

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



**BUDGET
ESTIMATES
FISCAL YEAR 2011**

CONGRESSIONAL SUBMISSION

PRIVILEGED

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**Budget Estimates, Fiscal Year 2011
Congressional Submission**

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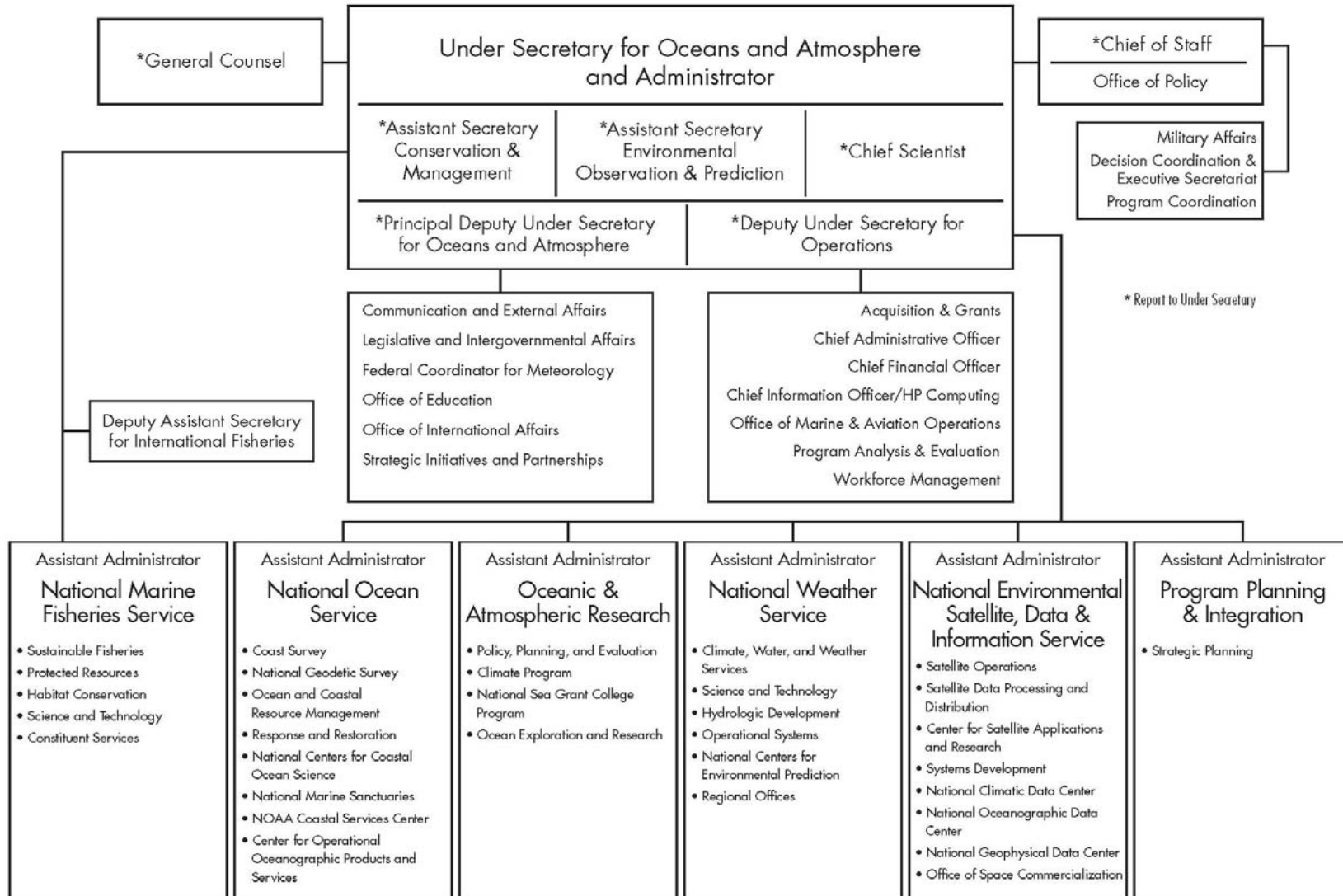
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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

2011 Annual Performance Plan Formulation

FY 2011 ANNUAL PERFORMANCE PLAN (APP)
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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Section 1 Mission Statement

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 Goals

DOC Strategic Goal 3: Promote environmental stewardship

One of the roles the Department of Commerce plays in advancing the Nation in the 21st century's global economy is 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 services, 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 by: Drought 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 poleward shifts in distribution of some marine populations, and shifts in the commercially important species; and 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 in the U.S. 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, and on land and 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 Priorities and Management Challenges

EXECUTIVE SUMMARY

Introduction

For Fiscal Year (FY) 2011, the National Oceanic and Atmospheric Administration (NOAA) requests a total appropriation of \$5,554,458,000 an increase of \$806,105,000, or 17 percent over the Consolidated Appropriations Act, 2010. 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 Adjustments to Base (ATBs) are \$54,777,000. 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 2011 base level will fund the estimated FY 2011 Federal pay raise of 1.4 percent and annualize the FY 2010 pay raise of 2.4 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 (\$46M)

There is a long history of Americans relying on their coastal resources, and now this relationship is in danger. Coastal development and human uses of our coasts are occurring without comprehensive planning and without an understanding of the cumulative effects of our actions. NOAA must ensure this relationship remains healthy now and into the future. Toward this end, the FY 2011 budget proposal includes \$20 million to support regional ocean partnership grants and an additional \$10 million to support the acquisition and protection of coastal lands. An additional \$9.5 million is provided for the development of sensors to support coastal ecosystem science and management. This includes sensors to monitor constituents of ocean acidification, harmful algal blooms, and issues related to Oceans and Human Health.

An important aspect of coastal resource management is the ability to manage the use of those resources geographically. On June 12, 2009, President Obama ordered Federal ocean agencies to “...develop, with appropriate public input, a recommended framework for effective coastal and marine spatial planning. This framework should be a comprehensive, integrated, ecosystem-based approach that addresses conservation, economic activity, user conflict, and sustainable use of ocean, coastal, and Great Lakes resources...” NOAA has an important role in the development of marine spatial planning from three perspectives. First, NOAA's science and monitoring provides key mapping, ecological information, and human use patterns information (e.g., fishing, shipping, marine recreation) necessary to identify appropriate uses for marine landscapes. Second, NOAA has key legislative mandates which specifically allow the management of marine locations and the development of marine protected areas for conservation purposes. Third, through a variety of mechanisms, NOAA is the appropriate agency to engage states, other federal agencies, and regional councils and commissions in planning and

implementation. The FY 2011 budget submission proposes a comprehensive \$6.77 million program that will: identify key ocean habitats and human use patterns and conflicts, develop appropriate spatial planning tools that allow the identification and allocation of marine areas to specific uses, and allow NOAA to combine its various resources to engage in interagency and regional coordination in marine spatial planning efforts. The request also includes \$2 million to support the interagency development of the Gulf of Mexico Geospatial Framework.

National Marine Fisheries Service (\$80M)

NOAA is faced with the challenge of ending overfishing and improving fisheries management. In many U.S. fisheries, traditional fisheries management has allowed too many fishermen to harvest too many fish. This has resulted in dangerously low fish populations and threatens the viability of the fishing industry and fishing-dependent communities. The time has come for a paradigm shift in how we manage our fisheries resources. The Nation needs a fishery management system that will sustain fishing economies and incentivize stewardship and conservation.

The NOAA FY 2011 budget submission seeks an increase of \$80 million to implement transformational changes in how fisheries and ecosystems are managed by the Department of Commerce. Under the reauthorized Magnuson Stevens Fishery Conservation and Management Act of 2006, NOAA must end all overfishing in all domestic fisheries by 2011. Simply eliminating overfishing, however, is not and should not be the primary goal of the Nation's fisheries policy. The contribution of the U.S. fishing industry to coastal jobs and the Nation's economy is paramount. Through this budget, NOAA seeks to transform the way fisheries are managed, relying, where appropriate, on systems of catch shares or individual fishing privilege programs, which through competitive market forces allow much more flexibility in business arrangements and a better track record for conservation than do traditional fishery control systems. Currently, about 20 percent of the Nation's fisheries value is managed under 14 such programs, including halibut, sablefish and pollock on the West Coast and Alaska, surf clam in the Mid-Atlantic, and red snapper in the Gulf of Mexico. NOAA proposes an additional \$36.6 million to implement catch share programs for New England and West Coast groundfish, Gulf of Mexico grouper and tilefish, and to continue the expansion of catch shares throughout the United States. Based on the experiences of previously-implemented programs, these programs will help achieve both the biological objectives of rebuilt and sustainable fisheries stocks, while adding significant jobs and profitability to the U.S. fisheries sectors, thereby making them more competitive in markets where imports currently account for more than 80 percent of domestic seafood consumption.

The budget also seeks to close the gap in conservation of protected species, including salmon, marine mammals, and sea turtles; and protect and restore key habitats upon which fish, protected species, and ecosystems critically depend. The FY 2011 budget proposes an additional \$3 million for Protected Resources consultations. Also included is \$2.4 million to address gaps in aquaculture research. The budget includes an additional \$20 million to address listed and threatened species through the Species Recovery Grant Program and Community Based Restoration projects that benefit listed and threatened species. An increase of \$15 million is requested for the Pacific Coastal Salmon Recovery Fund.

Office of Oceanic and Atmospheric Research (\$56M)

Climate change is apparent now across our Nation. Trends observed in recent decades include rising temperatures, increasing heavy downpours, rising sea levels, longer growing seasons, reductions in snow and ice, and changes in the amounts and timing of river flows. These trends are projected to continue, with larger changes resulting from higher amounts of heat-trapping gas emissions, and smaller changes from lower amounts of these emissions. The observed changes in climate are already causing a wide range of impacts, and these impacts are expected to grow. Responses to climate change fall into two major categories. Mitigation focuses on reducing emissions of heat-trapping gases or increasing their uptake to reduce the amount and speed of climate change. Adaptation refers to changes made to better respond to present or future climate conditions in order to reduce harm or take advantage of

opportunities. Both are necessary elements of a comprehensive response strategy.

NOAA's FY 2011 request includes investments for the core climate services needed to enable the Nation to effectively address the impacts of climate change. Understanding and characterizing the Nation's vulnerability to climate change and its adaptive capacity to reduce that vulnerability is not only essential for informed, near-term decisions regarding government actions to promote adaptation to committed warming (i.e., unavoidable warming that will occur due to historic emissions of greenhouse gases), but is also essential input to decisions regarding how aggressively to reduce greenhouse emissions. Regional, sector-based (e.g., ecosystem services, water resources, transportation, etc.) and national assessments will meet an increasing range of demands for climate change decision support across the Nation. Building on the past two decades of experience, NOAA proposes \$10M to provide the leadership, expertise, and capacity necessary to support a collaborative, participatory assessment process that engages scientists, government officials, businesses, and communities in the exploration of climate impacts and effective mitigation and adaptation. This program of shared learning and joint problem solving will serve as the foundation of NOAA's climate services. This will include an ongoing process of vulnerability assessments to help the Nation's governments, businesses, and communities to understand and reduce their current and future vulnerability to climate change.

Underlying the assessments and regional adaptation networks are the research, observations, and modeling efforts where NOAA has established experience and international leadership. The request includes resources for fundamental observations and modeling capabilities to: track the flux of carbon to and from the atmosphere (\$8.0 million), measure key variables in the Arctic (\$3.0 million), the Global Ocean Observing System (\$4.8 million), and earth system modeling (\$7.0 million). An additional \$1.5 million will enable the development of climate services portal. The totality of these investments will provide NOAA with the initial capability to deliver climate services to the Nation.

The request also includes an additional \$6.1 million to provide new technologies and ecosystem monitoring systems, better models, and a dedicated research program for ocean acidification. This research and monitoring will allow scientists to better understand and mitigate the impacts of ocean acidification on ecosystems, fisheries, and other marine resources.

National Weather Service (\$28M)

Concern for public safety drives NOAA to continue to improve the timeliness and accuracy of warnings for all weather-related hazards. In addition, more and more sectors of the Nation's economy recognize the impacts of weather and water on their activities, and are becoming more sophisticated at using weather and water information to improve commerce. NOAA is committed to enhancing timely and accurate weather and climate forecasts through better observations, improved data assimilation, and collaboration with the research community.

The FY 2011 budget includes an additional \$15.1 million for Aviation Weather. This investment will allow NOAA to make critical investments such as the Weather Information Database to meet the 2013 Initial Operating Capability for the Next Generation Air Transportation System. The FY 2011 request provides an additional \$3.2 million to continue deployment of Dual Polarization for NEXRAD and \$1.6 million to complete the replacement of the NOAA Weather Radio consoles. This investment will lead to improvements in radar coverage and severe weather detection. An increase of \$2.0 million is requested for information technology security improvements for NOAA's Space Weather System.

National Environmental Satellite, Data, and Information Service (\$848M)

One of the greatest challenges facing NOAA today is ensuring continuity of satellite operations to provide unbroken coverage of weather forecasts and climate measurements into the future. The GOES-R satellite acquisition program has been a successful partnership effort between NOAA and NASA to replace and update the existing GOES series of satellites. The first satellite in this program, GOES-R, is expected to launch in 2015. The new satellites in this series will carry improved environmental instrument suites providing more timely and accurate weather forecasts and improved observation of meteorological events that directly affect public safety, protection of property, and ultimately, economic health and development.

To address the concerns about continuity of climate data from satellites, NOAA is proposing to increase its investment by \$49 million in climate sensors and \$30 million to provide support for the Jason-3 satellite altimetry mission. This will provide data for incorporation into climate models. To maintain satellite continuity for weather forecasting and climate monitoring, an increase of \$679 million is planned for the Joint Polar Satellite System (JPSS), as well as \$3.1 million to address IT security for NOAA's satellite systems.

The FY 2011 request includes new funding for the Constellation Observing System for Meteorology Ionosphere and Climate-2 (COSMIC-2) program (\$3.7 million) and Deep Space Climate Observatory (DSCOVR) (\$9.5 million). The COSMIC-2 constellation uses Global Positioning System Radio Occultation to collect real-time, global atmospheric temperature and moisture data for improving weather forecasting. The acquisition of the DSCOVR will provide solar wind data and a Coronal Mass Ejection (CME) imager for continuing geomagnetic storm warnings. These warnings support key industries such as transportation systems, power grids, telecommunications, and global positioning systems (GPS).

The request also includes support for NESDIS's climate activities. Increases are proposed to compile climate data records from legacy and new satellite systems removing non-climate related observing biases (\$11.0 million) and to improve data center operations to ensure users get data in the format they need (\$2.0 million).

Program Support/Office of Marine and Aviation Operations (\$54M)

The FY 2011 budget continues the recapitalization of the NOAA's fleet, data acquisition platforms critical to meeting fisheries management mandates. An additional \$4.4 million is requested to complete the construction of FSV 6 and begin design of FSV 5. An increase of \$7.4 million is requested to extend the life of *Miller Freeman* and \$6.2 million to address maintenance of NOAA's fleet.

The FY 2011 request includes \$14 million in increases for facilities construction including the completion of the IT infrastructure, outfitting and occupancy of the Main Facility under construction at the new Pacific Regional Center. An additional \$5 million is requested for Facilities maintenance and repair.

An increase of \$8.7 million is provided to address NOAA-wide information technology, including Enterprise IT Security (\$4.7 million) and NOAAnet Single Enterprise Network (\$4.0 million).

The request also includes funding to address gaps in NOAA's acquisition and grants programs. This includes additional resources for acquisition management (\$3.5 million), support for the acquisition workforce (\$0.9 million), and a Department-wide Acquisition Internship Program (\$1.1 million).

As part of developing the FY 2011 Budget and Annual Performance Plan, NOAA has identified the following high priority performance goal, in support of Administration and Departmental priorities, that will be a particular focus for the remainder of FY 2010 and for FY 2011:

- Coastal and Ocean Resource Management: Ensure environmentally and economically resilient oceans, coasts, and Great Lakes communities, with healthy and productive ecosystems.
 - Ensure that all 46 federal fishery management plans have required catch limits to end overfishing in place by the end of FY 2011.
 - Reduce the number of stocks subject to overfishing to zero by the end of 2011.
 - Improve the Fish Stock Sustainability Index (FSSI) to 586 by the end of 2011. The FSSI does not score a stock as "not subject to overfishing" until such status has been confirmed through subsequent survey and analysis.

Section 4 Targets and Performance Summary

Objective 3.1 - Protect, Restore, and Manage the Use of Coastal and Ocean Resources

Measure 1a - Fish Stock Sustainability Index (FSSI)

Measure Description	The FSSI tracks the rebuilding and maintaining of fish stocks at sustainable levels, along with critical components of NOAA's efforts to achieve outcomes, 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. For more information: http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm .					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	501	524	535	565.5	580	586
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds	501	524	535	565.5	580	586
Comments on Changes to Targets	Changes to targets reflect FY 2009 results and updated assessment schedule.					
Impact of Recovery Act Funds	Recovery Act funds will not impact this measure.					
Relevant Program Changes	Program Changes?	Title of Program Change				Exhibit 13 Page Number
	NO					
Validation & Verification Information	Data Source	Reporting 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	Results can only be reported when the SIS is updated with new information	

				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	from the field	
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Section 4 Targets and Performance Summary

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

Measure 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 or listed under ESA.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	39.0% (181/464)	40.8% (192/471)	40.3% (190/472)	43.9% (210/478)	34.3% (207/603)	35.3% (213/603)
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds						
Comments on Changes to Targets	Changes to targets reflect FY 2009 results and an increase of 125 protected living marine resource stocks, raising the total number of stocks from 478 to 603. The FY 2009 actual has been updated to 43.9% from 43.7% reported in the FY 2009 PAR. Actuals for FY 2006-2008 have been updated following a review of past assessments. Preventative, Corrective, and Deferred Maintenance will provide performance improvements in outyears.					
Impact of Recovery Act Funds	Recovery Act funds will have no impact on this measure.					
Relevant Program Changes	Program Changes?	Title of Program Change				Exhibit 13 Page Number
	Yes	Preventative, Corrective, and Deferred Maintenance				537
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	Stock assessment reports and ESA status reviews	Quarterly	NMFS Stock Information System (SIS) and	Science Advisor and reported quarterly in a	Results can only be reported when the SIS is updated with	A statement of work to develop the existing

			Excel spreadsheet maintained by NMFS Office of Protected Resources	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	new information from the field	requirements table into a working SIS module to house protected species data has been drafted and is under review
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Section 4 Targets and Performance Summary

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

Measure 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. 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, while for others it is trying to increase their numbers.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	26	26	24	25	25	25
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds	26	26	24	25	25	25
Comments on Changes to Targets	Changes to targets reflect FY 2009 results.					
Impact of Recovery Act Funds	Recovery Act funds will have no impact on this measure.					
Relevant Program Changes	Program Changes?	Titles of Program Changes				Exhibit 13 Page Number
	Yes	1) Protected Species Research & Management, 2) Species Recovery Grants, 3) Pacific Salmon , 4) Fisheries Habitat Restoration				165,166,168,199
Validation & Verification Information	Data Source	Reporting 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	MMPA stock assessment reports are updated only once a year and ESA status reviews	The existing requirements table is being developed into a working SIS module to house

				<p>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</p>	<p>are updated only every one to five years depending on priority and fund availability</p>	<p>protected species data using technical assistance from NESDIS-NODC.</p>
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Section 4 Targets and Performance Summary

Objective 3.1 - Protect, Restore, and Manage the Use of Coastal and Ocean Resources

Measure 1d: - Number of Habitat Acres Restored

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	7,598	5,974	11,254	9,232	7,000	6,000
Impact of Recovery Funds	N/A	N/A	N/A	N/A	1,875	4,888
Adjusted Targets reflecting Original and Recovery Act Funds	7,598	5,974	11,254	9,232	8,875	10,888
Comments on Changes to Targets						
Impact of Recovery Act Funds	Additional acres targeted for restoration with Recovery Act funds are shown above.					
Relevant Program Changes	Program Changes?	Title of Program Change				Exhibit 13 Page Number
	YES	Fisheries Habitat Restoration				199
Validation & Verification Information	Data Source	Reporting 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	Data is primarily provided by grantees	

				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.		
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Section 4 Targets and Performance Summary

Objective 3.1 - Protect, Restore, and Manage the Use of Coastal and Ocean Resources

Measure 1e - Annual number of Coastal, Marine, and Great Lakes Ecological Characterizations that Meet Management Needs

Measure 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).					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	62	27	45	50	50	50
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds	62	27	45	50	50	50
Comments on Changes to Targets	Integrated Ecosystem Assessments will provide performance improvements in outyears.					
Impact of Recovery Act Funds	N/A					
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
	YES	Fisheries Oceanography				183
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	Characterizations focus on ecosystem	Annual	Metadata from all contributing	Results are reported quarterly	NOAA focuses on protected areas or	

	<p>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>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 email workflow approval system).</p>	<p>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>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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Section 4 Targets and Performance Summary

Objective 3.1 - Protect, Restore, and Manage the Use of Coastal and Ocean Resources

Measure 1f - Cumulative number of coastal, marine and Great Lakes issue-based forecasting capabilities developed and used for management

Measure 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).					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	31	35	38	41	42	45
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds	31	35	38	41	42	44
Comments on Changes to Targets	<p>The change to the FY 2010 target reflects the addition of an additional forecast due to an increase in FY 10 appropriations for ecosystem research. In the FY 2010 Conference Mark, the Marine Aquaculture and the Aquatic Invasive Species Programs moved under the Sea Grant Program. Sea Grant then received a base increase of approximately \$1.2M. This base increase supports an additional forecast in FY 2010. (Appropriations for ecosystem research were not provided until after the submission of the FY 2010 APP. Therefore, the additional forecast was not reflected at that time.)</p> <p>Inclusion of FY 2010 HAB Forecast increase would have increased FY 2010 target to 43. FY 2011 Target adjusted to include this increase.</p>					
Impact of Recovery Act Funds	N/A					
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number

-	NO				-	
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	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)]	Annual	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).	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.	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.	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.

Section 4 Targets and Performance Summary

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

Measure 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).					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	N/A	85%	86%	86%	86%	87%
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds						
Comments on Changes to Targets	Targets will not change for FY 2010 but are increased to 87% in FY 2011 to reflect increased performance due to NOAA’s investment in marine spatial planning and increases to Sea Grant for aquaculture and ORPP Extreme Events, which will increase performance of the Sea Grant approach to integrate research with research delivery (via Sea Grant Extension and Education).					
Impact of Recovery Act Funds	N/A					
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
	Yes	Coastal and Marine Spatial Planning				99
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	NOAA's Line Offices (OAR and NOS) executing the NOAA programs	Annual	Each Line Office has an internal secure system for tracking the data	Use values will be reported by program offices as X number of tools,	NOAA needs to ensure tracking systems are secure and data is	A secure central NOAA repository for matrixed measures is under

	<p>through the Strategic Plan goal/program structure.</p>		<p>contributions.</p>	<p>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.</p>	<p>validated and verified.</p>	<p>development for improved management and tracking purposes.</p>
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Section 4 Targets and Performance Summary

Objective 3.1 - Protect, Restore, and Manage the Use of Coastal and Ocean Resources

Measure 1h - Annual Number of Coastal, Marine, and Great Lakes Habitat Acres Acquired or Designated for Long-term Protection.

Measure 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 Office of National Marine Sanctuaries Program (ONMS) and National Estuarine Research Reserve System (NERRS).					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	86 million	3,020	6,219	2,246 acres verified for CELCP+ add'l unverified acreage for CELCP	2,000	6,000 for CELCP+GLRI; 15,000for NERRS
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds		3,020	6,219	2,246 acres verified for CELCP + add'l unverified acreage for CELCP	2,000	6,000 for CELCP+GLRI 15,000for NERRS
Comments on Changes to Targets						
Impact of Recovery Act	N/A					

Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO	-				
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	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. The APP targets show acres in the year the acquisition is completed, while the budget narrative	Annually by each Program Manager	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 long-term	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.	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. 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.	Since this measure does not capture all NOAA's activities to protect habitat, NOAA eventually plans to expand the measure in order to capture the CZM program contributions. NOAA is looking at the feasibility of further harmonizing methodologies used among contributing program components.

	<p>shows the acres as the # that will be acquired in any future year with that year's funding. For example, they estimate that the FY 2011 \$25M will acquire ~3,300, but the actual acquisition could occur in FY 2011, 12 or 13, while the APP FY 2011 target represents projects projected to complete that year and could include projects funded in FY 08 - FY 10 (that are</p>		<p>performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow approval system).</p>			
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	just coming to a close).					
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Section 4 Targets and Performance Summary

Objective 3.2 - Advance understanding of climate variability and change

Measure 2a: U.S. Temperature Forecasts (Cumulative Skill Score Computed Over the Regions Where Predictions are Made)

Measure Description	<p>This is a measure of skill of NOAA’s operational seasonal temperature forecasts where a higher numerical value for the measure implies an ability to better predict surface temperature variability over the U.S. Continued improvements in NOAA’s ability to predict climate variability are reflected in an increasing positive value for this measure. 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>					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	25	29	26	27.5	24	21
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	25	29	26	27.5	24	21
Comments on Changes to Targets	<p>This GPR target is based on a 4-year running mean of the annual score. Some climate variability events such as El Nino and La Nina affect this long-term average by skewing it up or down over the course of the four years. To account for advancements in the measurement of this GPR, the out-year targets (FY12, and forward) have been adjusted up.</p> <p>These forecasts are verified using a 48 month running mean of prediction skill scores computed for seasonal outlooks for each 3-month seasonal mean (e.g., January-February-March mean; February-March-April mean; and so on). The addition of an objective consolidation tool in 2004 has increased scores toward levels previously reached during the strong La Nina of 1999-2000. The GPR score is computed via an automated grid-based verification procedure. This technique verifies a gridded objective analysis of the forecast field against a gridded analysis of the observed verification field. This process treats the entire area of the lower 48 states objectively.</p>					
Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page

						Number
-	-					-
Validation & Verification Information	Data Source	Reporting 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

Section 4 Targets and Performance Summary

Objective 3.2 - Advance understanding of climate variability and change

Measure 2b: Reduce uncertainty of the North American (NA) carbon sink to better understand the contribution of human activities toward increasing atmospheric CO₂ and methane

Measure Description	NOAA needs to assess and quantify the source of carbon variability if it is to provide scientific guidance to policymakers who are concerned with managing emissions of carbon dioxide. This GPRA measure demonstrates the scientifically accepted level of confidence in carbon measurement that is needed to accurately evaluate levels of carbon emissions in North America. The uptake of atmospheric carbon (mainly as carbon dioxide) by the biosphere across North America is of the order of one billion tons (one petagram) per year. That is about 1/2 of the current emissions from burning fossil fuels on the continent. In order to be able to evaluate annual changes in this ecosystem uptake, we must improve our carbon measurements to a level of uncertainty that is about 1/3 of the total, or 300 million tons per year. Obtaining this minimum level of uncertainty requires the expanded observation network and improved modeling effort proposed here. The basis (flux estimates) for the measure is publicly available on the web (http://carbontracker.noaa.gov).					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	400 M tons Carbon/Yr	400 M tons Carbon/Yr	400 M tons Carbon/Yr	400 M tons Carbon/Yr	400 M tons Carbon/Yr	380 M tons Carbon/Yr
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds						
Comments on Changes to Targets	Original funds have decreased, therefore the ability to improve the measurement of Carbon Uptake decreases in FY11. Proposed FY11 funding will allow the installation of carbon monitoring sites and result in an improved target in FY11 and outyears.					
Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes?	Title of Program Change				Exhibit 13 Page Number
	Yes	Carbon Observing & Analysis System				333
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	NOAA's Global	Annual	NOAA's Earth	Quality assurance	Number of tall	None

	Carbon Cycle Research Program		System Research Laboratory	and calibration against known standards performed by NOAA	tower/aircraft sites and our ability to incorporate these data into advanced carbon models	
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Section 4 Targets and Performance Summary

Objective 3.2 - Advance understanding of climate variability and change

Measure 2c - Error in Global Measurement of Sea Surface Temperature

Measure Description	<p>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.</p>					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	0.53 C	0.53 C	0.50 C	0.50	0.53	0.50
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds				0.5	0.53	0.50
Comments on Changes to Targets	Preventative, Corrective, and Deferred Maintenance will provide outyear performance improvements.					
Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	Yes	Preventative, Corrective, and Deferred Maintenance				537
Validation & Verification Information	Data Source	Reporting 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	Number of deployed observing platforms in the global ocean	None

				on uncertainty in sea surface temperature measurements		
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Section 4 Targets and Performance Summary

Objective 3.2 - Advance understanding of climate variability and change

Measure 2d - Number of regionally focused climate impacts and adaptation studies communicated to decision makers

Measure Description	<p>Title changed to: “Number of regionally focused climate impacts and adaptation studies communicated to decision makers” to better represent what is actually being measured. Original version read: “Improve society’s ability to plan and respond to climate variability and change using NOAA climate products and information” which is a type of goal statement rather than a performance measure.</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. Global Change Research Program (GCRP) and the Intergovernmental Panel on Climate Change (IPCC).</p>					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	33	32	37	37	41	41
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	33	32	37	37	41	41
Comments on Changes to Targets	Assessment Services will provide performance improvements in outyears					
Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes?	Title of Program Change				Exhibit 13 Page Number
	Yes	Assessment Services				330
Validation & Verification Information	Data Source	Reporting 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	Challenge of systematically	None

				<p>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.</p>	<p>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.</p>	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3a - Percentage of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards (%/yr.)

Measure Description	This new measure replaces "Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts" to accurately measure a range of contributions to address coastal community risk, vulnerability, and resilience to coastal hazards. This replacement measure surpasses its predecessor by broadly measuring 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 is contributing significantly to NOAA's efforts to improve integration of its coastal programs, and expanding beyond the three coastal integration programs providing inputs to the measure (CSC, OCRM, and Sea Grant).					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	N/A	N/A	N/A	32%	Pilot	36%
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds						
Comments on Changes to Targets						
Impact of Recovery Act Funds	N/A					
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	Yes	Preparing Coastal Communities for Climate Hazards				101
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	National Ocean Service (NOS) Coastal Services Center (CSC), and Office of Ocean	Annually	NOS and OAR will collect information, conduct assessments, and store data.	A new Coastal Resilience Report Card assembles and tracks data to create a cohesive	NOAA established an accurate performance baseline in FY 2010 for the	In FY2009, NOAA used this pilot measure to track performance of a relatively small

	<p>and Coastal Resource Management (OCRM) Oceanic and Atmospheric Research (OAR) National Sea Grant College Program (NSGP).</p>			<p>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. 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 population impacted by successful resilience efforts.</p>	<p>measure's permanent data collection and validation and verification processes. An advisory group was established to provide customer input on collection and validation processes to encourage effective use of existing data sources and survey mechanisms where possible and to avoid burdensome reporting. NOAA's social science expertise means the potential use of proxy data sources, customer survey feedback, and statistical sampling techniques are scientifically grounded and statistically defensible. Based on results from NOAA supported resilience projects and activities, it is estimated that 8 of the 35 coastal states and</p>	<p>number of targeted activities. NOAA worked 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, pilot data collection and verification requirements, and develop a verifiable long-term process. Changes made during the FY 2009 were incorporated into NOAA's Annual Performance Plan as part of the FY 2010 President's Budget.</p>
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				<p>The 20% improvement target was an appropriately ambitious goal. 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>territories meet the preliminary 20% resilience improvement target. This baseline estimate was adjusted for FY 2010 to account for: 1) revisions to the resilience improvement calculation and/or 2) an assessment of results in coastal states.</p>	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3b - Severe Weather Warnings Tornadoes - Storm Based Lead Time (Minutes), Accuracy (%), False Alarm Rate (FAR, %)

Measure Description	<p>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>					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	13	13	14	12	12	12
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	13	13	14	12	12	12
Comments on Changes to Targets	<p>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>FY08 numbers were exceptional due to favorable environments (i.e., FY08 was ranked 2nd in the number of tornadoes). In comparison, this year will rank in the bottom 25% for the number of tornadoes in a year. The FY08 Performance is not sustainable and is therefore not reflected in outyear targets. The incremental improvements are too small to be reflected in whole numbers. If we were permitted to provide improvements using integers, they would be noticeable.</p>					
Impact of Recovery Act Funds	<p>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 Changes	Program	Title of Program Change				Exhibit 13 Page

	Changes?					Number
	Yes	NOAA Profiler Conversion				422
Validation & Verification Information	Data Source	Reporting 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)	Verification is the process of comparing the predicted 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.	The number of tornado events each fiscal year generally varies from 1,000 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	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.

					activity occurs April through June each year. A secondary peak activity time period is October and November in the southeastern United States.	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3c - Severe Weather Warnings Tornadoes (Storm Based) - Accur (%)

Measure Description	<p>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>					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	75	78	72	66	70	70
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	75	78	72	66	70	70
Comments on Changes to Targets	<p>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>FY08 numbers were exceptional due to favorable environments (i.e., FY08 was ranked 2nd in the number of tornadoes). In comparison, this year will rank in the bottom 25% for the number of tornadoes in a year. The FY08 Performance is not sustainable and is therefore not reflected in outyear targets. The incremental improvements are too small to be reflected in whole numbers. If we were permitted to provide improvements using integers, they would be noticeable.</p>					
Impact of Recovery Act Funds	<p>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,</p>					

	including snow storms and icing conditions for air and ground transportation.					
Relevant Program Changes	Program Changes?	Title of Program Change				Exhibit 13 Page Number
	YES	NOAA Profiler Conversion				422
Validation & Verification Information	Data Source	Reporting 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)	Verification is the process of comparing the predicted 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.	The number of tornado events each fiscal year generally varies from 1,000 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	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>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.</p>	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3d - Severe Weather Warnings Tornadoes (Storm Based) - False Alarm Rate (FAR, %)

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	79	76	75	77	72	72
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	79	76	75	77	72	72
Comments on Changes to Targets	<p>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>FY08 numbers were exceptional due to favorable environments (i.e., FY08 was ranked 2nd in the number of tornadoes). In comparison, this year will rank in the bottom 25% for the number of tornadoes in a year. The FY08 Performance is not sustainable and is therefore not reflected in outyear targets. The incremental improvements are too small to be reflected in whole numbers. If we were permitted to provide improvements using integers, they would be noticeable.</p>					
Impact of Recovery Act Funds	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 estimate sand severe weather detection,					

	including snow storms and icing conditions for air and ground transportation.					
Relevant Program Changes	Program Changes?	Title of Program Change				Exhibit 13 Page Number
	YES	NOAA Weather Profiler Conversion				422
Validation & Verification Information	Data Source	Reporting 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)	Verification is the process of comparing the predicted 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.	The number of tornado events each fiscal year generally varies from 1,000 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	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.

