322	1,198	3,719	3,719	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	9,322	1,198	3,719	3,719	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Environmental Improvement and Restoration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

<u>Object Class</u>	2008	2009	2010	2010	Increase/ (Decrease) over 2010 Base
	Actuals	Enacted	Base	Estimate	
Personnel compensation					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Other personnel compensation	0	0	0	0	0
Special personnel services payments	0	0	0	0	0
Total personnel compensation	0	0	0	0	0
Civilian personnel benefits	0	0	0	0	0
Benefits for former personnel	0	0	0	0	0
Travel and transportation of persons	0	0	0	0	0
Transportation of things	0	0	0	0	0
Rental payments to GSA	0	0	0	0	0
Rental payments to others	0	0	0	0	0
Commun., util., misc. charges	0	0	0	0	0
Printing and reproduction	0	0	0	0	0
Other services	0	0	0	0	0
Supplies and materials	0	0	0	0	0
Equipment	0	0	0	0	0
Lands and structures	0	0	0	0	0
Investments and loans	0	0	0	0	0
Grants, subsidies and contributions	8,650	10,520	3,719	3,719	0
Insurance claims and indemnities	0	0	0	0	0
Interest and dividends	0	0	0	0	0
Refunds	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Environmental Improvement and Restoration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Total Obligations	8,650	10,520	3,719	3,719	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(8,650)	(9,322)	0	0	0
Plus unobligated balance, EOY	9,322	0	0	0	0
Total Budget Authority	9,322	1,198	3,719	3,719	0

Personnel Data

<hr/>					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Appropriation: Limited Access System Administration

GOAL STATEMENT:

To provide for a Limited Access Fund necessary for fee collections equaling no more than three percent of the proceeds from the sale or transfer of limited access system permits are deposited into the Fund. These deposits to the Fund are used to administer an exclusive central registry system for the limited access system permits.

BASE DESCRIPTION:

Under the authority of the Magnuson-Stevens Act Section 304(d)(2)(A), NMFS must collect a fee to recover the costs of managing and enforcing the Individual Fishing Quota Halibut/Sablefish program. Funds collected under this authority are deposited into the "Limited Access System Administrative Fund." Of the funds collected, seventy-five percent of fee payments are to be made available to the Secretary to offset costs of management and enforcement of the halibut and sablefish IFQ program and 25 percent of fees collected are to be made available for appropriation to support the North Pacific IFQ loan program.

Section 304(d)(2)(B) specifies an upper limit on the fees, when the fees must be collected, where the fees must be deposited, and for what purposes they may be used. Under the regulations, an IFQ permit holder incurs a cost recovery fee liability for each pound of fish landed on his/her permit(s). The permit holder is responsible for collecting the fee and for submitting a payment to NMFS by the 31st of January of the year following the year in which landings were made. Three percent of total ex-vessel value of IFQ halibut and sablefish harvested is the maximum annual fee amount authorized by section 304(d)(2)(B) of MSA. NOAA Fisheries may reduce the annual IFQ fee percentage if costs can be recovered using a lower percentage. The annual default percentage is three percent. If other than three percent, NOAA Fisheries publishes notification of adjustment of the annual IFQ fee percentage in the Federal Register.

PROPOSED LEGISLATION:

None.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Limited Access System Administration Fund
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	7,444	22,667
less: 2010 Obligations from Prior Year Balances	0	0	0	(15,223)
FY 2010 Base	0	0	7,444	7,444
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	7,444	7,444

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate			
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Limited Access System	Pos/BA	36	10,268	0	7,444	0	7,444	7,444		0	0
Administration Fund	FTE/OBL	34	6,251	0	22,667	0	7,444	7,444		0	0
Total: Limited Access System	Pos/BA	36	10,268	0	7,444	0	7,444	0	7,444	0	0
Administration Fund	FTE/OBL	34	6,251	0	22,667	0	7,444	0	7,444	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Limited Access System Administration Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	34	6,251	0	22,667	0	7,444	0	7,444	0	0
Total Obligations	34	6,251	0	22,667	0	7,444	0	7,444	0	0
Adjustments to Obligations:										
Recoveries	0	(316)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(10,890)	0	(15,223)	0	0	0	0	0	0
Unobligated balance, EOY	0	15,223	0	0	0	0	0	0	0	0
Total Budget Authority	34	10,268	0	7,444	0	7,444	0	7,444	0	0
Financing from Transfers and Other:										
Net Appropriation	34	10,268	0	7,444	0	7,444	0	7,444	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Limited Access System Administration Fund
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	6,251	22,667	7,444	7,444	0
Offsetting collections from:					
Federal funds	0	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	(316)	0	0	0	0
Unobligated balance, start of year	(10,890)	(15,223)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	15,223	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	10,268	7,444	7,444	7,444	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	10,268	7,444	7,444	7,444	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Limited Access System Administration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

<u>Object Class</u>	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
11 Personnel compensation					
11.1 Full-time permanent	1,997	0	0	0	0
11.3 Other than full-time permanent	21	0	0	0	0
11.5 Other personnel compensation	302	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	2,320	0	0	0	0
12.1 Civilian personnel benefits	1,095	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	154	0	0	0	0
22 Transportation of things	2	0	0	0	0
23.1 Rental payments to GSA	114	0	0	0	0
23.2 Rental payments to others	1	0	0	0	0
23.3 Commun., util., misc. charges	9	0	0	0	0
24 Printing and reproduction	8	0	0	0	0
25.2 Other services	581	0	0	0	0
25.3 Purchases of goods & svcs from Govt accounts	186				
26 Supplies and materials	115	0	0	0	0
31 Equipment	68	0	0	0	0
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	1,598	22,667	7,444	7,444	0
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Limited Access System Administration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

99	Total Obligations	6,251	22,667	7,444	7,444	0
	Less prior year recoveries	(316)	0	0	0	0
	Less unobligated balance, SOY	(10,890)	(15,223)	0	0	0
	Plus unobligated balance, EOY	15,223	0	0	0	0
	Total Budget Authority	10,268	7,444	7,444	7,444	0

Personnel Data

Full-Time equivalent

Employment:

Full-time permanent

34	0	0	0	0	0
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Other than full-time permanent

0	0	0	0	0	0
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Total

34	0	0	0	0	0
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Authorized Positions:

Full-time permanent

36	0	0	0	0	0
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Other than full-time permanent

0	0	0	0	0	0
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Total

36	0	0	0	0	0
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Appropriation: Marine Mammal Unusual Mortality Event Fund

GOAL STATEMENT:

Provide funds to support investigations and responses to unusual marine mammal mortality events.

BASE DESCRIPTION:

An unusual mortality event (UME) is defined under the Marine Mammal Protection Act as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." In recent years, increased efforts to examine carcasses and live stranded animals have improved the knowledge of mortality rates and causes, allowing a better understanding of population threats and stressors and the ability to determine when a situation is "unusual." Understanding and investigating marine mammal UMEs is important because they can serve as indicators of ocean health, giving insight into larger environmental issues which may also have implications for human health and welfare.

The Marine Mammal Protection Act Section 405 (16 USC 1421d) establishes the Marine Mammal Unusual Mortality Event Fund and describes its purposes and how donations can be made to the Fund. The

fund: "shall be available only for use by the Secretary of Commerce, in consultation with the Secretary of the Interior –

- to compensate persons for special costs incurred in acting in accordance with the contingency plan issued under section 1421c(b) of this title or under the direction of an Onsite Coordinator for an unusual mortality event;
- for reimbursing any stranding network participant for costs incurred in preparing and transporting tissues collected with respect to an unusual mortality event for the Tissue Bank; and
- for care and maintenance of marine mammal seized under section 1374(c)(2)(D) of this title"

According to the MMPA, deposits can be made into Fund by the following:

- 1) "amounts appropriated to the Fund;
- 2) other amounts appropriated to the Secretary for use with respect to unusual mortality events; and
3. amounts received by the United States in the form of gifts, devises, and bequests under subsection (d) of this section."

PROPOSED LEGISLATION:

None.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Marine Mammal Unusual Mortality Event Fund
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	0	286
less: 2010 Obligations from prior year balances	0	0	0	0
FY 2010 Base	0	0	0	286
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	0	286

Comparison by activity/subactivity		FY 2008 Actuals		FY 2009 Enacted		FY 2010 Base Program		FY 2010 Estimate		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	163	0	286	0	286	0	286	0	0
Total: Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	163	0	286	0	286	0	286	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Marine Mammal Unusual Mortality Event Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	163	0	286	0	286	0	286	0	0
Total Obligations	0	163	0	286	0	286	0	286	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(735)	0	(572)	0	(286)	0	(286)	0	0
Unobligated balance, EOY	0	572	0	286	0	0	0	0	0	0
Total Budget Authority	0	0	0	0	0	0	0	0	0	0
Financing from Transfers and Other:										
Net Appropriation	0	0	0	0	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Marine Mammal Unusual Mortality Event Fund
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Discretionary Obligations	163	286	286	286	0
Total Obligations	163	286	286	286	0
Adjustments to Obligations:					
Unobligated balance, start of year	(735)	(572)	(286)	(286)	0
Unobligated balance, end of year	572	286	0	0	0
Budget Authority	0	0	0	0	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Marine Mammal Unusual Mortality Event Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

<u>Object Class</u>	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ (Decrease) over 2010 Base
11 Personnel compensation					
11.1 Full-time permanent	0	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	0	0	0	0	0
12.1 Civilian personnel benefits	0	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	0	0	0	0	0
22 Transportation of things	0	0	0	0	0
25.2 Other services	163	286	286	286	0
99 Total Obligations	163	286	286	286	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(735)	(572)	(286)	(286)	0
Plus unobligated balance, EOY	572	286	0	0	0
Total Budget Authority	0	0	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Marine Mammal Unusual Mortality Event Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
	<hr/>				
Total	0	0	0	0	0

Appropriation: Fisheries Conservation and Management Fund

GOAL STATEMENT:

The goal of this account to provide dedicated funding to address the growing need for fisheries technology, science, and related information.

BASE DESCRIPTION:

Section 208 of Public Law 109-479 established the Fisheries Conservation and Management Fund for the following activities:

- Efforts to improve collection of fishery harvest data, including (1) expanding the use of electronic catch reporting programs and technology and (2) improving monitoring and observer coverage through the expanded use of electronic monitoring devices and satellite tracking systems (e.g., VMS) on small vessels.
- Cooperative fishery research and analysis, in collaboration with fishery participants, academic institutions, community residents, and other interested parties.
- Development of methods or new technologies to improve the quality, seafood safety, and value of fish landed.
- Analysis of fish and seafood for health benefits and risks, including levels of contaminants and, where feasible, the source of such contaminants.
- Marketing of sustainable U.S. fishery products, including consumer education regarding the health or other benefits of wild fishery products harvested by U.S. vessels.
- Improved data collection under the Marine Recreational Fishery Statistics Survey in accordance with Section 401(g)(3) of the Magnuson-Stevens Act.
- Financial assistance to fishermen to offset the costs of modifying fishing practices and gear to meet the requirements of the Magnuson-Stevens Act.

Funds provided to this account are to come from amounts generated through quota set-asides established by a Regional Fishery Management Council.

Funds are also authorized to come from appropriations for the purpose of activities listed above, and from states or other public sources or private or non-profit organizations for the purpose of activities listed above. NMFS is to apportion funds from the account to the eight Council regions according to the recommendations of the Councils. No one region can receive more than 5 percent of the fund in each allocation period.

PROGRAM CHANGES FOR FY 2010:

No program change is requested in this activity.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Conservation and Management Fund
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	0	0
less: 2010 Obligations from prior year balances	0	0	0	0
FY 2010 Base	0	0	0	0
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
		Actuals		Enacted		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total: Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Conservation and Management Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	0	0	0	0	0	0	0	0	0
Total Obligations	0	0	0	0	0	0	0	0	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	0	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	0	0	0	0	0	0	0	0	0	0
Financing from Transfers and Other:										
Net Appropriation	0	0	0	0	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Conservation and Management Fund
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Discretionary Obligations	0	0	0	0	0
Total Obligations	0	0	0	0	0
Adjustments to Obligations:					
Unobligated balance, start of year	0	0	0	0	0
Unobligated balance, end of year	0	0	0	0	0
Budget Authority	0	0	0	0	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	0	0	0	0	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Fisheries Conservation and Management Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

<u>Object Class</u>	2008	2009	2010	2010	Increase/ (Decrease) over 2010 Base
	Actuals	Enacted	Base	Estimate	
11 Personnel compensation					
11.1 Full-time permanent	0	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	0	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	0	0	0	0	0
12.1 Civilian personnel benefits	0	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	0	0	0	0	0
22 Transportation of things	0	0	0	0	0
25.2 Other services	0	0	0	0	0
99 Total Obligations	0	0	0	0	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	0	0	0	0	0
Plus unobligated balance, EOY	0	0	0	0	0
Total Budget Authority	0	0	0	0	0
Personnel Data					
Full-Time equivalent					
Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Conservation and Management Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
	<hr/>				
Total	0	0	0	0	0

OCEANIC AND ATMOSPHERIC RESEARCH FY 2010 OVERVIEW

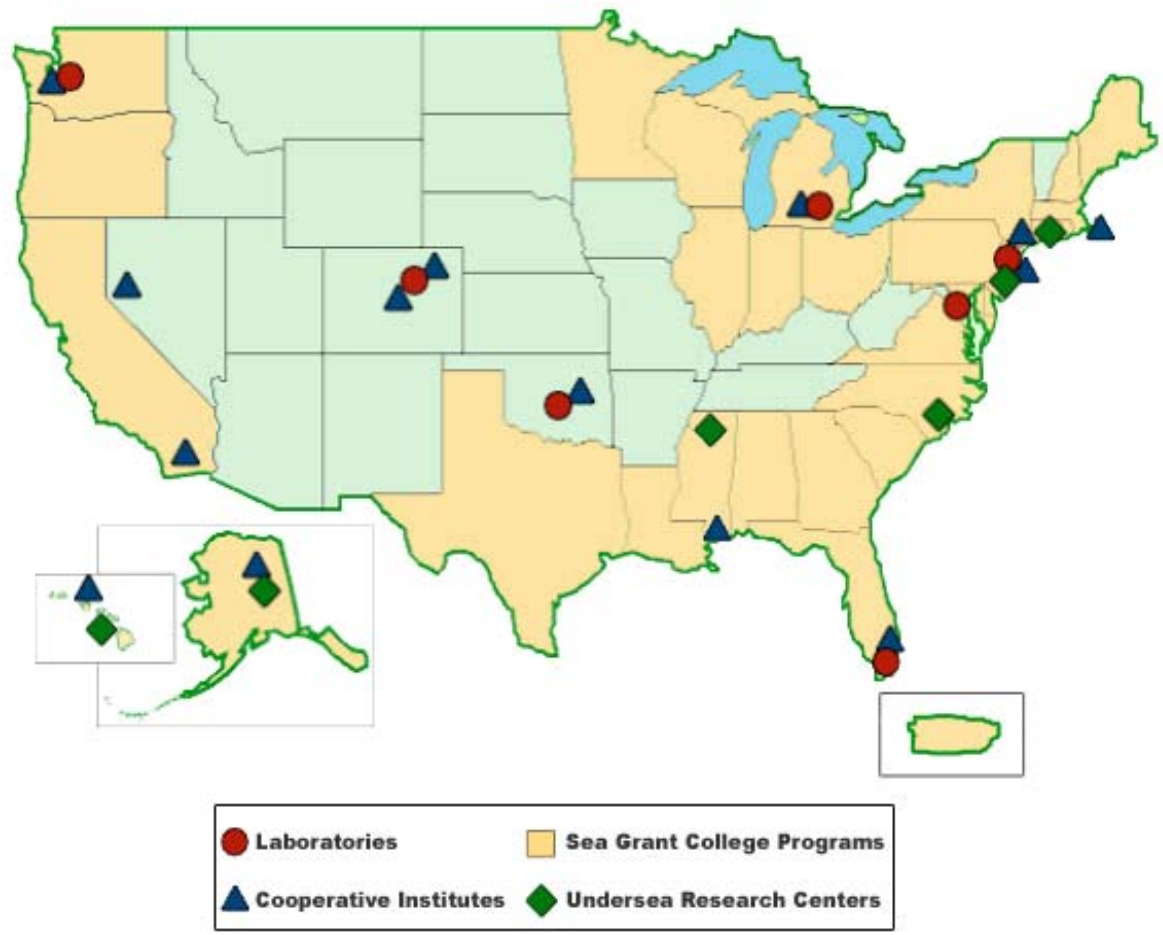
For FY 2010, NOAA requests a total of \$22,021,000 and 9 FTE over the FY 2010 base program for a total of \$404,584,000 and 744 FTE for the Office of Oceanic and Atmospheric Research.

The Office of Oceanic and Atmospheric Research (OAR) is the primary center for research and development within NOAA. OAR, also known as “NOAA Research,” addresses four major research themes in support of the environmental R&D needs of NOAA, the Department of Commerce, other Federal agencies, states and localities, industry, and the general public:

- Climate Research for a greater understanding of and ability to predict climate variability and change to enhance society’s ability to plan and respond;
- Weather and Air Quality Research for improved understanding and forecast capabilities for atmospheric events that endanger lives and property;
- Ocean, Coastal, and Great Lakes Research to develop innovative management tools through a better understanding of habitats, processes, and resources; and
- Information Technology Research and Development to accelerate the adoption of advanced computing, communications, and information technology throughout NOAA.

Organizationally, OAR operates through a national network of OAR laboratories and other OAR and university-based research programs. The OAR budget is managed through six organizational components: OAR Research Laboratories and Cooperative Institutes, NOAA Climate Program Office, National Sea Grant College Program, Office of Ocean Exploration and Research (OER), Office of Weather & Air Quality, and the NOAA High-Performance Computing and Communications Program. These organizations form a diverse research “tool kit” that enables OAR to provide innovative and critical leadership in support of three primary NOAA Strategic Plan Mission Goals: (1) Protect, restore, and manage the use of ocean and coastal resources through an ecosystem approach to management; (2) Understand climate variability and change to enhance society’s ability to plan and respond; and (3) Serve society’s needs for weather and water information.

The following map shows the locations of the OAR laboratories, cooperative institutes, Sea Grant colleges, and OER undersea research centers. The other OAR organizational components are headquartered in Silver Spring, MD.



NOAA Research Laboratories and Cooperative Institutes

Research Laboratories

OAR has 7 laboratories and 13 cooperative institutes across the United States that administer and manage OAR programs, emphasize theoretical and analytical studies, and conduct laboratory experiments and field observations. Their primary purpose is to improve NOAA services and provide the basis for improved decision making by policy makers and the public.

Air Resources Laboratory (ARL), headquartered in Silver Spring, MD, carries out research on a variety of processes that impact the quality of the atmosphere. ARL primarily addresses the transport, transformation, and removal of trace substances in the atmosphere, as well as the interaction between trace substances and the earth's radiative balance. ARL's field and laboratory studies lead to the development of air quality simulation models. The Laboratory also provides scientific advice to NOAA and other government agencies to assist with emergency preparedness for environmental problems such as nuclear mishaps, volcanic eruptions, and homeland security issues. More information about ARL is available at: <http://www.arl.noaa.gov/>

Atlantic Oceanographic and Meteorological Laboratory (AOML) in Miami, FL, conducts research in oceanography, tropical meteorology, atmospheric and oceanic chemistry, and acoustics. AOML scientists study hurricanes, ocean current and temperature structures, ocean-atmosphere chemical exchanges, coral reefs, and the coastal ocean. The principal focus of AOML is to contribute scientific research to improved prediction and forecasting of tropical cyclones and severe weather, better use and management of marine resources, better understanding of the factors affecting both climate and environmental quality, and improved ocean and weather services for the Nation. More information about AOML is available at: <http://www.aoml.noaa.gov/>

Earth System Research Laboratory (ESRL) in Boulder, CO, represents a combination of climate and weather research capabilities aimed at observing and understanding the Earth system and developing environmental information products and services on global to local scales. Among the unique capabilities at ESRL are understanding the roles of gases and particles that contribute to climate change, providing climate information related to water management decisions, improving weather prediction, understanding the recovery of the stratospheric ozone layer, and developing air quality forecast models. ESRL operates through four divisions:

- *Chemical Sciences Division* provides the chemical-process measurements, analyses, and understanding that are needed to address NOAA's Climate Goal and Weather and Water Goal, studying topics such as climate forcing and air quality, to improve NOAA's ability to: (1) predict changes in climate, the stratospheric ozone layer, and air quality and (2) deliver related science information products that address societal and policy needs.
- *Global Monitoring Division* continuously monitors atmospheric gases, particles, and radiation across the globe to determine trends influencing climate change, ozone depletion, and baseline air quality, and communicates its findings in usable and understandable forms.
- *Global Systems Division* incorporates new findings in atmospheric, oceanic, and hydrologic sciences into systems designed to improve understanding of climate and weather at all time scales through new observation techniques, innovative diagnostic and predictive models, advanced computational analysis, and leading-edge workstation display technology.

- *Physical Science Division* addresses physical science questions with short- and long-term societal and policy relevance within NOAA's Climate and Weather and Water Goals. This division conducts the physical process research needed to provide the Nation with a seamless suite of information and forecast products, ranging from short-term weather forecasts to longer-term climate forecasts and assessments.

More information about ESRL and its divisions is available at: <http://www.esrl.noaa.gov/>

Geophysical Fluid Dynamics Laboratory (GFDL) in Princeton, NJ, conducts the cutting-edge research necessary to understand and predict Earth's climate and weather. Work at GFDL addresses many topics through advanced mathematical modeling of the atmosphere, including natural climate variability, anthropogenic climate change, weather and hurricane forecasts, El Niño prediction, and stratospheric ozone depletion. The research conducted at GFDL can be developed and transitioned to NOAA operations for the prediction of short-term atmospheric phenomena and into climate informational products to support policy decision making and the public. More information about GFDL is available at: <http://www.gfdl.noaa.gov/>

Great Lakes Environmental Research Laboratory (GLERL) in Ann Arbor, MI, conducts integrated, interdisciplinary environmental research in support of resource management and environmental services in coastal and estuarine waters, with a primary emphasis on the Great Lakes. The laboratory performs field, analytical, and laboratory investigations to improve understanding and prediction of biological and physical processes in estuaries and coastal areas and their interdependencies with the atmosphere and sediments. GLERL emphasizes a systems approach to problem-oriented research in order to develop effective environmental service tools. More information about GLERL is available at: <http://www.glerl.noaa.gov/>

National Severe Storms Laboratory (NSSL) in Norman, OK, conducts weather and air quality research aimed at improving the accuracy and timeliness of forecasts and warnings of hazardous weather events such as thunderstorms, blizzards, ice storms, flash floods, tornadoes, and lightning. NSSL has a varied research mission supporting an enhanced understanding of weather processes, improved forecast and warning techniques, new operational applications and advanced radar technologies, and a series of field studies to support theoretical research and modeling. Advances at NSSL contribute to improved operational capabilities, knowledge, and techniques at the National Weather Service and other agencies. More information about NSSL is available at: <http://www.nssl.noaa.gov/>

Pacific Marine Environmental Laboratory (PMEL) in Seattle, WA, carries out interdisciplinary scientific investigations in oceanography, marine meteorology, and related subjects. Open-ocean observations and modeling work at PMEL improve our understanding of the various processes operating in the world oceans. These observations also support NOAA's environmental forecasting capabilities and services that support marine commerce and fisheries, including tsunami forecasting, ocean circulation, and fish and shellfish stocks prediction. PMEL also supports an undersea observation and research program (VENTS) in Newport, OR. More information about PMEL is available at: <http://www.pmel.noaa.gov/>

Cooperative Institutes

OAR has cooperative institute partnerships with academic and scientific institutions to foster long-term collaborations dedicated to advancing oceanic and atmospheric research. These cooperative institutes are co-located with one or more NOAA facilities to promote scientific exchange and technology transfer, and provide valuable capabilities and expertise to supplement OAR laboratory work.

The primary purpose of each institute is to create a mechanism to bring together the resources of a research-oriented university or institution, OAR, and other branches of NOAA in order to develop and maintain a center of excellence in research. Each Cooperative Institute represents a synergy that has brought together NOAA and premier academic and scientific institutions in a mutually beneficial arrangement to address issues of national and international significance unique to these partnerships. Among the broad range of topics that Cooperative Institutes address are the Earth's oceans, the Great Lakes, inland waters, Arctic regions, solar terrestrial environment, intermountain west, and the atmosphere. These partners pool resources to produce the best possible interdisciplinary scientific research and outreach. The institutes are:

- The **Cooperative Institute for Climate Applications and Research (CICAR)**, located at the Lamont-Doherty Earth Observatory Campus of Columbia University in Palisades, NY, conducts research on earth-system modeling, modern and paleo-climate observations, and climate variability and change applications. CICAR collaborates primarily with CPO and GFDL.
- The **Cooperative Institute for Climate and Ocean Research (CICOR)**, located at the Woods Hole Oceanographic Institution (WHOI) in Woods Hole, MA, conducts research on coastal ocean and near-shore processes, oceanic participation in climate and climate variability, and marine ecosystem processes analysis. CICOR collaborates primarily with CPO.
- The **Cooperative Institute for Climate Science (CICS)**, located at Princeton University's Forrestal Campus in Princeton, NJ, conducts research on earth system studies, biogeochemistry, coastal processes, and paleo-climate. CICS collaborates primarily with CPO and GFDL.
- The **Cooperative Institute for Arctic Research (CIFAR)**, located at the University of Alaska in Fairbanks, AK, conducts research on arctic atmosphere and climate, fisheries oceanography, tsunami research, marine ecosystem studies, contaminant effects, ultraviolet and arctic haze studies, hydrographic and sea ice studies, climate modeling, and data archiving and support. CIFAR collaborates primarily with CPO and PMEL.
- The **Cooperative Institute for Limnology and Ecosystems Research (CILER)**, located at the University of Michigan in Ann Arbor, MI, conducts research on climate and large lake dynamics, coastal and near shore processes, large lake ecosystem structure and function, remote sensing of large lakes and coastal ocean dynamics, and marine environmental engineering. CILER collaborates primarily with GLERL.
- The **Cooperative Institute for Marine and Atmospheric Studies (CIMAS)**, located at the University of Miami in Miami, FL, conducts research on climate variability, fisheries dynamics, regional coastal ecosystem processes, human interactions with the environment, air-sea interactions and exchanges, and integrated ocean observation. CIMAS collaborates primarily with AOML and the NMFS Southeast Fisheries Science Center.
- The **Cooperative Institute for Mesoscale Meteorological Studies (CIMMS)**, located at the University of Oklahoma (UO) in Norman, OK, conducts research on basic convective and mesoscale research, forecast improvements, climatic effects of/controls on mesoscale processes, socioeconomic impacts of mesoscale weather systems and regional-scale climate variations, Doppler weather radar research and development, and climate change monitoring and detection. CIMMS collaborates primarily with NSSL and several NWS components.
- The **Cooperative Institute for Research in the Atmosphere (CIRA)**, located at the Colorado State University (CSU) in Fort, Collins, CO, conducts research on global and regional climate, local and mesoscale weather forecasting and evaluation, applied cloud physics, applications of satellite observations, air quality and visibility, societal and economic impacts, and numerical modeling. CIRA collaborates primarily with ESRL and NESDIS satellite programs.
- The **Cooperative Institute for Research in Environmental Sciences (CIRES)**, at the University of Colorado, in Boulder, CO, conducts research on advanced modeling and observing systems, climate system variability, geodynamics, integrative activities, planetary metabolism, and regional processes. CIRES collaborates primarily with Climate Program Office (CPO) and ESRL.

- The **Joint Institute for Marine and Atmospheric Research (JIMAR)**, located at the University of Hawaii in Honolulu, HI, conducts research on tsunamis and other long-period ocean waves, equatorial oceanography, climate, fisheries oceanography, and tropical meteorology, and coastal research. JIMAR collaborates primarily with ESRL and NMFS programs.
- The **Joint Institute for Marine Observations (JIMO)**, located at Scripps Institution of Oceanography (SIO) at the University of California at San Diego, conducts research on climate and coastal observations, analysis, and prediction; research on biological systems; research in extreme environments; and R&D on observations systems. JIMO collaborates primarily with CPO.
- The **Joint Institute for the Study of the Atmosphere and Ocean (JISAO)**, located at the University of Washington in Seattle, WA, conducts research on climate, environmental chemistry, marine ecosystems, and coastal oceanography. JISAO collaborates primarily with PMEL and NMFS programs.
- The **Northern Gulf Institute (NGI)**, a consortium of universities, led by Mississippi State University, which includes the University of Southern Mississippi, Louisiana State University, Florida State University, and the Dauphin Island Sea Lab, at Stennis Space Center, MS, conducts research on ecosystem management, geospatial data integration and visualization in environmental science, climate change and climate variability effects on regional ecosystems, and coastal hazards. NGI collaborates primarily with AOML, PMEL, and GLERL.

More information on OAR's Cooperative Institutes is available at: <http://www.oar.noaa.gov/programs/joints.html>

NOAA Climate Program Office (CPO)

CPO manages the OAR Competitive Research, Climate Data and Information, and Climate Operations budget lines under the OAR Climate Research subactivity, and coordinates with the climate programs in the OAR Laboratories. CPO coordinates climate activities with multiple other line offices (especially NESDIS & NWS) and works in partnership with many external partners. In this role, CPO manages competitive grants programs and seeks to understand climate variability and change to enhance society's ability to plan and respond. CPO develops integrated ocean and atmospheric observing systems, sponsors research into the forcings and feedbacks contributing to changes in the Earth's climate, improves climate predictive capability from weeks to decades, and develops climate products and services to enhance decision making capabilities across all sectors of society. Finally, CPO serves as the NOAA focal point for such national and international climate efforts as: (1) maintaining the National Integrated Drought Information System (NIDIS) Office in Boulder, CO; (2) serving as the focal point for NOAA's research activities in the Arctic, Bering Sea, North Pacific, and North Atlantic regions; (3) representing NOAA on the Interagency Arctic Research Policy Committee; (4) leading U.S. involvement in the international Arctic Monitoring and Assessment Program; (5) participating in multilateral and bilateral policy discussions through interaction with the Global Earth Observing System of Systems (GEOSS), the UN Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC), the WMO, key bilateral partners, and other climate leadership organizations; and (6) promoting climate literacy and outreach activities.

National Sea Grant College Program

Congress established the National Sea Grant College Program in 1966 to enhance the development, use, and conservation of the Nation's marine and Great Lakes resources. The legislation establishes a network of Sea Grant Colleges to conduct education, training, and research in all fields of marine study. It also directs that grants and contracts may be awarded to, "any individual; any public or private corporation, partnership, or other association or entity

(including any Sea Grant College, Sea Grant Institute or other institution) or any State, political subdivision of a State, or agency or officer thereof.” The National Sea Grant College Program Office is located in Silver Spring, MD. Currently, there are 32 university-based Sea Grant programs located in every U.S. coastal and Great Lakes state and Puerto Rico. Most Sea Grant programs include multiple campuses of different universities across the state.

Office of Ocean Exploration and Research (OER)

OER is comprised of the former NOAA Undersea Research Program (NURP) and the Ocean Exploration (OE) Program. Its two most prominent functions are:

- *Research* - Scientists funded by OER conduct wide-ranging research investigations in such areas as the causes behind depletion of fisheries, the impacts of commercial fishing activity on critical habitats, and the role of undersea volcanism in coastal hazards. This program also conducts mandated studies of underwater diving techniques and equipment to advance safety and improve diver performance. The program provides national support through regional Undersea Research Centers on both the east and west coasts, as well as the Aquarius Undersea Laboratory off of Key Largo, FL.
- *Exploration* – NOAA is the only Federal agency with a dedicated program of ocean exploration. This program supports: (1) exploring unknown and poorly known ocean areas; (2) mapping the physical, geological, biological, chemical, and archaeological aspects of the oceans; (3) developing new sensors and systems for ocean exploration to support U.S. leadership in marine technology; and (4) improving general literacy with respect to ocean issues. To help expand these expeditions, Congress directed the Department of Defense in 2005 to provide NOAA with a T-AGOS class vessel and funding to convert the ship into a platform dedicated to support NOAA ocean exploration missions. The ship, OKEANOS EXPLORER, began operations in the summer of FY 2008.

Office of Weather & Air Quality (OWAQ)

OWAQ has two major missions. The first is to provide the Nation with more accurate and timely warnings and forecasts of: (a) high-impact weather that causes loss of life and property and (b) air quality parameters, including ozone and aerosols/particulate matter, that impact human health, cause crop damage, and affect private-sector power-generation planning. The second is to provide the scientific basis for air-quality decision-makers to develop policies and plans that effectively protect public health while also maintaining a vital economy. The Office manages the U.S. Weather Research Program (USWRP) and THORPEX.

NOAA High Performance Computing and Communications Program (HPCC)

HPCC supports many NOAA Strategic Plan objectives through support of information technology (IT) research targeted at improving NOAA's mission, services, and science education. HPCC seeks to make major improvements in the Nation's ability to forecast weather and climate, and to disseminate environmental information by stimulating modernization of NOAA's computationally-intensive services. HPCC provides NOAA with “mission” agency representation in the Interagency Working Group on IT R&D.

Research and Development Investments

The NOAA FY 2010 Budget estimates for its activities, including research and development programs, are the result of an integrated, requirements-based Planning, Programming, Budgeting, and Execution System (PPBES) that provides the structure to link NOAA's strategic vision with programmatic detail, budget development, and the framework to maximize resources while optimizing capabilities.

The PPBES process makes specific reference to the objectives and milestones outlines in the NOAA 5 Year Research Plan for 2008-2012. The strict management of planning against these investment criteria, objectives, and milestones leads to NOAA budget proposals that reflect the research and development needs of the organization.

Significant Adjustments-to-Base (ATBs)

NOAA requests a net increase of 0 FTE and \$3,109,000 to fund adjustments to current programs for OAR activities. The increase will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA).

Appropriation: Operations, Research, and Facilities
Subactivity: Climate Research

The objectives of the Climate Research subactivity are to:

- Describe and understand the state of the climate through integrated observations, monitoring, and data management;
- Understand and predict climate variability and change from weeks to decades to centennial timescales; and
- Improve the ability of society to plan for and respond to climate variability and change.

OAR's climate activities are an integral part of the interagency U.S. Climate Change Science Program (CCSP). Climate research at OAR aims to understand and describe the global climate system on timescales from weeks to decades to a century to meet the Nation's need for reliable climate information for making informed and reasoned decisions. NOAA Climate Scientists consistently contribute to the Intergovernmental Panel on Climate Change (IPCC), the World Meteorological Organization (WMO), and the UN Framework Convention on Climate Change (UNFCCC). More information on NOAA's climate research is available at: <http://www.oar.noaa.gov/climate/>

As our country faces new challenges in dealing with the impacts of a changing climate, NOAA will play a key role in providing better information and predictions about the impacts of climate change in communities across the Nation.

LABORATORIES AND COOPERATIVE INSTITUTES

Research conducted at Climate Laboratories and Cooperative Institutes contributes to our ability to predict climate variability and change and to help the Nation respond to the risks and opportunities associated with global climate change. This work requires sustained monitoring and research on a wide range of research subjects related to complex climate systems.

NOAA researchers strive for consistent and uninterrupted monitoring of the Earth's atmosphere and ocean. Sophisticated computer systems provide researchers the opportunity to apply observational and research data to the complex numerical modeling of climate systems. NOAA's strategy is to: (1) acquire the essential data; (2) develop diagnostic and predictive models related to changes in the equatorial oceans; and (3) establish the relationship of those changes to widespread climate variations through data analysis and modeling. Researchers apply this strategy to a broad variety of climate system components, providing the Nation with a more comprehensive understanding of atmospheric and oceanic processes that both drive and respond to changes in climate over a variety of spatial and temporal scales.

COMPETITIVE RESEARCH PROGRAM

The Climate Competitive Research Program sponsors scientific research aimed at improving predictions and assessments of climate variability over seasonal to decadal time scales and beyond in an effort to better understand how society can best adapt and respond to climate variability and change. The program addresses an important aspect of global change – understanding the global climate system. To address the interface between scientific information

and the Nation's various decision-making needs, the Competitive Research Program has a wide variety of research activities organized into two main components: Research and Major Observing Systems.

Research Programs

Integrated research activities that address the objectives of the Competitive Research Program involve instrument development, global observations, laboratory studies, and theoretical modeling by NOAA and extramural partners. Understanding climate variability and change requires a diverse research portfolio, which includes the following research programs:

- *Atmospheric Composition and Climate Program (ACCP)* pursues two research objectives: (1) to improve the predictive understanding of the radiative forcing of the climate system by aerosols and chemically-active greenhouse gases, such as tropospheric ozone, and (2) to better characterize the recovery of the stratospheric ozone layer and its role in climate change.
- *Climate Change Data and Detection (CCDD)* provides support for documenting and analyzing variations in climate on time scales ranging from seasonal to decadal and beyond, and provides data and information management support to assure the availability of critical data sets for analysis and international programs and assessments, including the Intergovernmental Panel on Climate Change (IPCC).
- *Climate Dynamics and Experimental Prediction (CDEP)* supports NOAA's efforts toward improved global climate predictions on intraseasonal to interannual timescales, and supports the development of new climate reanalysis data sets and the capability to deliver explanations of the causes for observed climate variability and change.
- *Climate Variability and Predictability Program (CVP)* observes, models and develops skillful predictions of climate variability and change on seasonal to multi-decadal time scales and regional spatial scales for optimal use in resource planning and policy decision making.
- *Climate Prediction Program for the Americas (CPPA)* seeks to improve operational intra-seasonal to interannual climate and hydrologic forecasting.
- *Global Carbon Cycle (GCC)* improves NOAA's ability to predict the sources and sinks of anthropogenic carbon dioxide (CO₂) and future atmospheric CO₂ concentrations using a combination of atmospheric and oceanic global observations, process-oriented field studies, analysis, and modeling.
- *Transition of Research Applications to Climate Services (TRACS)* supports the transition of experimentally mature climate tools, methods, and processes from research mode into settings where they may be applied in an operational and sustained manner.
- *Regional Integrated Sciences and Assessments (RISA)* supports integrated, place-based research across a range of social, natural, and physical science disciplines to expand decision-makers' options in the face of climate change and variability at the regional level.
- *Sector Applications Research Program (SARP)* provides a better understanding of the impact of climate variability on specific sectors (e.g., coastal, water resources) recognizing the role of complex societal and environmental interactions.
- *Arctic Research Program (ARP)* improves forecasts of temperature, precipitation, and storms across Alaska and the mainland U.S., supports improvements in forecasts for planning (for energy needs, growing seasons, etc.), and provides for better management of Alaskan and Arctic resources.

More information on the wide variety of climate research programs is available at: http://www.climate.noaa.gov/cpo_pa/

Observing Systems

The Competitive Research Program includes several major observing systems for the oceans and atmosphere:

- *Global Ocean Observing System (GOOS)* – GOOS is maintained by the Climate Program Office and is necessary for climate research and prediction as well as long-term monitoring for climate change detection and attribution. NOAA provides the major U.S. contribution to the Global Component of the Integrated Ocean Observing System (IOOS) – the U.S. contribution to the GOOS and the ocean baseline of the Global Earth Observation System of Systems (GEOSS). GOOS was designed to meet climate requirements, but it also provides the global ocean backbone needed to support weather and storm prediction, global and coastal ocean prediction, marine hazards warning, transportation, marine environment and ecosystem monitoring, and naval applications. The major elements of GOOS are: Argo Profiling Floats, Surface Drifting Buoys, Tide Gauge Stations, Tropical Moored Buoys, Ocean Reference Stations, Ships of Opportunity (SOOP), Ocean Carbon Networks, Arctic Ocean Observing System, Dedicated Ships, Data Management, Data Assimilation, and Analysis. Satellites are also critical elements of this composite system, but they are listed elsewhere in the NOAA and NASA budgets. It must be emphasized that all of these elements working together provide the needed system. They are interdependent.
- *Baseline Observatories* – NOAA’s manned Global Atmospheric Baseline Observatories, measure up to 250 different atmospheric parameters relevant to the study of climate change and ozone depletion at : Barrow, Alaska; Mauna Loa, Hawaii (since 1957); Cape Matatula, American Samoa; and South Pole, Antarctica (since 1957). In addition, NOAA funds operations at its Baseline Air Quality station at Trinidad Head, California. These observations are critical to the collection and continuity of the world’s longest atmospheric data time series, supplying information on: (1) the state and recovery of the ozone layer, (2) global carbon dioxide and other trace gases impacting the global climate, and (3) the quality of the air entering the west coast of the U.S.
- *Carbon Cycle Atmospheric Observing System* and other carbon cycle/carbon monitoring activities – The U.S. scientific community coordinates its carbon cycle activities through an integrated interagency effort that aims to quantify, understand, and project the evolution of global carbon sources and sinks in order to better predict future climate. As part of this multi-agency effort, NOAA has launched a network of airborne and tall-tower based sampling sites over North America. With input from other agencies, this program forms the foundation for routine spatial carbon “maps” and periodic “State of the Carbon Cycle” reports that will keep scientists and policy-makers abreast of progress in understanding the North American carbon cycle.

CLIMATE DATA AND INFORMATION

NOAA’s Climate Data and Information Program manages the Nation's resource of global climate *in situ* and remotely sensed data and information to promote global environmental stewardship; to describe, monitor and assess the climate; and to support efforts to predict changes in the Earth's environment. Climate observing networks assemble, develop, and communicate data and information about the trends and predictions of climate and weather events to decision makers (e.g. energy, agriculture, state and local officials). To this end, NOAA is responsible for infrastructure that addresses: (1) improving access and data management activities associated with large-volume climate databases supplied by satellite and ground-based instruments; (2) implementation of operational updates to NOAA’s long-term ocean and atmospheric reference data sets; and (3) improving the performance of the observational network. NOAA supports the following under the Climate Data and Information Program:

- The U.S. Climate Reference Network (USCRN) provides baseline, high-quality surface observations of air temperature and precipitation to detect long-term changes in climate through a robust climate record. Observations from this network will provide benchmark measurements for an improved national climate and weather monitoring network. The USCRN also supports the National Integrated Drought Information System (NIDIS) through the inclusion of soil moisture sensors, which provide data critical to understanding drought.

- The U.S. Drought Portal is part of NIDIS and it provides users with the ability to determine the potential impacts of drought and their associated risks, while also providing needed decision support tools.
- NOAA's Observing System Monitoring Program provides early detection and remediation of network problems that can adversely affect the quality of data records and diminish our ability to evaluate climate variability and change. The Observing System Monitoring Program will alert observing system managers in near-real time to problems that can distort the historical archive, providing managers the opportunity to take corrective action.
- The U.S. Global Climate Observing System (GCOS) Program provides U.S. leadership on the global effort to implement a sustained global infrastructure of high-quality, comprehensive *in-situ* atmospheric climate observations. U.S. GCOS works with regional, national, and international entities to provide the global observing system and accompanying data management system needed to support the observational data requirements for climate assessments and forecasts. GCOS is the formal climate component of the Global Earth Observation System of Systems (GEOSS). More information is available at: <http://www.oco.noaa.gov>

CLIMATE OPERATIONS

OAR's Climate Operations programs provide accurate and timely climate information and operational forecasts to best serve the Nation. Public and private users and NOAA's mission goals demand this information on a broad range of timescales from sub-seasonal through interannual and beyond. Seasonal and interannual climate variability impacts life and property on local, regional, and global scales. Since societal impacts from climate variability and change extend down to sub-seasonal time scales, connections between climate and extreme weather events must be identified to improve the forecast timing and location of extreme weather events, thereby minimizing their impacts on the lives and property of Americans. Through Climate Operations, NOAA is working to improve its ability to produce and disseminate operational forecast products to the Nation by improving model performance, developing new forecast designs, and upgrading existing data sets.

OTHER PARTNERSHIP PROGRAMS

The strength of NOAA's climate research is that it operates in partnership with a multitude of external experts in its fields of research. These partnerships extend to other Federal, state, and local government entities; universities; and industry. Other Partnership Programs contain various programs appropriated by Congress. OAR manages these programs in a manner that leverages the strengths of these external partners in concert with NOAA's mission responsibilities and requirements.

PROGRAM CHANGES FOR FY 2010:

National Climate Model Portal (Climate Data & Information) (0 FTE and +\$2,451,000): NOAA requests an increase of \$2,451,000 for development of a National Climate Model Portal to generate and house model based data records and implement an operational archive and access capability for the next generation, high-resolution weather and climate reanalysis datasets.

Proposed Actions

This project will develop and implement a National Climate Model Portal (NCMP) for the next generation climate analyses currently running on supercomputers across NOAA and its collaborators (NSF, DOE and others). This interoperable Portal will provide an operational archive and user access capability for the next generation of climate reanalysis products utilizing major advancements in model physics and coupling across the ocean, air and land interfaces. The NCMP leverages existing supercomputer resources to provide a unified and consistent suite of climate information to users at all levels so that they can make better decisions about their specific management needs. Information will be provided on time scales from days (weather), to months (El Niño), to years and decades (climate variability and change).

These climate model reanalysis products will total over 2PetaBytes (2,000TerraBytes) of data and include:

- Coupled Climate Forecast System Reanalysis and Reforecast (CFSRR) dataset, a modern era reanalysis. It is the first coupled 30 year global reanalysis of the atmosphere, ocean, land, and cryosphere (sea ice) ever developed by NOAA;
- Climate Prediction Center Reanalysis (CPCR), a long time series historical upper-air reanalysis (1850 to present);
- Surface Pressure historical reanalysis currently underway at NOAA's Earth System Research Laboratory (ESRL).

The NCMP architecture is based on 3 main components: the Portal, the Catalog Node, and the Data Repository. The Portal is the users' interface to the system, where they can manage requests, download data, receive user input and browse the catalog. The Catalog Node is the heart of the system and concentrates on connecting partners, metadata, search and discovery and peer-to-peer connectivity. It is a basis for a potential unified Climate services portal to many NOAA climate products and services, as it removes barriers to data format and system incompatibilities.

Statement of Need and Economic Benefits

Decision makers are increasingly seeking information that will help their communities plan and respond to climate variability and change. The NCMP will develop an operational archive and access capability for the next generation, high-resolution weather and climate reanalysis data sets derived from model outputs. Reanalysis output and products will improve our understanding of various climate phenomena, including verification, detection, and determination of drought severity and location; verification and improvements to forecasts of El Niño occurrence and persistence; and verification and improvements to our understanding of the hydrologic cycle and water resources. The Climate Model Portal will be designed to convey key aspects of complex scientific data in a manner accessible to non-specialists and NOAA's climate information user communities.

The Science Advisory Board Climate Working Group recommended that NOAA develop model-based Climate Data Records (CDRs) derived from climate model outputs. The NCMP will address this recommendation by providing premiere access to several new key NOAA datasets, and

will improve the linkages between research findings and the transfer of those findings into operational capabilities as outlined in the U.S. Weather Research Program (USWRP) Implementation Plan for Research in Quantitative Precipitation Forecasting and Data Assimilation. NCMP will facilitate model and observational data access issues as discussed in such documents as the Intergovernmental Panel on Climate Change, and the U.S. National Assessment, and meets many of the data access goals as outlined in "Fair Weather: Effective Partnerships in Weather and Climate Services," (National Academy Press, 2003). Since NCMP is an extension of the National Operational Model Archive and Distribution System (NOMADS), a web-based project providing access to climate and weather model data, this program will fulfill a recent National Academies, National Research Council, Board of Atmospheric Sciences and Climate (BASC) recommendation to “be extended and advanced to service [Models] and associated data for model improvement and user access” (National Academy Press, 2006).

Schedule & Milestones

- Develop Program Plan and Systems Requirements Specification (SRS), A-SPEC; pseudo code; hardware installation; C&A; Security and Configuration Management baseline (CM- will leverage existing NCDC security and CM resources) (FY 2010).
- Interoperable access to 3 of NOAA climate reanalysis suite: CFSRR; CPCr; SFC Historical (FY 2011).
- Collect, merge, and process reanalysis observations leading to an on-going analysis of the climate system (FY 2012).
- Operations and Maintenance for an “On-going Reanalysis of the Climate System”; and design for the next NOAA reanalysis suite (FY 2013).
- Implementation of new reanalysis datasets (FY 2014).

Deliverables

- NOAA Reanalysis Web Page for collection of user requirements and input.
- Ingest, Archive, and Access to the next generation reanalysis datasets (CFSRR, CPCr, SFC Historical).
- Customer service support capability and a research quality help desk supporting users of NCMP
- A reanalysis clearinghouse to reside at NCDC to host consensus (satellite, in-situ, and radar) datasets for the next series of NOAA reanalysis.

Performance Goals and Measurement Data

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Increased terabytes of reanalysis data available 24x7 to operational and research users, from the next suite of NOAA’s climate weather reanalysis and reforecast datasets in an interoperable Web Service architecture (non-cumulative).						
Without Increase	0TB	0TB	0TB	0TB	0TB	0TB
With Increase		500TB	1,000TB	1,250TB	1,500TB	2,000TB

Description: One of the goals of this activity is to increase the terabytes of data made available to users for the next generation climate analyses by developing and implementing an operational archive and user access capability and interoperable Portal. Data records will be produced from three main current and planned reanalysis projects and will be uploaded to the Portal as they are completed.

U.S. Climate Reference Network (Climate Data & Information) (0 FTE and +\$1,300,000): NOAA requests an increase of \$1,300,000 to begin the deployment of U.S. Climate Reference Network (USCRN) benchmark observing stations at 29 locations in Alaska, which will complete the network, to better document, monitor, and assess climate variability and change by providing high quality observations sufficient to improve our understanding of climate variability and change in Alaska, a region observed to be impacted by climate change early and to a greater degree than other regional locations, and where it is projected to have the largest changes in climate over the next 25-50 years. Establishing 29 climate reference observing stations in Alaska will enable NOAA to provide the same capability of USCRN climate monitoring of national explained variance of temperature and precipitation currently available across the lower 48 states.

Proposed Actions

Funding is requested to purchase hardware, install and operate 29 USCRN observing stations across the state of Alaska. Over a five-year period the number of sites scheduled for deployment in Alaska is based on observational simulation modeling experiments completed in 2007. A minimum of 29 sites is required to reduce uncertainty in trend estimation to within 5%, the standard for statistical testing of change. With the requested increase, NOAA will determine installation sites, conduct site surveys/selections, calibrate and install Arctic reliable equipment, test, evaluate and commission stations.

The USCRN sites in Alaska will improve NOAA's ability to monitor and quantify climate variation and change in Alaska through a network of integrated climate observing systems, which will enable policy makers and resource managers to make informed regional, national and global policy decisions. USCRN observations in Alaska will increase the value and utility of other more spatially comprehensive observing networks, including satellites, in-situ, and remote based observing systems while decreasing uncertainty in climate assessments used to facilitate planning and policy decisions.

Statement of Need and Economic Benefits

Climate change impacts in Alaska, including accelerated melting of Alaskan coastal frozen sea cliffs (permafrost) and erosion (which are traditional, preferred Alaskan village locations), inland permafrost melting, soil fluctuation, and thermokarst heaving have the potential to cause severe damage to Alaskan roads, highways, buildings, airports, pipelines, and harbor facilities. The unanticipated and under-forecasted rate and extent of climate change and impacts in the Arctic region observed over the past few years have magnified the need for establishing the USCRN in Alaska.

The demand for improved observations and data in Alaska comes from a variety of sources including State officials, Native Cultural representatives, State Climatologists, private sector representatives, and others. Water resource managers need observations for river transportation planning. Federal and state managers have responsibilities for Alaskan fire environment management, and weather forecasters need USCRN observations to improve their forecast accuracy.

The documented rate of change and extent in the Arctic is exceeding model projections, and if the current trends continue the consequences of these climate changes could include extensive coastal erosion and inundation; permafrost thaw resulting in loss of winter “ice roads” and threats to the integrity of foundations (roads/buildings/pipeline) and infrastructure; persistent drought conditions that dramatically increase the threat of large scale wild fires; and glacial melt introducing large volumes of fresh water into the coastal/estuary environments, significantly impacting the chemistry and temperature of the coastal marine ecosystems. The ability to quantify and verify the apparent lengthening of the sea ice-free season along the Alaskan littoral, in addition to the temporal lengthening and vertical deepening of the permafrost melt layers is of particular importance to Alaskan building, construction, paving, airport maintenance, port, shipping, and fishing economic sectors, as well as native hunters. Improved observations will have payoffs for this and future generations as societal infrastructure and environmental ecosystems in the Arctic are very sensitive to climate change.

Schedule & Milestones

- Complete site surveys/selections (FY 2013).
- Commence installations (FY 2010).
- Complete installations (FY 2014).

Deliverables

USCRN AK system progress	FY09	FY10	FY11	FY12	FY13	FY14
USCRN AK stations installed (Cum Total #)	0	6	12	19	25	29
USCRN AK stations commissioned. (Cum Total #)	0	5	10	16	23	29

USCRN Full System Progress	FY09	FY10	FY11	FY12	FY13	FY14
USCRN stations installed (Cum Total #)	114	120	126	133	139	143
USCRN stations commissioned (Cum Total #)	114	119	124	130	137	143

Performance Goals and Measurement Data

This increase will support "Advance understanding of climate variability and change" objective under the Department of Commerce strategic goal of “Promote Environmental Stewardship.”

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Explained Alaska variance (%) of annual average surface air temperature trends for Alaska (Cum Total %)						
Without Increase	0	0	0	0	0	0
With Increase	0	20.4	40.8	61.2	81.6	98.0

Performance Goal: Explained Alaska variance (%) of annual average precipitation trends for Alaska (Cum Total %)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	0	0	0	0	0	0
With Increase	0	19.8	39.6	59.4	79.2	95.0
Description: The goal when all 29 sites have been installed is for the % explained variance for surface air temperature and annual average precipitation, respectively, for Alaska to be at 95% or more. This is the standard significance level accepted in scientific research which means the level of uncertainty would be reduced to 5% or less.						

Climate Competitive Research:

National Integrated Drought Information System (NIDIS): Early Warning System Pilot Implementation and Improving Climate Forecasts

(Climate Competitive Research) (+1 FTE and +\$4,550,000): NOAA requests an increase of \$4,550,000 and 1 FTE to: 1) implement three early warning system development projects in different water, energy, agricultural, ecosystem management and drought conditions at different geographical resolutions; and 2) develop and bring into operation by 2011 the next generation Climate Forecast System (CFS), which will facilitate and enhance the transition of research advances in drought monitoring and prediction and lead to improved NOAA climate forecast products. These pilot projects and forecast improvements will lead to the development of the first NIDIS early warning systems, a direct implementation requirement of the NIDIS Act of 2006.

Proposed Actions

NIDIS Pilots Projects and Climate Forecast Improvements related to drought are two elements of the core NIDIS activities outlined in the NIDIS Implementation Plan (June 2007), which was developed in response to the NIDIS Act of 2006. Improved drought forecasts will help with early warning and the NIDIS pilots are mechanisms to prototype various approaches for developing early warning and information for proactive drought risk reduction. Both improving forecasts and implementing pilots together will lead to the development of the first NIDIS early warning information systems.

In FY 2010, NOAA will further implement the NIDIS through three pilot projects (\$2,550,000) and two related research to operations transition activities (\$2,000,000) necessary to support existing program requirements.

NIDIS Pilot Projects (\$2,550,000)

Three early warning system pilot projects, funded through contracts, and supported by other NIDIS grants and interagency transfers, will provide a foundation for the NIDIS Drought Early Warning System with accurate, timely, and integrated information on drought conditions at relevant spatial scales. The pilot projects will focus on information needs for impact mitigation and improving predictive capabilities for early warning. They will foster and support a research, applications, and implementation environment, develop a NIDIS partnership network, and optimize

coordination between Federal and state drought planning and response activities. The three pilot areas are the Colorado River Basin (\$1.0M), the Southeastern U.S. (\$825K), and California (\$725K); these diverse areas will generate test cases for the transferability of early warning concepts and products. Pilot development in each area will take approximately two years, and will refine the Drought Portal, Drought Monitor, and data streams regionally and locally to provide timely surface observations and forecasts to support planning and decision making.

Stakeholders impacted by drought have repeatedly communicated that drought products, including forecasts, have limited usability for their decisions at the scales provided at present. As a direct requirement in the NIDIS Act and as described in the NIDIS Implementation Plan, the pilots will also develop drought-related triggers for informing management and stakeholders. Specifically, this initiative will develop Drought Early Warning System prototypes and operational activities that:

- Support and improve drought warning sources at the Federal, state, tribal, and local levels and assess their status and effectiveness;
- Facilitate proactive decisions aimed at minimizing the economic, social and ecosystem losses associated with drought;
- Enable state- and county-level managers to provide more effective public warnings with drought risk indicators, and provide the capacity to develop triggers for decisions;
- Increase coordination and design of effective drought early warning and information systems that mitigate drought-related risks and are transferable to other regions within the U.S.;
- Develop a regional-scale drought information clearinghouse for drought information and risk management practices at a variety of spatial scales (e.g. watershed, state, county) using the drought portal, and facilitate the diffusion of such innovations to other locations.

Each pilot area will:

- Conduct assessments to define critical drought-sensitive issues for which early warning will be developed; assess existing drought plans and information needs including data and monitoring gaps.
- Develop and test the regional Drought Portals with monitoring and forecast capabilities tailored to the appropriate scale of warning; develop drought risk assessment tools and early warning products and services.
- Integrate existing Federal, state, and local drought monitoring and forecasting activities to tailor products to pilot region users (water, agriculture, energy, ecosystems, urban and tribal lands).
- Provide education and awareness through NOAA entities and NOAA-supported entities (e.g., Weather Forecasting Offices, Regional Integrated Sciences and Assessments), state climatologists, and Agricultural Extension and Natural Resources Conservation Services personnel.
- Test transferability to similar state, tribal lands, or watershed regions as the pilots are being developed.
- Develop state, Federal, tribal and private partnerships through workshops to sustain early warning systems after the pilot stage, including development of drought coordinator capacities (NIDIS Implementation Plan, 2007).

NIDIS Climate Forecast Improvements (\$2,000,000)

To improve climate forecasts related to drought, NOAA will fund Competitive Transition Projects (\$1,250K) to:

- Assess, test and transition state-of-the-art coupled climate forecast models developed at various U.S. and international institutions as part of the operational Multi-Model Ensemble (MME) Climate Forecast System (CFS);
- Develop and evaluate an increased number of new drought prediction tools and drought monitoring products for a wide range of national, regional and sector applications in support of drought prediction and NIDIS, water resource management, agriculture applications, and wild fire risk outlooks;
- Provide the broader climate research community with user-friendly access to advanced models and increased number of data sets to enable collaborative research for improved understanding and attribution of drought and accelerate improvements to NOAA operational climate forecast and application products.

NOAA will also expand the visiting scientist program (\$750K) at NOAA's National Centers for Environmental Prediction to help accelerate implementation of the Next Generation CFS and develop new drought monitoring and prediction products.

This initiative will develop forecast activities that support multiple forecasts improvements. It will strengthen cooperative partnerships between NOAA operational centers and the broader research community by providing an operational testing environment to accelerate the transition of research advances into improved NOAA operational climate forecasts and increase the scope and applicability of operational forecasts for the external user community. Both of these NIDIS activities -- pilots and improved forecasts -- will be integrated with Coping with Drought research and lead to drought early warning information systems.

Statement of Need and Economic Benefits

The U.S. is currently experiencing drought: the Southwest has experienced ongoing drought since 1999, the Great Lakes are experiencing declining water levels, and in the last year we had the most severe drought in a century in the Southeastern U.S. Congress, Federal Agencies, Governors, and the private sector are increasingly calling for integrated, coherent, and refined informational products on drought risk, projections, and relevant drought impacts across seasonal to interannual and longer timescales to inform policy making and management decisions.

Drought is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area; it "is a recurring slow-onset natural phenomenon that is often called the creeping disaster" (NIDIS Implementation Plan, June 2007). Persistent periods of drought have a cumulative effect on humans and society with significant impacts on the economies and ecosystem services of the affected regions in the U.S. The Federal Emergency Management Agency estimates the annual direct losses to the U.S. due to drought is \$6-8 billion, the highest average annual cost of any natural disaster. This is on par with losses due to shorter-term weather fluctuations, such as tornadoes and hurricanes, which are more apparent. Recent evidence points to the possibility that U.S. droughts may intensify over the next 10 years. During the next 10-25 years scientists believe the U.S. may experience more frequent and prolonged droughts which may cover a larger portion of the U.S. (Bulletin of the American Meteorological Society (AMS), 1998, Vol. 29, No. 12; CCSP Synthesis & Assessment Product 3.3, *Weather and Climate Extremes in a Changing Climate*, 2008).

The NIDIS Act of 2006 calls for an interagency approach to improve drought monitoring, forecasting, and early warning, led by NOAA, including: consolidation of physical/hydrological and socio-economic impacts data, integrated observing networks, development of a suite of drought decision

support and simulation tools, and interactive delivery of standardized products. In response to the NIDIS Act of 2006, NOAA has taken the lead on the development and implementation of NIDIS in partnership with other federal, regional and state organizations. This initiative will allow NOAA to further improve its climate forecasts and increase the scope and applicability of those forecasts by developing new and improved forecast products.

Schedule & Milestones

- Conduct 3 two-year pilots (FY10 and 11).
- Establish Drought Early Warning Systems in 3 pilot areas (FY11)
- Fund Competitive Transition Projects (FY10)
- Expand the Visiting Scientist Program to improve climate forecasts (FY10)

Deliverables:

- Improved drought preparedness plans and prototype Drought Early Warning Systems.
- New and improved climate forecast products for use in decision-making (e.g., energy, agriculture, water resources, health, etc.).
- New and improved drought impacts data sets for response planning at state and watershed levels.
- Improved use of climate observations for enhanced warnings of drought severity, duration, and extent.
- Evaluation and refined requirements for observing systems and drought information products.
- Integrated products/maps of current conditions and outlooks at higher resolutions to refine existing products such as the Drought Monitor.
- New and improved data sets and components for operational models.

Performance Goals and Measurement Data

Performance Goal: Climate Performance Measure: Number of multi-state regions with new or improved drought early warning systems that will reduce drought impact risk (incorporating NIDIS information products and services). (Cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	0	0	0	0	0	0
With Increase	0	1	3	4	5	6
Description: By 2014, NOAA has a goal of establishing, in six regions, new or improved drought early warning systems (DEWS) that will reduce drought impact risk and enable regions to prepare for and address drought impacts. The regions will incorporating NIDIS information products and services including improved drought preparedness plans and adopting prototype Drought “Early Warning Systems”.						

This increase will support the objective "Advance understanding of climate variability and change" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, the increase supports the NOAA Climate Performance Goal and GPRA measure, "U.S. temperature-skill".

Performance Goal: Climate Performance Measure: U.S. Temperature Forecasts (cumulative Skill Score computed over the regions where predictions are made)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	20	24	24	25	26	27
Without Increase	20	24	24	25	25	26
Note: Improvements to the skill score are not reflected until later years because the funded transition projects must be completed and incorporated into the next generation of Climate Forecast System models. Models and their outputs are incorporated on a planned multi-year schedule.						
Description: U.S. Temperature Forecasts (Cumulative Skill Score Computed over the Regions Where Predictions are made) measures skill of the NOAA's operational seasonal temperature forecasts. Higher numerical value for the measure implies an ability to better predict surface temperature variability over the U.S.						

Decadal Climate Predictions and Abrupt Change (Climate Competitive Research) (+4 FTE and +\$2,600,000): NOAA requests an increase of \$2,600,000 and 4 FTE to develop the capability to make ongoing decadal climate predictions including sea-level projections on decadal to centennial timescales, Arctic forecasts, and early warnings of climate 'surprises' resulting from natural climate variations on decadal timescales.

Proposed Actions

- *Develop new data assimilation system for GOOS data:* A new data assimilation system will initialize state-of-the-art climate models using data from the Global Ocean Observing System (GOOS) for routine production of initial conditions for decadal scale predictions. This requires three junior scientists with expertise in observational data and assimilation systems.
- *Develop enhanced models:* Model CM2.5, a coupled climate model with a high-resolution ocean component, is the target model to run for decadal predictions. It will require two project scientists for rigorous model evaluation and one technical support staff for optimizing code and managing integrations.
- *Establish extramural grants program:* Grants will support modeling glaciers and high resolution climate/carbon/ice/snow models with the intent to transition modeling results to NOAA's Geophysical Fluid Dynamics Lab (GFDL). This research will support implementation of a forecast capability for sea level rise and a better understanding of Arctic climate impacts.

These activities taken together will allow NOAA to conduct and evaluate prototype decadal-scale predictions of the climate system. NOAA will assess the feasibility of decadal projections of changes in ocean conditions leading to rapid climate change. A crucial activity is to assess the inherent predictability of the climate system on decadal time-scales that are of relevance for abrupt change. These actions are prerequisites for producing the first decadal predictions in the United States based on state-of-the-art climate models, with a targeted application to prediction capability for sea-level rise, Arctic climate impacts, and an early warning system for rapid climate change.

Statement of Need and Economic Benefits

There is an urgent need to be able to provide predictions and projections that answer questions such as: Will the enhanced hurricane activity in the Atlantic continue over the next decade? Will drought conditions in the U.S. southwest continue? Will observed changes in the Arctic accelerate or moderate over the next decade? What is the potential for rapid changes in land-based ice sheets and further acceleration in the rate of sea level rise? This need is being driven by the recognition of the unusual nature of current and recent climate events, and the potential of these for presenting significant socioeconomic and policy issues for the U.S. on local, regional, national, and international scales. In order to do this, we need to develop climate prediction systems that use the observed state of the climate system as initial conditions to make predictions of how the system will evolve over the next decade. This is a fundamental research challenge in the effort to provide society with the best possible predictions and projections.

This system will provide a prototype warning system for abrupt climate change events. The consequences to society of such large-scale climate changes without advanced warning are potentially severe. For example, an ongoing worsening of the southwestern U.S. drought would have enormous consequences. It is vital to know to what degree the ongoing drought is a manifestation of natural variability or a response to increasing greenhouse gases, and what the next decade might bring. If there is meaningful predictability in the climate system on such multi-year to decadal timescales, the implications would be vital across a range of sectors, from water resources to agriculture to shipping.

Schedule & Milestones

- Develop new data assimilation system to provide initial conditions for climate model. (2010) (updated in FY13)
- Develop extramural ‘centers of excellence’ program for modeling glaciers in context of Earth System Models (ESM) with transition modeling results to GFDL.
- Develop advanced coupled climate model with high resolution ocean. (2011) (update in FY14)
- Develop high resolution ESM with focus on high latitude ice, carbon, freshwater, and feedback processes. (2011)
- Implement prototype decadal sea level outlook product. (2011)
- Conduct prototype predictability experiments with advanced climate model. (2012-2013)
- Assess required ocean, ice, observing capabilities required for abrupt change assessments; implement prototype decadal forecasting capabilities. (2012-2013)
- Conduct prototype decadal prediction experiments. (2014)

Deliverables

- Extramural grants (four per year) for: (a) modeling glaciers, (b) high resolution climate/carbon/ice/snow models.
- Augmented supercomputing capability for modeling and forecasts.
- Enhanced NOAA models for prototype decadal prediction system.
- Assessment product: feedback role of carbon/methane.
- New coupled ocean-atmosphere model with high resolution ocean for decadal-scale prediction.
- Prototype decadal forecasts for the global climate system, including the Arctic.
- Prototype for sea level rise forecasts.

- Prototype for decadal prediction system.
- Web access to state of the art simulation and decadal predictions.

Performance Goals and Measurement Data

Performance Goal: Cumulative number of new decadal prototype forecasts and predictions (Proposed CPM)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	0	0	0	0	0	0
With Increase	0	0	1	2	3	4
Description: : One of the goals of this activity is to develop, by 2014, four new prototype forecasts and predictions on decade time-scales for climate changes and impacts such as sea level rise, Arctic climate impacts, and rapid climate change. These forecasts and predictions are dependent on the development of state-of-the-art climate models.						

Performance Goal: Number of assessments that use decadal forecasts and predictions (cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	0	0	0	0	0	0
With Increase	0	0	1	3	5	5
Description: Assessments are a valuable tool for informing planners and decision-makers. One of the goals of this activity is to incorporate decadal forecasts and predictions into five major climate assessments such as the IPCC Assessment by 2014. Since planning scenarios frequently extend decades, assessments that provide decadal forecasts and predictions will enable planners and leaders to make the best resource management and policy decisions.						

Ocean Acidification Monitoring (Climate Competitive Research) (0 FTE and +\$4,000,000): NOAA requests an increase of \$4,000,000 to implement long-term monitoring of ocean acidification.

Proposed Actions

By FY 2014, NOAA will equip 13 open-ocean and 7 coastal moorings with additional sensors to monitor the changes in the pH of the global ocean resulting from the uptake of anthropogenic emissions, in particular CO₂. This component of the Global Ocean Observing System will result in an improved ability to quantify and predict changes in coastal and global ocean dissolved CO₂ and pH, and to predict the future ecological, climate and socio-economic consequences of ocean acidification. Expanding the in situ observations of sea surface carbonate chemistry will include not only additional Pacific observations, but also will provide coverage of the Atlantic basin, which is currently under sampled.

Statement of Need and Economic Benefits

It is a priority for NOAA to understand climate-ecosystem interactions, particularly ocean acidification impacts on biological productivity and distribution. Magnuson-Stevens Reauthorization Act of 2006 requires that climate impacts be considered in living marine resource management decisions. The U.S. Ocean Action Plan calls for NOAA to take an ecosystem based approach to management. Meeting this mandate requires that NOAA monitor and predict important climate forcings and develop means to link this information and management choices to predicted ecosystem responses. This activity will monitor one of the most critical observed climate impacts; acidification of the global ocean.

The global ocean is the largest sink for carbon emissions. Dissolved CO₂ in the ocean surface will likely double over its pre-industrial value by the middle of this century, with accompanying surface ocean pH and carbonate ion decreases. At present, ocean chemistry (including ocean pH) is changing at least 100 times more rapidly than it has in the last 800,000 years. Many marine organisms that produce calcium carbonate shells have shown detrimental effects due to increasing CO₂ and decreasing pH. Some of these organisms are important food sources to other marine species. For example one type of free-swimming mollusk called a pteropod is a major food source for North Pacific juvenile salmon, and also serves as food for mackerel, pollock, herring, and cod. Acidification could therefore have cascading impacts. Some estimates indicate that, by the middle of this century, coral reefs may erode faster than they can be rebuilt. This could compromise the viability of reefs and impact thousands of species that depend on reefs. Changes in the calcification rates also effect how far organic particles sink before carbon is released. Acidification could therefore reduce the efficiency of the oceanic carbon sink. Since the depth of the acidified layers varies due to the internal dynamics of the ocean, we must monitor and predict the timing, location, and magnitude of changes in ocean pH.

Schedule & Milestones

- Establish ocean acidification monitoring and research team. (2010)
- Develop ocean acidification data management system. (2010)
- Installation and maintenance of new ocean carbon and ocean acidification monitoring sites in the Atlantic and Pacific Oceans. (2010-2014)
- Provide data and synthesis products from open-ocean acidification monitoring system to NOAA's Geophysical Fluid Dynamics Laboratory to incorporate into Earth system and ecological models. (2010-2014)

Deliverables

	FY 10	FY 11	FY 12	FY 13	FY 14
Ocean carbon observatory sites (cumulative #)	4	8	12	16	20
Implementation of ocean acidification information delivery system (cumulative %)	0	12	25	50	100
Ocean acidification indices developed (cumulative #)	0	1	2	2	2

Performance Goals and Measurement Data

Performance Goal: Climate Reduced uncertainty in measurements of changes in ocean acidity (pH)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase		0.005 pH units/year	0.005 pH units/year	0.005 pH units/year	0.005 pH units/year	0.005 pH units/year
With Increase		0.005 pH units/year	0.0045 pH units/year	0.004 pH units/year	0.003 pH units/year	0.002 pH units/year
Description: One of the goals of this activity is to reduce uncertainty in measurements of changes in ocean acidity (pH) to 0.002 pH units per year by 2014. This measurement is an indicator of the precision and reliability of ocean acidification data that supports improved predictability of ocean acidification and its impacts.						

Labs and Cooperative Institutes (0 FTE and -\$4,000): NOAA requests a decrease of 0 FTE and \$4,000. This decrease is requested to support existing higher priority program requirements.

Competitive Research Program (0 FTE and +\$681,000): NOAA requests an increase of 0 FTE and \$681,000. This increase is requested to support existing program requirements within this subactivity but not provided for in the Omnibus Appropriations Act, 2009.

TERMINATIONS FOR 2010

The following programs, or portions thereof, have been terminated in FY 2010: Laboratories & Cooperative Institutes (\$65,000); NOAA Joint Institute for the Northern Gulf of Mexico (\$1,761,000); Climate System Research Center, MA (\$650,000); Climate Change and Air Pollutant Impacts to New England's Rare Alpine Zone, NH (\$350,000); and Advanced Study Institute for Environmental Prediction, MD (\$1,000,000).

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Oceanic and Atmospheric Research
 Subactivity: Climate Research

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Oceanographer	Boulder, CO	ZP-4	1	86,171	86,171
Physical Scientist	Boulder, CO	ZP-3	2	60,459	120,918
Physical Scientist	Boulder, CO	ZP-4	1	86,171	86,171
Meteorologist	Boulder, CO	ZP-3	1	60,459	60,459
Meteorologist	Boulder, CO	ZP-4	1	86,171	86,171
Physical Scientist	Boulder, CO	ZP-3	1	60,459	60,459
Total			<u>7</u>		<u>500,349</u>
less Lapse		25.0%	<u>2</u>		<u>125,087</u>
Total full-time permanent (FTE)			5		375,262
2010 Pay Adjustment (2.0%)					<u>7,505</u>
TOTAL					<u>382,767</u>
Personnel Data			<u>Number</u>		
Full-Time Equivalent Employment					
Full-time permanent			5		
Other than full-time permanent			<u>0</u>		
Total			5		
Authorized Positions:					
Full-time permanent			7		
Other than full-time permanent			<u>0</u>		
Total			7		

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Oceanic and Atmospheric Research
Subactivity: Climate Research

Object Class	2010 Increase
11.1 Full-time permanent	383
11.9 Total personnel compensation	383
12 Civilian personnel benefits	115
25.1 Consulting Services	1,666
25.2 Other services	7,773
25.5 Research and development contracts	50
26 Supplies and materials	500
31 Equipment	1,435
41 Grants and fixed charges	3,660
99 Total Obligations	15,582

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: Oceanic and Atmospheric Research
 Subactivity: Climate Research

	Object Class	2010 Decrease
25.2	Other services	(4)
99	Total Obligations	(4)

Appropriation: Operations, Research, and Facilities
Subactivity: Weather and Air Quality Research

The objectives of the Weather and Air Quality Research subactivity are to:

- Provide the Nation with more accurate and timely warnings and forecasts of high impact weather events and improved air quality information; and
- Provide the scientific basis for informed management decisions about weather and air quality

To support these objectives, Weather and Air Quality research supports the theoretical frameworks, remote sensing technologies, and scientific understanding to improve weather forecasts; air quality forecasts; and crosscuts of weather, air quality, and climate change. These include: (1) develop and assess new, cost-effective atmospheric observing systems; (2) develop data acquisition, management, analysis, and display systems; (3) develop and verify numerical models and other techniques to provide prediction guidance for weather, particularly high-impact events; and (4) transfer research results to aid the research and policy communities and improve operational warnings and forecasts. More information on this subactivity is available at:

<http://www.research.noaa.gov/weather/>

LABORATORIES AND COOPERATIVE INSTITUTES

The Laboratories and Cooperative Institutes line supports improved forecasts and warnings for weather events and air quality. Improved forecasts and warnings require more frequent and higher-density observations, faster communications, and better local data-handling systems. In response to this need, NOAA conducts research to improve the spatial and temporal resolution of remote observations of the atmosphere and to integrate the resulting data into descriptions of the atmosphere for use in weather forecasting research and operations. Primary research activities include:

- Improving forecasts and warnings through advancing the spatial and temporal resolution of remote atmosphere observations, and integrating this data into research and operational atmospheric models;
- Developing dual-polarization, phased-array, and multi-frequency Doppler radars and passive radiometers to study convective storms, improve rainfall estimates, and detect damaging winds and tornadoes;
- Improving short-range (1-12 hour) forecasting through the development and evaluation of new local data system technologies and techniques;
- Incorporating satellite-observed wind profile data into forecast models to determine whether this information can improve the accuracy of weather forecasts;
- Applying current wind-profiler radar technology on land-based and buoy-mounted systems to better characterize coastal weather and improve short-term forecasts of hazardous events;
- Developing airborne radiometric and optical instruments designed to map ocean color and salinity along coastal waterways and in the open ocean in order to improve information about harmful algal blooms and the strength of ocean circulation drivers;
- Transitioning hurricane model and forecast decision aide improvements to operations;
- Developing and transitioning air quality forecasting capabilities to include additional key pollutants and extend forecast lead times;
- Identifying and explaining key atmospheric causes of serious air pollution problems for policy-relevant discussion;

- Accelerating improvements in medium range (3-14 day) numerical weather prediction;
- Developing improved ground and satellite-based remote sensing systems to continuously measure vertical profiles of wind speed and direction, temperature, and humidity.
- Developing advanced systems and multi-frequency radars as research tools to improve our knowledge of atmospheric winds, turbulence, aerosols, and moisture processes.

WEATHER AND AIR QUALITY RESEARCH PROGRAMS

Weather and Air Quality Research Programs encourage cooperation with external experts in critical fields of research. NOAA's external partners include Federal, state, and local government entities; universities; and industry. Currently, two primary research programs are supported under this line:

- *U.S. Weather Research Program* – This program improves NOAA's capability to anticipate and forecast high impact weather events, one of the greatest challenges in weather forecasting. This program comprises three components: (1) The Joint-Hurricane Testbed, designed to upgrade hurricane forecast models through increased resolution, improved model physics, and better data initialization techniques; (2) Air Quality forecast research, dedicated to improving accurate and timely air quality forecast guidance to better equip managers with the information they need to make public health decisions; (3) THORPEX, which aims to extend reliable forecasts of high-impact weather and water events out to 14 days with usable accuracy. More information on each of these capabilities is available at: <http://www.esrl.noaa.gov/research/uswrp/>
- *Multi-functional Phased-Array Radar* – Congress established a joint R&D program between NOAA, DOD, DHS and FAA to investigate the Multi-functional Phased-Array Radar (MPAR) and its potential to replace the multiple existing observing systems that support the diverse missions of the participating agencies. PAR has considerably higher scan rates, is equipped with dual-polarization, and can reduce the time it takes to make a complete Doppler radar observation from six minutes to less than one minute. If the PAR technology is successful, NOAA can realize significant improvements in lead times for tornadoes and other forms of hazardous weather. More information on PAR research is available at: <http://www.nssl.noaa.gov/par/>

OTHER PARTNERSHIP PROGRAMS

The strength of NOAA's weather and air quality research is that it operates in partnership with a multitude of external experts in its fields of research. These partnerships extend to other Federal, state, and local government entities; universities; and industry. Other Partnership Programs contain various programs appropriated by Congress. OAR manages these programs in a manner that leverages the strengths of these external partners in concert with NOAA's mission responsibilities and requirements.

PROGRAM CHANGES FOR FY 2010

Weather Research and Forecast (WRF) Model Developmental Testbed Center (DTC) (+1 FTE and +\$2,000,000): NOAA requests an increase of \$2,000,000 and 1 FTE to continue to develop the Weather Research and Forecasting (WRF) Developmental Testbed Center (DTC) as the principal vehicle for leveraging the modeling capabilities of Federal, academic, and private numerical modelers.

Proposed Actions

New investment in the DTC will enhance NOAA's capability to transition numerical modeling research on the WRF model to operations. The operational WRF modeling program includes plans for the rapid and direct transfer of new research results into the numerical weather prediction (NWP) process of the National Weather Service (NWS) and other operational NWP centers. The WRF effort embodies the concept of the operational and research communities working jointly toward development of next generation NWP capabilities, allowing new techniques developed in the research community to be rapidly and efficiently transferred to operations.

The DTC is a facility in Boulder, CO, where the operational and research communities work closely together in developing and testing the next generation numerical forecast systems. In the development process, researchers and members of the operational community are invited to work at the DTC with Center personnel to demonstrate the forecast value of new techniques in NWP. In addition, members of both communities are able to evaluate current operational models through retrospective analysis and diagnosis of their strengths and weaknesses. A key DTC objective is to create a research environment that mimics an operational environment in order to effectively test and evaluate new NWP methods without interfering with actual day-to-day activities in the operational centers.

The increased funding will allow the DTC to provide advanced hurricane and numerical ensemble prediction systems to the research community for further advancement and refinement, initially including a hurricane version of the WRF model (HWRF), advanced data assimilation techniques, and the capability to supply a basic verification toolkit for the centrally managed computer coding and software. The funds will also cover: (1) documentation for developed modeling and evaluation systems and components and (2) enhanced support to the user community through the development of a HWRF tutorial (including ocean and wave modeling). NOAA research laboratories and their cooperative institutes expect to conduct this work in partnership with the National Center for Atmospheric Research (sponsored by the National Science Foundation) and the Department of Defense.

Statement of Need and Economic Benefits

OAR provides critical support to the NWS by continually developing new science and technology that improve the NWS operational mission. Work at OAR improves NWS's ability to forecast weather, issue storm warnings, collect and transmit marine intelligence for the benefit of commerce and navigation. A report from the National Research Council entitled *From Research to Operations in Weather Satellites and Numerical Weather Prediction, Crossing the Valley of Death* called for a new capability to accelerate the transfer of research results to operational numerical models. The Developmental Testbed Center (DTC) was developed in response to this report with interagency and academic partners (National Center for Atmospheric Research, Air Force Weather Agency, Naval Research Laboratories, the Army Research Lab and the Federal Aviation Administration) to facilitate the transition of research to operations of numerical weather prediction advancements.

The DTC ensures that promising research codes and modeling technologies are rigorously tested and evaluated in an operations-like environment to quantify their impact for improving forecasts and ensuring reliability. By completing these costly steps prior to their transfer to the operational community, NWS conserves resources by reducing the level of effort required to bring new codes into operations, resulting in accelerated forecast improvements to enable decision makers to mitigate the effects of high-impact weather events on industry and the public. Since NOAA, the Department of Defense, and the National Science Foundation spend large amounts of dollars each year supporting modeling research and development, the DTC efforts are designed to be a cost-effective leveraging of its partner agencies' investments by increasing the overall return on investment for these basic, applied, and operational model investments. Without the benefits of the DTC, some of the projected gains in NWP and hurricane forecast improvements (6% improvement per year out to 5 days) will not be realized.

Schedule & Milestones

- Conduct high-resolution (1-km) hurricane intensity forecast experiments using the most promising alternatives from operations and research communities. Conduct retrospective testing of forecast capabilities on historical events. (2009) Conduct real-time forecast testing. (2010)
- Establish code maintenance and user support for NWS/ National Center for Environmental Prediction (NCEP) Hurricane-WRF atmospheric and oceanic prediction codes. (2009)
- Establish code maintenance and user support of NWS/NCEP Grid-point Statistical Interpolation (GSI) data assimilation codes and alternative research codes, particularly as they relate to WRF and WRF-related codes. (2009)
- Establish user support for WRF modeling codes under the Earth System Modeling Framework (ESMF), including user support for the Non-hydrostatic Mesoscale Model version of WRF (WRF-NMM) (2009), and the Advanced Research version of WRF (WRF-ARW). (2011)
- Establish code maintenance and user support of modeling codes used in the NWS/NCEP ensemble modeling system, a system of numerous forecast models using different algorithms or initial conditions to reduce overall forecast uncertainty. (2010)
- Conduct high-resolution (4-km grid) ensemble forecast experiments using most promising alternatives from operations and research communities. (2011-2012). These new experiments will test the ability of model ensembles to reduce overall forecast errors and minimize forecast uncertainty.
- Establish code maintenance and user support of NWS/NCEP global mesoscale modeling codes. (2012)

Deliverables

- *Manage Reference Code System:* Put in place a fully functional Reference Code system and testing procedures, including timing and verification statistics for various configurations. New system components will include: Hurricane WRF (HWRF, including the operational HWRF), GSI, and WRF-VAR (variational data assimilation).
- *User Support:* Maintain help desk and tutorials and maintain, update, and add new documentation for system components, including establishing new components HWRF and GSI as fully supported components of the Reference Code System.
- *Testing and Evaluation of Contributed Code:* Complete testing of HWRF and data assimilation packages and begin testing of four-dimensional variational data assimilation (4DVAR) and ensemble packages.
- *Verification:* Add new capabilities to verification toolkit as new techniques mature and demonstrate their merit.
- *Model Infrastructure:* Begin supporting WRF dynamic core codes that can run under WRF or ESMF infrastructures.

- *Ensemble Prediction*: Begin to develop a capability to provide full end-to-end ensemble prediction to the community and prepare ensemble modeling package documentation.

Performance Goals and Measurement Data

This increase will support the objective of “Provide accurate and timely weather and water information” under the Department of Commerce strategic goal of “Promote Environmental Stewardship.”

Performance Goal: Demonstrate reduction in 48-hour hurricane intensity forecast error	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase (% reduction)	3%	4%	5%	6%	7%	8%
With Increase (% reduction)	3%	6%	8%	10%	12%	14%
Description: Hurricane model storm intensity forecasts are used by National Hurricane Center forecasters as guidance when predicting the growth & decay of tropical cyclones in the Atlantic & Western Pacific. Average intensity error measures how closely the storm intensity predicted by the model matches the observed intensity. Comparison between improvement with & without the increase is shown as a cumulative percentage reduction in intensity forecast error. This improvement to experimental hurricane intensity forecasts would be over and above the improvement shown in the similar metric for the Hurricane Forecast Improvements initiative in the NWS budget activity (i.e., the improvements are additive)						

Performance Goal: Number of major model and/or data assimilation improvements	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase (cumulative)	2	4	6	8	10	12
With Increase (cumulative)	2	5	8	11	14	17
Description: Number of major numerical models and data assimilation systems developed and maintained by the numerical weather prediction research and operations communities which are tested for their ability to improve forecast operations and are included in the Reference Code database for transition to operations. These numbers represent the quality of computer code and documentation submissions received by the DTC which are tested and evaluated, included in the computer model library, and provided to the research and operations community for operation, application, and further development.						

Severe Weather Forecast Improvements (+1FTE and +\$2,592,000): NOAA requests an increase of \$2,592,000 and 1FTE to perform research and development activities to enable forecast offices to issue tornado warnings with a 30-minute leadtime or greater.

Proposed Actions

Today’s National Weather Service (NWS) tornado warning lead times are typically 10 to 15 minutes and are based principally on radar observations. This research is designed to develop storm-forecast models that reliably predict the likelihood of tornado formation. The ability to

provide tornado warnings and other severe thunderstorm hazardous weather based on forecast models (in addition to observations) is referred to as “Warn on Forecast” (WoF). While the focus is on tornado-warning lead-time services, this work also will lead to improved forecasts of hail, straight-line winds, and heavy rain (flash floods). The development of such severe-storm forecast models will require new methods of interpreting observations, particularly radar observations, new methods for assimilating those observations, and new modeling techniques.

The WoF effort has three integrated components: First, to improve the understanding of the small-scale (microphysical) processes occurring within thunderstorms, a field experiment called VORTEX-II will be conducted. This effort will leverage National Science Foundation funding of \$5M to \$10M between FY’09-’10. VORTEX-II will use a mix of new operational observation systems (e.g., dual-polarized radar) and prototype future systems (e.g., Phased-Array Radar (PAR), gap-filling radar, mobile mesonet surface observations, UAS systems) to observe thunderstorm microphysics as never before. The intended outcome is to learn the mechanics of how tornadoes form, or “tornadogenesis”.

Second, for WoF to be successful, existing high-resolution forecast models must be improved. New knowledge of thunderstorm processes and how tornadoes form and decay must be incorporated into the forecast models. High-resolution observations obtained from radar, both the operational NEXRAD and the high-resolution prototype PAR, must be assimilated into frequently updated (sub-hourly) models in near real time along with other high-frequency observations (e.g., aircraft, profiler, surface, satellite). Techniques to assimilate radar data this quickly do not exist. Federal and university partnerships will be established to address this deficiency. The WoF design will include nesting within the hourly updated 3-km radar-assimilating High-Resolution Rapid Refresh (HRRR) numerical model planned by OAR and NCEP.

Third, the project is designed to take advantage of incremental improvements that will be useful in NWS forecast operations by testing them first in the NOAA Hazardous Weather Testbed (HWT). HWT activities will integrate real-time observations taken during the VORTEX-II field program with techniques to obtain uncertainty information needed to produce reliable probabilistic forecasts of thunderstorm-produced hazards. Physically located in the National Weather Center building between the NWS Norman Forecast Office, the NWS NCEP Storm Prediction Center, and the NOAA Research National Severe Storms Laboratory, the HWT is improving the Nation’s hazardous weather warning services by bringing together forecasters, researchers, trainers, developers, and user groups to test and evaluate new techniques, applications, observing platforms and technologies. The HWT is the natural testing ground for assessing the benefits of new prototype observation systems, like those in VORTEX-II and new high-resolution models. This work will also support the development and testing of new products for external customers, including emergency managers and the private sector.

Statement of Need and Economic Benefits

OAR continually provides new science and technology to the NWS, helping NWS improve the weather forecasts and storm warnings it issues as directed by the NWS Organic Act. The significant improvements in warning lead times improvements brought about by OAR’s NEXRAD research in the ‘90s are expected to level off at 13-15 minutes. In 2002, the NWS developed its visionary Science, Technology and Infusion Plan (STIP), which articulates a goal of 30-minute tornado lead times. This research proposal is intended to demonstrate the STIP vision of a 30-minute lead-time forecast. Further, a key driver for this research is the National Research Council report *Completing the Forecast*, in which the National Academies of Sciences recommends new products that convey the certainty of severe weather forecasts, allowing users to take appropriate risk-mitigation actions.

The density of urban communities surrounded by sprawling suburbs makes it imperative that the public and emergency managers have increased tornado and severe-weather lead time to save lives and mitigate property damage. Impacts from severe storms in the US cost hundreds of millions of dollars as well as 150 to 250 lives per year. On average, flash floods created by severe storms kill over 130 people per year, while tornadoes kill more than 50 people per year. The February 5, 2008, tornado outbreak in the Southeast U.S. killed nearly 60 people.

Schedule & Milestones

- Complete specification of basic components of a complete WoF system, including data conversion and quality control, ensemble initialization, storm-scale forecast model, data-assimilation system, display, and diagnostic software, along with all needed computer communication packages. (2010)
- Complete first-year phase of VORTEX II field experiment. Collect and evaluate VORTEX-II observations for keys to understanding the physical processes that lead to tornadogenesis. Identify potential model physical process schemes for incorporating processes correctly into storm-scale forecast models. (2010)
- Complete field phase of VORTEX II experiment. Complete documented plan to assemble and test a WoF system. Complete plan and establish an evaluation approach to develop and assess new end-user products and services using HWT with the NWS. (2010)
- Complete assembly of an initial WoF experimental system. Complete report documenting major findings from VORTEX II. Develop plan for WoF modeling component using the High-Resolution Rapid Refresh (HRRR) to provide initial 3-km fields, comparing 0.25-1.0 km WoF with 3-km HRRR forecasts. (2011)
- Complete study and prepare a report assessing the relative value of different data sources and modeling techniques for use in WoF.
- Complete study assessing ways of providing severe weather forecast uncertainty. Perform case studies with WoF-HRRR nesting design, including new data assimilation techniques at HRRR and WoF scales. Work with NOAA operations to define requirements for new warning products derived from WoF research. (2012)
- Complete an operational demonstration with the NWS operations of a WoF system during the severe weather season with WoF nested inside HRRR. (2013)
- Complete a report documenting the readiness of WoF technology and utility of transitioning WoF functionality to operations. (2014)

Deliverables

- Plan for creating a WoF system for proof of concept and a plan to develop and assess new service products. (2010)
- Report documenting major findings of the VORTEX II field phase (2011)
- Report documenting relative value of different data sources, new data assimilation and modeling techniques appropriate for use in WoF, and a design to optimize WoF via nesting inside the HRRR. Report assessing ways of providing a measure of severe-weather forecast uncertainty. (2012)
- Report documenting major findings of a WoF operational demonstration with the NWS in a pseudo-operational environment of the HWT. (2013)
- Report assessing operational readiness of WoF technology. Computer code and documentation suitable for transitioning to operations. (2014)

Performance Goals and Measurement Data

This increase will support the objective of “Provide accurate and timely weather and water information” under the Department of Commerce strategic goal of “Promote Environmental Stewardship.”

Performance Goal: Demonstrate improved tornado warning lead time in minutes.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	13	13	13	13	13	13
With Increase	13	13	13	13	20	30
Description: The measure “without increase” shown here is the NWS operational GPRA measure for tornado warning lead times in minutes. The measure “with increase” is a warning lead time hypothesis using warning-on-forecast technology. This research will seek to demonstrate that the current GPRA targets can be improved through a demonstration project by seven minutes in FY13 and by seventeen minutes in FY14						

Multi-Function Phased Array Radar (+2 FTE and +\$1,000,000): NOAA requests an increase of \$1,000,000 and 2 FTE for the Multi-function Phased Array Radar (MPAR) project to continue research to demonstrate that MPAR technology can cost effectively replace aging operational weather and aircraft tracking radars.

Proposed Actions

This risk-management work will focus on assessing the radar’s ability to meet agency requirements and improve services, reducing technical and program uncertainties, and developing information for future analyses of alternatives. Through the efforts of the Office of the Federal Coordinator for Meteorology (OFCM) Working Group for MPAR and in collaboration with the Federal Aviation Administration (FAA), NOAA’s National Severe Storms Laboratory and the FAA, along with university and industrial partners, are adapting a Phased Array Radar (PAR) system for weather observation and aircraft surveillance; this system was initially developed by the Navy to detect and track missiles and aircraft. It is important that the leading agencies establish a joint risk-reduction R&D program in the near future, given the potential for savings, complexity of the mission, the technology involved, agency go-no-go decision points, and the long lead times required for interagency acquisition programs. This research is designed to demonstrate that PAR: (1) is suitable for operational use; (2) can improve services (e.g., greater tornado warning lead time); (3) can simultaneously perform weather and air-surveillance functions as postulated by industry; and (4) will be a cost-effective replacement for the current WSR-88D radar.

Specific actions in PAR research are:

- Evaluate the PAR’s ability to provide service improvements, particularly to meet NOAA’s public safety mission and the need to improve severe weather warning lead times in accordance with the NOAA’s Strategic Plan, the 5- and 20-year research plans, and GPRA goals;
- Design and begin fabricating dual-polarized PAR demonstrator with other agencies;
- Determine MPAR techniques to provide improved rainfall and hail estimates;

- Verify improvements to tornado warnings;
- Complete studies to assess MPAR polarized antenna-array configurations for both weather and air-surveillance operations;
- Work with industry to design, fabricate, and acquire a fully functional, 4-faced, polarized MPAR prototype antenna; and
- Complete risk reduction activities and research needed to inform decision-makers within NWS and FAA such that a go-no-go decision can be made by the FAA FY 2018 deadline.

Statement of Need and Economic Benefits

Research shows that MPAR can scan the atmosphere surrounding the radar by as much as four times faster than current operational radars and can also dwell on individual storms to monitor rapid changes in tornado-producing storms. Both of these core capabilities could improve NOAA's weather and warning missions. The establishment of an MPAR Program is also of great interest to the FAA, DOD, and DHS for weather awareness, as a primary backup system for aircraft surveillance in support of the Next Generation Air Transportation System (NextGen), and as air surveillance for homeland security and defense.

This increase will support the risk-reduction activity needed to provide decision makers with the appropriate information needed for a multi-agency decision on a gross purchase of these radars. By 2020-2025, more than 350 FAA radars and nearly 150 weather radars will need to be either replaced or have their service life extended. If MPAR is successful and implemented as a replacement radar, estimated multi-agency savings could total \$4.8 billion in acquisition costs (\$1.8 billion if replacing all existing radars with similar technology) and life-cycle costs over 30 years (\$3.0 billion due to fewer radars) (*Federal Research and Development Needs and Priorities for Phased Array Radar-FCM-R25-2006*). In order to make MPAR available for implementation, a multi-agency effort is necessary now. Historically, it takes 20-25 years to perform the research, develop a prototype, test, and deploy new weather radar systems.

Multiple independent reports also call for a risk reduction of phased-array technology. The National Research Council's (NRC) 2002 report, "Weather Radar Technology *beyond* NEXRAD", identified phased-array radar as a candidate technology and called for resolving the technical characteristics, design, and costs of PAR systems. An Office of the Federal Coordinator for Meteorology sponsored report, *Federal Research and Development Needs and Priorities for Phased Array Radar*, released in June 2006, called for the establishment of a Multi-function Phased Array Radar (MPAR) risk-reduction research and development (R&D) program and creation of an interagency MPAR Working Group to coordinate and report on the R&D activities of participating agencies.

Schedule & Milestones

- Complete service improvements evaluation. (2010-2012)
- Complete design of dual-polarized PAR demonstrator with other agencies. (2010-2011)
- Complete study to add dual polarization to the MPAR to provide improved rainfall and hail estimates and meet new NWS baseline requirements. (2010-2012)
- Complete study to verify MPAR operations can lead to improve tornado warnings. (2010-2014)
- Complete studies to assess MPAR polarized antenna-array configurations for both weather (NOAA weather and FAA airport terminal weather mission) and air-surveillance operations (FAA mission) (2012-2014)

- Complete risk-reduction activities and research needed to inform decision-makers within NWS and FAA such that a Go/No-Go decision can be made by FY 2018 (FAA deadline). (2017)

Deliverables

- Report on potential for improved severe-weather observing and monitoring service improvements (2011)
- Design for a mobile dual-polarized PAR demonstrator radar (2011)
- Report on options for polarizing phased-array radars (2012)
- Dual-polarized demonstrator radar (2012)
- Report on potential for improved tornado warnings produced in collaboration with NWS forecasters within the NOAA Hazardous Weather Test bed (HWT) (2014)
- Assessment of PAR antenna-array configurations needed to build a fully functional MPAR prototype (2014)

Performance Goals and Measurement Data:

Performance Goal: Demonstrate improved tornado warning lead time in minutes.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	13	13	13	13	13	13
With Increase	13	13	14	14	15	16
Description: The measure “without increase” shown here is the NWS operational GPRA measure for tornado warning lead times. The measure “with increase” represents an increased warning lead time in minutes over the existing GPRA measure. Improved assimilation of radar data into models is expected to immediately improve operational forecasts and increase tornado warning lead time. This research and development will also seek to improve the accuracy of predicting tornadoes and hence reduce the number of false alarm warnings.						

TERMINATIONS FOR 2010

The following programs, or portions thereof, have been terminated in FY 2010: Laboratories & Cooperative Institutes (\$46,000); Nutrient & Mercury Speciation Measurement Stations (\$250,000); Wind Hazards Reduction Program, IA (\$850,000); Coastal & Inland Hurricane Monitoring & Protection Program, AL (\$700,000); National Weather Radar Testbed Phased Array Radar, OK (\$350,000); Redstone UAS Development for Weather and Atmospheric Research, AL (\$750,000); Flooding/Storm Surge Disaster Mitigation, MS (\$500,000); AIRMAP at University of New Hampshire, NH (\$300,000); Tornado and Hurricane Operations and Research, AL (\$800,000); Boise Center Aerospace Laboratory (BCAL) Watershed Modeling Utilizing LiDAR, ID (\$350,000); University of Tennessee – Atmospheric Science Research, TN (\$500,000); and Southeastern Mercury Consortium, FL (\$500,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: Oceanic and Atmospheric Research
 Subactivity: Weather & Air Quality Research

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Meteorologist	Norman, OK	ZP-3	2	56,411	112,822
Global Modeler	Boulder, CO	ZP-4	1	86,171	86,171
Radar Engineer	Norman, OK	ZP-4	2	80,402	160,804
Total			5		359,797
less Lapse		25.0%	1		89,949
Total full-time permanent (FTE)			4		269,848
2010 Pay Adjustment (2.0%)					5,397
TOTAL					275,245

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	4
Other than full-time permanent	0
Total	4
Authorized Positions:	
Full-time permanent	5
Other than full-time permanent	0
Total	5

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Oceanic and Atmospheric Research
Subactivity: Weather and Air Quality Research

Object Class	2010 Increase
11.1 Full-time permanent	275
11.9 Total personnel compensation	275
12 Civilian personnel benefits	83
21 Travel and transportation of persons	151
25.2 Other services	750
25.5 Research and development contracts	656
41 Grants and fixed charges	3,677
99 Total Obligations	5,592

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Appropriation: Operations, Research, and Facilities
Subactivity: Ocean, Coastal, and Great Lakes Research

The objectives of the Ocean, Coastal, and Great Lakes Research subactivity are to:

- Improve the protection, restoration, and management of coastal and ocean resources;
- Monitor ocean, coastal, and Great Lakes ecosystems, including coral;
- Support ecosystem modeling and forecasting;
- Encourage technology transfer and efficient resource management; and
- Increase the pace of discovery in unknown and poorly known areas of the world's oceans.

To achieve these objectives, OAR conducts research and monitoring activities that support ecosystem management. This includes ecosystem research to analyze ecosystem management decisions and their outcomes; integrated observing and data management systems; outreach and education to improve public understanding and use of coastal and marine resources; partnerships for place-based ecosystem approaches to management; and international diplomacy, negotiation, and partnerships. More information on research in this subactivity is available at: <http://www.research.noaa.gov/oceans/>

LABORATORIES AND COOPERATIVE INSTITUTES

The Laboratories and Cooperative Institutes line supports state-of-the-art research conducted at in-house laboratories and by educational institution partners. Three OAR laboratories are supported here: the Atlantic Oceanographic and Meteorological Laboratory, the Great Lakes Environmental Research Laboratory, and the Pacific Marine Environmental Laboratory.

Ocean, Coastal, and Great Lakes Research Laboratories and Cooperative Institutes science increases our understanding of aquatic processes for the purpose of predicting, monitoring, and mitigating the effects on ecosystems. Examples of such research include: climate change variability, water quality in terms of nutrient loading and harmful algal blooms, invasive species, long-term coral reef monitoring, the link between aquatic ecosystems and the atmosphere, and the consequences of submarine volcanoes and hydrothermal vents on deep ocean ecosystems.

These laboratories and cooperative institutes are currently working to:

- Gather, analyze, and report coastal ocean and Great Lakes data on land-based sources of pollution and their potential environmental impacts to the coastal environment.
- Work in cooperation with other NOAA Line Offices, other Federal, state, and local authorities, including the EPA and the U.S. Army Corps of Engineers, to maximize research knowledge for use in such economically and environmentally important projects in the coastal ocean as the South Florida Ecosystem Restoration Program.
- Conduct research by monitoring coral reef ecosystems and using the data to make predictions of coral health - the Coral Reef Watch Program seeks to accomplish NOAA's goal of ecosystem forecasting and management by improving understanding of the reef ecosystem.

- Generate oceanographic data and conduct research relevant to the interplay of decadal climate change and coastal ecosystems, e.g., ocean-atmosphere interactions and their role in climate and climate change.
- Perform field, analytical, and laboratory investigations to improve understanding and prediction of biological and physical processes in estuaries and coastal areas and their interdependencies with the atmosphere and sediments.
- Improve the prediction of valuable fish and shellfish stocks in the Gulf of Alaska and the Bering Sea for the North Pacific Fisheries Management Council (Fisheries Oceanography Coordinated Investigations, FOCI).
- Study the oceanic impacts and consequences of submarine volcanoes and hydrothermal venting (VENTS Program).