					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.	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3e - Severe Weather Warnings for Flash Floods - Lead Time (Min)

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	49	60	77	73	38	38
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	49	60	77	73	38	38
Comments on Changes to Targets	<p>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 precise 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.</p> <p>A primary impetus of this service enhancement was to reduce the area warned to provide more specific information to emergency responders and the public. By reducing the areal coverage of our flash flood warnings, the emergency management community can more effectively target mitigation and response efforts.</p> <p>A new verification methodology was developed to better utilize the more specific information in these new warning products. This new storm-based verification methodology is more stringent and results in lower metric scores for lead time and accuracy for flash floods. Flash flood performance data using this new verification methodology was computed beginning in FY08.</p> <p>Based on the single year of FY08 performance data, OCWWS/HSD completed an analysis comparing lead time and accuracy scores using the existing county-based verification with scores computed using the new storm-based methods. The differences in the two verification methods over that one year time period were applied to the existing GPRA accuracy and lead time goals (90% and 49 minutes) resulting in the new GPRA goals for FY10 (72% and 38 minutes).</p>					

	Recognizing the limited amount of comparable performance data, it may be necessary to adjust the flash flood GPRA goals as we analyze flash flood performance and relevant trends using the new storm-based verification methods.					
Impact of Recovery Act Funds	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 estimate sand severe weather detection, including snow storms and icing conditions for air and ground transportation.					
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO				-	
Validation & Verification Information	Data Source	Reporting 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)	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. Typically, 1st and 2nd Quarters have higher lead times, while the 3rd and 4th Quarters, during the convective season, bring the annual average down. Spring/summer	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. 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	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.

				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.	and 4th quarters.	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3f - Severe Weather Warnings for Flash Floods - Accuracy (%)

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	89	92	91	91	72	72
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	89	92	91	91	72	72
Comments on Changes to Targets	<p>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 precise 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.</p> <p>A primary impetus of this service enhancement was to reduce the area warned to provide more specific information to emergency responders and the public. By reducing the areal coverage of our flash flood warnings, the emergency management community can more effectively target mitigation and response efforts.</p> <p>A new verification methodology was developed to better utilize the more specific information in these new warning products. This new storm-based verification methodology is more stringent and results in lower metric scores for lead time and accuracy for flash floods. Flash flood performance data using this new verification methodology was computed beginning in FY08.</p> <p>Based on the single year of FY08 performance data, OCWWS/HSD completed an analysis comparing lead time and accuracy scores using the existing county-based verification with scores computed using the new storm-based methods. The differences in the two verification methods over that one year time period were applied to the existing GPRA accuracy and lead time goals (90% and 49 minutes) resulting in the new GPRA goals for FY10 (72% and 38 minutes).</p>					

	Recognizing the limited amount of comparable performance data, it may be necessary to adjust the flash flood GPRA goals as we analyze flash flood performance and relevant trends using the new storm-based verification methods.					
Impact of Recovery Act Funds	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 Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO				-	
Validation & Verification Information	Data Source	Reporting 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)	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. Typically, 1st and 2nd Quarters have higher lead times, while the 3rd and 4th Quarters, during the convective season, bring the annual average down. Spring/summer	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. 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	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.

				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.	and 4th quarters.	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3g: Hurricane Forecast Track Error (48-Hour)

<p>Measure Description</p>	<p>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. 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>					
<p>Target and Performance Table</p>						
	<p>FY2006 Actual</p>	<p>FY2007 Actual</p>	<p>FY2008 Actual</p>	<p>FY2009 Actual</p>	<p>FY2010 Target</p>	<p>FY2011 Target</p>
<p>Original Funds</p>	<p>97</p>	<p>86</p>	<p>86</p>	<p>86</p>	<p>107</p>	<p>106</p>
<p>Impact of Recovery Funds</p>						
<p>Adjusted Targets reflecting Original and Recovery Act Funds</p>	<p>97</p>	<p>86</p>	<p>86</p>	<p>86</p>	<p>107</p>	<p>106</p>
<p>Comments on Changes to Targets</p>	<p>These targets are developed based on analysis of long term performance thereby taking into account year-to-year natural variability. In 2009 NOAA received \$13M to address both hurricane track and intensity forecast challenges and this funding will continue in the outyears. As the efforts begun by this program become mature and advances in numerical weather prediction models are developed and implemented, we expect track forecasts to continue to improve. As this occurs, future targets will continue to be adjusted downwards.</p> <p>Nature imposes large year-to-year variability in the number and difficulty of the forecast cases. We can often attribute increases or decreases in errors to the character of the storms and their environments in any given year after-the-fact rather than to any change in the performance of the operational forecast process. To minimize annual volatility and establish the statistical significance that comes with a large-enough dataset, a 5-year running mean or smoothed trend line has been adopted as the industry standard to help define current level of expertise. We are only just approaching the level of stability and confidence in the score values to attempt a reassessment of the goals. If the current season's performance is consistent with the trend and level of the past four seasons, then plans will be made to adjust the goal.</p>					

Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	No				-	
Validation & Verification Information	Data Source	Reporting 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	None	NOAA will report on the tracking of forecasts at 24, 48 and 72-hour intervals.

				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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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3h: Hurricane Forecast Intensity Error (48 hour)

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	N/A	N/A	14	14	13	13
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds			14	14	13	13
Comments on Changes to Targets	FY08 was the first year for hurricane forecast intensity as a performance measure. The target in FY08 was 14 and the actual was also 14. FY09 target is 13 with only one full year of data in the books from 08. Once NOAA has collected more comparable data on this fairly new measure, targets will show more defined increases in out years to follow.					
Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO				-	
Validation & Verification Information	Data Source	Reporting 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	None	None

				<p>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.</p>		
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3i: Accuracy (%) (Threat Score) of Day 1 Precipitation Forecasts

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	30	31	33	30	30	30
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	30	31	33	30	30	30
Comments on Changes to Targets	<p>Actuals from 2002 – 2007 have remained consistent at 29 or 30. In 07 and 08 precipitation forecasters had two good years with final numbers coming in at 33. 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. The predictability of precipitation is a function of the wetness or dryness of a particular year. Wet years are easier to predict than dry years. Target scores will not increase due to one or two good years of early fall storms. FY 2007 and 2008 were relatively wet years which contributed to their higher than expected scores. These unusual precipitation conditions can be expected to return to normal in the near future.</p> <p>During the next several years, NCEP will implement a number of numerical weather prediction enhancements aimed at improving heavy precipitation forecast, 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.</p>					
Impact of Recovery Act Funds	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 Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO				-	
Validation & Verification Information	Data Source	Reporting 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.

Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3j: Winter Storm Warnings - Lead Time (Hours)

Measure 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					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	17	18	17	18	15	15
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	17	18	17	18	15	15
Comments on Changes to Targets	Increase/Improve observational network by deploying higher resolution models such as Weather Research and Forecasting (WRF) models. This will enable forecasters to obtain real time feedback on how much snow has fallen. Also, coastal and buoy profilers enable forecasters to determine the temperature aloft over marine areas, which aids in precipitation type forecasting.					
Impact of Recovery Act Funds	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 Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO					
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	National Weather Service (NWS) Field Offices	Quarterly	NWS Headquarters, NWS Regional	While long-term performance has shown a steady	The number of winter storm events each fiscal year	Review all warnings and storm data after each

			<p>Headquarters, and the Office of Climate, Water, and Weather Services (OCWWS)</p>	<p>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>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. 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</p>	<p>event to learn from past experiences. Use the information learned to improve forecast skill and product quality in the future.</p>
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				<p>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 insulation which strongly influences daytime accumulations. Also in the West, some areas have considerable year to year and multi-year variability</p>	
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Section 4 Targets and Performance Summary

Objective 3.3 - Provide accurate and timely weather and water information

Measure 3k: Winter Storm Warnings - Accuracy (%)

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	89	90	89	90	90	90
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	89	90	89	90	90	90
Comments on Changes to Targets	Increase/Improve observational networks will provide input to newly deployed higher resolution models such as Weather Research and Forecasting (WRF) models. This will enable forecasters to obtain real time feedback on how much snow has fallen. Also, coastal and buoy profilers enable forecasters to determine the temperature aloft over marine areas, which aids in precipitation type forecasting.					
Impact of Recovery Act Funds	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 Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO					
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	National Weather Service (NWS) Field Offices	Quarterly	NWS Headquarters, NWS Regional	While long-term performance has shown a steady	The number of winter storm events each fiscal year	Review all warnings and storm data after each

			<p>Headquarters, and the Office of Climate, Water, and Weather Services (OCWWS)</p>	<p>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>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. 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</p>	<p>event to learn from past experiences. Use the information learned to improve forecast skill and product quality in the future.</p>
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				<p>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 insulation which strongly influences daytime accumulations. Also in the West, some areas have considerable year to year and multi-year variability</p>	
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Section 4 Targets and Performance Summary

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

Measure 4a: Reduce the Hydrographic Survey Backlog Within Navigationally Significant Areas (square nautical miles surveyed per year)

Measure Description	NOAA conducts hydrographic surveys to determine the depths and configurations of the bottoms of water bodies, primarily in 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. NOAA uses the data to produce nautical charts in a variety of formats 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, marine spatial and emergency planners.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	2,851	3,198	2,127	3,219	3,260	3,200
Impact of Recovery Funds	N/A	N/A	N/A	N/A	approx. 1,900	N/A
Adjusted Targets reflecting Original and Recovery Act Funds	2,851	3,198	2,127	3,000	5,160	3,200
Comments on Changes to Targets						
Impact of Recovery Act Funds	The performance from these ARRA funds will impact FY 2009 and FY 2010, but for the purposes of reporting, NOAA will account for them in FY 2010 as a separate contributor to the overall measure to collect hydrographic survey data for navigation.					
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO					
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	Progress reports on data collected from hydrographic survey platforms.	Monthly	National Ocean Service maintains hydrographic survey performance data at NOAA Coast	National Ocean Service applies its established verification and validation methods. The measure has a	NOAA-owned ships and contractor survey changes in vessel availability or condition. Weather	None.

			Survey's Hydrographic Surveys Division.	+/- 50 square nautical mile variance. Targets are set annually based on resources available; monthly reports on performance to NOAA Deputy Under Secretary.	can also affect scheduled surveys, as well as unexpected events such as accidents and hurricanes that require redirection of resources.	
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Section 4 Targets and Performance Summary

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

Measure 4b: Percentage of U.S. counties rated as fully enabled or substantially enabled with accurate positioning capacity

Measure Description	<p>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>					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	43.25%	51.6%	60.17%	72%	74%	83%
Impact of Recovery Funds	N/A	N/A	N/A	N/A	N/A	N/A
Adjusted Targets reflecting Original and Recovery Act Funds						
Comments on Changes to Targets	<p>This outcome measure demonstrated three outstanding years of performance. Due to economic changes, NOAA's Online Position User Service (OPUS) use targets were lowered in FY 09, but OPUS use is now expanding more rapidly than expected due to improvements in economic conditions. Therefore, NOAA adjusted targets upward for FY 10 and FY 11 to both reflect this improved situation and to remain ambitious.</p>					
Impact of Recovery Act Funds	N/A					
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO				-	
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken

	NOAA's Online Position User Service (OPUS)	Quarterly	Automated database at the 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 the Paperwork Reduction Act-approved surveys of customers.	None.
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Section 4 Targets and Performance Summary

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

Measure 4c: Marine Wind - Percentage of Accurate Forecasts, Marine Wave Heights - Percentage of Accurate Forecasts

Measure Description	<p>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. 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 year's performance statistics. 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 year's performance statistics.</p>					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	55	73	72	73	69	69
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	55	73	72	73	69	69
Comments on Changes to Targets	<p>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 year's performance statistics. The new measure is based upon a percent. 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. Now that NOAA has two full years of comparable data using the percent of accuracy instead of a skill score, we will consider raising targets for FY-11 and beyond based on final FY-09 actuals. Please note the decline in actuals for both marine wave forecast from FY-07(73) to 08(72).</p>					
Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO	-				

	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
<p>Validation & Verification Information</p>	<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. Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to forecast than others. Marine wind speed and</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. Marine wave height forecast scores naturally vary (accuracy +/- 4% per year) due to fluctuations in the number of volatile wave height</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>

				<p>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>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>	
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Section 4 Targets and Performance Summary

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

Measure 4d: Marine Wave Heights - Percentage of Accurate Forecasts

Measure 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. 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 year's performance statistics. 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 year's performance statistics.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	79	78	77	77	74	74
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	79	78	77	77	74	74
Comments on Changes to Targets	This measure was introduced in FY07. 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. Now that NOAA has two full years of comparable data using the percent of accuracy instead of a skill score, NOAA will consider raising targets for FY-11 and beyond based on final FY-09 actuals. Please note the decline in actuals for marine wind forecast from FY-07(78) to 08(77).					
Impact of Recovery Act Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	NO					-
Validation & Verification Information	Data Source	Reporting 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. 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</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. 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</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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				<p>naturally vary (accuracy +/- 4% per year) due to fluctuations in the number of extreme events measured over NWS marine areas per year.</p>	<p>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>	
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Section 4 Targets and Performance Summary

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

Measure 4e: Aviation Forecast Accuracy of Ceiling/Visibility (1 mi/500 ft to less than 3 mi/1000ft)

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	43	40	62	63	65	66
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	43	40	62	63	65	66
Comments on Changes to Targets	In FY 2009, Storminess during January resulted in 11.6% Instrument Flight Rules (IFR) events, Forecaster Probability of Detection (POD) 67.6% and False Alarm Rate (FAR) 32.2%; and Global Forecast System (GFS) Localized Aviation MOS Program Probability of Detection (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 Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
	Yes	Aviation Weather/Next Gen				395
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	Nation Weather Service (NWS) Field Offices	Monthly	NWS Headquarters and Office of Climate, Water, and Weather Services (OCWS)	Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to	IFR conditions occur much more frequently (by order of magnitude) during the late fall through	Forecasters within each WFO will continue to monitor their recent past forecast performance to

				<p>forecast than others. 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>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. 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</p>	<p>learn from experience. The regional headquarters and the OCWS 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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					generally occurs between Oct-May, but may vary by one to two months depending on the prevailing weather patterns.	
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Section 4 Targets and Performance Summary

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

Measure 4f: Aviation Forecast False Alarm Rate for Ceiling/Visibility (3 mi/1000 ft or less)

Measure 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.					
Target and Performance Table						
	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Target	FY2011 Target
Original Funds	64	61	39	38	42	41
Impact of Recovery Funds						
Adjusted Targets reflecting Original and Recovery Act Funds	64	61	39	38	42	41
Comments on Changes to Targets	In FY 2009, Storminess during January resulted in 11.6% Instrument Flight Rules (IFR) events, Forecaster Probability of Detection (POD) 67.6% and False Alarm Rate (FAR) 32.2%; and Global Forecast System (GFS) Localized Aviation MOS Program Probability of Detection (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 Funds						
Relevant Program Changes	Program Changes	Title of Program Change				Exhibit 13 Page Number
-	Yes	Aviation Weather/NextGen				395
Validation & Verification Information	Data Source	Reporting Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
	Nation Weather Service (NWS) Field Offices	Monthly	NWS Headquarters and Office of Climate, Water, and Weather Services (OCWS)	Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to	IFR conditions occur much more frequently (by order of magnitude) during the late fall through	Forecasters within each WFO will continue to monitor their recent past forecast performance to

				<p>forecast than others. 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>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. 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</p>	<p>learn from experience. The regional headquarters and the OCWS 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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					generally occurs between Oct-May, but may vary by one to two months depending on the prevailing weather patterns.	
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Section 5: FY 2011 Program Changes
Program Funding Changes Table

Program Line Office	Program Change	Accompanying GPRA		Base		Increase/Decrease		Page of Exhibit 13
		APP Page no.	GPRA Performance Measure no.	FTE	Amount	FTE	Amount	
Office of Atmospheric & Oceanic Research	Carbon Observing & Analysis System	xxxix	2b	40	\$12,905,000	7	+\$8,000,000	333
National Ocean Service	Coastal & Marine Spatial Planning	xxi	1g	0	\$0	9	+\$6,770,000	199
National Ocean Service	Preparing Coastal Communities for Climate and Weather Hazards	xxxi	3a	0	\$0	2	+\$4,000,000	101
National Weather Service	Aviation Weather/NextGen	lxxxvi,lxxxix	4e, 4f	5	\$11,363,000	4	+\$15,136,000	395
National Weather Service	NOAA Profiler Conversion	Xlviii,li,liv	3b, 3c, 3d	0	\$7,500,000	0	+\$2,230,000	422
National Marine Fisheries Service	Protected Species Research and Management	xxiii	1c	174	\$40,815,000	7	+\$3,000,000	165
National Marine Fisheries Service	Species Recovery Grants	xxiii	1c	9	\$11,157,000	0	+\$9,636,000	166
National Marine Fisheries Service	Pacific Salmon	xxiii	1c	356	\$66,749,000	3	+\$3,668,000	168
National Marine Fisheries Service	Fisheries Habitat Restoration	Xxiii, xxv	1c, 1d	0	\$13,401,000	0	+\$10,364,000	199
National Marine Fisheries Service	Fisheries Oceanography	xxvii	1e	4	\$2,478,000	5	+5,400,000	183
Office of Marine and Aviation Operations	Preventative, Corrective, and Deferred Maintenance	xxi,xli	1b,2c	3	\$17,200,000	0	+6,200,000	537
Office of Atmospheric & Oceanic Research	Assessment Services	xlili	2d	0	\$0	3	+\$10,000,000	330

Section 6 Resource Requirements**Obligations, not BA**

(\$ in Thousands)

Objective 3.1 - Protect, restore, and manage the use of coastal and ocean resources (EC)	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	Increase/ Decrease	FY 2011 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, & Construction (PAC)								
National Ocean Service								
ORF	282,207	243,109	270,476	281,988	286,131	254,366	31,870	286,236
PAC	-	36,768	28,482	34,019	27,597	18,890	10,000	28,890
National Marine Fisheries Service								
ORF	779,501	800,090	780,623	1,016,937	886,293	803,206	64,555	867,761
PAC	-	-	515	414	13	-	-	-
Oceanic and Atmospheric Research								
ORF	127,181	111,761	124,151	120,039	129,935	113,278	15,620	128,898
PAC	-	-	-	1,199	-	-	-	-
National Weather Service								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
National Environmental Satellite, Data, & Information Service								
ORF	10,137	12,684	11,696	13,679	18,036	13,891	38	13,929
PAC	-	-	-	-	-	-	-	-
Program Support								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Direct	1,264,369	1,204,412	1,215,943	1,468,275	1,348,005	1,203,631	122,083	1,325,714
Other-Discretionary and Mandatory	105,314	95,023	139,818	136,478	174,925	84,854	15,350	100,204
Procurement, Acquisition, and Construction	65,343	-	-	-	-	-	-	-
Less: Negative Subsidy Receipts	(6,464)	(4,384)	(1,680)	(1,626)	(6,929)	(6,929)	(1,072)	(8,001)
Total Obligations, Coastal and Ocean Resources	1,363,219	1,295,051	1,354,081	1,603,127	1,516,001	1,281,556	136,361	1,417,917

Objective 3.2 - Advance understanding of climate variability and change (CL)	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	Increase/Decrease	FY 2011 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	-	-	-	-	-	-	3,185	3,185
PAC	-	-	-	-	-	-	-	-
National Marine Fisheries Service								
ORF	1,498	1,490	1,319	1,825	1,953	1,989	-	1,989
PAC	-	-	-	-	-	-	-	-
Oceanic and Atmospheric Research								
ORF	162,298	166,828	203,766	205,325	217,404	204,321	29,480	233,801
PAC	-	22,834	-	-	-	-	-	-
National Weather Service								
ORF	13,438	12,771	8,029	9,273	14,578	14,784	-	14,784
PAC	-	493	-	-	3,734	3,734	-	3,734
National Environmental Satellite, Data, & Information Service								
ORF	49,884	33,032	53,154	56,465	58,018	38,944	13,000	51,944
PAC	-	7,011	5,571	87,151	21,662	6,476	-	6,476
Program Support								
ORF	-	-	-	9,990	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Direct	236,134	244,459	271,839	370,029	317,349	270,248	45,665	315,913
Other-Discretionary and Mandatory	-	-	-	-	-	-	-	-
Procurement, Acquisition, and Construction	9,016	-	-	-	-	-	-	-
Total Obligations, Climate	236,134	244,459	271,839	370,029	317,349	270,248	45,665	315,913

Objective 3.3 - Provide accurate and timely weather and water information (W&W)	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	Increase/Decrease	FY 2011 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	41,384	35,850	35,981	32,883	16,089	11,364	849	12,213
PAC	-	-	2	-	-	-	-	-
National Marine Fisheries Service								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Oceanic and Atmospheric Research								
ORF	67,322	67,447	52,254	63,576	59,640	56,779	10,697	67,476
PAC	-	10,368	9,858	16,068	-	-	-	-
National Weather Service								
ORF	696,908	713,280	752,697	800,106	767,948	758,799	2,329	761,128
PAC	-	76,121	67,442	88,907	77,192	53,816	7,358	61,174
National Environmental Satellite, Data, & Information Service								
ORF	14,677	28,887	8,524	8,304	6,478	5,750	-	5,750
PAC	-	2,138	890	947	990	990	-	990
Program Support								
ORF	-	-	-	-	-	-	-	-
PAC	-	12,566	-	-	-	-	-	-
Direct	926,757	946,657	927,648	1,010,791	928,337	887,498	21,233	908,731
Other-Discretionary and Mandatory	-	-	-	-	-	-	-	-
Procurement, Acquisition, and Construction	106,466	-	-	-	-	-	-	-
Total Obligations, Weather and Water	926,757	946,657	927,648	1,010,791	928,337	887,498	21,233	908,731

Objective 3.4 - Support safe, efficient, and environmentally sound commercial navigation (C&T)	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	Increase/Decrease	FY 2011 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	171,546	159,712	164,559	203,725	160,001	149,703	-	149,703
PAC	-	-	1,341	5,606	4,102	-	-	-
National Marine Fisheries Service								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Oceanic and Atmospheric Research								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
National Weather Service								
ORF	15,756	19,605	18,489	19,905	26,977	27,479	15,136	42,615
PAC	-	-	-	-	-	-	-	-
National Environmental Satellite, Data, & Information Service								
ORF	11,426	10,067	10,625	10,978	6,356	4,311	-	4,311
PAC	-	-	-	-	-	-	-	-
Program Support								
ORF	-	-	-	-	-	-	-	-
PAC	-	-	-	-	-	-	-	-
Direct	198,728	189,384	195,014	240,214	197,436	181,493	15,136	196,629
Other-Discretionary and Mandatory	-	-	-	-	-	-	-	-
Procurement, Acquisition, and Construction	-	-	-	-	-	-	-	-
Total Obligations, Navigation	198,728	189,384	195,014	240,214	197,436	181,493	15,136	196,629

Performance Goal for Mission Support: Provide critical support for NOAA's mission (MS)	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	Increase/ Decrease	FY 2011 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)								
National Ocean Service								
ORF	23,668	45,507	22,301	19,504	60,324	48,731	540	49,271
PAC	-	20,177	24,640	14,435	14,199	5,495	-	5,495
National Marine Fisheries Service								
ORF	30,264	27,136	33,705	36,511	38,352	38,027	-	38,027
PAC	-	11,190	4,691	6,484	3,451	-	-	-
Oceanic and Atmospheric Research								
ORF	15,551	17,502	8,202	7,719	34,314	24,253	53	24,306
PAC	-	1,698	263	74,764	99,746	10,379	-	10,379
National Weather Service								
ORF	34,706	29,307	29,187	28,849	82,648	83,935	-	83,935
PAC	-	32,815	38,667	16,586	54,802	32,673	3,150	35,823
National Environmental Satellite, Data, & Information Service								
ORF	96,063	92,521	95,133	97,939	111,350	111,181	3,108	114,289
PAC	-	796,925	770,246	909,901	1,246,255	1,179,891	831,439	2,011,330
<i>Program Support</i>								
ORF	367,869	362,242	393,262	260,484	291,023	257,532	22,656	280,188
PAC	-	53,928	41,961	231,743	99,986	-	14,000	14,000
<i>OMAO</i>								
ORF	-	-	-	187,323	177,664	170,952	6,990	177,942
PAC	-	-	-	16,965	79,777	2,000	10,800	12,800
Direct	1,560,414	1,490,948	1,462,358	1,909,207	2,393,891	1,965,049	892,736	2,857,785
Other-Discretionary and Mandatory	21,315	21,142	23,611	24,707	27,938	30,205	-	30,205
Procurement, Acquisition, and Construction	992,293	-	-	-	-	-	-	-
Total Obligations, Mission Support	1,581,729	1,512,090	1,485,869	1,933,914	2,421,829	1,995,254	892,736	2,887,990

	FY 2006 Actual	FY 2007 Actual	FY 2008 Actual	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	Increase/ Decrease	FY 2011 Request
<i>Original Funding</i>								
Direct	4,186,402	4,075,860	4,072,801	4,998,516	5,185,018	4,507,919	1,096,853	5,604,772
Other-Discretionary and Mandatory	126,629	116,165	163,429	161,185	202,863	115,059	15,350	130,409
Reimbursable	209,061	242,444	219,872	231,620	365,306	242,000	-	242,000
IT Funding	375,249	590,413	603,800	947,677	1,134,463	-	-	1,208,309
Less: Negative Subsidy Receipts from Direct Obligations	(6,464)	(4,384)	(1,680)	(1,626)	(6,929)	(6,929)	(1,072)	(8,001)
Total NOAA Obligations	4,515,628	4,430,085	4,454,423	5,389,695	5,746,258	4,858,049	1,111,131	5,969,180
Direct	4,306,567	4,187,641	4,234,551	5,158,075	5,380,952	4,616,049	1,111,131	5,727,180
Reimbursable	209,061	242,444	219,872	231,620	365,306	242,000	-	242,000
IT Funding	375,249	590,413	603,800	947,676	1,134,462	-	-	1,208,308
<i>Original FTE</i>	12,784	12,639	12,699	12,840	13,047	13,101	80	13,181
Total FTE	12,784	12,639	12,699	12,840	13,047	13,101	80	13,181

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Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
NOS											
Navigation Services											
Mapping & Charting	Pos/BA	328	136,423	288	97,236	288	96,999	288	96,999	0	0
	FTE/OBL	305	134,138	272	97,335	272	96,999	272	96,999	0	0
Geodesy	Pos/BA	192	38,438	163	37,258	163	29,436	163	29,436	0	0
	FTE/OBL	144	38,714	154	37,265	154	29,436	154	29,436	0	0
Tide & Current Data	Pos/BA	113	31,306	129	33,678	129	29,715	129	29,715	0	0
	FTE/OBL	122	33,620	124	33,794	124	29,715	124	29,715	0	0
Total: Navigation Services	Pos/BA	633	206,167	580	168,172	580	156,150	580	156,150	0	0
	FTE/OBL	571	206,472	550	168,394	550	156,150	550	156,150	0	0
Ocean Resources Conservation and Assessment Program											
Ocean Assessment Program	Pos/BA	72	94,444	116	112,998	115	80,589	130	88,683	15	8,094
	FTE/OBL	129	95,062	113	113,009	112	80,589	123	88,683	11	8,094
Response and Restoration	Pos/BA	117	27,676	124	28,134	124	24,706	124	24,706	0	0
	FTE/OBL	97	27,816	118	28,136	118	24,706	118	24,706	0	0

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Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
National Centers for Coastal Ocean Science	Pos/BA	253	53,198	210	54,800	211	55,781	211	65,281	0	9,500
	FTE/OBL	189	53,302	197	54,849	198	55,781	198	65,281	0	9,500
Total: Ocean Resources Conservation and Assessment	Pos/BA	442	175,319	450	195,932	450	161,076	465	178,670	15	17,594
	FTE/OBL	415	176,180	428	195,994	428	161,076	439	178,670	11	17,594
Ocean and Coastal Management											
Coastal Management	Pos/BA	59	102,170	73	105,046	73	101,285	74	120,135	0	18,850
	FTE/OBL	42	102,311	69	105,065	70	101,285	71	120,135	0	18,850
Ocean Management	Pos/BA	151	52,775	190	53,070	190	45,653	190	45,653	0	0
	FTE/OBL	193	53,137	182	53,092	182	45,653	182	45,653	0	0
Total: Ocean & Coastal Management	Pos/BA	210	154,945	263	158,116	263	146,938	264	165,788	0	18,850
	FTE/OBL	235	155,448	251	158,157	252	146,938	253	165,788	0	18,850
TOTAL NOS ORF	Pos/BA	1,285	536,431	1,293	522,220	1,293	464,164	1,309	500,608	16	36,444

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Comparison by activity/subactivity		FY 2009 Actuals		FY 2010 Currently Available		FY 2011 Base Program Personnel Amt		FY 2011 Estimate		Increase/ Decrease	
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
	FTE/OBL	1,221	538,100	1,229	522,545	1,230	464,164	1,242	500,608	12	36,444
TOTAL NOS PAC	Pos/BA	24	46,142	1	40,890	1	24,385	1	34,385	0	10,000
	FTE/OBL	23	54,060	1	45,898	1	24,385	1	34,385	0	10,000
Damage Assessment and Restoration Revolving Fund	Pos/BA	16	15,600	16	15,600	16	15,600	16	15,600	0	0
	FTE/OBL	13	9,622	16	15,600	16	15,600	16	15,600	0	0
Coastal Zone Management 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
Coastal Impact Assistance Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	10	2,178	0	155	0	0	0	0	0	0
TOTAL NOS	Pos/BA	1,325	599,448	1,310	578,710	1,310	504,149	1,326	550,593	16	46,444
	FTE/OBL	1,267	603,960	1,246	584,198	1,247	504,149	1,259	550,593	12	46,444

NMFS

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Comparison by activity/subactivity		FY 2009 Actuals		FY 2010 Currently Available		FY 2011 Base Program Personnel Amt		FY 2011 Estimate		Increase/ Decrease	
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Protected Species Research and Management											
Protected Species	Pos/BA	706	175,770	850	203,952	850	194,447	863	210,251	13	15,804
	FTE/OBL	745	174,921	799	206,806	817	194,447	827	210,251	10	15,804
Total: Protected Species Research & Management	Pos/BA	706	175,770	850	203,952	850	194,447	863	210,251	13	15,804
	FTE/OBL	745	174,921	799	206,806	817	194,447	827	210,251	10	15,804
Fisheries Research and Management											
Fish	Pos/BA	1,568	360,548	1,442	432,917	1,442	426,976	1,461	463,576	19	36,600
	FTE/OBL	1,292	505,431	1,353	436,867	1,366	426,976	1,381	463,576	15	36,600
Total: Fisheries Research and Management	Pos/BA	1,568	360,548	1,442	432,917	1,442	426,976	1,461	463,576	19	36,600
	FTE/OBL	1,292	505,431	1,353	436,867	1,366	426,976	1,381	463,576	15	36,600
Enforcement and Observers/Training											
Enforcement	Pos/BA	203	56,349	259	65,673	259	66,527	259	66,527	0	0
	FTE/OBL	229	56,732	243	66,114	248	66,527	248	66,527	0	0

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Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program Personnel		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Amt		Personnel	Amt	Personnel	Amt
Observers & Training	Pos/BA	66	32,648	141	41,074	141	38,818	141	38,818	0	0
	FTE/OBL	117	32,572	132	41,368	137	38,818	137	38,818	0	0
Pilot Red Snapper Observer Program	Pos/BA	0	999	0	0	0	0	0	0	0	0
	FTE/OBL	0	999	0	0	0	0	0	0	0	0
Total: Enforcement and Observers/ Training	Pos/BA	269	89,996	400	106,747	400	105,345	400	105,345	0	0
	FTE/OBL	346	90,303	375	107,482	385	105,345	385	105,345	0	0
Habitat Conservation & Restoration											
Habitat Conservation	Pos/BA	245	221,433	158	58,193	158	44,554	158	54,918	0	10,364
	FTE/OBL	147	208,199	149	70,698	149	44,554	149	54,918	0	10,364
Total: Habitat Conservation & Restoration	Pos/BA	245	221,433	158	58,193	158	44,554	158	54,918	0	10,364
	FTE/OBL	147	208,199	149	70,698	149	44,554	149	54,918	0	10,364
Other Activities Supporting Fisheries											

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Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Other Activities Supporting Fisheries	Pos/BA	8	75,419	152	102,730	152	71,900	145	73,687	(7)	1,787
	FTE/OBL	250	76,419	142	104,745	143	71,900	135	73,687	(8)	1,787
Total: Other Activities Supporting Fisheries	Pos/BA	8	75,419	152	102,730	152	71,900	145	73,687	(7)	1,787
	FTE/OBL	250	76,419	142	104,745	143	71,900	135	73,687	(8)	1,787
Total NMFS ORF	Pos/BA	2,796	923,166	3,002	904,539	3,002	843,222	3,027	907,777	25	64,555
	FTE/OBL	2,780	1,055,273	2,818	926,598	2,860	843,222	2,877	907,777	17	64,555
TOTAL NMFS - PAC	Pos/BA	1	4,594	0	0	0	0	0	0	0	0
	FTE/OBL	1	6,898	0	3,464	0	0	0	0	0	0
Pacific Coastal Salmon Recovery Fund	Pos/BA	0	79,920	0	80,000	0	50,000	0	65,000	0	15,000
	FTE/OBL	7	79,897	0	80,032	0	50,000	0	65,000	0	15,000
Fishermen's Contingency Fund	Pos/BA	1	186	1	0	1	0	1	350	0	350
	FTE/OBL	1	176	1	10	1	0	1	350	0	350

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Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Foreign Fishing Observer 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
Fisheries Finance Program Accounts	Pos/BA	0	1,996	0	5,777	0	0	0	0	0	0
	FTE/OBL	0	1,996	0	5,777	0	0	0	0	0	0
Promote and Develop Fishery Products	Pos/BA	2	29,510	4	8,771	4	8,771	4	8,771	0	0
	FTE/OBL	2	29,726	4	8,771	4	8,771	4	8,771	0	0
Federal Ship Financing Fund	Pos/BA	0	221	0	260	0	0	0	0	0	0
	FTE/OBL	0	1	0	260	0	0	0	0	0	0
Environmental Improvement and Restoration Fund	Pos/BA	0	1,198	0	506	0	3,039	0	3,039	0	0
	FTE/OBL	0	9,322	0	506	0	3,039	0	3,039	0	0
Limited Access System Administration Fund	Pos/BA	0	7,444	0	7,444	0	7,444	0	7,444	0	0

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		Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt	Personnel	Amt
	FTE/OBL	32	6,394	0	7,444	0	7,444	0	7,444	0	0
Marine Mammal Unusual Mortality Event Fund	Pos/BA	0	286	0	0	0	0	0	0	0	0
	FTE/OBL	0	166	0	406	0	0	0	0	0	0
Western Pacific Sustainable Fisheries Fund	Pos/BA	0	0	0	884	0	0	0	0	0	0
	FTE/OBL	0	0	0	884	0	0	0	0	0	0
TOTAL NMFS	Pos/BA	2,798	1,048,521	3,007	1,008,181	3,007	912,476	3,032	992,381	25	79,905
	FTE/OBL	2,822	1,186,849	2,823	1,034,152	2,865	912,476	2,882	992,381	17	79,905
OAR											
Climate Research Laboratories & Cooperative Institutes	Pos/BA	261	53,284	261	54,848	261	53,846	261	53,846	0	0
	FTE/OBL	191	53,397	249	55,218	249	53,846	249	53,846	0	0
Climate Data & Information	Pos/BA	3	8,291	3	12,080	3	12,091	6	13,591	3	1,500

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		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Competitive Research Program	FTE/OBL	15	8,276	3	12,094	3	12,091	5	13,591	2	1,500
	Pos/BA	107	131,868	114	153,199	114	140,359	142	173,159	28	32,800
	FTE/OBL	127	131,896	107	153,809	109	140,359	130	173,159	21	32,800
Climate Operations	Pos/BA	0	899	0	913	0	913	0	913	0	0
	FTE/OBL	0	899	0	913	0	913	0	913	0	0
Other Partnership Programs	Pos/BA	0	1,998	0	4,095	0	0	0	0	0	0
	FTE/OBL	0	1,998	0	4,099	0	0	0	0	0	0
Total: Climate Research	Pos/BA	371	196,339	378	225,135	378	207,209	409	241,509	31	34,300
	FTE/OBL	333	196,466	359	226,133	361	207,209	384	241,509	23	34,300
Weather & Air Quality Research											
Laboratories & Cooperative Institutes	Pos/BA	195	49,290	198	55,075	198	55,318	198	60,015	0	4,697
	FTE/OBL	208	49,730	188	55,346	189	55,318	189	60,015	0	4,697
Weather & Air Quality	Pos/BA	20	8,463	22	9,472	22	9,537	22	15,537	0	6,000

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		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Research											
Programs	FTE/OBL	5	8,352	21	9,588	21	9,537	21	15,537	0	6,000
Other Partnership	Pos/BA	0	5,595	0	5,450	0	0	0	0	0	0
Programs	FTE/OBL	1	5,571	0	5,475	0	0	0	0	0	0
Total: Weather & Air	Pos/BA	215	63,348	220	69,997	220	64,855	220	75,552	0	10,697
Quality Research	FTE/OBL	214	63,653	209	70,409	210	64,855	210	75,552	0	10,697
Ocean, Coastal, and Great Lakes											
Research											
Laboratories &	Pos/BA	126	24,222	126	21,840	126	22,355	126	22,355	0	0
Cooperative											
Institutes	FTE/OBL	107	24,171	119	21,961	119	22,355	119	22,355	0	0
National Sea Grant	Pos/BA	28	57,549	28	63,000	28	57,796	28	62,496	0	4,700
College											
Program	FTE/OBL	12	57,355	27	63,231	27	57,796	27	62,496	0	4,700

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		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
National Undersea Research Program	Pos/BA	0	8,841	0	8,900	0	0	0	0	0	0
	FTE/OBL	4	8,787	0	8,955	0	0	0	0	0	0
Ocean Exploration and Research	Pos/BA	18	18,572	18	21,816	18	27,839	18	27,839	0	0
	FTE/OBL	14	18,700	17	22,383	17	27,839	17	27,839	0	0
Other Ecosystems Programs	Pos/BA	0	0	0	0	0	5,500	4	11,600	4	6,100
	FTE/OBL	0	0	0	0	0	5,500	3	11,600	3	6,100
Other Partnership Programs	Pos/BA	0	13,451	0	15,050	0	0	0	0	0	0
	FTE/OBL	0	13,420	0	15,092	0	0	0	0	0	0
Total: Ocean, Coastal, and Great Lakes Research	Pos/BA	172	122,636	172	130,606	172	113,490	176	124,290	4	10,800
	FTE/OBL	137	122,433	163	131,622	163	113,490	166	124,290	3	10,800
Information Technology R&D High Performance	Pos/BA	14	14,014	14	13,028	14	13,077	14	13,130	0	53

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		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Computing & Communications (HPCC)	FTE/OBL	11	14,107	13	13,129	13	13,077	13	13,130	0	53
Total: Information Technology R&D	Pos/BA	14	14,014	14	13,028	14	13,077	14	13,130	0	53
	FTE/OBL	11	14,107	13	13,129	13	13,077	13	13,130	0	53
TOTAL OAR - ORF	Pos/BA	772	396,337	784	438,766	784	398,631	819	454,181	35	55,850
	FTE/OBL	695	396,659	744	441,293	747	398,631	773	454,181	26	55,850
TOTAL OAR - PAC	Pos/BA	1	181,397	0	10,379	0	10,379	0	10,379	0	0
	FTE/OBL	1	92,031	0	99,746	0	10,379	0	10,379	0	0
TOTAL OAR	Pos/BA	773	577,733	784	449,145	784	409,010	819	464,860	35	55,850
	FTE/OBL	696	488,690	744	541,039	747	409,010	773	464,860	26	55,850
National Weather Service Operations and Research Local Warnings and Forecasts	Pos/BA	4,320	681,650	4,325	710,614	4,325	702,279	4,330	719,415	5	17,136
	FTE/OBL	4,124	681,647	4,118	710,633	4,119	702,279	4,123	719,415	4	17,136

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		Actuals		Currently Available		Base Program Personnel		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Central Forecast Guidance	Pos/BA	322	67,186	323	79,525	323	80,492	323	80,492	0	0
	FTE/OBL	298	78,160	307	79,534	307	80,492	307	80,492	0	0
Total: Operations and Research	Pos/BA	4,642	748,835	4,648	790,139	4,648	782,771	4,653	799,907	5	17,136
	FTE/OBL	4,422	759,807	4,425	790,167	4,426	782,771	4,430	799,907	4	17,136
Systems Operation & Maintenance (O&M)											
Systems Operation & Maintenance	Pos/BA	197	98,257	197	101,979	197	102,226	197	102,555	0	329
	FTE/OBL	214	98,326	188	101,984	188	102,226	188	102,555	0	329
Total: Systems Operation & Maintenance (O&M)	Pos/BA	197	98,257	197	101,979	197	102,226	197	102,555	0	329
	FTE/OBL	214	98,326	188	101,984	188	102,226	188	102,555	0	329
TOTAL NWS ORF	Pos/BA	4,839	847,092	4,845	892,118	4,845	884,997	4,850	902,462	5	17,465
	FTE/OBL	4,636	858,133	4,613	892,151	4,614	884,997	4,618	902,462	4	17,465
Total NWS PAC	Pos/BA	39	127,224	32	107,727	32	90,223	32	100,731	0	10,508

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		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
	FTE/OBL	37	105,493	31	135,728	31	90,223	31	100,731	0	10,508
TOTAL NWS	Pos/BA	4,878	974,316	4,877	999,845	4,877	975,220	4,882	1,003,193	5	27,973
	FTE/OBL	4,673	963,626	4,644	1,027,879	4,645	975,220	4,649	1,003,193	4	27,973
NESDIS											
Environmental Satellite Observing System											
Satellite Command and Control	Pos/BA	188	46,335	183	47,372	183	48,199	183	48,199	0	0
	FTE/OBL	165	46,569	174	47,569	174	48,199	174	48,199	0	0
Product Processing & Distribution	Pos/BA	129	31,426	129	32,698	129	33,132	129	36,240	0	3,108
	FTE/OBL	90	31,126	123	33,046	123	33,132	123	36,240	0	3,108
Product Development, Readiness & Application	Pos/BA	106	27,611	107	27,970	107	28,352	107	28,352	0	0
	FTE/OBL	88	27,831	102	28,027	102	28,352	102	28,352	0	0
Office of Space Commercialization	Pos/BA	4	633	5	649	5	658	5	658	0	0

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		Actuals		Currently Available		Base Program Personnel		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Group on Earth Observations (GEO)	FTE/OBL	2	653	5	654	5	658	5	658	0	0
	Pos/BA	0	499	0	500	0	506	0	506	0	0
	FTE/OBL	0	500	0	500	0	506	0	506	0	0
Commercial Remote Sensing Licensing & Enforcement	Pos/BA	2	1,284	5	1,301	5	1,319	5	1,319	0	0
	FTE/OBL	5	1,216	5	1,414	5	1,319	5	1,319	0	0
Total: Environmental Satellite Observing Systems	Pos/BA	429	107,788	429	110,490	429	112,166	429	115,274	0	3,108
	FTE/OBL	350	107,895	409	111,210	409	112,166	409	115,274	0	3,108
NOAA's Data Centers & Information Services Archive, Access & Assessment	Pos/BA	269	56,449	243	67,255	243	47,739	249	60,739	6	13,000
	FTE/OBL	192	56,429	230	67,546	230	47,739	234	60,739	4	13,000
Coastal Data Development	Pos/BA	0	4,554	16	4,559	16	4,620	16	4,658	0	38

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		Actuals		Currently Available		Base Program Personnel		Estimate			
		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
	FTE/OBL	14	4,579	16	4,559	16	4,620	16	4,658	0	38
Regional Climate Centers	Pos/BA	0	3,896	0	3,500	0	0	0	0	0	0
	FTE/OBL	0	3,899	0	3,500	0	0	0	0	0	0
Environmental Data Systems	Pos/BA	14	9,501	24	9,511	24	9,552	24	9,552	0	0
Modernization	FTE/OBL	22	9,484	23	9,573	23	9,552	23	9,552	0	0
Other Data and Information Services	Pos/BA	0	5,045	0	3,850	0	0	0	0	0	0
	FTE/OBL	0	5,079	0	3,850	0	0	0	0	0	0
Total: NOAA's Data Centers & Information Services	Pos/BA	283	79,445	283	88,675	283	61,911	289	74,949	6	13,038
	FTE/OBL	228	79,470	269	89,028	269	61,911	273	74,949	4	13,038
Total NESDIS ORF	Pos/BA	712	187,233	712	199,165	712	174,077	718	190,223	6	16,146
	FTE/OBL	578	187,365	678	200,238	678	174,077	682	190,223	4	16,146
Total NESDIS PAC	Pos/BA	206	1,063,511	162	1,199,357	162	1,187,357	162	2,018,796	0	831,439
	FTE/OBL	196	997,999	153	1,268,907	153	1,187,357	153	2,018,796	0	831,439

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		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
					7		7				
TOTAL NESDIS	Pos/BA	918	1,250,74	874	1,398,52	874	1,361,43	880	2,209,019	6	847,585
	FTE/OBL	774	1,185,36	831	1,469,14	831	1,361,43	835	2,209,019	4	847,585
			5		2		4				
			4		5		4				
Program Support											
Corporate Services											
Under Secretary and Associate Offices	Pos/BA	229	27,648	229	28,438	229	28,965	229	29,965	0	1,000
	FTE/OBL	144	27,625	219	28,438	219	28,965	219	29,965	0	1,000
NOAA Wide Corporate Services & Agency Management	Pos/BA	827	155,926	831	167,676	831	175,032	841	186,230	10	11,198
	FTE/OBL	702	150,184	790	167,676	791	175,032	798	186,230	7	11,198
Office of Chief Information Officer (CIO)	Pos/BA	0	22,028	0	9,089	0	2,129	5	6,829	5	4,700
	FTE/OBL	8	22,028	0	9,089	0	2,129	4	6,829	4	4,700
Total: Corporate Services	Pos/BA	1,056	205,603	1,060	205,203	1,060	206,126	1,075	223,024	15	16,898
	FTE/OBL	854	199,837	1,009	205,203	1,010	206,126	1,021	223,024	11	16,898

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		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
NOAA Education Program	Pos/BA	11	51,277	11	53,753	11	20,758	11	20,758	0	0
NOAA Education Program	FTE/OBL	21	49,663	10	55,467	10	20,758	10	20,758	0	0
Total: NOAA Education Program	Pos/BA	11	51,277	11	53,753	11	20,758	11	20,758	0	0
Total: NOAA Education Program	FTE/OBL	21	49,663	10	55,467	10	20,758	10	20,758	0	0
Facilities											
NOAA Facilities Management, Construction and Maintenance	Pos/BA	0	20,979	5	30,346	5	30,648	6	36,406	1	5,758
NOAA Facilities Management, Construction and Maintenance	FTE/OBL	43	20,974	4	30,353	5	30,648	6	36,406	1	5,758
Total: Facilities	Pos/BA	0	20,979	5	30,346	5	30,648	6	36,406	1	5,758
Total: Facilities	FTE/OBL	43	20,974	4	30,353	5	30,648	6	36,406	1	5,758
Total Program Support ORF without OMAO	Pos/BA	1,067	277,858	1,076	289,302	1,076	257,532	1,092	280,188	16	22,656
Total Program Support ORF without OMAO	FTE/OBL	918	270,474	1,023	291,023	1,025	257,532	1,037	280,188	12	22,656

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		Actuals		Currently Available		Base Program Personnel		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Amt		Personnel	Amt	Personnel	Amt
Total Program Support PAC without OMAO	Pos/BA	7	331,518	0	0	0	0	0	14,000	0	14,000
	FTE/OBL	7	231,743	0	99,986	0	0	0	14,000	0	14,000
TOTAL Program Support	Pos/BA	1,074	609,376	1,076	289,302	1,076	257,532	1,092	294,188	16	36,656
	FTE/OBL	925	502,217	1,023	391,009	1,025	257,532	1,037	294,188	12	36,656
OMAO											
Marine Operations & Maintenance & Aviation Operations											
Marine Operations & Maintenance	Pos/BA	926	118,392	948	120,125	948	123,465	955	124,255	7	790
	FTE/OBL	851	119,255	918	120,125	923	123,465	928	124,255	5	790
Fleet Planning and Maintenance	Pos/BA	3	47,952	3	17,034	3	17,200	3	23,400	0	6,200
	FTE/OBL	2	37,018	3	28,010	3	17,200	3	23,400	0	6,200
Aviation Operations	Pos/BA	109	31,512	109	29,509	109	30,287	109	30,287	0	0
	FTE/OBL	119	31,050	104	29,529	104	30,287	104	30,287	0	0
Total: Marine Operations &	Pos/BA	1,038	197,857	1,060	166,668	1,060	170,952	1,067	177,942	7	6,990

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		Personnel	Amt	Personnel	Amt	Amt	Personnel	Amt	Personnel	Amt	
Maintenance and Aviation Operations	FTE/OBL	972	187,323	1,025	177,664	1,030	170,952	1,035	177,942	5	6,990
Total OMAO ORF	Pos/BA	1,038	197,857	1,060	166,668	1,060	170,952	1,067	177,942	7	6,990
	FTE/OBL	972	187,323	1,025	177,664	1,030	170,952	1,035	177,942	5	6,990
Total OMAO PAC	Pos/BA	5	89,411	5	2,000	5	2,000	5	12,800	0	10,800
	FTE/OBL	6	16,965	5	79,777	5	2,000	5	12,800	0	10,800
Medicare Eligible Retiree Health Care Fund	Pos/BA	0	1,674	0	1,822	0	1,936	0	1,936	0	0
	FTE/OBL	0	1,674	0	1,822	0	1,936	0	1,936	0	0
NOAA Corp Commissioned Officers Retirement	Pos/BA	0	24,272	0	26,116	0	28,269	0	28,269	0	0
	FTE/OBL	0	24,272	0	26,116	0	28,269	0	28,269	0	0
TOTAL OMAO	Pos/BA	1,043	313,213	1,065	196,606	1,065	203,157	1,072	220,947	7	17,790
	FTE/OBL	978	230,234	1,030	285,379	1,035	203,157	1,040	220,947	5	17,790

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		Actuals		Currently Available		Base Program Personnel		Estimate		Personnel	Amt
		Personnel	Amt	Personnel	Amt	Amt		Personnel	Amt	Personnel	Amt
NOAA ORF	Pos/BA	12,509	3,365,974	12,772	3,412,778	12,772	3,193,575	12,882	3,413,681	110	220,106
	FTE/OBL	11,800	3,493,327	12,130	3,451,512	12,184	3,193,575	12,264	3,413,681	80	220,106
NOAA PAC	Pos/BA	283	1,843,797	200	1,360,353	200	1,314,344	200	2,191,091	0	876,747
	FTE/OBL	271	1,505,189	190	1,733,506	190	1,314,344	190	2,191,091	0	876,747
NOAA Other	Pos/BA	19	163,582	21	147,180	21	115,059	21	130,409	0	15,350
	FTE/OBL	64	162,424	21	147,783	21	115,059	21	130,409	0	15,350
Total Direct Obligations	Pos/BA	12,811	5,373,353	12,993	4,920,311	12,993	4,622,978	13,103	5,735,181	110	1,112,203
	FTE/OBL	12,135	5,160,940	12,341	5,332,801	12,395	4,622,978	12,475	5,735,181	80	1,112,203

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Department of Commerce
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Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
National Ocean Service, ORF					
Climate	0	0	0	3,185	3,185
Commerce and Transportation	203,725	160,001	149,703	149,703	0
Ecosystems	281,988	286,131	254,366	286,236	31,870
Mission Support	19,504	60,324	48,731	49,271	540
Weather and Water	32,883	16,089	11,364	12,213	849
Total, National Ocean Service - ORF	538,100	522,545	464,164	500,608	36,444
National Ocean Service, PAC					
Climate	0	0	0	0	0
Commerce and Transportation	5,606	4,102	0	0	0
Ecosystems	34,019	27,597	18,890	28,890	10,000
Mission Support	14,435	14,199	5,495	5,495	0
Weather and Water	0	0	0	0	0
Total, National Ocean Service, PAC	54,060	45,898	24,385	34,385	10,000
Damage Assessment & Restoration Revolving Fund					
Ecosystem	9,622	42,325	15,600	15,600	0
Total, Damage Assessment & Restoration Revolving Fund	9,622	42,325	15,600	15,600	0

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Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
Coastal Impact Assistance Fund					
Ecosystem	2,178	155	0	0	0
Total, Coastal Impact Assistance Fund	2,178	155	0	0	0
Grand Total NOS	603,960	610,923	504,149	550,593	46,444
National Marine Fisheries Service, ORF					
Climate	1,825	1,953	1,989	1,989	0
Ecosystems	1,016,937	886,293	803,206	867,761	64,555
Mission Support	36,511	38,352	38,027	38,027	0
Total, National Marine Fisheries Service - ORF	1,055,273	926,598	843,222	907,777	64,555
National Marine Fisheries Service - PAC					
Ecosystems	414	13	0	0	0
Mission Support	6,484	3,451	0	0	0
Total National Marine Fisheries Service PAC	6,898	3,464	0	0	0
Fishermen's Contingency Fund					
Ecosystems	176	10	0	350	350
Total, Fishermen's Contingency Fund	176	10	0	350	350

Department of Commerce
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Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
Foreign Fishing Observer Fund					
Ecosystems	0	0	0	0	0
Total, Foreign Fishing Observer Fund	0	0	0	0	0
Federal Ship Financing Fund					
Ecosystems	1	260	0	0	0
Total Federal Ship Financing Fund	1	260	0	0	0
Fisheries Finance Program Account					
Ecosystems	1,996	5,777	0	0	0
Total, Fisheries Finance Program Account	1,996	5,777	0	0	0
Promote and Develop Fisheries Products					
Ecosystems	26,726	12,208	8,771	8,771	0
Total Promote and Develop Fisheries Products	26,726	12,208	8,771	8,771	0
Environmental Improvement and Restoration Fund					
Ecosystems	9,322	10,147	3,039	3,039	0
Total Environmental Improvement & Restoration Fund	9,322	10,147	3,039	3,039	0

Department of Commerce
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Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
Limited Access System Administration Fund					
Ecosystems	6,394	22,721	7,444	7,444	0
Total Limited Access System Administration Fund	6,394	22,721	7,444	7,444	0
Marine Mammal Unusual Mortality Event Fund					
Ecosystems	166	406	0	0	0
Total Marine Mammal Unusual Mortality Event Fund	166	406	0	0	0
Pacific Coastal Salmon Recovery Account					
Ecosystems	79,897	80,032	50,000	65,000	0
Total Pacific Coastal Salmon Recovery Account	79,897	80,032	50,000	65,000	0
Western Pacific Sustainable Fisheries Fund					
Ecosystems	0	884	0	0	0
Total Western Pacific Sustainable Fisheries Fund	0	884	0	0	0
Grand Total, NMFS	1,186,849	1,062,507	912,476	992,381	79,905

Department of Commerce
National Oceanic and Atmospheric Administration
Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
Oceanic and Atmospheric Research, ORF					
Climate	205,325	217,404	204,321	233,801	29,480
Ecosystems	120,039	129,935	113,278	128,898	15,620
Mission Support	7,719	34,314	24,253	24,306	53
Weather and Water	63,576	59,640	56,779	67,476	10,697
Total, Oceanic and Atmospheric Research - ORF	396,659	441,293	398,631	454,481	55,850
Oceanic and Atmospheric Research, PAC					
Climate	0	0	0	0	0
Ecosystems	1,199	0	0	0	0
Mission Support	74,764	99,746	10,379	10,379	0
Weather and Water	16,068	0	0	0	0
Oceanic and Atmospheric Research PAC	92,031	99,746	10,379	10,379	0
Grand Total OAR	488,690	541,039	409,010	464,860	55,850
National Weather Service					
Climate	9,273	14,578	14,784	14,784	0
Commerce and Transportation	19,905	26,977	27,479	42,615	15,136
Mission Support	28,849	82,648	83,935	83,935	0
Weather and Water	800,106	767,948	758,799	761,128	2,329
Total National Weather Service - ORF	858,133	892,151	884,997	902,462	17,465

Department of Commerce
National Oceanic and Atmospheric Administration
Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
National Weather Service, PAC					
Climate	0	3,734	3,734	3,734	0
Mission Support	16,586	54,802	32,673	35,823	3,150
Weather and Water	88,907	77,192	53,816	61,174	7,358
National Weather Service, PAC	105,493	135,728	90,223	100,731	10,508
Grand Total NWS	963,626	1,027,879	975,220	1,003,193	27,973
National Environmental Satellite, Data, & Information Service, ORF					
Climate	56,465	58,018	38,944	51,944	13,000
Commerce and Transportation	10,978	6,356	4,311	4,311	0
Ecosystems	13,679	18,036	13,891	13,929	38
Mission Support	97,939	111,350	111,181	14,289	3,108
Weather and Water	8,304	6,478	5,750	5,750	0
Total National Environmental Satellite, Data, and Information Service - ORF	187,365	200,238	174,077	190,223	16,146

Department of Commerce
National Oceanic and Atmospheric Administration
Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
Total National Environmental Satellite, Data, & Information Service, PAC					
Climate	87,151	21,662	6,476	6,476	0
Commerce and Transportation	0	0	0	0	0
Ecosystems	0	0	0	0	0
Mission Support	909,901	1,246,255	1,179,891	2,011,330	831,439
Weather and Water	947	990	990	990	0
Total National Environmental Satellite, Data, & Information Service, PAC	997,999	1,268,907	1,187,357	2,018,796	831,439
Grand Total NESDIS					
	1,185,364	1,469,145	1,361,434	2,209,019	847,585
Program Support - ORF					
Climate	9,990	0	0	0	0
Commerce and Transportation	0	0	0	0	0
Mission Support	447,807	468,687	428,484	458,130	29,646
Weather and Water	0	0	0	0	0
Total Program Support, ORF	457,797	468,687	428,484	458,130	29,646

Department of Commerce
National Oceanic and Atmospheric Administration
Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
Program Support, PAC					
Climate	0	0	0	0	0
Commerce and Transportation	0	0	0	0	0
Ecosystems	0	0	0	0	0
Mission Support	248,708	179,763	2,000	26,800	24,800
Weather and Water	0	0	0	0	0
Total Program Support, PAC	248,708	179,763	2,000	26,800	24,800
Medicare Eligible Retiree Health Fund Contribution - NOAA Corps					
Mission Support	1,674	1,822	1,936	1,936	0
Total Medicare Eligible Retiree Health Fund Contribution - NOAA Corps	1,674	1,822	1,936	1,936	0
NOAA Corp Retirement Pay					
Mission Support	23,033	26,116	28,269	28,269	0
Total NOAA Corp Retirement Pay	23,033	26,116	28,269	28,269	0
Grand Total PS	731,212	676,388	460,689	515,135	54,446

Department of Commerce
National Oceanic and Atmospheric Administration
Contribution to the NOAA Strategic Planning Goals and Objectives
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base Program	FY 2011 Estimate	Increase/ Decrease
Climate	370,029	317,349	270,248	315,913	45,665
Commerce and Transportation	240,214	197,436	181,493	196,629	15,136
Ecosystems	1,604,753	1,522,930	1,288,485	1,425,918	137,433
Mission Support	1,933,914	2,421,829	1,995,254	2,887,990	892,736
Weather and Water	1,010,791	928,337	887,498	908,731	21,233
Total Direct Obligations (Discretionary & Mandatory)	5,159,701	5,387,881	4,622,978	5,735,181	1,112,203
<u>Adjustments to Obligations</u>					
Less: Reimbursable Obligations - DARRF	0	0	0	0	0
Less: Negative Subsidy Receipts	(1,626)	(6,929)	(6,929)	(8,001)	(1,072)
GRAND TOTAL, Direct Obligations - NOAA	5,153,732	5,380,952	4,616,049	5,727,180	1,111,131

NOTE: FY 2009 Actuals includes resources provided by the American Recovery and Reinvestment Act of 2009.

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NATIONAL OCEAN SERVICE
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Navigation Services									
Mapping & Charting									
Mapping & Charting Base	49,487	750	1,113	262	49,850			262	49,850
Hydrographic Research & Technology Development	7,424	0		0	7,424			0	7,424
Electronic Navigational Charts	6,128	0		0	6,128			0	6,128
Shoreline Mapping	2,424	0		0	2,424			0	2,424
Address Survey Backlog/Contracts	31,173	0		10	31,173			10	31,173
California Seafloor Mapping, CA	300	300		0	0			0	0
Extended Continental Shelf Mapping, AK	300	300		0	0			0	0
Subtotal, Mapping and Charting	97,236	1,350	1,113	272	96,999	0	0	272	96,999
Geodesy									
Geodesy Base	26,417	0	478	149	26,895			149	26,895
National Height Modernization	2,541	0		5	2,541			5	2,541
Geodesy/Height Modernization - IL	800	800		0	0			0	0
Regional Geospatial Modeling Grants	5,500	5,500		0	0			0	0
Louisiana Geodetic Spatial Reference Center, LA	700	700		0	0			0	0
Wisconsin Height Modernization Program, WI	1,000	1,000		0	0			0	0
Texas Height Modernization	300	300		0	0			0	0
Subtotal, Geodesy	37,258	8,300	478	154	29,436	0	0	154	29,436
Tide & Current Data									
Tide & Current Data Base	33,078	3,800	437	124	29,715			124	29,715
Coastal Tidal Gauges	600	600		0	0			0	0
Subtotal, Tide & Current Data	33,678	4,400	437	124	29,715	0	0	124	29,715
Total, Navigation Services	168,172	14,050	2,028	550	156,150	0	0	550	156,150
Ocean Resources Conservation and Assessment									
Ocean Assessment Program (OAP)									
Coastal and Marine Spatial Planning	0	0		0	0	9	6,770	9	6,770
Ocean Research Priorities Plan Implementation	6,000	0	(6,000)	0	0			0	0
IOOS Regional Observations	27,000	12,445		4	14,555			4	14,555
NOAA IOOS	6,555	0	75	20	6,630			20	6,630
Gulf of Mexico Regional Collaboration	4,750	0		0	4,750		(4,750)	0	0
Alliance for Coastal Technologies	500	500		0	0			0	0
Coastal Storms	2,800	0		0	2,800		74	0	2,874
Coastal Services Center (CSC)	26,643	6,000	3,352	82	23,995	2	6,000	84	29,995
Hawaii Coral Reef Initiative	1,000	1,000		0	0			0	0
Florida Coral Reef	200	200		0	0			0	0
Coral Reef - Puerto Rico	100	100		0	0			0	0
Coral Reef Program	29,000	2,273	132	4	26,859	0		4	26,859
Ocean Health Initiative	4,000	3,000		2	1,000			2	1,000
The Resilient Coastal Urban Community and Ecosystem (RESCUE) Initiative	250	250			0			0	0
Northeast Coastal Monitoring Collaborative	550	550			0			0	0
Aquarius Reef Base Program	150	150			0			0	0

NATIONAL OCEAN SERVICE
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
West Coast Governor's Agreement on Ocean Health	500	500			0			0	0
International Pacific Research Center	1,500	1,500			0			0	0
Engineering Feasibility Study, Dauphin Island, AL	1,500	1,500			0			0	0
Subtotal, Ocean Assessment Program (OAP)	112,998	29,968	(2,441)	112	80,589	11	8,094	123	88,683
Response and Restoration									
Response and Restoration Base	10,834	1,000	384	110	19,518			110	19,518
Estuary Restoration Program	3,000	1,812		5	1,188			5	1,188
Damage Assessment Program	9,300	0		0	0			0	0
Marine Debris	4,000	0		3	4,000			3	4,000
Eastern Kentucky PRIDE, Inc	1,000	1,000		0	0			0	0
Subtotal, Response and Restoration	28,134	3,812	384	118	24,706	0	0	118	24,706
National Centers for Coastal Ocean Science (NCCOS)									
Nat'l Ctrs for Coastal Ocean Science (NCCOS)		2,312	792	197	36,980			197	36,980
Competitive Research	16,000	199	3,000	1	18,801		9,500	1	28,301
Ctr for Coastal Environ Health & Biomolecular Rsch	11,300	0		0	0			0	0
Oxford, MD	4,500	0		0	0			0	0
Ctr for Coastal Fisheries Habitat Research	5,000	0		0	0			0	0
Center for Coastal Monitoring & Assessment	7,000	0		0	0			0	0
Center for Sponsored Coastal Ocean Research	2,700	0		0	0			0	0
NCCOS Headquarters	4,000	0		0	0			0	0
Center for Human Health Risk (Marine Env Health Research Lab - MEHRL)	4,000	0		0	0			0	0
Western Pacific Coral Reef Ecosystems Studies Program (CSCOR-NCCOS), Guam	300	300		0	0			0	0
Subtotal, NCCOS	54,800	2,811	3,792	198	55,781	0	9,500	198	65,281
Total, Ocean Resources Conserv. & Assess.	195,932	36,591	1,735	428	161,076	11	17,594	439	178,670
Ocean and Coastal Management									
Coastal Management									
CZM Grants	68,146	2,000		0	66,146			0	66,146
CZM and Stewardship	8,500	0	285	57	8,785			57	8,785
Regional Ocean Partnership Grants	0	0		0	0	1	20,000	1	20,000
Nat'l Estuarine Rsrch Reserve Sys - NERRS	23,500	1,174		0	22,326			0	22,326
Marine Protected Areas	3,000	872		9	2,128			9	2,128
Energy Licensing and Appeals	1,900	0		4	1,900		(1,150)	4	750
Subtotal, Coastal Management	105,046	4,046	285	70	101,285	1	18,850	71	120,135
Ocean Management									
Marine Sanctuary Program									
Marine Sanctuary Program Base (Nancy Foster Scholarship 1% of base)	49,000	4,051	704	182	45,653			182	45,653
Northwest Straits Citizens Advisory Commission	1,600	1,600		0	0			0	0
Hawaii Inst. Of Marine Biology Coral Research, HI	2,250	2,250		0	0			0	0
Mariana Islands Sanctuary Scoping and Outreach	220	220		0	0			0	0
Subtotal, Ocean Management	53,070	8,121	704	182	45,653	0	0	182	45,653

NATIONAL OCEAN SERVICE
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Total, Ocean and Coastal Management	158,116	12,167	989	252	146,938	1	18,850	253	165,788
Total, National Ocean Service - ORF	522,220	62,808	4,752	1,230	464,164	12	36,444	1,242	500,608
Other National Ocean Service Accounts									
Total, National Ocean Service - PAC	40,890	16,505	0	1	24,385	0	10,000	1	34,385
Total, National Ocean Service - Other	15,600	0	0	16	15,600	0	0	16	15,600
GRAND TOTAL NOS	578,710	79,313	4,752	1,247	504,149	12	46,444	1,259	550,593