NATIONAL SEA GRANT COLLEGE PROGRAM

Congress established the National Sea Grant College Program in 1966 to enhance the development, use, and conservation of the Nation's marine, coastal, and Great Lakes resources. This valuable program establishes a network of Sea Grant Colleges to conduct education, outreach, training, and research in all fields of marine study. The Sea Grant network addresses key regional issues and opportunities in such diverse areas as, aquaculture, aquatic invasive species, coastal community development, estuarine research, fisheries management, coastal hazards, marine biotechnology, marine engineering, seafood safety, and water quality. As a non-regulatory program, Sea Grant focuses on generating and disseminating science-based information to a wide variety of stakeholders. Currently, there are 32 university based Sea Grant programs located in every coastal and Great Lakes state and Puerto Rico. Most Sea Grant programs include multiple campuses of different universities across the state.

NOAA's National Sea Grant College Program is a multi-faceted program including the following:

- Research – Each of the Sea Grant colleges conducts research to solve problems and explore new uses for the world's marine, Great Lakes and coastal resources. This work addresses priority problems and opportunities identified by coastal resource managers and users. By leveraging university expertise, Sea Grant can address emerging topics in marine biotechnology and critical public health, food, and environmental concerns.
- Education – Sea Grant provides national leadership to enhance marine literacy for grades K-12 and aids in the development of professionals who understand marine science and research. Sea Grant offers programs such as summer in-service programs, newsletters, speakers and curriculum materials. At the university level, Sea Grant recruits and trains undergraduate and graduate students, and employs senior researchers who form a national brain trust for dealing with coastal challenges.
- Outreach and Extension – Sea Grant contributes to outreach and education for the public through a communications program comprised of writers, editors and media specialists who create printed and electronic information products, and an extension program consisting of a network of specialists and field agents, who transfer information and research results to the marine and aquatic community. The overall goal of extension education is to encourage individuals, groups and institutions to use science-based information.
- Technology Transfer – Sea Grant communicates the needs of the marine communities to university scientists, and transfers research results and novel management techniques and technologies to resource users and managers at the local level through scientific and public conferences and workshops.
- Program Evaluation – Sea Grant has a rigorous four-year performance review process for its federally sponsored university-based state programs. Performance review teams judge programs according to quantitative performance benchmarks and metrics developed with the help of outside experts. Individual program performance is used to determine merit-based funding for each state program.

More information on this program can be found at: <http://www.seagrant.noaa.gov/>

OCEAN EXPLORATION AND RESEARCH

The Office of Ocean Exploration and Research (OER) comprises the former NOAA Undersea Research Program (NURP) and the Ocean Exploration (OE) Program. This is the sole source of dedicated funding for discovery-based ocean science, with investments in undersea exploration, science, and technology in the deep ocean and areas of special concern, such as the U.S. Exclusive Economic Zone (EEZ), the Extended Continental Shelf, and marine protected areas. The program supports interdisciplinary exploration expeditions, research, and advanced technology development efforts at NOAA and with external partners. Its most prominent functions are:

- Exploration – This program identifies and prioritizes areas of the world’s oceans that should be explored through coordination with NOAA programs, other Federal agencies, and the academic community. The exploration program provides direct support to several multidisciplinary science-based and exploratory missions per year through a peer-review process. The scope of exploration includes visiting unknown areas of the ocean, returning to poorly known areas to refine our understanding of the resources and processes they contain, multi-dimensional mapping of ocean habitat, discovery of living and non-living resources, and discovery and preservation of the world’s cultural heritage. Exploration provides the Nation with knowledge of the ocean, its resources, and its inhabitants, and will enhance our ability to describe and predict how the ocean and its interrelated ecosystems function.
- Research – OER scientists conduct wide-ranging research with a focus on ocean dynamics, extreme and unique ocean environments, ecosystem frontiers, and new ocean resources. This vital research transforms discoveries into useful knowledge, providing a foundation for NOAA programs, and facilitates NOAA’s response to new and emerging issues. The program also conducts studies of underwater diving techniques and equipment to advance safety and improve diver performance.
- Advanced Technology Development – This function of the OER program identifies and anticipates NOAA’s undersea technology needs, and develops, tests, and transitions solutions to those needs. It addresses cutting-edge challenges to include the fields of AUV applications, ecosystem modeling, and undersea sampling and monitoring. A particular challenge for this program is to develop new sensors and systems for ocean exploration to support U.S. leadership in marine technology.
- Data Management – The OER program generates new and vital information; the data management function focuses on meeting the data and information management needs of other NOAA programs, partner agencies and institutions, the education community, and the general public. OER provides tools and strategies for activities including managing proposal processes, science and field operations planning, project management and reporting, product development, and data dissemination.
- Education and Outreach – OER is dedicated to education and outreach, devoting 10% of its annual budget to enhancing ocean science literacy through K-16 formal education and informal outreach programs. This program component facilitates strategic connections between new ocean science discoveries and future investments in research and management to support NOAA’s goal of Ecosystem Management.

OER benefits from the only federal vessel designed specifically for ocean exploration: the *Okeanos Explorer*. This ship is outfitted for deep water mapping to 6,000 meters; exploring, filming, and sampling using a remotely operated vehicle (ROV); and providing collected data and information in real-time to

shore-based stations using satellite technology. This vessel will allow OER the opportunity to explore little known areas of the oceans in a consistent, systematic manner.

More information on OER activities is available at: <http://www.explore.noaa.gov/>

OTHER ECOSYSTEMS PROGRAMS

Research under the Other Ecosystems Programs seeks to initiate and maintain research and development programs that cut across its own intramural foundation and other NOAA and university research programs in an effort to advance the cutting edge of NOAA research capabilities. This line supports two activities:

- *NOAA Aquatic Invasive Species (AIS) Program* – AIS disrupt the stability of coastal ecosystems, affecting recreational, economic, and other beneficial uses of coastal resources; early detection, monitoring, and control are critical to reducing the impact of AIS. OAR’s AIS Program focuses on the prevention and control of invasive species; activities include but are not limited to, ballast water research, control activities, and education and outreach. This program is a critical component of the Department of Commerce’s support of the interagency Aquatic Nuisance Species Task Force and National Invasive Species Council. NOAA co-chairs each of these two policy bodies. More information is available at: <http://www.glerl.noaa.gov/res/Programs/ais/> and <http://www.seagrant.noaa.gov/themesnpa/aquaticinvasivespecies.html>.
- *NOAA Marine Aquaculture Program* – OAR is responsible for the science and technology capability in the NOAA Marine Aquaculture Program, which supports the broader NOAA Aquaculture Program. OAR runs a competitive research grants program, the National Marine Aquaculture Initiative, funding work by external partners to expand regional aquaculture efforts in developing new, suitable species and promoting sustainable aquaculture. In addition, collaborative studies with international partners improve our understanding of ecosystem effects and carrying capacities for coastal ecosystems. Aquaculture education and extension facilitates the transfer of research into business operations and informs the public and practitioners about key issues and information related to aquaculture. The program promotes an environmentally friendly and profitable aquaculture industry that will alleviate stress on natural fish stocks, create jobs, provide healthy protein to Americans at a reasonable cost, improve food safety, and help alleviate our Nation’s trade deficit. More information on NOAA’s aquaculture efforts is available at: <http://aquaculture.noaa.gov/>

OTHER PARTNERSHIP PROGRAMS

The strength of NOAA’s ocean, coastal, and Great Lakes research is that it operates in partnership with a multitude of external experts in its fields of research. These partnerships extend to other Federal, state, and local government entities; universities; and industry. Other Partnership Programs contain various programs appropriated by Congress. OAR manages these programs in a manner that leverages the strengths of these external partners in concert with NOAA’s mission responsibilities and requirements. These programs particularly contribute to the overall goals of NOAA through:

- Outreach and education to improve public understanding and use of coastal and marine ecosystems;
- Ecosystem approaches to management decision making;

- Partnerships for placed-based ecosystem approaches to management;
- Ecosystem research to analyze ecosystem management decisions and their outcomes;
- Integrated observing and data management systems; and
- International diplomacy, negotiation and partnerships.

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PROGRAM CHANGES FOR FY 2010:

Great Lakes Environmental Research Laboratory Operations (0 FTE and +\$501,000): NOAA requests an increase of \$501,000 and 0 FTE to expand and advance key Great Lakes forecasting research programs with identifiable operational products. Specifically, we seek to expand the Environmental Chemistry and Toxicology program, advance the Aquatic Invasive Species program, and maintain the hydrology program at the Great Lakes Environmental Research Laboratory (GLERL).

Proposed Actions

The requested funds will expand and advance critical NOAA research programs in the Great Lakes. The requested funds will enable GLERL to augment on-going critical research activities including:

- Forecast the occurrence, sources, availability, and forms of toxic chemicals in the Great Lakes through the development of the Distributed Large Basin Runoff Model
- Characterize how ecosystems respond to changing water quality, toxin levels, and other conditions
- Forecast the exposure of aquatic organisms to toxic chemicals including uptake through benthic and pelagic organisms into fish tissues and their potential effect on human health resulting in forecast models
- Forecast the development and toxicity of the harmful algal bloom, *Microcystis*.
- Forecast the impact and bioavailability of sediment contaminants.
- Research the causes and solutions to water-borne disease such as salmonella, dysentery and *E.coli*.
- Provide lake level predictions and other hydrologic products to U.S. Army Core of Engineers and U.S. Coast Guard
- Research the prevention of invasive species via transport in the ballast tanks of commercial ships

Statement of Need and Economic Benefits

The Great Lakes contain the largest supply of freshwater in the world, holding about 18% of the world's total freshwater and about 90% of the United States' total freshwater. About 65 million pounds of fish per year are harvested from the lakes, contributing more than \$1 billion to the Great Lakes economy. Toxic contaminants pose a threat not only to aquatic and wildlife species, but to human health as well, since humans are at the top of many food chains. Some toxic substances biologically accumulate or are magnified as they move through the food chain. Consequently, top predators such as lake trout and fish-eating birds - cormorants, ospreys and herring gulls - can receive extremely high exposures to these contaminants. Concentrations of toxic substances can be millions of times higher in these species than in water. As a result, the potential for human exposure to these contaminants is far greater from consumption of contaminated fish and wildlife than from drinking water.

GLERL's scientific expertise on the movement and cycling of sediment particles, and circulation measurements and modeling, has led to several large joint research programs with the U.S. Environmental Protection Agency to develop contaminant mass balance models for selected areas: the Upper Great Lakes connecting channels, Green Bay, and Lake Michigan. Contaminants (organic and inorganic such as PCB's and heavy metals) have accumulated in sediments over time in the Great Lakes. These contaminants bio-accumulate in Great Lakes biota. GLERL will predict the impact and bioavailability of contaminants, facilitating the delivery of ecological forecasts on the effects of biological, chemical, physical, and human-induced changes on ecosystems

and their components. Ecological forecasts provide resource managers and decision makers with the tools necessary to ensure the continuity of vital Great Lakes resources such as clean water, edible fish, and healthy ecosystems

The requested increase will expand the Environmental Chemistry and Toxicology research program. The benefit of GLERL research is the support it lends to decision making at state, local, federal, and international levels. GLERL research helps to identify effective strategies for decreasing the economic costs associated with the decline in recreational and commercial fishing and alleviating the costs associated with high concentrations of toxic substances in fish. GLERL work identifies those actions and activities that will lead to the greatest improvement in environmental outcomes; informed management decisions that incorporate this body of knowledge will be more cost effective and avoid the unnecessary expenses of wasteful policies. GLERL science is often driven by one key scientist that forms the focal point for extensive partnerships and additional external funds.

The Great Lakes Advanced Hydrologic Prediction System (AHPS) of lake levels and other hydrologic products regularly used by the U.S. Army Core of Engineers, U.S. Coast Guard, and governmental and academic researchers. The AHPS is used daily to make extended probabilistic forecasts of many hydrological variables, including lake levels, at GLERL and at several US and Canadian agencies concerned with operational decision making. AHPS is also used in many of their climate change impact assessments and management evaluations.

The NOAA Center of Excellence for Invasive Species Research is studying the importance and prevention of invasive species via transport in the ballast tanks of commercial ships. The major pathways by which aquatic invasive species (AIS) reach U.S. ecosystems all involve human activities, especially commerce and trade. Costs to the U.S. economy of AIS are estimated at 100s of millions of dollars per year and are mounting. Solutions to problems related to AIS will undoubtedly affect both the costs and policies related to commerce and trade. Congress (Public Law 101-636 as amended through October 1996) and the White House (Executive Order 13112, February 1999) identified aquatic species invasions as a national problem requiring federal action.

Performance Goals and Measurement Data

Performance Goal: Ecosystems	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Number of coastal, marine, and Great Lakes ecological characterizations that meet management needs (cumulative).						
With Increase	5	5	6	7	7	7
Without Increase	5	5	4	4	4	3

Ocean Exploration and Research (0 FTE and \$350,000): NOAA requests an increase of 0 FTE and \$350,000. This increase is requested to support existing program requirements within this subactivity but not provided for in the Consolidated Appropriations Act, 2009.

TERMINATIONS FOR 2010

The following programs, or portions thereof, have been terminated in FY 2010: Lake Champlain Research Consortium (\$350,000); Lake Champlain Emerging Threats (\$250,000); New Hampshire Lake Host Program, NH (\$100,000); Collaborate R&D Initiative for the Gulf of Mexico, AL (\$750,000); National Institute of Undersea Science and Technology, MS (\$5,000,000); National Sea Grant Law Center, MS (\$750,000); Tropical Ecosystem Science and Technology (TEST), MS (\$850,000); New Hampshire Lakes Association Aquatic Weed Control Program, NH (\$100,000); Nanotoxicology: The Biological Response to Nanoparticle Exposure, AL (\$700,000); Coupled Remote Sensing and Biological Monitoring of Invasive Plant Species, MI (\$650,000); Maumee Bay Fish Kill Study, OH (\$750,000); National Undersea Research Program NURP, CT (\$350,000); Inner Space Center, RI (\$300,000); Environmental Center, WV (\$1,750,000); Transforming New England, ME (\$200,000); Great Lakes Water Education STEM Project (\$500,000); and County of Hawaii Coastal Land Use Extension Project (\$115,000).

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: Oceanic and Atmospheric Research
 Subactivity: Ocean, Coastal, and Great Lakes Research

	Object Class	2010 Increase
25.2	Other services	851
99	Total Obligations	851

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Appropriation: Operations, Research, and Facilities
Subactivity: Information Technology R&D

The objectives of the Information Technology R&D subactivity are to:

- Modernize NOAA’s computationally-intensive services;
- Improve NOAA’s ability to forecast weather and climate; and
- Enhance NOAA’s capability to disseminate environmental information.

Through this program, NOAA participates as a “mission” agency in the Interagency Working Group on Information Technology Research and Development.

HIGH PERFORMANCE COMPUTING INITIATIVE

Information Technology R&D supports OAR’s High Performance Computing and Communications Initiative. The HPCC program supports OAR through major improvements in weather and climate forecasting, ecosystem and ocean modeling, and environmental information dissemination. These improvements are heavily dependent on major advances in high-end computing power, advanced information technology, and the availability of environmental data and information. These critical investments allow NOAA to meet its mission to deliver vital services and science education to the Nation.

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Appropriation: Procurement, Acquisition, and Construction
Subactivity: Systems Acquisition

The objective of OAR’s Systems Acquisition subactivity currently is to provide a state-of-the-art scalable supercomputer and supporting infrastructure to advance modeling programs critical to NOAA’s and the Nation’s climate research.

RESEARCH SUPERCOMPUTING/CCRI

NOAA’s R&D High Performance Computing (R&D HCPS) provides computational resources to support advances in environmental modeling crucial for understanding some of the most critical climate issues of today. This investment includes the supercomputing systems, associated storage devices, advanced data communications, security, and necessary data center space. NOAA’s R&D HPCS leverages world-class research staff and modeling capabilities now in place at NOAA to address important research problems in climate and weather research. NOAA’s on-going model development is advancing the Nation’s climate research program through NOAA computational research and collaboration with the inter-agency and academic climate research community. The American Recovery and Reinvestment Act funding enhanced NOAA’s R&D HPCS accelerating NOAA’s capabilities to provide climate information to decision-makers at regional and state levels.

Base activities support the objectives, “Advance understanding and predict changes in the Earth’s environment to meet America’s economic, social, and environmental needs” under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs” as well as the Environmental Modeling objective under NOAA’s Weather and Water goal.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete*	Total
Research Supercomputing/CCRI								
Change from FY 2010 Base		0	0	0	0	0	-	
Total Request	253,644	10,379	10,379	10,379	10,379	10,379	-	Recurring

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Research Supercomputing/CCRI (\$170,000,000) and Pell Library and Undersea Exploration Center – research equipment, RI (\$1,200,000).

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Appropriation: Procurement, Acquisition, and Construction
Subactivity: Construction

The objective of the OAR Construction line item is to support major facility upgrades needed at OAR facilities.

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NATIONAL WEATHER SERVICE FY 2010 OVERVIEW

For FY 2010, NOAA requests an increase of \$21,945,000 and 5 FTE over the FY 2010 base program for a total of \$963,880,000 and 4,644 FTE for the National Weather Service.

The National Weather Service (NWS) (<http://www.weather.gov>) provides weather, water, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure, which can be used by the public, other governmental agencies, the private sector, and the global community.

NWS is a world-class team of professionals who work together to provide the best weather, water, and climate information in the world by:

- Producing and delivering reliable information;
- Incorporating proven advances in science and technology;
- Measuring, reporting, and evaluating our performance;
- Issuing forecasts to help reduce weather- and water-related fatalities; and
- Working with others to make the weather, water, and climate enterprise more effective.

NWS supports several mission goals in the NOAA strategic plan. These include:

Mission Goal: Serve Society's Needs for Weather and Water Information

More and more sectors of the economy recognize the impacts of weather and water on their businesses, and are becoming more sophisticated at using weather and water information to improve commerce. Concern for public safety drives NWS to improve the timeliness and accuracy of warnings for all weather-related hazards. To do so, NWS weather and water predictions need to be at the limits of what science, technology, and a highly trained workforce can provide.

NWS is committed to expand these limits by enhancing observation capabilities; by improving data assimilation to effectively use all the relevant data NWS and others collect; by improving collaboration with the research community through creative approaches such as community modeling; by rapidly transforming scientific advances in modeling into improved operational products; by improving the techniques used by our expert forecasters; by making NWS information available quickly, efficiently, and in a useful form (e.g., the National Digital Forecast Database); by including information on forecast uncertainty to help customers make better informed decisions; by taking advantage of emerging technologies to disseminate this information; and by maintaining an up-to-date technology base and a workforce trained to use all of these tools to maximum effect.

However, the entire weather and water enterprise is larger than NWS. NWS depends on partners in the private, academic, and public sectors, starting with other line offices within NOAA, to acquire data, conduct research, provide education and training, help disseminate critical environmental information, and provide advice to make best use of NWS information. NWS strives to work even more closely with existing partners. NWS seeks to develop new partnerships to achieve greater public and industry satisfaction with our weather and water information and to honor our commitment to excellent customer service.

Goals of NWS Weather and Water Activities

- Increased accuracy in forecasting and lead time in warning for severe weather.
- Save lives and property through more accurate and timely severe weather prediction.
- Increased satisfaction with and benefits from NOAA information and warning services, as determined by surveys and analysis of emergency managers, first responders, natural resource and water managers, public health professionals, industry, government and the public.
- Improved effectiveness of NOAA's current observing systems.
- Increased number of observations obtained and used from partners, both international and domestic.
- Increased number of observations archived, available, and accessible.
- Increased number of new multi-use observing systems deployed.
- Increased number of forecasters trained in the newest techniques.
- Increased volume of forecast and warning information formatted to clarify the uncertainty of an event (e.g., space weather, air quality, water and weather forecasts).
- Improved performance of NOAA's weather and water, air quality, and space weather prediction suite.
- Increased number of favorable scores on public surveys of citizen knowledge about appropriate actions under hazardous weather and water related conditions.
- Increased percentage of the public reporting timely receipt of warnings as measured by public surveys.
- Increased number of communities with plans in place to act on weather warnings and to reduce the impacts of coastal hazards.
- Increased community knowledge of, use of, and satisfaction with NOAA information that supports local air quality monitoring and forecast programs.
- Increased assistance to international partners to improve response capabilities to weather and water predictions.

Mission Goal: Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond

NWS recognizes its responsibility to future users of their climatological and oceanographic data. NWS recognizes the importance of incorporating climate needs into the gathering of quality observations to produce a climate record; and will ensure that climate needs are incorporated into weather and ocean observing systems whenever possible. NWS will invest resources to modernize the Cooperative Observer Program. NWS will do its part to ensure that NOAA customers and partners receive an integrated service that meets their need for information across all time and space scales.

Intraseasonal to interannual climate forecasts will become more accurate and more detailed. Increasing climate expertise at local NWS forecast offices will enhance regional specificity of climate forecasts for local customers and partners. NWS will take advantage of technological advances in climate modeling and will transition the results of research on climate variability into routine operations. Long-term forecasts will describe their inherent uncertainty more

carefully, and will be more closely coupled to effects on society and the economy aiding, for example, emergency managers, farmers, and energy providers with resource allocation decisions. NWS will continue to expand the coverage and capabilities of the Advanced Hydrologic Prediction Service (AHPS) to translate improved climate predictions into effects on the Nation's fresh water system, hydroelectric power, and flood controls.

Goals of NWS Climate Activities

- Increased use and effectiveness of climate observations to improve long-range climate, weather, and water predictions.
- Increased use and effectiveness of climate information for decision makers and managers (e.g., for industry, natural resource and water managers, community planners, and public health professionals).
- Increased use of the knowledge of how climate variability and change affect commerce.

Mission Goal: Support the Nation's Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation

NWS services are critical to the safe and efficient transportation of people and goods by sea, air and over land. The transportation and public utility sector contributes approximately \$825 billion per year to the U.S. economy and is significantly impacted by weather and climate events. NWS will work to provide aviation forecast improvements to help mitigate air traffic delays and reduce weather-related aviation accidents; improve precipitation and water resource forecasting, which affects surface transportation; and improve ocean and wind forecasting, which affects sea-borne transport from the high seas to our coasts and in the Great Lakes. NWS is committed to working with our partners to continue to improve weather information services in support of all modes of transportation and commerce.

Goals of NWS Commerce and Transportation Activities

- Increased safety and productivity of transportation systems.
- Increased reliability, frequency, and use of marine, aviation, and surface transportation-related observations.
- Increased accuracy and use of weather and marine forecasts to increase efficiency of all land, water and air transportation systems.

Mission Support Goal: Provide Critical Support for NOAA's Mission

NWS operates and maintains a distributed network of offices that span the nation, delivering essential NOAA services, especially those related to high-impact events, at the local community level where critical, life-saving decisions are made. This includes the management of all major weather observing systems, from software engineering and communications to facilities and logistical planning. NWS also ensures worldwide acquisition and delivery of weather and water data through the Telecommunications Gateway and NOAAnet. In support of NOAA's operational forecasting mission, NWS develops, improves and monitors data assimilation systems and models of the atmosphere and oceans, using advanced methods developed internally as well as cooperatively with scientists from universities, NOAA laboratories, other government agencies, and the international scientific community.

Goals of NWS Mission Support Activities

- Ensure the reliability and integrity of NOAA's operational weather and water observing and prediction systems and services.
- Determine the optimal mix of observations, in terms of spatial and temporal resolution and data type, to advance NOAA's numerical modeling capabilities.

Research and Development Investments

The NOAA FY 2010 Budget estimates for its activities, including research and development programs, are the result of an integrated, requirements-based Planning, Programming, Budgeting, and Execution System (PPBES) that provides the structure to link NOAA's strategic vision with programmatic detail, budget development, and the framework to maximize resources while optimizing capabilities.

The PPBES process makes specific reference to the objectives and milestones outlined in the NOAA 5 Year Research Plan for 2008-2012. The strict management of planning against these investment criteria, objectives, and milestones leads to NOAA budget proposals that reflect the research and development needs of the organization.

Significant Adjustments-to-Base (ATBs)

NOAA requests a net increase of 0 FTE and \$15,525,000 to fund adjustments to current programs for NWS. The increase will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA).

NOAA also requests the following transfers for a net change to NOAA of \$0.

From Office	Line	To Office	Line	FTE	Amount
NWS	NOAA Center for Weather and Climate Prediction (NCWCP) (PAC)	NWS	Central Forecast Guidance (ORF)	0	\$1,000,000

Appropriation: Operations, Research, and Facilities
Subactivity: Operations and Research

NOAA's NWS serves the people of the United States twenty-four hours each day. NWS is the sole official U.S. voice for issuing warnings during life-threatening weather situations. NWS forecasters issue climate, public, aviation, marine, fire weather, air quality, space weather, river and flood forecasts and warnings every day for the U.S., its territories, adjacent waters and ocean areas, to protect life and property and enhance the national economy.

NWS has over 4,000 employees in 122 weather forecast offices, 21 weather service offices and data collection offices, 13 river forecast centers, 9 national centers, and other support offices around the country, including 21 units collocated with the Federal Aviation Administration's (FAA) air route traffic control centers. In addition, NWS supports a national infrastructure to gather and process data worldwide from the land, sea, and air. This infrastructure includes data collection technology such as Doppler weather radars, satellites operated by NOAA's National Environmental Satellite, Data, and Information Service (NESDIS), data buoys for marine observations, surface observing systems, and instruments for monitoring space weather and air quality. This data feeds sophisticated computer models running on high-speed supercomputers. A highly trained and skilled workforce uses powerful workstations to analyze all of these data and issue forecasts and warnings. High-speed communications tie all this information infrastructure together and disseminate forecasts and warnings to the public.

NWS staff also use trained community volunteers to enhance weather service operations. Cooperative observers collect weather data that become part of the Nation's climate records and citizen storm spotters provide us with visual confirmation of severe weather events. As environmental information becomes more sophisticated, complete, and available to all, the environmental literacy of the public becomes more important. NWS outreach and education activities are aimed at making sure the public understands the information we provide and can use it effectively in the decisions they make.

LOCAL WARNINGS AND FORECASTS

Weather Warnings and Forecasts: Each year, NWS forecasters issue over 1,000 tornado warnings, 2,500 flash flood warnings, 5,000 winter storm warnings, 900,000 airport forecasts, 200,000 coastal and lakeshore marine forecasts, 50,000 fire weather forecasts and warnings, and 700 tropical cyclone/hurricane forecast and warning packages. In addition to these high impact services, Weather Forecast Offices (WFO) deliver a comprehensive and continuous suite of forecasts and information to support a variety of users, including the general public.

Although text forecasts have been the primary means of product dissemination, NWS has been converting its forecast products to a digital, gridded format. Each WFO sends detailed, high resolution graphical forecasts for their local area to a national server to be compiled in the National Digital Forecast Database (NDFD) (<http://www.weather.gov/ndfd>). This is a collection of sensible weather elements such as maximum and minimum temperature, humidity, cloud cover, probability of precipitation, amount of precipitation and wintry precipitation, weather type, and wind direction and speed. In addition to viewing gridded weather data via the Internet, more advanced users can decode the individual grids into a number of different output types for

additional uses and automated exchanges. These capabilities have greatly increased the audience of NDFD data, and a large majority of private weather firms quickly realized its potential benefits and have flourished by using the NDFD as a tool for composing their products.

Aviation Weather Services: NWS provides a broad range of services in support of the aviation community. WFOs prepare site-specific airport terminal forecasts four times per day with amendments as needed for over 600 public use airports in the 50 states and U.S. territories around the globe. WFOs also take observations to meet local aviation customer requirements. The Aviation Weather Center (AWC) (<http://aviationweather.gov/>) and the Alaska Aviation Weather Unit (<http://aawu.arh.noaa.gov/>) provide en-route weather forecasts, advisories and warnings critical for aviation. In addition, the AWC discharges responsibilities of a World Aviation Forecast Center along with the United Kingdom's Meteorological Office.

NWS expects to see continued improvement of aviation forecasts through the implementation of an improved observational sensing strategy where the NWS obtains thousands of daily vertical profiles of moisture from aircraft. A 2006 assessment in Central Region revealed that where aircraft could provide vertical profiles of moisture data, a significant improvement in the Probability of Detection of low ceiling and visibility was seen. The False Alarm Ratio (FAR) also improved. NWS is continuing to determine the impact this moisture data has on numerical models.

NWS is developing the vertical and aviation component of the National Digital Forecast Database – a key component of the Next Generation Air Transportation system being developed by the Joint Planning and Development Office (<http://www.jpdo.gov/>). Key to this effort is working with the FAA's Weather Research and Development program to transition digital forecast products required by aviation users. In addition, higher resolution forecast models and improved guidance tools will be integrated into the Aviation Forecast Preparation System (AvnFPS).

Marine and Coastal Weather Services (<http://www.nws.noaa.gov/om/marine/marine.shtml>) encompass a vast area from inter-coastal waterways to near-shore bays and inlets to the open oceans spanning much of the northern and western hemispheres. The program is aimed at promoting safe and efficient transportation, in support of both commercial and recreational interests. Forecasts, analyses, watches, warnings and advisories of maritime conditions as well as coastal and tropical hazards are provided by forty-seven coastal WFOs and three components of the National Centers for Environmental Prediction (NCEP) (<http://www.ncep.noaa.gov>). These services are provided for the coastal waters, offshore, high seas waters, and Great Lakes nearshore and open lake waters.

Using observational data sources such as buoy observations and satellite imagery, numerical model forecast guidance provided by various sources such as NCEP and the OAR Great Lakes Environmental Research Laboratory, as well as analyses of ice from the National Ice Center (NIC) (<http://www.natice.noaa.gov/>), the forecasters at tropical and marine centers and coastal and Great Lakes offices maintain a continuous monitoring of weather conditions over marine zones. Routine forecast products and analyses, watches, warnings and advisories are disseminated in alphanumeric, gridded, and graphical formats to describe maritime conditions and tropical and coastal hazards. Marine and coastal products describe wind, waves, visibility, icing, coastal flooding, severe weather, high surf, and rip currents. Tropical products describe hazards associated with tropical cyclones such as storm surge, wind, waves, and inland impacts.

NWS is focused on enhanced forecaster training, increased customer outreach, and implementation of new products. One area of focus will be to educate emergency managers and all users on the strengths, limitations, and application of new tropical cyclone probabilistic wind speed products. Enhanced customer outreach and training will be provided for coastal hazards such as rip currents and high surf. The number of gridded products provided for marine and tropical conditions over the marine zones will be expanded.

Fire Weather Services (<http://fire.boi.noaa.gov/>) support national, regional and local land management agencies such as the U.S. Forest Service (USFS). NWS issues a complete Fire Weather Forecast twice daily, with updates as needed. The forecast contains weather information relevant to fire control and smoke management for the next 36-48 hours. The appropriate crews use this information to plan for staffing and equipment levels, the ability to do prescribed burns, and assess the daily fire danger. Once per day, NWS meteorologists issue a coded fire weather forecast for specific USFS observation sites for input into the National Fire Danger Rating System (NFDRS). This computer model outputs the daily fire danger that is then conveyed to the public in one of four ratings: low, moderate, high, and extreme. The WFOs also, under a prescribed set of criteria, will determine if a Fire Weather Watch or a Red Flag Warning needs to be issued. These products alert not only the public, but other agencies that conditions are creating the potential for extreme fire behavior.

On the national level, NWS Storm Prediction Center issues fire weather analyses for one and two days out. These include large-scale areas that may experience critical fire weather conditions including the occurrence of "dry thunderstorms." These are thunderstorms, usually occurring in the western U.S.; no rain falls, as it evaporates before reaching the surface.

During the height of the fire season, state and federal forestry officials often request a forecast for a specific location called a "spot forecast." Spot forecasts are used to determine whether it will be safe to ignite a prescribed burn and how to situate crews during the controlling phase. Upon request, NWS also provides on-scene assistance at large wildfires or other disasters, including HAZMAT incidents. Incident Meteorologists (IMET) are NWS forecasters specially trained to work with Incident Management Teams during severe wildfire outbreaks or other disasters requiring onsite weather support. IMETs travel quickly to the incident site and then assemble a mobile weather center capable of providing continuous meteorological support for the duration of the incident. The kit includes a cell phone, a laptop computer, and communications equipment, used for gathering and displaying weather data such as satellite imagery or numerical forecast model output. Remote weather stations are also used to gather specific data for the point of interest. IMETs can be deployed anywhere a disaster strikes and must be capable of working long hours for weeks at a time in remote locations under rough conditions. There are approximately 70 IMETs nationally.

In FY 2009, NWS will implement digital weather files to complement currently-provided spot forecasts. This will enable Fire Behavior Analysts from partnering land management agencies to directly input weather data into their fire weather behavior and fire spread models. NWS will also work toward national implementation of improved gridded fire weather element forecasts to be used as input into more accurate fire danger assessments. NWS will work with the National Institute of Standards and Technology, the National Centers for Atmospheric Research, and NOAA's Office of Atmospheric Research to develop a fire spread model which can provide high-resolution forecasts of critical weather-based parameters. These improvements are particularly important near zones where planned communities meet the wildland forests. In addition, NWS will continue coordination to maintain excellent

interagency relations with the wildland fire community through technology transfer and policy coordination, highlighted by the implementation of a new Interagency Agreement for Meteorological Services.

Tsunami Warning Services are supported by the Pacific Tsunami Warning Center (PTWC) (<http://www.prh.noaa.gov/ptwc/>) at Ewa Beach, Hawaii and the West Coast/Alaska Tsunami Warning Center (WC/ATWC) (<http://wcatwc.arh.noaa.gov/>) at Palmer, Alaska. These centers conduct tsunami watches and issue warnings for all U.S. communities at risk. NWS collects and analyzes observational data from an international network of seismological observatories and sea level observing stations that operate on a cooperative basis. The centers use these data to prepare watches and warnings covering all U.S. territories and states bordering on the Pacific and Atlantic Ocean Basins and disseminate them to WFOs, Federal and state disaster agencies, military organizations, private broadcast media, and other facilities that can furnish warning information to the public.

In FY 2004, NWS assumed operational responsibility for the National Tsunami Hazard Mitigation Program (NTHMP) (<http://nthmp.tsunami.gov/>). The goal of the NTHMP is to ensure adequate advance warning of tsunamis along all U.S. coastal areas and appropriate community emergency response to a tsunami event. In response to the destructive Indian Ocean Tsunami, the U.S. Tsunami Warning Program including the NTHMP was upgraded and expanded to enhance the monitoring, detection, warning, and communications designed to protect lives and property for all U.S. communities at risk. In FY 2008, the U.S. Tsunami Warning Program achieved full operating capability and completed deployment of all DART II buoys.

River & Flood Forecast Services are provided in the form of daily river forecasts by the 13 NWS River Forecast Centers (RFC) (<http://www.weather.gov/ahps/rfc/rfc.php>) using hydrologic models based on rainfall, soil characteristics, precipitation forecasts, and several other variables. Some RFCs, especially those in mountainous regions, also provide seasonal snow pack and peak flow forecasts. These forecasts are used by a wide range of users, including those in agriculture, hydroelectric dam operation, and water supply resources. The information is also the basis for local flood and flash flood warnings, watches, and advisories issued by the WFOs that emphasize flooding impacts depending on geographic area, land use, time of the year, and other factors.

In recent years, NWS has enhanced its delivery of hydrologic information through the Advanced Hydrologic Prediction Service (AHPS). AHPS applies new science, providing more accurate forecasts for river conditions ranging from droughts to floods. AHPS allows anyone to view near-real time observation and forecast data for rivers, lakes and streams. It also provides longer range probabilistic information which can be used for water resource planning decisions. In FY 2009, AHPS development activities will continue, resulting with advanced river-flow and forecast services at 2,617 AHPS forecast locations nationwide, i.e., 65% of the total to be implemented.

Water Resource Forecast Services include NWS capabilities to provide water resource managers with localized water and soil condition forecasts via a national digital database incorporating assimilation of hydrometeorological data and observations; and a Community Hydrologic Prediction System (CHPS) necessary to advance water prediction science. This will allow NOAA's research and development enterprise and operational service delivery infrastructure to be integrated and leveraged with other federal water agency activities and the private sector to form the backbone of a national water information system. Through this, NOAA will produce a new suite of high-resolution forecasts (including estimates of uncertainty) for stream flow, soil moisture, soil temperature, and many other variables directly related to watershed conditions, via collaboration and sharing of data and algorithms with the

university and private sector research groups. Furthermore, these activities enable NOAA to deliver a national database of drought analyses and predictions, and generate user friendly Geographic Information Systems (GIS) products for monitoring drought. This activity contributes to the National Integrated Drought Information System (NIDIS) and NOAA's Coastal Estuary River Information System (CERIS).

Climate Services provided by the Climate Prediction Center (CPC) (<http://www.cpc.noaa.gov/index.php>) include a broad range of climate products and services related to climate monitoring, short-term climate fluctuation forecasts, and information on the impacts of climate patterns on the nation. Their product suite spans time scales from a week to seasons, extending into the future as far as technically feasible, and covers the land, the ocean, and the atmosphere, extending into the stratosphere. These climate services are available for users in government, the public and private industry, both in this country and abroad. Applications include the mitigation of weather-related natural disasters and uses for social and economic good in agriculture, energy, transportation, water resources, and health. Continual product improvements are supported through diagnostic research, increasing use of models, and interactions with user groups.

Additionally, WFOs issue daily and monthly climate reports for their areas, providing localized information about temperature and precipitation records and extreme events such as droughts. WFOs serve as the local NOAA user interface for climate services, including outreach and education in this area. They are also the stewards for the integrity and continuity of the historical climate record in their area of responsibility.

The Climate Services Division (<http://www.nws.noaa.gov/om/csd/>) at NWS headquarters provides the strategic vision for climate services at NWS and oversees NWS climate services program. It develops policy and requirements for climate prediction products and other services related to the period of week two out to one year, including seasonal forecasts and threat assessments. The division also sets NWS field policies and procedures for climate prediction products, defines service and mission needs, solicits user feedback to evaluate new products and services, and approves final product design. The Climate Services program maintains strong ties with other countries; across NOAA lines, specifically through the NOAA Climate Program Office; with federal agencies; the university community; and the private sector, and encourages collaborative arrangements among the Regional Climate Centers, NOAA Regional Integrated Science and Assessments (RISAs), State Climatologists, NWS WFOs, and Regional headquarters to tailor climate forecasts for local users.

The NWS *Air Quality Forecast Services* (http://www.nws.noaa.gov/ost/air_quality/index.htm) capability is an integrated, end-to-end forecast system that provides timely, reliable forecast guidance to accurately predict the onset, severity and duration of poor air quality. Forecast guidance consists of next-day ground-level ozone and smoke predictions, at hourly intervals and 12km grid resolution. Forecast products are available via NWS Telecommunications Gateway, and NOAA's partner agency, the Environmental Protection Agency (EPA), which provides health-based interpretations of the forecast guidance. NOAA's products meet customer requirements from federal, state, local, and public sectors with state-of-the-science information, both to assist state and local air quality forecasters who issue health-based air quality alerts for participating cities, and to provide information for people at risk from poor air quality at any time of day or night, on any day of the week in any month of the year, in cities, suburbs, and rural areas alike.

Phased development and testing activities are in progress to extend the initial ozone-based regional capability. In FY 2006, ahead of schedule, coverage expanded to cover the entire eastern U.S. In FY 2007, NWS deployed an expanded ozone forecast capability over the contiguous United States.

Development and testing of additional components needed for particulate matter (PM) forecasts is also in progress. Real-time air chemistry observations will be incorporated into forecast models as needed for extended forecasting improvements.

CENTRAL FORECAST GUIDANCE

The modernized field office structure emphasizes warnings and short-range forecasts. The process by which these products are generated begins with centralized processing of weather observations, followed by the application of high-resolution computer simulations of the atmosphere on NOAA supercomputers, and adjustment by skilled NCEP forecasters. The results are forwarded to WFO forecasters who use them as the basis for local forecast products. Typically, local forecasters add the greatest value in the shortest forecast ranges. Beyond about three days, forecasts depend almost exclusively on NCEP output. The total forecast process depends critically on both NCEP products and local forecast efforts to enhance both accuracy and uniformity of service across the country.

In addition to their role in the local WFO forecast product generation, NCEP also provides the principal means through which NOAA provides operational weather, ocean, and climate prediction services for large areas, up to and including the entire globe, to a vast assortment of domestic and international users. These services typically exceed the domain of a single WFO, and require a large supercomputer; efficiency demands that these forecasts be generated centrally.

NCEP consists of eight science-based, service-oriented centers that generate environmental prediction products and two central activities supporting those services. The centers provide an integrated suite of forecast guidance and specific forecast products from the short-term through seasonal, interannual, decadal, and centennial time frames. Each center depends on the observational infrastructure, data assimilation systems, numeric modeling function, and application of model output statistics to produce value-added forecast guidance products for NWS field offices and direct users.

The *Storm Prediction Center* (SPC) (<http://www.spc.noaa.gov/>), located in Norman, Oklahoma, focuses on hazardous weather events such as severe thunderstorms and tornadoes, ice or heavy snow, fire weather and flash floods, with emphasis on the first few hours of the forecast period. Products issued from the SPC give the WFOs specific guidance as to the probability and intensity of severe weather occurrences for regional to local geographic scales.

The *Hydrometeorological Prediction Center* (HPC) (<http://www.hpc.ncep.noaa.gov/>), located in Camp Springs, Maryland, is responsible for preparing quantitative precipitation forecasts (QPF) that are used by WFOs to develop local rainfall, snow, and ice forecasts and by the Regional Forecast Centers (RFC) to develop local river and flood forecasts. The HPC provides special QPFs and coordination to other federal agencies such as the Federal Emergency Management Agency (FEMA) during major flood events. The HPC also provides an array of analysis and forecasts of frontal systems, pressure patterns, temperature, and precipitation for use by WFOs and the private weather community.

The *Ocean Prediction Center* (OPC) (<http://www.opc.ncep.noaa.gov/>), located in Camp Springs, Maryland, discharges U.S. international meteorological obligations to marine interests under the International Convention for Safety of Life at Sea, to which the U.S. is a signatory. It provides one-stop-shopping for marine interests operating outside the domain of coastal WFOs. The OPC provides weather and sea state warnings and forecasts for the high seas of the Northern Hemisphere for planning and operational purposes. Its warnings and products go directly to ships at sea, and are vital for the protection of life

and property. The OPC also provides guidance forecasts for WFOs with coastal responsibilities, which extend out to about 100 nautical miles. Coastal WFOs have responsibility for local forecasts and warnings out to that limit; for the high seas beyond, the responsibility has been centralized in the HPC.

The NCEP experts in the area of tropical meteorology are concentrated at the *Tropical Prediction Center (TPC)/National Hurricane Center (NHC)* in Miami, Florida (<http://www.nhc.noaa.gov/>). Services provided by the TPC/NHC include advisories, watches, and warnings for tropical cyclones in the north Atlantic and eastern north Pacific oceans, the Caribbean Sea, and the Gulf of Mexico, including the portions of the U.S. coastline threatened by such storms. In addition, TPC forecasters provide aviation and marine analyses and forecast products for the same areas of responsibility. The TPC/NHC functions both to provide guidance, coordination, and tropical weather expertise to WFO forecasters and to serve users of centrally generated products.

The *Aviation Weather Center (AWC)* (<http://aviationweather.gov/>), located in Kansas City, Missouri, is the mechanism by which the U.S. discharges its weather forecasting obligations to the aviation community under an international agreement through the International Civil Aviation Organization. The AWC provides wind, temperature, and flight hazard (e.g., icing, and turbulence) forecasts for flight planning and en route aircraft operations for the U.S., the north Atlantic and north Pacific routes, and some routes in the southern hemisphere. In addition to the en route weather support provided for the aviation industry, the AWC also produces guidance products for use by WFOs in support of the airport terminal forecast function. Thus, the AWC discharges large-scale, global aviation functions which can be sensibly centralized, while the WFOs discharge local aviation functions based on centralized guidance provided by the AWC.

The *Climate Prediction Center (CPC)* (<http://www.cpc.ncep.noaa.gov/>), located in Camp Springs, Maryland, produces climate services consisting of operational prediction of climate variability; monitoring of the climate system and development of databases for determining current climate anomalies and trends; and analysis and assessment of their origins and linkages to the rest of the climate system. These services cover climate time scales ranging from weeks to seasons, extending into the future as far as technically feasible, and cover the domain of land, ocean and atmosphere, extending into the stratosphere. WFOs, as well as the public, private industry, and the international research community use CPC climate services.

The *Space Weather Prediction Center (SWPC)* (<http://www.swpc.noaa.gov/>) in Boulder, CO, provides real-time monitoring and forecasting of solar and geophysical events, conducts research in solar-terrestrial physics, and develops techniques for forecasting solar and geophysical disturbances. SWPC provides services to a broad user community of government agencies, industries, public institutions, and private individuals involved in satellite operation, space exploration, radio navigation, high-altitude polar flights, high-frequency communications, remote intelligence gathering, long-line power and data transmissions, and geophysical exploration. SWPC serves many government, industry and private-sector clients, and such end-product users as the power industry, the airline industry, satellite operators, and the National Aeronautics and Space Administration (NASA). SWPC research scientists study the sun's electromagnetic, particle, and plasma emissions and the processes by which they affect the near-Earth space environment. SWPC takes a leading role in advocating and specifying new space-environment sensors for operational use. The SWPC, with the U.S. Air Force, jointly operates the national civilian space weather operations center. Forecasts, alerts, and warnings are provided to customers on a 24 hour-per-day, seven day a week basis. SWPC products are synthesized from over 1,400 data streams providing observations of the solar terrestrial environment, including x-ray flux, charged particles, and magnetic field changes on the sun, in interplanetary space, and at Earth.

NCEP also maintains two critical support organizations to facilitate the central forecast guidance process:

NCEP Central Operations (<http://www.nco.ncep.noaa.gov/>) operates the NOAA Central Computing Facility, manages the computer production suite upon which all NCEP services are based and the communications linking the several parts of NCEP, and provides operational quality assurance of incoming observations and outgoing products. NCO staff also provides central support for software development for data processing, display, interaction, and product generation. NCO is the technical transition point between the development of numerical weather and climate prediction models and their operational use by forecasters at NCEP and the WFOs. NCO staff also provides central support for software development for data processing, display, interaction, and product generation. NCO consists of computing, communications, and software specialists, as well as meteorologists with special knowledge of numerical modeling operations.

NCEP's Environmental Modeling Center (EMC) (<http://www.emc.ncep.noaa.gov/>) develops, enhances, and maintains complex data assimilation and numerical model systems that span the globe. The computer models and other numerical forecast products developed by the EMC provide the basic guidance that meteorologists at NCEP and the WFOs use in making weather and climate predictions. EMC serves as the integrator of numerical modeling research and development performed in universities and research laboratories. EMC conducts model impact studies to validate data sets that lead to new data requirements from observing technologies (satellites, radar, etc.).

PROGRAM CHANGES FOR FY 2010:

Local Warnings and Forecasts: Critical Space Weather Warnings and Services - Transition Numerical Models into Operations (+0 FTE and +2,700,000): NOAA requests an increase of 0 FTE and \$2,700,000 for a total of 0 FTE and \$11,014,000 to accommodate the new critical needs of our rapidly growing customer base. Industries; other agencies including DOD, NASA, and DHS; state and local governments; and the public increasingly rely on advanced technologies to provide global business products and services and to safeguard national security. These technologies are vulnerable to the threats of space weather. Millions of precision Global Positioning System users, every satellite operator, and the majority of commercial and military space and aviation activities will be vulnerable to a new round of solar storms during the upcoming solar maximum (peaking in 2012) unless NOAA develops the critical prediction and warning tools to safeguard these efforts. Current NOAA services provide forecast and nowcast information, but timeliness, accuracy, and coverage of existing products and services fall short in meeting the critical needs identified by our fast-growing and diverse customer base.

Proposed Actions

The request to transition critical numerical model-based products and services into space weather operations will significantly improve NOAA's ability to provide critical, timely, and useful space weather services to the Nation. The accuracy and timeliness of NOAA's space weather products, including alerts, warnings and forecasts, have the potential to equal the accuracy and timeliness of terrestrial weather products. To accomplish this however, NOAA must leverage existing prediction and specification models developed by partner agencies (NASA, NSF, and DOD) and transition them into NOAA's operations. These models, once transitioned, will dramatically improve the accuracy of NWS predictions and specifications, and will increase the warning lead time from its current value of one hour out to 1-4 days, depending on the speed of the solar eruption. Without this investment NOAA will be unable to improve upon the accuracy and timeliness of its services; more important, without this investment NOAA's current capability to issue forecasts and warnings of the geomagnetic storms that will affect the Nation's high tech infrastructure will fail to keep up with increasing and ever important demands.

Statement of Need and Economic Benefits

Without timely and accurate alerts and warnings, space weather has the demonstrated potential to disrupt virtually every major public infrastructure system including transportation systems, power grids, telecommunications, and global positioning applications (GPS). The lack of adequate space weather information leads to uncertainties that undermine space situational awareness, our national security and emergency response systems that serve to protect the public. At current funding levels, NOAA is unable to improve and diversify services.

The National Research Council, Space Studies Board, has stated that "Space-weather information is needed most for the protection of technological systems that are vulnerable to space-weather effects and to ensure human health and safety." The rapid advances in the technology sector and our fast growing dependency on space-based systems has resulted in new and ever-increasing vulnerabilities to hazardous space weather. High impact space weather events can interrupt the continuity of operations of the electric power industry, introduce dangerous errors into GPS applications, destroy satellite operations, and disrupt critical communications required by airlines and emergency managers. The 2006 Report of the Assessment Committee for the National Space Weather Program (membership includes DOC, DOD, NASA, DOI, DOE, DOT and NSF) stressed the need for real-time observation of mid- and low-latitude GPS disruption, with graphical products to define intensity and geographical boundaries.

Economists at the Space Studies Board (SSB) estimate that the economic loss due to space weather is \$200 – \$400 million per year, and the potential exists for significantly larger losses. The Electric Power Research Institute recently stated that a large geomagnetic storm has the potential to disrupt regional power grids with costs to society exceeding \$22 billion. Further, it is estimated that timely warnings of geomagnetic storms to the electric power industry save approximately \$450 million over the course of three years. If a large-scale blackout were avoided, benefits would be measured in lives saved and dollars not lost. Estimates of space weather related losses to satellite companies range from thousands of dollars, for temporary data outages, to up to \$200 million to replace a single satellite. Likewise, as the Director of the Space Weather Prediction Center testified before the Committee on Sciences, House of Representatives in 2003, “A one percent gain in continuity and availability of GPS information, which can be disrupted by space weather events, would be worth \$180 million per year.”

Schedule & Milestones

- FY 10: Begin transition of the Global Total Electron Content Model to provide GPS-error specifications and forecasts to NOAA’s worldwide customer base, significantly expanding on the current continental-U.S.-only product. Begin transition of the Solar Wind Disturbance Prediction Model to predict the arrival time and intensity of solar storms.
- FY 11: Acquire additional international GPS data for the Global-Total Electron Content Model.
- FY12: Complete transition of Global Total Electron Content Model, Begin transition of a coupled magnetosphere-ionosphere-atmosphere model for regional geomagnetic storm warnings, Validate and automate the Solar Wind Disturbance Prediction Model.
- FY14: Complete transition of the coupled magnetosphere-ionosphere-atmosphere model for regional geomagnetic storm warnings.

Deliverables

- FY12: Begin GPS-error warning service/mapping.
- FY13: Begin issuing warnings of geomagnetic storms up to 4 days in advance with 4 hour onset accuracy.
- FY14: Begin warnings of regional geomagnetic storms with a 30 minute cadence.