NATIONAL MARINE FISHERIES SERVICE

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Protected Species Research and Management									
Protected Species Research and Management Programs Base	39,850	0	965	174	40,815	7	3,000	181	43,815
Species Recovery Grants	15,623	4,636	170	9	11,157		9,636	9	20,793
Marine Mammals	49,653	2,302	876	163	48,227			163	48,227
Marine Turtles	14,576	4,348	224	55	10,452			55	10,452
Other Protected Species (Marine Fish, Plants, and Invertebrates)	8,375	0	112	33	8,487			33	8,487
Atlantic Salmon	8,500	0	60	27	8,560		(500)	27	8,060
Pacific Salmon (for Salmon Management Activities, see Fisheries Research and Management)	65,000	0	1,749	356	66,749	3	3,668	359	70,417
Alaska Sea Otter and Steller Sea Lion Commission, AK	300	300		0	0			0	0
Hawaiian Monk Seals, HI	275	275		0	0			0	0
Emergency Response and health Investigations for Endangered/Threatened Pinniped in Pacific	300	300		0	0			0	0
Center for Marine Education and Research Ocean Expo-Learning Center	1,000	1,000		0	0			0	0
Marine Mammal Research, AK	500	500		0	0			0	0
Subtotal, Protected Species Research and Management	203,952	13,661	4,156	817	194,447	10	15,804	827	210,251
Fisheries Research and Management									
Fisheries Research and Management Programs	190,883	750	(6,910)	825	183,223			825	183,223
National Catch Share Program		0	17,402	7	17,402	10	36,600	17	54,002
Expand Annual Stock Assessments - Improve Data Collection	50,995	0	730	137	51,725			137	51,725
Economics & Social Sciences Research	10,744	0	218	24	10,962			24	10,962
Salmon Management Activities	50,942	10,000	76	13	41,018		(5,400)	13	35,618
Regional Councils and Fisheries Commissions	31,855	0	249	6	32,104			6	32,104
Fisheries Statistics	21,068	0	337	105	21,405			105	21,405
Fish Information Networks	22,066	0	81	13	22,147			13	22,147
Survey and Monitoring Projects	23,759	0	393	128	24,152			128	24,152
Fisheries Oceanography	1,999	0	79	4	2,078	5	5,400	9	7,478
American Fisheries Act	5,503	0	99	35	5,602			35	5,602
Interjurisdictional Fisheries Grants	2,574	0	2	0	2,576			0	2,576
National Standard 8	1,060	0	19	5	1,079			5	1,079
Reduce Fishing Impacts on Essential Fish Habitat (EFH)	529	0	9	3	538			3	538
Reducing Bycatch	3,398	0	44	9	3,442			9	3,442
Product Quality and Safety	7,342	0	181	52	7,523			52	7,523
Oyster Hatchery Economic Pilot Program, Morgan State University, MD	200	200	0	0	0			0	0
Hawaii Seafood Safety and Inspections, HI	1,500	1,500	0	0	0			0	0
Scallop Fishery Assessment, MA	1,000	1,000	0	0	0			0	0
Maine Groundfish Industry Emergency Economic Assistance, ME	1,000	1,000	0	0	0			0	0
Disease Reduction in Klamath River Salmon, OR	600	600	0	0	0			0	0
Shrimp Industry Fishing Effort Research Continuation, MD	700	700	0	0	0			0	0
Virginia Trawl Survey, VA	300	300	0	0	0			0	0
Ecosystem Based Fisheries Management, AL	750	750	0	0	0			0	0
Hawaii Fisheries Development, HI	400	400	0	0	0			0	0

NATIONAL MARINE FISHERIES SERVICE

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
NH Commercial Fisherman Sustainability Initiative	825	825	0		0				
Institute for Seafood Studies	325	325	0		0				
Gulf of Mexico Recreational Fishery Electronic Logbook Pilot	50	50	0		0				
Herring Monitoring Research	300	300	0		0				
Turtle Protection Funding/Gulf of Mexico Grouper Fishery	250	250	0		0				
Subtotal, Fisheries Research and Management	432,917	18,950	13,009	1,366	426,976	15	36,600	1,381	463,576
Enforcement & Observers/Training									
Enforcement	65,673	600	1,454	248	66,527			248	66,527
Observers/Training	41,074	3,015	759	137	38,818			137	38,818
Subtotal, Enforcement & Observers/Training	106,747	3,615	2,213	385	105,345	0	0	385	105,345
Habitat Conservation & Restoration									
Sustainable Habitat Management	22,376	0	350	95	22,726			95	22,726
Fisheries Habitat Restoration (CBRP & Open Rivers)	27,967	6,320	181	54	21,828		10,364	54	32,192
Bronx River Restoration, NY	1,000	1,000						0	0
Chesapeake Bay Oyster Restoration, MD	3,000	3,000						0	0
Merrimack River Fish Habitat, NH	300	300						0	0
Natural Stream Restoration Program, WV	1,500	1,500						0	0
Pontchartrain Basin Restoration	250	250							
Narragansett Bay Shellfish Restoration	500	500							
Protected Species Habitat at Kure Atoll (HI)	100	100							
Hawaii Marine Fund	1,000	1,000							
Ecosystem Vitality Through Habitat Restoration	200	200							
Subtotal, Habitat Conservation & Restoration	58,193	14,170	531	149	44,554	0	10,364	149	54,918
Other Activities Supporting Fisheries									
Antarctic Research	2,718	0	39	9	2,757			9	2,757
Aquaculture	6,000	0	64	15	6,064	1	2,352	16	8,416
Climate Regimes & Ecosystem Productivity	4,811	0	(1,406)	14	3,405			14	3,405
Computer Hardware and Software - FY 2004 Omnibus Funded in PAC	3,460	0	30	0	3,490			0	3,490
Cooperative Research	17,567	0	(5,901)	30	11,666	(13)	(4,565)	17	7,101
Information Analyses & Dissemination	19,905	0	451	63	20,356			63	20,356
Marine Resources Monitoring, Assessment & Prediction Prgm (MarMap)	842	0	0	0	842			0	842
National Environmental Policy Act (NEPA)	8,336	0	120	0	8,456			0	8,456
NMFS Facilities Maintenance	6,535	0	54	0	6,589			0	6,589
Southwest Fisheries Science Center	1,000	0	0	0	1,000		(1,000)	0	0
Regional Studies	7,206	0	69	12	7,275	4	5,000	16	12,275
Yukon River Drainage Association	100	100			0			0	0
New England Multi-Species Survey	3,000	3,000			0			0	0
Science Consortium for Ocean Replenishment at Mote marine Lab	1,500	1,500			0			0	0

NATIONAL MARINE FISHERIES SERVICE

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Maine Lobster Research	200	200			0			0	0
New England Fisheries Assistance	9,000	9,000			0			0	0
Consortium for Wildlife Bycatch Reduction MA & NH	1,250	1,250			0			0	0
Joint Institute for Marine and Atmospheric Research, HI	1,250	1,250			0			0	0
Continuation of Protected Species Bycatch Reduction Maine Groundline Exchange Program	550	550			0			0	0
Western and Central Pacific Fisheries Commission (WCPFC) Big Eye Tuna Quotas	3,000	3,000			0			0	0
Cooperative Research and Technical Assistance, RI	600	600			0			0	0
Emergency Plan to Save Oyster Production on the West Coast	500	500			0			0	0
US/Canada Yukon River Salmon Agreement Studies	500	500			0			0	0
Western Pacific Integrated Ecosystem Assessments	500	500			0			0	0
Partnership for Mid-Atlantic Fisheries Science (PMAFS) Fish Stock Improvement Initiative	1,000	1,000			0			0	0
Bering Sea Crab Management and Research	300	300			0			0	0
Metagenomic Analysis of Chesapeake Bay	100	100			0			0	0
Magnuson-Stevens: Marine Education and Training	1,000	1,000			0			0	0
Subtotal, Other Activities Supporting Fisheries	102,730	24,350	(6,480)	143	71,900	(8)	1,787	135	73,687
Total, National Marine Fisheries Service - ORF	904,539	74,746	13,429	2,860	843,222	17	64,555	2,877	907,777
Other National Marine Fisheries Service Accounts									
Total, National Marine Fisheries Service - PAC	0	0	0	0	0	0	0	0	0
Total, National Marine Fisheries Service - Other	103,642	35,777	2,533	5	69,254	0	15,350	5	84,604
GRAND TOTAL NMFS	1,008,181	110,523	15,962	2,865	912,476	17	79,905	2,882	992,381

OFFICE of OCEANIC AND ATMOSPHERIC RESEARCH

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Climate Research									
Laboratories & Cooperative Institutes									
Laboratories & Cooperative Institutes	54,848	2,200	1,198	249	53,846			249	53,846
Subtotal, Laboratories & Cooperative Institutions	54,848	2,200	1,198	249	53,846	0	0	249	53,846
Climate Data & Information									
Climate Data & Information	12,080	0	11	3	12,091	2	1,500	5	13,591
Subtotal, Climate Data & Information	12,080	0	11	3	12,091	2	1,500	5	13,591
Competitive Research Program				0	0			0	0
Competitive Research Program (incl. NIDIS)	144,199	0	(3,840)	109	140,359	21	32,800	130	173,159
Regional Climate Assessments	9,000	9,000		0	0			0	0
Subtotal, Competitive Research Program	153,199	9,000	(3,840)	109	140,359	21	32,800	130	173,159
Climate Operations									
Climate Operations	913	0	0	0	913			0	913
Subtotal, Climate Operations	913	0	0	0	913	0	0	0	913
Other Partnership Programs									
Climate System Research Center	495	495	0	0	0			0	0
Climate Change and Air Pollutant Impacts to NE's Rare Alpine Zone, NH	350	350	0	0	0			0	0
Integrating Climate Change Into the Restoration of the Chesapeake Bay Watershed, MD	3,000	3,000	0	0	0			0	0
Development of Earth System Information, MD	150	150	0	0	0			0	0
Carbon Sequestration and Climate Change Models for NY State Forests	100	100	0	0	0			0	0
Subtotal, Other Partnership Programs	4,095	4,095	0	0	0	0	0	0	0
Total, Climate Research	225,135	15,295	(2,631)	361	207,209	23	34,300	384	241,509
Weather & Air Quality Research									
Laboratories & Cooperative Institutes									
Laboratories & Cooperative Institutes	54,425	0	893	189	55,318		4,697	189	60,015
Nutrient & Mercury Speciation Measurement Stations	650	650	0	0	0			0	0
Subtotal, Laboratories & Cooperative Institutes	55,075	650	893	189	55,318	0	4,697	189	60,015
Weather & Air Quality Research Programs									
U.S. Weather Research Program (USWRP) (THORPEX)	5,500	0	15	17	5,515			17	5,515
Tornado Severe Storm Research / Phased Array Radar	3,972	0	50	4	4,022		6,000	4	10,022
Subtotal, Weather & Air Quality Research Programs	9,472	0	65	21	9,537	0	6,000	21	15,537

OFFICE of OCEANIC AND ATMOSPHERIC RESEARCH

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Total, Ocean, Coastal, & Great Lakes Rsrch	130,606	23,244	6,128	163	113,490	3	10,800	166	124,290
Info Tech, R&D, & Science Education									
High Performance Computing Initiatives	13,028	0	49	13	13,077		53	13	13,130
Total, Info Tech, R&D, & Science Education	13,028	0	49	13	13,077	0	53	13	13,130
Total, Office of Oceanic and Atmospheric Research - ORF	438,766	44,639	4,504	747	398,631	26	55,850	773	454,481
Other Office of Oceanic and Atmospheric Research Accounts									
Total, Office of Ocean and Atmospheric Research - PAC	10,379	0	0	0	10,379	0	0	0	10,379
Total, Office of Oceanic and Atmospheric Research - Other	0	0		0	0	0	0	0	0
GRAND TOTAL OAR	449,145	44,639	4,504	747	409,010	26	55,850	773	464,860

NATIONAL WEATHER SERVICE

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Operations and Research									
Local Warnings and Forecasts									
Local Warnings and Forecasts Base	617,842	0	16,545	4,088	634,387		2,000	4,088	636,387
Air Quality Forecasting	5,445	0	0	0	5,445			0	5,445
Alaska Data Buoys	1,683	0	0	0	1,683			0	1,683
Sustain Cooperative Observer Network	1,871	0	0	0	1,871			0	1,871
Susquehanna River Basin Flood System	2,400	2,400	0	0	0			0	0
Upper Spring River Flood Warning System	125	125	0	0	0			0	0
NOAA Profiler Network	4,756	0	18	7	4,774			7	4,774
Pacific Island Compact	3,515	0	100	0	3,615			0	3,615
Strengthen U.S. Tsunami Warning Network	23,264	0	50	19	23,314			19	23,314
National Mesonet Network	19,000	19,000	0	0	0			0	0
Subtotal, Local Warnings and Forecasts	679,901	21,525	16,713	4,114	675,089	0	2,000	4,114	677,089
Advanced Hydrological Prediction Services	6,037	0	0	0	6,037			0	6,037
Aviation Weather	11,363	0	177	5	11,540	4	15,136	9	26,676
WFO Maintenance	7,316	0	0	0	7,316			0	7,316
Remote Infrasonic Monitoring of Natural Hazards, MS	2,000	2,000	0	0	0			0	0
Regional Ensembling Sys for Atmosph Dispersion, MS	1,000	1,000	0	0	0			0	0
Joint Center for Hurricane Research, FL	500	500	0	0	0			0	0
Weather Radio Transmitters									
Weather Radio Transmitters Base	2,297	0	0	0	2,297			0	2,297
Delaware River Enhanced Flood Warning System	200	200	0	0	0			0	0
Subtotal, Weather Radio Transmitters	2,497	200	0	0	2,297	0	0	0	2,297
Subtotal, Local Warnings and Forecasts	710,614	25,225	16,890	4,119	702,279	4	17,136	4,123	719,415
Central Forecast Guidance									
Central Forecast Guidance	79,525	0	967	307	80,492			307	80,492
Subtotal, Central Forecast Guidance	79,525	0	967	307	80,492	0	0	307	80,492
Total, Operations and Research	790,139	25,225	17,857	4,426	782,771	4	17,136	4,430	799,907
Systems Operation & Maintenance (O&M)									
NEXRAD	46,121	0	135	103	46,256		127	103	46,383
ASOS	11,000	0	58	44	11,058		202	44	11,260
AWIPS	39,346	0	54	41	39,400			41	39,400
NWSTG Backup - CIP	5,512	0	0	0	5,512			0	5,512
Total, Systems Operation & Maintenance	101,979	0	247	188	102,226	0	329	188	102,555

NATIONAL WEATHER SERVICE
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Total, National Weather Service - ORF	892,118	25,225	18,104	4,614	884,997	4	17,465	4,618	902,462
Other National Weather Service Accounts								0	0
Total, National Weather Service - PAC	107,727	14,000	(3,504)	31	90,223	0	10,508	31	100,731
Total, National Weather Service - Other	0	0	0	0	0	0	0	0	0
GRAND TOTAL NWS	999,845	39,225	14,600	4,645	975,220	4	27,973	4,649	1,003,193

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

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Environmental Satellite Observing Systems									
Satellite Command and Control	39,562		677	174	40,239			174	40,239
NSOF Operations	7,810		150	0	7,960			0	7,960
Subtotal, Satellite Command and Control	47,372	0	827	174	48,199	0	0	174	48,199
Product Processing and Distribution									
Product Processing and Distribution	32,698		434	123	33,132		3,108	123	36,240
Subtotal, Product Processing and Distribution	32,698	0	434	123	33,132	0	3,108	123	36,240
Product Development, Readiness & Application									
Product Development, Readiness & Application	20,671		284	102	20,955			102	20,955
Prod Devel, Read & App (Ocean Remote Sensing)	3,979		53	0	4,032			0	4,032
Joint Center/Accelerate Use of Satellites	3,320		45	0	3,365			0	3,365
Subtotal, Product Development, Readiness & Application	27,970	0	382	102	28,352	0	0	102	28,352
Commercial Remote Sensing Licensing & Enforcement	1,301		18	5	1,319			5	1,319
Office of Space Commercialization	649		9	5	658			5	658
Group on Earth Observations (GEO)	500		6	0	506			0	506
Total, Environmental Satellite Observing Sys	110,490	0	1,676	409	112,166	0	3,108	409	115,274
Data Centers & Information Services									
Archive, Access & Assessment	67,255	24,179	600	220	43,676	4	13,000	224	56,676
KY			0	6	1,361			6	1,361
MD			0	0	993			0	993
NC - Quality Assurance/Quality Control			0	2	275			2	275
WV			0	2	1,434			2	1,434
Subtotal, Archive, Access & Assessment	67,255	24,179	600	230	47,739	4	13,000	234	60,739
Coastal Data Development	4,559		61	16	4,620		38	16	4,658
Regional Climate Centers	3,500	3,500	0	0	0			0	0
Environmental Data Systems Modernization	9,511		41	23	9,552			23	9,552
Integrated Environ Applications & Info Ctr	3,000	3,000	0	0	0			0	0
NOAA Regional Climate Center program	850	850	0	0	0			0	0
Total, Data Centers & Information Services	88,675	31,529	702	269	61,911	4	13,038	273	74,949
Total, NESDIS - ORF	199,165	31,529	2,378	678	174,077	4	16,146	682	190,223
Other NESDIS Accounts									
Total, NESDIS - PAC	1,199,357	12,000	0	153	1,187,357	0	831,439	153	2,018,796
Total, NESDIS - Other	0	0	0	0	0			0	0
GRAND TOTAL NESDIS	1,398,522	43,529	2,378	831	1,361,434	4	847,585	835	2,209,019

PROGRAM SUPPORT

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Corporate Services									
Under Secretary and Associate Offices									
Under Secretary and Associate Offices Base	28,438		527	219	28,965		1,000	219	29,965
Subtotal, Under Secretary and Associate Offices	28,438	0	527	219	28,965	0	1,000	219	29,965
NOAA Wide Corporate Services & Agency Management									
NOAA Wide Corporate Services & Agency Management Base	115,561		2,943	791	118,504	7	11,198	798	129,702
DOC Accounting System	10,171		208	0	10,379			0	10,379
Payment to the DOC Working Capital Fund	41,944		4,205	0	46,149			0	46,149
Subtotal, NOAA Wide Corporate Srvc & Agency Mgmt	167,676	0	7,356	791	175,032	7	11,198	798	186,230
Office of Chief Information Officer									
IT Security	9,089	7,000	40	0	2,129	4	4,700	4	6,829
Subtotal, Office of Chief Information Officer	9,089	7,000	40	0	2,129	4	4,700	4	6,829
Total, Corporate Services	205,203	7,000	7,923	1,010	206,126	11	16,898	1,021	223,024
NOAA Education Program									
Education Program / Initiative	2,000	713	(1,287)	0	0			0	0
JASON Education and Outreach	8,300	8,300		0	0			0	0
BWET California	2,500	2,500		0	0			0	0
BWET Regional Programs	7,200	7,200		0	0			0	0
Educ Partnership Prog/Minority Serving Institutions (EPPMSI)	14,323	0	(14,323)	0	0			0	0
Chesapeake Bay Interpretive Buoys	500	500		0	0			0	0
Narragansett Bay Marine Education (Save the Bay)	1,000	1,000		0	0			0	0
Training Next Generation Weather Forecasters - San Jose State Univ.	180	180		0	0			0	0
Competitive Educational Grants and Programs	12,000	6,957	15,715	10	20,758			10	20,758
GLOBE	3,000	3,000		0	0			0	0
Hawaii Education Program, HI	1,750	1,750		0	0			0	0
Coastal Environmental Education Outreach	500	500		0	0			0	0
Chesapeake Bay Environmental Center	250	250		0	0			0	0
Great Lakes Water Project	250	250		0	0			0	0
Total, NOAA Education Program	53,753	33,100	105	10	20,758	0	0	10	20,758
Facilities									
NOAA Facilities Management & Construction and Safety	30,346		302	5	30,648	1	5,758	6	36,406
Subtotal, NOAA Fac Mgmt, Const& Maint	30,346	0	302	5	30,648	1	5,758	6	36,406
Total, Facilities	30,346	0	302	5	30,648	1	5,758	6	36,406
Marine Operations & Maintenance									
Marine Services									
Data Acquisition	120,125	2,500	5,840	923	123,465	5	790	928	124,255
Subtotal, Marine Services	120,125	2,500	5,840	923	123,465	5	790	928	124,255

PROGRAM SUPPORT
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Fleet Planning and Maintenance									
Fleet Planning and Maintenance	17,034		166	3	17,200		6,200	3	23,400
Subtotal, Fleet Planning and Maintenance	17,034	0	166	3	17,200	0	6,200	3	23,400
Total, Marine Operations & Maintenance	137,159	2,500	6,006	926	140,665	5	6,990	931	147,655
Aviation Operations									
Aircraft Services	29,509		778	104	30,287			104	30,287
Total, Aviation Operations	29,509	0	778	104	30,287	0	0	104	30,287
Total, Office of Marine & Aviation Operations	166,668	2,500	6,784	1,030	170,952	5	6,990	1,035	177,942
Total, Program Support - ORF	455,970	42,600	15,114	2,055	428,484	17	29,646	2,072	458,130
Other Program Support Accounts									
Total, Program Support - PAC	2,000	0	0	5	2,000	0	24,800	5	26,800
Total, Program Support - Other	27,938	0	2,267	0	30,205	0	0	0	30,205
GRAND TOTAL PS	485,908	42,600	17,381	2,060	460,689	17	54,446	2,077	515,135

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

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
National Ocean Service	522,220	62,808	4,752	1,230	464,164	12	36,444	1,242	500,608
National Marine Fisheries Service	904,539	74,746	13,429	2,860	843,222	17	64,555	2,877	907,777
Office of Oceanic and Atmospheric Research	438,766	44,639	4,504	747	398,631	26	55,850	773	454,481
National Weather Service	892,118	25,225	18,104	4,614	884,997	4	17,465	4,618	902,462
National Environmental Satellite Data & Information Service	199,165	31,529	2,378	678	174,077	4	16,146	682	190,223
Program Support	455,970	42,600	15,114	2,055	428,484	17	29,646	2,072	458,130
SUBTOTAL LO DIRECT OBLIGATIONS	3,412,778	281,547	58,281	12,184	3,193,575	80	220,106	12,264	3,413,681

ORF ADJUSTMENTS
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
SUBTOTAL LO DIRECT OBLIGATIONS	3,412,778	281,547	58,281	12,184	3,193,575	80	220,106	12,264	3,413,681
FINANCING									
Cash Refunds/Prior Year Recoveries									0
De-Obligations			(6,000)		(6,000)				(6,000)
Unobligated Balance, EOY									0
Unobligated Balance, not apportioned									0
Unobligated Balance, Expiring									0
Unobligated Balance Adj SOY (start of year)									0
Transfer from USAID/NOAA PAC									
Total ORF Financing	0	0	(6,000)	0	(6,000)	0	0	0	(6,000)
SUBTOTAL BUDGET AUTHORITY	3,412,778	281,547	52,281	12,184	3,187,575	80	220,106	12,264	3,407,681
TRANSFERS									
Transfer from ORF to PAC					0				0
Transfer from PAC to ORF					0				0
Transfer from FFPA					0				0
Transfer from P&D to ORF	(104,600)				(104,600)				(104,600)
Transfer from CZMF to ORF	(3,000)				(3,000)		3,000		0
Transfer from ORF to Pacific Salmon			0		0				0
Transfer from USAID					0				0
Total ORF Transfers	(107,600)	0	0	0	(107,600)	0	3,000	0	(104,600)
SUBTOTAL APPROPRIATION	3,305,178	281,547	52,281	12,184	3,079,975	80	223,106	12,264	3,303,081

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

FY 11 PROPOSED OPERATING PLAN Procurement, Acquisition and Construction	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
NOS									
CELCP Acquisition									
Coastal and Estuarine Land Conservation Program	20,000	5,000		1	15,000		10,000	1	25,000
Subtotal, Acquisition	20,000	5,000	0	1	15,000	0	10,000	1	25,000
NERRS Construction:									
National Estuarine Rsrch Reserve Construction & Land Acq (NERRS)	3,890			0	3,890			0	3,890
Great Bay Partnership, NH	3,000	3,000		0	0			0	0
Subtotal, NERRS Construction	6,890	3,000	0	0	3,890	0	0	0	3,890
Marine Sanctuaries Construction:									
Marine Sanctuaries Base	13,000	7,505		0	5,495			0	5,495
Thunder Bay NMS Exhibit	1,000	1,000		0	0			0	0
Subtotal, Marine Sanctuary Construction	14,000	8,505	0	0	5,495	0	0	0	5,495
Subtotal, Construction	20,890	11,505	0	0	9,385	0	0	0	9,385
Total NOS - PAC	40,890	16,505	0	1	24,385	0	10,000	1	34,385
NMFS									
Total, NMFS - PAC	0	0	0	0	0	0	0	0	0
OAR									
Systems Acquisition									
Research Supercomputing/ CCRI	10,379			0	10,379			0	10,379
Subtotal, OAR Systems Acquisition	10,379	0	0	0	10,379	0	0	0	10,379
Total, OAR - PAC	10,379	0	0	0	10,379	0	0	0	10,379
NWS									
Systems Acquisition									
ASOS	1,635			9	1,635			9	1,635
AWIPS	24,000			15	24,000		364	15	24,364
NEXRAD	7,976			5	7,976		3,150	5	11,126
NWSTG Legacy Replacement	1,195			0	1,195			0	1,195
Radiosonde Network Replacement	4,014			0	4,014			0	4,014
Weather and Climate Supercomputing	29,169			0	29,169			0	29,169
Cooperative Observer Network Modernization (NERON)	3,734			2	3,734			2	3,734
Complete and Sustain NOAA Weather Radio	11,000			0	11,000		1,614	0	12,614
NOAA Profiler Conversion	7,500			0	7,500		2,230	0	9,730
Subtotal, NWS Systems Acquisition	90,223	0	0	31	90,223	0	7,358	31	97,581

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

FY 11 PROPOSED OPERATING PLAN Procurement, Acquisition and Construction	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Construction					0				
WFO Construction	3,504		(3,504)	0	0		3,150	0	3,150
Cooperative Institute and Research Center for Southeast Weather, AL	14,000	14,000		0	0			0	0
Subtotal, NWS Construction	17,504	14,000	(3,504)	0	0	0	3,150	0	3,150
Total, NWS - PAC	107,727	14,000	(3,504)	31	90,223	0	10,508	31	100,731
NESDIS									
Systems Acquisition									
Geostationary Systems - N	57,601			24	57,601			24	57,601
Geostationary Systems - R	667,500			46	667,500		62,500	46	730,000
Subtotal, NESDIS - GOES	725,101	0	0	70	725,101	0	62,500	70	787,601
Polar Orbiting Systems - POES	43,135			22	43,135		(2,261)	22	40,874
JASON-3	20,000			0	20,000		30,000	0	50,000
Joint Polar Satellite System (formerly NPOESS)	382,200			61	382,200		678,600	61	1,060,800
DSCOVR				0	0		9,500		9,500
Cosmic 2				0	0		3,700		3,700
EOS & Advanced Polar Data Processing, Distribution& A Archiving Systems	990			0	990			0	990
Subtotal, NESDIS - EOS	990	0	0	0	990	0	0	0	990
CIP - single point of failure	2,772			0	2,772			0	2,772
Subtotal, NESDIS - CIP	2,772	0	0	0	2,772	0	0	0	2,772
Comprehensive Large Array Data Stewardship Sys (CLASS)	18,476	12,000		0	6,476			0	6,476
NPOESS Preparatory Data Exploitation	4,455	0		0	4,455			0	4,455
Restoration of Climate Sensors	0	0		0	0		49,400	0	49,400
Subtotal, NESDIS Systems Acquisition	1,197,129	12,000	0	153	1,185,129	0	831,439	153	2,016,568
Construction									
Satellite CDA Facility	2,228			0	2,228			0	2,228
Subtotal, NESDIS Construction	2,228	0	0	0	2,228	0	0	0	2,228
Total, NESDIS - PAC	1,199,357	12,000	0	153	1,187,357	0	831,439	153	2,018,796

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

FY 11 PROPOSED OPERATING PLAN Procurement, Acquisition and Construction	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Program Support									
Construction									
Pacific Region Center	0			0	0		14,000	0	14,000
Subtotal, Construction	0	0	0	0	0	0	14,000	0	14,000
Program Support / OMAO									
OMAO - Fleet Replacement									
Temporary Berthing	1,000			0	1,000		(1,000)	0	0
Fleet Capital Improvements & Tech Infusion (formerly known as Vessel Equipment & Technology)	1,000			0	1,000		7,400	0	8,400
New Vessel Construction	0			5	0		4,400	5	4,400
Subtotal, OMAO Fleet Replacement	2,000	0	0	5	2,000	0	10,800	5	12,800
Total, Program Support - PAC	2,000	0	0	5	2,000	0	24,800	5	26,800
GRAND TOTAL PAC	1,360,353	42,505	(3,504)	190	1,314,344	0	876,747	190	2,191,091

PAC ADJUSTMENTS
(\$ in Thousands)

FY 11 PROPOSED OPERATING PLAN Procurement, Acquisition and Construction	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
SUBTOTAL DIRECT OBLIGATIONS	1,360,353	42,505	(3,504)	190	1,314,344	0	876,747	190	2,191,091
FINANCING									
Cash Refunds/Recoveries from Prior Year									
De-Obligations	(2,000)		(5,000)		(7,000)				(7,000)
Unobligated balance, Expiring end of 2008									
Unobligated Balance Adj. SOY (start of year)									
Unobligated Balance End of Year									
Transfer to ORF									
Total PAC Financing	(2,000)	0	(5,000)		(7,000)		0	0	(7,000)
SUBTOTAL BUDGET AUTHORITY	1,358,353	42,505	(8,504)	190	1,307,344	0	876,747	190	2,184,091
TRANSFERS/RESCISSIONS									
Transfer from ORF to PAC									
Transfer from PAC to ORF									
Total PAC Transfers/Rescissions	0	0	0	0	0	0	0	0	0
SUBTOTAL APPROPRIATION	1,358,353	42,505	(8,504)	190	1,307,344	0	876,747	190	2,184,091

GRAND TOTAL SUMMARY
Discretionary Appropriations
(\$ in Thousands)

FY 11 PROPOSED OPERATING PLAN ORF, PAC, and Other Discretionary Appropriations	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Operations, Research and Facilities	3,305,178	281,547	52,281	12,184	3,079,975	80	223,106	12,264	3,303,081
Procurement, Acquisition and Construction	1,358,353	42,505	(8,504)	190	1,307,344	0	876,747	190	2,184,091
Coastal Zone Management Fund	3,000	0	0	0	3,000	0	(3,000)	0	0
Fisherman's Contingency Fund	0	0	0	1	0	0	350	1	350
Foreign Fishing Observer Fund	0	0	0	0	0	0	0	0	0
Fisheries Financing Program	0	0	0	0	0	0	0	0	0
Pacific Coastal Salmon Fund	80,000	30,000	0	0	50,000	0	15,000	0	65,000
Marine Mammal Unusual Mortality Event Fund	0	0	0	0	0	0	0	0	0
Medicare Eligible Retiree Health Care Fund	1,822	0	114	0	1,936	0	0	0	1,936
GRAND TOTAL DISCRETIONARY APPROPRIATION	4,748,353	354,052	43,891	12,375	4,442,255	80	1,112,203	12,455	5,554,458

OTHER ACCOUNTS (DISCRETIONARY)

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
NOS									
Coastal Zone Management Fund Obligations	0		0		0			0	0
Coastal Zone Management Fund Budget Authority	0	0	0	0	0			0	0
Coastal Zone Management Fund Appropriation	3,000		0	0	3,000		(3,000)	0	0
Coastal Impact Assistance Fund Obligations	0		0	0	0			0	0
Coastal Impact Assistance Fund Budget Authority	0		0	0	0			0	0
Coastal Impact Assistance Fund Appropriation	0		0	0	0			0	0
Subtotal, NOS Oth Disc Direct Obligation	0	0	0	0	0	0	0	0	0
Subtotal, NOS Oth Disc Budget Authority	0	0	0	0	0	0	0	0	0
Subtotal, NOS Oth Disc Appropriation	3,000	0	0	0	3,000	0	(3,000)	0	0
NMFS									
Fishermen's Contingency Fund Obligations	0		0	1	0		350	1	350
Fishermen's Contingency Fund Budget Authority	0		0	1	0		350	1	350
Fishermen's Contingency Fund Appropriations	0		0	1	0		350	1	350
Foreign Fishing Observer Fund Obligations	0		0	0	0		0	0	0
Foreign Fishing Observer Fund Budget Authority	0		0	0	0		(350)	0	(350)
Foreign Fishing Observer Fund Appropriation	0		0	0	0		0	0	0
Fisheries Finance Program Account Obligations	0		0	0	0			0	0
Fisheries Finance Program Account Budget Authority	0		0	0	0			0	0
Fisheries Finance Program Account Appropriation	0		0	0	0			0	0
Promote and Develop Fisheries Obligations	0		0	0	0			0	0
Promote and Develop Fisheries Budget Authority	(104,600)		0	0	(104,600)			0	(104,600)
Promote and Develop Fisheries Appropriation	0		0	0	0			0	0
Pacific Coastal Salmon Fund Obligations	80,000	30,000	0	0	50,000		15,000	0	65,000
Pacific Coastal Salmon Fund Budget Authority	80,000	30,000	0	0	50,000		15,000	0	65,000
Pacific Coastal Salmon Fund Appropriation	80,000	30,000	0	0	50,000		15,000	0	65,000
Marine Mammal Unusual Mortality Event Fund Obligations	0		0	0	0			0	0
Marine Mammal Unusual Mortality Event Fund Budget Authority	0		0	0	0			0	0
Marine Mammal Unusual Mortality Event Fund Appropriations	0		0	0	0			0	0
Subtotal, NMFS Oth Disc Direct Obligation	80,000	30,000	0	1	50,000	0	15,350	1	65,350
Subtotal, NMFS Oth Disc Budget Authority	(24,600)	30,000	0	1	(54,600)	0	15,000	1	(39,600)
Subtotal, NMFS Oth Disc Appropriation	80,000	30,000	0	1	50,000	0	15,350	1	65,350

OTHER ACCOUNTS (DISCRETIONARY)

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
OMAO									
Medicare Eligible Retiree Healthcare Fund Acct Obligations	1,822		114	0	1,936			0	1,936
Medicare Eligible Retiree Healthcare Fund Acct Budget Authority	1,822		114	0	1,936			0	1,936
Medicare Eligible Retiree Healthcare Fund Acct Appropriations	1,822		114	0	1,936			0	1,936
Subtotal, OMAO Oth Disc Direct Obligations	1,822	0	114	0	1,936	0	0	0	1,936
Subtotal, OMAO Oth Disc Budget Authority	1,822	0	114	0	1,936	0	0	0	1,936
Subtotal, OMAO Oth Disc Appropriation	1,822	0	114	0	1,936	0	0	0	1,936
				0	0			0	0
TOTAL, OTHER DISC DIRECT OBLIGATIONS	81,822	30,000	114	1	51,936	0	15,350	1	67,286
TOTAL, OTHER DISC BUDGET AUTHORITY	(22,778)	30,000	114	1	(52,664)	0	15,000	1	(37,664)
TOTAL, OTHER DISC APPROPRIATION	84,822	30,000	114	1	54,936	0	12,350	1	67,286