Performance Metrics

Performance Measure/(Goal):	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Lead-time of GPS Error Warnings/ (24 hr)	With Increase	None	None	3 Hrs	6 Hrs	24 Hrs
	Without Increase	None	None	None	None	None
Global GPS Error Maps Updates/ (every 15 Min)	With Increase	None	None	None	15 Min	15 Min
	Without Increase	None	None	None	None	None
Lead-time of Geomagnetic Storm Warnings/ (4 days)	With Increase	< 1 Hr	< 1 Hr	< 1 Hr	< 1 Hr	4 Days
	Without Increase	< 1 Hr	< 1 Hr	< 1 Hr	< 1 Hr	< 1 Hr
Accuracy of Forecast Onset of Geomagnetic Storms/ (+/- 4 hr)	With Increase	+/- 15 Hrs	+/- 15 Hrs	+/- 15 Hrs	+/- 15 Hrs	+/- 4 Hrs
	Without Increase	+/- 15 Hrs	+/- 15 Hrs	+/- 15 Hrs	+/- 15 Hrs	+/- 15 Hrs
Regional Geomagnetic Warning Maps Updates/ (every 30 Min)	With Increase	None	None	None	None	30 Min
	Without Increase	None	None	None	None	None

Aviation Weather (+4 FTE and +\$6,110,000): NOAA requests an increase of 4 FTE and \$6,110,000 for a total of 4 FTE and \$11,363,000 to expand a multi-year effort to improve aviation weather services and support the multi-agency Next Generation Air Transportation System (NextGen). This requested increase will lay the foundation and accelerate the development of the NOAA-led effort to field the weather information database (WIDB), also known as the 4-dimensional weather data cube (4D Cube), as required by the NextGen Integrated Work Plan (IWP). This WIDB will integrate observed and forecast weather information into an automated, multi-agency coordinated, air traffic management system. This is a program with three distinct phases: An initial operational capability (IOC) planned in 2013, a mid-operational capability (MOC) in 2016 and full operational capability (FOC) in 2022. These phases are described in the IWP and have linkages to many other areas of NextGen including air traffic management, airport operations and aircraft safety. Thus, NOAA's initial investment in NextGen is focused on efforts to meet WIDB IOC requirements. This investment profile is planned to increase next year, with MOC investments beginning in FY12. In addition to this investment, the AWIPS funding line contains a \$2.8M investment for NextGen related IT development.

Proposed Actions

Activities planned for FY 2010 will lay the foundation for the development and deployment of the WIDB IOC capability, and the modification of aviation forecast processes and systems which will supply weather information to the WIDB. FY 2010 funding will be used to:

- Examine where meteorologists add value to automated processes and explore alternative forecast processes, tools and techniques to enable NWS meteorologists to interact with and provide oversight of automated aviation products (\$2,510,000)
- Develop advanced verification tools and techniques for rapidly updated 4-D gridded weather information (\$1,000,000)
- Enhance Numerical Weather Prediction model post processing techniques for aviation elements (\$400,000)
- Prototype NextGen data management systems and forecast processes (\$740,000)
- Provide for necessary personnel and infrastructure to effectively manage a project of this size. Includes FTEs, contract support, and acquisition planning (\$1,460,000)

The WIDB, and the related forecast generation process, will leverage NOAA's significant investments in the Advanced Weather Interactive Processing System (AWIPS) and other related aspects of the Weather Service infrastructure. This investment will produce, within the AWIPS framework, a distributed repository of weather information, providing access to critical products and services to aviation users and customers throughout the weather enterprise. Additionally, the communications infrastructure and distributed forecast processes, provided through the AWIPS-II Tech Infusion Program, will significantly enhance NOAA's Continuity of Operations capabilities, Digital services, Warn on Forecast products, and will extend the AWIPS enterprise services into a 'system of systems' linking many stove-piped NWS systems into a single coherent architecture. This work, which also leverages extensive Federal Aviation Administration (FAA) research and development, will be pursued with multiple partners: NOAA Labs, particularly the NWS Meteorological Development Lab and the Global Systems Division of the Earth System Research Lab, will lead much of this development with university grants and competitive contracts accounting for additional aspects of this development. A project of this size and complexity will require extensive planning and coordination with our internal and external partners. This is considerably outside the scope of the AWIPS Program and requires the creation of a NextGen project office within NOAA to manage the development and implementation of NextGen weather and the WIDB, and will also seek to integrate the needs of other weather service areas into the WIDB. This Office will be the primary focal point for coordination among the NextGen partner agencies, between all involved NOAA Goals and Programs and will provide programmatic oversight for the implementation of NOAA's NextGen contribution.

Statement of Need and Economic Benefits

In its May 2008 report on the cost of flight delays to passengers, the airline industry and the economy, the Congressional Joint Economic Committee quantified the total cost of air traffic delays for 2007 at \$41 billion. Roughly \$29 billion of this cost can be attributed to weather effects. Federal Aviation Administration (FAA) records indicate that on average, weather is a factor in 70 percent of delays. The FAA estimates that two thirds of these delays may be avoided with enhanced weather information. These costs will only increase as demand for air transportation continues to grow, nearly tripling by 2025. The National Aeronautics and Space Administration (NASA) and the FAA estimate the US air transportation system is unable to accommodate this increased demand and without significant improvements, the National Airspace System (NAS) will be saturated by 2015. The Joint Planning and Development Office (JPDO) has developed a plan for NextGen to achieve these required improvements and accommodate the expected growth in demand. A critical component of the NextGen plan is a weather forecast process, with meteorologist intervention, that generates rapidly-updated, high-resolution probabilistic weather information which is consistent across space and time. This Single Authoritative Source (4-D Weather SAS) of weather information will be stored in a WIDB where it can be accessed by all NAS users. This capability does not presently exist within the federal government, and the JPDO partner agencies are depending on NOAA, as the federal experts in the provision of weather information, to deliver it.

Public Law No 108-176, Aviation Reauthorization Act, directs the Departments of Commerce (DoC), Transportation, Defense and Homeland Security along with the Office of Science and Technology Policy (OSTP), FAA, NASA and JPDO to conduct integrated planning for research to operations to support NextGen. DoC supports JPDO in a number of areas including: the revision of the Integrated Work Plan, development of inter-agency implementation plans, improvement of agency cost estimates, enhancement of NextGen performance measures, and better identification of DoC's NextGen initiatives. In addition, NOAA is identified by Title 49, USC, as the meteorological provider of weather information to the FAA. Based on these agency responsibilities, JPDO has designated NOAA as the lead agency for the development of the WIDB capability described by the NextGen Enterprise Architecture. NOAA's extensive experience with data ingest and assimilation, as well as its atmospheric observation and numerical weather prediction capabilities, make it the logical choice to develop and manage this national database of weather information, to integrate these new technologies into aviation products, and to enhance existing digital information services within NOAA. Once this is achieved for the aviation community, this capability will have wide-ranging applications throughout the larger national weather prediction community and will provide national leadership in the management of weather information across service areas benefiting all of NOAA's customers. Additionally, NOAA has the only federal workforce capable of providing the real-time meteorologist intervention into the rapidly-updated, high-resolution forecasts NextGen requires. Also required by NextGen are new performance measures which are more relevant to the users. NWS, in cooperation with FAA, has developed the NAS Weather Index (NWI) which reached Initial Operating Capability in February 2008. The NWI is an operationally relevant metric which evaluates the impact a forecast product has on NAS efficiency. This metric will show the value of NextGen Weather to the ATC system.

Schedule & Milestones

- FY09 Activities: Develop system-level WIDB requirements and the WIDB architecture alternatives. Begin development of inter-agency data standards and protocols. Examine aviation weather forecast process, expand WIDB testbed to Pacific Region.
- FY10 Activities: Determine WIDB infrastructure requirements, WIDB target architecture and integrate into NWS enterprise architecture. Initial research and development of forecast fusion and integration techniques and systems. Determine forecast process that will enable the generation of 4-D data with meteorologist oversight capabilities. Develop verification techniques based on user needs, R&D of model post processing capabilities.
- FY11 Activities: Complete interagency data standards and services. Evaluate forecast process and forecast consistency technique development, further expansion of WIDB testbed. Develop training programs for WIDB operators and users.
- FY12 Activities: Implementation of WIDB infrastructure changes. WIDB operator and user training conducted. Implementation of 4-D Gridded verification techniques. Begin Transfer of Research to Operations.
- FY13 Activities: Final systems implementation and testing for end of year IOC. Begin development of follow on capabilities including additional regions, weather elements, and nested spatial scale, high resolution modeling. Enhancement of forecast process and systems.
- FY14 Activities: Fully implement Operations, and Maintenance support. Begin MOC systems and infrastructure development. Prototype advanced gridded forecast products and plan for transition of research to operations.

Deliverables

- A WIDB of weather information containing the elements of icing, turbulence, ceiling and visibility and convection in FY 2015.

- An enhanced, more efficient forecast process for aviation weather.
- A relevant way to assess Aviation Weather performance.

Performance Metrics

Performance Goal: Commerce & Transportation Performance Measure: Aviation Forecast Accuracy, Measure 4d	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Aviation Forecast Accuracy						
With Increase	64	65	66	67	70	72
Without Increase	64	65	66	67	68	69
Aviation Forecast False Alarm Rate						
With Increase	43	42	41	40	36	33
Without Increase	43	42	41	40	39	38

Initial NextGen investments are not expected to significantly improve existing GPRA metrics. Most improvements will be realized in the areas of increased capacity and efficiency of the NAS and reduced weather related air traffic delays. NWS is partnering with FAA to develop a new performance measure, the NAS Weather Index (NWI) which measures the impact of NWS forecast products on NAS air traffic delays. This provides a more relevant measure of expected air traffic delay than any other measure and can aid forecasters in the analysis of their performance. This metric will be baselined over the coming year and target goals will be proposed which will show a significant impact resulting from this investment. The NWI metric is not shown in the table above because it is still in development and a baseline has yet to be established.

Central Forecast Guidance : Hurricane Forecast Improvements (+1 FTE and +\$10,000,000): NOAA requests a increase of 1 FTE and \$10,000,000 for a total of 307 FTE and \$79,525,000 for Central Forecast Guidance. This request will significantly accelerate the improvement in hurricane track and intensity forecasts. This increase is needed to carry forward and complete the comprehensive scientific research and engineering development program necessary to improve track and intensity forecasts by 20% within 5 years. The goal of the hurricane forecast improvement project is to improve hurricane track and intensity forecast accuracy, provide for objective forecast probability guidance and substantially improve the capability to forecast the associated storm surge.

Proposed Actions

In FY 2010, the additional funding of \$10,000,000 will be used to:

- Provide for the applied research, data assimilation system development, and full-scale engineering development, testing, and systems engineering to transition into operations higher resolution capabilities including ensembles for improved probabilistic forecasts (\$7,350,000)

- Augment supercomputer system and software engineering to meet the need for increased research, development and full-scale testing through improved efficiency and scaling of the models (\$600,000)
- Provide for the additional flight hours and expendables necessary to support research and advanced modeling (\$1,500,000)
- Provide for necessary personnel and infrastructure for effective program management (\$550,000)

Statement of Need and Economic Benefits

NOAA's overall strategy to improve hurricane forecasts and warnings includes increasing the research capacity and improving the observation and scientific understanding of hurricanes. NOAA will use this increase to accelerate the applied research and engineering development of a greatly improved higher resolution national Global Ensemble Forecast System (GEFS) and higher resolution Hurricane Forecast System (NHFS); and, to transition these new and improved capabilities into operations to provide operational model track, intensity and storm surge forecast guidance to the National Hurricane Center (NHC) for their use in providing operational forecasts and warnings.

Increased hurricane activity and continuing population growth along our Nation's coastline have created an urgency and national focus to improve hurricane forecasts and warnings. Unnecessary evacuations of the US coast line causes significant disruption to the economy and the potential loss of billions of dollars. Inadequate warning might also lead to significant loss of life and preventable economic loss. Significantly improved forecasts of hurricane track and intensity out to 5 days and beyond would greatly improve risk-based decision making necessary for the protection of life and property and reduce the costs and disruptions of due to emergency response dramatically.

In 2005 Hurricane Katrina was the costliest and one of the deadliest hurricanes in the history of the U.S. with over 1,800 deaths and \$80 billion in damages (insured losses were placed at \$40.6 billion). Only a couple of weeks later, the Gulf of Mexico area was impacted by another storm, Hurricane Rita, which resulted in the largest two-day evacuation in U.S. history. Typically, a household decision to evacuate is based on the issuance of a hurricane warning and the anticipated storm strength¹. On early morning of September 22, 2005, a hurricane warning was issued from Port Mansfield, Texas to Cameron, Louisiana. The estimated impact of the evacuation was \$2.3 billion. Improving the accuracy of these warnings will save millions of dollars and avoid significant disruption in the lives of Americans while still ensuring evacuations are issued in a timely and accurate manner. With this initiative NWS could improve forecast track and wind speed errors by 20% in the next five years. If these improvements were made in advance of Hurricane Rita, 3.25 million people would not have been evacuated, resulting in an economic savings of \$1.65 billion dollars.

A growing consensus of the scientific community believe that a concerted applied research and development technology program will allow us to meet the needs of the NHC and emergency management community decades sooner than would be otherwise possible because of the knowledge gained from the basic research of hurricanes and the related oceanic and atmospheric environment. At present, the NHC issues forecasts and warnings based upon the best available model and observational data of the environment and the hurricane. Current computing resources however, only allow the running of the hurricane model at 9km with no ensembles. Recent scientific evidence supports the need to run very high resolution ~1 kilometer (km) models of the

¹ "Cost of Hurricane Evacuation" by Kevin Smith, University of Eastern Carolina, 1999; "Opportunity Costs of Hurricane Evacuation" by John Whitehead, University of Eastern Carolina, 1999; and "Structure of a Hurricane Evacuation" by Mike Lindell, Texas A&M University, 2005.

hurricane within a larger ensemble of atmospheric, ocean, wave, and air-sea boundary modeling systems for the environment of the hurricane to adequately model the intensification lifecycle, and track uncertainty of an approaching hurricane. The development and use of an ensemble forecast system is required to bound and quantify the estimate of the uncertainty in the forecast. This project will enable the acceleration of these modeling capabilities to meet the needs of the emergency management community for at least 5-day advanced warnings based upon operational models at 1km resolution with multiple ensembles.

Schedule & Milestones

- FY10 Activities: Provide Operations and Maintenance for current Hurricane Forecast System. Initiate procurement of additional increment of High Performance Computing Resources and software engineering. Maintain inter-agency coordination activities. Continue full-engineering development of High Resolution GEFS/HFS. Implement incremental upgrade for additional high performance computing. Continue support for high resolution system at Developmental Testbed Center. Perform additional flight hours for high frequency observations of 4 storms.
- FY11 Activities: Implement Revised Computing Strategy for NOAA Hurricane Forecast System (NHFS) Upgrade. Make High frequency aircraft observation data sets available to research community. Deliver analyses of 4 storms previously observed at high frequency.
- FY12 Activities: Implement full-scale reliability testing of High resolution GEFS/HFS. Demonstrate performance impact of Higher Resolution GEFS/HFS. Implement operational High Resolution Hurricane Forecast System Upgrades.

Deliverables

- Incremental upgrades to operational Hurricane Forecast System
- High frequency aircraft observation data sets made available to research community.
- Analyses of 4 storms observed at high frequency.
- Additional improved modeling techniques delivered for evaluation at Developmental Testbed Center

Performance Goal and Measurement Data

This increase will support the objective “Provide accurate and timely weather and water information” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, the increase supports the NOAA Weather and Water Performance Goal and the performance measures below:

Corporate Measure: Model-based forecast accuracy for hurricane track; Reduce error by 20% in FY2013

Corporate Measure: Model-based forecast accuracy for hurricane intensity (with HWRf DTC Initiative); Reduce error by 20% in 2013

Performance Measures nm – nautical mile kt – nautical mile/hour	FY06 Baseline Value	FY09 Target	FY10 Target	FY11 Target	FY12 Target	FY13 Target
Model Based Hurricane Track Forecast Error <i>with</i> Increase, Measure 3d, Page lii		Cum % (6)	Cum % (9)	Cum % (12)	Cum % (16)	Cum % (20)

48 hours	100 nm	94 nm	91 nm	88 nm	84nm	80 nm
72 hours	150 nm	141 nm	136 nm	132 nm	128 nm	120 nm
96 hours	200 nm	188 nm	182 nm	176 nm	168 nm	160 nm
120 hours	300 nm	282 nm	272 nm	264 nm	252 nm	240nm
Model Based Hurricane Track Forecast Error <i>without</i> Increase		Cum % (6)	Cum % (8)	Cum % (10)	Cum % (12)	Cum % (14)
48 hours	100 nm	94 nm	92 nm	90 nm	88 nm	86 nm
72 hours	150 nm	141 nm	139 nm	136 nm	133 nm	132 nm
96 hours	200 nm	188 nm	184 nm	180 nm	176 nm	172 nm
120 hours	300 nm	282 nm	278 nm	272 nm	266 nm	264 nm
Model Based Hurricane Intensity Error <i>with Increase</i> , Measure 3e, Page liv		Cum % (4)	Cum % (6)	Cum % (8)	Cum % (10)	Cum % (20)
48 hours	14.7 kt	14.10kt	13.80kt	13.50kt	13.20kt	11.76kt
72 hours	18.6 kt	17.86kt	17.48kt	17.10kt	16.74kt	14.88kt
96 hours	19.8 kt	19.01kt	18.61kt	18.21kt	17.82kt	15.84kt
120 hours	21.8 kt	20.93kt	20.49kt	20.04kt	19.62kt	17.44kt
Model Based Hurricane Intensity Error <i>without Increase</i>		Cum % (3)	Cum % (4)	Cum % (5)	Cum % (6)	Cum % (7)
48 hour	14.7 kt	14.25kt	14.10kt	13.95kt	13.80kt	13.65kt
72 hours	18.6 kt	18.04kt	17.86kt	17.67kt	17.48kt	17.30kt
96 hours	19.8 kt	19.21kt	19.01kt	18.81kt	18.61kt	18.41kt
120 hours	21.8 kt	21.15kt	20.93kt	20.71kt	20.49kt	20.27kt

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Local Warnings and Forecasts (\$591,000), Delaware River Enhanced Flood Warning System (\$235,000); Hawaii Rain Gages (\$360,000); Improved Hydrologic Modeling (\$350,000); New England Weather Technology Initiative (\$200,000); Regional Ensembling System for Atmospheric Dispersion (\$1,500,000); Remote Infrasonic Monitoring of Natural Hazards (\$1,500,000); Susquehanna River Basin Flood System (\$2,000,000); Western Kentucky Environmental Monitoring Network (\$700,000); Joint Center for Hurricane Research (\$250,000); National Mesonet Network (\$11,000,000); Bryan County Oklahoma Doppler Radar (\$175,000); Flood Awareness and Emergency Preparedness Education Campaign (\$250,000); Meteorological Equipment, Pierce College Weather Station (\$85,000); Storm Surge Modeling (\$500,000), Central Forecast Guidance (\$49,000).

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL

Activity: National Weather Service
 Subactivity: Operations and Research

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Project Manager	Silver Spring, MD	15	1	120,830	120,830
Project Manager	Silver Spring, MD	15	1	120,830	120,830
System Engineer	Silver Spring, MD	14	1	102,721	102,721
Project Planner	Silver Spring, MD	13	1	86,927	86,927
Technology Manager	Silver Spring, MD	13	1	86,927	86,927
Budget Specialist	Silver Spring, MD	12	1	73,100	73,100
Total			6		591,335
less Lapse		25.0%	1		147,834
Total full-time permanent (FTE)			5		443,501
2010 Pay Adjustment (2.0%)					8,870
TOTAL					452,371
Personnel Data			Number		
Full-Time Equivalent Employment					
Full-time permanent			5		
Other than full-time permanent			0		
Total			5		
Authorized Positions:					
Full-time permanent			6		
Other than full-time permanent			0		
Total			6		

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Weather Service
 Subactivity: Operations and Research

Object Class	2010 Increase
11.1 Full-time permanent	452
11.9 Total personnel compensation	452
12 Civilian personnel benefits	154
25.1 Consulting Services	9,417
25.2 Other services	6,787
26 Supplies and materials	2,000
99 Total Obligations	18,810

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Appropriation: Operations, Research, and Facilities
Subactivity: Systems Operation & Maintenance

This subactivity reflects the costs of on-going operations and maintenance of major NWS observing and processing systems.

SYSTEMS OPERATION & MAINTENANCE

Next Generation Weather Radar (NEXRAD) (<http://www.roc.noaa.gov/>) is the joint NWS/FAA/DOD weather radar system consisting of 158 operational radars. NEXRAD utilizes Doppler technology and hydrometeorological processing to provide significant improvements over the previous generation of weather radars for tornado and thunderstorm warnings, air safety, flash flood warnings, and water resources management. The system is modular in design, upgradeable, has long life-cycle expectancy, and provides its principal users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. In FY 2010, NWS will continue to operate and maintain its network of 121 NEXRAD systems.

The *Automated Surface Observing System* (ASOS) (<http://www.weather.gov/asos/>) is the joint NWS/FAA/DOD automated surface observation system consisting of 1,003 operational systems. ASOS provides reliable, 24-hour per day, continuous surface weather observations. Implementation of ASOS into NWS field operations provides continuous weather watch and yields improved staff productivity. NWS operates and maintains 312 NWS ASOS units, and under a reimbursable funding arrangement, operates and maintains 573 FAA ASOS units. In FY 2010 NWS will continue operations and maintenance of its 312 ASOS systems.

Advanced Weather Interactive Processing System (AWIPS)/NOAAPort (<http://www.crh.noaa.gov/lmk/?n=awipsoverview>) is the cornerstone of the modernized NWS. This system is required to integrate and display all hydrometeorological data at NWS field offices. AWIPS acquires and processes data from modernized sensors and local sources, provides computational and display functions at operational sites, provides an interactive communications system to interconnect NWS operational sites, and disseminates weather and flood warnings and forecasts in a rapid and highly reliable manner. This system integrates satellite and NEXRAD Doppler weather radar data and provides to the local field forecaster capabilities to significantly improve forecasts and warnings. AWIPS provides the only display for the NEXRAD Doppler weather radar at NWS Weather Forecast Offices (WFOs) and River Forecast Centers (RFCs). The AWIPS satellite broadcast offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

In FY 2010 NWS will continue operations and maintenance of 169 fielded systems under a new, performance based O&M contract. In addition, NWS will continue in-service engineering to ensure the system is available 24 hours per day, 365 days per year, to support the Weather Service mission of providing climate, water, and weather forecasts and warnings to protect life and property and enhance the national economy, and to prevent system obsolescence.

NWS Telecommunications Gateway Backup: NWS is establishing the National Weather Service Telecommunication Gateway (NWSTG) (<http://www.weather.gov/tg/>) backup facility, which will provide backup operations for the primary NWSTG within 12 hours of a failure.

NWSTG is the Nation's hub for the collection and distribution of weather data and products. NWSTG provides national and global real-time exchange services using automated communication resources to collect and distribute a wide-variety of environmental data such as observations, analysis, and forecast products. These time-perishable products are distributed as received to ensure the fastest availability of the information. Thousands of customers worldwide use data distributed by NWSTG, and these data affect a wide-range of economic and emergency management decisions. Without this backup capability, NWSTG is a single point of failure, vulnerable to natural disasters, human error, computer viruses, hacker attacks, and terrorism. If NWSTG failed, more than 90% of the *in situ* weather observations necessary for numerical weather prediction models would be lost and forecast accuracy would be degraded. NWSTG ensures that the delivery of critical meteorological data necessary for the protection of life and property and the economic well being of the Nation continues uninterrupted, providing increased operational availability and reducing risk vulnerability in the event of lost access to NWSTG for whatever reason.

In conjunction with NWSTG Backup, the Legacy Replacement Project will replace the legacy NWSTG core mainframe-based message switching system with current server based technology, upgrade the facility support infrastructure, and establish a technology refresh program to ensure the IT keeps up with the demand and avoids another full system replacement. The Legacy Replacement will utilize the same IT software and hardware technology demonstrated and currently being implemented in the NWSTG Backup Project. In April 2004, the NWSTG Backup and Legacy Replacement were established as a joint project to more efficiently manage the two integrated efforts and achieve economies of scale where possible. In FY 2005 and FY 2006 NWS completed and tested integration of the message switching software and associated hardware and telecommunications components. Full operational capability of the Legacy Replacement was achieved on June 19, 2006. Full operational capability of NWSTG backup was achieved on May 31, 2007.

PROGRAM CHANGES FOR FY 2010:

AWIPS Operations and Maintenance (O&M) (+0 FTE and +\$1,239,000): NOAA requests an increase of 0 FTE and \$1,239,000 for a total of 41 FTE and \$39,346,000 to provide needed telecommunications backup capabilities; increase AWIPS system capacity to accommodate increased data demands imposed on the system by external programs including the National Polar Orbiting Environmental Satellite System (NPOESS), the Geostationary Operational Environmental Satellites-Series R (GOES-R), dual-polarization radar, and numerical model enhancements; and operate and maintain critical centralized AWIPS support systems.

Proposed Actions

The activities funded by this budget initiative will (1) provide a Wide Area Network (WAN) backup capability to address the Post-Katrina Service Assessment Report recommendations, (2) initiate enhancement of the Satellite Broadcast Network (SBN) to add bandwidth for NPOESS and GOES-R data, and (3) provide O&M support for several centralized subsystems. In order to fully support NPOESS and GOES-R data, an additional SBN upgrade will be needed; the current SBN bandwidth allocated to satellite data is about 3 Mbps and NPOESS and GOES-R will produce a total of about 90 Mbps of data.

Statement of Need and Economic Benefits

AWIPS is vulnerable to service interruption and downtime due to its reliance on terrestrial telecommunication services. This was evident following hurricane Katrina, where the destruction of commercial terrestrial telecommunications infrastructure along the Gulf Coast prevented NWS Weather Forecast Offices from providing forecast and warning services via AWIPS even though the offices were staffed and operating under backup power. The Post-Katrina Service Assessment Report recommended NWS supplement its terrestrial telecommunications with satellite based back-up.

The AWIPS NOAAPort satellite broadcast network is the vehicle by which satellite and other observational data are transmitted to NWS field forecasters. Today, AWIPS NOAAPort does not have the necessary capacity to transmit new data sets associated with planned NOAA investments in NPOESS and GOES-R instruments, numerical weather prediction model upgrades, and higher resolution dual polarized radar data.

Over the last five years, NWS has developed and deployed AWIPS centralized support systems which now require stable O&M funding to ensure continuity of operations. These sub-systems include the NWS-Spot Server, remote forecaster operations support via FX-Net, and the National Digital Forecast Database (NDFD). These centralized AWIPS support systems are critical for timely dissemination of fire weather spot forecasts and on-site fire weather support, providing AWIPS core backup functions, and maintaining NWS digital forecast information used by the public, industry, commercial weather providers, and the weather risk market, to support key decision making. These centralized functions currently have no logistics and maintenance funds to sustain them in the long term.

AWIPS is the primary field Information Technology (IT) system that supports NOAA's National Weather Service at 137 geographic locations across all fifty States, Puerto Rico, and Guam. AWIPS is the foundation for virtually all NWS field forecast and warning operations. Without a fully maintained AWIPS, it will be difficult for NWS to accomplish its mission. Additional benefits of this investment include:

- Reduced requirement for NWS service back-up during catastrophic events like 9/11, Katrina, and the 2007 California wildfires;

- Improved forecast and warning operations by providing NPOESS and GOES-R data sets to field forecasters; and
- More sustainable operations by providing critically needed system updates and lifecycle O&M for new AWIPS subsystems.

Schedule & Milestones

Milestone	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
Katrina WAN Backup	Deploy 4 VSAT to Regional HQ				
NPOESS SBN Upgrade	Initiate proof of concept	Begin upgrade to add 10 Mbps	Complete upgrade	Recurring communications costs	Recurring communications costs
GOES-R SBN Upgrade				Begin upgrade to add 20 Mbps	Complete upgrade
Add orphaned centralized systems to O&M	Add NDFD Central Server, FX-Net (Fire Wx) Server, & NWS-Spot Server	Technical refresh of servers	Recurring O&M costs	Recurring O&M costs	Technical refresh of servers

Deliverables

- Develop and Test four deployable Katrina back-up VSAT terminals
- Initiate proof of concept for the SBN Enhancement Project
- Initiate O&M and sustaining engineering for the orphaned centralized subsystems (such as 12Planet Chat Server, NWS Spot Forecast Server, and NDFD Central Server)

ASOS Operations and Maintenance (O&M) (+0 FTE and +\$1,500,000): NOAA requests an increase of 0 FTE and \$1,500,000 for a total of 44 FTE and \$11,202,000 to continue an on-going initiative that will ensure the continued operation of this critical system that supports the meteorological requirements of both the National Weather Service (NWS) and the Federal Aviation Administration (FAA) within the joint NWS/FAA ASOS O&M program. This \$1,500,000 request will start to bring the system into compliance with Federal, Department of Commerce, NOAA, and NWS Information Technology (IT) security policies and procedures, avoiding future costly wholesale replacement, and preserving NWS \$170,000,000 investment in ASOS production and product improvement.

Proposed Actions

This investment will ensure the continued availability of this critical observing system. Subsystems reaching the end of their life-cycle need to be replaced with technologically supportable components and operating systems that will allow ASOS to continue to meet its performance measures as well as meet evolving IT security requirements. The initial effort to be accomplished with this increase is the tech refresh of the Acquisition Control Unit (ACU), Data Collection Platform (DCP), and the operating system. While this effort primarily addresses the immediate technology obsolescence issues, the new subsystems will provide the network connectivity capability necessary to meet new requirements for high speed/high resolution data transmissions required for FAA's Next Generation Air Traffic System, support for Internet Protocol Version 6, and improved capabilities to perform remote maintenance actions that have the potential to reduce site visits and O&M costs.

Statement of Need and Economic Benefits

Two critical ASOS IT subsystems require technology refresh. The ACU and DCP subsystems were designed in the 1980s and are becoming increasingly obsolete, logistically unsupportable, and unable to support new or changing system and service requirements. Technology refresh of the ACU and DCP subsystems is required to ensure ASOS is able to support NWS weather forecast activities, FAA aviation operations, and the needs of the meteorological, hydrological, and climatological research communities.

New interagency requirements to create a next generation advanced weather support system are placing new demands for the delivery of higher-resolution weather data on decision makers in several agencies. FAA and other customers require more rapid access to the higher resolution 1-minute data currently available within the system, increasing the drive for network connectivity and further exposing ASOS security vulnerabilities. The 1-minute observations have a direct benefit to NWS as well. The benefit to NWS centers on two major areas, (1) aviation weather and warning forecast improvements whereby weather forecasters will be providing minute-by-minute guidance to air traffic staff; and (2) improving responsiveness to hazardous weather forecasts and warnings requiring high resolution data of winds, temperature and other parameters in support of these near-real-time high impact incidents. NOAA has requirements for high resolution data for research and operations support, and NOAA customers have requirements for high resolution data for a wide range of customer applications including commercial weather markets, surface transportation, and research.

NWS' ability to support the new and evolving IT security requirements is limited due to the commercially unsupportable operating system and software. The present ASOS configuration does not fully comply with NOAA and DOC security safeguards, policies, and procedures. The current operating system has not been supported since 2002 and a new operating system is required that can be upgraded to meet current security requirements. The operational risks have been determined to be within acceptable limits due to the limited connectivity of ASOS to other systems and the system has been granted interim authority to operate. System events need to be tracked to detect and diagnose intrusion attempts. Users accessing the system need to be fully authenticated. However, consumer demands for remote access to data already existing in the system is a driver for network connectivity, exposing ASOS to an increase in security vulnerabilities. Failure to address these system limitations threatens the continued operation of ASOS in supporting its service requirements.

Schedule & Milestones

- FY09 Activities: Prepare for FY2010 ACU/DCP tech refresh procurement.
- FY10 Activities: Begin ACU/DCP tech refresh acquisition.
- FY12 Activities: Conduct operational testing
- FY14 Activities: Begin deployment
- FY16 Activities: Complete deployment.

Deliverables

- Technologically supportable hardware and software configurations
 - Improved meteorological algorithms and software
 - Implement, test, support new OS and software loads to meet new requirements
 - Capitalize on research conducted by public and private organization.
 - Provide adequate test support
- Full compliance with Federal, DOC, NOAA, and NWS IT security policies and procedures
 - Implement IT security techniques
 - Provide adequate test support

NEXRAD Operations and Maintenance (O&M) (+0 FTE and +\$1,029,000): NOAA requests an increase of 0 FTE and \$1,029,000 for a total of 103 FTE and \$46,248,000 to operate and maintain hardware and software which generates weather products from each of the 45 FAA Terminal Doppler Weather Radars (TDWRs).

Proposed Actions/Deliverables

- Support Services: Software maintenance of code common to TDWR Supplemental Product Generator (SPG) and NEXRAD Radar Product Generator (RPG), configuration management, logistics, equipment repair, and sustaining engineering functions.
- Telecommunications: Each TDWR/SPG pair is connected with a leased T1 link and associated equipment.
- IT Security: Certification and Accreditation and continuous monitoring to include patch updates, log monitoring, and required vulnerability scanning.
- Common User Services: NEXRAD Hotline is augmented to respond to TDWR/SPG incidents.

Statement of Need and Economic Benefits

This effort leverages the FAA's investment in 45 airport Terminal Doppler Radars (TDWR) estimated at \$450M. This increase will allow NOAA to utilize this critical Doppler radar to better and more quickly detect severe weather events. The requested funding supports NOAA's recurring cost to access this data. The potential value to NWS operations of this data was highlighted in several recent reports. In March 2004, when a fast-moving thunderstorm resulted in high winds over the Baltimore Harbor, a water taxi capsized and lives were lost. The service assessment report for this event noted that TDWR radar data better depicted the change in wind speed and direction because of its location relative to the storm. Had this data been integrated into the forecasters' primary workstations, they may have been able to better warn the citizens in the inner harbor area. In addition, the DOC Inspector General

determined, after review of the Rogers, MN tornado event in 2006, that the FAA TDWR radar indicated tornadic conditions sooner than the NEXRAD network, most likely due to position and timing of that radar. The IG report stated “To maximize forecasting accuracy, we recommend that NWS assess the feasibility of connecting... weather field offices to FAA’s Doppler radar systems...”

Schedule & Milestones

- FY09 Activities: Complete deployment and commissioning of all 45 TDWR SPGs.

Deliverables

- FY10-14: Initiate O&M of TDWR SPGs as integral component of the NEXRAD tri-agency network.

Benefits of the Increase

- Improved detection and increased lead time for severe storms and tornadoes.
- Improved coverage where NEXRAD could not see the atmosphere due to design limitations or obstructions.
- Additional perspectives which increase knowledge of storm structure.
- In some cases, provides back-up data during NEXRAD outages.

Performance Metrics

Performance Goal: 5% increase in probability of tornado detection Performance Measure: Increase probability of tornado detection (relative to sites without nearby TDWR)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
	With Increase	67%	67%	67%	67%	67%
	Without Increase	62%	62%	62%	62%	62%
<hr/>						
Performance Goal: 1 min or greater increase in tornado lead time Performance Measure: Increase average tornado lead time (relative to sites without nearby TDWR)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
	With Increase	11 min	11 min	11 min	11 min	11 min
	Without Increase	10 min	10 min	10 min	10 min	10 min

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Weather Service
 Subactivity: Systems Operations and Maintenance

	Object Class	2010 Increase
25.2	Other Services	3,768
99	Total Obligations	3,768

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Appropriation: Procurement, Acquisition & Construction
Subactivity: Systems Acquisition

The NWS Systems Acquisition subactivity includes the following line items:

Advanced Weather Interactive Processing System (AWIPS) Technology Infusion

AWIPS is the cornerstone of the modernized NWS. This system integrates and displays all hydrometeorological data at NWS field offices. AWIPS acquires and processes data from modernized sensors and local sources, provides computational and display functions at operational sites, provides a robust communications system to interconnect NWS operational sites, and disseminates warnings and forecasts in a rapid, highly reliable manner. This system integrates satellite, NEXRAD Doppler weather radar data, and Numerical Weather Prediction (NWP) data, enabling field forecasters to better visualize environmental processes to enable the creation of timely and accurate forecasts and warnings. AWIPS provides the only display for NEXRAD Doppler weather radar data at NWS Weather Forecast Offices (WFOs) and River Forecast Centers (RFCs). The AWIPS NOAAPort satellite broadcast network offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

Pre-planned and ongoing NEXRAD Product Improvement, involving investments in modeling, satellite instruments, and radar improvements represents NOAA's commitment to bring forecasters the data and information required to improve forecast accuracy and warning lead times. NWS Government Performance and Results Act goals are based on the effective use of these technology investments along with advanced decision assistance tools, forecast preparation and advanced database capabilities. Sustained investments in the AWIPS hardware, communications, and software infrastructure, are necessary for capitalization of these investments into improved performance.

System-wide IT investments are necessary to equip NWS forecast offices with the necessary computer performance and capacity to achieve planned and evolving operational and strategic requirements. Planned improvements in NWS Tornado Warning Lead Time, Flash Flood Warning Lead Time and Winter Storm Warning Lead Time goals can only be realized through improving AWIPS throughput, adding new and improved science, and exploiting more accurate and higher resolution data and weather forecast model information. To accomplish this, we must improve AWIPS performance and capacity. Current choke points in system performance and capacity have been identified and are being addressed in the following areas: server performance, network throughput, and software architecture.

Improvements in system throughput can be realized by increasing processing and network capacity. Exploitation of new science requires radar, satellite, and model data in addition to processing capacity and the ability to quickly and cost-effectively integrate improved decision assistance tools into the AWIPS software. High-resolution data and model information requires additional communications bandwidth, processing and mass storage capacity.

To measure current and projected AWIPS system performance, NWS uses the Workstation Performance Rating (WPR). WPR shows the latency, or inherent processing delay in seconds within the AWIPS system. A higher WPR means more latency, and therefore more delay, in processing and in getting forecasters the products they need when they need them. WPR benchmark analysis shows that without planned hardware improvements, AWIPS performance will decrease, resulting in degradation in Tornado Lead Time.

In FY 2002, NWS began a migration of the AWIPS IT infrastructure to a LINUX-based architecture. Phase I of this migration was completed in FY 2003. LINUX Phase II began in FY 2003 with workstation replacements and was completed in FY 2006. In FY 2006 LINUX Phase III was completed with server replacements, software re-architecture, and IT security enhancements.

AWIPS has been designated an NWS “National Critical” IT system. As such it was required to be certified and accredited using the National Information Assurance Certification and Accreditation Process (NIACAP) in FY 2005. System acquisition funds provided in this PAC program are critical to providing adequate security for this National Critical system.

Automated Surface Observing System (ASOS) Product Improvement

ASOS provides reliable, 24-hour, continuous surface weather observations. Under the product improvement portion of this acquisition program, NOAA is developing new ASOS sensor capabilities in order to meet changing user requirements and decrease maintenance demands. This acquisition is a tri-agency program involving NOAA, DOD, and FAA.

The ASOS Product Improvement Sensors are crucial for aviation safety for these agencies and the public. The Full Scale Production and Deployment of Ceilometer replacement and of Enhanced Precipitation Identifier (EPI) is crucial for aviation safety considerations. The Automated Surface Observing System (ASOS) serves as the nation’s primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. With the largest complement of weather sensors, ASOS significantly expands the information available to forecasters and the aviation community. ASOS works non-stop, continuously updating observations minute-by-minute every day of the year. Getting more information on the atmosphere more frequently and from more locations is the key to improving forecasts and warnings. ASOS information helps NWS increase the accuracy and timeliness of its forecasts and warnings - the overriding goal of NWS modernization. The ASOS Product Improvement Program contains seven prioritized sensor/processor improvements. These improvements will implement new beneficial technologies, replace sensors no longer in production, and reduce maintenance costs. Improved performance in solid and liquid/solid mixes of precipitation and in icing conditions will promote increased aviation safety, better weather forecasting, and better climatology. Higher reliability designs will decrease maintenance and logistics costs, while improving system availability.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete*	Total
ASOS Product Improvement								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	43,301	1,635	1,635	1,635	1,635	1,311	-	51,152

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning in FY 2000.

Next Generation Weather Radar (NEXRAD)

NEXRAD is a Doppler weather radar system that provides automated signal processing, computerized data processing by sophisticated meteorological software algorithms, and a high-capacity, processor-driven communications capability. The system is modular in design, upgradeable, has a long life-cycle expectancy, and provides both governmental and commercial sector weather users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. For NWS, the system uses Doppler technology and hydrometeorological processing to provide significant improvements compared to previous radars, both in functional capability and in performance, including improved tornado and thunderstorm warnings, increased air safety, improved flash flood warnings, and improved water resources management.

NEXRAD, initially developed as a tri-agency Program (NWS, FAA, and the Air Force Weather Agency) has evolved into NEXRAD Product Improvement (NPI) Program, focusing on shared agency requirements to effect synergistic solutions. For example, external FAA radar data are provided to NWS forecast offices to address coverage issues and provide backup data sources. Near-term plans include the completion of Open Systems Radar Data Acquisition (ORDA) deployment, and the development and implementation of Super-Resolution.

- The ORDA subsystem replaces the current WSR-88D Radar Data Acquisition subsystem with Commercial Off-the-Shelf (COTS) equipment in Open Systems architecture. ORDA is a critical first step in meeting strategic goals for severe weather by providing the foundation for future planned improvements. ORDA also provides initial improvements in data quality with improved clutter processing and calibration techniques.
- A National Severe Storms Laboratory (NSSL) study showed that tornado storm parent circulation estimates were 15-20% higher with Super-Resolution, with circulation detected at greater ranges. NPI is sponsoring continued research and development at NSSL to ready an operational version of Super-Resolution.

NPI will continue to explore opportunities for improved data dissemination and provide more radar data to NWS partners. The NWS Office of Science and Technology (OS&T) has implemented weather data ingest capability at ten FAA Terminal Doppler Weather Radars (TDWR) for use by contiguous NWS forecast offices. Utility evaluation for this data is ongoing, with a very positive initial reaction from forecasters. In addition, OS&T continues to investigate the utility of weather data from other FAA (ASR-4) radars, implementing a data ingest capability of weather radar data from FAA radars in Erie, PA and Williston, ND for evaluation.

The Dual Polarization modification to NEXRAD transmits and receives signals in two dimensions, resulting in a significant improvement in precipitation estimation; improved ability to discriminate rain, snow, and hail; and a general improvement in data quality. Precipitation estimates, currently within 30% of ground-truth estimates, will improve to 12.5% as demonstrated in a study conducted by NSSL in 2003. Economic analysis shows that this improvement alone will have a national economic benefit of \$690 million per year as a result of improvements in flash flood warnings. The improved precipitation estimates from the national network of radars will be used as input to weather models with a concomitant improvement in model outputs. The Dual Polarization capability will allow other improvements in severe weather detection, including improvements in snow storm detection and warnings, icing conditions for air and ground transportation, and continued support for improved modeling data input.

Radiosonde Replacement Program

The NWS radiosonde network provides upper-air weather observations, the primary source of data required by NWS numerical weather prediction models, which form the basis of all NWS forecasts for day 2 and beyond. Observations of temperature, pressure, humidity, and wind speed/direction are taken twice a day at 102 locations nationwide and in the Caribbean using the radiosonde, a balloon-borne instrument that transmits data via radio signal to a ground receiving station usually located at a Weather Forecast Office (WFO), where it is processed.

The current ground receiving system is obsolete and not maintainable due to the scarcity of replacement parts, unavailability of certain components, and escalating fabrication costs. Repairs have more than doubled over the past 5 years. Only two of the sites have fully functioning transponder decks, which are used for tracking a radiosonde after the radiosonde is carried over the horizon. Wind observations lost by this deficiency have resulted in model analyses misplacing the jet stream on certain occasions. New frequency allocation policy requires reduction in bandwidth on the frequencies traditionally used to transmit data from the radiosonde to the ground receiving station and that have low interference in transmission to the ground station receiver. NWS must replace both the radiosondes and the ground receiving equipment in order to comply with the new spectrum allocation. In addition, the ground receiving station processors are IBM XTs, and cannot support the Windows-based software required to manage the Global Positioning System (GPS) radiosonde data. Finally, new surface observing instrumentation is necessary to comply with surface launch accuracy reporting requirement. The base program will fund 102 sites with radiosondes for two launches a day.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete*	Total
Radiosonde Replacement System								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	55,334	4,014	4,014	4,014	4,014	4,014	8,128	83,532

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning in FY 2000.

Historical Climate Network – Modernization (HCN-M)

HCN-M (formerly known as Cooperative Observer Network Modernization (COOP-M) and NOAA’s Environmental Real Time Observation Network (NERON)) (<http://www.nws.noaa.gov/ops2/ops24/hcn-m.htm>) is a project to integrate a network of observing systems to sustain the Nation’s climate record of land surface measurements essential to monitor and assess surface climate. The goal of the modernized HCN is to reduce the uncertainty in the measurement of regional climate change and provide a more reliable, maintainable and expandable surface observing network to meet future needs. The project will modernize 1,000 of the approximately 1,200 Historical Climate Network (HCN) sites to automatically collect temperature and precipitation data. The HCN is a subset of the approximately 11,000 Cooperative Observer Program (COOP) sites. HCN-M will also provide expansion capability to allow the collection of other data sets in the future, such as soil temperature and soil moisture to support the National Integrated Drought Information System. As part of the HCN-M project, the Meteorological Assimilation Data Ingest System (MADIS) (<http://madis.noaa.gov/>), a research project run by OAR/Global Systems Division in Boulder, CO, will be transitioned into operations at NWS Headquarters in Silver Spring, MD. This central data

collection and processing system will provide quality control of the HCN-M data and other mesonet data sets, and provide distribution of data to NWS offices, NOAA's National Climate Data Center (NCDC), other federal and state agencies, and the public. MADIS currently collects, processes, and distributes data from over 20,000 mesonet stations.

There is a critical need to continue the Nation's historical climate record of land surface measurements necessary for monitoring and assessing the regional climate of the United States. NOAA's Climate Prediction Center (CPC) requires summary data from HCN sites and other COOP and ASOS sites on a daily basis to support their climate monitoring, analysis, and prediction products and services. The climate record requires consistent, reliable, daily temperature and precipitation observations to ensure compliance with national standards. NWS Weather Forecast Offices (WFO) and River Forecast Centers (RFC) require quality HCN data, including temperature extremes and precipitation, in support of its primary mission to issue accurate, timely, temperature and precipitation forecasts; to calibrate radar precipitation estimates; to support river and flood operations; and to verify and improve forecasts through comparison to daily observations. Model Output Statistics (MOS) require daily data to develop statistical relationships from model input to derive location-specific forecasts of temperature and precipitation.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete *	Total
COOP Modernization/ NERON/HCN/Surface Wx								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	17,179	3,734	3,734	3,734	3,734	3,734	11,573	47,422

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning in FY 2000.

NWS Telecommunications Gateway Legacy Replacement

The NWSTG (<http://www.weather.gov/tg/>) is the NWS communications hub for collecting and distributing weather information to its field units and external users. Replacing the NWSTG system with up-to-date technology will reduce the current delays in collecting and disseminating data by reducing transit time through the NWSTG. The replacement will ensure reliable delivery of NWS products to users and will fully capitalize on better observation data and prediction models to improve services.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete *	Total
NWSTG Legacy Replacement								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	8,664	1,195	1,195	1,195	1,195	1,195	2,420	17,059

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process

**Funding for FY 2009 and prior reflects funding beginning in FY 2000.

Weather and Climate Supercomputing

The cyclical upgrade of NWS weather and climate supercomputing capability is intended to procure the computing and communications equipment needed to receive and process the increasing wealth of environmental data acquired by modernized observing systems, process improved and more sophisticated numerical weather prediction models, and stay current with the supercomputing technology the market has to offer. Execution of this program promotes public safety and the protection of property by providing NCEP with the computer systems that are capable of producing more accurate NWS climate and numerical weather prediction (NWP) guidance products for hurricanes, severe thunderstorms, floods, and winter storms. Additionally, the supercomputing system more accurately forecasts large-scale weather patterns in the medium (3 to 10 days) and extended range (30 days), as well as forecasts of major climate events such as El Niño and La Niña. In addition, the computer upgrades will improve the delivery of products to the field and provide system users with enhanced productivity. These products and services will lead to significant economic benefits for users like the agriculture, construction, and transportation industries.

Weather Supercomputing Backup

The backup supercomputer system is a clone of the primary supercomputer system and located in an offsite facility. This system is used to thoroughly test pre-Production weather and climate forecasting applications when it is not being used to run the Production Suite during a backup system test or actual emergency. The backup supercomputer system is capable of handling 100% of the operational workload should the primary supercomputer system be disrupted. Implementation and maintenance of a redundant *Weather and Climate Operational Supercomputer Systems* architecture will ensure uninterrupted flow of essential weather and climate data and products, continuity of storm watch and warning services to the public, and compliance with NOAA Critical Infrastructure Protection (CIP) plans.

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete *	Total
Weather & Climate Supercomputing Backup								
Change from FY 2010 Base		-	-	-	-	-	-	
Total Request	35,322	7,077	7,077	7,077	7,077	7,077	21,231	91,938

* Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

Complete and Sustain NOAA Weather Radio (NWR)

NWR (<http://www.weather.gov/nwr/>) was designed to be and is used as a reliable, inexpensive means of communicating weather-related warnings to the public. The existing infrastructure of NWR has tremendous potential for use communicating warnings and information about non-weather related hazards and emergencies. NOAA has discussed the use of NWR as an all hazards warning system with DHS. NWR infrastructure as a national warning network consists of over 970 existing broadcast stations; broadcast coverage that reaches 97% of the nation's population; and the ability to deliver the broadcasted message to individuals monitoring their own NWR receivers as well as the ability to reach millions of listeners and viewers through the Emergency Alert System, which is monitored by television and radio license holders.

In its efforts to sustain a high level of reliability and maintainability of NOAA Weather Radio, National Weather Service faces challenges due to equipment obsolescence and due to degraded reliability relative to that possible with newer technology equipment. NWS must continue refurbishment of four hundred stations established in the 1970s, eliminating single points of failure and improving network reliability. Four hundred NWR station transmitters date to the 1970s, employing vacuum tube technology from four different manufacturers. These older stations are less reliable than newer ones using solid-state transmitters. Older stations demonstrate mean time between failure (MTBF) rates of 6,000 hours, or one failure every 250 days. In comparison, newer solid-state transmitters demonstrate MTBF of over 10,000 hours, a 67% improvement. Furthermore, older stations have single points of failure due to configurations that include single, instead of dual, transmitters and lack of backup power generators to ensure continued service in the event of primary electrical service failure. Combined, these factors significantly decrease reliability and availability and increase logistics and maintenance costs. Refurbishing these older stations and adequately funding operations and maintenance costs will allow NWR to meet expectations of availability as the nation's weather and all hazard warning system. By FY2010, approximately 281 stations will be refurbished.

Additional Funding was provided in FY 2009 for NWR modernization via the Weather Radio Improvement Project (WRIP) for replacing obsolete unsupportable broadcast equipment. NWS will also deploy the NOAA Weather Radio Broadcast Management System (NWR BMS) as a replacement for the Console Replacement System (CRS). The current CRS is at its end of life and cannot be supported at the current level due to parts obsolescence. The CRS is a main component of NOAA Weather Radio that converts text warning messages into digital voice. This conversion provides the voice warning

messages that are broadcast over NOAA Weather Radio to alert the public. It is critical that we address this issue now in order to avert potential outages that might affect our ability to disseminate warnings to the public.

PROGRAM CHANGES FOR FY 2010:

AWIPS Technology Infusion (+0 FTE and +\$5,300,000): NOAA requests an increase of 0 FTE and \$5,300,000 for a total of 15 FTE and \$24,364,000 to continue transforming NWS service delivery through the technology infusion of AWIPS, the backbone of NWS warning and forecast operations. This effort will build on the AWIPS Software Re-architecture project, known as “AWIPS II”, to extend its use to the entire weather enterprise. This project has been rated as the top priority by National Weather Service management.