SUMMARY OF DISCRETIONARY RESOURCES

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
<u>Discretionary Direct Obligations</u>									
ORF Direct Obligations	3,412,778	281,547	58,281	12,184	3,193,575	80	220,106	12,264	3,413,681
PAC Direct Obligations	1,360,353	42,505	(3,504)	190	1,314,344	0	876,747	190	2,191,091
OTHER Direct Obligations	81,822	30,000	114	1	51,936	0	15,350	1	67,286
TOTAL Discretionary Direct Obligations	4,854,953	354,052	54,891	12,375	4,559,855	80	1,112,203	12,455	5,672,058
<u>Discretionary Budget Authority</u>									
ORF Budget Authority	3,412,778	281,547	52,281	12,184	3,187,575	80	220,106	12,264	3,407,681
PAC Budget Authority	1,358,353	42,505	(8,504)	190	1,307,344	0	876,747	190	2,184,091
OTHER Budget Authority	(22,778)	30,000	114	1	(52,664)	0	15,000	1	(37,664)
TOTAL Discretionary Budget Authority	4,748,353	354,052	43,891	12,375	4,442,255	80	1,111,853	12,455	5,554,108
<u>Discretionary Appropriations</u>									
ORF Appropriations	3,305,178	281,547	52,281	12,184	3,079,975	80	223,106	12,264	3,303,081
PAC Appropriations	1,358,353	42,505	(8,504)	190	1,307,344	0	876,747	190	2,184,091
OTHER Appropriations	84,822	30,000	114	1	54,936	0	12,350	1	67,286
TOTAL Discretionary Appropriation	4,748,353	354,052	43,891	12,375	4,442,255	80	1,112,203	12,455	5,554,458

OTHER ACCOUNTS (MANDATORY)

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
<u>NOS</u>									
Coastal Zone Management Fund Obligations	0	0	0	0	0			0	0
Coastal Zone Management Fund Budget Authority	(1,500)	0	0	0	(1,500)		0	0	(1,500)
Coastal Zone Management Fund Appropriation	(3,000)	0	0	0	(3,000)		3,000	0	0
Damage Assessment & Restoration Revolving Fund Obligations	15,600	0	0	16	15,600			16	15,600
Damage Assessment & Restoration Revolving Fund Budget Authority	3,000	0	0	16	3,000			16	3,000
Damage Assessment & Restoration Revolving Fund Appropriation	0	0	0	16	0			16	0
Subtotal, NOS Oth Mand Direct Obligations	15,600	0	0	16	15,600	0	0	16	15,600
Subtotal, NOS Oth Mand Budget Authority	1,500	0	0	16	1,500	0	0	16	1,500
Subtotal, NOS Oth Mand Appropriation	(3,000)	0	0	16	(3,000)	0	3,000	16	0
<u>NMFS</u>									
Promote and Develop Fisheries Obligations	8,771	0	0	4	8,771			4	8,771
Promote and Develop Fisheries Budget Authority	113,371	0	0	4	113,371			4	113,371
Promote and Develop Fisheries Appropriation	0	0	0	4	0			4	0
Fisheries Finance Program Account Obligations	5,777	5,777	0	0	0			0	0
Fisheries Finance Program Account Budget Authority	5,777	5,777	0	0	0			0	0
Fisheries Finance Program Account Appropriation	5,777	5,777	0	0	0			0	0
Federal Ship Financing Obligations	260	0	0	0	0			0	0
Federal Ship Financing Budget Authority	(740)	0	0	0	0			0	0
Federal Ship Financing Appropriation	0	0	0	0	0			0	0
Environmental Improve & Restoration Fund Obligations	506	0	2,533	0	3,039			0	3,039
Environmental Improve & Restoration Fund Budget Authority	506	0	2,533	0	3,039			0	3,039
Environmental Improve & Restoration Fund Appropriation	506	0	2,533	0	3,039			0	3,039
Limited Access System Administration Fund Obligations	7,444	0	0	0	7,444			0	7,444
Limited Access System Administration Fund Budget Authority	7,444	0	0	0	7,444			0	7,444
Limited Access System Administration Fund Appropriation	7,444	0	0	0	7,444			0	7,444
Western Pacific Sustainable Fisheries Fund Obligations	884	0	0	0	0			0	0
Western Pacific Sustainable Fisheries Fund Budget Authority	0	0	0	0	0			0	0
Western Pacific Sustainable Fisheries Fund Appropriation	0	0	0	0	0			0	0
Subtotal, NMFS Oth Mand Direct Obligations	23,642	5,777	2,533	4	19,254	0	0	4	19,254
Subtotal, NMFS Oth Mand Budget Authority	126,358	5,777	2,533	4	123,854	0	0	4	123,854
Subtotal, NMFS Oth Mand Appropriation	13,727	5,777	2,533	4	10,483	0	0	4	10,483

OTHER ACCOUNTS (MANDATORY)

(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
OMAO									
NOAA Corp Commissioned Officers Retirement Obligations	26,116	0	2,153	0	28,269			0	28,269
NOAA Corp Commissioned Officers Retirement Budget Authority	26,116	0	2,153	0	28,269			0	28,269
NOAA Corp Commissioned Officers Retirement Budget Appropriation	26,116	0	2,153	0	28,269			0	28,269
Subtotal, OMAO Oth Mand Direct Obligations	26,116	0	2,153	0	28,269	0	0	0	28,269
Subtotal, OMAO Oth Mand Budget Authority	26,116	0	2,153	0	28,269	0	0	0	28,269
Subtotal, OMAO Oth Mand Appropriation	26,116	0	2,153	0	28,269	0	0	0	28,269
TOTAL, OTH MAND DIRECT OBLIGATIONS	65,358	5,777	4,686	20	63,123	0	0	20	63,123
TOTAL, OTH MAND BUDGET AUTHORITY	153,974	5,777	4,686	20	153,623	0	0	20	153,623
TOTAL, OTH MAND APPROPRIATION	36,843	5,777	4,686	20	35,752	0	3,000	20	38,752

NOAA SUMMARY
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
TOTAL Direct Obligations (Discretion & Mand)	4,920,311	359,829	59,577	12,395	4,622,978	80	1,112,203	12,475	5,735,181
TOTAL Budget Authority (Discretion & Mand)	4,902,327	359,829	48,577	12,395	4,595,878	80	1,111,853	12,475	5,707,731
TOTAL Appropriation (Discretion & Mand)	4,785,196	359,829	48,577	12,395	4,478,007	80	1,115,203	12,475	5,593,210
Reimbursable Financing	242,000			706	242,000			706	242,000
TOTAL OBLIGATIONS (Direct & Reimbursable)	5,162,311	359,829	59,577	13,101	4,864,978	80	1,112,203	13,181	5,977,181
Offsetting Receipts	(6,929)				(8,001)				(8,001)
TOTAL OBLIGATIONS (Direct, Reimb & Offsetting Receipts)	5,155,382	359,829	59,577	13,101	4,856,977	80	1,112,203	13,181	5,969,180

LINE OFFICE SUMMARY
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
National Ocean Service									
ORF	522,220	62,808	4,752	1,230	464,164	12	36,444	1,242	500,608
PAC	40,890	16,505	0	1	24,385	0	10,000	1	34,385
OTHER	15,600	0	0	16	15,600	0	0	16	15,600
TOTAL, NOS	578,710	79,313	4,752	1,247	504,149	12	46,444	1,259	550,593
National Marine Fisheries Service									
ORF	904,539	74,746	13,429	2,860	843,222	17	64,555	2,877	907,777
PAC	0	0	0	0	0	0	0	0	0
OTHER	103,642	35,777	2,533	5	69,254	0	15,350	5	84,604
TOTAL, NMFS	1,008,181	110,523	15,962	2,865	912,476	17	79,905	2,882	992,381
Oceanic and Atmospheric Research									
ORF	438,766	44,639	4,504	747	398,631	26	55,850	773	454,481
PAC	10,379	0	0	0	10,379	0	0	0	10,379
OTHER	0	0	0	0	0	0	0	0	0
TOTAL, OAR	449,145	44,639	4,504	747	409,010	26	55,850	773	464,860
National Weather Service									
ORF	892,118	25,225	18,104	4,614	884,997	4	17,465	4,618	902,462
PAC	107,727	14,000	(3,504)	31	90,223	0	10,508	31	100,731
OTHER	0	0	0	0	0	0	0	0	0
TOTAL, NWS	999,845	39,225	14,600	4,645	975,220	4	27,973	4,649	1,003,193
NESDIS									
ORF	199,165	31,529	2,378	678	174,077	4	16,146	682	190,223
PAC	1,199,357	12,000	0	153	1,187,357	0	831,439	153	2,018,796
OTHER	0	0	0	0	0	0	0	0	0
TOTAL, NESDIS	1,398,522	43,529	2,378	831	1,361,434	4	847,585	835	2,209,019
Program Support / Corporate Services									
ORF	205,203	7,000	7,923	1,010	206,126	11	16,898	1,021	223,024
PAC	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0	0
SUBTOTAL, PS / Corporate Services	205,203	7,000	7,923	1,010	206,126	11	16,898	1,021	223,024
Program Support / NOAA Education Program									
ORF	53,753	33,100	105	10	20,758	0	0	10	20,758
PAC	0	0	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0	0	0
SUBTOTAL, PS / NOAA Education Program	53,753	33,100	105	10	20,758	0	0	10	20,758

LINE OFFICE SUMMARY
(\$ in Thousands)

FY 2011 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2010 Terminations	ATBs	FTE	FY 2011 Base	FTE	FY 2011 Program Changes	FTE	FY 2011 ESTIMATE
Program Support / Facilities									
ORF	30,346	0	302	5	30,648	1	5,758	6	36,406
PAC	0	0	0	0	0	0	14,000	0	14,000
OTHER	0	0	2	0	0	0	0	0	0
SUBTOTAL, PS / Facilities	30,346	0	304	5	30,648	1	19,758	6	50,406
Program Support / Corp Srv, Edu, Fac									
ORF	289,302	40,100	8,330	1,025	257,532	12	22,656	1,037	280,188
PAC	0	0	0	0	0	0	14,000	0	14,000
OTHER	0	0	0	0	0	0	0	0	0
TOTAL, PS / Corp Srv, Edu, Fac	289,302	40,100	8,330	1,025	257,532	12	36,656	1,037	294,188
Program Support / OMAO									
ORF	166,668	2,500	6,784	1,030	170,952	5	6,990	1,035	177,942
PAC	2,000	0	0	5	2,000	0	10,800	5	12,800
OTHER	27,938	0	2,267	0	30,205	0	0	0	30,205
TOTAL, PS / OMAO	196,606	2,500	9,051	1,035	203,157	5	17,790	1,040	220,947
Total PS ORF	455,970	42,600	15,114	2,055	428,484	17	29,646	2,072	458,130
Total PS PAC	2,000	0	0	5	2,000	0	24,800	5	26,800
Total PS Other	27,938	0	2,267	0	30,205	0	0	0	30,205
TOTAL, PS	485,908	42,600	17,381	2,060	460,689	17	54,446	2,077	515,135
DIRECT OBLIGATIONS									
ORF	3,412,778	281,547	58,281	12,184	3,193,575	80	220,106	12,264	3,413,681
PAC	1,360,353	42,505	(3,504)	190	1,314,344	0	876,747	190	2,191,091
OTHER	147,180	35,777	4,800	21	115,059	0	15,350	21	130,409
TOTAL, DIRECT OBLIGATIONS	4,920,311	359,829	59,577	12,395	4,622,978	80	1,112,203	12,475	5,735,181
ORF Adjustments (Deobligations / Rescissions)	0	0	(6,000)	0	(6,000)	0	0	0	(6,000)
ORF Transfers	(107,600)	0	0	0	(107,600)	0	3,000	0	(104,600)
PAC Adjustments (Deobligations / Rescissions)	(2,000)	0	(5,000)	0	(7,000)	0	0	0	(7,000)
PAC Transfers	0	0	0	0	0	0	0	0	0
OTHER Discretionary Adjustments	3,000	0	0	0	3,000	0	(3,000)	0	0
Mandatory Accounts Excluded	(65,358)	(5,777)	(4,686)	(20)	(67,306)	0	0	(20)	(63,123)
TOTAL, DISCRETIONARY APPROPRIATIONS	4,748,353	354,052	43,891	12,375	4,438,072	80	1,112,203	12,455	5,554,458

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

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2010 Currently Available	12,772	12,130	3,305,178	3,412,778	3,451,512
less: Carryover	0	0	0	0	(38,734)
less: Terminations	0	0	(277,484)	(277,484)	(277,484)
plus: 2011 Other Adjustments to Base	0	54	52,281	52,281	58,281
FY 2011 Base	12,772	12,184	3,079,975	3,187,575	3,193,575
plus: 2011 Program Changes	110	80	223,106	220,106	220,106
FY 2011 Estimate	12,882	12,264	3,303,081	3,407,681	3,413,681

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	1,285	536,427	1,293	522,220	1,293	464,164	1,309	500,608	16	36,444
	FTE/OBL	1,221	538,100	1,229	522,545	1,230	464,164	1,242	500,608	12	36,444
National Marine Fisheries Service	Pos/BA	2,796	923,167	3,002	904,539	3,002	843,222	3,027	907,777	25	64,555
	FTE/OBL	2,780	1,055,273	2,818	926,598	2,860	843,222	2,877	907,777	17	64,555
Office of Oceanic & Atmospheric Research	Pos/BA	772	396,335	784	438,766	784	398,631	819	454,481	35	55,850
	FTE/OBL	695	396,659	744	441,293	747	398,631	773	454,481	26	55,850
National Weather Service	Pos/BA	4,839	847,092	4,845	892,118	4,845	884,997	4,850	902,462	5	17,465
	FTE/OBL	4,636	858,133	4,613	892,151	4,614	884,997	4,618	902,462	4	17,465

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

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate			
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Environmental, Satellite, Data, and Information Service	Pos/BA	712	187,233	712	199,165	712	174,077	718	190,223	6	16,146
	FTE/OBL	578	187,365	678	200,238	678	174,077	682	190,223	4	16,146
Program Support	Pos/BA	1,067	277,857	1,076	289,302	1,076	257,532	1,092	280,188	16	22,656
	FTE/OBL	918	270,474	1,023	291,023	1,025	257,532	1,037	280,188	12	22,656
Office of Marine and Aviation Operations	Pos/BA	1,038	197,857	1,060	166,668	1,060	170,952	1,067	177,942	7	6,990
	FTE/OBL	972	187,323	1,025	177,664	1,030	170,952	1,035	177,942	5	6,990
Less Deobligations	Pos/BA	0	(6,000)	0	0	0	(6,000)	0	(6,000)	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total	Pos/BA	12,509	3,359,968	12,772	3,412,778	12,772	3,187,575	12,882	3,407,681	110	220,106
	FTE/OBL	11,800	3,493,327	12,130	3,451,512	12,184	3,193,575	12,264	3,413,681	80	220,106

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	11,800	3,493,327	12,130	3,451,512	12,184	3,193,575	12,264	3,413,681	80	220,106
Total Obligations	11,800	3,493,327	12,130	3,451,512	12,184	3,193,575	12,264	3,413,681	80	220,106
Adjustments to Obligations:										
Recoveries	0	0	0	0	0	0	0	0	0	0
Cash Refunds/Prior Year Recoveries	0	(416)	0	0	0	0	0	0	0	0
Deobligations	0	(4,807)	0	0	0	(6,000)	0	(6,000)	0	0
Unobligated Balance Adj SOY	0	(166,643)	0	(38,734)	0	0	0	0	0	0
Unobligated balance, EOY	0	38,734	0	0	0	0	0	0	0	0
Unobligated balance, Expiring	0	254	0	0	0	0	0	0	0	0
Transfer from USAID/NOAA PAC	0	(481)	0	0	0	0	0	0	0	0
Total Budget Authority	11,800	3,359,968	12,130	3,412,778	12,184	3,187,575	12,264	3,407,681	80	220,106
Financing from Transfers and Other:										
Transfer from PAC (Hollings Scholarship)	0	(1,844)	0	0	0	0	0	0	0	0
Transfer from P&D	0	(79,000)	0	(104,600)	0	(104,600)	0	(104,600)	0	0
Transfer from CZMF	0	(3,000)	0	(3,000)	0	(3,000)	0	0	0	3,000
Transfer from Pacific Salmon	0	(80)	0	0	0	0	0	0	0	0
Transfer to FFPA	0	(495)	0	0	0	0	0	0	0	0
Net Appropriation	11,800	3,275,549	12,130	3,305,178	12,184	3,079,975	12,264	3,303,081	80	223,106

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

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2010 Currently Available	706	706	0	242,000	365,306
less: obligations from prior year balances	0	0	0	0	(123,306)
FY 2011 Base	706	706	0	242,000	242,000
plus: 2011 Program Changes	0	0	0	0	0
FY 2011 Estimate	706	706	0	242,000	242,000

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	75	20,579	75	20,579	75	17,000	75	17,000	0	0
	FTE/OBL	68	23,732	75	33,564	75	17,000	75	17,000	0	0
National Marine Fisheries Service	Pos/BA	281	81,024	281	81,024	281	71,000	281	71,000	0	0
	FTE/OBL	321	71,737	281	117,928	281	71,000	2,81	71,000	0	0
Office of Oceanic & Atmospheric Research	Pos/BA	82	35,622	82	35,622	82	40,000	82	40,000	0	0
	FTE/OBL	50	31,820	82	52,368	82	40,000	82	40,000	0	0
National Weather Service	Pos/BA	173	58,118	173	58,118	173	57,000	173	57,000	0	0
	FTE/OBL	178	66,854	173	93,510	173	57,000	173	57,000	0	0

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

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel	Amount
		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	36,000	41	36,000	0	0
	FTE/OBL	49	22,717	41	43,761	41	36,000	41	36,000	0	0
Program Support	Pos/BA	54	15,582	54	15,582	54	21,000	54	21,000	0	0
	FTE/OBL	39	14,760	54	24,175	54	21,000	54	21,000	0	0
Adjustments to Budget Authority	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	Pos/BA	706	242,000	706	242,000	706	242,000	706	242,000	0	0
	FTE/OBL	705	231,620	706	365,306	706	242,000	706	242,000	0	0

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Reimbursable Obligations	705	231,620	706	365,306	706	242,000	706	242,000	0	0
Total Obligations	705	231,620	706	365,306	706	242,000	706	242,000	0	0
Adjustments to Obligations:										
Federal Funds	0	(179,937)	0	(186,000)	0	(186,000)	0	(186,000)	0	0
Non-Federal Sources	0	(55,222)	0	(56,000)	0	(56,000)	0	(56,000)	0	0
Unobligated balance, SOY Reimbursable	0	(122,767)	0	(123,306)	0	0	0	0	0	0
Unobligated balance, EOY Reimbursable	0	123,306	0	0	0	0	0	0	0	0
Unobligated balance, Expiring	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	705	0	706	0	706	0	706	0	0	0
Financing from Transfers and Other:										
Net Appropriation	705	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 2009	FY 2010	FY 2011	FY 2011	Increase/(Decrease)
	Actuals	Currently Available	Base Program	Estimate	over FY 2011 Base
Direct Discretionary Obligation	3,493,327	3,451,512	3,193,575	3,413,681	220,106
Direct Mandatory Obligation	23,033	26,116	28,269	28,269	0
Reimbursable Obligation	231,620	365,306	242,000	242,000	0
Total Obligations	3,747,980	3,842,934	3,463,844	3,683,950	220,106
Adjustments and Obligations:					
Federal funds	(179,937)	(186,000)	(186,000)	(186,000)	0
Non-Federal Sources	(52,222)	(56,000)	(56,000)	(56,000)	0
Cash Refund	0	0	0	0	0
Recoveries	(416)	0	0	0	0
Enacted Rescissions	0	0	0	0	0
Deobligations	(4,807)	0	(6,000)	(6,000)	0
Other Appropriations Realized	0	0	0	0	0
Unobligated Balance, Expiring	252	0	0	0	0
Unobligated Balance transferred – NOAA PAC/USAID	(481)	0	0	0	0
Unobligated Balance unavailable	0	0	0	0	0
Unobligated balance, adj. SOY	(166,641)	(38,734)	0	0	0
Unobligated balance, EOY	38,734	0	0	0	0
Unobligated balance, SOY Reimbursable	(122,767)	(123,306)	0	0	0
Unobligated balance, EOY Reimbursable	119,154	0	0	0	0
Unobligated balance, Expiring (NOAA Corps)	1,239	0	0	0	0
Total Budget Authority	3,384,240	3,438,894	3,215,844	3,435,950	220,106

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

	FY 2009	FY 2010	FY 2011	FY 2011	Increase/(Decrease)
	Actuals	Currently Available	Base Program	Estimate	over FY 2009 Base
Financing from Transfers and Other:					
Transfer from P&D	(79,000)	(104,600)	(104,600)	(104,600)	0
Transfer from CZMF	(3,000)	(3,000)	(3,000)	0	3,000
Transfer from USDA	0	0	0	0	0
Transfer to ORF from Pacific Salmon	0	0	0	0	0
Transfer to FFPA	(495)	0	0	0	0
Transfer to/from Dept of Interior	0	0	0	0	0
NOAA Corps Retirement Pay (Mandatory)	(24,272)	(26,116)	(28,269)	(28,269)	0
Transfer from Pacific Salmon	(80)	0	0	0	0
Transfer from PAC (Hollings Scholarship)	(1,844)	0	0	0	0
Transfer from USAID	0	0	0	0	0
Net Appropriation	3,275,549	3,305,178	3,079,975	3,303,081	223,106

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
ADJUSTMENTS TO BASE
(Dollars in thousands)

		FTE	Amount
Adjustments:			
	Restoration of FY 2010 deobligations	0	0
	Unrequested Projects		(277,484)
	Subtotal, Adjustments		(277,484)
Financing:			
	Deobligations	0	(6,000)
	Subtotal, Financing	0	(6,000)
Transfers:			
	NWS transfer from PAC Weather Forecast Office Construction line to the ORF Local Warnings and Forecasts line.		3,504
	Subtotal, Transfers	0	3,504
Other Changes:			
	Annualization of Jan., 2010 Pay Raise		7,333
	2011 Pay raise		13,312
	Pay raise to Working Capital Fund		230
	Full year costs of positions financed in part-year in FY 2010	54	4,794
	Change in Compensable Days		0
	OMAO Wage Marine overtime on NOAA ships		64
	Civil Service Retirement System (CSRS)		(2,098)
	Federal Employees Retirement System (FERS)		7,624
	Thrift Savings Plan		600
	Federal Insurance Contribution Act (FICA) - OASDI		1,822
	Health Insurance Premiums		4,320

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
ADJUSTMENTS TO BASE
(Dollars in thousands)

	FTE	Amount
Employee Compensation Fund		820
Per diem		1,630
Mileage		(214)
Rental payments to GSA		1,035
Printing and Reproduction		68
PEPCO Electricity		61
NARA Storage & Maintenance Costs		(9)
Working Capital Fund		3,975
Postage		116
CBS		180
Other Services		6,465
Transportation of Things		130
Rental payments to others		144
Comm., Util., and misc.		599
Supplies and Materials		631
Equipment		433
Grants		550
Ship and Aircraft Fuel Costs		4,403
Subtotal, Other Changes	54	59,018
Less: Absorption	0	(4,241)
Subtotal, Less Absorption	0	(4,241)
	<u>54</u>	<u>(225,203)</u>
Total, Adjustments to Base		

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
<u>Adjustments:</u>		
Restoration of FY 2010 deobligations	0	0
Less unrequested projects		(277,484,000)
 <u>Financing:</u>		
In 2011, NOAA expects to realize recoveries of prior year obligations of \$6,000,000. This amount will be used to offset the budget authority in 2011.	0	(6,000,000)
 <u>Transfers:</u>		
NWS transfer from PAC Weather Forecast Office Construction line to the ORF Local Warnings and Forecasts line. This transfer will facilitate NWS managing all Weather Forecast Offices leases out of Operations, Research, and Facilities funds.	0	3,504,000
Subtotal transfers		3,504,000
 <u>Pay Raises</u>		
Full-year cost of 2010 pay increase and related costs:		
A general payraise of 2.4% was effective January 1, 2010.		
Total cost is 2010 pay raise		29,332,000
Less amount funded in 2010		(21,999,000)
Adjustment for FY 2011 of 2010 pay increase		7,333,000

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
2011 pay increase and related costs:		
The FY 2011 President's Budget assumes a pay raise of 1.4% to be effective January 1, 2011.		
Total cost in 2011 of pay increase		17,749,000
Less amount not funded in 2011		(4,437,000)
Total cost of January 2011 pay increase		13,312,000
Payment to Working Capital Fund		230,000
Total, adjustment for 2011 pay increase		13,542,000
<u>Full-year cost in 2011 of positions financed for part-year in 2010</u>	54	4,794,230
An increase of \$1,943,472 is required to fund the full-year cost in 2011 of positions financed for part-year in 2010. The computation follows:		
Annual salary of new positions in 2010	264	18,287,636
Less 5 percent lapse	(11)	(914,382)
Full-year cost of personnel compensation	253	17,373,254
Less personnel compensation included in the 2010 budget	(199)	(13,662,151)
Cost of personnel compensation in 2010	54	3,711,103
Adjustment for 2010 pay raise (.014 x .75 x 3,771,103)		38,966
Add'l amount required for personnel compensation	54	3,750,069
Benefits		1,044,161
Total adjustments-to-base	54	4,794,230

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
<u>OMAO Wage Marine overtime on NOAA ships</u>	0	64,000
<p>An increase of \$85,000 is required to cover the cost of overtime for OMAO's Wage Mariners in 2011.</p>		
Total cost in 2010 of Wage Marine overtime		85,000
Less amount not funded in 2011		(21,000)
Total cost of January 2011 pay increase		64,000
 <u>Civil Service Retirement System (CSRS)</u>	 0	 (2,098,357)
<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 18.6% in 2010 to 15.6% in 2011 for regular employees and remain at 0.0% in 2010 for law enforcement employees. Contribution rates will remain the same.</p>		
<p>Regular:</p>		
2011 \$999,218,000 x .156 x .07		10,911,461
2010 \$999,218,000 x .186 x .07		13,009,818
Subtotal		(2,098,357)
<p>Law Enforcement:</p>		
2011 \$9,973,000 x .000 x .075		0
2010 \$9,973,000 x .000 x .075		0
Subtotal		-

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

		FTE	Amount
Total adjustment to base	(2,098,357)		
<u>Federal Employees Retirement System (FERS)</u>		0	7,623,937
<p>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 81.4% in 2010 to 84.4% in 2011 for regular employees. The estimated percentage of payroll for law enforcement employees covered by FERS will remain at 100% in 2011. The contribution rates are estimated to increase to 11.7% in 2011 from 11.2% in 2010.</p>			
Regular:			
2011 \$999,218,000 x .844 x .117	98,670,779		
2010 \$999,218,000 x .814 x .112	91,096,707		
Subtotal	7,574,072		
Law Enforcement:			
2011 \$9,973,000 x 1.00 x .254	2,533,142		
2010 \$9,973,000 x 1.00 x .249	2,483,277		
Subtotal	49,865		
Total adjustment to base	7,623,937		

Department of Commerce
 National Oceanic and Atmospheric Administration
 Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
<u>Thrift Savings Plan</u>	0	599,531
<p>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%.</p>		
<p>Regular:</p>		
2011 \$999,218,000 x .844 x .02		16,866,800
2010 \$999,218,000 x .814 x .02		16,267,269
Subtotal		599,531
<p>Law Enforcement:</p>		
2011 \$9,973,000 x 1.00 x .02		199,460
2010 \$9,973,000 x 1.00 x .02		199,460
Subtotal		-
Total adjustment to base		599,531

<u>Federal Insurance Contribution Act (FICA)</u>	0	1,822,449
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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 \$110,400 in 2010 to \$114,975 in 2011. The OASDI tax rate will remain 6.2% in 2011.

Regular:

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
2011 \$999,218,000 x .844 x .9663 x .062	50,525,005	
2010 \$999,218,000 x .814 x .9682 x .062	48,824,907	
Subtotal	1,700,098	
Other		
2011 \$72,601,000 x .844 x .9663 x .062	3,671,037	
2010 \$72,601,000 x .814 x .9682 x .062	3,547,511	
Subtotal	123,526	
Law Enforcement:		
2011 \$9,973,000 x 1.00 x .9663 x .062	597,488	
2010 \$9,973,000 x 1.00 x .9682 x .062	598,663	
Subtotal	(1,175)	
Total adjustment to base	1,822,449	
<u>Health insurance premiums</u>	0	4,319,721
Effective January 2011, NOAA's contribution to Federal employees' health insurance premiums increased by 6.3%. Applied against the 2010 estimate of \$68,567,000, the additional amount required is \$4,319,721.		
<u>Mileage rate increase</u>	0	(213,578)

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
Effective January 2009, the General Services Administration decreased the mileage rate from 58.5 cents to 55 cents per mile, a 6.0% rate decrease. This percentage was applied to the 2010 estimate of \$3,559,630 to arrive at a decrease of \$213,578.		
<u>Per diem increase</u>	0	1,630,103
Effective October 1, 2009, the General Services Administration raised per diem rates. This increase resulted in a 2.90% increase to this bureau. This percentage was applied to the 2010 estimate of \$56,155,370 to arrive at an increase of \$1,630,103		
<u>Rental payments to GSA</u>	0	1,034,978
GSA rates are projected to increase 1.4% in 2011. This percentage was applied to the 2010 estimate of \$73,927,000 to arrive at an increase of \$1,034,978.		
<u>Postage</u>	0	116,400
Effective May 11, 2009, postage rates increases for first-class mail is projected to increase from 42 cents to 44 cents. The percentage increase of 4.8% will be applied to the 2010 estimate of \$2,425,000 to arrive at an increase of \$116,400.		
<u>GPO Printing</u>	0	68,425
GPO has provided an estimated rate of 0.7%. This percentage was applied to the 2010 estimate of \$9,775,000 to arrive at an increase of \$68,425.		
<u>PEPCO Electricity</u>	0	60,600
An increase of \$60,600 is required for the PEPCO Electricity.		

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

	FTE	Amount
<u>NARA Storage & maintenance costs</u> The estimated cost of NARA storage and maintenance for 2011 is projected to decrease by \$9,304.	0	(9,304)
<u>Employee Compensation Fund</u> An increase of \$820,000 is required for the Working Capital Fund.		820,000
<u>Working Capital Fund</u> An increase of \$3,975,000 is required for the Working Capital Fund.	0	3,975,000
<u>CBS</u> An increase of \$180,000 is required for the Commerce Business System.	0	180,000
<u>General Pricing Level Adjustment</u> This request applies OMB economic assumptions for FY 2011 of 0.7% to object classes where the prices the government pays are established through the market system. Factors are applied to transportation of things (\$130,179); rental payment payments to others (\$144,186); communications, utilities and miscellaneous charges (excluding postage) (\$599,207); other contractual services (\$6,464,878); supplies and materials (\$631,045) and equipment (\$432,838).	0	8,402,333
<u>Grants</u>	0	550,145

Department of Commerce
National Oceanic and Atmospheric Administration
Operations, Research, and Facilities
JUSTIFICATION OF ADJUSTMENTS TO BASE

Grants are projected to increase 2.8% in 2011. This percentage was applied to the 2010 estimate of \$19,648,039 to arrive at an increase of \$550,145.

	FTE	Amount
<u>Ship and Aircraft Fuel Costs</u>	0	4,403,378
Subtotal, Other Changes	54	59,018,991
Less: Absorption	0	(4,241,991)
Total Adjustments to Base	54	(225,203,000)

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

Object Class	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase / (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	1,007,345	1,015,960	1,040,157	1,046,767	6,610
11.3 Other than full-time permanent	9,380	9,067	9,067	9,067	0
11.5 Other personnel compensation	61,666	68,788	68,784	69,080	296
11.6 Leave Surcharge	0	0	0	0	0
11.7 Military personnel	27,133	30,199	30,550	30,550	0
11.8 Special personnel services payments	0	133	133	133	0
11.9 Total Personnel Compensation	1,105,524	1,124,147	1,148,691	1,155,597	6,906
12.1 Civilian personnel benefits	307,490	303,260	315,741	317,780	2,039
13 Benefits for former personnel	20,648	20,515	20,515	20,515	0
21 Travel and transportation of persons	55,513	60,078	60,543	63,219	2,676
22 Transportation of things	15,017	18,616	18,659	18,708	49
23.1 Rental payments to GSA	68,092	84,184	85,219	85,241	22
23.2 Rental payments to others	18,507	20,680	24,182	24,282	100
23.3 Communications, utilities and miscellaneous charges	68,890	100,682	101,009	104,657	3,648
24 Printing and reproduction	6,644	9,807	9,773	10,013	240
25.1 Advisory and assistance services	188,596	183,332	173,407	204,606	31,199
25.2 Other services	454,627	641,297	585,993	649,316	63,323
25.3 Purchases of goods and services from Govt accounts	92,299	142,880	135,820	135,993	173
25.4 Operation and maintenance of facilities	0	0	0	0	0
25.5 Research and development contracts	10,977	28,619	22,453	38,128	15,675
26 Supplies and materials	100,784	108,685	112,138	116,848	4,710
31 Equipment	40,140	61,955	56,706	68,473	11,767
32 Lands and structures	1,992	17,663	8,633	16,227	7,594

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

Object Class	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase / (Decrease)
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	960,319	550,985	342,120	412,105	69,985
42 Insurance claims and indemnities	32	115	115	115	0
43 Interest and dividends	269	128	127	127	0
44 Refunds	0	0	0	0	0
99 Total Obligations	3,516,360	3,477,628	3,221,844	3,441,950	220,106
Unobligated Balance Lapse					
Cash Refund					
Prior Year Recoveries	(5,223)		(6,000)	(6,000)	
Unobligated Balance, Start of Year	(166,641)				
Unobligated Balance, End of Year	38,734				
Unobligated Balance, Expiring	1,491				
Transfer from USAID/NOAA PAC	(481)				
Subtotal Budget Authority	3,384,240	3,438,894	3,215,844	3,435,950	220,106
Less: NOAA Corps	(24,272)	(26,116)	(28,269)	(28,269)	0
Total Discretionary ORF Budget Authority	3,359,968	3,412,778	3,187,575	3,407,681	220,106
Positions	12,509	12,772	12,772	12,882	110
FTE	11,800	12,130	12,184	12,264	80

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
11 Personnel compensation				
11.1 Full-time permanent				
Executive level	4	328	328	0
Senior Executive Service	447	19,352	19,352	0
General schedule	23,547	993,040	999,650	6,610
Commissioned officers	0	1,429	1,429	0
Wage board/wage marine	95	15,766	15,766	0
Scientific & professional (P.L. 80-313)	35	35	35	0
Law Enforcement	234	10,207	10,207	0
Students	0	0	0	0
Subtotal	24,362	1,040,157	1,046,767	6,610
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		180	180	0
Hourly		0	0	0
Subtotal	0	9,067	9,067	0
11.5 Other personnel compensation				
Overtime		24,205	24,305	100
Cash awards		25,423	25,473	50
Other		19,156	19,302	146
Subtotal	0	68,784	69,080	296

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
11.6				
Leave Surcharge				
Full-Time Permanent		0	0	0
Other		0	0	0
Subtotal	0	0	0	0
11.7				
Military Personnel				
Military Personnel	351	21,724	21,724	0
Other	0	8,826	8,826	0
Subtotal	351	30,550	30,550	0
11.8				
Special personnel services payments				
Foreign service officers (State)		0	0	
Other		133	133	0
Subtotal	0	133	133	0
11.9				
Total personnel compensation	24,713	1,148,691	1,155,595	6,904
12.1				
Civilian personnel benefits				
Civil service retirement	(2,098)	16,398	16,398	0
Federal Employee Retirement	7,624	87,755	88,645	890
Medicare	0	14,897	14,897	0
Thrift savings plan	600	40,017	40,152	135
Federal Insurance Contribution Act (FICA)	1,830	49,369	49,800	431

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
Health insurance	4,320	72,887	73,355	468
Life insurance	0	1,663	1,729	66
COLA	0	13,523	13,566	43
Employees comp fund (bec)	820	5,946	5,946	0
Other	0	13,286	13,293	7
Subtotal	13,096	315,741	317,780	2,039
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	577	35
Program travel	1,178	59,779	62,420	2,641
Subtotal	1,178	60,543	63,219	2,676
22 Transportation of things				
Trans of household goods	0	6,523	6,523	0
GSA trucks		5,811	5,824	13
Other	72	6,325	6,361	36
Subtotal	72	18,659	18,708	49

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
23.1 Rental payments to GSA	1,035	85,219	85,241	22
23.2 Rental payments to others	3,580	24,182	24,282	100
23.3 Communications, utilities and miscellaneous charges				
Utility services	34	36,720	36,670	-50
Aircraft charter		2,772	2,780	8
Vessel charter	0	10,175	10,621	446
Rental of non-ADP equipment		1,427	1,427	0
Rental of ADP equipment		3,693	3,644	-49
Federal telecommunications system	0	12,549	12,983	434
Other telecommunications services	0	30,848	33,677	2,829
Postal services by USPS	64	2,489	2,509	20
Other	336	336	346	10
Subtotal	434	101,009	104,657	3,648
24 Printing and reproduction				
Publications	38	8,450	8,586	136
Public use forms		0	0	0
Other		1,323	1,427	104
Subtotal	38	9,773	10,013	240

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
25.1 Consulting services	0	173,407	204,606	31,199
25.2 Other services				
Aircraft repair	0	4,409	4,409	0
Vessel repair	0	28,190	34,040	5,850
Contracts for research	0	8,316	14,999	6,683
Maintenance of equipment	0	15,173	15,969	796
Other	6,937	519,806	569,659	49,853
Training	0	10,099	10,240	141
Subtotal	6,937	585,993	649,316	63,323
25.3 Other purchases of goods & services from Gov't accounts				
Purchases of goods & services from Gov't accounts	95	75,759	75,892	133
Office of Personnel Management Training	0	15,558	15,558	0
GSA reimbursable services		0	40	40
Payments to DM, WCF	3,975	44,503	44,503	0
Subtotal	4,070	135,820	135,993	173
25.4 Operation and maintenance of facilities				
Operation of GOCOs		0	0	0
Subtotal	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases	
25.5	Research and development contracts	0	22,453	38,128	15,675
26	Supplies and materials				
	Chart paper		1	1	0
	Met. upper air	0	11,836	11,836	0
	Maintenance of vessel	0	2,526	2,926	400
	Gases	0	1,529	1,529	0
	Fuel	4,403	21,398	21,438	40
	ADP supplies	0	16,781	17,994	1,213
	Other	350	58,067	61,124	3,057
	Subtotal	4,753	112,138	116,848	4,710
31	Equipment				
	Office machines and equipment	0	573	573	0
	ADP hardware	0	2,710	2,764	54
	Other capitalized	0	9,233	12,973	3,740
	Non-capitalized	219	43,974	51,947	7,973
	Capital Lease	0	216	216	0
	Subtotal	219	56,706	68,473	11,767
32	Lands and structures				
	Land		400	400	0
	Building and Other Structures		8,233	15,827	7,594
	Subtotal lands and structures	0	8,633	16,227	7,594

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
33		0	0	0
41	305	342,120	412,105	69,985
42		115	115	0
43		127	127	0
44		0	0	0
99	60,434	3,221,844	3,441,950	220,106
Unobligated Balance Lapse				
Cash Refund				
	(6,000)	(6,000)	(6,000)	
Prior Year Recoveries				
Unobligated Balance, Start of Year				
Unobligated Balance, End of Year				
Unobligated Balance, Expiring				
Total ORF Budget Authority	54,434	3,215,844	3,435,950	220,106
Less NOAA Corps	(2,153)	(28,269)	(28,269)	0
Total Discretionary ORF Budget Authority	52,281	3,187,575	3,407,681	220,106
Personnel Data				
Full-Time Equivalent Employment:				

Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities (Discretionary)
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollars amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
Full-time permanent	54	12,184	12,264	80
Other than full-time permanent				
Total	54	12,184	12,264	80
Authorized Positions:				
Full-time permanent	0	12,772	12,882	110
Other than full-time permanent				
Total	0	12,772	12,882	110

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

JUSTIFICATION OF PROPOSED LANGUAGE CHANGES

1. Coastal Zone Management Fund (language in Commerce General Provisions)

All balances in the Coastal Zone Management Fund, whether unobligated or unavailable, are hereby permanently cancelled, and notwithstanding Section 308(b) of the Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1456a), any future payments to the Fund made pursuant to sections 307 (16 U.S.C. 1456) and 308 (16 U.S.C. 1456a) of the Coastal Zone Management Act of 1972, as amended, shall, in this fiscal year and any future fiscal years, be treated in accordance with the Federal Credit Reform Act of 1990, as amended.

Justification

This fund consists of loan repayments from the former Coastal Energy Impact Program. Loans under this program were made prior to 1992, but balances were not transferred to the General Fund in accordance with the Federal Credit Reform Act of 1990 (FCRA), even though the account effectively serves as a liquidating account. To resolve this inconsistency, the Budget proposes to cancel all balances in the Coastal Zone Management Fund, make future payments to the Fund subject to FCRA, and eliminate the annual transfer from this account to the Operations, Research, and Facilities account.

2. Pacific Coast Salmon Recovery

For necessary expenses associated with the restoration of Pacific salmon populations, \$65,000,000, to remain available until September 30, 2012: Provided, That of the funds provided herein the Secretary of Commerce may issue grants to the States of Washington, Oregon, Idaho, Nevada, California, and Alaska, and Federally-recognized tribes of the Columbia River and Pacific Coast (including Alaska) for projects necessary for conservation of salmon and steelhead populations that are listed as threatened or endangered, or identified by a State as at-risk to be so-listed, for maintaining populations necessary for exercise of tribal treaty fishing rights or native subsistence fishing, or for conservation of Pacific coastal salmon and steelhead habitat, based on guidelines to be developed by the Secretary of Commerce: Provided further, That all funds shall be allocated based on scientific and other merit principles and shall not be available for marketing activities: Provided further, That funds disbursed to States shall be subject to a matching requirement of funds or documented in-kind contributions of at least 33 percent of the Federal funds.

Justification

This language change is to include the Federally-recognized tribes of Alaska to directly apply for grants under the Pacific Coast Salmon Restoration Fund.

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

3. Fishermen's Contingency Fund

For carrying out the provisions of Title IV of Public Law 95-372, not to exceed \$350,000, to be derived from receipts collected pursuant to that Act, to remain available until expended.

Justification

For several years, claims have been paid with funds remaining from previous years' authorizations. Because the authorized funds have now been depleted, claims cannot be paid until funds currently on deposit in the FCF are authorized in the next available appropriations act. In total, the Fishermen's Contingency Fund has a balance of \$1,292,146, with only \$10,020 currently authorized as available for expenditure.

4. Foreign Fishing Observer Fund

Of the unobligated balances available to the Foreign Fishing Observer Fund, \$350,000 are hereby rescinded from the account.

Justification

NOAA does not anticipate foreign fishing in the U.S. EEZ requiring funds from this account.

5. Fisheries Finance Program

Subject to section 502 of the Congressional Budget Act of 1974, during fiscal year 2011, obligations of direct loans may not exceed \$12,000,000 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.

Justification

The Fishermen's Finance Program (FFP) will see three major benefits as a result of this action. First, the Individual Fishing Quota (IFQ) loan program is part of the Northwest Halibut and Sablefish and Bering Sea and Aleutian Islands Crab limited entry fisheries management program that continues to stabilize these fisheries. The increase from \$8 million to \$12 million will support the implementation of the crab IFQ loan required by the management plan approved by the North Pacific Fisheries Management Council. 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.

**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.”

Agriculture

7 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)

	2009 <u>Actual</u>	2010 <u>Estimate</u>	2011 <u>Estimate</u>
Management and Professional Support Services	73,553	71,499	79,797
Studies, Analysis and Evaluations	30,175	29,333	32,737
Engineering and Technical Services	<u>84,868</u>	<u>82,500</u>	<u>92,074</u>
Total	188,596	182,332	204,608

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)

	2009 <u>Actual</u>	2010 <u>Estimate</u>	2011 <u>Estimate</u>
Periodicals	978	998	1,018
Pamphlets	705	719	733
Audiovisuals	<u>334</u>	<u>341</u>	<u>348</u>
Total	2,017	2,058	2,099

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DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Operations, Research and Facilities
AVERAGE GRADE AND SALARY
(Obligations in thousands)

	2009 <u>Actual</u>	2010 <u>Estimate</u>	2011 <u>Estimate</u>
Average executive and SES level pay plans	\$161,054	\$164,275	\$166,575
Average GS/GM grade	12	12	12
Average GS/GM salary	\$86,726	\$88,461	\$89,699
Average Pay Band salary	\$93,029	\$94,890	\$96,218
Average Commissioned Officers salary	\$103,602	\$105,674	\$107,153
Average salary for other positions (FWS/Wage Marine)	\$47,550	\$48,501	\$49,180

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	200	190	1,358,353	1,733,506
less: Carryover	0	0	0	(373,153)
less: Terminations	0	0	(42,505)	(42,505)
plus: 2011 Other Adjustments to Base	0	0	(8,504)	(3,504)
FY 2011 Base	200	190	1,307,344	1,314,344
plus: 2011 Program Changes	0	0	876,747	876,747
FY 2011 Estimate	200	190	2,184,091	2,191,091

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	24	46,143	1	40,890	1	24,385	1	34,385	0	10,000
	FTE/OBL	23	54,060	1	45,898	1	24,385	1	34,385	0	10,000
National Marine Fisheries Service	Pos/BA	1	4,594	0	0	0	0	0	0	0	0
	FTE/OBL	1	6,898	0	3,464	0	0	0	0	0	0
Office of Oceanic & Atmospheric Research	Pos/BA	1	181,398	0	10,379	0	10,379	0	10,379	0	0
	FTE/OBL	1	92,031	0	99,746	0	10,379	0	10,379	0	0
National Weather Service	Pos/BA	39	127,222	32	107,727	32	90,223	32	100,731	0	10,508
	FTE/OBL	37	105,493	31	135,728	31	90,223	31	100,731	0	10,508

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

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel	Amount
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Environmental, Satellite, Data, and Information Service	Pos/BA	206	1,063,517	162	1,199,357	162	1,187,357	162	2,018,796	0	831,439
	FTE/OBL	196	997,999	153	1,268,907	153	1,187,357	153	2,018,796	0	831,439
Program Support	Pos/BA	7	331,518	0	0	0	0	0	14,000	0	14,000
	FTE/OBL	7	231,743	0	99,986	0	0	0	14,000	0	14,000
Office of Marine and Aviation Ops	Pos/BA	5	89,411	5	2,000	5	2,000	5	12,800	0	10,800
	FTE/OBL	6	16,965	5	79,777	5	2,000	5	12,800	0	10,800
Less Deobligations	Pos/BA	0	(2,000)	0	(2,000)	0	(7,000)	0	(7,000)	0	0
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total	Pos/BA	283	1,841,803	200	1,358,353	200	1,307,344	200	2,184,091	0	876,747
	FTE/OBL	271	1,505,189	190	1,733,506	190	1,314,344	190	2,191,091	0	876,747

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	271	1,505,189	190	1,733,506	190	1,314,344	190	2,191,091	0	876,747
Total Obligations	271	1,505,189	190	1,733,506	190	1,314,344	190	2,191,091	0	876,747
Adjustments to Obligations:										
Cash Refunds/PY Recoveries	0	(18)	0	0	0	0	0	0	0	0
Recoveries	0	0	0	0	0	0	0	0	0	0
Deobligations	0	(7,330)	0	(2,000)	0	(7,000)	0	(7,000)	0	0
Unobligated Balance Expired	0	171	0	0	0	0	0	0	0	0
Unobligated Balance Adj. SOY	0	(29,368)	0	(373,153)	0	0	0	0	0	0
Transfer to NOAA ORF	0	6	0	0	0	0	0	0	0	0
Unobligated balance, EOY	0	373,153	0	0	0	0	0	0	0	0
Total Budget Authority	271	1,841,803	190	1,358,353	190	1,307,344	190	2,184,091	0	876,747
Financing from Transfers and Other:										
Transfer to ORF - Hollings Scholarship	0	1,844	0	0	0	0	0	0	0	0
Unoblig 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
Transfer from PAC to ORF	0	0	0	0	0	0	0	0	0	0
Net Appropriation	271	1,843,647	190	1,358,353	190	1,307,344	190	2,184,091	0	876,747

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

	FY 2009	FY 2010	FY 2011	FY 2011	Increase/(Decrease)
	Actuals	Currently Available	Base Program	Estimate	over FY 2011 Base
Direct Discretionary Obligation	1,505,189	1,733,506	1,314,344	2,191,091	876,747
Total Obligations	1,505,189	1,733,506	1,314,344	2,191,091	876,747
Adjustments and Obligations:					
Cash Refund	(18)	0	0	0	0
Recoveries	0	0	0	0	0
Deobligations	(7,330)	(2,000)	(7,000)	(7,000)	0
Unobligated balance, adj. SOY	(29,368)	(373,153)	0	0	0
Unobligated balance, EOY	373,153	0	0	0	0
Unobligated balance, Expiring	171	0	0	0	0
Transfer to NOAA ORF	6	0	0	0	0
Total Budget Authority	1,841,803	1,358,353	1,307,344	2,184,091	876,747
Financing from Transfers and Other:					
Transfer to ORF – Hollings Scholarship	1,844	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	1,843,647	1,358,353	1,307,344	2,184,091	876,747

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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	(42,505)
Restoration of FY 2010 adjustments to support level in 2010	0	2,000
Subtotal, Adjustments	0	(40,505)
Financing:		
Deobligations	0	(7,000)
Subtotal, Financing	0	(7,000)
Transfer:		
NWS transfer from PAC Weather Forecast Office Construction line to the ORF Local Warnings and Forecasts line.		(3,504)
		(3,504)
Other Changes:		
Subtotal, Other Changes	0	0
Less Absorption	0	0
Total Adjustments to Base	0	(51,009)

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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		(42,505,000)
Restoration of FY 2010 Deobligations	0	2,000,000
Subtotal Adjustments	0	(40,505,000)
 <u>Financing:</u>		
In FY 2010, NOAA expects to realize recoveries of prior year obligations of \$7,000,000. This amount will be used to offset the budget authority in 2011.	0	(7,000,000)
	0	(7,000,000)
 <u>Transfer:</u>		
NWS transfer from PAC Weather Forecast Office Construction line to the ORF Local Warnings and Forecasts line. This transfer will facilitate NWS managing all Weather Forecast Offices leases out of Operations, Research, and Facilities funds.		(3,504,000)
		(3,504,000)
<u>Other Changes:</u>	0	0
Subtotal, Other Changes	0	0
Absorption	0	0
Total Adjustments to Base	0	(51,009,000)

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Object Class	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase / (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	31,081	20,092	18,306	18,306	0
11.3 Other than full-time permanent	230	2	2	2	0
11.5 Other personnel compensation	1,085	2,410	2,410	2,410	0
11.6 Leave Surcharge	0	0	0	0	0
11.7 Military personnel	36	0	0	0	0
11.8 Special personnel services payments	0	75	75	75	0
11.9 Total Personnel Compensation	32,431	22,579	20,793	20,793	0
12.1 Civilian personnel benefits	7,911	3,583	3,152	3,152	0
13 Benefits for former personnel	19	0	0	0	0
21 Travel and transportation of persons	4,220	3,573	3,281	3,331	50
22 Transportation of things	350	315	315	316	1
23.1 Rental payments to GSA	9,519	9,978	10,110	10,110	0
23.2 Rental payments to others	1,511	1,909	1,909	909	(1,000)
23.3 Communications, utilities and miscellaneous charges	5,584	5,716	5,716	5,723	7
24 Printing and reproduction	75	141	141	141	0
25.1 Advisory and assistance services	62,777	59,110	51,952	55,478	3,526
25.2 Other services	136,571	160,497	124,128	969,813	845,685
25.3 Purchases of goods and services from Govt accounts	1,051,073	1,221,288	969,154	969,154	0
25.4 Operation and maintenance of facilities	0	0	0	0	0
25.5 Research and development contracts	38,142	30,214	30,214	30,689	475
26 Supplies and materials	10,839	15,864	12,808	12,812	4

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Object Class	FY 2009 Actual	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase / (Decrease)
31 Equipment	71,824	109,317	38,728	53,327	14,599
32 Lands and structures	5,571	56,259	16,499	20,399	3,900
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	66,647	33,147	25,428	34,928	9,500
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	126	16	16	16	0
44 Refunds	0	0	0	0	0
99 Total Obligations	1,505,189	1,733,506	1,314,344	2,191,091	876,747
Cash Refund	0	0	0	0	0
Prior Year Recoveries	(18)	(2,000)	(7,000)	(7,000)	0
Deobligations	(7,330)				
Unobligated Balance, expiring	171	0	0	0	0
Unobligated Balance, Start of Year	(29,368)	(373,153)	0	0	0
Unobligated Balance, End of Year	373,153	0	0	0	0
Cash Refund	0	0	0	0	0
Subtotal Budget Authority	1,841,797	1,358,353	1,307,344	2,184,091	876,747
Total Discretionary PAC Budget Authority	1,841,797	1,358,353	1,307,344	2,184,091	876,747
Positions	283	200	200	200	0
FTE	271	190	190	190	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
11 Personnel compensation				
11.1 Full-time permanent	-	-	-	-
Executive level	-	-	-	-
Senior Executive Service	-	-	-	-
General schedule	-	18,306	18,306	-
Commissioned officers	-	-	-	-
Wage board/wage marine	-	-	-	-
Scientific & professional (P.L. 80-313)	-	-	-	-
Law Enforcement	-	-	-	-
Students	-	-	-	-
Subtotal	-	18,306	18,306	-
11.3 Other than full-time permanent				
General schedule	-	2	2	-
Wage board/wage marine	-	-	-	-
Experts & consultants	-	-	-	-
Hourly	-	-	-	-
Subtotal	-	2	2	-
11.5 Other personnel compensation				
Overtime	-	10	10	-
Cash awards	-	2,398	2,398	-
Other	-	2	2	-
Subtotal	-	2,410	2,410	-

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
11.6	Leave Surcharge			
	-	-	-	-
	Full-Time Permanent			
	-	-	-	-
	Other			
	-	-	-	-
	Subtotal			
	-	-	-	-
11.7	Military Personnel			
	Subtotal			
	-	-	-	-
11.8	Special personnel services payments			
	Other			
	-	75	75	-
	Subtotal			
	-	75	75	-
11.9	Total personnel compensation			
	-	20,793	20,793	-
12.1	Civilian personnel benefits			
	-	-	-	-
	Civil service retirement			
	-	676	676	-
	Federal Employee Retirement			
	-	7	7	-
	Medicare			
	-	18	18	-
	Thrift savings plan			
	-	25	25	-
	Federal insurance contribution act			
	-	701	701	-
	Health insurance			
	-	584	584	-
	Life insurance			
	-	598	598	-
	COLA			
	-	-	-	-
	Employees comp fund (bec)			
	-	-	-	-
	Other			
	-	543	543	-

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
Subtotal	-	3,152	3,152	-
13.0 Benefits for former personnel				
Retired Pay	-	-	-	-
Health benefits	-	-	-	-
Other	-	-	-	-
Subtotal	-	-	-	-
21 Travel and transportation of persons				
Aircraft rental	-	-	-	-
GSA vehicles	-	-	-	-
Program travel	-	3,281	3,331	50
Subtotal	-	3,281	3,331	50
22 Transportation of things				
Trans of household goods	-	-	-	-
GSA trucks	-	10	10	-
Other	-	305	306	1
Subtotal	-	315	316	1
23.1 Rental payments to GSA	-	10,110	10,110	-
23.2 Rental payments to others	-	1,909	909	(1,000)
23.3 Communications, utilities and miscellaneous				

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
charges				
Utility services	-	683	683	-
Aircraft charter	-	-	-	-
Vessel charter	-	-	-	-
Rental of non-ADP equipment	-	-	-	-
Rental of ADP equipment	-	666	666	-
Federal telecommunications system	-	870	871	1
Other telecommunications services	-	3,471	3,477	6
Postal services by USPS	-	2	2	-
Other	-	24	24	-
Subtotal	-	5,716	5,723	7
24 Printing and reproduction				
Publications	-	42	42	-
Other	-	99	99	-
Subtotal	-	141	141	-
25.1 Consulting services	-	51,952	55,478	3,526
25.2 Other services				
Aircraft repair	-	-	-	-
Vessel repair	-	-	7,400	7,400
Contracts for research	-	51,404	51,405	1
Maintenance of equipment	-	1,655	1,655	-
Other	-	70,868	909,142	838,274

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
Training	-	201	211	10
Subtotal	-	124,128	969,813	845,685
25.3 Other purchases of goods & services from Gov't accounts				
Purchases of goods & services from Gov't accounts	-	969,111	969,111	-
Office of Personnel Management Training	-	43	43	-
GSA reimbursable services	-	-	-	-
Payments to DM, WCF	-	-	-	-
Subtotal	-	969,154	969,154	-
25.4 Operation and maintenance of facilities				
Subtotal	-	-	-	-
25.5 Research and development contracts	-	30,214	30,689	475
26 Supplies and materials				
Met. upper air	-	3,021	3,021	-
Maintenance of vessel	-	445	445	-
Gases	-	-	-	-
Fuel	-	953	953	-
ADP supplies	-	3,579	3,581	2
Other	-	4,810	4,812	2
Subtotal	-	12,808	12,812	4

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
31	Equipment			
	Office machines and equipment	-	30	30
	ADP hardware	-	-	10
	Other capitalized	-	9,981	10,281
	Non-capitalized	-	22,083	36,372
	Capital Lease	-	6,634	6,634
	Subtotal	-	38,728	53,327
				14,599
32	Lands and structures			
	Land	-	-	-
	Building and Other Structures	(3,504)	16,499	20,399
	Subtotal lands and structures	-	16,499	20,399
33	Investments and loans			
		-	-	-
41	Grants, subsidies and contributions			
		-	25,428	34,928
				9,500
42	Insurance claims and indemnities			
		-	-	-
43	Interest/dividends..			
		-	16	16
44	Refunds			
		-	-	-
99	Total Direct Obligations			
		(3,504)	1,314,344	2,191,091
				876,747

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement Acquisition and Construction
DETAILED REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2011 ATBs	FY 2011 Base	FY 2011 Estimate	Increases/ Decreases
Cash Refund	-	-	-	-
Prior Year Recoveries	(5,000)	(7,000)	(7,000)	-
Unobligated Balance, expiring	-	-	-	-
Unobligated Balance, Start of Year	-	-	-	-
Unobligated Balance, End of Year	-	-	-	-
Subtotal PAC Budget Authority	(8,504)	1,307,344	2,184,091	876,747
Total PAC Budget Authority	(8,504)	1,307,344	2,184,091	876,747
Positions	-	200	200	-
FTE	-	190	190	-

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NATIONAL OCEAN SERVICE FY 2011 OVERVIEW

For FY 2011, NOAA requests an increase of \$46,444,000 and 12 FTE over the FY 2011 base program for a total of \$550,593,000 and 1,259 FTE for the National Ocean Service (NOS).

The National Ocean Service is the primary Federal agency which observes, measures, assesses, and manages the Nation's coastal, ocean and Great Lakes areas, and provides critical navigation products and services as well as conducting response and restoration activities to protect vital coastal resources. These activities serve to support sound decision making for human, ecological, and economic health. An estimated 154 million people, over 50 percent of the Nation's population, lived in coastal counties in 2004. These coastal counties make up only 17% of the Nation's land area. 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 more than 11 million by 2015 (*Population Trends Along the Coastal United States: 1980-2008*, NOAA 2004). In addition, over half of the U.S. Gross Domestic Product (GDP) is generated in coastal counties (*An Ocean Blueprint for the 21st Century*, USCOP 2004), highlighting their critical importance to the Nation's economy and further emphasizing the need for access to data and sound science to inform decision making.

As a national leader for coastal and ocean stewardship, and trustee of coastal resources, NOS promotes a wide range of research and operational activities aimed at better understanding and managing 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 coastal and marine spatial planning, 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 Nation's marine sanctuaries and the Papahānaumokuākea Marine National Monument, 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.

The NOS budget is organized into three subactivities under the Operations, Research and Facilities account, which correspond roughly with the NOS staff and program offices charged with implementing the programs and activities required under authorizing legislation.

- The Navigation Services subactivity includes the Office of Coast Survey (OCS), the National Geodetic Survey (NGS), and the Center for Operational Oceanographic Products and Services (CO-OPS). The activities of these offices are conducted under the authority of the Coast and Geodetic Survey Act of 1947, the Hydrographic Services Improvement Act (as amendment in 2008), and the Ocean and Coastal Mapping Integration Act of 2009.
- The Ocean Resources Conservation and Assessment 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. These activities are implemented primarily under the authorities established in the Harmful Algal Bloom and Hypoxia Research and Control Act; National Coastal Monitoring Act; Oceans and Human Health Act; Oil Pollution Act; Marine Debris Research, Prevention, and Reduction Act; Coastal Zone Management Act; Coral Reef Conservation Act; and the Integrated Coastal and Ocean Observation Systems Act.

- The Ocean and Coastal Management subactivity contains program areas within the Office of Ocean and Coastal Resource Management (OCRM) and the Office of National Marine Sanctuaries (ONMS). These activities are conducted primarily under the authority of the Coastal Zone Management Act and the National Marine Sanctuaries Act.
- In addition, procurement, acquisition, and construction programs are implemented by OCRM and ONMS.

To implement these efforts, NOS staff and facilities are located around the country with concentrations in Silver Spring, MD; Charleston, SC; Seattle, WA; Norfolk, VA; Beaufort, NC; and Honolulu, HI.

NOS delivers a range of nationwide 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 2011 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 1 FTE and \$4,752,000 to fund adjustments to current programs for NOS activities. The increase will fund the estimated 2011 Federal pay raise of 1.4 percent and annualize the 2010 pay raise of 2.4 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).

NOS also requests the following transfers for a net change to NOS of \$0:

From Office	Line	To Office	Line	Amount
NOS	Ocean Research Priorities Plan	NOS	Coastal Services Center	\$3,000,000
NOS	Ocean Research Priorities Plan	NOS	NCCOS Competitive Research	\$3,000,000

NOAA requests a technical adjustment to move \$3,000,000 from NOS Ocean Research Priorities Plan Implementation to NOS Coastal Services Center. These funds will be used to support the Ocean Research

Priorities Plan's near-term priority of Forecasting the Response of Coastal Ecosystems to Persistent Forcing and Extreme Events.

NOAA requests a technical adjustment to move \$3,000,000 from NOS Ocean Research Priorities Plan Implementation to NOS NCCOS Competitive Research. These funds will be used to support the Ocean Research Priorities Plan's near-term priority to develop ocean sensors.

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

The objectives of the Navigation Services subactivity are to:

- Survey and chart the Nation's oceans and coasts
- 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 (OCS), the National Geodetic Survey (NGS), and the Center for Operational Oceanographic Products and Services (CO-OPS). These activities are conducted under the authority of the Coast and Geodetic Survey Act of 1947, the Hydrographic Services Improvement Act as amended in 2008, and the Ocean and Coastal Mapping Integration Act of 2009. 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 (with support from NGS and CO-OPS). 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, 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 U.S. Coast Guard Homeland Security operations, state and local governments, and recreational boaters throughout the United States. The data this program collects is also a fundamental requirement for coastal and marine spatial planning, coastal zone and emergency 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 its 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, Ecosystem, and Mission Support 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, coastal zone land use, spatial planning.

- 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 - The 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 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 which contribute to the NOAA Commerce and Transportation Goal:

- Passive Network infrastructure - A major component of NSRS is a network of permanently marked points including the Federal Base Network (FBN), the Cooperative Base Network (CBN), and the User Densification Network (UDN). These monuments 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 that includes a highly accurate receiver that continuously collects radio signals broadcast by Global Navigation Satellite System (GNSS) satellites. 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 the NSRS through the establishment of accurate, reliable and consistent heights at the local level. As part of this effort, NGS is conducting a multi-year effort to collect airborne gravity data and update the Nation's gravity-based geoid model through its Gravity for the Re-Definition of the American Vertical Datum (GRAV-D) initiative. This is essential for developing a new national vertical datum allowing GPS to efficiently establish accurate elevations for all types of positioning and navigational needs. Because GRAV-D will take a number of years to complete, on-going height modernization efforts are also focusing on integrating GPS technology with existing survey techniques in areas of the country

that have critical, urgent and compelling needs and cannot wait for the establishment of a new national vertical datum through GRAV-D.

- Data Access and Outreach - 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-shared 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 - 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 Mission Support 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 (e.g., tsunamis and storm surge) to the long-term content (e.g., sea level and lake level trends). It provides vertical reference datums for all marine boundary applications; national shoreline and nautical chart products; coastal construction; dredging; habitat restoration projects; and hurricane evacuation route planning. The NWLON system provides a nationwide 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[®]) - 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-shared program requiring local partners to bear the cost of installation, operation and maintenance of the sensor systems. This arrangement 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 2011:

No program changes are proposed for FY 2011.

TERMINATIONS FOR FY 2011:

The following programs or portions thereof, are proposed for termination in FY 2011: Mapping and Charting Base (\$750,000); California Seafloor Mapping (\$300,000); Extended Continental Shelf Mapping, AK (\$300,000); Geodesy/Height Modernization – IL (\$800,000); Regional Geospatial Modeling Grants (\$5,500,000); Louisiana Geodetic Spatial Reference Center, LA (\$700,000); Wisconsin Height Modernization Program, WI (\$1,000,000); Texas Height Modernization (\$300,000); Tide and Current Data Base (\$3,800,000); Coastal tidal gauges (\$600,000).

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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 are 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 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 utilize 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 Integrated Coastal and Ocean Observation Systems Act; Clean Water Act; Coastal Zone Management Act (CZMA); Oil Pollution Act (OPA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund); National Coastal Monitoring Act (NCMA); Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA); Estuaries Restoration Act (ERA); Coral Reef Conservation Act (CRCA); Oceans and Human Health Act (OHHA); Marine Debris Research, Prevention, and Reduction Act (MDRPRA); 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. These programs, which contribute to NOAA's Ecosystem, Weather and Water, Mission Support, and Climate Goals, include:

COASTAL SERVICES CENTER (<http://csc.noaa.gov>) - The NOAA Coastal Services Center's (CSC) mission is to build capacity for informed decision making about our coasts. CSC's primary customers are the Nation's coastal managers, including natural resource managers, planners, and emergency officials. Working with other NOAA programs, CSC provides geospatial data and tools, training, social science information, and partnership building at the national, regional and state levels that would otherwise be unavailable. By doing so, CSC 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 (CZMA) and other relevant coastal legislation. Partnerships between CSC, state and local coastal management organizations, and their partners give rise to numerous projects each year. CSC transfers successful tools and approaches to coastal managers to ensure that national issues are most effectively addressed at regional, state and local levels. The Center's collaborative strategy builds effective working relationships not only across NOAA but also with other Federal 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 (CRCA) 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 climate change impacts on reef ecosystems and the communities that depend on them. The CRCP is a matrix program that works with over 30 programs across four 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 works 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 will begin initial expansion to the U.S. Pacific Islands (Hawaii and the U.S. territories).

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 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).

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.

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 along with other state and Federal natural resource trustees are responsible for ensuring that cleanup actions protect those resources from further injury; assessing and recovering natural resource damages to restore the injured resources; and 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 which contribute to NOAA's Ecosystem and Commerce and Transportation Goals:

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 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 monitoring 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 as well as 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 thus, efficiencies in protection, clean up, and restoration—within a watershed management context. In conjunction with the NOAA Fisheries Restoration Center and NOAA’s Office of General Counsel for Natural Resources, OR&R’s habitat activities form part of the NOAA Damage Assessment, Restoration, and Remediation Program (DARRP).