Proposed Actions

Under the current program, the Advanced Weather Interactive Processing System (AWIPS) software is undergoing a major redesign, called AWIPS II, to convert it from an obsolete 1990’s architecture to a service-oriented architecture (SOA). This architecture is modular, easier to modify to accommodate new science and technology, and less costly to maintain. AWIPS II will be completed by FY 2010. This increase aims to extend AWIPS II to the entire weather enterprise including NCEP, Weather Service Offices (WSOs), and support for FAA Center Weather Service Units (CWSUs) and the Next Generation Air Transportation System (NextGen). This unifies NWS operations by removing technological constraints that prevent critical weather and water warnings, information, and forecasting applications from being seamlessly available throughout the breadth of NWS.

Once this seamless weather enterprise is established, AWIPS Technology Infusion will deliver enterprise level enhancements for data delivery, service backup, collaboration, and visualization. These critical enhancements will provide more flexible access to the ever growing volume of hydro-meteorological data, more flexibility in working together at all levels of the organization and with outside trusted partners, stream-lined generation and delivery of NWS products and services, and new visualization techniques to enable faster identification and interpretation of severe weather. Without these enhancements, NWS forecasts will be unable to fully exploit planned NOAA investments in new technologies such as NPOESS, GOES-R and radar upgrades.

Statement of Need and Economic Benefits

AWIPS is America’s weather and flood warning system. NWS must upgrade AWIPS to transform its service delivery to DHS, FAA, emergency managers, the American public, and industry. Emergency managers, DHS, and industry are demanding increased lead time and more precision and consistency in weather, flood, and hurricane forecasts to improve their decisions for resource planning, evacuation planning, and business operations. These decisions are potentially life saving and can have multi-billion dollar impacts on the economy and livelihoods. Customers and users of NWS products and services will fully exploit NOAA investments through this transformation.

AWIPS has a direct impact on GPRA goals, such as Tornado Warning Lead Time and Flash Flood Warning Lead Time. Investments in AWIPS Product Improvements have significantly reduced the time required to process, store and display real time data. This has resulted in an improvement in warning generation and dissemination time of about 2 minutes since December 2004. Extending AWIPS II is expected to save an additional 20 seconds in FY

2010, 40 seconds in FY 2012-2013, and 60 seconds in FY 2014. This will translate into potential savings in life and property and contributes to the meeting of NWS GPRA targets, particularly for Tornado Warning Lead Time.

NWS is scheduled to complete a re-architecture of AWIPS (AWIPS II) within the existing budget by FY 2010. However, there are still specific shortcomings of AWIPS II that must be addressed to extend it to the entire weather enterprise (AWIPS II Extended). These shortcomings include:

- Lack of a single, integrated forecast and collaboration system to allow all users to easily share information.
 - NCEP uses a separate forecast system called N-AWIPS.
 - Fire Weather Meteorologists, Incident Meteorologists (I-Mets), and WSOs use a separate forecast system called FX-Net.
 - FAA CWSUs use a separate forecast system called the AWIPS Remote Display (ARD).
 - WFOs use a separate system called the Chat Server that allows them to share information while they are generating forecasts.
- Inability to quickly adapt to the latest data format industry standards (xml, CAP) thus burdening customers (emergency managers, media, and private weather companies).
- One method of data delivery – all data is broadcast to all sites (“fire hose”) – rather than an approach providing only the data they need.
- Several AWIPS subsystems are “orphaned” – that is they were never integrated into the AWIPS baseline – which increases operating and maintenance costs. These subsystems are the WFO and RFC Archive Systems, which are used to store data for longer periods of time on site, and the Weather Event Simulator (WES), which is used for training.
- Lack a central AWIPS data repository for 4 Dimensional (4D) observations and forecasts in support of public and NextGen aviation weather.

To address these shortcomings, NWS established, through the FY 2009 President’s Budget, a new cyclical technology infusion program for AWIPS II Extended. This FY 2010 request continues that effort and establishes the required recurring funding level of \$24,364,000.

Schedule & Milestones

- FY 2010 Activities: Continued development of the Weather Event Simulator.
- FY 2011 Activities: NCEP AWIPS (N-AWIPS) migrated to AWIPS II, WES and Archive Server migrated to AWIPS II. Improved Data Delivery Initial Operating Capability (IOC). Integrated NWS Enterprise Collaboration IOC.
- FY 2012 Activities: Improved Data Delivery Full Operating Capability (FOC). Integrated NWS Enterprise Collaboration FOC. Development of 4D Cube systems and infrastructure.
- FY 2013 Activities: Extend NWS Enterprise Collaboration to NOAA Partners IOC
- FY 2014 Activities: Information Generation Re-Architecture FOC. 3-Dimensional (3D) Data Visualization IOC

Deliverables

FY 2010

- Complete deployment of AWIPS II to Weather Forecast Offices, 13 River Forecast Centers, 6 National Centers, and NWS test facilities

FY 2011

- Integrated collaborative capability within the new architecture
- Migration of the NCEP-AWIPS (N-AWIPS) software into the new architecture

- Enterprise-wide capability to support the fire weather mission, WSOs, and CWSUs
-
- Improved data delivery method
- New information generation capability
- Integrate orphaned systems into the AWIPS II architecture

FY 2011-2012

- Systems and processes for the 4D Cube of weather observation and forecast data in support of NexGen and public weather missions

Performance Metrics

Performance Goal: Enhance preparation and delivery of weather forecasts and warnings	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Performance Measures:						
Workstation Performance Rating (WPR)						
With Increase	n/a	10%	20%	20%	20%	30%
Without Increase	0	0	10%	10%	12%	12%
Description: The workstation performance rating captures the AWIPS contribution to the severe weather warning process. A 10% improvement contributes approximately 20 seconds to our one minute GPRA improvements in tornado warning lead time.						
Reduce Software Installation Time						
With Increase	n/a	<4 hrs	<4 hrs	<3 hrs	<2.5 hrs	<2.25 hrs
Without Increase	4-5hrs	4-5hrs	4-5 hrs	<4 hrs	<4 hrs	<4 hrs
Description: Reducing software installation time restores WFOs to operations more quickly and improves continuity of operations.						
Improve NDFD Border Consistency						
With Increase			15%	15%	15%	15%
Without Increase			0	0	0	0
Description: This metric captures both the quality and accuracy of NWS digital forecasts. Improving the border consistency between the areas of responsibility of each Weather Forecast Office delivers a more seamless forecast to our customers.						

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2009& Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete*	Total
AWIPS Tech Infusion								
Change from FY 2010 Base	-	5,300	5,300	5,300	5,300	5,300		
Total Request	148,873	24,364	24,364	24,364	24,364	24,364	N/A	N/A

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning in FY 2000.

Next Generation Weather Radar (NEXRAD) Product Improvement: NEXRAD gap coverage (+0 FTE and -\$400,000): NOAA requests a decrease of 0 FTE and \$400,000 for a total of \$7,976,000. This net decrease of \$400,000 reflects (1) a one-time reduction of \$7,400,000 for NEXRAD Dual Polarization funding that was provided under the American Recovery and Reinvestment Act (ARRA) of 2009 and (2) an increase of \$7,000,000 for the acquisition and installation of a commercial weather Doppler radar.

Proposed Actions

In FY 2010, NOAA will spend the \$7,000,000 increase to (1) acquire a commercial Doppler radar complete with shelter, tower, radome, emergency power generator, and uninterruptable power supply (\$5,000,000), and (2) contract for the construction and installation of the radar and its systems integration with the Weather Forecast Offices in Seattle, WA and Portland, OR. (\$2,000,000).

Statement of Need and Economic Benefits

NWS has identified and prioritized gaps in existing radar coverage. These gaps have been prioritized based on a number of factors including population, risk of severe weather, and availability of other data sources. Western Washington State was identified as the highest priority gap.

The addition of a new commercial weather Doppler radar will provide expanded radar coverage in this region, particularly over the ocean, and will improve the analysis and prediction of large and strong winter storm systems that frequently impact the region. For example, three major storms moved onshore along the Washington and Oregon coasts in December 2007, producing heavy rain and rapidly melting snow that caused severe flooding. Additional radar coverage could have resulted in better forecasts to inform preparations for these storms and to mitigate the significant damage and economic losses from these storms. Existing radars in WFO Seattle and WFO Portland radars, which were sited to provide maximum coverage to the most densely populated areas (Seattle and Portland), are partially blocked by the terrain features of the Olympic Mountains and the Coastal Range Mountains and do not provide sufficient radar coverage for viewing approaching Pacific storms along the coast.

NWS currently operates two Doppler radars (sited in Seattle (Everett), Washington and Portland, Oregon. Both of these radars were sited to provide maximum coverage to the most densely populated areas (Seattle and Portland). The addition of this new commercial weather Doppler radar will provide expanded radar coverage in this region, particularly over the ocean, and will improve the analysis and prediction of large and strong winter storm systems that frequently impact the region. Doppler radar estimated winds will aid in identifying areas of strong winds. Additionally, higher temporal and spatial sampling provided by expanded radar coverage could improve quantitative precipitation estimation and forecasts.

Schedule & Milestones, Deliverables

FY 2010 Plans

- Prepare procurement documentation (1st Quarter)
- Initiate procurement approval (ITRP, ARB, etc.) (2nd Quarter)
- Radar contract award (4th Quarter)
- Complete land acquisition (3rd Quarter)
- Contract for site preparation (4th Quarter)

FY 2011 Plans

- Begin radar fabrication (1st Quarter)
- Begin site preparation as required (develop entry road, provide for utility, commercial power and communication access) (1st Quarter)
- Complete site preparation (3rd Quarter)
- Contract for radar installation (3rd Quarter)

FY 2012:

- Install and commission radar (1st Quarter)
- Begin operations and maintenance phase (1st Quarter)

Performance Metrics

Performance Goal: Radar Network Availability rate of 96%	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Performance Measure: Radar Network Availability						
With Increase	N/A	N/A	N/A	96%	96%	96%
Without Increase	N/A	N/A	N/A	0%	0%	0%

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete*	Total
NEXRAD								
Change from FY 2010 Base		(400)	(6,750)	(8,376)	-	-	-	
Total Request	89,292	7,976	1,626	-	-	-	N/A	106,284

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning in FY 2000.

Weather and Climate Supercomputing (+0 FTE and +\$3,000,000): NOAA requests an increase of 0 FTE and \$3,000,000 for a total of 0 FTE and \$29,169,000 for its Weather and Climate Supercomputing program to accelerate planned NOAA hurricane forecasting system improvements in both hurricane track and hurricane intensity forecasts.

Proposed Actions

Funds are required to procure additional High Performance Computing (HPC) necessary to provide higher resolution numerical weather prediction modeling to support the acceleration of improved intensity forecasts a decade sooner. Additional investment in HPC in FY 2010 will enable the procurement of ~6 million CPU hours. NOAA's overall strategy to improve hurricane forecasts and warnings includes: (1) improving the observations; (2) accelerating and transitioning the necessary research and development into operations; and (3) improving the models based upon that research; and (4) procuring the additional computational resources to provide operational model guidance to the National Hurricane Center (NHC) for their use in providing operational forecasts and warnings. This initiative addresses the model development and computing necessary for accelerating improvement in hurricane intensity and track forecasts.

Forecasts and warnings issued by the NHC in large part are based upon the outputs of the numerical forecast models of the environment and hurricane itself. Recent scientific evidence supports the need to run very high resolution models (down to 1 kilometer) of the hurricane within a larger modeling

system for the environment for the hurricane (atmosphere, ocean, waves, and air-sea boundary) to adequately model the intensification lifecycle, and the uncertainty, of a hurricane approaching landfall along the US coastline. Current computing resources only allow the running of the hurricane model at 9 kilometer (km) with no ensembles. The development and use of an ensemble forecast system is required to bound and quantify the estimate of the uncertainty in the forecast. At current levels of investment, it will take three decades or more before sufficient computing is available to run operationally the higher resolution models while still meeting all other high priority model guidance products. Additional computing will allow NOAA to raise the percentage of computing available for hurricanes from approximately 5% of the current operational job suite to 50%. Combined with other investments in the research community (hurricane research and Weather Research and Forecasting Development Test Center), we can reduce the time in half to run models at the scientifically required resolution.

Statement of Need and Economic Benefits

Increased hurricane activity and continuing population growth along our Nation's coastline have created an urgency and national focus to improve hurricane forecasts and warnings. Recent scientific reports, including NOAA's Science Advisory Board Hurricane Intensity Research Working Group Report and the public are demanding large performance leaps in hurricane prediction efforts. NHC is responsible for issuing forecasts and warnings of approaching tropical storms and hurricanes for the protection of life and property along the US coast line and inland and relaying this information to the emergency management community. The current level of accuracy of these forecasts and warnings does not yet meet the need to reliably issue an evacuation at up to 5 days in advance of land fall of an approaching storm. In 2005, a significant amount of the Texas coastline and the city of Houston was evacuated unnecessarily with significant economic disruption and loss of life due to the evacuation. Improving the accuracy of these warnings will save billions of dollars to the US economy and significant disruption in the lives of Americans affected while still ensuring evacuation are issued when required in a timely way (up to 5 days in advance). The scientific community is reaching a consensus that our understanding of the hurricane and the oceanic and atmospheric environment reached through basic research has reached a level that a concerted applied research and development technology program, along with the necessary computing, will allow us to meet the needs of the NHC and emergency management community decades sooner than would be otherwise possible.

At present, the NHC issues forecasts and warning based upon best available information – primarily model and observationally based. The current state of the science allows the research and development of the technology, and along with it implementation and application through additional high performance computing, to accelerate by a decade or more the provision of model-based guidance to the NHC and emergency management community to provide adequate warnings up to 5 days in advance.

Unnecessary evacuations of the US coast line causes significant disruption to the economy and the potential loss of billions of dollars. Inadequate warning might also lead to significant loss of life and preventable economic loss. Significantly improved forecasts of hurricane track and intensity out to 5 days and beyond would greatly improve risk-based decision making necessary for the protection of life and property and reduce the costs and disruptions of due to emergency response dramatically.

A case study of Hurricane Rita demonstrates the economic benefits derived from improved forecasting. Typically, a household decision to evacuate is based on the issuance of a hurricane warning and the anticipated storm strength¹. On early morning of September 22, 2005, a hurricane warning was issued from Port Mansfield, Texas to Cameron, Louisiana. At that time, Hurricane Rita was a Category 4 storm having just been downgraded from a

Category 5. Under this scenario, the estimated economic impact of the evacuation was \$2.344 billion². With this initiative however, NWS could improve forecast track and wind speed errors by 20% in the next five years, potentially saving millions in unnecessary evacuation costs.

1. “Cost of Hurricane Evacuation” by Kevin Smith, University of Eastern Carolina, 1999; “Opportunity Costs of Hurricane Evacuation” by John Whitehead, University of Eastern Carolina, 1999; and “Structure of a Hurricane Evacuation” by Mike Lindell, Texas A&M University, 2005.

2. Based on 2002 Current Population Estimate and 2002 County Business Patterns from the Bureau of the Census. Probability of Evacuation and average cost from “Cost of Hurricane Evacuation” by Kevin Smith, University of Eastern Carolina, 1999. The average household will spend \$149 during an evacuation and the average business will lose \$20,599 in 2006 dollars.

Proposed Actions

In FY 2010, the additional funding of \$3,000,000 will be used to:

- Initiate procurement of the hardware, storage, communications, and necessary facility upgrades to NOAA’s Research and Development High Performance Computing System at the National Center for Environmental Prediction Research and Development Node in Gaithersburg, Maryland (\$3,000K)

FY 2010 - 2013 Deliverables

FY 2010

- Implement First High Performance Computing Upgrade - ~6 million CPU hours (3rd Quarter)

FY 2011

- Implement Second Computing Upgrade - ~12 million CPU hours (3rd Quarter)

FY 2013

- Implement Third Computing Upgrade - ~18 million CPU hours (3rd Quarter)

Performance Goal and Measurement Data

This increase will support the objective “Provide accurate and timely weather and water information” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, the increase supports the NOAA Weather and Water Performance Goal and the performance measures below:

Corporate Measure: Model-based forecast accuracy for hurricane track; Reduce error by 20% in FY2013

Corporate Measure: Model-based forecast accuracy for hurricane intensity (with HWRF Developmental Testbed Center Initiative); Reduce error by 20% in 2013

Performance Measures nm – nautical mile kt – nautical mile/hour	FY06 Baseline Value	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Model Based Hurricane Track Forecast Error <i>with</i> Increase, Measure 3d		Cum % (2)	Cum % (4)	Cum % (6)	Cum % (9)	Cum % (12)	Cum % (16)	Cum % (20)
48 hours	100 nm	98 nm	96 nm	94 nm	91 nm	88 nm	84nm	80 nm
72 hours	150 nm	147 nm	144 nm	141 nm	136 nm	132 nm	128 nm	120 nm
96 hours	200 nm	196 nm	192 nm	188 nm	182 nm	176 nm	168 nm	160 nm
120 hours	300 nm	294 nm	288 nm	282 nm	272 nm	264 nm	252 nm	240nm
Model Based Hurricane Track Forecast Error <i>without</i> Increase		Cum % (2)	Cum % (4)	Cum % (6)	Cum % (8)	Cum % (10)	Cum % (12)	Cum % (14)
48 hours	100 nm	98 nm	96 nm	94 nm	92 nm	90 nm	88 nm	86 nm
72 hours	150 nm	147 nm	144 nm	141 nm	139 nm	136 nm	133 nm	132 nm
96 hours	200 nm	196 nm	192 nm	188 nm	184 nm	180 nm	176 nm	172 nm
120 hours	300 nm	294 nm	288 nm	282 nm	278 nm	272 nm	266 nm	264 nm
Model Based Hurricane Intensity Error <i>with</i> <i>Increase</i> , Measure 3e		Cum % (1)	Cum % (2)	Cum % (4)	Cum % (6)	Cum % (8)	Cum % (10)	Cum % (20)
48 hours	14.7 kt	14.55kt	14.40kt	14.10kt	13.80kt	13.50kt	13.20kt	11.76kt
72 hours	18.6 kt	18.41kt	18.23kt	17.86kt	17.48kt	17.10kt	16.74kt	14.88kt
96 hours	19.8 kt	19.60kt	19.40kt	19.01kt	18.61kt	18.21kt	17.82kt	15.84kt
120 hours	21.8 kt	21.58kt	21.36kt	20.93kt	20.49kt	20.04kt	19.62kt	17.44kt
Model Based Hurricane Intensity Error <i>without</i> <i>Increase</i>		Cum % (1)	Cum % (2)	Cum % (3)	Cum % (4)	Cum % (5)	Cum % (6)	Cum % (7)
48 hours	14.7 kt	14.55kt	14.40kt	14.25kt	14.10kt	13.95kt	13.80kt	13.65kt
72 hours	18.6 kt	18.41kt	18.23kt	18.04kt	17.86kt	17.67kt	17.48kt	17.30kt
96 hours	19.8 kt	19.60kt	19.40kt	19.21kt	19.01kt	18.81kt	18.61kt	18.41kt
120 hours	21.8 kt	21.58kt	21.36kt	21.15kt	20.93kt	20.71kt	20.49kt	20.27kt

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY2014	Cost to Complete*	Total
Weather & Climate Supercomputing								
Change from FY 2010 Base		3,000	3,000	3,000	3,000	3,000	-	
Total Request	172,200	22,092	22,092	22,092	22,092	22,092	N/A	N/A

* Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning from FY 2000.

Complete and Sustain NOAA Weather Radio (+0 FTE and +\$1,337,000): NOAA requests an increase of 0 FTE and \$1,377,000 for a total of 0 FTE and \$11,337,000 to complete, sustain and modernize the NOAA Weather Radio network (NWR). This funding will support planned NWR modernization via the Weather Radio Improvement Project (WRIP). The most critical component of WRIP is the replacement of the obsolete/unsupportable broadcast recoding equipment, the Console Replacement System (CRS) located at each Weather Forecast Office (WFO). There are a total of 122 WFOs. NWS will deploy the NOAA Weather Radio Broadcast Management System (NWR BMS) as a replacement for the Console Replacement System (CRS). The CRS is a main component of NOAA Weather Radio that converts text warning messages into digital voice. This conversion provides the voice warning messages that are broadcast over NOAA Weather Radio to alert the public. It is critical that we address this issue now in order to avert potential outages that might affect NOAA's ability to disseminate warnings to the public.

Proposed Actions

The request would provide a total of \$5,743,000 for WRIP. This would fund the following activities:

- Develop, integrate, and test all software and hardware components of the Master Processing Center (MPC) in accordance with the WRIP Phase II design ensuring that all functional requirements are satisfied.
- Begin installation of C-Band satellite infrastructure for NWWS
- Begin deployment of Broadcast Management System (BMS) to Weather Forecast Offices

Statement of Need

Specific needs that must be addressed by WRIP to sustain and improve the NWR and NWWS services include:

- Extension of NWR Infrastructure Operational Life: The NWR infrastructure has a major subsystem, the Console Replacement System (CRS), which is at its end of life and ongoing support is high risk due to parts obsolescence. The CRS needs to be replaced in order to sustain NWR service operation.

- **Interface to NWR for DHS and FEMA:** The Department of Homeland Security (DHS) and Federal Emergency Management Administration (FEMA) require access to NWR transmitters for dissemination of localized and national emergency voice alerts. DHS needs the ability to direct emergency voice messages to a specific transmitter, group of transmitters or all transmitters, depending on the nature and geographic area of the emergency. This capability requires unique NWR transmitter identification and direct interface into the NWR system by DHS and FEMA, neither of which exist today. In order to meet DHS requirements, a redesign of the CRS system is necessary.
- **Infrastructure Consolidation:** It is anticipated that merging like systems, eliminating redundant processes and consolidating agencies' dissemination requirements will provide a more timely, robust, cost-effective and scalable national dissemination network which reaches a much broader segment of the population than the current systems.

Benefits

This funding will allow us to develop and deploy a system to replace the obsolete CRS. This addresses a critical need, and without funding, the potential for a catastrophic outage exists under the current CRS. To not fund this project could potentially affect our ability to disseminate vital warning information to the public. In FY 2007 and FY 2008 NWS began concept and design work for this project using both Local Warnings and Forecast funding and grant funding from the Department of Homeland Security. In FY 2009, NWS will develop the WRIP system leveraging the design work and begin deployment of Master Processing Centers (MPCs)

Deliverables

FY 2010

- Develop and install centralized MPC
- Deploy CRS replacements at 40 of 122 WFO's

FY 2011

- Deploy CRS replacement at remaining 82 of 122 WFO's

FY 2012 and Beyond

- Steady State

Performance Goal and Measurement Data

This increase will support the objective "Provide accurate and timely weather and water information" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, the increase supports the NOAA Weather and Water Performance Goals:

- Reduced loss of life, injury, and damage to the economy
- Better, quicker, and more valuable weather and water information to support improved decisions
- Increased customer satisfaction with weather and water information and services

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete *	Total
Complete & Sustain NWR								
Change from FY 2010 Base		1,337	2,614	(4,406)	(4,406)	(4,410)		
Total Request	26,621	11,337	12,614	5,594	5,594	5,590	24,141	91,941

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning from FY 2000.

NOAA Profiler Conversion (+0 FTE and +\$2,230,000): NOAA requests an increase of 0 FTE and \$2,230,000 for a total of \$9,730,000 and 0 FTE to continue the planned tech refresh and operating frequency conversion of the 20-year old NOAA Profiler Network. The FY 2010 request reflects higher revised estimates for the cost of this project based on actual solicited bids. Initially NWS envisioned an off-the-shelf (COTS) acquisition solution to its requirement to change the profilers operating frequency as well as providing system-wide tech refresh. The bids NWS received in response to its procurement called for a complete system re-design and significantly increased total cost. Without increased funding, NWS will be unable to maintain the NOAA Profiler Network in operations.

Thirty of the existing 35 NPN profilers operate at an experimental frequency (404 Mhz) that interferes with Search and Rescue Satellites. The Wind Profilers, vertical looking radars installed in 1988, are used as input for numerical (computer) weather models that predict clouds, precipitation, and temperature. The data also provides important indicators of where severe weather such as tornadoes and winter storms will form and is used for issuing aviation advisories, volcanic ash plumes and wildfire predictions. Research has shown Wind Profiler data improves accuracy and lead times for tornado, severe thunderstorm, flash flood, and winter storm warnings.

Thirty of the 35 wind profiles are using an experimental transmitter frequency of 404 MHz issued by the National Telecommunications and Information Administration (NTIA). NTIA has given the 404 MHz frequency to search and rescue satellites (SARSAT) and granted the NPN permanent use of 449 MHz. Thirty operational 404 MHz wind profilers require their transmitters to be converted from 404 to 449 MHz by the end of the FY 2012 when the network will be shut down due to the interference from scheduled completion of the European Space Agency's (*Galileo*) satellites which will have SARSAT transponders.

In addition to the 30 operational sites using 404MHz, there are two additional 404 MHz wind profilers at the National Reconditioning Center and National Weather Service Training Center (used for testing and training). There are also five wind profilers in the NPN that operate at the non-interfering 449 MHz frequency: three in Alaska, one in Syracuse, NY and one in Platteville, CO.

Proposed actions

The proposed adjustment is to (1) convert thirty (30) of the profilers currently operating at 404MHz to 449MHz and to provide technology refresh to each (20-year old system) and (2) provide technology refresh to the five (5) profilers which are currently operating at the 449 Mhz frequency.

- FY 2010: Ten (10) profilers will be modernized and their operating frequencies converted from 404MHz to 449MHz
- FY 2011: Twelve (12) additional profiler s will be modernized and their operating frequencies converted from 404MHz to 449MHz
- FY 2012: Eight (8) profilers will be modernized and their operating frequencies converted from 404 Mhz to 449 Mhz
- FY 2012: Three (3) Alaska and two (2) CONUS profilers currently operating at the 449Mhz frequencies will be modernized
- FY 2013: The profilers at the NOAA/National Reconditioning Center (used to quality control repaired components) and at the NWS Training Center (used to train maintenance technicians) will be modernized and their operating frequencies converted from 404MHz to 449MHz

Statement of Need and Economic Benefits

Because the 30 of the 35 wind profilers and search and rescue (SAR) satellites both operate at 404 MHz, whenever an SAR satellite is overhead, the profilers are turned off to prevent any interference. Right now, this only occurs about 90 minutes per day. The European Space Agency launched their initial test *Galileo* satellite in FY 2006. These satellites will have a SAR capability with an operating frequency of 404 MHz. When fully deployed *Galileo* satellites (30) will be overhead for hours instead of minutes. Under these conditions, NPN profilers operating at 404MHz will have to shut down more than 23:30 hours per day by FY 2012, rendering the network useless. The solution is to change the operating frequency to the non-interfering 449 MHz, a primary shared frequency for wind profilers and DOD testing.

In 2010, the NPN will have been installed for over 20 years without any technology refresh during its life cycle. Therefore a second priority is tech refresh for the entire 37 wind profiler network. This tech refresh includes replacing the 5 existing 449 MHz profilers, replacing the network's VAX system computers and re-hosting the software on a LINUX platform; improving the telecommunications network, replacing site modems, data collection modems and uninterruptible power systems, and providing a major overhaul of site shelters, facility electric distribution, replacement of RASS components and upgraded satellite communications equipment.

The 30 operational wind profilers operating at 404MHz are located in the central U.S. along “tornado alley.”

By coupling the frequency replacement with the tech refresh, the Government avoids risking significant problems with technology integration and achieves a more cost-efficient solution to supporting the life-cycle of these operationally critical systems.

The Senate Appropriations Committee requested, as part of a Cost and Operational Effective Analysis (COEA), “the cost to upgrade the NOAA Profiler Network (NPN) over the next decade versus the short, medium, and long-term costs of ending the NPN program.” The results of the COEA demonstrate that high-frequency wind data benefit several important NWS missions: severe weather warnings (for tornadoes, flash floods, and winter storms), watches, and short-term forecasts. These products are important for public safety, aviation, and wildfire-suppression support.

Deliverables

FY 2010 Antenna and transmitter components for frequency conversion and technology refresh of 10 Profilers.

Performance Goals & Measurement Data

The table below reflects performance measures for those WFOs within the NOAA Profiler Network:

Performance Goal: Weather and Water Performance Measures: GPRA Performance Measure Tornado Warning	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Tornado Warnings Accuracy (%)						
With Increase	69	70	70	70	70	70
Without Increase	69	70	70	69	68	68
False Alarm Ratio (%)						
With Increase	72	72	72	72	72	72
Without Increase	72	72	72	71	70	70
Lead Time (min.)						
With Increase	12	12	12	12	12	12
Without Increase	12	12	12	11	10	10

GPRA measure targets reflect NOAA Profiler Network impacts only and excludes other GPRA target improvements. The drop in performance during FY2012 reflects NOAA Profiler Network shut down due to SARSAT interference.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2009 & Prior**	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete*	Total
NOAA Profiler Network								
Change from FY 2010 Base	-	2,230	-	-	-	(9,730)	-	
Total Request	15,743	9,730	9,730	9,730	9,730	-	-	54,663

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

**Funding for FY 2009 and prior reflects funding beginning from FY 2000.

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: NEXRAD (\$7,400,000); Henderson County Kentucky Weather Sirens (\$110,000); NOAA West Coast Doppler Radar (\$2,000,000); and Cooperative Institute and Research Center for Southeast Weather, AL (\$10,550,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, & Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Weather Service
 Subactivity: Systems Acquisition

	Object Class	2010 Increase
25.2	Other Services	15,867
31	Equipment	3000
99	Total Obligations	18,867

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, & Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Weather Service
 Subactivity: Systems Acquisition

	Object Class	2010 Decrease
31	Equipment	(7,400)
99	Total Obligations	(7,400)

Appropriation: Procurement, Acquisition & Construction
Subactivity: Construction

The NWS Construction subactivity includes two line items.

Weather Forecast Office (WFO) Construction

As part of the National Weather Service (NWS) modernization and associated restructuring, the Weather Forecast Office (WFO) Construction program started in the late 1980s to meet NWS WFO facility requirements supporting the provision of public weather services and the nationwide NEXRAD radar network. The original scope of the project, completed in FY 1999, included the construction or lease of 117 WFOs (13 of which were co-located with River Forecast Centers) and cost approximately \$250 million. Since then, NWS added five WFOs to address service coverage requirements in Guam; Northern Indiana; Caribou, ME; Huntsville, AL; and Key West, FL. Other required construction elements currently ongoing include the upgrade and modernization of Alaska and Pacific Region Weather Service Offices, Tsunami Warning Centers, and associated employee housing units; upgrades of Heating, Ventilation, and Air Conditioning (HVAC) systems at approximately 60 WFOs; uninterruptible power supply (UPS) replacements; and mitigation of all building and fire code violations. This construction effort is essential to bring NWS into full compliance with federal law and national and local building codes.

NOAA Center for Weather and Climate Prediction (NCWCP)

This new facility will replace the current World Weather Building (WWB) with a new state-of-the-art facility to meet the operational requirements of NCEP, the NESDIS Office of Research and Applications and Satellite Services Division, and OAR's Air Resources Laboratory. NWS demonstrated positive results of co-locating its Forecast Offices with research laboratories and universities in the form of improved weather forecast performance scores; NWS hopes to see similar improvements by co-locating these NOAA offices. NOAA intends to use this model to accelerate the transfer of weather and climate research into operations, improve forecast models, and provide a focus for improving environmental satellite data assimilation. Further, co-locating the new facility in a scientific, academic setting will increase the recruitment and retention of top scientists as needed to advance NOAA's Programs.

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PROGRAM CHANGES FOR FY 2010:

Weather Forecast Office (WFO) Construction (+0 FTE and -\$9,000,000): NOAA requests a decrease of 0 FTE and \$9,000,000 for a total of 0 FTE and \$3,504,000. This one-year decrease in funding reflects the fiscal year 2009 acceleration of Alaska Region facility projects, Pacific Region facility projects, and upgrades of Heating, Ventilation, and Air Conditioning (HVAC) systems using FY 2009 American Recovery and Reinvestment Act funds. This construction effort is essential to bring NWS into full compliance with federal law and national and local building codes.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete**	Total Program Estimate
WFO Construction								
Change from FY 2010 Base		(9,000)	-	-	-	-		
Total Request	114,318	3,504	12,504	12,504	12,504	12,504	N/A	N/A

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

NOAA Center for Weather and Climate Prediction (NCWCP) (+0 FTE and -\$3,100,000): NOAA requests a technical transfer (ATB) of \$1,000,000 and 0 FTE from PAC to Central Forecast Guidance (ORF). This transfer reflects completion of construction of the new facility and recurring facility operations and maintenance costs, including IT infrastructure support. NOAA requests a decrease of 0 \$3,100,000 for a total of 0 FTE and \$0 to reflect the completion of this construction project.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete*	Total
NCWCP								
Change from FY 2010 Base		(3,100)	(3,100)	(3,100)	(3,100)	(3,100)		
Total Request	70,762	0	0	0	0	0	N/A	N/A

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, & Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Weather Service
 Subactivity: Construction

	Object Class	2010 Decrease
21	Travel and Transportation of persons	(96)
25.1	Consulting Services	(7,434)
25.2	Other Services	(4,434)
25.3	Purchases of Goods and Services from Govt. Accounts	(125)
26	Supplies and Materials	(11)
99	Total Obligations	(12,100)

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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE FY 2010 OVERVIEW

For FY 2010, NOAA requests an increase of \$284,149,000 and 0 FTE over the FY 2010 base program for a total of \$1,428,594,000 and 831 FTE for National Environmental Satellite, Data, and Information Service (NESDIS). As the NOAA satellite and information service, NESDIS is responsible for managing all aspects of remotely gathered environmental data. This includes procurement, launch, operation, product development, and product distribution for the nation's civil operational environmental satellites. Additionally, NESDIS manages the NOAA environmental data collections, provides assessments that describe the climate, and disseminates data and information to meet the needs of users in commerce, industry, agriculture, science and engineering, as well as federal, state, and local government.

NESDIS has two sub-activities in the Operations, Research and Facilities appropriation: 1) Environmental Satellite Observing Systems; and 2) NOAA Data Centers and Information Services.

The goals of the Environmental Satellite Observing Systems sub-activity include: (1) maintaining a system of polar-orbiting satellites to obtain global environmental data; (2) maintaining a system of geostationary satellites to provide near-continuous environmental observations of the Earth's western hemisphere; (3) acquiring, processing, and analyzing data from NOAA, the Department of Defense (DOD), and other earth-observing satellites; (4) supplying data, interpretations, and consulting services to users; (5) introducing new technology and processes to improve environmental satellite system capabilities; (6) determining requirements for future satellite systems, (7) operating, maintaining, and serving as the lead US agency for the Search and Rescue mission control center; (8) monitoring global sea ice conditions to support safe and effective marine transportation, (9) and demonstrating better ways to use and distribute environmental data from NOAA, the National Aeronautic and Space Administration (NASA), and other satellites, aircraft, and laboratory investigations.

The Environmental Satellite Observing Systems sub-activity includes the following budget line items for FY 2010:

- Satellite Command and Control, including NOAA Satellite Operations Facility (NSOF) operations
- Product Processing and Distribution
- Product Development, Readiness, and Application
- Commercial Remote Sensing Licensing and Enforcement
- Office of Space Commercialization
- Group on Earth Observations (GEO)

The goal of the NOAA Data Centers & Information Services sub-activity is: 1) to provide the Nation with the long-term stewardship archive of and access to past, present, and future environmental observations and associated data recorded across the United States and globally; and 2) to provide worldwide

environmental data and information products and services in the atmospheric, oceanographic, marine, solid earth, and solar-terrestrial sciences to meet the needs of users in commerce, industry, agriculture, science and engineering, the general public, and Federal, state, and local agencies. Environmental data and information maintained by NOAA are vital to every economic sector and are used in making decisions critical to; national defense; industrial productivity; energy development and distribution; management and planning of water resources; world food supplies; public health, safety, and welfare; and development of natural resources. Environmental scientists and observers also have a critical need for a long time-series of historical and recent global data to assess long-term environmental trends, to evaluate the current state of the environment, and to predict future environmental conditions and events.

In FY 2010, the NOAA Data Centers and Information Services sub-activity consists of the following budget line items:

- Archive, Access, and Assessment
- Coastal Data Development
- Environmental Data Systems Modernization

NESDIS' activities support all four Mission Goals in the NOAA Strategic Plan: Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management; Understand Climate Variability and Change To Enhance Society's Ability To Plan and Respond; Serve Society's Needs For Weather and Water Information; and Support The Nation's Commerce With Information For Safe, Efficient, and Environmentally Sound Transportation. Activities also support NOAA's Mission Support Goal to Provide Critical Support for NOAA's Mission.

NESDIS has two sub-activities in the Procurement, Acquisition and Construction appropriation: 1) Systems Acquisition and 2) Construction.

The Systems Acquisition sub-activity includes the following budget line items for FY 2010:

- Geostationary Systems – N
- Geostationary Systems – R
- Polar Orbiting Systems – POES
- Jason-3
- Polar Orbiting Systems – NPOESS
- EOS and Advanced Polar Data Processing, Distribution and Archiving Systems
- CIP – Single Points of Failure
- Comprehensive Large Array Data Stewardship System (CLASS)
- NPOESS Preparatory Data Exploitation
- Restoration of Climate Sensors

In FY 2010, the NESDIS Construction sub-activity consists of the budget line item Satellite CDA Facility.

Research and Development Investments:

The NOAA FY 2010 Budget estimates for its activities, including research and development programs, are the result of an integrated, requirements-based Planning, Programming, Budgeting, and Execution System (PPBES) that provides the structure to link NOAA's strategic vision with programmatic detail, budget development, and the framework to maximize resources while optimizing capabilities.

The PPBES process makes specific reference to the objectives and milestones outlined in the NOAA 5 Year Research Plan for 2008-2012. The strict management of planning against these investment criteria, objectives, and milestones leads to NOAA budget proposals that reflect the research and development needs of the organization.

Significant Adjustments-to-Base (ATBs):

NOAA requests a net increase of 0 FTE and \$2,449,000 to fund adjustments to current programs for NESDIS. The increase will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA).

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Appropriation: Operations, Research and Facilities
Subactivity: Environmental Satellite Observing Systems

The objectives of Environmental Satellite Observing Systems are to:

- Provide efficient and secure command and control of NOAA and Department of Defense (DOD) operational environmental satellites
- To ensure timely and uninterrupted delivery of data to users

To achieve these objectives, NOAA meets the Nation's requirement to provide an environmental satellite system capable of providing timely and accurate environmental data. Early warning of major weather events saves countless lives and prevents substantial property damage. Billions of dollars in damage and hundreds of lives are lost each year due to natural disasters. These losses would be significantly worse if NOAA satellite data and services were unavailable due to interference with, or the failure of, critical satellite command and data acquisition infrastructure.

SATELLITE COMMAND AND CONTROL

The goal of the Satellite Command and Control program is to provide efficient and secure command and control of NOAA and Department of Defense (DOD), and non-NOAA operational environmental satellites to ensure timely and uninterrupted delivery of data to users.

The NOAA Satellite Command and Control program forms the backbone of the ground systems that command, control, and acquire data from NOAA's on-orbit satellites on a 24 hours per day, 365 days per year basis. The Satellite Command and Control program monitors satellite health and safety; schedules satellite operations and data acquisition to meet user needs; evaluates satellite systems performance; commands spacecraft; supports the National Aeronautics and Space Administration (NASA) during launch, activation, and evaluation of new satellites; and assesses satellite and ground station anomalies.

The Satellite Command and Control program provides the day-to-day operations of the NOAA Satellite Operations Control Center in Suitland, Maryland, and satellite command and data acquisition stations in Wallops, Virginia, and Fairbanks, Alaska. From these ground stations, NOAA operates and acquires data from Polar-orbiting Operational Environmental Satellites (POES), Geostationary Operational Environmental Satellites (GOES), and DOD Meteorological Satellite Program (DMSP). Data from other non-NOAA operational and research satellites are also received to support specific NOAA missions. The NOAA Satellite Command and Control program ensures acquisition and near real-time delivery of satellite data to product processing centers that, in turn, support NOAA's National Weather Service mission to protect lives and property during severe weather events.

NSOF Operations

The Satellite Command and Control program provides the day-to-day operations of the NOAA Satellite Operations Control Center located at the NSOF in Suitland, Maryland, and satellite command and data acquisition stations in Wallops, Virginia, and Fairbanks, Alaska. From these ground stations, NOAA

operates and acquires data from Polar-orbiting Operational Environmental Satellites (POES), Geostationary Operational Environmental Satellites (GOES), and DOD Meteorological Satellite Program (DMSP). Data from other non-NOAA operational and research satellites are also received to support specific NOAA missions.

PRODUCT PROCESSING AND DISTRIBUTION

The Product Processing and Distribution (PP&D) program provides the Nation with specialized expertise and computing systems that process, analyze and distribute satellite-derived products and services that protect U.S. lives and property while enhancing the Nation's environmental, national, homeland, and economic security. PP&D processes data from Earth-observing satellites to provide the highest quality products and services to its users.

PP&D provides satellite-derived products and services using data from NOAA, the Department of Defense, and NASA environmental satellites, as well as foreign and commercial spacecraft, to national and international customers and users on a 24 hours-per-day, 7 days-per-week basis. PP&D products enable NOAA to accurately track the location, extent and duration of severe weather such as hurricanes, tornadoes, and winter storms; support development of flash flood warnings; track volcanic ash clouds and severe winds that threaten aviation safety; detect remote wild land fires; monitor coastal ecosystem health; identify and monitor maritime hazards from sea ice; and assist in search and rescue activities. PP&D is the operational interface with NOAA's National Weather Service and supplies the satellite data that makes up more than 99 percent of the information used in numerical weather prediction models. PP&D provides approximately 450 operational products organized into three categories: Atmospheric, Oceanographic, and Terrestrial.

The PP&D program is constantly assessing and using data from advanced satellite sensors to improve operational support to its customers. It also supports activities to improve the effectiveness and interoperability of national systems for sharing natural disaster information. By using maps and data generated by remote- and land-based sensors, this information is made widely accessible to all government agencies and other entities involved in managing and mitigating the impacts of disasters. PP&D products are widely used by all branches of the U.S. Armed Services and the Department of Homeland Security.

Included in the PP&D operations is NOAA's contribution to the joint National Ice Center, which monitors global sea ice conditions to support safe and effective maritime transportation in the Polar Regions, Great Lakes, and Arctic and North Atlantic waters. This service is critical to National Weather Service warnings in ice-prone sea lanes, U.S. Coast Guard rescue attempts, and civilian and military shipping communities. NOAA, the U.S. Navy, and the U.S. Coast Guard jointly operate the U.S. National Ice Center (NIC) to support the civil and military maritime communities.

PP&D provides NOAA's contribution to the operations of the U.S. search and rescue satellite-aided tracking (SARSAT) program. Since SARSAT's inception, more than 22,000 people have been saved worldwide.

PRODUCT DEVELOPMENT, READINESS & APPLICATION

The goal of the NOAA's Product Development, Readiness, and Applications program (PDR&A) is to provide applications-focused research that will develop and evaluate prototype products, algorithms, and pre-operational products to improve existing operational satellite products and services using data from current and next generation environmental satellites.

The Nation needs to enhance its use of satellite data to improve and extend weather forecasts, to expand environmental monitoring and assessment capabilities, and to provide new and improved tools for scientifically-based ecosystems management. In the next few years, the number and quality of satellite instruments will grow significantly, providing enhanced data capable of allowing major improvements in weather prediction accuracy. To make these improvements, targeted research and a cadre of scientists and computing systems dedicated to development is necessary. The PDR&A program ensures the highest accuracy of NOAA's current satellite data and products via a robust and rigorous operational environmental satellite data calibration/validation program. This effort improves product quality for the benefit of all users. PDR&A also incorporates the latest academic findings into its work through competitively awarded Cooperative Institutes with academic institutions (Universities of Wisconsin, Maryland, Colorado State, and Oregon State, City College of New York). The academic expertise and the results of investigations are infused into product development, readiness, and applications that either led to improvements in existing products or to the development of new products or sensors. The two major research activities within PDR&A are:

Ocean Remote Sensing

The Ocean Remote Sensing program supports pre-operational development of products for weather, atmospheric, climate, land, wild land fire, and oceans and coastal applications. NOAA's Ocean Remote Sensing Program supports sea surface temperature, ocean color, satellite altimetry, oceanic rainfall measurements, and coastal monitoring tools for the CoastWatch program.

Joint Center/Accelerate Use of Satellites

PDR&A supports a portion of the funding for the Joint Center for Satellite Data Assimilation (JCSDA), which accelerates the application of satellite data for improving weather forecasts and other environmental models. The JCSDA was established to speed the development of new satellite data assimilation science. NOAA (NWS, OAR, and NESDIS), NASA and DOD are partners in this coordinated national effort to more fully realize the potential of the vast quantities of new satellite data that are becoming available. The JCSDA is also a risk reduction measure designed to accelerate NPOESS and GOES-R data utilization for the development of numerical weather prediction models, and forecast models that will lead to increased accuracy and longer-range forecasts. In the next few years, the number and quality of satellite instruments will grow significantly, providing an exponential increase in higher quality data capable of allowing major improvements in the accuracy of weather prediction.

COMMERICAL REMOTE SENSING REGULATORY AFFAIRS (CRSRA)

The Nation requires a consistent and transparent regulatory process for licensing commercial remote sensing space systems in order to promote U.S. technological competitiveness and economic security, while ensuring satellite operation is consistent with our national security, intelligence, and foreign policy needs. NOAA's CRSRA program supports these requirements while furthering the Nation's homeland security and national security missions.

The CRSRA program coordinates interagency review of satellite license applications, amendments, and significant foreign agreements. NOAA licenses commercial remote sensing space systems and performs associated monitoring and compliance pursuant to the Secretary of Commerce's statutory responsibilities, which have been delegated to NOAA. Prior to issuing licenses, NOAA must consult with the Departments of Defense and State to ensure license compliance with national security and foreign policy, respectively. NOAA reviews licensees' ongoing procedures to protect sensitive data. NOAA

also works closely with other U.S. Government agencies to implement policy and ensure international coordination. During national security or foreign policy crises, the Secretary of Commerce may exercise limitations on routine commercial operations in response to a request from the Secretary of Defense or the Secretary of State.

Major monitoring and compliance activities supported by NOAA include review of quarterly license reports, on-site inspections, audits, license violation enforcement, and implementation of restrictions during national security and foreign policy crises. The number of license applications and revocations vary each year, and are not predictable. The Department of Commerce's CRSRA through NOAA is responsible for enforcement and ensuring compliance with the terms of the license agreements.

Worldwide commercial remote sensing space data sales were estimated to be \$735 million in 2007 and are expected to increase to \$2.5-\$3.4 billion by 2017. Dramatic future growth is expected due to growing civil and military user requirements, improvements in aerospace and information technologies, and e-commerce.

OFFICE OF SPACE COMMERCIALIZATION (OSC)

OSC managed by NOAA for the Department of Commerce, is responsible for developing space-related policies and promotion of the capabilities of the U.S. commercial space industry. OSC represents the Department of Commerce in negotiations with foreign countries to ensure free and fair trade internationally in the areas of space commerce. The Office assists U.S. commercial providers in their efforts to expand their business with the U.S. Government and promotes commercial provider investment by performing economic analysis on space and space-related markets. OSC identifies commercial solutions for key NOAA and other civil government data acquisition requirements. The Office also acts as a broad industry advocate within the executive branch to ensure the Federal Government uses commercially available space goods and services to meet their requirements, avoids legal and regulatory impediments, and does not compete with the U.S. commercial space industry.

National Space-Based PNT Coordination Office (NCO)

The Office of Space Commercialization, on behalf of the Department of Commerce, also provides support to the National Space-Based Positioning, Navigation, and Timing (PNT) Executive Committee. The 2004 U.S. Space-Based PNT Policy established, through Presidential Directive, a permanent National PNT Executive Committee (EXCOM) to manage the Global Positioning System (GPS) and its U.S. Government augmentations as a national asset. The policy further directed the EXCOM to establish the National Space-Based PNT Coordination Office (NCO) to serve as the Secretariat and perform those functions delegated by the Executive Committee. The Deputy Secretary of Commerce is a member of the Executive Committee and OSC provides management, personnel and facility support to the NCO in addition to performing studies and related activities to meet Executive Committee tasking and responsibilities.

GROUP ON EARTH OBSERVATIONS (GEO)

GEO is a voluntary partnership of governments and international organizations that provides a framework within which these partners can develop new projects and coordinate their strategies and investments for evaluating and observing Earth observations. As of March 2009, GEO's Members include 77 Governments and the European Commission. In addition, 56 intergovernmental, international, and regional organizations with a mandate in Earth observation or related issues have been recognized as Participating Organizations.

GEO is constructing GEOSS on the basis of a 10-Year Implementation Plan for the period 2005 to 2015. The Plan defines a vision statement for GEOSS, its purpose and scope, expected benefits, and the nine "Societal Benefit Areas" of disasters, health, energy, climate, water, weather, ecosystems, agriculture and biodiversity.

By 2015, participating governments will assess the effectiveness of GEO in advancing the realization of GEOSS and will individually and collectively determine a future course of action.

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PROGRAM CHANGES FOR FY 2010:

Sea Ice Data Buy (0 FTE and + \$880,000): NOAA requests an increase of 0 FTE and \$880,000 for a total budget request in FY 2010 of 0 FTE and \$2,211,000 for the National Ice Center (NIC) Sea Ice Data Buy.

This increase purchases Synthetic Aperture Radar (SAR) imagery scenes from commercial remote sensing data providers to create operational products for use by vessels to avoid ice and identify safe routes through ice covered waters. The National Ice Center (NIC) operates under a Memorandum of Agreement between the U.S. Coast Guard, U.S. Navy, and NOAA. The NIC provides sea ice nowcast and forecast products required to support marine transportation in northern U.S. and adjacent international ocean waters that are subject to ice cover. These products are also used by vessels to plan efficient shipments of commerce through small areas such as ports, harbors, bays, rivers and channels or specific locations where industrial or other commercial activity is ongoing. SAR data are critical to producing ice products because of its all-weather, cloud-discerning capability, especially over icy waters, and because the 100-meter resolution required over large areas cannot be met with any other data sets available. The procurement of SAR scenes will help to mitigate the loss of free data from RADARSAT -1, which is no longer available to NOAA.

Proposed Actions

This increase will be used to continue to mitigate the loss of RADARSAT-1 data. NOAA will use the increased funding to buy SAR data which will be used by operational analysts to minimize uncertainties in ice nowcast and forecast products when persistent cloud cover obscures frequent views of ice-covered areas. NIC products will be used by government and commercial vessels to avoid ice and identify safe, efficient routes through ice-covered waters.

Statement of Need and Economic Benefits

According to US Army Corps of Engineers, the Great Lakes serve as the nation's fourth largest seacoast for transporting vital commodities to and from the nation's heartland. More than 3,000 ships per year pass through Alaska's Aleutian Islands while traveling between North America and Asia via the "Great Circle Route." Safe and efficient travel through these remote and environmentally sensitive areas is dependent upon National Ice Center forecasts and NOAA charts of these waters.

The analysis and production of navigation-related ice nowcasts and forecasts products ensure access to current and accurate data in relevant standards for users. The RADARSAT-1 Memorandum of Agreement (MOA) between the Canadian Space Agency (CSA), NASA, and NOAA was unilaterally dissolved May 2008. After the May 2008 dissolution of the agreement, the NIC and CIS were no longer able to exchange data in the Great Lakes and Alaska regions, which leaves the NIC without data to produce user informed products.

NOAA will continue plans to address the long-term requirements for SAR imagery in multiple mission areas. The requested increase in FY 2010 will allow NOAA to address the highest priority needs for users. Ice nowcast and forecast contribute to the Nation's commerce and transportation

by providing products, information, tools, and services for safe, efficient, and environmentally sound navigation and the smooth flow of energy resources such as oil shipments to and from Alaska, the Great Lakes and Northeastern bays.