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 along with its legal mandates, including the reauthorized Harmful Algal Bloom and Hypoxia Research and Control Act, the Coastal Zone Management Act, the National Coastal Monitoring Act, the Oceans and Human Health Act, the Coral Reef Conservation Act, and the Great Lakes Task Force Executive Order.

Three of NCCOS’s centers have on–site research facilities, while two centers conduct research through analyses of field data or sponsored extramural research. The activities of all these centers contribute directly to NOAA’s Ecosystem Goal.

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. coastal, estuarine, 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 informed coastal management decisions.

PROPOSED LEGISLATION:

The Administration will work with Congress to reauthorize the Coral Reef Conservation Act, the Oceans and Human Health Act, and the Harmful Algal Bloom and Hypoxia Research and Control Act.

PROGRAM CHANGES FOR FY 2011:

Coastal and Marine Spatial Planning (+9 FTE and +\$6,770,000): NOAA requests an increase of \$6,770,000 and 9 FTE for a total of \$6,770,000 and 9 FTE to develop an agency-wide capability to conduct and support comprehensive coastal and marine spatial planning (CMSP) in U.S. waters. The requested increase will fulfill a critical role in the emerging national CMSP initiative and will enable objective, transparent and collaborative distribution of competing human uses to appropriate ocean areas where valued ecosystem services, including other compatible uses, can be sustained for this and future generations.

Proposed Actions

This request reflects the growing recognition of the urgent need for comprehensive, integrated planning of how we use and seek to benefit from specific ocean spaces and the services they provide. Building upon NOAA's broad science, technical and policy strengths, the proposed activities address NOAA's diverse place-based stewardship and marine transportation mandates. Combined, the proposed activities will create a transparent, robust, science-based capability to support and conduct marine spatial planning for the Nation's oceans. Plans will be developed in partnership with emerging Regional Ocean Governance structures and other Federal agencies, and the processes will be transparent and involve the public. In addition, efforts will focus on utilizing existing data from NOAA and others. Specifically, NOAA will support the following activities:

- **Key Habitats (\$1.5M):** NOAA will create regional maps (three regions per year) of important and vulnerable areas to inform ecosystem-based CMSP using existing spatial data provided by NOAA programs and partners. Gaps in required information will be identified, prioritized, and shared with data gathering programs for future collection.
- **Legal Authorities (\$0.3M):** NOAA will identify and map the prevailing area-based management authorities and their potential impacts on the allocation of uses in U.S. waters by augmenting and strengthening existing databases on ocean management authorities, including the Multipurpose Marine Cadastre, the Legislative Atlas and Marine Protected Area (MPA) inventories.
- **MSP Decision Support Tools (\$3.0M):** NOAA will provide innovative, intuitive, and flexible decision support tools that enable ocean managers and stakeholders to envision and compare across areas, depths, and time the ecological and socioeconomic implications of alternative scenarios for siting ocean uses. Research will be conducted to ensure that tools and models capture and combine information in ways that allow effective decision-making. NOAA will develop, test and make available a suite of tools and spatial data, including integrated four dimensional ecosystem models, designed to facilitate transparent, rigorous and defensible spatial allocations of ocean uses. NOAA will work with the Department of Interior's Minerals Management Service to develop and expand the Multi-Purpose Marine Cadastre.
- **Regional CMSP Data Synthesis and Integration (\$1.75M):** NOAA will provide support to other Federal and state agencies to facilitate the integration of existing data and information into NOAA-developed decision support tools.
- **Interagency Coordination on MSP (\$0.22M):** NOAA will convene relevant agencies for regular interagency coordination discussions on integrated approaches to MSP at national, regional, and state levels.

Combined, the proposed activities will significantly advance the Nation's capability to effectively and transparently assess and allocate competing human uses to appropriate ocean areas. To this end, the proposed activities will: 1) overcome long-standing impediments to effective ocean management created by critical knowledge gaps in our understanding of the ecological, social, and legal context of current and emerging ocean uses; 2) begin to understand, for the first time, where, how, and why people use the ocean waters of the U.S. in a systemic way; 3) enable managers and stakeholders to fully and objectively understand the implications of

spatial use decisions on the ecological services provided by the ocean to current and future generations of Americans; 4) help NOAA ocean management partners by providing critically needed information, tools, and support for states and regional entities to more effectively and equitably manage their coastal resources; and 5) establish and fill a priority set of data gaps for each region through a process of engagement with stakeholder agencies and interests, using ongoing programs and activities as well as new requests in the future.

Statement of Need and Economic Benefits

Human uses of ocean resources are accelerating faster than our ability to manage them. Increasing conflicts are unavoidable as demands increase for ocean-based energy (oil and gas, wind, wave), marine aquaculture, commercial and recreational fishery products, shipping and navigation services, and other activities. At risk is the health of ocean ecosystems as well as the benefits they provide to coastal communities and the national economy. The Nation's current approach to managing the use of ocean resources is ad hoc and fragmented, with no systematic way to evaluate competing ocean uses and to inform and navigate the often difficult trade-offs they require. President Obama released a policy directive calling on Federal departments and agencies to develop an integrated and comprehensive CMSP framework. The Ocean Policy Task Force submitted its interim framework to the President in December 2009.

MSP is a comprehensive, ecosystem-based process through which compatible human uses are objectively and transparently allocated to appropriate ocean areas to sustain critical ecological, economic and cultural services for future generations. NOAA's existing scientific capacities and ocean management authorities—including ocean observing systems and mapping capabilities, along with area-based management responsibilities for marine sanctuaries, estuarine research reserves, fisheries, protected marine resources, habitat, and the national MPA system—uniquely position the agency to facilitate a national CMSP initiative. In collaboration with Federal, state and local partners, NOAA can and must lead the Nation toward a comprehensive, integrated approach to CMSP that will enable the sustainable, science-based allocation of critical ocean resources. NOAA has major roles to play in CMSP both as a technical expert combining critical bathymetric, ecological, human use, and oceanographic information in decision support tools for use by managers, and in its stewardship missions to achieve appropriate conservation, sustainable use, and other societal goals. CMSP furthers NOAA's mission and strategic goals in the coastal and estuarine systems, the Great Lakes, states' territorial seas and the exclusive economic zone (EEZ, 3-200 nautical miles). Conducted with appropriate spatial data and decision support tools, CMSP will sustain valued ecosystem services, provide greater certainty and predictability to ocean industries, and reduce conflicts among competing uses.

This is the first comprehensive effort by the agency to facilitate coastal and marine spatial planning. Fully implemented, a comprehensive, science-based, and transparent marine spatial plan will advance many of NOAA's ocean stewardship and navigation mandates and will therefore benefit the desired outcomes already established for the programs implementing these mandates. As a planning process, many of the measures to track CMSP progress will be output based, but will ultimately improve the outcomes of existing programs by providing the entities involved (states, other Federal agencies, and NOAA) with the means to make better decisions about how to allocate uses to ocean spaces. In addition to enhancing existing outcomes (e.g. sustainable fisheries, safe navigation, improved water quality, living marine resources, critical habitat protected, etc.), a truly integrated and comprehensive marine spatial plan will cut across many NOAA programs and include societal benefits such as: reduced impacts of ocean uses on marine ecosystems by allocating activities to appropriate areas; reduced user conflicts over ocean areas; increased economic certainty and stability for ocean-dependent industries; accelerated permitting and siting for offshore renewable energy; enhanced security for critical ocean infrastructure; and reduced controversy and enhanced support for marine protected areas.

Performance Goals and Measurement Data

Performance Goal: Ecosystem Performance Measure: Cumulative number of states utilizing NOAA data and decision support tools for CMSP	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	5	15	25	35	35
Without Increase	0	0	0	0	0	0
Description: This measure will track how many states are using the information, tools, and systems NOAA develops to create coastal and marine spatial plans. It is linked to GPRA measure 1g “Percentage of Tools, Technologies, and Information Services That are Used by NOAA Partners/Customers to Improve Ecosystem-based Management.” Successful marine spatial plans will require collaboration with coastal states, other Federal agencies, and stakeholders. The tools developed by NOAA will allow and encourage the sharing of critical information between these and other planning participants. Adoption and utilization of these tools will follow the regional implementation approach proposed by NOAA.						

Performance Goal: Ecosystem Performance Measure: Percentage of NOAA’s tools, technologies, and information services that are used by its partners/customers to improve ecosystem-based management GPRA 1g	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	87%	88%	89%	90%	91%
Without Increase	86%	86%	86%	86%	86%	86%
Description: Tools developed with the increase would be used by ocean managers and stakeholders to envision and compare across areas, depths, and time the ecological and socioeconomic implications of alternative scenarios for siting ocean uses. This will facilitate transparent, rigorous and defensible spatial allocations of ocean uses, benefiting society by reducing ocean use conflicts, increasing economic certainty for ocean dependant industries, and reducing impacts of incompatible uses on fragile ecosystem, among others.						

Coastal Storms Program (+0 FTE and \$74,000): NOAA requests an increase of 0 FTE and \$74,000 for the Coastal Storms Program. This increase is requested to support existing program requirements not provided for in the FY 2010 Consolidated Appropriations Act.

Preparing Coastal Communities for Climate Hazards (+2 FTE and +\$4,000,000): NOAA requests an increase of \$4,000,000 and 2 FTE for a total of \$4,000,000 and 2 FTE to reduce the vulnerability of coastal communities and the U.S. economy to the hardship and costs associated with climate-related natural hazards. NOAA will apply its scientific and technical expertise to develop improved tools and work with communities to apply these tools so that the devastating human, economic and environmental impacts of events such as sea level change and other forms of coastal inundation can be mitigated or effectively managed.

Proposed Actions

This increase will help communities (with an initial focus on the Gulf of Mexico and Pacific Islands) address the escalating economic and environmental costs associated with sea level change and other forms of coastal inundation, and will directly apply science and technology strategies to drive economic recovery, job creation

and economic growth. This increase will also help support Gulf Coast Ecosystem Restoration Working Group priorities. NOAA will focus efforts on directly helping communities with the tools they need to improve climate adaptation and related hazard mitigation strategies, identify risk and vulnerability, understand and prepare for the impacts of coastal inundation, and enhance communication. Specifically, this increase will provide:

- **Climate Adaptation Assessment and Planning (\$1.70M).** NOAA will develop planning guidelines to support coastal state and community requirements to plan for the impacts of climate change. With this increase, NOAA will incorporate sea level change data to provide training and information on understanding coastal risk and vulnerability assessments and develop associated products with Federal (FEMA, USGS, USACE), state, and local agencies to translate science into management applications. Coastal decision support resources (e.g., augment web portals, GIS tools) that integrate social, economic, and climate data in useful and interactive formats will also be developed.
- **Coastal Inundation Modeling, Forecasting, and Prediction (\$2.30M).** NOAA will integrate observations into climate change projection products to address impacts and assessments at global, regional, and local scales and provide accurate and timely predictions of changing sea level - considering ocean temperatures, glacier and ice sheets, regional and local circulation and wave patterns, land water reserves, and movement of land. Interoperable community modeling systems will be developed and transitioned to produce and drive improved total water level and inundation forecasts (taking into account rising sea levels) and GIS tools with increased resolution, accuracy, and completeness will be provided to drive planning scenarios in vulnerable regions. NOAA will implement techniques (e.g., needs assessments and other social science applications, training and risk evaluations) to ensure that communities have the guidance to improve their resilience and response to climate hazards, such as increased flooding and storm surge impacts due to sea-level rise.

This increase represents a joint effort across a number of NOAA programs to leverage strengths and collaboratively address needs identified via regional and national coastal management needs assessments to deal with climate hazards: the Coastal Services Center (including the Pacific Services Center), the National Climate Data Center, the Office of Ocean and Coastal Resource Management, the Climate Program Office, the Office of Coast Survey, the National Weather Service and the Coastal Storms Program.

Statement of Need and Economic Benefits

Today, coastal communities comprise only one-fifth of the Nation's land, but they house over one-half of the U.S. population, generate nearly 60% of the U.S. economy (*State of the US Ocean and Coastal Economies*, NOEP 2009), and account for the most repetitive flood loss claims with the National Flood Insurance Program (NFIP) and the private casualty loss insurance industry at a cost of \$200M per year for the NFIP alone (*24th Annual Workshop on Hazards Research and Applications*, Howard 1999). As sea levels rise and increase the impact of storms and associated flooding, it is expected that these losses will grow. Changing climate is expected to increase the impact of hazardous weather events in other ways, as well. For example, recently the Climate Change Science Program (CCSP) predicted that the Atlantic and Pacific basins will be hit with harder cold-season storms, packed with stronger winds and taller waves. The CCSP also noted that the power and frequency of Atlantic hurricanes have increased substantially in recent decades, likely driven by human-caused increases in sea surface temperatures (*Weather and Climate Extremes in a Changing Planet*, CCSP 2008; *Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region*, CCSP 2009).

Federal agencies, including NOAA, have the expertise and data needed to help coastal communities understand their risk exposure to coastal hazards. In many cases, coastal states and local governments do not have the fiscal resources to support their own in-house expertise or necessary data collection to assess the potential impacts of coastal hazards on their communities and resources. There are significant opportunities to leverage Federal expertise and data with state and local investments to (1) improve decision-making at the state and local level

and (2) meet national goals for reducing the financial impacts of coastal hazards. This is especially important when it comes to climate change, as there is very little understanding of the impacts at the regional or state level and a significant need for Federal investment in this area. The outcome of this investment is the reduced vulnerability of coastal communities and the overall U.S. economy to the hardship and costs associated with climate-related natural hazards.

As coastal populations continue to increase (and coastal habitats continue to decline) their vulnerability to hazards resulting from climate change has also continued to increase (from winds, waves, and flooding generated by hurricanes and other major storms, as well as physical impacts caused by sea-level rise, coastal erosion, and long-term shoreline changes). Wetland loss is significantly increasing flood damage, costing states such as Florida and Texas millions of dollars per year (*Examining the Relationship between Wetland Alteration and Watershed Flooding in Texas and Florida*, Brody, et al 2007). Coastal managers need science-based information and tools to make better land use, habitat conservation, evacuation planning, and infrastructure decisions to ensure that their coastal economies, communities, and ecosystem services can reasonably meet the challenges resulting from climate-related hazards.

A recent survey of coastal state management programs found that 84% of the participating states, commonwealths, and territories are planning to develop sea-level rise adaptation plans (*The Role of Coastal Zone Management Programs in Adaptation to Climate Change*, CSO 2008). They are looking to NOAA, with our mandates to both predict and mitigate weather, climate, and ecosystem hazards impacts, to provide much of the data and information they need to develop these plans. This increase will directly address these needs by providing coastal communities with the products and services that will help them address both the risks associated with natural hazards today and the potential increased impacts of those hazards tomorrow due to climate change. The National Institute of Building Sciences has found that for every dollar invested in mitigation activities, the U.S. taxpayer saves four dollars in losses associated with natural hazards.

Performance Goals and Measurement Data

Performance Goal: Weather and Water and Ecosystem	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Percentage of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards (%/yr),* Measure 3a						
With Increase	N/A	36%	41%	47%	53%	59%
Without Increase	26%	29%	31%	34%	34%	34%

Performance Goal: Climate	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Number of regionally-focused climate impacts and adaptation studies, tools, and capacity-building utilized by coastal and emergency management						
With Increase	N/A	1	5	7	8	10
Without Increase	N/A	0	0	0	0	0
Description: This measure tracks the number of regionally-focused climate impacts and adaptation studies, tools, and capacity-building utilized by coastal and emergency management. The use of these products will improve management responses to climate change.						

Performance Goal: Weather and Water Performance Measure: Cumulative percentage of water level products, tools, or training accounting for inundation, water level, or uncertainty that improve risk management of coastal communities	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	10	20	20	30	30
Without Increase	0	0	0	0	0	0
Description: Coastal managers need science-based information and tools to make better land use, habitat conservation, evacuation planning, and infrastructure decisions to ensure that their coastal economies, communities and ecosystem services can resist and rebound from hazards. This measure tracks the percentage of products that result in improved risk management at the community level. NOAA would improve the percentage of products, tools, and training used that improves the ability of coastal communities to manage risk and make informed decisions over time.						

Gulf of Mexico Coastal and Marine Elevation Pilot (+0 FTE and +\$2,000,000): NOAA requests an increase of \$2,000,000 to support a joint project with the Department of Interior (i.e., USGS and MMS) to develop a national integrated high-resolution topographic and bathymetric dataset to address a range of high-priority coastal issues including coastal and marine spatial planning (CMSP), modeling climate impacts, and ecosystem assessments. This includes strong interagency collaboration related to data collection, modeling, data standards, information access, and other foundational elements needed to develop an end-to-end, integrated, ocean and coastal mapping program. Due to the critical nature of the issues facing the Gulf region, NOAA will begin pilot efforts in MS and LA in support of the Gulf Coast Ecosystem Restoration Working Group and the Interagency Working Group on Long Term Disaster Recovery; and later expand to other regions of the country.

Proposed Actions

With the requested funding, NOAA will work across Federal agencies, along with regional, state, and local constituent groups to pilot successful integrated ocean and coastal mapping in the Northern Gulf of Mexico with expansion to other priority regions. Accurate, high-resolution, topographic and bathymetric data provide an essential baseline and seamless framework for any coastal and marine spatial planning effort. NOAA's Digital Coast will provide the data integration and delivery platform for the integrated topographic and bathymetric dataset and will also facilitate and highlight examples of how the data are used to address high-priority coastal issues. In response to prioritized requirements for new data collection assembled by these partners, as well as ongoing interactions with the academic community and the Sea Grant program, NOAA will work cross-agency to address known gaps and deliver results through the Digital Coast thereby enabling improved decision making along our coasts.

Specific actions include the following:

- Conduct a regional assessment and workshop with Federal, state, regional, local, private sector, and non-governmental organizations. The assessment will identify relevant ocean and coastal management issues for the region, determine the availability and characteristics of existing topographic and bathymetric data, identify gaps to be filled, and assess technologies needed for data acquisition (\$40K).
- Prioritize and coordinate data collection activities for the region. Based on the workshop results and predetermined criteria, a data collection plan will be developed and implemented from 2011 to 2015. Existing data collection efforts will be leveraged to optimize the area that will be covered (\$1,850K).
- Provide easy access to, and disseminate all, topographic and bathymetric data, including associated metadata, and demonstrate how the data is being used to address coastal management issues. All data will be managed and made accessible via the Digital Coast which allows users to search and download data and will include web-based tools to allow users to visualize the changes over time (\$60K).

- Provide training to constituents on data acquisition and processing techniques, as well as the applied uses of topographic and bathymetric data, to address coastal and marine spatial planning issues (\$50K).

These activities will be conducted in close coordination with DOI, the U.S. Army Corps of Engineers (USACE), and other Federal partners. NOAA and DOI will coordinate Integrated Ocean and Coastal Mapping (IOCM) efforts through the Ocean and Coastal Mapping Integration Act of 2009. It is anticipated that the USGS will continue to collect the majority of topographic data for the region, while NOAA will focus its data collection efforts on the associated bathymetry. NOAA will then work with USGS and the USACE to achieve consistent data standards and integration procedures and distribute the seamless data through the Digital Coast. NOAA's ongoing partnership with MMS to develop the Multipurpose Marine Cadastre, in support of CMSP, will provide applied uses and case studies to demonstrate utility of the data.

Statement of Need and Economic Benefits

NOAA's 2006 Coastal Resource Management Customer Survey documented a clear national need for topography and bathymetry. This need was echoed by both the Digital Coast partners and the Gulf of Mexico Alliance needs assessment which identified bathymetry as a priority data requirement for habitat restoration.

According to the Army Corps of Engineers, Louisiana is losing 25 square miles of land per year (*Land Loss Rates, Louisiana Coastal Plain, Report 3*. Technical Report GL-90-2, 1992). This constitutes approximately 80 percent of the annual coastal wetland loss in the United States over the last 60 years (*USGS Northern Gulf of Mexico Ecosystem Change and Hazard Susceptibility Project*, 2009). Rapid erosion of Mississippi's barrier islands severely threatens the state's coastal communities, impeding their natural ability to offer critical storm protection to coastal ecosystems. Ecological damage in the region has led to the loss of key ecosystem services, which in turn has resulted in many negative economic and environmental consequences for both the region and the Nation. 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. This increase will provide the foundational data and geospatial framework needed to measure changes in coastal elevation and nearshore bathymetry, delivering critical data to monitor and mitigate the impacts of coastal erosion, habitat loss, and coastal inundation (including sea level rise).

The Northern Gulf Coast is a nationally-significant ecosystem that plays a crucial role in the Nation's economy. One quarter of all domestically consumed oil and gas travels by pipeline through coastal Louisiana's wetlands and marshes (*USACE Louisiana Coastal Area Ecosystem Restoration Study*, 1999). The decomposition of wetlands and barrier islands leaves critical energy infrastructure exposed to open water (e.g., wave and tidal damage, threats of collisions) and vulnerable to storm damage. Maritime commerce is also a major concern within the region, as seven of the Nation's 10 leading ports in waterborne tonnage are found in the Gulf of Mexico. Coastal Louisiana and Mississippi commercial fisheries account for nearly 30% of the total catch by weight in the contiguous United States. The Louisiana Department of Wildlife and Fisheries' 2005 preliminary estimates of losses to the state's seafood industry as a result of Hurricane Katrina were \$1.3 billion (annual total retail value), representing about 40% of the industry's annual total retail value (*National Marine Fisheries Service, NOAA, 2007d*). The region's non-commercial fisheries value is equally significant, totaling approximately \$1 billion annually. However, the viability of coastal Louisiana and Mississippi's fisheries is tied to the health of the regions wetlands, marshes, and barrier islands, which serve as a nursery to juvenile fish and crustaceans. Impacts from Hurricanes Katrina and Rita continue to serve as additional drivers for improved storm surge modeling in the region.

These issues in the Gulf are indicative of the scale and complexity of problems faced in other regions of the country as well. Following pilot activities in Mississippi and Louisiana, this effort will be expanded to other parts of the country. This geospatial framework, jointly developed with USGS and MMS and the Digital Coast partnership, will allow for more effective, data-driven decisions at state and local levels regarding habitat

restoration, and will enable more comprehensive coastal and marine spatial planning to analyze current and anticipated ocean uses related to energy, fisheries, and navigation. Ultimately, the data and related interagency expertise will inform science-based decision-making to reduce user conflicts and environmental impacts, facilitate compatible uses, and preserve critical ecosystem services.

Performance Goals and Measurement Data

Performance Goal: Climate	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Annual number of square miles of topographic and bathymetric data collected and disseminated through the Digital Coast						
With Increase	N/A	0	350	350	350	350
Without Increase	0	0	0	0	0	0
Description: This measure tracks the area covered with new topographic and bathymetric data collections. Costs associated with topographic data collection are consistent and easily projected. Costs associated with bathymetric data collection are dependent upon water depth and are highly variable; therefore, the projected the area of coverage is an estimate. Data collection will begin in late 2011.						

Performance Goal: Ecosystems	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Cumulative number of MS and LA decision makers accessing and/ or trained in applying NOAA data (topography and bathymetry) and data standards to improve management of coastal and marine ecosystems						
With Increase	N/A	0	70	160	250	325
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number of decision-makers (e.g., state and local planners, resource managers, emergency managers, etc.) who are trained to apply NOAA data and data standards for elevation collected and developed through this effort or who are directly applying those data to address coastal and emergency management challenges. The data collection and processing will begin in late FY 2011 and FY 2012 and as the targets in this measure focus exclusively on the interactive training to apply the data; targets begin in FY 2012 and ramp up over time.						

*The targets in these performance measures are limited to this initiative and do not capture activity conducted through the Coastal Services Center and other NOAA programs.

Competitive Research - Sensors for Marine Ecosystems (+0 FTE and +\$9,500,000): NOAA requests an increase of \$9,500,000 for a total of \$12,500,000 and 1 FTE (includes \$3,000,000 transferred from the Ocean Research Priorities Plan base) to develop and improve sensors for ocean chemical, 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 and environmental models and forecasting tools, will provide a new way of “seeing” and better understanding ecosystem function and response to environmental stressors such climate variability and change as well as ocean acidification.

Proposed Actions

Through this effort, NOAA will focus on the “Sensors for Marine Ecosystems” near-term priority as specified in the Ocean Research Priorities Plan and Implementation Strategy titled, “*Charting the Course for Ocean Science in the United States for the Next Decade*” and highlighted in the Office of Science and Technology Policy Interagency Ocean Science and Technology Priorities for FY 2011. NOAA will mount a coordinated effort to develop and apply a variety of biological sensing technologies, genomic tools and other technologies

that will allow rapid, accurate, and cost effective detection, identification, characterization, and quantification of disease-causing microbes, toxins, and contaminants in marine waters, seafood, and sentinel marine organisms which may indicate health risks to humans.

The goal will be to incorporate successful technologies into monitoring and prediction programs. These funds will also allow investigation of changes (at genetic and ecosystem levels) in marine organism and ecosystem health in response to changes in climate, ocean acidification, and related environmental conditions. Funds will be used to target sensor development that supports ocean and coastal related Health Early Warning Systems, and to identify risks and promote public health. NOAA will coordinate its efforts through interagency mechanisms such as the National Oceanographic Partnership Program (NOPP) as well as work with internal and external entities to develop, test, and transition to operation promising new sensors and technologies resulting from this competitive program. Throughout the process, NOAA will solicit stakeholder input through existing advisory panels, transition boards, interagency groups, and targeted stakeholder engagement.

With the requested funding NOAA will:

- Develop and identify appropriate biogeochemical sensors for rapid and accurate detection, identification, and quantification of ocean and coastal pathogens, nutrients, contaminants and harmful algae and their toxins that may indicate health risks to humans;
- Develop sensors to support validation of ocean satellite and in-situ observation systems;
- Evaluate and test sensors for commercial transition, or for use within monitoring and prediction programs including the Integrated Ocean Observing System (IOOS);
- Support cost-effective development and engineering to ensure sustainable and reliable use of sensors in the marine environment;
- 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 ocean acidification and climate change;
- Support DNA-based identification of marine organisms to advance knowledge of marine biodiversity and its role in ecosystem processes;
- Enhance coastal ocean and human health risk assessments and forecasts by refining models that describe and predict impacts of stressors (climate change, freshwater availability, coastal development, human behavior, anthropogenic pollutants and naturally occurring pathogens and toxins); and
- Enhance human health through sensors to identify potential marine natural products, probes and pharmaceuticals, reduce toxin loads and improve the nutritional value of aquaculture and fisheries.

Within these broad focus areas, priority consideration will be given to efforts that have applicability to ocean acidification, harmful algal blooms (HABs) and their contributing factors, as well as issues pertaining to ocean and human health. 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 HABs, fisheries and protected species management, and coastal ecosystem health assessments. Biosensing capability coupled with traditional oceanographic data will enhance efforts in research, modeling, and forecasting, in turn enhancing the ability to make informed management decisions, even under a changing climate. Building biosensing capacity with NOAA and its partners allows this effort to be highly responsive to NOAA's conservation mission and programmatic needs, and ensures NOAA and the Nation have a scientifically sound workforce keeping NOAA and its management needs at the forefront of these essential technologies.

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 increasingly dangerous array of ocean health threats from industrial, urban, and agricultural sources. 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. During 2006-2007, beach advisory days due to sewage contamination more than tripled to 4,000; 35% of tested estuaries and 12% of ocean shoreline waters were considered unfit for designated uses (*Testing the Waters 2009*, NRDC 2009).

Our ability to rapidly and accurately monitor and assess ocean health threats, biodiversity and other indicators of marine ecosystem health, and the 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, 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 above. This initiative will enable rapid and cost-effective identification of ocean-borne health threats, thereby enabling actions that protect public and animal health, as well as advance our understanding of how multiple stressors affect the health of coastal ecosystems.

The economic benefits of regional ocean observing systems are estimated to be \$274.7 million/yr for recreational waters and \$150.5 million/yr for recreational and commercial fisheries. For recreational water management, the estimated benefit is contingent on development and implementation of technologies for rapid and direct measurement of pathogens (*Estimating the Economic Benefits of Regional Ocean Observing Systems*, Kite-Powell et al 2008). If the estimated beach and fisheries benefits are calculated to be, respectively, 70% and 5% dependent on the molecular technologies provided by this request, the yearly benefits would be \$200 million/yr.

These funds will increase the capacity to monitor ecosystems for pathogens, contaminants, and HABs. Plankton identification will help address provisions of the Magnuson-Stevens Act. When successfully tested and operationalized or coupled with observing tools within systems such as IOOS, marine biosensing will improve forecasting with sufficient lead time to take preventive or controlling actions. Improvements in marine organism identification, biodiversity measurement, and understanding the effects of multiple stressors will enhance the ability to manage places, protected species and populations; as well as maintain ecosystem services. These sensors will form a critical component of a fully integrated observing network that can help managers make informed and timely decisions regarding the management of trust resources, ecosystem health and human health, and will provide much needed decision support tools for managing and adapting to climate change and ocean acidification. The development of multi-scale oceanographic, biological and chemical sensors, and genomic and proteomic tools, along with their transition to operational status, will allow NOAA and its external partners to significantly improve the Nation’s ability to support ecosystem-based management of critical marine and coastal systems and protected species, and provide crucial information to safeguard public health.

Performance Goals and Measurement Data

Performance Goal: Ecosystem Performance Measure: Cumulative number of new marine sensors and ecosystem tools developed or applied to enhance ecosystem-based management for fisheries, protected species, and public health	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	2	3	6	9	12
Without Increase	1	1	2	3	3	4
Description: This measure is focused on the development of new sensors and tools.						

Performance Goal: Ecosystem	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Annual number of tools/technologies developed from tested and validated sensors and related research that are used to improve ecosystem-based management.						
With Increase	N/A	8	8	8	8	8
Without Increase	3	3	3	3	3	3
Description: This measure is focused on the application of sensors and tools. Specifically, this measure tracks success in translating tested and validated sensors and related research findings into information, tools, and technology that improve ecosystem-based management of ocean, coastal and Great Lakes resources, protection of trust resources, and the prediction and reduction of ocean and coastal related human and marine organism health risks.						

Gulf of Mexico Regional Collaboration (+0 FTE and -\$4,750,000): NOAA requests a decrease of \$4,750,000 for a total of \$0, ending the competitive grant program targeted at advancing regional coastal resource priorities defined by the five Gulf States in *The Governors' Action Plan II for Healthy and Resilient Coasts*. Although this grant program will cease, a new competitive grant program, Regional Ocean Partnerships, will provide funding to implement activities in the action plans of all regional ocean partnerships. As such, entities that had competed for funds under the Gulf of Mexico grant program in the past will be eligible to compete for funds under Regional Ocean Partnerships.

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: IOOS Regional Observations (\$12,445,000); Alliance for Coastal Technologies (\$500,000); Northeast Coastal Monitoring Collaborative (\$550,000); Coastal Services Center (\$6,000,000); Hawaii Coral Reef Initiative (\$1,000,000); National Coral Reef Institute (\$200,000); Coral Reef – Puerto Rico (\$100,000); Coral Reef Program (\$2,273,000); Aquarius Reef Base Program (\$150,000); Ocean Health Initiative (\$3,000,000); International Pacific Research Center (\$1,500,000); The Resilient Coastal Urban Community and Ecosystem (RESCUE) Initiative (\$250,000); West Coastal Governors' Agreement on Ocean Health (\$500,000); Engineering Feasibility Study (Dauphin Island) (\$1,500,000); Response and Restoration Base (\$1,000,000); Estuary Restoration Program (\$1,812,000); Aquatic Resources Environmental Initiative – Kentucky PRIDE (\$1,000,000); National Centers for Coastal Ocean Science (\$2,312,000); Competitive Research (\$199,000); Western Pacific Coral Reef Ecosystems Studies Program (CSCOR-NCCOS), Guam (\$300,000).

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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
Program Analyst	Silver Spring, MD	ZA-03	2	62,467	124,934
Physical Scientist	Silver Spring, MD	ZA-03	3	62,467	187,401
Geographer	Silver Spring, MD	ZA-03	1	62,467	62,467
Geographer	Monterey, CA	ZA-03	1	67,963	67,963
Physical Scientist	Monterey, CA	ZA-03	1	67,963	67,963
Physical Scientist	Charleston, SC	ZA-03	1	57,408	57,408
Program Analyst	Charleston, SC	ZA-03	1	57,408	57,408
Geographer	Charleston, SC	ZA-03	1	57,408	57,408
Program Analyst	Durham, NH	ZA-03	1	62,758	62,758
Physical Scientist	Asheville, NC	ZP-04	1	81,823	81,823
Coastal Management Specialist	Honolulu, HI	ZP-04	1	75,057	75,057
Physical Scientist	Silver Spring, MD	ZP-04	1	89,033	89,033
Total			15		991,623
less Lapse		25%	4		247,906
Total full-time permanent (FTE)			11		743,717
2011 Pay Adjustment (1.4%)					10,412
TOTAL					754,129
Personnel Data			Number		
Full-Time Equivalent Employment					
Full-time permanent			11		
Other than full-time permanent			0		
Total			11		
Authorized Positions:					
Full-time permanent			15		
Other than full-time permanent			0		
Total			15		

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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	2011 Increase
11 Personnel compensation	754
11.9 Total personnel compensation	754
12 Civilian personnel benefits	217
21 Travel and transportation of persons	465
22 Transportation of things	3
24 Printing and reproduction	37
25.2 Other services	7,198
26 Supplies and materials	310
31 Equipment	310
41 Grants and fixed charges	13,050
99 Total Obligations	22,344

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	2011 Decrease
21	Travel and transportation of persons	(50)
24	Printing and reproduction	(20)
25.2	Other services	(400)
26	Supplies and materials	(10)
31	Equipment	(20)
41	Grants and fixed charges	(4,250)
99	Total Obligations	(4,750)

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 Coastal Zone Management 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 and estuarine protected areas.
- Protect and manage a system of nationally significant special marine areas through the National Marine Sanctuary System, a comprehensive conservation program.
- Enhance public education, awareness, and understanding of the marine and estuarine 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) 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 (NMSA), 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 Ecosystem Goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

COASTAL ZONE MANAGEMENT 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 2011 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 scientific and technical information, training, and education on estuaries. The reserve system serves as a testing ground for the improvement of coastal resource management through direct resource management and restoration, science, and the translation and dissemination of information to coastal decision makers, teachers, students, and the public. There are currently 27 designated reserves in 22 states and territories covering over 1.3 million acres of estuarine lands and waters. In addition, the Governors of two additional states (Wisconsin and Connecticut) have submitted requests for the designation of new reserves in their states. This state based component is also supported by the National Program.