Schedule / Milestones / Deliverables

- Purchase additional SAR data in FY 2010 required for Great Lakes coverage in support of marine transportation.
- Implement SAR Data Acquisition plan (FY10 Q1)
- Purchase SAR imagery requirement over Great Lakes & Alaska regions to cover Freeze-up season FY 2010 (Q1)
- Purchase SAR imagery requirement over Great Lakes & Alaska regions to cover maximum ice growth and identify continuously shifting ice edge and pack ice concentrations FY 2010 (Q2)
- Purchase SAR imagery requirement over Great Lakes and Alaska melt season, heavy shipping traffic FY 2010 (Q3)
- Purchase SAR imagery requirement over Alaska region only (imagery coverage needed in northern western arctic, Great Lakes region does not have ice during the 4th quarter of each year.) (Q4)

Performance Goals and Measurement Data

Performance Goal: Percent of regional Great Lakes/Alaska ice coverage	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	25%	90%	90%	90%	90%	90%
Without Increase	25%	45%	45%	45%	45%	45%
Description with increase: The procurement will mitigate the significant impact to the Great Lakes Region which will not be covered at all since Radarsat-1 data is no longer available. (The Alaska region will be partially covered by 1800/yr Advanced Land Observing Satellite (ALOS) images per year due to a NOAA/Japan Aerospace Exploration Agency (JAXA) partnership.)						

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Satellite Command and Control (\$40,000); NSOF Operations (\$6,000); Product Processing and Distribution (\$29,000); Product Development, Readiness and Application (\$21,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in Thousands)

Activity: National Environmental Satellite, Data, and Information Service
 Subactivity: Environmental Satellite Observing Systems

Object Class	2010 Increase
26 Supplies and materials	880
99 Total Obligations	880

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Appropriation: Operations, Research, and Facilities
Subactivity: Data Centers & Information Services

Through three NOAA National Data Centers (NNDCs), environmental data, information, products, and services are provided to support atmospheric, oceanographic, and the solid earth and solar-terrestrial physical sciences to facilitate sustained economic growth, scientifically sound environmental management, and public safety for the Nation and the international community. The line item provides the core funding for the three NNDCs: the National Climatic Data Center, the National Oceanographic Data Center, and the National Geophysical Data Center. This line item also supports the nation-wide NOAA library system.

The NNDCs provide the Nation with the long-term stewardship archive of past, present, and future environmental observations and associated data recorded across the United States and globally. Access to long time series of environmental data is critical to satisfying the Nation's wide range of needs related to the national security, the economy, the environment, and public safety. Approximately one-third of U. S. economic activity is climate sensitive and this figure continues to increase. Business and government policies and decisions impacting water and energy management, manufacturing, transportation, food production, public health, and many other socio-economic issues depend on quality climate and weather data records. Collectively, the three national data centers receive over one petabyte (10^{15}) of new data annually, provide access to an archive exceeding 2.5 petabytes and support over 100 million worldwide queries per year, providing data transfers to over two million customers. By 2017, the projected ingest of new data will exceed 17 petabytes per year and the cumulative archive volume managed and accessible to customers will exceed 97 petabytes (*NOAA Report to Congress on Data and Information Management 2007*).

ARCHIVE, ACCESS & ASSESSMENT

Climate Archive, Access, and Assessment: The National Climatic Data Center (NCDC), located in Asheville, North Carolina, is the largest climate data center in the world, and is the Nation's designated federal records center for climate data. NCDC is one of two operational sites for NOAA's Comprehensive Large-Array Stewardship System (CLASS). The NCDC receives, processes, archives, provides access, disseminates, and conducts objective assessments of remote (satellite) and in-situ (land, ocean, and atmosphere) observations. In a typical year, over 473 million national and international contacts for NOAA climate data and information are made via the Internet; over 5.7 million unique users visited the NCDC website; and 338 terabytes of data were downloaded including nearly 22,000 paid orders via the Online Store. These numbers are increasing each year. National and international observing systems provide a regional, national, and global perspective of the state of the Earth's weather and climate. Paleoclimate "proxy" records, i.e., pre-instruments, such as ice and coral cores, and tree rings, are also collected, archived, and made available to the global community of researchers and other interested users. The NCDC is a designated World Data Center (WDC) for Meteorology and WDC for Paleoclimatology.

The NCDC also manages the conversion of historical non-digital data records (paper and microfiche) to electronic format and accessibility via the Internet through the Climate Database Modernization Program. Over the past several years, the NCDC, in cooperation with scientists and other NOAA activities and federal agencies, has designed and deployed the Nation's first climate quality observing network, the U. S. Climate Reference Network (USCRN).

The NCDC in partnership with NASA scientists develop long time series satellite derived climate data records, and is a leading contributor in partnership with other agencies developing the National Integrated Drought Information System (NIDIS) portal.

The NCDC provides data, information, products and climate services to all sectors of the economy, delivering weather and climate data and information to nearly two million customers each year for planning, operations, and minimizing the risk of weather and climate extremes. The NCDC provides access and data retrieval via the worldwide web/Internet, and responds to thousands of requests received via e-mail, phone, fax, and the mail. The NCDC routinely produces operational products for climate monitoring, such as the weekly and monthly State of the Climate reports, the U.S. and the North American Drought Monitoring Reports, and other climate assessments. These and other assessments support business and government policy and decision makers and implementers. The NCDC works very closely with the Regional Climate Centers and State Climatologists to provide support and climate services at regional and local levels.

Ocean Archive, Access, and Assessment: The National Oceanographic Data Center (NODC), located in Silver Spring, Maryland, is the Nation's permanent archive for oceanographic data, ensuring the public access to and the scientific stewardship of the long-term observational record of the global ocean, U.S. coastal waters and their ecosystems. These holdings document the physical and chemical properties of the oceans, currents, and biota as observed from ships, buoys, satellites and other ocean and coastal platforms extending back nearly 150 years. The NODC serves more than 800,000 users annually through the Internet and a variety of publications including atlases and technical reports published on digital media and paper. Examples of the most requested products include the World Ocean Database and Atlas, the International Atlas of the Ocean series, sea surface temperature climatology derived from satellites, and data sets gathered from operational ocean observing systems worldwide. The user community includes resource managers, researchers, educators, and maritime industry professionals from Federal, State and local agencies as well as academia and the public. NODC is a designated World Data Center for Oceanography and provides leadership for international data exchange programs through the Intergovernmental Oceanographic Commission (IOC). NODC also provides national leadership in data management for the U.S. Integrated Ocean Observing System (IOOS).

The NOAA Central Library, a division of NODC, operates on behalf of all agency programs to support NOAA staff in their work and provide public access to NOAA information. It includes the central library located in Silver Spring (MD) and regional libraries in Seattle (WA), Miami (FL), and a branch library in Camp Springs (MD). The central library also organizes agency-wide information services such as electronic journal and database subscriptions and online reference services to support NOAA employees nationwide through 37 affiliated libraries at NOAA facilities throughout the United States. The NOAA library's collection currently consists of over 600,000 volumes and thousands of electronic documents and visual images on topics related to NOAA's diverse missions.

Geophysical Archive, Access, and Assessment: The National Geophysical Data Center (NGDC), located in Boulder Colorado, builds and maintains long-term archives of scientific data, with a special emphasis on scientific stewardship of data acquired by NOAA observing systems. Data holdings include bathymetry, solar, geophysical, space environment, and earth observing satellite data. The NGDC plays an integral role in the Nation's research into the environment, at the same time providing public domain data to a wide group of users. The NGDC works very closely with NOAA's Space

Weather Prediction Center and Office of Coast Survey to provide archive and access of space weather and marine observations. NGDC works with contributors of scientific data to prepare documented, reliable data sets, currently maintaining more than 850 digital and analog data sets; and continually develops data management programs that reflect the changing world of geophysics in an era of electronic data access. NGDC provides funding to the National Snow and Ice Data Center (NSIDC) at the University of Colorado for archive services for polar data.

NGDC's unique capabilities have attracted other mission-related functions. NGDC is one of two operational sites for NOAA's Comprehensive Large-Array Stewardship System (CLASS) and is the parallel collection site and archive for the Global Positioning System Continuously Operating Reference Stations (GPS CORS). NGDC is responsible for the development and maintenance of the World Magnetic Model for the Department of Defense. NGDC operates World Data Centers for solid earth geophysics, marine geology and geophysics, solar terrestrial physics, and glaciology (NSIDC) for the International Council of Science under the auspices of the U.S. National Academy of Sciences.

Climate Database Modernization (KY, MD, WV & NC)

The Climate Database Modernization Program (CDMP) is a partnership between NCDC and private industry to image and digitize key paper and microfilm records, and to make them available via the World Wide Web (WWW). Currently there are more than 52 million images and over seven terabytes of data available on-line using Web Search Store Retrieve Display (WSSRD) software. CDMP supports the NOAA mission to collect, integrate, assimilate and effectively manage Earth observations on a global scale, ranging from atmospheric, weather, and climate observations to oceanic, coastal, and marine life observations. Many of these records, part of the U.S. National Archives, were originally recorded on paper, film, and other fragile media, and stored at various NOAA Centers. Prior to CDMP, these valuable data sources not readily available to users, the paper and film media were deteriorating threatening the loss of these records, a National Treasure.

Hourly weather records keyed through CDMP continue to be integrated into NCDC's long term historical climate records digital database holdings, extending the period of record for many stations into the latter 1800s. Daily paper data records collected mainly by the Smithsonian Institution and U.S. Army Signal Service from stations across the country keyed through the CDMP "Forts" project will extend climate records back to the early 1800s. Another major data integration task, the Surface Airways Observations (SAO) project, will capture and key Weather Bureau and National Weather Service data from major city offices and airports dating back to 1893.

CDMP enables the digitizing of important environmental data ranging from below the oceans to the top of the ionosphere. Projects range from historic sunspot images, ocean core research, and extending time series data of ocean tides and sea level. CDMP is also coordinating several international projects, for example: Uruguay and Mexico data are being imaged and digitized as well as upper air data from several countries in Africa, and collaboration with the British government will rescue observations from European ship logs.

Increased easy and convenient storage and access to increased volumes of digitized higher quality historical data improves NOAA's and others ability to monitor, assess, forecast, and predict environmental, solar, and geophysical events, and improve climate change projections. CDMP typically supports on

average 77 ongoing Data Rescue Projects. Funding for projects are provided through a proposal process, which culminates each November at CDMP's Data Access Workshop. The imaging and digitizing is done under contract with private sector businesses.

COASTAL DATA DEVELOPMENT

The National Coastal Data Development Center (NCDDC), located in Stennis, MS, is operated by the National Oceanographic Data Center. The goal of Coastal Data Development (CDD) activities is to provide increased utilization of coastal and oceanographic data using web-based search/access and geographic information system (GIS) techniques to improve the understanding, management and use of coastal areas. The focus of NCDDC is to improve the quality of web-based search/access tools and implement web-based access to priority data sets from federal, state, and local repositories. Geospatial display capabilities have been added that enable the user to link environmental data to coastal imagery, charts, and bathymetry to obtain a complete “data picture” of the ecosystem of interest. To identify priority data sets, NCDDC coordinates with Federal, State, and local agencies, academic institutions, non-profit organizations and the private sector to create a unified, long term database of coastal data sets available from a variety of sources. The NCDDC develops and maintains a catalog of available coastal data, builds links and or access to these sources, ensures the quality of the metadata, populates and updates the metadata catalogs, and provides on-line search and access and geospatial display for the coastal user community.

NCDDC activities support NOAA’s Ecosystem mission goal which aims to build the capacity of federal, state, local, and international managers to make decisions that protect, restore, and use coastal ecosystem services. The Earth’s coastal ecosystems are home to a wealth of natural resources, and the lives and livelihoods of people are linked to these national treasures. Sustainable growth of our coastal regions is critical to our economy by supporting commercial and recreational fishing, waterborne commerce, home construction, and tourism. NCDDC information also supports NOAA’s other mission goals: Climate Goal, Commerce and Transportation Goal, and Weather and Water Goal.

ENVIRONMENTAL DATA SYSTEMS MODERNIZATION

The goal of Environmental Data Systems Modernization (EDSM) is to provide increased access and utility to environmental data, information, products, and services through the use of innovative technologies and techniques.

Environmental data and information under the stewardship of NOAA are vital to a wide range of weather sensitive sectors of the economy such as, energy and water resources management, aviation, construction, engineering, utilities, food production (agriculture and aquaculture businesses), multi-modal commerce, tourism, manufacturing, and the insurance industry. Business and government leaders and researchers have critical needs for quality long time-series of historical and recent national and global data to evaluate the current status of the environment, to assess long-term environmental trends, and to predict future environmental conditions and events.

Environmental Data Systems Modernization (EDSM) consists of two components: Satellite Active Archive (SAA), and Scientific Data Stewardship/Integrated Observations System (SDS/IOS). The SAA provides immediate web-based digital access to satellite data and is an important part of the Comprehensive Large Array Data Stewardship System (CLASS). SDS/IOS (i.e., collecting, processing, product development, access, distribution, archiving) consists of an integrated suite of functions to preserve and exploit the full scientific value of NOAA's environmental data. Successful

implementation of stewardship will maximize the value and utility of NOAA's environmental data, now and in the future. A subset of SDS/IOS is the on-line function of making data held within the NOAA Data Centers available to meet customer requirements. The system is known as the Virtual Data System.

NOAA is developing an integrated, national and global observing system that will bring together all aspects of environmental monitoring on common platforms to ensure data quality, to manage data efficiently for the long-term, and to make these data easily and readily accessible. NOAA plans to accomplish these goals through a program of Scientific Data Stewardship and the Integrated Observations System.

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PROGRAM CHANGES FOR FY 2010:

Climate Data Records (0 FTE and + \$7,000,000): NOAA requests an increase of 0 FTE and \$7,000,000 for a total budget request in FY 2010 of 0 FTE and \$7,000,000 for Climate Data Records. This increase will transform raw satellite data into unified and coherent long-term environmental observations and products that are critical to advanced climate change understanding, prediction, mitigation and adaptation.

Proposed Actions

This increase will support production of Climate Data Records (CDRs) and Climate Information Records (CIRs). CDRs and CIRs provide authoritative climate reference sets. They are required by scientists to detect, assess, model and predict climate change, and by decision-makers to devise strategies to respond, adapt, and mitigate the effects of climate change.

NOAA leverages prior U.S. investments by transitioning research products from NASA and other agencies into sustained NOAA operations. Major CDR development and production actions include:

- Algorithm Development, Processing and Re-Processing of Long Term Data Series
- Calibration, Validation and Characterization of Data
- Science and Climate Information Records
- Long Term Stewardship (ensure CDRs are easily understood and accessible and of highest quality possible)
- Applications for Mitigation and Adaptation, and
- Project Management Support

Statement of Need and Economic Benefits

The CDR program addresses NOAA's Strategic Goal to "Understand climate variability and change," and the NOAA Climate Goal's mandate to "provide comprehensive observations, data and analysis systems, climate data records...". CDRs can address the current state of the climate at the accuracies and resolutions required by users and provide capability to assimilate large and complex data sets into earth systems models.

CDRs are distinct from operational weather/hazard satellite products since CDR production:

- Removes/minimizes time dependent biases in satellite data
- Delivers long term "seamless" homogeneous records characterizing climate change/variation (50+ years)
- Reprocesses the entire period of record as new climate algorithms or sensor knowledge developed

Without a CDR processing capability, NOAA's satellite data have significantly less use and value for climate studies. Recently, the US GEO/GEOSS, CCSP (2003), WMO/GCOS (2002), and National Academy of Sciences (2004 and 2006) have called for a sustained CDR program. The Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report (2007) underscores the urgent need for these data. Key NOAA constituents, including major private sector industries such as reinsurance, energy and transportation, have increasingly called for authoritative climate reference data

upon which to base investments and strategic plans (e.g., NOAA Data and Information for a Changing Climate: A Conference for Public and Private Sector Users, Asheville, NC, 2007).

NOAA’s CDR Program is initially focused on critical CDRs that address key societal issues including:

- Water, drought, and floods
- Energy and renewable energy
- Hurricanes and coastal hazards

Schedule / Milestones

Transition to Operations: Sea Surface Temperature, International Satellite Cloud Climatology Project (ISCCP) and Special Sensor Microwave Imager (SSM/I) Fundamental CDR Bundles
 Initiate Development of Earth Radiation Budget CDR (ISCCPII; 1981-now)
 Initiate Development of AVHRR-MODIS Imager Reflective-band Fundamental CDR
 Initiate Development of Snow-Ice CDR Bundle (A “bundle” includes a variable number of related geophysical CDRs derived through a common algorithm or retrieval approach.)

Deliverables

3 CDRs transitioned to operations in 2010.

Performance Goals and Measurement Data

Performance Measure:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
CDRs Transitioned to (Sustained in) NOAA Operations (Cumulative)						
With Increase	3	3	3	3	3	3
Without Increase	0	0	0	0	0	0
Description with increase: The increase will transform raw satellite data into unified and coherent long-term environmental observations and sustained climate products that are critical to advanced climate change understanding, prediction, mitigation and adaptation.						

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Archive, Access and Assessment (\$45,000); Climate Database Modernization - KY (\$5,549,000); Climate Data Modernization - MD (\$4,243,000); Quality Assurance/Quality Control - NC (\$1,229,000); Climate Database Modernization - WV (\$5,896,000); Regional Climate Centers (\$3,900,000); International Pacific Research Center (University of Hawaii) (\$1,750,000); Environmental Data Systems Modernization (\$6,000); Integrated Data and Environmental Applications and Information Center (\$2,500,000) and Cooperative Institute for Remote Sensing Applications - AL (\$800,000).

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in Thousands)

Activity: National Environmental Satellite, Data, and Information Service
 Subactivity: Archive, Access and Assessment – Climate Data Records

Object Class	2010 Increase
23 Rent/communication/utilities	280
23 Contractual Services	2,491
31 Equipment	519
41 Grants and Fixed Charges	3,710
99 Total Obligations	7,000

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Appropriation: Procurement, Acquisition, and Construction
Subactivity: Systems Acquisition

Geostationary Operational Environmental Satellite Program

The goals of the Geostationary Operational Environmental Satellite (GOES) program are to continue the procurement of spacecraft, instruments, launch services, and ground systems equipment necessary to maintain an uninterrupted flow of environmental data collected from geosynchronous earth orbit data to users.

The GOES series of satellites fall under NOAA's Mission Support goal, and support NOAA's other strategic goals to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management approaches; to understand climate variability and change to enhance society's ability to plan and respond; to serve society's needs for weather and water information; and to support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

GOES data provide:

- Cloud images and precipitation estimates for hurricanes and other coastal storms;
- NOAA Coast Watch sea surface temperature (SST) products for locating commercial and sport fish as well as protected marine species;
- New research products, such as ocean surface currents, that support both ecosystems management and safety of marine navigation;
- Primary information in the Nation's Climate Reference Network, providing reference quality data for surface temperature and precipitation monitoring;
- Images of the United States and adjacent ocean areas to enable the detection of hurricanes and other major weather events;
- Data collection from remote fixed in-situ observing platforms such as buoys and rain gauges for use in numerical weather prediction models and flood/drought assessments;
- Weather information to emergency managers for use in times of severe weather and during other disasters;
- A means to obtain quantitative environmental data such as temperature, moisture, wind, radiation and solar energy particle flux for use in weather predictions, hydrometrological flux, climate long term trending, ecosystems management, commercial economic gain, and transportation safety; and
- Unique monitoring capabilities that support air, land, and marine transportation.

Polar-orbiting Operational Environmental Satellites Programs

The goals of the Polar-orbiting Operational Environmental Satellite (POES) program are to continue the procurement of spacecraft, instruments, launch services, and ground systems equipment necessary to maintain an uninterrupted flow of environmental data to users.

The NOAA family of polar satellites (i.e., Polar-orbiting Operational Environmental Satellites (POES) and the National Polar-orbiting Operational Environmental Satellites System (NPOESS), instruments, and processing systems make up the polar portion of the Satellite Sub-goal of the Mission Support programs, and provide support for all of the other strategic plan goals, and NOAA's cross-cutting priorities.

Polar satellites provide a continuous flow of global environmental observations in support of operational requirements for:

- Environmental monitoring, and weather and marine forecasting;
- Climate assessment and change prediction;
- Detecting weather systems and significant environmental events such as volcanic eruptions, oil spills, and wildfires;
- Measuring atmospheric ozone and the space environment;
- Collecting environmental data from other surface platforms such as buoys; and
- Performing search and rescue functions.

Geostationary Operational Environmental Satellite (GOES)

The GOES system provides an uninterrupted, continuous flow of data and information that meets customers' spatial, temporal and accuracy requirements, providing significant customer benefit within an established life cycle cost target. The procurement of GOES satellites is a cooperative venture between NOAA and the National Aeronautics and Space Administration (NASA). Historically, NOAA defines requirements, manages, funds, implements system integration, procures ground segments and operates the GOES satellites. NASA serves as the agency with multi-disciplinary engineering expertise, develops detailed system specifications, procures and launches the spacecraft, and assists NOAA in system integration.

NOAA GOES satellite systems are designed, developed, acquired and operated as a single end-to-end system. The system includes the observing platform (space-based instruments satellites); command and control of the platform; product generation and distribution; archive and access; and user interface. GOES contributes to an Integrated Global Observation System; is defined as an end-to-end approach linking requirements to services; delivers critical real-time data and information needed for sound decision making; addresses needs to support expanded climate services; and works with global partners.

GOES observations allow continuous monitoring from the same angle during the tracking/detection of severe storms, atmospheric moisture changes, mesoscale scanning, currents flow dynamics, and atmospheric chemical (particle) that cannot be achieved from a non-stationary orbit without increased error rates and lost data segments. NOAA maintains an on-orbit spare to complement the two operational GOES satellites. This on-orbit spare philosophy allows NOAA to quickly replace a failed satellite by re-positioning an on-orbit satellite to assure there is no loss in continuous coverage. To facilitate this strategy, NOAA plans the launch of the next satellite to coincide with the planned switchover of the on-orbit spare to operational status.

GOES-N SERIES

The NOAA GOES program includes the development, procurement, and launch of the GOES-N series of satellites. The spacecraft contract for the GOES-N series is a firm fixed price contract with delivery on-orbit. The GOES-N series program also includes separate contracts for the instruments, one for the Imager and Sounder, and one contract for the Solar X-ray Imager.

GOES-R SERIES

The GOES-R Series is the next generation of geostationary environmental satellites that will replace and provide greater observing capability than the GOES-N Series. The GOES-R program will complete architecture studies, technology development, design, fabrication, integration and testing, and end-to-end system integration to maintain GOES continuity. End-to-end system integration refers to the acquisition of an on-orbit satellite including the spacecraft, instruments, GOES unique communications services, and launch services; the command, control, and communications and product generation and distribution functions currently performed by Satellite Services; the archive and access of all data and products; and the user interface function providing data to critical users and forecasters. The GOES-R budget requested for FY 2010 is for two satellites, GOES-R and GOES-S. The archive and access function will be provided by NOAA's CLASS system. The GOES-R program will provide end-to-end system integration through the acquisition, deployment, maintenance, and operations of the space, ground and launch segments.

Polar-orbiting Operational Environmental Satellite System

Currently, the polar satellite program consists of NOAA's Polar-orbiting Operational Environmental Satellites (POES), the provision of U.S. instruments for flight on the European Polar System (EPS) satellites known as MetOp, and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). POES is NOAA's current operational polar system, with the last satellite in the series (NOAA 19) launched on February 6, 2009. As part of a cooperative agreement with NOAA, the MetOp series of satellites within EPS will carry U.S. instruments and provide data services coverage from a mid-morning polar-orbit through 2020. NPOESS is a future satellite system and an acquisition program that is the follow-on program as mandated by Presidential directive to replace the POES Program and the Department of Defense's (DOD) Defense Meteorological Satellite Program (DMSP). NPOESS Data Exploitation (NDE) is a polar-related project that is designed to ensure utilization of NPOESS data.

National Polar-orbiting Operational Environmental Satellite System (NPOESS)

Presidential Decision Directive (PDD/NSTC-2, Convergence of US Polar-Orbiting Operational Environmental Satellite Systems, May 5, 1994) directed the Department of Commerce (DOC), Department of Defense (DOD), and National Aeronautics and Space Administration (NASA) to establish the NPOESS program. This decision integrated the Nation's civil (NOAA's POES) and military (DOD's DMSP) polar-orbiting meteorological satellite systems into a single, national system capable of satisfying both civil and national security requirements for space-based, remotely sensed environmental data. As a result, NOAA, DOD, and NASA formed a tri-agency Integrated Program Office (IPO) to develop, manage, acquire, and operate the new polar satellite system called NPOESS.

Through NPOESS, which is jointly funded by NOAA and the U.S. Air Force, the U.S. government is substantially reducing duplication of efforts by satisfying the requirements of the civil and national security communities with one system. The first result of the NPOESS program was the transfer of

DMSP satellite control from the U.S. Air Force Space Command to the IPO. The command, control, and communications functions for the DMSP satellites and the POES satellites are now combined at the NOAA Satellite Operations Control Center (SOCC) in Suitland, Maryland. The launch of the DMSP F-15 satellite in December 1999 resulted in the first DMSP satellite launched and controlled by the NOAA SOCC.

In 2005, the NPOESS Program Director, in accordance with DOD regulations, notified the program’s Executive Committee (EXCOM) that the program costs would likely exceed the plan by more than 25 percent regardless of decisions on how the program would proceed. This notification initiated a series of events which are required under the DOD Nunn-McCurdy process. In June 2006, the Office of the Secretary of Defense certified that:

- The program is essential to National Security;
- No alternatives with equal capability exist at equal or lesser cost;
- The cost estimate is reasonable; and
- The management structure is adequate for program success.

As a result of the Nunn-McCurdy process, the National Polar-orbiting Operational Environmental Satellite System (NPOESS) Integrated Program Office (IPO) began executing the Restructured Engineering and Manufacturing Development (EMD) contract on July 30, 2007.

Earth Observing System Data Archive & Access System Enhancement

NASA’s Earth Observing System (EOS) data will be integrated into CLASS for archive and access.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete *	Total
Earth Observing System Data Archive & Access System Enhancement								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	11,362	990	990	990	990	990	3,960	20,272

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

Critical Single Points of Failure

This effort supports the continuity of critical operational satellite products and services in the event of a catastrophic outage at the NOAA Satellite Operations Facility (NSOF) and the World Weather Building in Camp Springs by providing backup capability for primary satellite products and services.

The NOAA Product Processing and Distribution Office is a critical single point of failure for every operational NOAA satellite product and service that NWS and other users rely on for weather information. Satellite data represents more than 99 percent of the input to numerical weather prediction models. Satellite products and services include: POES products such as ozone, temperature and moisture measurements; GOES Advanced Weather Interactive Processing System (AWIPS) remapped imagery, high density winds, precipitation estimates; and non-NOAA satellite products from NASA, the DOD, Europe, Japan and India.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete *	Total
Critical Single Points of Failure								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	19,347	2,772	2,772	2,772	2,772	2,772	11,157	44,364

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

Comprehensive Large Array Data Stewardship System (CLASS)

CLASS is a data archiving and access system that will improve the quality and stewardship of NOAA’s environmental data and information. NOAA spends more than one billion dollars each year collecting environmental data in support of its mission. In the near future, NOAA will launch the first NPOESS, which will provide a forty times increase in data volume per satellite. By providing efficient, secure, cost-effective access to NOAA’s environmental data via CLASS, NOAA is supporting key research challenges identified by the U.S. Global Change Research Program, such as natural climate patterns, global monsoon, and land-atmosphere and ocean-atmosphere exchanges.

NOAA is enhancing its multiple current stovepipe archiving capabilities into a CLASS System that will be fully operational and managed at the enterprise level. This system will allow efficient management of high volumes of data critical to NOAA and the users in the scientific community. The target data originates from GOES, POES, DMSP, and the National Weather Service’s Next Generation Weather Radar, and select numerical model output data. Management of these data can be accomplished only through rapidly expanding storage capacity at the Data Centers and automating the means of data ingest, quality control, and access through phased systems procurement. The early implementation of this archive and access system has paved the way to accommodate additional massive data volumes from the Earth Observing System Satellites.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete *	Total
CLASS								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	44,343	6,476	6,476	6,476	6,476	6,476	19,828	96,551

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

NPOESS Preparatory Data Exploitation (NDE)

NESDIS has the mandate to operate the Nation's environmental satellites, collect environmental observations, process, distribute, and archive data, and make available key data sets for operations and research. The NDE project will develop and implement capabilities to process and distribute NPOESS products and services, once the data have been delivered to NOAA. NPOESS and NPP are part of a new environmental satellite program that promises to improve our observations of the earth, atmosphere, oceans and space environment. In order to realize the benefits of NPOESS data, NOAA must implement capabilities to process NPOESS observations into useful products that meet the requirements of NOAA's operational centers and other civilian users. NDE will generate measurements of atmospheric and surface properties with smaller biases and less noise that will improve and extend the National Weather Service's capability to provide weather forecasts and warnings. NDE and the Weather Service have collaborated to establish a priority for NDE product developments. As a result, NDE will generate the following high priority products for NOAA within two years after the NPP launch: atmospheric and ocean surface radiances, snow cover, sea surface temperature, aerosol optical thickness, vegetation index, and ozone.

Restoration of Climate Sensors

NOAA will continue the development of two climate sensors, Total Solar Irradiance Sensor (TSIS) and the Clouds Earth's Radiant Energy System (CERES). TSIS and CERES sensors were de-manifested from the National Polar-orbiting Operational Environmental Satellite System (NPOESS) as a result of the Nunn-McCurdy restructuring of the program. However, because of the Nation's critical need for climate measurements, they have since been remanifested on the initial NPOESS satellite, C1. Work on the Ozone Mapping and Profiler Suite (OMPS), and Aerosol Polarimeter Sensor (APS) is anticipated to begin in FY 2011 and continue in FY 2012, through FY 2015 for integration on subsequent NPOESS satellites. To ensure high quality oceanic, atmospheric, land surface and accurate scientific climate records, these sensors are necessary to NOAA's mission and its performance goals. These sensors will ensure the Agency continues to provide current, accurate, relevant and timely climate information to the scientific community and other interested parties. Without these sensors, NOAA's ability to provide climate data will be less than optimal. The following are the attributes of the four sensors:

TSIS provides measurements that monitor the sun's energy incident on Earth. These critical measurements can only be accurately determined above the atmosphere. Any interruption of the 28-year data record of Total Solar Irradiance jeopardizes the ability to resolve small changes in this fundamental variable and adds uncertainty to climate change attribution.

CERES is a sensor that measures energy that maintains climate; these data can only be obtained above the atmosphere. Overlap between space-based sensors is critical to confidently detect and monitor the small changes in the Earth's radiation balance that is capable of affecting climate.

The OMPS sensor (including nadir and limb) provides stratospheric ozone observations. Stratospheric ozone absorbs incoming solar ultraviolet radiation that can be harmful to humans and other organisms. In addition to stratospheric observations, OMPS monitors anthropogenic emissions of halogen-containing gases, which are known to destroy stratospheric ozone; the continuation of stratospheric ozone observations is crucial to monitor and evaluate the recovery of the ozone layer.

APS measures the effect of aerosols on global temperature which are significant and may be comparable in importance to greenhouse gases, such as carbon dioxide and methane, which contribute to the warming of the Earth's surface.

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PROGRAM CHANGES FOR FY 2010:

GOES-N Series (0 FTE and -\$15,662,000): NOAA requests a decrease of 0 FTE and \$15,662,000 for a total of 24 FTE and \$57,601,000. The NOAA GOES program continues the development, procurement, and launch of the GOES-N series of satellites. However, the GOES-N Series is nearing the end of its production, with two remaining satellites to be launched; GOES-O is being prepared for launch in 2009 and GOES-P is currently in storage with a launch date scheduled for 2010. The spacecraft contract for the GOES-N series is a firm fixed price contract.

Statement of Need and Economic Benefits

The goals of the Geostationary Operational Environmental Satellite (GOES) program are to continue the procurement of spacecraft, instruments, launch services, and ground systems equipment necessary to maintain an uninterrupted flow of environmental data to users. The GOES series of satellites fall under NOAA's Mission Support goal, and support NOAA's other strategic goals to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management approaches; to understand climate variability and change to enhance society's ability to plan and respond; to serve society's needs for weather and water information; and to support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

Proposed Actions

FY 2010 GOES-N Series funding will be used for:

- Completing on-orbit post launch testing of GOES-O;
- Completing Spacecraft handover from NASA to NOAA;
- Removing GOES-P from ground storage and complete post ground storage testing;
- Shipping the GOES-P spacecraft to the launch site;
- Erecting the launch vehicle on the launch pad and launch GOES-P;
- Conducting GOES-P post launch testing.

Schedule & Milestones

Considering the continued success of the GOES-I series, the current GOES-N series planning launch schedule is provided below:

GOES N Launch Schedule

Spacecraft	Planned Launch Date	Operational Date
GOES-O	Not Earlier Than June 2009*	January 2012
GOES-P	Under Review	September 2014

* GOES-O has slipped due to redesign efforts for a major component of the launch vehicle self destruct system.

Performance Goals and Measurement Data

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Promote Environmental Stewardship. Specifically, this planned decrease supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.						
With Decrease	Support preparations for GOES-O launch (May 2009)	Support preparations for GOES-P launch (April 2010)	Transition to on-orbit support	On-orbit support	On-orbit support	On-orbit support
Without Decrease	N/A	N/A	N/A	N/A	N/A	N/A

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 09 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete*	Total
GOES-N								
Change from FY 2010 Base		(15,662)	(23,763)	(27,369)	(34,062)	(35,834)		
Total Request	1,958,166	57,601	49,500	45,894	39,201	37,429	158,576	2,346,367

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

GOES-R Series (0 FTE and + \$272,000,000): NOAA requests an increase of \$272,000,000 and 0 FTE for a total of 46 FTE and \$737,000,000 to provide continued satellites engineering development and production activities. The GOES system provides an uninterrupted, continuous flow of environmental and weather data and information that meets customers’ spatial, temporal and accuracy requirements, providing significant customer benefit within an established life cycle cost target. The procurement of GOES satellites is a cooperative venture between NOAA and the National Aeronautics and Space Administration (NASA). NOAA defines requirements, manages, funds, implements system integration, procures ground segments and operates the GOES satellites. NASA serves as the agency with multi-disciplinary engineering expertise, develops detailed system specifications, procures and launches the spacecraft, and assists NOAA in system integration.

Proposed Actions

Funding will provide:

- System Acquisition & Operations including continued development of the spacecraft and ground systems. In FY 2010, the program will complete the Integrated Baseline Review (IBR) of both the space and ground systems.
- Instruments already under contract: Advanced Baseline Imager (ABI) continuation of the acquisition and operation phase to meet delivery of the Prototype Test Model (PTM) in FY 2010 - Derived Sounding Products from the ABI Instrument for GOES-R and GOES-S satellites; continuation of the acquisition and operation phase and working towards Critical Design Review (CDR) for the Solar Ultra Violet Imager (SUVI) and Extreme Ultra-Violet Sensor/X-Ray Sensor Irradiance Sensor (EXIS) and the Space Environmental In-Situ Suite (SEISS) and continuation of the acquisition and operation phase for the Geostationary Lightning Mapper (GLM).
- Continued operations of the Government Program Office

	\$ in Millions
Spacecraft	245
Instruments	187
Flight Project Acquisition	30
Ground Segment	243
Program Support (inclining NOAA & NASA civil servants & contractors; System Engineering support)	32
Total FY 2010 Request	737

Description

- GOES-R Series, Life Cycle Cost (LCC) \$7,672M
- 2 satellites (including magnetometer awarded as part of spacecraft contract); Instruments: ABI, SUVI, EXIS, SEISS, and GLM for each satellite.

Statement of Need and Economic Benefits

The needs and benefits of GOES-R series satellites are as follows:

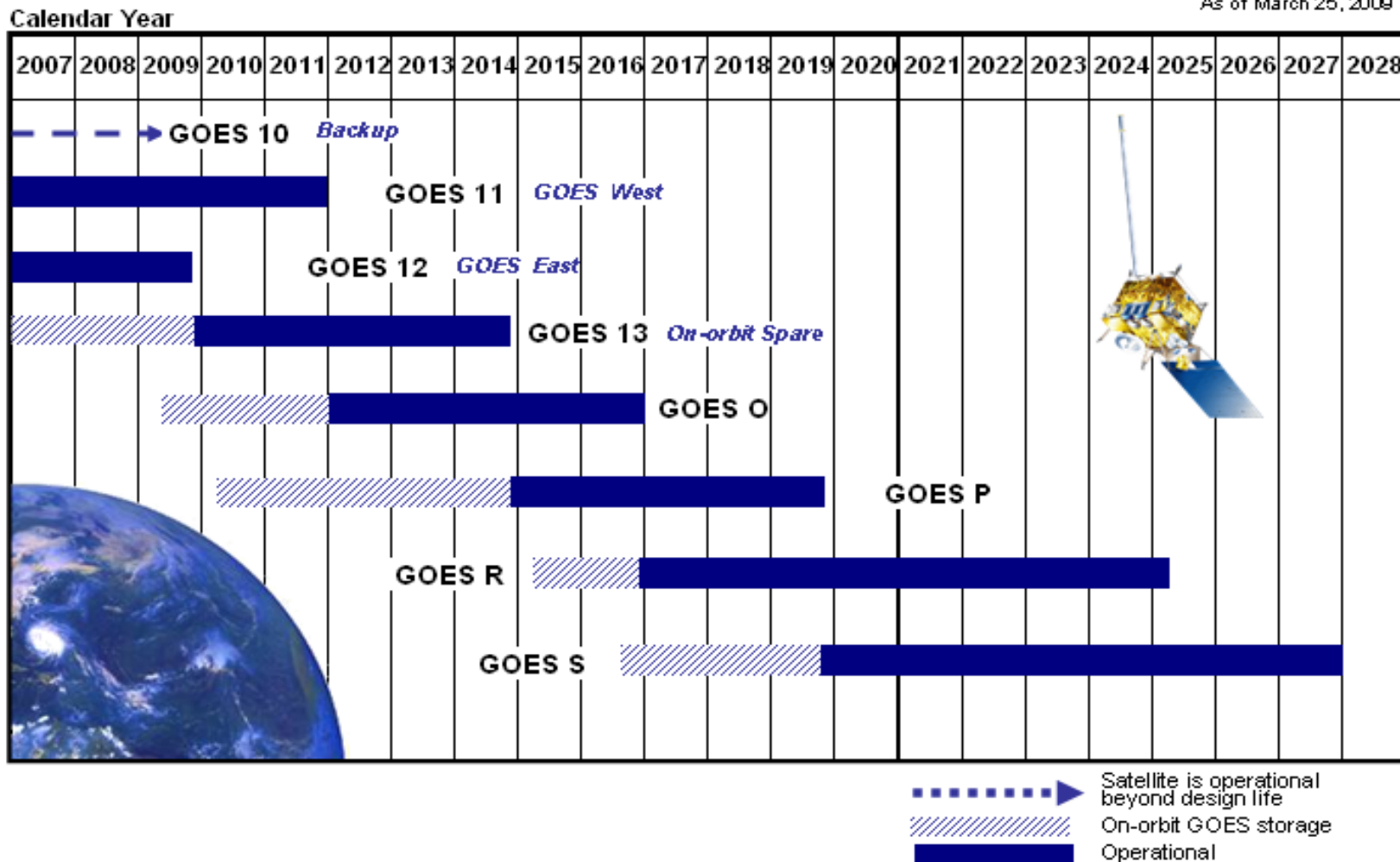
- maintains continuous real-time observations for severe storms, hurricanes, and weather monitoring to the Nation
- provides advances in NOAA's observation capabilities for all NOAA mission goals including improvements to coastal, space weather, and lightning observations
- needed as a backup to GOES O or P; part of a system of two operational satellites and an on-orbit spare
- Incorporates key enhancements in spatial and spectral information, coverage, and timeliness

The GOES series of satellites fall under NOAA's Mission Support goal and support NOAA's other strategic goals to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management approaches; to understand climate variability and change to enhance society's ability to plan and respond; to serve society's needs for weather and water information; and to support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

Seasonal and inter-annual variations in climate, e.g., El Niño, led to economic impacts on the order of \$25 billion for 1997-1998. Average annual damage from tornadoes, hurricanes, and floods is \$11.4 billion with about 100 deaths annually. Approximately \$4 billion per year is lost in economic efficiencies as a result of weather-related air traffic delays. Lightning causes between \$4 and \$5 billion in losses each year in the civilian sector relative to injuries and death. The GOES-R series will improve prediction of these severe weather phenomena and help minimize these losses.

Continuity of GOES Operational Satellite Program

As of March 25, 2009



Spacecraft	Launch Baseline Date	Planned Operational Date
GOES-R	April 2015	December 2016
GOES-S	August 2016	September 2019

Instrument	Acquisition Status	Status of Development
Advanced Baseline Imager (ABI)	Contract awarded September 2004	The ABI completed Critical Design Review (CDR) in February 2007 and is working toward the development of the Prototype Model (PTM) during FY 2009. The FM1 is scheduled for completion of environment test in FY 2011.
Space Environment In-Situ Suite (SEISS)	Contract awarded August 2006	The SEISS completed Preliminary Design Review (PDR) in FY 2009 and working towards CDR. Continue production.
Extreme Ultra Violet/X-Ray Irradiance Sensor (EXIS)	Contract awarded August 2007	The EXIS completed Preliminary Design Review (PDR) in late FY 2009 and is working towards CDR. Continue production.
Solar Ultra Violet Imager (SUVI)	Contract awarded September 2007	The SUVI completed Preliminary Design Review in FY 2009 and with continued work toward CDR during the remainder of FY 2009. Continue production.
Global Lightning Mapper (GLM)	Contract awarded December 2007	The GLM completed System Design Review (SDR) in FY 2008 and completed PDR in FY 2009. Continue production.

Deliverables

- FY 2010 - Achieve IBR of Spacecraft
- FY 2010 - Achieve IBR of Ground System (Continue development of software and acquisition of hardware).

Performance Goals and Measurement Data

“Provide Critical Support for NOAA’s Mission” under the Department of Commerce Strategic Goal of "Observe, Protect, and Manage the Earth’s Resources to Promote Environmental Stewardship". This program supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	Award Spacecraft and Ground System Contracts. Achieve Preliminary Design Review (PDR) of SUVI, EXIS, SEISS, and GLM. Begin environmental test of Prototype Model for ABI instrument. Continue development of software and acquisition of hardware for Ground System.	Achieve Initial Baseline Review (IBR) of Spacecraft and Ground System. Complete environmental test of Prototype Model for ABI instrument. Conduct Critical Design Review (CDR) for SEISS, EXIS, SUVI, and GLM. Continue development of software and acquisition of hardware for Ground System. Conduct System Design Review (SDR) for Ground System, Spacecraft and GOES-R system.	Continue development of instruments, software and acquisition of hardware for Ground System. Conduct System Design Review (SDR) for Ground System, Spacecraft and GOES-R system.	Achieve GOES-R System level CDR. Delivery of 1st FM for ABI, SEISS, GLM and EXIS Instruments. Continue design efforts for software and acquisition of hardware for Ground System. Continue Spacecraft development.	Delivery of 1st flight units for SUVI instruments. Continue fabrication, assembly, integration of instruments and test of the spacecraft. Deliver Ground Mission management sub-system. Continue design efforts for software and acquisition of hardware for Ground System.	Delivery of 2nd flight units for GLM, SUVI, SEISS, and EXIS instruments. Continue fabrication, assembly, integration of instruments and test of the spacecraft. Continue design efforts for software and acquisition of hardware for Ground System. 1 st release of Ground system software.
Without Increase		Major delays in hardware and software acquisition/design.	Continued delays in hardware and software acquisition/design.	Continued delays in hardware and software acquisition/design.	Continued delays in hardware and software acquisition/design.	Continued delays in hardware and software acquisition/design.

		Ground System and Spacecraft major milestones and reviews would be delayed no less than one year with a resulting impact on launch date of the GOES-R Program. There would also be significant increases in life-cycle costs.	Ground System and Spacecraft major milestones and reviews would be delayed no less than one year with a resulting impact on launch date of the GOES-R Program. There would also be significant increases in life-cycle costs.	Delays in flight model instrument deliveries. Delays in integrating instruments into Spacecraft resulting in a delay of launch date of the GOES-R Program. There would also be significant increases in life-cycle costs.	Delays in flight model instrument deliveries. Delays in integrating instruments into Spacecraft resulting in a delay to launch date of the GOES-R Program. There would also be significant increases in life-cycle costs.	Delays in flight model instrument deliveries. Delays in integrating instruments into Spacecraft resulting in a delay to launch date of the GOES-R Program. There would also be significant increases in life-cycle costs.
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OUTYEAR FUNDING ESTIMATES (BA in thousands)								
GOES-R	FY 09 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete	Total
Change from FY 2010 Base		272,000	383,000	361,000	351,000	371,196		
Total Request	1,489,044	737,000	848,000	826,000	816,000	836,196	2,119,766	7,672,006

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Note: Appropriate outyear operations and support costs reflected in the estimates above may transition to NOAA's Operations, Research, and Facilities account once the program transitions from development to operations. They are reflected here to present the total life-cycle cost of the program.

Polar-Operational Environmental Satellite Systems (POES) NOAA Polar K-N' (0 FTE, and -\$22,284,000): NOAA requests a decrease of 0 FTE and \$22,284,000 for a total of 22 FTE and \$43,135,000.

Proposed Actions

The program will provide satellite and instrument anomaly support to the on-orbit POES satellites, maintain the ground system for their operation and support the maintenance and testing of U.S. instruments on the MetOp satellites in FY 2010.

Statement of Need and Economic Benefits

Currently, the polar satellite program consists of NOAA's Polar-orbiting Operational Environmental Satellites (POES), the provision of U.S. instruments for flight on the European Polar System (EPS) satellites known as MetOp, , and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). POES is NOAA's current operational polar system, with the last satellite in the series (NOAA 19) launched on February 6, 2009. As part of a cooperative agreement with NOAA, the MetOp series of satellites within EPS will carry U.S. instruments and provide data services coverage from a mid-morning polar-orbit through 2020.

NOAA has the responsibility to provide forecasts and warnings for the United States, its territories, adjacent waters and ocean area, for the protection of life and property and the enhancement of the national economy. This mission requires an enduring capability to acquire global data, and the capability to process and disseminate to central processing centers and distributed direct users, environmental data on an extensive spatial range (global, regional and local) within a variety of time scales (minutes to days). These data include, but are not limited to: global imagery; cloud and precipitation parameters; atmospheric profiles of temperature, moisture, wind, aerosols and ozone; surface conditions concerning ice, snow and vegetation; ocean parameters of sea temperature, color and state; solar and in-situ space environment conditions.

These data are critically needed for:

- Severe storm and flood warnings;
- Tropical cyclone and hurricane reconnaissance and warnings;
- Hydrologic forecasts and forecasts of the ocean surface and internal structures;
- Medium range weather forecast (out to fifteen days);
- Solar and space environmental forecasts;
- Aviation forecasts (domestic, military, and international);
- Forecasts of ice conditions;
- Seasonal and inter-annual climate forecasts;
- Decadal-scale monitoring of climate variability;
- Assessment of long-term global environmental change;
- Environmental air quality monitoring and emergency response;
- Detection and analysis of fires and volcanic eruptions; and
- Short-term and mesoscale forecasts.

POES Milestones

Satellite	Likely Orbit	Availability Date	Planning Launch Date
METOP B	AM	In Storage	April 2011

Deliverables

FY 2010 POES funding will be used for:

- On-orbit support of POES and MetOp satellites, and testing, integration, and maintenance of US instruments on MetOp-B and -C
- NASA technical management (Oversight of instrument contractors)
- The government program office (Overall program management)
- Product development (Development and/or enhancement of products from POES, MetOp and non-NOAA satellites)
- Ground systems and backup (Maintenance and upgrades of primary and back-up command and control, data acquisition capabilities and facilities).

Performance Goals and Measurement Data

Performance Goal: Promote environmental stewardship. Specifically, this decrease supports NOAA's four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Decrease	Launched NOAA N Prime (now NOAA-19)	Proceed as planned with NOAA-19 on-orbit support	Support METOP B Launch including US instruments	Prepare for METOP C Launch including US instruments	Prepare for METOP C Launch including US instruments	Prepare for METOP C Launch including US instruments
Without Decrease	N/A	N/A	N/A	N/A	N/A	N/A

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
POES	FY 09 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete	Total
Change from FY 2010 Base		(22,284)	(24,545)	(24,545)	(24,545)	(24,545)		
Total Request	2,325,394	43,135	40,874	40,874	40,874	40,874	66,820	2,598,845

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Satellite Altimetry Mission-Jason-3 (0 FTE and + \$20,000,000): NOAA requests an increase of \$20,000,000 and 0 FTE for a total of 0 FTE and \$20,000,000 to provide continuity of precise measurement of sea surface height for applications in:

- Ocean Climatology: Global sea-level rise, Decadal variability in the ocean, Seasonal/inter-annual variability, and Coastal variability & its impact on ecosystems.
- Ocean Weather: Operational Oceanography, Surface wave forecasting & evaluation, and Hurricane intensity forecasting.

Jason-3 is a satellite altimetry mission, which will follow in the tradition of the previous altimetry missions, Topex/Poseidon, Jason 1 and 2, and is planned as a joint mission with EUMETSAT (NOAA's operational satellite counterpart in Europe). The Jason series has been transitioned as a research endeavor from NASA and CNES (the French Space Agency) to NOAA and EUMETSAT for joint implementation as a sustained and systematic (i.e., operational) capability. For Jason-3 NOAA will provide the launch services, the microwave radiometer, precision orbit components (LRA, GPS), ground system and operations. EUMETSAT will provide the spacecraft, altimeter, precision orbit components, ground system and operations. NOAA and EUMETSAT will develop mission concept and determine roles and responsibilities for system acquisition, deployment and operations. The request is contingent on EUMETSAT demonstrating its funding commitment to the program in FY 2009.

Proposed Actions

The Jason-3 baseline plan calls for NOAA to provide a microwave radiometer, precision orbit determination components (LRA, GPS), launch services, and associated engineering services. This action addresses NOAA's immediate need by enabling NOAA and EUMETSAT to launch Jason-3 in CY 2013, and allowing an overlap with the Jason-2 mission of 6 months. The overlap period is necessary to conduct initial cross-calibration and validation activities with Jason-2, complete on-orbit check-out operations, and maintain consistent observations of sea surface height between successive altimeter missions, thus ensuring continuity of a quality climate record of over 20 years.

Statement of Need and Economic Benefits

Jason-3 will provide continuity of sea surface height measurements beyond Jason-2 to address research and questions regarding climate change. Global sea level rise (GSLR) – the most obvious manifestation of climate change in the ocean – directly threatens coastal infrastructure through increased erosion, more frequent storm-surge flooding, and loss of habitat through drowned wetlands. In order to assess impacts and provide information that informs mitigation strategies to cope with this threat, realistic projections of GSLR – together with observations along coastlines of sea level and vertical land motion – are required.

While its latest projections for GSLR over the coming century range from 28 to 79 cm, the Intergovernmental Panel for Climate Change (IPCC) states *...the upper values of the ranges given are not to be considered upper bounds...* for GSLR because existing models are unable to account for uncertainties such as changes in ice sheet flow. Satellite altimetry, specifically the systematic collection of sea level observations initiated by *TOPEX/Poseidon* in 1992 and being continued today by the on-going *Jason* series of satellite missions, provides a means to resolve the spatial variability needed to accurately determine GSLR and to help address these uncertainties.

Ocean Climatology Benefits:

- Global sea-level rise - A fundamental indicator of climate change. Altimeter time series of several decades will be needed to distinguish signals related to anthropogenic warming from those related to natural variability, as well as to clarify whether the rate of sea-level is accelerating.
- Decadal variability in the ocean - It has been shown to have an impact on fishery regime changes, and it correlates with droughts on land and changes in hurricane activity.
- Seasonal/inter-annual variability - On seasonal to inter-annual timescales, ocean-atmosphere interactions in the tropical Pacific, the El Nino / Southern Oscillation (ENSO) phenomena, currently provide much of the signal for seasonal forecasts.
- Coastal variability & its impact on ecosystems - Provide observations for modelling the ocean basin and the broader coastal area. Coastal forecasting is needed in responding to environmental problems such as oil spills and harmful algae blooms, as well as forecasting tides and currents important to commercial shipping.

Ocean Weather Benefits:

- Operational Oceanography - Input to operational integrative services based on global and regional ocean models that provide real time and prognostic information on the state of the global ocean. This capability helps its users understand and monitor the world's marine environment and facilitate a safe, non-polluting and sustainable human exploitation of the ocean environment.
- Surface wave forecasting & evaluation - Accurate surface wave forecasts are a major requirement for offshore operators (e.g., oil rig operations, fishing fleets, sailing). Over the last decade altimeter-derived wave height data have been critical for improvements in wave prediction systems.
- Hurricane intensity forecasting - The knowledge of the upper ocean heat content (OHC) is a critical factor in forecasting the intensity of hurricanes as they approach the U.S. east and Gulf coasts where high OHC is quite variable.

Marine Operations & Research:

- Coral bleaching and climate change assessments as a function of sea level (altimeter) and sea temperature (NOAA AVHRR) data to monitor and assess global coral reef environments.
- Global mean sea level rise;
- Hurricane storm surges.
- Sediment transport research.
- Satellite-tracked sea turtle migration patterns.
- Simulations of oil-spill trajectories in the Gulf of Mexico.
- Offshore oil field operational support – monitoring eddies and currents which threaten routine rig operation. Primary user: US Department of the Interior Mineral Management Services.
- Deep sea recovery.
- Sport and recreational sailing.

Other Users/Applications:

- Insurance claims adjustors, marine architects, fisheries managers, commercial fisherman, search and rescue, forensic oceanographers

The Jason 3 Altimetry mission will serve the following customers: Department of Commerce, Department of the Interior, NASA, Navy, International Meteorological Services, World Meteorological Organization, Marine Transportation Industry, and NOAA’s European partners, European Center for Medium-Range Weather Forecasts (ECMWF), National Center for Ocean Forecasting of the UK Met Office, France, MERCATOR, the general public and the educational community.

Schedule & Milestones

FY 2010	October 2009 March 2010	Begin Procurement of Microwave Radiometer (MR) and GPS Begin Phase A/B for Launch Vehicle
FY 2011	October 2010 October 2010 August 2011	Begin procurement of Laser Ranging Array (LRA) Start Launch Vehicle build/test Deliver MR, GPS and LRA to Europe
FY 2012	October 2011 September 2012	Support spacecraft integration and test Deliver Launch vehicle to support launch
FY 2013	October 2013	Begin launch campaign

January 2013 Launch Jason-3
 April 2013 Complete on-orbit check-out, calibration, and start routine ops.
 July 2013 Complete overlap activity with Jason-2

FY 2014 Continue routine operations: command and control, data acquisition, product generation and distribution including delivery of archive data to CLASS.

Performance Goals and Measurement Data

This increase will support Objective 3.5 “Provide Critical Support for NOAA’s Mission” under the Department of Commerce Strategic Goal of “Promote Environmental Stewardship.” Specifically, this increase supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

Planned Performance Measures:

- Capture 95% of observed data
- Deliver 95% of data to users within 3 hours from time of observation
- Sea surface height measurement accuracy at 3-4 cm

Performance Goal: Capture 95% of Observed Data	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	N/A	N/A	N/A	Capture 95 % of observed data following checkout	Capture 95 percent of observed data
Without Increase	N/A	N/A	N/A	N/A	Cannot carryout Jason-3 mission; data continuity is interrupted	Cannot carryout Jason-3 mission; data continuity is interrupted

Performance Goal: Deliver 95% of Data to Users within 3 Hours from Time of Observation	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	N/A	N/A	N/A	Deliver 95% of captured data to users within 3 hours of observation	Deliver 95% of captured data to users within 3 hours of observation
Without Increase	N/A	N/A	N/A	N/A	Cannot carryout Jason-3 mission; data continuity is interrupted	Cannot carryout Jason-3 mission; data continuity is interrupted

Performance Goal: Measure Sea Surface Height to an Accuracy at 3-4 cm	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	N/A	N/A	N/A	Measure Sea Surface Height to an Accuracy at 3-4 cm	Measure Sea Surface Height to an Accuracy at 3-4 cm
Without Increase	N/A	N/A	N/A	N/A	Cannot carryout Jason-3 mission; Break 20+ year climate record for sea level change	Cannot carryout Jason-3 mission; Break 20+ year climate record for sea level change

Performance Goal: Meet Development Milestones	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase		Begin Phase A/B for Launch Vehicle Begin Procurement of MR and GPS	Begin procurement of LRA Start Launch Vehicle build/test Deliver MR, GPS and LRA to Europe	Support integration of MR, GPS and LRA on spacecraft Deliver Launch vehicle to support launch	Launch Jason-3 Complete on- orbit check-out, calibration. Complete overlap activity with Jason-2	N/A
Without Increase		N/A	Cannot execute program milestones.	Cannot execute program milestones.	Cannot carryout Jason 3 mission; Break 20+ year climate record for sea level change Other impacts: the ability to provide accurate ocean specification for numerical ocean models, increased ocean prediction accuracy, and	N/A

					ocean circulation models will be compromised.	
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Performance Goal: Maintain Continuity of Sea Surface Height climate record	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	N/A	N/A	N/A	Begin routine operations: command and control, data acquisition, product generation and distribution including delivery to CLASS	Continue routine operations: command and control, data acquisition, product generation and distribution including delivery to CLASS
Without Increase	N/A	N/A	N/A	N/A	Cannot carryout Jason-3 mission; Break 20+ year climate record for sea level change Other impacts: the ability to provide accurate ocean specification for numerical ocean models,	Cannot carryout Jason-3 mission; Break 20+ year climate record for sea level change Other impacts: the ability to provide accurate ocean specification for numerical ocean models, increased ocean prediction accuracy, and

					increased ocean prediction accuracy, and ocean circulation models will be compromised.	ocean circulation models will be compromised.
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OUTYEAR FUNDING ESTIMATES									
(BA in thousands)									
	FY 09 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete	Total	
Satellite Altimetry Mission (Jason 3)									
Change from FY 2010 Base		20,000	50,000	53,000	29,000	2,000			
Total Request	0	20,000	50,000	53,000	29,000	2,000	5,000	159,000	

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process and will depend on commitments from EUMETSAT to cost-share this mission.

National Polar-orbiting Operational Environmental Satellite System (NPOESS)/Polar Satellite Acquisition (0 FTE and + \$94,215,000):

NOAA requests an increase of \$94,215,000 and 0 FTE for a total of 61 FTE and \$382,200,000 to continue development of the NPOESS System. The increase will fund NPOESS sensor development, NPOESS spacecraft development, Ground System Readiness for NPP Launch, and Operations and Maintenance. NPOESS will address NOAA’s requirements to provide global environmental data, such as cloud imagery, sea surface temperature, atmospheric profiles of temperature and moisture, atmospheric ozone concentrations; space weather observations; and search and rescue, direct read-out and data collection services. These data are used in numerical weather prediction models for near term (1-3 day) and mid-term (3-5 day) forecasts.

On June 5, 2006 an Acquisition Decision Memorandum (ADM) was published reflecting the outcome of the Nunn-McCurdy Certification process which restructured the NPOESS program. The restructured program includes the approval to purchase two Engineering and Manufacturing Development (EMD) satellites, with the option, in FY 2010, of exercising a re-negotiated procurement option for two additional NPOESS satellites using the existing contract. The option for 3rd and 4th satellites are under review. The restructured program includes the following sensors: Visible/Infrared Imager/Radiometer Suite (VIIRS); Microwave Imager/Sounder (MIS); Search and Rescue Satellite Aided Tracking (SARSAT); Cross-track Infrared Sounder (CrIS); Advanced Technology Microwave Sounder (ATMS); Advanced Data Collection System (ADCS); Cloud’s and Earth’s Radiant Energy System (CERES); Ozone Mapping and Profile Suite (OMPS); and Space Environment Monitor (SEM). Recently, the program’s Executive Committee (EXCOM) approved re-

manifesting the Total Solar Irradiance Sensor (TSIS) on the first NPOESS satellite, C1 NPOESS. In addition, a new Microwave Imager/Sounder (MIS) will be developed starting with the second EMD satellite. The ADM restructure budget for the program was raised to \$12.5 billion.

Based on a recently completed Independent Cost Estimate (ICE) by the DOD Cost Analysis Improvement Group (CAIG), the NPOESS Program Restructure effort requires additional resources to address continued difficulties in instrument developments and outyear operations and sustainment costs. The revised CAIG estimate was published in the Acquisition Program Baseline (APB) document signed by the tri-agency partners in December 2008.

The Tri-Agency EXCOM agreed to fund the NPOESS program for 4 satellites and an operational ground system to the updated CAIG estimate of \$13.951 billion through 2024, an increase of \$714.5 million (NOAA's share) to the total restructure program costs. In 2009, NPOESS will receive an additional \$26 million of American Recovery and Reinvestment Act (ARRA) funding. The FY2010 budget increase of \$94.2 million reflects the acceleration of \$18 million provided under the FY2009 ARRA, that otherwise would have been requested in FY 2010. Failure to provide the planned programmed increase in funding has the impact of a \$188.4 million budget reduction in FY 2010. Any reduction to DOC funds will be matched by DOD to maintain the 50/50 funding profile, which will result in another restructure/delay to the program due to inability to meet current contract obligations.

Proposed Actions

This request represents NOAA's share of the converged NOAA/DOD/NASA program for instrument development risk mitigation, and provides funding necessary to have the instruments in place to support a January 2013 launch of the first NPOESS satellite and a January 2016 launch of the second satellite. With the first build and integration of the spacecraft taking place in FY2010/11, NOAA must anticipate and be ready to fund unknown issues that can be mitigated with adequate risk reserves to maintain schedule and data continuity. Insufficient funding in FY 2010 would negatively impact launch schedules and continuity of polar satellites critical for NOAA weather forecast models.

The combined sensor development during the FY2010/11 time frame is considered moderate risk. The requested funds will be used to ensure VIIRS and CrIS sensors will meet all operational requirements for the first NPOESS satellite and handle any "unknown/unknowns" associated with starting the development of the MIS sensor which must be ready to launch on the second NPOESS satellite. As an example, the program has encountered technical problems with VIIRS instruments over the past 1-2 years, including issues with the integrated filter assembly, strain gauges, and the cryoradiator.

Schedule & Milestones

The major program milestones that are associated with the requested funding is the integration and testing of sensors for the first NPOESS satellite which will take place in the FY 2010/11 timeframe and ultimately the successful launch of the first NPOESS satellite in January 2013.

Under the restructured program schedule, the launch dates for the NPOESS satellites are:

- C1 Launch in 2013,
- C2 Launch in 2016,
- C3 Availability in 2018 and
- C4 Availability in 2020.

The NPP launch date, previously planned for September 2009, is currently scheduled to take place in June 2010, due to ongoing technical issues in the development of the VIIRS sensor which resulted in a slip in the delivery of the VIIRS sensor to the NPP Mission.

Deliverables

The NPOESS will attain:

- contractual services for FY 2010 and FY 2011
- the NPP satellite will launch in 2011 with NPOESS instruments
- instruments will be delivered and in final integration and test for NPOESS C1 satellite in this timeframe
- the first MIS instrument build will be underway

Statement of Need and Economic Benefits

The NPOESS System will improve the nation's ability to collect and distribute higher resolution data and products. This is achieved through the modernization of sensors and systems to ensure improved performance, compatibility, supportability, and maintainability. It will improve forecasts, climate monitoring, and warning lead times for severe storms benefiting sectors such as agriculture, transportation, and energy production.

Continuous global temperature and humidity values from the polar satellites provide critical inputs for quality three to five day and long-range temperature, precipitation, and snow forecasts. Polar satellites also monitor the global sea surface temperature, indicating the location, onset, and severity of such events as El Nino and La Nina as early as possible. Longer lead times of these impending events allow emergency and agricultural managers to activate plans to reduce the impacts of floods, landslides, fires, oil spills, volcanic eruptions, and droughts.

In 1994, it was recognized by the National Performance Review that converging the existing polar systems from the Department of Commerce (DOC) (POES) and Department of Defense (DOD) (DMSD) would result in a more cost effective and higher performance integrated system. Convergence of these programs is the most significant change in U.S. operational remote sensing since the launch of the first weather satellite in April 1960, and marks a significant departure from the eight previous attempts over the last 20 years to combine these separate programs. The President endorsed this initiative, signing Presidential Decision Directive NSTC-2.

Immediate needs for FY 2010 funds are required to:

- Continue the development and acquisition phase of the program, including total system architecture trades and design of the five major NPOESS segments:
 - 1) Space,
 - 2) Interface data processing segment (IDPS),
 - 3) Command, control, and communications (C3S),
 - 4) Launch support and
 - 5) Government program office.
- Support mission readiness of antenna systems at high latitude mission recovery sites to support data acquisition functions for the NPOESS Preparatory Project (NPP). The NPP ground system must be in place to provide satellite command and control and data downlink for the NPP spacecraft. The NPP is a major element of the risk reduction program for NPOESS.
- Finalize integration and testing instruments planned to be flown on NPP spacecraft and advance integration and testing of instruments for the first NPOESS satellite.
- Complete the ground systems and algorithms necessary to acquire, process, and distribute NPP data. These data are necessary for continuity of NASA's long-term climate data records and for early risk reduction and calibration and validation essential to the first NPOESS satellite.
- Provide ground station services to receive and process data from European Space Agency METOP satellite.
- Complete FY 2010 milestones and Critical Path Elements on revised schedule
- Support launch of NPOESS instruments on NPP mission
- Deliver instruments for final integration and test for NPOESS C1 satellite in this timeframe
- Complete development and design testing of the integrated data processing and command & control segments

Performance Goals and Measurement Data

This increase will support the Objective 3.5, "Provide Critical Support for NOAA's Mission" under the Department of Commerce Strategic Goal of "Promote environmental stewardship." Specifically, this increase supports NOAA's four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

Performance Goal: Milestone: Support NOAA’s goals by acquiring NPOESS satellite on schedule with proposed capabilities:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	Milestones and Critical Path Elements Completed on revised Schedule Support NPOESS Instruments on NPP launch	Milestones and Critical Path Elements Completed on revised Schedule Support NPOESS Instruments on NPP launch	Milestones and Critical Path Elements Completed on revised Schedule	Milestones and Critical Path Elements Completed on revised Schedule	Milestones and Critical Path Elements Completed on revised Schedule. NPOESS C1 Launch	Milestones and Critical Path Elements Completed on revised Schedule
Without Increase	Increased risk of delay in the NPOESS program milestones and impact to mission goal requirement	Increased risk of delay in the NPOESS program milestones and impact to mission goal requirement	Increased delay in the NPOESS program milestones and impact to mission goal requirement	Increased delay in the NPOESS program milestones and impact to mission goal requirement	Increased delay in the NPOESS program milestones and impact to mission goal requirement	Increased delay in the NPOESS program milestones and impact to mission goal requirement

Performance Goal: Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	Milestones and Critical Path Elements Completed on revised schedule. Support NPP launch with NPOESS instruments with the lowest possible risk profile.	Milestones and Critical Path Elements Completed on revised schedule. Support NPP launch with NPOESS instruments with the lowest possible risk profile.	Milestones and Critical Path Elements Completed on revised schedule. Support NPP launch with NPOESS instruments with the lowest possible risk profile.	Milestones and Critical Path Elements Completed on revised schedule. Support NPP launch with NPOESS instruments with the lowest possible risk profile.	Milestones and Critical Path Elements Completed on revised schedule. Support NPP launch with NPOESS instruments with the lowest possible risk profile.	Milestones and Critical Path Elements Completed on revised schedule. Support NPP launch with NPOESS instruments with the lowest possible risk profile.
Without Increase	Increased risk profile in the NPOESS program milestones and increased potential for impact to mission goal requirements.	Increased risk profile in the NPOESS program milestones and increased potential for impact to mission goal requirements.	Increased risk profile in the NPOESS program milestones and increased potential for impact to mission goal requirements.	Increased risk profile in the NPOESS program milestones and increased potential for impact to mission goal requirements.	Increased risk profile in the NPOESS program milestones and increased potential for impact to mission goal requirements.	Increased risk profile in the NPOESS program milestones and increased potential for impact to mission goal requirements.
Description: FY10 investment increase will provide NOAA's share of the revised NPOESS cost baseline.						

OUTYEAR FUNDING ESTIMATES*								
(BA in thousands)								
National Polar-orbiting Operational Environmental Satellite System (NPOESS)	FY 09 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete	Total
Change from FY 2010 Base		94,215	140,815	95,915	125,815	213,715		
Total Request	2,526,294	382,200	428,800	383,900	413,800	501,700	2,339,954	6,976,648

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process. The FY2010 budget increase of \$94.2 million reflects the acceleration of \$18 million provided under the FY2009 ARRA that otherwise would have been requested in FY 2010.

Note: Appropriate outyear operations and support costs reflected in the estimates above may transition to NOAA's Operations, Research, and Facilities account once the program transitions from development to operations. They are reflected here to present the total life-cycle cost of the program.

NPOESS Preparatory Data Exploitation (0 FTE and + \$2,000,000): NOAA requests an increase of \$2,000,000 and 0 FTE for a total of 0 FTE and \$4,455,000 to permit NESDIS to prepare its ground systems for the NPOESS Preparatory Project (NPP) satellite launch in FY 2011. These ground system upgrades are necessary for NESDIS to process and distribute the large volume of NPP observations and will enable NOAA Operational Centers and NWS to improve their services.

Proposed Actions

The NPOESS program will begin providing environmental measurements in 2011 with instruments aboard the NPOESS Preparatory Project (NPP), a satellite mission specifically undertaken to permit users and developers to address the risks associated with the new technologies of the NPOESS Program. The NDE project has been established to make NPP and NPOESS observations available to NOAA forecasters and climate scientists, to other Government agencies, and to civilian entities such as universities and private sector forecasters.

The NDE FY 2010 request will allow the procurement of equipment and the development of new science products necessary for NESDIS to ingest and process the large volume of environmental observations from the NPP satellite starting in mid-2011 for the NWS and other users. NDE will:

- Add 123 TeraBytes (TB) of additional Storage Area Network high performance disk storage for retention and recovery of products for distribution and testing and allows NWS and NOS to receive a continuous record of well-tested products for their operations;
- Upgrade processing systems to allow product generation during system tests so that operational users will receive NPP products more reliably;
- Acquire and integrate equipment to ensure infrastructure redundancy;
- Develop a replacement service for the Environmental Satellite Processing Center Data Distribution Service that manages increasing data volumes and improves security controls;

- Hire a contract IT Security Specialist and;
- Initiate development projects to generate new value-added science products to increase the capability of NOAA Operational Centers.

Statement of Need and Economic Benefits

The NPP satellite will begin to distribute large volumes of environmental observations to NOAA shortly after the NPP satellite reaches a stable orbit. NDE must procure IT equipment early in FY2010 to conduct comprehensive interoperability tests between the NPP and NDE ground systems in the spring of 2010 to ensure launch readiness. This includes a functional test to verify NDE IT systems are capable of ingesting, processing and delivering NPP test data to NOAA's Operational Centers.

NOAA will use funds in FY 2010 to develop science products for NOAA Operational Centers and other civilian users. NOAA's numerical weather prediction models depend heavily on data from polar satellites for medium to long-term forecasts. Specifically, the Environmental Modeling Center at the NWS requires global microwave and infrared radiances of the atmosphere, sea surface and land from NPP observations for assimilation in their Global Forecast Model. These data will enable the National Weather Service to improve their 3-7 day forecast accuracy for storm track and precipitation intensity and other products.

The project intends to replace poorly integrated legacy systems with centralized, reusable capabilities. By providing a common IT architecture for science development, system test and operational systems, NDE will eliminate the need to operate and maintain the stovepipe processing systems currently used to process and distribute fourteen different polar product applications. The NDE infrastructure will be scalable and may serve as a model for future satellite data processing systems.

Schedule & Milestones

- Product Generation , System Build and Test Complete mid FY 2010
- Product Distribution, System Build and Test Complete mid FY 2011
- Customer Registration, System Build and Test complete mid FY 2012
- Monitoring and Reporting, System Build and Test Complete mid FY 2013
- IT NDE System Refresh mid FY 2014

Deliverables

The NDE Project will procure the following IT equipment and software engineering services:

Equipment:

- IBM P570 Computer
- High Performance Ethernet Switch
- Hard Disk for Storage Area Network (123 TB capacity)

- Linux File Servers
- SAN Controller
- IT security devices (OWL, Firewalls, etc).

Software Engineering:

- develop and test new science products based on NPP observations
- integrate and test NDE’s data handling system as part of the Product Generation Build.

Performance Goals and Measurement Data

This increase will support the Objective 3.5, “Provide Critical Support for NOAA’s Mission” under the Department of Commerce Strategic Goal of “Promote environmental stewardship.” Specifically, this increase supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

Performance Measure: Number of Products Generated for Operational Users	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	0	3	3	9	10	10
Without Increase	0	0	0	3	5	5

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
NPOESS Data Exploitation	FY 09 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete	Total
Change from FY 2010 Base		2,000	2,000	2,000	2,000	2,000		
Total Request	13,741	4,455	4,455	4,455	4,455	4,455	17,881	53,897

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

Restoration of Climate Sensors – Data Records (0 FTE, and -\$74,000,000): NOAA requests a decrease of 0 FTE and \$74,000,000 for a total of 0 FTE and \$0. This decrease is a one-time reduction resulting from funding provided in the American Recovery Reinvestment Act (ARRA) of 2009.

Proposed Actions

This program envisions restoring a number of sensors that were demanifested as a result of the Nunn-McCurdy process. In FY 2010, using FY 2009 Omnibus and ARRA funds, NOAA will continue to work with NASA in developing the most cost-effective options for acquiring and launching the Clouds and the Earth Radiant Energy System (CERES) and the Total Solar Irradiance System (TSIS) climate sensors, including exploring all reasonable options in terms of cost, schedule, and mission continuity. With the prior year funding, CERES flight model 5 will be completed for launch on NASA's NPP satellite and development of a CERES flight model 6 and the TSIS instrument will be initiated. This effort is necessary to fill the likely gap in earth radiation and total solar irradiance observations between NASA's Earth Observing Satellites (EOS) and the NPOESS mission. It is anticipated that CERES flight model 6 will be manifested on the NPOESS C1 satellite and TSIS on either NPOESS C1 or C2.

Statement of Need and Economic Benefits

An integral part of NOAA's mission is to understand climate variability and change to enhance society's ability to plan and respond. This involves creating a scientific data stewardship plan to generate, analyze, and archive long-term Climate Data Records for assessing the state of the environment. A Climate Data Record is a time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change. These data are critically needed for:

- Seasonal and inter-annual climate forecasts;
- Decadal-scale monitoring of climate variability;
- Assessment of long-term global environmental change.

The National Research Council (NRC), as part of The National Academies, completed a decadal survey of earth science in 2007. Their findings are documented in the report, "Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond." Among their near-term recommendations, the NRC committee stressed that NOAA "ensure the continuity of measurements of Earth's radiation budget (ERB) and total solar irradiance (TSI) through the period when the NPOESS spacecraft will be in orbit..." These two measurements provide critical information in monitoring and understanding long-term climate change. This initiative responds to the National interest and need for continuity of these measurements by restoring the CERES and TSIS instruments to satellite missions.

CERES measures the Earth radiation budget. Accurate observations of the Earth's radiation are essential to determine the causes of climate variability and change. Accurate Earth radiation budget observations can only be made from space. They represent the first scientific observations of the Earth ever made from space (1960) and ongoing observations have continued for well over 20 years. Overlap between space-based sensors is critical to confidently detect and monitor the small changes in the Earth's radiation balance capable of affecting climate change.

TSIS measures the total energy of the sun incident on Earth. This crucial measurement can be accurately determined only above the atmosphere. Precise, long-term observations of the total energy output of the sun are required to identify and isolate natural solar variations that impact climate in contrast to

other factors, such as human influences on climate. Without TSIS, we cannot definitively discriminate and quantify natural versus anthropogenic drivers of climate change. Any interruption of the 28-year data record of Total Solar Irradiance jeopardizes our ability to confidently resolve small changes in this most fundamental variable and adds uncertainty to climate change attribution.

Performance Goals and Measurement Data

Milestone: Complete CERES and TSIS instrument to fill potential gap in climate measurements. Develop climate data records.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	Continue climate sensor development; initiate Climate Data Records	Continue /complete climate sensor developments.	Continue/ complete climate sensor developments. Initiate new developments for CERES FM 7, Ozone Mapping Profiler Suites Nadir and Limb sensors, and an Aerosol Polarimetry Sensor	Continue /complete climate sensor development.	Continue /complete climate sensor development. Initiate development of a second TSIS instrument.	Continue /complete climate sensor development.
Without Increase	Continue Climate Sensor development for TSIS 1 & CERES FM-6.	Continue Climate Sensor development for TSIS 1 & CERES FM-6.	NOAA and the Nation will be unable to address the eventual gap in climate observations, leading to degraded	NOAA and the Nation will be unable to address the eventual gap in climate observations, leading to degraded	NOAA and the Nation will be unable to address the eventual gap in climate observations, leading to degraded	NOAA and the Nation will be unable to address the eventual gap in climate observations, leading to degraded

			understanding of climate change	understanding of climate change	understanding of climate change	understanding of climate change
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OUTYEAR FUNDING ESTIMATES (BA in thousands)								
Climate Sensors	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete*	Total
Change from FY 2010 Base		(74,000)	(14,000)	(1,000)	(1,000)	(19,000)		
Total Request	145,800	0	60,000	73,000	73,000	93,000	219,400	664,200

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

TERMINATIONS FOR 2010:

The following programs, or portions thereof, have been terminated in FY 2010: Polar Orbiting Systems - NPOESS (\$26,000); Comprehensive Large Array Data Stewardship System (CLASS) (\$9,991,000) and Restoration of Climate Sensors – Data Records (\$48,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in Thousands)

Activity: National Environmental Satellite, Data, and Information Service

Subactivity: NESDIS System Acquisition

	Object Class	2010 Increase
25.2	Other services	2,000
25.3	Purchases of goods and services from Govt accounts	<u>386,215</u>
99	Total Obligations	388,215

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in Thousands)

Activity: National Environmental Satellite, Data, and Information Service
 Subactivity: NESDIS System Acquisition

		2010
	Object Class	Decrease
25.3	Purchases of goods and services from Govt accounts	(111,946)
99	Total Obligations	(111,946)

**Appropriation: Procurement, Acquisition and Construction
Subactivity: Construction**

Satellite Command and Data Acquisition (CDA) Infrastructure – Protecting Critical Operational Capabilities: NOAA’s CDA Infrastructure program at Wallops, VA, and Fairbanks, AK, ensures continuation of the current 99.9 percent data availability for NOAA environmental satellite systems. The Wallops and Fairbanks facilities and infrastructure are over 40 years old. Major systems at both facilities are operating well past their design lives and require maintenance, repair, and in many cases, replacement. The Fairbanks facility is located in a seismic zone and operates in severe Sub-Arctic conditions, with temperatures routinely reaching minus 50 degrees Fahrenheit during the winter months. The Wallops facility, on the Atlantic coast, is subject to a corrosive salt air environment and lies in the path of hurricanes that hit the US East Coast. Both stations have been determined to be critical national infrastructure elements by Presidential Decision Directive. Funding for this budget line item is for repair and replacement of critical infrastructure components necessary to maintain the operational integrity of these facilities.

NOAA has developed facilities master plans for Wallops and Fairbanks facilities. In FY 2010, NOAA will continue to implement the facilities master plan for Wallops to support a phased, multi-year program to comprehensively renovate and modernize the facility, infrastructure, and equipment to minimize or eliminate safety, hazardous materials, waste water treatment, and other deficiencies that could lead to outages and service disruptions caused by failure of supporting infrastructure at the station. The Fairbanks Operations Building Complex is being replaced with FY 2009 Recovery Act funding.

Base activities support Objective 3.5 “Provide critical support for NOAA’s mission” under the Department of Commerce Strategic Goal of “Promote environmental stewardship.”

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to complete*	Total
Continuity of Critical Facilities								
Change from FY 2010 Base		-	-	-	-	-		
Total Request	11,096	2,228	2,228	2,228	2,228	2,228	8,967	31,203

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

TERMINATIONS FOR 2010:

None.

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PROGRAM SUPPORT FY 2010 OVERVIEW

For FY 2010, NOAA is requesting a decrease of \$34,417,000 and an increase of 7 FTE over the FY 2010 base program for a total of \$255,492,000 and 1,023FTE for Program Support.

Program Support activities support the people (and, in turn, the programs) of NOAA, ensuring they have the proper work environment, the necessary tools and equipment, and the vital personnel and finance services which allow them to provide the finest possible services to the American people, our economy and our environment.

Program Support is comprised of three distinct sub-activities: 1) Corporate Services, 2) the NOAA Education Program and the 3) Facilities Program including Construction.

Within Corporate Services there are three line items: 1) NOAA's Under Secretary and Associate Offices; 2) NOAA Wide Corporate Services and Agency Management; and 3) Office of the Chief Information Officer. The Under Secretary and Associate Offices budget line item funds centralized executive-management policy, formulation and direction. In addition, there are various staff offices, to include the offices of the Deputy Under Secretary; Legislative Affairs; Public, Constituent, and Intergovernmental Affairs; International Affairs; Education and Sustainable Development; the Federal Coordinator for Meteorology; and the General Counsel. The NOAA Wide Corporate Services and Agency Management line item funds such activities as financial, procurement, and human resource services.

The second sub-activity in Program Support is the NOAA Education Program, which provides expert support on education activities to NOAA Line, Program, and Staff Offices, while promoting NOAA services and products, and their benefits to the public. The Office of Education (OEd) consults within NOAA and with the Department of Commerce, and identifies opportunities for the deployment of coordinated interagency/intergovernmental policy strategies that recognize the importance of linking economic and environmental goals.

The third sub-activity in Program Support is Facilities, which provides funds to address facilities management; repair, restoration and other construction, and environmental compliance and safety issues NOAA-wide. NOAA is continuing efforts to comply with E.O. 13327 (Federal Real Property Asset Management) and to effectively manage its facilities portfolio through investments in strategic long-range facility planning and modernization; annual facility condition assessments; and repair and restoration projects to address facility maintenance, repair, safety, and compliance issues. Our goal is conduct required maintenance and periodic life-cycle replacement of major building systems and components to maintain NOAA's owned facilities at a safe and effective operational state. Funds for new construction and selected major facility projects are requested separately in the Procurement, Acquisition and Construction account.

Significant Adjustments-to-Base (ATBs):

NOAA requests a net increase of 2 FTE and \$9,709,000 to fund adjustments to current programs for Program Support. The increase will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA).

Appropriation: Operations, Research, and Facilities
Subactivity: Corporate Services

The objectives of the Corporate Services subactivity are to:

- Develop policies regarding the administration of NOAA programs with federal agencies, the Congress, and private industry
- Provide oversight of the implementation of information technology policies
- Develop and implement policy, planning and program oversight
- Provide management of NOAA's Homeland Security Activities

To achieve these objectives, NOAA conducts activities in several program areas within the Under Secretary and Associate Offices and the NOAA Wide Corporate Services and Agency Management. These activities are in support of the objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

UNDER SECRETARY AND ASSOCIATE OFFICES

The Under Secretary and Associate Offices (USAO) budget line item consist of five primary program elements. Each program element within USAO directly supports the Mission Support goal in NOAA's Strategic Plan. These five programs are:

- Office of General Counsel (OGC) – The OGC serves as the chief legal office for all legal matters arising in connection with the functions of NOAA, except for legal issues common to all Department bureaus, which are handled by the Department of Commerce General Counsel.
- Office of Communications (OC) – This office is the principal point of contact for NOAA programs with the public and the news media. Its staff advises NOAA and other Departmental officials on all aspects of media relations and communication issues. OC ensures that information provided to the news media by NOAA is current, complete, and accurate. It also ensures that all applicable laws, regulations and policies involving the release of information to the public are followed so that the maximum disclosure is made without jeopardizing investigations and prosecutions, violating rights of individuals, or compromising national security interest.
- Office of Legislative Affairs (OLA) – This office is responsible for devising and implementing the legislative strategy to carry out NOAA's initiatives requiring Congressional action. OLA articulates the views of NOAA, including its components on Congressional legislative initiatives. OLA responds to requests and inquiries from Congressional committees, individual congressional members, and their staff. It coordinates Congressional oversight activities involving NOAA, as well as the appearances of NOAA's witnesses and the interagency clearance of all Congressional testimony. Serves as the primary liaison for NOAA with the member and staff of Congress. The office is also responsible for the planning, direction, and coordination of legislative programs that are of immediate concern to the Office of the Under Secretary.

- Office of International Affairs (OIA) – This office coordinates NOAA and other leadership official’s relationship with international programs, as directed by the Office of the Under Secretary. Provides advice on strategic planning of NOAA’s public appearances; performs speech writing duties; and provides event planning and consulting services to the Office of the Under Secretary. The Deputy Assistant Secretary for International Affairs exercises a leadership role in establishing policies, guidelines, and procedures for NOAA's international programs.
- Office of the Federal Coordinator for Meteorology (OFCM) – This office establishes procedures for systematic and continuing review of national basic specialized meteorological and oceanographic requirements for services and supporting research; and brings federal agencies concerned with international activities and programs in meteorological and oceanographic programs into close consultation and coordination.

Base activities support both objectives under the Department of Commerce Strategic Goal of “Promote environmental stewardship.”

NOAA WIDE CORPORATE SERVICES & AGENCY MANAGEMENT

NOAA Wide Corporate Services and Agency Management provide the planning, administrative, financial, and infrastructure services that are essential to the successful performance of NOAA’s mission. The objectives of this line item are to develop and implement policy, planning and program oversight, and evaluation of the following: program operations and service delivery; financial, information technology, and administrative management that ensures timely, high-quality, cost-effective support to NOAA and DOC programs; and compliance with applicable laws, regulations, and guidelines. In addition to funding NOAA-Wide Corporate Services and Agency Management, this line item funds the policy formulation and management direction of the following offices: Civil Rights, Audits, Internal Controls, and Information Management.

The NOAA Wide Corporate Services and Agency Management line items is composed of seven primary program elements, each contributes to NOAA’s Mission Support goal, in NOAA Strategic Plan. These seven programs are:

- Acquisition and Grants Office (AGO) - provides support to NOAA line and staff offices, and a number of other DOC bureaus, with the planning, solicitation, award, administration and close-out of acquisitions and financial assistance funding mechanisms. Through its services, AGO helps NOAA execute its day-to-day responsibilities and assists the agency in providing critical services to the Nation. Grants are awarded and administered through an electronic process using Grants Online. NOAA has implemented improved oversight of its delegated procurement authority and purchase card programs including adherence to acquisition regulation and policy, timely reconciliation and approval of purchase card statements, and compliance with mandatory training requirements by those with delegated acquisition authority.
- Office of the Chief Administrative Officer (OCAO) - OCAO is responsible for NOAA’s facility management program, including capital investment planning and management for NOAA’s substantial facility portfolio totaling over \$5 billion in owned and leased facilities; facility construction and modernization; and, real and personal property management. The OCAO manages NOAA's technology and

deemed export control program to ensure continued NOAA-wide compliance with Export Administration Regulations, and oversees NOAA's Office of Inspector General and Government Accountability Office audit coordination and resolution program. The OCAO also manages NOAA's Freedom of Information Act compliance, competitive sourcing program, administrative issuances program, civil rights program, and compliance with Homeland Security Presidential Directive (HSPD) – 12 requirements.

- Office of the Chief Financial Officer (CFO) - the CFO's Office has the responsibility under the CFO Act to provide the leadership necessary for NOAA to obtain a yearly unqualified opinion in the audit of its consolidated financial statements. The CFO directs the activities of the Budget and Finance Offices. Both the Budget and Finance Offices perform studies using methods and procedures analysis, and systems and organizational analysis to provide support to senior management in making executive decisions to ensure operational efficiencies within NOAA.
- Workforce Management Office - provides policies, programs, and processes that facilitate the recruitment, hiring, development, and retention of a diverse, highly skilled, motivated, and effective workforce capable of accomplishing the Agency's mission. This office provides NOAA-wide leadership to workforce management functions including strategic human capital planning, labor-management and employee relations, performance management and incentive awards, executive resources, distance learning, leadership development, training and career development and human resources data management and automation initiatives.
- Office of Program Analysis and Evaluation (PA&E) - contributes to the NOAA corporate level management and decision-making process through independent and objective analysis. PA&E evaluates programs relative to NOAA's mission and capabilities and identifies the linkage between program requirements and available resources. PA&E provides a strong analytical foundation for programmatic decisions by evaluating opportunities, establishing priorities, and evaluating process, policy and program alternatives to ensure NOAA's programs are the most efficient and effective. This analysis forms the basis for an integrated NOAA five-year program recommendation, which provides a strong, programmatic baseline for the NOAA budget.
- Office of the Chief Information Officer and High Performance Computing and Communications (OCIO)-OCIO is responsible for providing information technology (IT) leadership, mission assurance, and high-performance computing capabilities. The Office leads NOAA's principal IT research through the NOAA High Performance Computing and Communications (HPCC) Program; promotes the effective use of IT to accomplish NOAA's mission; provides advice to NOAA management on information resources and information systems management; promotes and shapes an effective strategic and operational IT planning process for NOAA; directs the improvement of NOAA's IT systems operations and service delivery; and coordinates the preparation of NOAA's IT budget. The Office implements the provisions of the Clinger-Cohen Act, the E-Government Act, the Paperwork Reduction Act and other statutory requirements regarding the acquisition, management, and use of information and IT resources. The Office also manages NOAA's Homeland Security Program to ensure business continuity in the event of a terrorist attack, major disaster, or other emergency.
- Office of Program Planning and Integration (PPI) - provides corporate management to coordinate NOAA's many lines of service with the Nation's many needs for environmental information and stewardship. It ensures that agency investments and actions are guided by a strategic plan, are based on sound social and economic analysis, adhere to executive and legislative science, technology and environmental policy, and integrate the full breadth of NOAA's resources, knowledge and talent to meet its stated mission goal.

OFFICE OF THE CHIEF INFORMATION OFFICER (OCIO)

The Office of the Chief Information Officer develops policies and provides oversight of the implementation of information technology policies as required under the Federal Information Management Security Act (FISMA) within NOAA, statutory and other legal requirements; and Department of Commerce Policies. The line also provides management of Information Technology Security for NOAA's systems. The NOAA IT Security Program implements policies, standards, and procedures which are consistent with government-wide laws and regulations, to assure an adequate level of protection for IT systems whether maintained in-house or commercially. The "Computer Security Act of 1987," Public Law 100-235 and Office of Management and Budget (OMB) Circular A-130 require all federal agencies to plan for the security of all IT systems throughout their life cycle. OMB Circular A-130 also establishes a minimum set of controls to be included in Federal IT security programs.

Base activities support both objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

PROGRAM CHANGES FOR FY 2010:

NOAA Wide Corporate Services and Agency Management (+3 FTEs and +\$1,763,000): NOAA requests an increase of 3 FTEs and \$1,763,000 to support compliance with Homeland Security Presidential Directive-12 (HSPD-12), Personal Identity Verification-II (PIV-II) physical and logical access requirements.

Proposed Action

The FY 2010 request provides for administrative (by NOAA) and technical (by the Department of Defense- DoD) support to meet this requirement.

Specifically, the requested funding supports the following:

- Annual DoD infrastructure, technical and database support for issuance of Common Access Cards (CAC) to NOAA employees/contractors-- including database and systems maintenance, and help desk support.
- Public Key Infrastructure PKI certificate licenses and DoD PKI support.
- NOAA administrative costs including funding for 3 FTE to support central program administration and coordination to ensure compliance, and development of logical access plans; and contractor support for NOAA-operated badging stations.
- Planning and development of physical access control systems integration with CAC.
- NOAA administrative costs for contractor support for NOAA-operated badging stations.

Statement of Need and Economic Benefits

HSPD-12, PIV-II requires Agencies to comply with Federal Information Processing Standards (FIPS) 201 standards for secure and reliable identity credentials supporting both physical and logical (systems) access. NOAA has chosen to use the DoD CAC as NOAA's HSPD-12 solution. NOAA must ensure rebadging of over 16,400 employees and contractors. Implementation of the DoD CAC solution to comply with OMB requirements under HSPD-12 is projected to result in NOAA cost avoidance/savings of over \$11 million over a 5-year period compared to implementation of the General Services Administration Managed Service Option.

Deliverables and Performance Goals

This increase supports the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs." Specifically, this increase supports the NOAA Mission Support Goal, improve safety and other condition indices for facilities and platforms. The schedule of milestones in support of this request includes:

1. Complete initial Common Access Card (CAC) issuance to all NOAA employees and contractors – 2Q 2010
2. Re-issue CACs to employees and contractors issued CACs in FY08 – 4Q 2011 (CAC expires every three years)
3. Re-issue CACs to employees and contractors that were issued CACs in FY09 – 4Q 2012

Performance Goal: Performance Measure: % Compliance with HSPD-12 PIV-II; implementation costs	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	100% compliant with HSPD-12; cost avoidance of \$3M	100% compliant with HSPD-12; cost avoidance of \$2M	100% compliant with HSPD-12; cost avoidance of \$1M	100% compliant with HSPD-12; cost avoidance of \$3M	100% compliant with HSPD-12; cost avoidance of \$2M
Without Increase	N/A	80% compliant; cost increase of \$3M	83% compliant; cost increase of \$2M	85% compliant; cost increase of \$1M	80% compliant; cost increase of \$3M	83% compliant; cost increase of \$2M

NOAA Wide Corporate Services and Agency Management (0 FTE and +\$4,345,000) NOAA requests an increase of 0 FTE and \$4,345,000 to support acquisition and grants services for NOAA.

Proposed Actions

This investment will enhance NOAA’s ability to provide dedicated personnel assets to increase the capacity of the acquisition and grants workforce sufficient to ensure successful obligation of the increasing volume of contractual and financial assistance actions. Additionally, requested funding will provide dedicated personnel and funding sufficient to implement an effective procurement oversight program. These resources will afford NOAA an opportunity to establish a Policy and Oversight Division (POD). The POD will implement recommendations made by the Government Accountability Office (GAO) in their June 2006 report to Congress (GAO-06-594, NOAA Acquisition Function). One of the recommendations of the report was for DOC/NOAA to regularly monitor the acquisition of goods and services acquired by collateral duty contracting officers in field offices. To obtain the recommended oversight, NOAA AGO will hire contract support to conduct regular reviews of procurement actions conducted by collateral duty contracting officers and Government Purchase Cardholders, who similarly exercise delegated procurement authority. Oversight of the field delegates will involve on-site reviews of 80% of awards made by the audited delegate for the preceding 12 months. A formal entrance conference, execution of a standardized audit checklist, and an exit conference will be conducted. Appropriate corrective action plans will be received and monitored by AGO. The same is true for purchase cardholders, with the exception that where necessary, cardholders will submit their records to the auditor for a desk review at the auditor’s location. To minimize costs, consolidated reviews will be conducted. This means that if AGO is auditing a field delegate in a specific location, they will also conduct an audit of cardholders at the same location and/or bring in cardholders from other offices within commuting distance of

the field delegate location. This action will specifically address the required action under the GAO Corrective Action Plan and will address one of the primary concerns government-wide regarding management of purchase card use. Effective oversight is essential to ensure adherence to Federal Acquisition Regulation, Departmental and NOAA policy.

Statement of Need and Economic Benefits

NOAA's AGO provides annual acquisition and grants support to DOC and NOAA valued at approximately \$2 billion (\$1 billion in grants awards, and \$1 billion in contract awards). These services equates to roughly a third of DOC's annual appropriation. The success of DOC and NOAA in accomplishment of missions and goals is largely dependent on the ability of the NOAA AGO to successfully obligate these funds in accordance with statutory and regulatory requirements. This request responds to GAO recommendations contained in its June 2006 Report on the NOAA Acquisition Function (GA)-06-594). Requested funding is critical to ensuring the operational success of DOC and NOAA.

Increased Complexity of Work

The number of acquisitions awarded by the NOAA Acquisition workforce has increased by almost 300% in just 5 years. As the NOAA acquisition workload has increased, the complexity of the acquisitions conducted and the level of contract administration oversight required have similarly increased. Major system acquisitions for equipment and services involving state-of-the-art technology are now common throughout NOAA. AGO is currently providing acquisition support for multi-billion dollar satellite programs (including NPOESS, GOES-R and POES). Increased complexity is also evident in the acquisition support provided to numerous multi-million dollar programs such as: NOAA's High Performance Computing Capability, Advanced Interactive Weather Processing System (AWIPS), Fisheries Survey Vessels (FSVs), NOAA Aircraft, Facilities Construction and a wide variety of Research and Development initiatives.

Increased Need for Contract/Grant Surveillance

As contractual and financial assistance obligations have increased, so has NOAA's reliance on the private sector. The area demonstrating the greatest degree of reliance upon the commercial sector is the acquisition of services. Government-wide, service contracts continue to grow disproportionately to contracts for equipment and supplies. Service contracts require additional surveillance effort by the acquisition workforce to ensure proper oversight. In its report on DOD Acquisitions (GAO-06-800T) GAO stated that "*Government monitoring and inspection of contractor activity, if not done well, can contribute to a lack of accountability and poor acquisition outcomes*". Given NOAA's increasing reliance on the private sector to provide the services essential for mission success, additional resources are required to monitor the performance of these contracts. Failure to provide an acquisition and grants workforce, sufficiently robust to maintain adequate oversight, places DOC/NOAA at increased risk of cost overruns, substandard contractor/grantee performance and agency embarrassment. The DOC/NOAA operational programs supported by AGO must be successfully managed and monitored if NOAA is to fulfill its missions to the American public. However, as important as our acquisition and grants programs are, they are being conducted by an AGO workforce, thinly spread, lacking the depth required to ensure proper oversight and success. The success of DOC/NOAA's acquisition and grants programs is best described as our ability to obtain the necessary research, equipment and services needed, on time, and at the best value to the taxpayer. AGO's current workforce struggles to succeed, but is limited in its ability to do so by diminishing resources.

Without additional staff to conduct the increasing acquisition and grants workload of NOAA, it is only a matter of time before workload overcomes capacity, and critical acquisition and grants programs fail.

Increased Time to Complete Acquisition Workload

The time required to conduct acquisitions in NOAA has increased with the deployment of new IT Systems throughout the DOC. Although these systems will eventually enable NOAA to increase acquisition efficiency, a myriad of challenges currently exist. Overcoming these challenges requires additional time to conduct planned procurements. C.Request was deployed DOC-wide on October 16, 2006, as part of an interfaced network called CSTARS ORSI. CSTARS stands for Commerce Standard Acquisition and Reporting Systems; ORSI stands for Obligation Requisition System Interface. ORSI interfaces the NOAA C.Request system and C.Buy system to the NOAA Core Financial System (CFS) and also to the NIST CFS, since NOAA provides acquisition support to DOC bureaus who obtain their finance support from NIST. C.Request is used to electronically submit requisitions over the NOAA intranet to C.Buy, the acquisition production system. At deployment, the system was deemed operational, but, as in the fielding of any new system, it was understood that improvements would be needed before the system would be accepted as fully functional. Since then system improvements have been made and extensive user training has been conducted. However, the need for additional system improvements, user training and help desk support for a user community in excess of 2,300 DOC employees will continue for the foreseeable future. NOAA AGO has been performing these functions without additional resources. The continued employment of the AGO acquisition workforce to conduct these functions will continue to divert scarce acquisition talent and diminish greatly the capacity of AGO to conduct acquisition actions. The proposed request of additional acquisition staff are essential to the successful fielding of C.Request/ORSI. These additional personnel will afford us the ability to conduct user training while simultaneously conducting ongoing procurement actions.

Increased Risk Posed by Interagency Acquisitions

To meet the increasing need for acquisition services with diminishing resources, NOAA is evaluating obtaining acquisition support services from other government agencies through Interagency Acquisitions. Interagency Acquisitions offer the ability for agencies to acquire additional acquisition support by off-loading procurement actions to other agencies on a fee-for-service basis. However, as the GAO noted in their September 2006 report on DOD Acquisitions (GAO-06-800T), some (DOD) agency IGs have uncovered instances of improper use of interagency contracts, including issuing orders that were “*outside the scope of the underlying contract, failing to follow procedures intended to ensure the best pricing, and failing to establish clear lines of accountability and responsibility.*” Their report further states that, in some instances, fee-for-service arrangements may have lead to “*an inordinate focus on meeting customer demands at the expense of complying with sound contracting policy and required ordering procedures.*” As a result of these and similar issues, GAO designated interagency contracting as a government-wide high-risk issue in January 2005. It is important to note that the interagency acquisition services acquired by DOD were provided by non-DOD agencies, including some of those under consideration for use by DOC/NOAA. It is also important to note that DOD was held accountable for the improprieties committed by the servicing agencies. DOC/NOAA should carefully weigh the potential risks inherent to acquiring additional acquisition support via Interagency Acquisitions in comparison to increasing the acquisition capability within DOC/NOAA.

Increased Scrutiny of Acquisition and Grants Function

DOC/NOAA will continue to receive increased scrutiny of its acquisition and grants function. The DOC Inspector General listed Effective Management of Departmental and Bureau Acquisition Processes as DOC's Number 2 Challenge, in his September 2006 report entitled *Top 10 Management Challenges*. In this report, the DOC IG has stated that "*adequate oversight of acquisition planning and execution is essential to ensuring that taxpayer dollars are spent effectively and efficiently and procurement laws and regulations are followed*". It is probable that NOAA AGO will receive additional scrutiny from the GAO in FY 2008.

It is anticipated that GAO will assess the implementation of the Corrective Action Plans submitted by DOC/NOAA in response to their June 2006 Report on the NOAA Acquisition Function (GAO-06-594). Again, it is expected that adequacy of procurement oversight conducted by AGO will be the focus of their review. The amount of procurement oversight that can be applied is directly related to the resources available to provide that oversight. In FY 2007, funding was not available to NOAA for personnel and travel costs necessary for the conduct of an adequate oversight program. The funding requested within this request includes resources for travel and personnel costs required to provide adequate procurement oversight. NOAA processes nearly 2,000 grants every year, and like acquisition, represents an annual investment of approximately \$1 Billion. End-to-end improvements in NOAA grants processes were developed in FY 2005. One such initiative, NOAA's Grants Online, has been lauded as an E-Gov best practice, and will likely be adopted DOC-wide in the near future. In FY 2008, AGO intends to continue improving the capabilities of the Grants Online System and utilize it as an administration and assessment tool. These improvements will improve the efficiency of our Grants process, and will directly benefit potential grantees and NOAA. It is expected that non-NOAA (DOC) users will rely upon NOAA's expertise to provide training and assistance to other Bureaus within the Department when Grants Online is adopted as the DOC-wide Grants management system. However, completion of audits and grant closeout actions remain manual processes. The timely completion of these tasks by NOAA AGO was identified as a deficiency during the KPMG audit of the NOAA Financial function. Although NOAA AGO has made great progress in reducing the number of delinquent grant closeouts, there is a recurring need for AGO Grants personnel to perform these tasks. The additional resources requested for AGO's Grants Management Division will address this need, without degradation of grants award processes, and help preclude a repeat finding on the next financial audit.

AGO Policy and Oversight Division – NOAA's request will serve in functions associated with implementing recommendations made by the Government Accountability Office (GAO) in their June 2006 report to Congress (GAO-06-594, NOAA Acquisition Function). Among the recommendations included in this report is one for DOC/NOAA to regularly monitor the acquisition of goods and services acquired by collateral duty contracting officers in field offices. To meet this need, the Director, NOAA Acquisition and Grants Office promulgated policy for increased oversight of these collateral duty contracting officers (Field Delegates) performing acquisition functions under Delegations of Procurement Authority (DPA). To obtain the recommended oversight, NOAA AGO intends to conduct regular reviews of procurement actions conducted by collateral duty contracting officers and Government Purchase Cardholders, who similarly exercise delegated procurement authority. Previous attempts to provide oversight of individuals exercising Delegated Procurement Authority within NOAA have been limited by resources insufficient to conduct the reviews required. This funding will provide dedicated personnel and funding sufficient to implement an effective procurement oversight program.

Oversight of the field delegates will involve on-site reviews of 80% of awards made by the audited delegate for the preceding 12 months. A formal entrance conference, execution of a standardized audit checklist, and an exit conference will be conducted. Appropriate corrective action plans will be received and monitored by AGO. The same is true for purchase cardholders, with the exception that where necessary, cardholders will submit their records to the auditor for a desk review at the auditor’s location. To minimize costs, consolidated reviews will be conducted. This means that if AGO is auditing a field delegate in a specific location, they will also conduct an audit of cardholders at the same location and/or bring in cardholders from other offices within commuting distance of the field delegate location. This action will specifically address the required action under the GAO Corrective Action Plan and will address one of the primary concerns government-wide regarding management of purchase card use. Effective oversight is essential to ensure adherence to Federal Acquisition Regulation, Departmental and NOAA policy. The failure to adequately oversee the work performed by individuals with this delegated acquisition authority puts the agency at risk for improper acquisition practices and open to both legal and monetary damages. Without proper oversight, the delegated procurement authority will need to be withdrawn and that workload brought into the NOAA acquisition offices for processing. This would result in an even greater resource need.

Deliverables and Performance Goals

This increase supports the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.” Specifically, this increase supports the NOAA Mission Support Goal in NOAA’s Strategic Plan. The schedule of milestones in support of this request includes providing continued annual funding of 12 month period of performance for centralized services at NOAA.

Performance Goal: Timeliness of contract and grant actions	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Without Increase	90% for contracts 85% for grants	90% for contracts 85% for grants	90% for contracts 85% for grants	90 % for contracts 85% for grants	90% for contracts 85% for grants	90% for contracts 85% for grants
With Increase	90%+for contracts 85%+for grants	95%+for contracts 90%+for grants	95%+for contracts 90%+for grants	95%+for contracts 90%+for grants	95%+for contracts 90%+for grants	95%+for contracts 90%+for grants

Under Secretary and Associate Offices (+0 FTEs and +\$949,000): NOAA requests an increase of 0 FTEs and \$949,000 to support existing program requirements within this subactivity, but not provided for in the Omnibus Appropriations Act, 2009.

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL
 (Dollars in Thousands)

Activity: Program Support
 Subactivity: Corporate Services

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Management Analyst	Silver Spring, MD	ZA-3	2	60,989	121,978
Management Analyst	Seattle, WA	ZA-4	1	85,487	85,487
Information Technology Specialist	Silver Spring, MD	GS-13	1	73,100	73,100
Total			4		280,565
less Lapse		25.0%	1		70,141
Total full-time permanent (FTE)			3		210,424
2010 Pay Adjustment (2.0%)					4,208
TOTAL					214,632

Personnel Data	Number
Full-Time Equivalent Employment	
Full-time permanent	3
Other than full-time permanent	0
Total	3
Authorized Positions:	
Full-time permanent	4
Other than full-time permanent	0
Total	4

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollars in thousands)

Activity: Program Support
Subactivity: Corporate Services

	Object Class	2010 Increase
11	Personnel compensation	215
11.9	Total personnel compensation	215
12	Civilian personnel benefits	93
21	Travel and transportation of persons	21
22	Transportation of things	1
23	Rent, Communications, and Utilities	5
25.1	Advisory and Assistance Services	6,567
25.2	Other services	0
25.3	Purchases of goods & services from Gov't accounts	147
31	Equipment	8
99	Total Obligations	7,057

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Appropriation: Operations, Research, and Facilities
Sub-activity: NOAA Education Program

The objective of the NOAA Education Program sub-activity is to achieve success with NOAA's strategic cross-cutting priorities of promoting environmental literacy and maintaining a World-class workforce. Major programs within this sub-activity include management of the Ernest F. Hollings Undergraduate Scholarship Program, the Nancy Foster Scholarship Program, and the Education Partnership Program with Minority Serving Institution (EPP/MSI), and a competitive education grants program supporting formal and informal education.

In executing the Education Program, NOAA's Office of Education (OEd) coordinates across Line, Program and other Staff Offices, to promote NOAA services and products, and their benefits to the public. OEd is responsible for implementing NOAA's Education Strategic Plan and NOAA's education policy. Through this Program, the OEd also implements targeted education programs on behalf of the Agency. Programs in this sub-activity support the Mission Support goal in NOAA's Strategic Plan.

The NOAA Education Program line item is composed of various NOAA educational programs with base activities in support of both objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship." These major programs include:

- Educational Partnership Program with Minority Serving Institutions – OEd's Educational Partnership Program (EPP) with Minority Servicing Institutions (MSI) also seeks to increase collaborative research efforts between NOAA scientist and research efforts between NOAA scientists and researchers at minority serving academic institutions. Financial assistance is provided through four competitive program components:
 - Cooperative Science Centers have been established at MSIs to advance scientific research and to provide training to students in coursework directly related to NOAA's mission.
 - The Environmental Entrepreneurship Program offers grant to attract historically underrepresented groups to environmental sciences for program development and environmental demonstration projects.
 - The Graduate Sciences Program is designed to recruit and provide graduate level training in NOAA-related sciences to outstanding minority and women candidates.
 - The Undergraduate Scholars Program offers 15 internships and scholarships annually to students attending MSI.
- Ernest F. Hollings Undergraduate Scholarship – the Ernest F. Hollings Scholars Program recruits and prepares students for public service careers with NOAA and other natural resource and science agencies. Additionally, this program prepares students for careers as teachers and educators in coastal, ocean, Great Lakes, weather, and climate sciences and science education. Each year, the recipients of the Hollings Scholarship participate in summer internships with NOAA laboratories and facilities.
- Nancy Foster Scholarship Programs – the Dr. Nancy Foster Scholarship Program, named in honor of the late distinguished NOAA scientist and Assistant Administrator recognizes outstanding scholarship and encourages independent graduate research, particularly by female and minority students,

in oceanography, marine biology, and maritime archaeology. Congress authorized the Program, as described in the National Marine Sanctuaries Amendments Act of 2000, as a means of honoring Dr. Foster's career achievements and contribution to the nation.

These three programs within the Education Program sub-activity are specifically focused on increasing education and training opportunities for individuals pursuing NOAA-related fields of study with the goal of encouraging students to pursue applied research and education in ocean, coastal, Great Lakes, weather, and climate sciences, and science education. The EPP program funding directly supports the development of NOAA-related research capability in MSIs.

- Competitive Education Grants Program (a.k.a. Environmental Literacy Grants) – this highly competitive grant program provides funding for projects that improve environmental literacy among our Nation's citizens in order to encourage stewardship and increase informed decision making. The grants support informal and formal education projects implemented on statewide to nationwide scales and emphasize partnerships that facilitate the integration of coastal, ocean, Great Lakes, weather, and climate sciences into education programs. The NOAA Education Council serves as an advisory body for this program, establishing annual funding priorities and providing guidance on funding decisions to ensure that investments promote maximum benefit for the Agency.

PROGRAM CHANGES FOR FY 2010:

NOAA Education Programs-Competitive Educational Grants (0 FTE and +\$4,000,000): NOAA requests an increase of 0 FTE and \$4,000,000 to support a national competitive educational grant program.

Proposed Actions

This request will enable NOAA to support competitive national environmental literacy programs to promote excellence in informal and formal education related to ocean, coastal, Great Lakes, weather, and climate sciences. This request will allow 8 to 12 competitive awards to be issued per year.

Statement of Need and Economic Benefits

Since FY 2005, Congress has provided appropriations above the prior Administration's Budget request supporting the competitive education grants program at approximately \$5,000,000 annually. OEd has run a competitive education grants program each year Congress has provided these funds. Based on this historical data, OEd can demonstrate a significant need for this funding in the external community. OEd receives, on average, 120 grant applications each year and issues on average 8 new awards, representing a funding success rate for applicants of close to 7%. These grants are provided directly to educational institutions such as aquariums, museums, science centers, K-12 schools districts, universities, and other educational non-profit organizations.

This grants program directly addresses the educational mandate established in the America COMPETES Act (15 USC 893a(a)) and providing support to improve America's science education enterprise, both the formal and informal components, strengthens our Nation's economy by improving America's competitiveness in the global market.

Indirect benefits of the Competitive Educational Grants: An increase in the number of teachers trained to teach coastal, ocean, Great Lakes, weather, and climate sciences; an increase in the number of informal educators who are knowledgeable about coastal, ocean, Great Lakes, weather, and climate sciences; an increase the number of museum and aquarium exhibits that are related to NOAA's mission; and an increase in the quality and number of instructional materials incorporating coastal, ocean, Great Lakes, weather, and climate sciences for use in both informal and formal education settings.

Direct benefits of the Competitive Educational Grants: Provides support to these educational institutions to hire (1) additional educators and/or curriculum developers and (2) exhibit developers.

Performance Goals and Measurement Data

This increase supports the Department of Commerce Strategic Goal of "Promote environmental stewardship." Specifically, this increase supports the NOAA Mission Support Goal in NOAA's Strategic Plan.

Performance Goal: Mission Support Performance Measure: Number of funded educational projects integrating coastal, ocean, Great Lakes, weather, and climate sciences and resources into formal or informal education programs.	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	8-12	8-12	8-12	8-12	8-12
Without Increase	2	2	2	2	2	2

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in thousands)

Activity: Program Support
 Subactivity: NOAA Education Program

	Object Class	2010 Increase
41	Grants, subsidies, and contributions	4,000
99	Total Obligations	4,000

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Appropriation: Operations, Research and Facilities
Subactivity: NOAA Facilities Program

The major objectives of the Facilities Program subactivity are to:

- Provide effective long-range facility planning and capital investment planning
- Manage and execute NOAA's facility assessment and restoration program
- Manage NOAA's safety and environmental compliance program
- Manage NOAA's lease and real property acquisition and disposal program
- Manage and execute NOAA's facility construction and modernization program

The NOAA Facilities Program line item supports objectives under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental stewardship." The program supports NOAA's mission by providing effective long-range facility planning and capital investment planning, facility condition assessment, and management and execution of NOAA facility repair and construction projects. The Facilities Management program is designed to keep facilities in well-maintained condition, return substandard facilities to their full potential, construct and modernize facilities to meet mission needs, and, dispose of facilities not required by mission need.

As NOAA-owned facilities age, investments in maintenance, repairs and modernization increase in priority. NOAA's owned capital assets total more than 400 owned buildings valued at approximately \$2.4 billion. These facilities are aging, with an average age of 29 years, and with 30 buildings over 60 years old. Many facilities are well past their life expectancy and are in need of major repair or replacement to ensure that the facilities remain safe, effective, and efficient in support of NOAA's programs. This program provides funding to conduct facility condition inspections, and supports investments in necessary facility repairs and modernization. This line item also includes funds needed to support operations at NOAA's state-of-the-art laboratory building in Boulder, Colorado. This facility houses staff and programs from three NOAA line organizations (OAR, NESDIS, and NWS) as well as NOAA's program support units for the region. The work conducted in Boulder is necessary for NOAA's climate, weather research and support services. The line item also includes funding for security guard services at NOAA headquarters in Silver Spring, Maryland, and at its field locations in Boulder, Colorado and Seattle, Washington.

This program oversees a centrally-managed and integrated national project construction program. The Chief Administrative Officer (CAO) has responsibility for policy development and guidance, long-term facility master planning, and construction program planning and execution (for new facilities, as well as repair and modernization projects). The CAO organization is responsible for managing the total project life-cycle for facility construction and modernization projects, including environmental and safety projects. The program also manages NOAA's lease and real property acquisition and disposal, with responsibility for more than 2,200 leases.

The facilities program supports achieving the Strategic Plan goal of improved safety and facility conditions. The program also supports a sustainable and strategic facilities master planning process with a 5 to 10-year planning horizon, and specifically promotes progress toward meeting the objective of increasing the number of facilities with improved co-location of NOAA services and partners. A robust facilities capability should lead to lower life-cycle cost of occupancy and facilities that better meet requirements in support of the NOAA mission goals.

The facility program provides the resources necessary to comply with all existing federal, state, and local laws, regulations and safety requirements; and identify environmental compliance and safety issues requiring remediation. NOAA is responsible for ensuring continued compliance with applicable environmental and safety laws. NOAA continues to implement a management system to increase awareness, oversight and assessment; and ensure compliance with applicable laws and regulations.

Base activities support both objectives under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental stewardship.”

PROGRAM CHANGES FOR FY 2010:

Facilities Management and Modernization (0 FTE and +\$7,776,000): NOAA requests an increase of 0 FTE and \$7,776,000 to address critical facility deficiencies and repairs.

Proposed Action

The FY 2010 request will support addressing the most critical repair and building system deficiencies, including projects to replace failing electric, plumbing, HVAC and building systems that have outlived their useful service lives; install required fire suppression and alarm systems; and address emergency power systems requirements.

Statement of Need and Economic Benefits

NOAA conducts an annual assessment of its owned facilities to identify the facility conditions at each facility, and the requirements for repair and recapitalization (replacement) of building systems at each facility, including the following systems: fire protection, HVAC, electrical, exterior enclosure (e.g., roofing), plumbing, and structural. Systems that require repair or replacement are identified as “deficiencies” that need to be addressed within the next three to five years. As NOAA’s facilities age, their condition continues to deteriorate increasing the backlog of necessary repairs and building system replacements. Without investments to address critical facility deficiencies, NOAA projects that maintenance and repair costs will continue to escalate annually. Failure to address these critical building deficiencies increases the risk to employee safety and the risk of service disruptions and critical system failures.

Repair of the most critical building deficiencies in NOAA’s facilities enables NOAA to provide safe working conditions for NOAA’s employees, ensure NOAA facilities meet current code requirements, and address continuity and sustainability of operations requirements.

Deliverables and Performance Goals

This increase supports the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.” Specifically, this increase supports the NOAA Mission Support Goal, Improved safety and condition indices at NOAA facilities.

Performance Goal: Performance Measure: Improved safety and condition indices at NOAA facilities	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
With Increase	N/A	1 % reduction in repair backlog; fewer facilities with “unacceptable” or “poor” rating	3% reduction in repair backlog; fewer facilities with “unacceptable” or “poor” rating	3% reduction in repair backlog; fewer facilities with “unacceptable” or “poor” rating	3% reduction in repair backlog; fewer facilities with “unacceptable” or “poor” rating	3% reduction in repair backlog; fewer facilities with “unacceptable” or “poor” rating
Without Increase	N/A	8% increase in repair backlog and costs	8% increase in repair backlog and costs	8% increase in repair backlog and costs	8% increase in repair backlog and costs	8% increase in repair backlog and costs

Real Property Leases (+4 FTEs and +\$1,000,000): NOAA requests an increase of 4 FTE and \$1,000,000 to comply with legal requirements, associated with execution of real property leases.

Proposed Action

The FY 2010 request supports NOAA’s compliance with GSA lease requirements through increasing both Federal and contract support to manage the increasing lease backlog.

Statement of Need and Economic Benefits

NOAA has been delegated from GSA responsibility for over 2,200 leases, supporting a diverse spectrum of activities, ranging from office and laboratory space, to space for NOAA tide gauges and weather forecast sensors on towers. NOAA faces an increasing lease workload: a growing holdover lease backlog (300+ expired leases that must be renegotiated to ensure the Government is getting the best value), and expiration of an additional 1,100 leases between FY 2010 and 2014. Failure to effectively staff this increasing workload will pose both a significant legal and financial risk, as well as increasing the potential for adverse financial audit findings.

Under GSA’s 2007 changes to its delegation of leasing authority, NOAA must continue to demonstrate that it has the ability to acquire and manage leases in order to be granted authority for each facility lease. Without continued GSA delegation, NOAA will incur additional costs (for GSA processing costs) and delays in processing leases; historic data indicates that NOAA processing of the specialty leases required to support NOAA operations (categorical space delegation for antennas, tower, piers, mooring facilities, hangars, housing, gauges, etc.) is more cost effective when performed by NOAA staff trained in these unique lease issues. The workload will be resourced through a combination of federal staff to support ongoing workload, and contractor support to assist in the temporary increase in workload projected between FY 2010-2014.

Deliverables and Performance Goals

This increase supports the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.” Specifically, this increase supports the NOAA Mission Support Goal, Improve efficiency and performance of financial, administrative, workforce management, acquisition, and other support transactions and services.

Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
Holdover leases renegotiated						
With Increase: Number renegotiated	N/A	25	50	75	75	75
Without Increase	N/A	0	0	0	0	0
With Increase: Backlog remaining.	300	275	225	150	75	0
Without Increase	300	300	310	320	330	340
Performance Goal:	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target
% of new leases completed timely and with no contract defects						
With Increase	N/A	99	99	99	99	99
Without Increase	N/A	70	71	72	73	74

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL
 (Dollars in thousands)

Activity: Program Support
 Subactivity: Facilities

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Realty Specialist	Silver Spring, MD	ZA-3	4	60,989	243,956
Facility Support Specialist	Silver Spring, MD	ZS-3	1	33,269	33,269
Total			<u>5</u>		<u>277,225</u>
less Lapse		25.0%	<u>1</u>		<u>69,306</u>
Total full-time permanent (FTE)			4		207,919
2010 Pay Adjustment (2.0%)					<u>4,158</u>
TOTAL					<u>212,077</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	4
Full-time permanent	<u>0</u>
Other than full-time permanent	<u>4</u>
Total	
Authorized Positions:	
Full-time permanent	5
Other than full-time permanent	<u>0</u>
Total	<u>5</u>

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in thousands)

Activity: Program Support
 Subactivity: Facilities

Object Class	2010 Decrease
11 Personnel compensation	212
11.9 Total personnel compensation	212
12 Civilian personnel benefits	30
25.2 Other services	8,534
99 Total Obligations	8,776

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Appropriation: Procurement, Acquisition, & Construction
Subactivity: Construction

NOAA's facilities constitute a significant and important capital investment, and are integral to NOAA's mission accomplishment. NOAA's Facility Modernization program is designed to ensure that NOAA has safe, sound and secure facilities and infrastructure to house our workforce and the technology and equipment needed to ensure the uninterrupted accomplishment of its critical scientific and operational mission and programs. The Facility Modernization program will ensure excellence in NOAA's facilities, consistent with NOAA's Strategic Plan, Executive Order 13327 (*Federal Real Property Asset Management*) and Federal Real Property Council guidance. Improving the conditions of NOAA's facilities allows NOAA to accomplish our mission safely and successfully; it also promotes our attracting and retaining a high-performing workforce.

NOAA uses approximately 800 different "facilities" (i.e., both owned and leased buildings), and owns more than 400. NOAA's owned and leased buildings have a current replacement value (CRV) of over \$5 billion. Of that, more than 50 percent (442) are owned and operated by NOAA with a CRV of approximately \$2.4 billion. These buildings are aging, with 32 percent over 40 years old and 30 of those buildings over 60 years old. NOAA's facilities are often subject to extremes of climate and weather, and therefore require higher levels of maintenance and are more prone to unplanned repairs and investments needed to keep them safe, secure and environmentally sound.

The major components of NOAA's Facility Modernization Program supported under PAC are construction projects to repair and renovate facilities damaged by inadequate sustainment, excessive age, natural disasters, fires, accidents, or other causes; and recapitalization and modernization projects to keep the NOAA inventory of facilities modern and relevant in an environment of changing standards and missions.

The Office of the NOAA Chief Administrative Officer (CAO) has overall responsibility for the NOAA Facilities Program and is specifically responsible for:

- Providing planning guidance.
- Establishing priorities with Line Offices/Goals/Programs' input for restoration and recapitalization investments.
- Executing restoration and recapitalization projects as "Provider of Choice"—optimizing investments in strengthening NOAA's facility program.
- Oversight and corporate reporting on execution.
- Sustainment of corporate owned complexes.

In supporting NOAA's mission and program accomplishment, the Facility Modernization Program has established the following Program objectives:

- Integrate facility requirements as part of NOAA's planning, programming, budgeting and execution system;

- Sustain, restore and modernize NOAA's facilities to optimize NOAA program and mission accomplishment;
- Maximize opportunities for collocation within NOAA, and with NOAA and its partners to promote programmatic synergy and effective use of real property assets.

PROGRAM CHANGES FOR FY 2010:

Pacific Regional Center (0 FTE and -\$54,250,000): Through funding in the Omnibus Appropriations Act, 2009 and the American Recovery and Reinvestment Act of 2009, NOAA will complete the Main Facility construction phase of the new Pacific Regional Center on Ford Island in Honolulu, HI.

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete	TOTAL
Pacific Regional Center								
<i>Change from FY 2010 Base</i>		(54,250)	(54,250)	(54,250)	(54,250)	(54,250)		
Total Request	301,595	\$0	\$0	\$0	\$0	\$0		301,595

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in thousands)

Activity:	Program Support	
Subactivity:	Construction	
	Object Class	2010 Increase
25.2	Other services	(54,250)
99	Total Obligations	<u>(54,250)</u>

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OFFICE OF MARINE AND AVIATION OPERATIONS FY 2010 OVERVIEW

For FY 2010, NOAA is requesting a decrease of \$4,301,000 and an increase of 16 FTE over the FY 2010 base program for a total of \$197,218,000 and 1,030 FTE for the Office of Marine & Aviations Operations.

The Office of Marine and Aviation Operations (OMAO) provides support to NOAA programs through the operation of NOAA ships and aircraft as well as by outsourcing these activities. OMAO provides centralized management for operations, fleet planning, and maintenance support. OMAO is also responsible for NOAA's operational diving program, Teacher at Sea and Teacher in the Air programs, NOAA Small Boat Safety Program, and NOAA Aviation Safety Program.

OMAO initiates the development of annual fleet allocation plans; develops and updates long-range plans for inspection, repair, and operations of its fleet; provides centralized fleet management and coordination; updates standard fleet procedures; trains and certifies officers, crew members, and scientists in at-sea safety; conducts fleet-safety inspections; and provides medical guidance and support for NOAA ship, aircraft, and scientific personnel.

OMAO provides management of the NOAA Commissioned Corps. OMAO's Commissioned Personnel Center (CPC) (<http://www.noaacorps.noaa.gov/cpc>) manages recruitment, training personnel assignments, and payroll for the NOAA Commissioned Officer Corps. It also provides health-care contractual support for NOAA Commissioned Officers and Wage Marine personnel and their dependents. The NOAA Corps supports the fleet as well as NOAA Line Offices.

Research and Development Investments:

The NOAA FY 2010 Budget estimates for its activities, including research and development programs, are the result of an integrated, requirements-based Planning, Programming, Budgeting, and Execution System (PPBES) that provides the structure to link NOAA's strategic vision with programmatic detail, budget development, and the framework to maximize resources while optimizing capabilities.

The PPBES process makes specific reference to the objectives and milestones outlined in the NOAA 5 Year Research Plan for 2008-2012. The strict management of planning against these investment criteria, objectives, and milestones leads to NOAA budget proposals that reflect the research and development needs of the organization.

Significant Adjustments-to-Base (ATBs):

NOAA requests a net increase of 9 FTEs and \$3,549,000 to fund adjustments to current programs for OMAO. The increase will fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA).

Appropriation: Operations, Research, and Facilities
Subactivity: Marine Operations & Maintenance

MARINE SERVICES

The objectives of this line item are to:

- Ensure the operational readiness and maximum capability of the NOAA fleet in support of present and future NOAA data collection;
- Develop plans for future ship support and replacement;
- Provide properly trained personnel, fuel, stores, laboratory and deck equipment, and other scientific equipment necessary to meet user requirements and schedules;
- Develop, with the guidance of the Fleet Council, annual ship allocation schedules based on program requirements;
- Provide centralized management and coordination, scheduling, port services, operating procedures, and engineering support for NOAA's ships;
- Safely operate the NOAA ships and provide guidance and support for effective outsourcing, and outsource data-collection where appropriate;
- Train and qualify NOAA personnel to ensure safe and effective diving operations;
- Train and certify NOAA Commissioned Corps officers, crew, and scientists in at-sea safety requirements for their positions according to the Standards of Training, Certification and Watchkeeping for Seafarers and the International Maritime Organization conventions;
- Provide Commissioned Officers trained as engineers and scientists in NOAA program disciplines to provide mobile operational and other support;
- Provide oversight and support to enhance safety of NOAA's small-boat operations.

Marine Services' funding provides centralized management for NOAA's 20 active ships and supports chartering vessel to meet additional requirements. NOAA vessels, ranging in length from 124 to 274 feet, conduct operations that support NOAA's programs in nautical charting, bathymetric mapping, fisheries research, ecosystem assessments, marine environmental baseline assessments, coastal-ocean circulation, and oceanographic and atmospheric research. In FY 2010, operation of NOAA's vessels will provide approximately 3,390 operating days and outsourcing will provide approximately 400 operating days to support NOAA's highest priority programs.

The Marine Operations Center (MOC) (<http://www.moc.noaa.gov/>) has Atlantic and Pacific regional offices located in Norfolk, Virginia, and Seattle, Washington, respectively. MOC provides regional fleet management, maintenance, stores, supplies, repair facilities, data-processing facilities, operational support, and administrative support for NOAA's vessels. The vessels are assisted by a small support staff at the home port of most ships. NOAA vessels are staffed by NOAA Commissioned Corps officers, Wage Marine employees, and Electronics Technicians, who are civilian employees. NOAA vessels are strategically deployed based on the size, range, laboratory space, equipment, and accommodations of each ship necessary to meet project requirements. The Class I and II vessels have the size, endurance, and equipment to conduct surveys and investigations in the deep ocean outward from the continental shelf or in remote areas such as Alaska and Antarctica. The smaller Class III, IV, and V vessels are designed for continental shelf and near-shore operations. Programs supported by ships are organizationally housed within NOAA's National Marine Fisheries Services (NMFS), Office of Oceanic and Atmospheric Research (OAR), National Ocean Service (NOS), and National Weather Service (NWS).

The NOAA Commissioned Corps (<http://www.noaacorps.noaa.gov>) is the nation's seventh and smallest uniformed service. NOAA Corps officers support the fleet of ships and aircraft as well as NOAA Line Offices. The officers of the NOAA Corps command NOAA's research and survey vessels, fly NOAA's "hurricane hunter" and environmental monitoring aircraft, support field operations, and serve in a variety of technical and management positions throughout the agency. The Marine Operations and Maintenance line funds the majority of the NOAA Commissioned Corps salaries and benefits but does not include contributions to the Medicare-eligible account, which was mandated in the FY 2003 Defense Authorization Act (P.L. 107-314). Those contributions are funded under the Other Discretionary Account, Medicare Eligible Retiree Health Fund Contribution - NOAA Corps.

The NOAA Dive Program (<http://www.ndc.noaa.gov/>) provides diver training, safety standards, certification, technical advice, a standardized equipment program, and publishes the NOAA Diving Manual. NOAA's 400 divers perform over 15,000 dives annually in support of NOAA's programs.

In compliance with domestic and international maritime codes, OMAO provides safe navigation training and certification to NOAA Commissioned Corps officers, vessel crew members, and scientists. Safety training is provided according to the Standards of Training, Certification and Watchkeeping for Seafarers and the International Maritime Organization requirements.

The NOAA Small Boat Program (SBP) (<http://www.sbp.noaa.gov>) reduces risk and enhances the safety of NOAA's small boats. NOAA maintains over 400 small boats, which are operated and funded within the programs. The SBP monitors or conducts small-boat inspections, facilitates small boat activities by hosting workshops and sharing related information, and provides technical and engineering assistance to NOAA Line Offices concerning small boats.

The NOAA Teacher at Sea Program (TAS) (<http://teacheratsea.noaa.gov/>) allows the participation of up to 30 teachers per year. Teachers at the kindergarten through college level spend time on NOAA vessels working with NOAA scientists. The teachers provide a valuable connection between NOAA and their students. The popularity of the program led two TAS alumni to develop the spin-off, Teacher in the Air. NOAA's Teacher in the Air (TIA) program now flies between 2-5 teachers on NOAA aircraft each year. As of FY 2008, approximately 550 teachers have participated in the programs.

NOAA's fleet includes the ships listed below:

Vessel	Length-Class	Mission	Home Port	Status
<i>Ronald H. Brown</i>	274 ft. - I	1,4	Charleston, SC	Active
<i>Rainier</i>	231 ft.- II	3	Seattle, WA	Active
<i>Fairweather</i>	231 ft.- II	3	Ketchikan, AK	Active
<i>Ka'imimoana</i>	224 ft.- III	1	Honolulu, HI	Active
<i>Miller Freeman</i>	215 ft.-II	1,2	Seattle, WA	Active
<i>Mcarthur II</i>	224 ft.- III	1,2,4	Seattle, WA	Active
<i>Oregon II</i>	175 ft.- III	2	Pascagoula, MS	Active
<i>Thomas Jefferson</i>	208 ft.- II	3	Norfolk, VA	Active
<i>David Starr Jordan</i>	171 ft.-IV	2	San Diego, CA	Active
<i>Gordon Gunter</i>	224 ft.- III	2	Pascagoula, MS	Active
<i>Oscar Elton Sette</i>	224 ft.- III	2	Honolulu, HI	Active
<i>Delware II</i>	155 ft.- IV	2	Woods Hole, MA	Active
<i>Ferdinand R. Hassler</i>	124 ft. - II	3	New Castle, NH	Active
<i>Nancy Foster</i>	187 ft.- III	1,4	Charleston, SC	Active
<i>HI'ialakai</i>	224 ft.- III	1,4	Honolulu, HI	Active
<i>Oscar Dyson</i>	208 ft. - II	2	Kodiak, AK	Active
<i>Henry B. Bigelow</i>	208 ft. - II	2	TBD	Active
<i>Pisces</i>	208 ft. - II	2	Pascagoula, MS	Active
<i>Bell M. Shimada</i>	208 ft. - II	2	West Coast	Active
<i>Okeanos Explorer</i>	224 ft.- III	1	Narragansett Bay, RI	Active

Mission:

- 1= Oceanographic Research
- 2 = Fisheries Research
- 3 = Hydrographic Surveys
- 4 = Environmental Assessment

FLEET PLANNING AND MAINTENANCE

The objectives of this line item are to:

- Design, develop, and engineer ship systems in order to ensure cost-effective operations and to meet user requirements and safety/legal regulations.
- Provide general maintenance and repair to existing ships to ensure their reliable operations.

Fleet Maintenance and Planning is the second component of OMAO's Marine Operations and Maintenance, and supports maintaining the reliability of the 20 active ships in NOAA's fleet. Adequate maintenance and repairs are required to allow NOAA ships to meet the rigorous demands of NOAA's programs. This funding will provide for general maintenance and repair of NOAA ships.

PROGRAM CHANGES FOR FY 2010:

NOAA Corps End Strength (+16 FTE and \$2,199,000): NOAA requests 16 FTE and \$2,199,000 to support the increase of the NOAA Corps to 321 officers. NOAA benefits from the broad-based management and policy experience gained by NOAA Corps officers through rotational shore-side assignments, as well as their ability to relocate to other geographic locations on short notice. The officers not only lead and command NOAA's ships and aircraft, but they also conduct field projects on land, at sea, and in the air; manage NOAA observational and support facilities; serve as members or leaders of research efforts; and manage various organizational elements within NOAA.

Proposed Actions

Funding will support an end-strength of 321 officers, including salaries, benefits, healthcare, pre-commissioning, and permanent change of station (PCS), recruiting, and a third Basic Officer Training Course (BOTC) for the additional officers. The authorized level of the NOAA Corps was increased to 321 officers in FY 2008. Current funding levels can only support the previously authorized level of 299 officers.

Statement of Need and Economic Benefits

Properly staffed platforms provide increased data collection and increased data quality, which is crucial to NOAA's missions. With funding for additional officers, OMAO will be able to better staff and operate new ships and aircraft. The staffing demands of a modernized fleet are greater than the current Fleet. For example, the *John N. Cobb*, removed from service in FY 2009, had an officer compliment of two officers. By comparison, NOAA's new Fisheries Survey Vessels (FSV) require an officer compliment of six. The Operational Assessment conducted in 2007 recommended the addition of a training billet for Junior Officers on each vessel. Additional officers will enable OMAO to maintain the current level of support to the Line Offices, which also provide NOAA Corps officers shore assignments and leadership opportunities, as well as additional at-sea and airborne billet requirements.

An expanded NOAA Corps will lower officer attrition rates by avoiding particularly long and arduous at-sea assignments. This increase will also provide the appropriate balance of officers at each rank and allow Junior Officers to fill training billets to acquire the necessary technical and leadership skills. NOAA Corps officers already serve at sea for longer rotations than officers in other maritime services. NOAA Corps officers spend an average of 222 days per year at sea, versus the U.S. Coast Guard's 185 days and the U.S. Navy's 180 days. Without the additional officers, NOAA has forecasted an increase in officer attrition from 8% to 12% between FY 2009 and FY 2015 due to the strains the current operating tempo is placing on NOAA Corps officers.

Additional officers also provide a surge capability in times of natural disasters or other emergency situations. For example, as part of NOAA's response to Hurricane Katrina, NOAA Corps officers were recalled from their shore-side billets to respond to oil and chemical spills, conduct Gulf fisheries assessments, and assist with other activities. The request allows OMAO to provide a wider pool of experienced NOAA Corps officers to fill unplanned vacancies, to address the mid-grade officer gap and grade-billet mismatch that occurred due to required downsizing in the mid-1990s, and to protect the training investment via increased retention.

Deliverables and Performance Goals

Performance Goal: Mission Support Milestone: Number of active NOAA Corps Officers.	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Without Increase	299	299	299	299	299	299
With Increase	299	315	321	321	321	321

TERMINATIONS FOR 2010:

The following programs or parts of programs have been terminated in FY 2010: Data Acquisition (\$5,060,000) and Fleet Planning and Maintenance (\$30,966,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE PERSONNEL DETAIL
 (Dollars in Thousands)

Activity: Program Support/Office of Marine and Aviation Operations
 Subactivity: Marine Operations & Maintenance and Aviation Operations

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Commissioned Officer	Pascagoula, MS	CO	4	50,754	203,016
Commissioned Officer	Seattle, WA	CO	11	54,714	601,843
Commissioned Officer	Honolulu, HI	CO	7	61,530	430,710
Total			22		1,235,569
less Lapse		25.0%	6		308,892
Total full-time permanent (FTE)			16		926,677
2010 Pay Adjustment (2.0%)					18,534
TOTAL					945,211

Personnel Data

Full-Time Equivalent Employment

- Full-time permanent
- Other than full-time permanent
- Total

Number
16
0
16

Authorized Positions:

- Full-time permanent
- Other than full-time permanent
- Total

22
0
22

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in thousands)

Activity: Program Support/Office of Marine and Aviation Operations
 Subactivity: Marine Operations & Maintenance and Aviation Operations

Object Class	2010 Increase
11 Personnel compensation	945
11.1 Full-time permanent	43
11.8 Special personnel services payments	8
11.9 Total personnel compensation	996
12 Civilian personnel benefits	518
21 Travel and transportation of persons	6
22 Transportation of things	230
23 Rent, Communications, and Utilities	5
24 Printing and reproduction	5
25.2 Other services	329
25.3 Purchases of goods & services from Gov't accounts	85
26 Supplies and materials	5
31 Equipment	20
99 Total Obligations	2,199

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Appropriation: Operations, Research, and Facilities
Subactivity: Aviation Operations

Aviation Operations

The objectives of this subactivity are to:

- Provide NOAA with centralized aircraft systems management and coordination of airborne data collection flight time;
- Modify, maintain, and operate NOAA's aircraft with a combined work force of specially trained civilians and officers of the NOAA Commissioned Corps to meet NOAA's airborne data-collection requirements;
- Maintain the airworthiness and operating standards of NOAA's aircraft for optimum safety along with standardization of scientific systems and aircraft;
- Operate the aircraft as public-use aircraft as well as maintaining Federal Aviation Regulations with respect to the use of airspace, control of air traffic, and aircraft registration;
- Develop and operate prototype and operational scientific-research instrumentation aboard NOAA aircraft; conduct applied research to ensure validity of data collected; recommend and implement specialized modifications, equipment or personnel for particular missions or projects;
- Develop, with the guidance of NOAA's Fleet Council, annual flight-time allocation schedules based on airborne data-collection requirements;
- Provide centralized expertise in aviation safety to arrange for safe commercial aviation services for NOAA programs using outsourced aircraft; and
- Provide aviation life support equipment to NOAA Programs that utilize commercial aviation services.

AIRCRAFT SERVICES

The Aircraft Operations Center (AOC) (<http://www.aoc.noaa.gov/>) located at MacDill Air Force Base in Tampa, Florida, ensures the availability and readiness of NOAA's uniquely configured aircraft. AOC operates a fleet of 12 aircraft used as observation platforms equipped with comprehensive data-collection systems in support of missions related to the Earth's environment, coastal and marine resources, and severe weather. OMAO also ensures that outsourced aviation operations are conducted safely by providing technical support, services and equipment to NOAA programs for commercial aviation services.

In FY 2010, OMAO will provide approximately 2,845 flight hours in support of NOAA's missions. Two of NOAA's three P-3 aircraft and the G-IV high-altitude jet will be mission-ready with instruments and personnel for hurricane research, reconnaissance and surveillance during the hurricane season. NOAA's third P-3 conducts air chemistry and air quality research, remote sensing, and oceanographic research. The G-IV will also be mission-ready with instruments and personnel to collect data for West Coast winter storm predictions. NOAA's Jet Prop Commander and Shrikes will be mission-ready with equipment and personnel for snow radiation surveys needed for flood forecasts and water management. NOAA's King Air aircraft support the coastal mapping missions for nautical charting and post-storm damage assessment as well as many other remote sensing needs. The four NOAA Twin Otters support many ecosystem missions from marine mammal population studies to new sensor research for fish identification and coastal mapping.

The following table provides information on the aircraft fleet for the current program (missions and support fluctuate based on program priorities):

Aircraft	Type	Mission	Location
HEAVY:			
(2) Lockheed WP-3D	4-engine turbo prop	Air quality (OAR) Hurricane research (OAR) Hurricane reconnaissance (NWS) Ocean winds (NESDIS, NWS) Hurricane intensity forecasting (NWS)	MacDill AFB, FL
(1) Lockheed WP-3C	4-engine turbo prop	Air quality (OAR) Climate research (OAR) Hurricane reconnaissance (NWS) Ocean winds (NESDIS, NWS)	MacDill AFB, FL
MID:			
(1) Gulfstream G-IVSP	2-engine turbo jet	Hurricane surveillance (NWS) Winter storm reconnaissance (NWS) Hurricane intensity forecasting (NWS) Atmospheric research (OAR)	MacDill AFB, FL
LIGHT:			
(4) Dehavilland Twin Otter DHC-6	2-engine turbo prop	Aerial surveys (NMFS) Atmospheric research (OAR) Coastal ecology remote sensing (NOS)	MacDill AFB, FL
(1) Dehavilland Twin	2-engine turbo prop	Aerial surveys (NMFS)	Monterey, CA

(1) King Air	2-engine turbo prop	Photogrammetry (NOS) Multi-spectral scanner (NOS) Airborne bathymetric LIDAR (NOS, NWS) Airborne topographic LIDAR (NOS, NWS) Post-storm damage assessment (NOS)	MacDill AFB, FL
(2) Rockwell Shrike Commander/AC500S	2-engine reciprocating	Snow survey (NWS) Fisheries observations (NMFS) Marine mammal observations (NMFS)	Minneapolis, MN MacDill AFB, FL
(1) Jet Prop Commander AC/695	2-engine turbo prop	Snow surveys (NWS) Fisheries observations (NMFS) Marine mammal observations (NMFS)	Minneapolis, MN

PROGRAM CHANGES FOR FY 2010:

No program changes are proposed for FY 2010.

TERMINATIONS FOR 2010:

The following programs or parts of programs have been terminated in FY 2010: Aircraft Services (\$1,509,000).

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**Appropriation: Procurement, Acquisition, and Construction
Subactivity: Fleet Replacement**

The objectives of this subactivity are to:

- Capture the costs of acquiring or improving vessels used by NOAA in carrying out its varied missions; and
- Allow NOAA to realize procurement efficiencies, management accountability, and to reflect the full cost of acquisition and/or improvement and upgrade of ships, ship systems, subsystems, and equipment.

Temporary Berthing: To address berthing issues within the NOAA fleet, funding will be provided for temporary berthing for vessels until a permanent berthing plan is established. Funding is used to cover berthing, utilities, security, and other expenses for vessels without a permanent homeport.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
Performance Goal: Mission Support Temporary Berthing	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Cost to Complete	Total Program Estimate
Temporary Berthing								
Change from FY 2010 Base	0	0	0	0	0	0		
Total Request	2,974	1,000	1,000	1,000	1,000	1,000	TBD	TBD

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

Fleet Capital Improvements and Technology Infusion (formerly Vessel Equipment and Technology Refreshment): To replace mission equipment on NOAA vessels to avoid obsolescence and maintain expertise in vital missions, funding will be provided to acquire multibeam sonar and to replace the IT system and science electronics on several NOAA vessels. Maintaining critical data acquisition and scientific systems is essential for meeting NOAA's missions.

OUTYEAR FUNDING ESTIMATES
(BA in Thousands)

Performance Goal: Mission Support Fleet Capital Improvements and Technology Infusion	FY2009 & Prior	FY2010	FY2011	FY2012	FY2013	FY2014	Cost to Complete	Total Program Estimate
Change from FY2010 Base		0	0	0	0	0	TBD	TBD
Total Request	1,999	1,000	1,000	1,000	1,000	1,000	TBD	TBD

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

PROGRAM CHANGES FOR FY 2010:

New Vessel Design (+0 FTE and \$3,000,000): NOAA requests an increase of \$3,000,000 to design a new shallow-draft Fisheries Survey Vessel (FSV 5).

Proposed Action

Consistent with NOAA's Ship Recapitalization Plan (SRP), NOAA plans to modernize its fleet. NOAA's plan addresses the oldest vessels and those at-sea requirements most at risk first.

The *Oscar Dyson* class (FSV1-FSV4) has a draft of 19 feet and 29 feet with the scientific center-board extended. The draft limits the ability to conduct living-resource and coral-habitat surveys in waters shallower than 42 feet, making it unsuitable to operate in the Gulf of Mexico. The funding for additional design work would leverage existing designs while developing a shallow draft vessel to meet these requirements. The design will inform the process of replacement for *Oregon II*.

Statement of Need and Economic Benefits

A shallow-draft FSV will be needed to replace *Oregon II* which is among the oldest ships in the NOAA Fleet at 44 years of service life by FY 2010. The shallow-draft FSV will operate in near-shore coastal waters as shallow as 30 feet and is intended to be the primary ship supporting Gulf of Mexico living-marine resource, habitat, and integrated-ecosystem surveys. The ship will be home ported at the NOAA Fisheries Service Pascagoula Laboratory. Currently, *Oregon II* is the primary vessel serving the Gulf of Mexico. The Southeast Fisheries Science Center (SEFSC) must survey near-shore waters to maintain decades-long time series. The *Oregon II* is unable to operate safely in 30-42 feet and this limits critical fishery-independent sampling in nursery and high-density areas responsible for the majority of fishery resources and the high-productivity of the Gulf of Mexico ecosystem. Surveys at-risk include a 35-year trawl, a 23-year plankton, a 21-year striped bass, and a 15-year shark and snapper long line survey. Data from these cruises are critical to assessments of the snapper-grouper complex, billfish, tunas, swordfish and sharks, and status of protected species, habitat, and ecosystem health. From FY 2000 to FY 2006, *Oregon II* lost an average of 19 days of operation each year due to engineering related problems. If a suitable replacement ship is not acquired, *Oregon II* will reach the end of its useful service life and will be removed from service in FY 2017. The ship's material condition and adherence to industry standards prevents the ship from being safely operating beyond this point.

The requested program change is consistent with the NOAA SRP. A comprehensive Net Present Value (NPV) analysis was conducted to determine the most cost effective alternative to meeting the requirement currently met by the *Oregon II*. In both cases, the construction of a new vessel was the least expensive alternative over the lifecycle of the vessel.

Implementing the SRP will provide NOAA scientists the capabilities required to meet their science and stewardship missions. Replacement of the older ships will improve the Living Marine Resource GPRAs by 19%-31% which will improve the ability to more accurately manage fisheries stocks, thereby enhancing the economic and social well-being of the Nation.

Schedule and Milestones

FY2010

- Issue RFP for design of shallow-draft FSV

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
Performance Goal: Mission Support New Vessel Design and Construction	FY2009 & Prior	FY2010	FY2011	FY2012	FY2013	FY2014	Estimate to Complete	Total Program Estimate
Change from FY2010 Base	0	3,000	0	0	0	0		
Total Request	78,000	3,000	0	0	0	0		3,000

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

Ship Acquisition, Conversion, & Maintenance (-\$6,100,000 and 0 FTE): NOAA requests a decrease of \$6,100,000 to reflect the completion of the major repair period of the NOAA Ship *Rainier*. Repairs are expected to be completed in FY 2010.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Estimate to Complete	Total Program Estimate
<i>Rainier</i> Major Repair Period								
Change from FY 2010 Base		(6,100)	0	0	0	0	0	
Total Request	6,100	0	0	0	0	0	0	6,100

*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process.

FSV Calibration (-\$1,000,000 and 0 FTE): NOAA requests a decrease of \$1,000,000 to reflect the completion of the calibration of *Bell M. Shimada* (FSV4).

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Estimate to Complete	Total Program Estimate
<i>Bell M. Shimada Calibration</i>								
Change from FY 2009 Base		(1,000)	0	0	0	0		
Total Request	1,000	0	0	0	0	0		1,000

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

Hydro Survey Launch Construction: (-\$2,400,000 and 0 FTE): NOAA requests a decrease of \$2,400,000 to reflect the completion of the construction of hydrographic survey launches equipped with multibeam sonar equipment. NOAA received funds in the FY 2009 American Recovery and Reinvestment Act to complete this project.

	FY 2009 & Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Estimate to Complete	Total Program Estimate
Hydro Survey Launch Construction								
Change from FY 2009 Base		(2,400)	0	0	0	0		
Total Request	12,139	0	0	0	0	0		12,139

*Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in thousands)

Activity: Program Support/Office of Marine and Aviation Operations
 Subactivity: Fleet Replacement

	Object Class	2010 Increase
25.2	Other services	3,000
99	Total Obligations	3,000

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars in thousands)

Activity: Program Support/Office of Marine and Aviation Operations
 Subactivity: Fleet Replacement

Object Class	2010 Decrease
25.1 Consulting services	(700)
25.2 Other services	(4,975)
26 Supplies and materials	(1,425)
31 Equipment	(2,400)
99 Total Obligations	(9,500)

Appropriation: Procurement, Acquisition, and Construction
Subactivity: Aircraft Replacement

The objectives of this subactivity are to:

- Capture the non-recurring costs of acquiring or improving aircraft used by NOAA in carrying out its varied missions.
- Allow NOAA to realize procurement efficiencies, management accountability and to reflect the full cost of acquisition and/or improvement of and upgrades of aircraft, aircraft systems, subsystems, and equipment.

PROGRAM CHANGES FOR FY2010:

No program changes are proposed for FY 2010.

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Appropriation: NOAA Corps Retirement Pay (Mandatory)
Subactivity: NOAA Corps Retirement Pay (Mandatory)

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 the legal mandate for rates to be paid is the same for all uniformed services, see 10 USC. Retired pay is an entitlement to NOAA Commissioned Corps officers under 33 USCA 3044, 33 USCA 3045, and 33 USCA 3046. Retired pay funds are transferred to the U.S. Coast Guard, which handles the payments each year as adjusted pursuant to the Department of Defense Authorization legislation. Healthcare funds for non-Medicare-eligible retirees, dependents, and annuitants are transferred to the U.S. Public Health Service, which administers the healthcare program.

Legal authority for retirement of NOAA Commissioned Corps officers is contained in 33 USCA 3044. Retired officers of the NOAA Commissioned Corps receive retirement benefits that are administered by the Commissioned Personnel Center within the Office of Marine and Aviation Operations.

Significant Adjustments to Base (ATBs):

NOAA requests an increase of \$1,840,000 for a total of \$26,112,000 to fund an expected increase in retired pay due to inflation and additional officers retiring. It will also be used to fund an expected increase in the cost of health benefits for non-Medicare eligible retirees, dependants, and annuitants.

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Appropriation: Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
Subactivity: Medicare Eligible Retiree Health Fund Contribution - NOAA Corps

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 health care benefits of present, active-duty NOAA officers and their dependents and annuitants.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
PROGRAM and PERFORMANCE: DIRECT OBLIGATIONS
 (Dollars in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2009 Enacted	0	0	1,674	1,674
plus: 2010 Adjustments to Base	0	0	260	260
FY 2010 Base	0	0	1,934	1,934
plus: 2010 Program Changes	0	0	0	0
FY 2010 Estimate	0	0	1,934	1,934

Comparison by activity/subactivity		FY 2008		FY 2009		FY 2010		FY 2010		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Medicare Eligible Retiree Health Fund Contribution - NOAA Corps	Pos/BA	0	1,802	0	1,674	0	1,934	0	1,934	0	0
	FTE/OBL	0	1,802	0	1,674	0	1,934	0	1,934	0	0
Total: Medicare Eligible Retiree Health Fund Contribution - NOAA Corps	Pos/BA	0	1,802	0	1,674	0	1,934	0	1,934	0	0
	FTE/OBL	0	1,802	0	1,674	0	1,934	0	1,934	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollars in thousands)

	FY 2008		FY 2009		FY 2010		FY 2010		Increase/ Decrease	
	Actuals		Enacted		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	1,802	0	1,674	0	1,934	0	1,934	0	0
Total Obligations	0	1,802	0	1,674	0	1,934	0	1,934	0	0
Adjustments to Obligations:										-
Total Budget Authority	0	1,802	0	1,674	0	1,934	0	1,934	0	0
Financing from Transfers and Other:										-
Net Appropriation	0	1,802	0	1,674	0	1,934	0	1,934	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF FINANCING
(Dollars in thousands)

	2008 Actuals	2009 Enacted	2010 Base	2010 Estimate	Increase/ Decrease/ over 2010 Base
Total Obligations	1,802	1,674	1,934	1,934	0
Offsetting collections from:					
Federal funds					
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
Unobligated balance, start of year	0	0	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	0	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	1,802	1,674	1,934	1,934	0
Financing:					
Previously unavailable unobligated balances					0
Transfer to other accounts					0
Appropriation	1,802	1,674	1,934	1,934	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF FINANCING
 (Dollars in thousands)

	2008	2009	2010	2010	Increase/ (Decrease) over 2010 Base
	Actuals	Enacted	Base	Request	Base
Object Class					
Other purchases of goods and services from Gov't accounts	1,802	1,674	1,934	1,934	0
Total Obligations	1,802	1,674	1,934	1,934	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	0	0	0	0	0
Plus unobligated balance, EOY	0	0	0	0	0
Offsetting collections, Mandatory	0	0	0	0	0
Less: Previously Unavail. Unoblig. Bal.	0	0	0	0	0
Total Budget Authority Mandatory	1,802	1,674	1,934	1,934	0
Personnel Data					
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Full-Time equivalent Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollars in thousands)

	2008	2009	2010	2010	Increase/ (Decrease) over 2010 Base
Object Class	Actuals	Enacted	Base	Request	Base
Other purchases og goods and services from Gov't accounts	1,802	1,674	1,934	1,934	0
Total Obligations	1,802	1,674	1,934	1,934	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	0	0	0	0	0
Plus unobligated balance, EOY	0	0	0	0	0
Offsetting collections, Mandatory	0	0	0	0	0
Less: Previously Unavail. Unoblig. Bal.	0	0	0	0	0
Total Budget Authority Mandatory	1,802	1,674	1,934	1,934	0
 Personnel Data					
Full-Time equivalent					
Employment:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0
Authorized Positions:					
Full-time permanent	0	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	0	0	0	0	0

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