CZM AND STEWARDSHIP/ 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. OCRM staff carry out numerous critical functions necessary to execute these programs, in addition to negotiating and processing more than 100 grants and cooperative funding agreements each year. 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 periodic programmatic evaluations of each state CZM program and NERR;
- 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 significant areas of our 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-- provides 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 protection. NMSA provides NOAA with direct Federal management authority in designated ocean and coastal areas. The Act requires an extensive public process to identify and develop solutions regarding planning, implementation, and evaluation of marine areas, uses, and protections. The activities under this line item directly support NOAA's Ecosystem Goal.

In the Ocean Management Line Item, NOAA administers the National Marine Sanctuary System (NMSS) under authority of the NMSA. The system includes 13 designated national marine sanctuaries, as well as the Papahānaumokuākea Marine National Monument (established by the President on June 15, 2006 as the NWHI Marine National Monument), which is the largest marine protected area in the world (stretching 1,200 miles, the distance from Chicago to Miami). In addition, in 2009 NOAA was directed to incorporate the Rose Atoll Marine National Monument into the Fagatele Bay NMS. 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 manages and operates the Nation's system of marine sanctuaries and the Papahānaumokuākea Marine National Monument. Individual sanctuary and monument offices are responsible for the daily operation of a wide variety of education, research, monitoring and management programs. Through extensive public engagement processes, each site undertakes activities including: 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 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 approach to management and NOAA regional teams

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.

PROPOSED LEGISLATION:

The Administration will work with Congress to reauthorize the Coastal Zone Management Act and the National Marine Sanctuaries Act.

PROGRAM CHANGES FOR FY 2011:

Regional Ocean Partnerships (+1 FTE and +\$20,000,000): NOAA requests an increase of \$20,000,000 for a total of \$20,000,000 and 1 FTE to initiate a targeted competitive grant program to advance regional ocean management through support for regional ocean partnerships including coastal and marine spatial planning.

Proposed Actions

With the requested increase, NOAA will establish a competitive grants program to advance effective ocean management through regional ocean governance. To this end, the program will help support priority actions identified in the plans of existing regional ocean partnerships (e.g., Gulf of Mexico Alliance, Northeast Regional Ocean Council, Great Lakes Regional Collaboration, and the West Coast Governors' Agreement on Ocean Health), as well as supporting the development and implementation of ocean management plans in other regions (e.g. the Mid-Atlantic Regional Council on the Ocean, the South Atlantic Alliance, Hawaii, and other regions) and addressing regional activities in other parts of the country (e.g. the Pacific and Caribbean territories, and Alaska). Support for these partnerships will include the development of comprehensive coastal and marine spatial plans (CMSP) that are consistent with the U.S. National Framework for CMSP. Eligible grant recipients will include state, local and tribal governments, institutions of higher learning, and non-profit organizations working with these regional ocean partnerships or member states. Through public processes, regional ocean partnerships have identified priority needs and actions to address critical issues such as: coastal water quality, nutrient loading and clean beaches; wetland and habitat restoration, protection and characterization; environmental education and literacy; coastal community resilience and sustainability (including working waterfronts); sustainable offshore renewable energy; ecosystem based management; coastal scientific information, research, and monitoring; addressing impacts from climate change; and aquatic invasive species. Each year, NOAA will work with the regional ocean partnerships to identify priority areas to focus the funding opportunity. Because CMSP is an important component of regional ocean governance efforts, and is key to the success of many of the priority actions, a portion of the funds will be available for developing and implementing CMSPs consistent with the national goals, principles, and criteria established by the Ocean Policy Task Force. The funds would ensure, through NOAA policy leadership and technical support, that states, territories, and regional ocean partnerships develop objective, consistent and transparent CMSP processes based on sound science and meaningful stakeholder input. In implementing this program, NOAA will coordinate with other Federal agencies involved in regional ocean governance and CMSP efforts, and will consider geographic diversity.

The request also supports NOAA's implementation of this program, including coordination, planning, and implementation with the states, other Federal agencies, and other partners within the regional ocean partnership framework with the provision of necessary support (e.g. science, policies, information, tools and training) to further regional priorities. This grant program will be closely coordinated with other NOAA programs, and the activities supported through the coastal and marine spatial planning increase also requested in FY 2011.

Statement of Need and Economic Benefits:

The Nation's coastal communities and economies depend on healthy coastal resources, which are threatened by fragmented planning and management of societal use of coastal lands and waters. Coastal communities face risks from 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, add to the need to manage expanding and often competing uses of these finite coastal and ocean areas. Climate change is expected to amplify these challenges.

The interim report of the Ocean Policy Task Force, the Pew Oceans Commission, the U.S. Commission on Ocean Policy, and the Joint Ocean Commission Initiative all call for regional ocean governance mechanisms to address the growing crises facing our oceans. The value of regional approaches to coastal and ocean governance and comprehensive planning is reflected in the rapid engagement by most coastal states in new

regional ocean governance partnerships. Regional ocean governance mechanisms facilitate the effective management of ocean and coastal resources across jurisdictional boundaries by improving communications, aligning priorities, and enhancing resource sharing between local, state, and Federal agencies. The benefits of a regional, ecosystem-based collaborative approach are numerous and will result in more efficient and effective governance.

Federal-state partnerships are central to effective regional ocean governance and NOAA’s involvement in this governance is critical to overcome the independent and fragmented management regimes that currently exist. Failure to do so, in the face of growing and competing demands on ocean space and resources, will have profound impacts on all ocean users and constituencies. The Federal agencies bring diverse expertise and established experience; coordinating and integrating these capabilities will maximize the impact of Federal resources.

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 U.S economy in terms of disaster losses, public health issues, and impacts on local economies. Many of these issues are best dealt with from a regional perspective, with regional alliances of states providing the context for priorities and implementing mechanisms.

The socioeconomic need for a regional, ecosystem-based, collaborative approach is compelling, and is strongly linked to NOAA’s mission goals. Regional ocean governance supports the management of resources that contribute about \$230 billion each year to the national economy in market-based outputs and ecological systems that increase property values and the quality of life in coastal areas (NOEP, 2004. *Ocean-Related GDP with Multipliers, All Ocean Sectors*). This request represents a relatively small investment to preserve such a significant economic contribution. Moreover, supporting regional initiatives to develop science-based, comprehensive coastal and marine spatial plans will yield many tangible benefits, such as: reduced user conflicts, streamlined permitting, synergies among compatible uses, incentives for developing coastal infrastructure and business relevant to planned offshore uses, and more sustainable ecosystems; and the social, cultural and economic services they provide to coastal communities.

Performance Goals and Measurement Data

Performance Goal: Ecosystem Goal	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Implement priority activities identified in regional action plans (cumulative).						
With Increase	N/A	24	44	64	82	97
Without Increase	10	12	14	14	16	16
Description: Regional ocean partnerships will make progress in achieving the actions within integrated plans that have clearly identified goals and objectives for long term ocean health and sustainability and engage academic, non-governmental organizations and private interests. These efforts will build upon the existing accomplishments of the regional ocean partnerships including the Gulf of Mexico Alliance (without increase targets are based on activities implemented using funds appropriated in FY 2008 – FY 2010 for Gulf of Mexico Alliance activities). In addition, the program will adopt one or more of the outcome-based measures that will be developed pursuant to the regional CMSP plans. Per the Ocean Policy Task Force, possible measures of conservation may include, but are not limited to, indicators of ecosystem health such as the status of native species diversity and abundance, habitat diversity and connectivity, and key species (i.e., species known to drive the structure and function of ecosystems). In addition, socio-economic measures may include but are not limited to: the economic value or productivity of certain economic sectors, such as commercial and recreational fisheries, aquaculture, and offshore energy; the number of recreation days; and the time required for permit						

applications to complete the regulatory process.

Emerging energy responsibilities (0 FTE and -\$1,150,000): NOS requests a decrease of \$1,150,000 for a total of \$750,000 for this effort. NOAA will work to meet its statutory responsibilities related to energy under the Coastal Zone Management Act (CZMA) and the Ocean Thermal Energy Conversion Act (OTECA) with the \$750,000 and by utilizing current agency resources.

TERMINATIONS FOR 2010:

The following programs, or portions thereof, are proposed for termination in FY 2011: CZM Grants (\$2,000,000); National Estuarine Research Reserves (\$1,174,000); Marine Protected Areas (\$872,000); Marine Sanctuary Program Base (\$4,051,000); Northwest Straits Citizens Advisory Commission (\$1,600,000); Hawaii Institute of Marine Biology Coral Research, HI (\$2,250,000); Mariana Islands Sanctuary Scoping and Outreach (\$220,000).

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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
Program Analyst	Silver Spring, MD	ZA-4	1	89,033	89,033
Total			1		89,033
less Lapse		25%	0		22,258
Total full-time permanent (FTE)			1		66,775
2011 Pay Adjustment (1.4%)					935
TOTAL					67,710

Personnel Data

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
(Dollar amounts in thousands)

Activity: National Ocean Service
Subactivity: Ocean and Coastal Management

Object Class	2011 Increase
11 Personnel Compensation	68
11.9 Total Personnel Compensation	68
12 Civilian Personnel Benefits	22
21 Travel and transportation of persons	110
24 Printing and reproduction	15
25.2 Other services	755
26 Supplies and materials	10
31 Equipment	20
41 Grants and fixed charges	19,000
99 Total Obligations	20,000

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: Ocean and Coastal Management

	Object Class	2011 Decrease
25.2	Other services	(1,150)
99	Total Obligations	(1,150)

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 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. This program is authorized by the Coastal and Estuarine Land Conservation Act of 2009, which requires that 15% of funds be allocated to projects that benefit a National Estuarine Research Reserve (NERR). These funds supplement those in the NERRS construction/acquisition line by supporting land acquisition in the watershed of the reserve.

The Outyear Funding Estimates are provided with the program change requested for this activity.

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 current needs for implementing core NERRS programs and external opportunities for partnerships. When available, reserves will acquire additional nearby critical habitat within, or adjacent to a reserve boundary as identified in reserve management plans 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. NERRS construction and land acquisition projects are selected on a competitive basis.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2010 & Prior	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Estimate to Complete *	Total Program Estimate
National Estuarine Research Reserve Construction and Land Acquisition								
Change from FY 2011 Base		0	0	0	0	0		
Total Request	91,536	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 Office of National Marine Sanctuaries manages and operates 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 establish better understanding and appreciation for sanctuary and other ocean and coastal 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 and act as a storefront for public interaction with NOAA programs. 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 2010 & Prior	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Estimate to Complete*	Total Program Estimate
National Marine Sanctuaries Construction Base								
Change from FY 2011 Base		0	0	0	0	0	0	
Total Request	96,856	5,495	5,495	5,495	5,495	5,495	N/A	N/A

PROGRAM CHANGES FOR FY 2011:

Coastal and Estuarine Land Conservation Program (+0 FTE and +\$10,000,000): NOAA requests an increase of \$10,000,000 for a total of \$25,000,000 and 1 FTE to conserve high priority coastal and estuarine lands that have significant ecological value and support NOAA’s stewardship requirements.

Proposed Actions

With this increase, NOAA will provide funding for additional land conservation projects identified through a competitive selection process, based on habitat types or geographic areas identified by coastal states as having high ecological, conservation, recreational, historic or aesthetic value that are threatened by development, such as tidal or freshwater wetlands, stream buffers, and floodplains. The Program gives priority to lands which can be effectively managed and protected and have significant ecological value. This increase of \$10,000,000 for land conservation grants will support approximately 4-6 additional conservation projects per year. This funding will also enable NOAA to ensure that conservation projects satisfy the requirements of NEPA and meet Federal appraisal standards.

Statement of Need and Economic Benefits

Coastal counties are home to almost 153 million people, about 53 percent of the total U.S. population and by 2015 the coastal population is estimated to reach 165 million (*Population Trends Along the Coastal United States: 1980-2008*, NOAA 2004). As the coastal population continues to increase, there are many competing demands for limited coastal areas and growing pressure to develop the remaining lands. Coastal lands and estuaries are ecologically productive and economically important. They serve as nursery habitat for the Nation's commercial fish and shellfish as well as nesting and foraging habitat for coastal birds, filter pollutants from stormwater runoff, control flooding after severe storm events, and provide opportunities for coastal recreation and nature-based tourism. NOAA has found that the demand for funding to conserve these important coastal and estuarine areas is significantly higher than the amounts available in recent years. For example in FY 2010, 57 projects totaling almost \$83 million were determined to be ready and eligible for CELCP funding, but only a small portion will be funded based on the \$20 million appropriated (10 projects or less than 20%). In FY 2009 46 projects totaling \$63 million were determined to be ready and eligible, but again only a small number were funded with the \$15 million appropriated (7 projects or 15%). After receiving the CELCP grant applications each year, NOAA determines which projects are considered "ready and eligible" for funding under the program; projects are then evaluated by an external review panel and prioritized for funding within the available amounts. This increase will enhance NOAA's ability to fund high priority projects each year, conserving additional important coastal and estuarine land areas.

Performance Goals and Measurement Data

Performance Goal: Ecosystem Performance Measure: Habitat acres acquired or designated for long-term protection (annual)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	~ 3,300 acres	~ 3,300 acres	~ 3,300 acres	~ 3,300 acres	~ 3,300 acres
Without Increase	~ 2,000 acres	~ 2,000 acres	~ 2,000 acres	~ 2,000 acres	~ 2,000 acres	~ 2,000 acres
Description: This measure tracks the annual number of acres acquired or designated for long-term protection using CELCP funds.						

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2010 & Prior	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Estimate to complete*	Total Program Estimate
CELCP								
Change from FY 2011 Base		10,000	10,000	10,000	10,000	10,000	-	
Total Request	251,424	25,000	25,000	25,000	25,000	25,000	N/A	N/A

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

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: Coastal and Estuarine Land Conservation Program (\$5,000,000); Great Bay Partnership, NH (\$3,000,000); Marine Sanctuaries Construction Base (\$7,505,000); Thunder Bay NMS Exhibit (\$1,000,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Ocean Service
 Subactivity: Construction

	Object Class	2011 Increase
25.2	Other Services	500
41	Grants and fixed charges	9,500
99	Total Obligations	10,000

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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. Through the Revolving Fund, NOAA:

- Retains funds that are recovered through settlement or awarded by a court for restoration of injured natural resources, and retains reasonable costs of conducting spill response and damage assessments that are recovered by NOAA through negotiated settlement, court award, or other reimbursement.
- Ensures 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
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	16	16	3,000	42,325
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	(26,725)
FY 2011 Base	16	16	3,000	15,600
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	16	16	3,000	15,600

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Damage Assessment and Restoration Revolving Fund	Pos/BA	16	2,585	16	3,000	16	3,000	16	3,000	0	0
	FTE/OBL	13	9,622	16	42,325	16	15,600	16	15,600	0	0
Total: Damage Assessment and Restoration Revolving Fund	Pos/BA	16	2,585	16	3,000	16	3,000	16	3,000	0	0
	FTE/OBL	13	9,622	16	42,325	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 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	13	9,622	16	42,325	16	15,600	16	15,600	0	0
Total Obligations	13	9,622	16	42,325	16	15,600	16	15,600	0	0
Adjustments to Obligations:										
Federal funds	0	(153)	0	0	0	0	0	0	0	0
New offsetting collections	0	(5,188)	0	(7,600)	0	(7,600)	0	(7,600)	0	0
Recoveries	0	(111)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(25,165)	0	(26,725)	0	0	0	0	0	0
Unobligated balance, transferred (From DOI)	0	(3,145)	0	(5,000)	0	(5,000)	0	(5,000)	0	0
Unobligated balance, EOY	0	26,725	0	0	0	0	0	0	0	0
Total Budget Authority	13	2,585	16	3,000	16	3,000	16	3,000	0	0
Financing from Transfers and Other:										
Transfer from Other Accounts	0	0	0	0	0	0	0	0	0	0
Transfer to/from Dept of Interior	0	(2,585)	0	(3,000)	0	(3,000)	0	(3,000)	0	0
Net Appropriation	13	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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	9,622	42,325	15,600	15,600	0
Offsetting collections from:					
Estimated Collections	(5,188)	(7,600)	(7,600)	(7,600)	0
Federal funds	(153)				
Trust funds					
Non-Federal sources					
Recoveries	(111)	0	0	0	0
Unobligated balance, start of year	(25,165)	(26,725)	0	0	0
Unobligated balance transferred	(3,145)	(5,000)	(5,000)	(5,000)	0
Unobligated balance, end of year	26,725	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	2,585	3,000	3,000	3,000	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Transfer, BA from DOI	(2,585)	(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
Damage Assessment and Restoration Revolving Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

<u>Object Class</u>	2009	2010	2011	2011	Increase/ (Decrease)
	Actuals	Currently Available	Base	Estimate	over 2011 Base
11 Personnel compensation					
11.1 Full-time permanent	1,373	1,373	1,373	1,373	0
11.3 Other than full-time permanent	8	8	8	8	0
11.5 Other personnel compensation	29	29	29	29	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	1,410	1,410	1,410	1,410	0
12.1 Civilian personnel benefits	552	552	552	552	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	210	210	210	210	0
22 Transportation of things	4	4	4	4	0
23.1 Rental payments to GSA	130	130	130	130	0
23.2 Rental payments to others	6	6	6	6	0
23.3 Commun., util., misc. charges	0	0	0	0	0
24 Printing and reproduction	4	4	4	4	0
25.1 Advisory and assistance services	844	844	844	844	0
25.2 Other services	4,325	37,028	10,303	10,303	0
Other purchases of goods and services					
25.3 from Govt accounts	182	182	182	182	0
26 Supplies and materials	146	146	146	146	0
31 Equipment	144	144	144	144	0
32 Lands and structures	0	0	0	0	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	1,652	1,652	1,652	1,652	0
42 Insurance claims and indemnities	1	1	1	1	0
43 Interest and dividends	12	12	12	12	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)

		2009	2010	2011	2011	Increase/ (Decrease)
Object Class		Actuals	Currently Available	Base	Estimate	over 2011 Base
44	Refunds	0	0	0	0	0
99	Total Obligations	9,622	42,325	15,600	15,600	0
	Less collections	(5,341)	(7,600)	(7,600)	(7,600)	0
	Less recoveries	(111)	0	0	0	0
	Less unobligated balance, SOY	(25,165)	(26,725)	0	0	0
	Plus unobligated balance, EOY	26,725	0	0	0	0
	Plus unobligated balance transferred	(3,145)	(5,000)	(5,000)	(5,000)	0
	Total Budget Authority	2,585	3,000	3,000	3,000	0
	Transfers:					
	Transfer from Other Accounts					
	From DOI	(2,585)	(3,000)	(3,000)	(3,000)	0
	Discretionary Budget Authority	0	0	0	0	0
	Personnel Data					
	Full-Time equivalent					
	Employment:					
	Full-time permanent	13	16	16	16	0
	Other than full-time permanent	0	0	0	0	0
	Total	13	16	16	16	0
	Authorized Positions:					
	Full-time permanent	16	16	16	16	0
	Other than full-time permanent	0	0	0	0	0
	Total	16	16	16	16	0

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.

PROPOSED LEGISLATION:

All balances in the Coastal Zone Management Fund, whether unobligated or unavailable, are hereby permanently cancelled, and notwithstanding Section 308(b) of the Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1456a), any future payments to the Fund made pursuant to sections 307 (16 U.S.C. 1456) and 308 (16 U.S.C. 1456a) of the Coastal Zone Management Act of 1972, as amended, shall, in this fiscal year and any future fiscal years, be treated in accordance with the Federal Credit Reform Act of 1990, as amended.

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	(1,500)	0
less: obligations from prior year balances	0	0	0	0
FY 2011 Base	0	0	(1,500)	0
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	(1,500)	0

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals Personnel Amount		Currently Available Personnel Amount		Base Program Personnel Amount		Estimate Personnel Amount		Personnel Amount	
Coastal Zone Management Fund	Pos/BA	0	(887)	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	(887)	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 2009		FY 2010		FY 2011		FY 2011		Increase/	
	Actuals		Currently Available		Base Program		Estimate		Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Adjustments to Obligations:										
New offsetting collections	0	(887)	0	(1,500)	0	(1,500)	0	(1,500)	0	0
Recoveries	0	0	0	0	0	0	0	0	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	(887)	0	(1,500)	0	(1,500)	0	(1,500)	0	0
Financing from Transfers and Other:										
Spending Authority Previously Unavailable	0	0	0	0	0	0	0	0	0	0
Previously unavailable unobligated balances	0	(2,113)	0	(1,500)	0	(1,500)	0	0	0	0
Transfer to ORF	0	3,000	0	(1,500)	0	(1,500)	0	0	0	0
Transfer to Treasury	0	3,000	0	3,000	0	3,000	0	1,500	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)

	2009	2010	2011	2011	Increase/ Decrease/
	Actuals	Currently Available	Base	Estimate	over 2011 Base
Total Obligations	0	0	0	0	0
Offsetting collections from:					
Federal funds	(887)	(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	(12)	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	(887)	(1,500)	(1,500)	(1,500)	0
Financing:					
Previously Unavailable Unobligated Balance	(2,113)	(1,500)	(1,500)	0	0
Transfer to other accounts	3,000	3,000	3,000	1500	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)

<u>Object Class</u>	2009 Actuals	2010 Currently Available	2011 Base	2011 Estimate	Increase/ (Decrease) over 2011 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	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total Obligations	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)

	2009	2010	2011	2011	Increase/ (Decrease)
	Actuals	Currently Available	Base	Estimate	over 2011 Base
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	(887)	(1,500)	(1,500)	(1,500)	0
Total Budget Authority	(887)	(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

Appropriation: Coastal Impact Assistance Fund

Congress authorized the Coastal Impact Assistance Program (CIAP) under §903 of the FY 2001 Commerce, State, Justice 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 Impact Assistance Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	0	155
less: obligations from prior year balances	0	0	0	(155)
FY 2011 Base	0	0	0	0
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Actuals Personnel Amount		Currently Available Personnel	Amount	Base Program Personnel	Amount	Estimate Personnel	Amount	Personnel	Amount
Coastal Impact Assistance Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	2,178	0	155	0	0	0	0	0	0
Total: Coastal Impact Assistance Fund	Pos/BA	0	0	0	0	0	0	0	0	0	0
	FTE/OBL	0	2,178	0	155	0	0	0	0	0	0

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount		
Direct Discretionary Obligation	0	2,178	0	155	0	0	0	0	0	0
Total Obligations	0	2,178	0	0	0	0	0	0	0	0
Adjustments to Obligations:										
Non-Federal Sources	0	(3)	0	0	0	0	0	0	0	0
Recoveries	0	(1,055)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(1,275)	0	(155)	0	0	0	0	0	0
Unobligated balance, EOY	0	155	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
 Coastal Impact Assistance Fund
SUMMARY OF FINANCING
 (Dollar amounts in thousands)

	2009	2010	2011	2011	Increase/ Decrease/
	Actuals	Currently Available	Base	Estimate	over 2011 Base
Total Obligations	2,178	155	0	0	0
Offsetting collections from:					
Federal funds	(3)	0	0	0	0
Trust funds	0	0	0	0	0
Non-Federal sources	0	0	0	0	0
Recoveries	(1,055)	0	0	0	0
Unobligated balance, start of year	(1,275)	(155)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	155	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 Impact Assistance Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

<u>Object Class</u>	2009 Actuals	2010 Currently Available	2011 Base	2011 Estimate	Increase/ (Decrease) over 2010 Base
11 Personnel compensation					
11.1 Full-time permanent	1,032	0	0	0	0
11.3 Other than full-time permanent	2	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	1,034	0	0	0	0
12.1 Civilian personnel benefits	366	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	7	0	0	0	0
22 Transportation of things	6	0	0	0	0
23.1 Rental payments to GSA	177	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	588	155	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
44 Refunds	0	0	0	0	0

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

	2009	2010	2011	2011	Increase/ (Decrease)
	Actuals	Currently Available	Base	Estimate	over 2010 Base
99 Total Obligations	2,178	155	0	0	0
Non-Federal Sources	(3)	0	0	0	0
Less prior year recoveries	(1,055)	0	0	0	0
Less unobligated balance, SOY	(1,275)	(155)	0	0	0
Plus unobligated balance, EOY	155	0	0	0	0
Total Budget Authority	0	0	0	0	0
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	10	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

NATIONAL MARINE FISHERIES SERVICE FY 2011 OVERVIEW

For FY 2011, NOAA requests an increase of \$79,905,000 and 17 FTE over the FY 2011 base program for a total of \$992,381,000 and 2,882 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)—the area extending from 3 to 200 nautical miles offshore. NMFS 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 science-based conservation and management actions aimed at sustaining long-term use and promoting the health of coastal and marine ecosystems. These actions result in 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, 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, tribes, 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 with state and local governments, NMFS is responsible for managing living marine resources along the Nation's coastal zone and protected areas. This is done through 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 enabling domestic marine aquaculture production. NMFS provides 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. NMFS uses the following 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.
- Where appropriate, seek to transform the way fisheries are managed, relying on systems of catch shares or individual fishing privilege programs. These market-based approaches to fisheries management—variously called catch shares, limited access privilege programs, and sector management—create incentives for fishermen to engage in sustainable and economically efficient fishing practices that conserve and protect the fishery, thereby maximizing the current and future value of the resource.
- Improve management of living marine resources by advancing the understanding of ecosystems through better simulation and predictive models.
- 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 living marine resources within and beyond the Nation's borders.

Work is conducted by NMFS field elements, with oversight, review, and direction provided from 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

These FY 2011 Budget estimates for NOAA 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:

NOAA requests an increase of 42 FTE and \$14,929,000 to fund adjustments to current programs for NMFS. The increase will fund the estimated FY 2011 federal pay raise of 1.4 percent and annualize the FY 2010 pay raise of 2.4 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 Services Administration (GSA).

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

From Office	Line	To Office	Line	Amount
NMFS	Fisheries Research and Management Programs	NMFS	National Catch Share Program	\$11,400,000
NMFS	Cooperative Research	NMFS	National Catch Share Program	\$6,002,000
NMFS	Climate Regimes & Ecosystem Productivity	OAR	Integrated Ocean Acidification	\$1,500,000

NOAA requests technical adjustments to move \$6,002,000 from Cooperative Research and \$11,400,000 from Fisheries Research and Management Programs to National Catch Share Program to consolidate resources for the operations of the National Catch Share Program. NOAA also requests a technical adjustment to move \$1,500,000 from NMFS to Oceanic and Atmospheric Research (OAR). OAR will facilitate the integration of all NOAA ocean acidification activities into a NOAA ocean acidification program.

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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 to 1) 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 conservation measures to recover protected species. The ultimate desired outcome is to recover and sustain all protected species—i.e., all species listed under the Endangered Species Act (ESA) and all marine mammals pursuant to the Marine Mammal Protection Act (MMPA)—to be fully functioning components of their ecosystems.

NMFS is responsible for the conservation of species through implementation of the ESA, MMPA, and other statutes and international treaties and conventions (e.g., the Convention on International Trade in Endangered Species). In order 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. NMFS also promulgates conservation regulations, conducts consultations with other federal agencies to assess the effects of proposed actions on ESA-listed species, and develops and implements conservation and recovery plans to guide how threats to species’ existence can be reduced and eliminated.

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. NMFS 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, as well as 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 (where prudent). 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. This is often done in collaboration with federal, state, tribal, local, international, and private partners.

Federal agency consultations: ESA 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 national water quality standards.

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 requesting authorization 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. Recovery plans identify threats to species and their magnitude, and guide conservation actions. Recovery plans are key to analyzing the effects of scientific research and enhancement permits by understanding the magnitude of actions that may affect listed species. As recovery plans are completed, NMFS works with federal, state, and local agencies and the public to undertake conservation 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 supports the development and implementation of recovery strategies, scientific research, or public outreach and education activities. NMFS currently has section 6 agreements with 22 states and territories, 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). 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, which maintains tissue samples from stranded and necropsied animals, to help with future disease diagnosis and response. It also 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 ecosystem 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.

Assessments: NMFS uses surveys and other information to develop status of stocks assessments in the short term; over the long term NMFS uses 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 five 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: NMFS research to address management actions 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.

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PROGRAM CHANGES FOR FY 2011:

Protected Species Research and Management Base – Consultations and Authorizations (+7 FTE and +\$3,000,000): NOAA requests \$3,000,000 and 7 FTE for a total of 181 FTE and \$43,815,000 to increase its capacity to meet its interagency consultation and authorization workload for regional energy development, national security–related activities, pelagic longline fishery operations, and operations of the Pacific Marine National Monuments. Funding will also support NMFS’s effort to improve its on-time completion rate and reduce the backlog of consultation that have received no action.

Proposed Actions

With these additional resources NMFS will meet emerging requirements for Endangered Species Act (ESA) interagency technical assistance and authorizations under the Marine Mammal Protection Act (MMPA) and ESA for all proposed actions within the Arctic, the Northeast, and Western Pacific for energy exploration and development, national defense–related activities, and fishery operations in protected areas. NMFS will conduct ESA Section 7 consultations with and provide authorizations to the Minerals Management Service, Federal Energy Regulatory Commission, and the U.S. Army Corps of Engineers by assessing the effects on protected resources of planned increased exploration, development, and production of conventional and alternative energy projects in the Pacific and Arctic. NMFS will also provide assistance in project siting and operation of 75 alternative projects of wave, current, and wind energy in the Northeast and Western United States.

NMFS will conduct consultations with and provide authorizations to the U.S. Navy assessing the effects on protected resources of the relocation of its operations from Okinawa, Japan to Guam; the effects of day-to-day operations of its installations; and its expanded operations and training activities throughout the Western Pacific. NMFS will conduct consultations within NOAA and with other federal agencies and the U.S. Navy to assess the effects of increased vessel transit on protected resources (noise and collision) in an Arctic environment subject to reduced sea ice. Within NMFS, the Protected Species Program will conduct consultations with the Fisheries Management Program to assess the effects on ESA-listed species of pelagic fishery longline operations in the Northern Marianas Islands and with NOAA’s National Ocean Service on its operations in the newly designated Pacific Marine National Monuments (Marianas Trench, Pacific Remote Islands, and Rose Atoll).

Statement of Need and Economic Benefits

Over the past five years, NMFS has experienced a 16 percent decline in on-time processing of MMPA and ESA permits. In FY 2009, approximately 70 percent of formal ESA consultations received no action within statutory deadlines due to the increased number of listed species and complex consultations. The number of consultations is expected to increase in FY 2011 and beyond because of new species listings, currently averaging two per year. The anticipated increase in consultations is also being driven by the new Pacific Marine National Monuments, increased vessel traffic in the Arctic environment, development of conventional and alternative energy projects, and national security. The authorization of lawful activities that may affect protected species is critical to ensure economic development and national defense actions are compatible with species conservation and recovery.

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 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase*	25	25	29	32	36	36
Without Increase	25	25	29	32	35	35
*With the requested increase NMFS does not anticipate seeing a change resulting from the program increase until FY 2014, due to a lag in actions that affect species.						

Performance Goal: Number of additional section 7 consultations prepared for Arctic and Western Pacific activities	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	20	38	77	77	77
Without Increase	0	0	0	0	0	0
Description: This measure tracks the number of section 7 consultations completed on proposed federal activities occurring in the Arctic and Western Pacific. Arctic is defined as the Aleutian Islands north through the Bering to the Chukchi and Beaufort Seas, consistent with NOAA's Arctic Action Plan (http://www.wfm.noaa.gov/pdfs/NLS_Jul09/Barnum.pdf), and the Western Pacific is the same area managed by the Western Pacific Regional Fishery Management Council (http://www.wpcouncil.org). Successful interagency ESA Section 7 consultations allows federally permitted or authorized activities (energy exploration and development, ship transit, coastal facility development and operations, defense readiness activities) to take place in a manner compatible with species recovery.						

Performance Goal: Percent of consultations (both Formal and informal) completed on time.	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	44.5%	47.6%	48.9%	51.8%	51.8%	51.8%
Without Increase	44.5%	44.5%	44.5%	44.5%	44.5%	44.5%
Description: This measure tracks percent of section 7 consultations (formal and informal) completed within statutory deadlines.						

Species Recovery Grants (+0 FTE and +\$9,636,000) – NOAA requests an increase of \$9,636,000 and 0 FTE for a total of 9 FTE and \$20,793,000 for the conservation and recovery of marine and anadromous species under NMFS's jurisdiction and listed under the Endangered Species Act (ESA) through the Species Recovery Grants Program.

Proposed Actions

Recovery and conservation of ESA-listed marine and anadromous species under NMFS's jurisdiction are largely implemented through the Protected Species Cooperative Conservation Program and under the Fish and Wildlife Coordination Act. 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 assisting in protected species recovery under the Fish and Wildlife Coordination Act. These grant funds will be used by states and tribes 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.

Statement of Need and Economic Benefits

NMFS currently has jurisdiction over 68 threatened or endangered species, five species that have been proposed for listing, and six candidates for listing under the ESA. Species continue to be added to these lists at a rate of about two per year. The 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.

The Species Recovery Grants Program envisions that states, tribes, and other entities partner with the Federal Government in the conservation of listed species. NMFS has funded these grants since 2003 and currently has section 6 Agreements with 22 states and territories (AK, CA, CNMI, DE, FL, GA, HI, LA, ME, MD, MA, MS, NJ, NY, NC, OR, PR, SC, TX, USVI, VA, WA) to fund research and management projects. Increased funding will expand funding available for Species Recovery Grants to address recovery needs of listed and candidate species in states, territories, and under the management authority of tribes. Federal funding, provided in the form of grants will be awarded annually through a competitive merit-review based process that responds to national conservation and recovery priorities established by NMFS in cooperation with partner states and tribes.

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. By partnering with states and tribes, 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 match of federal funding, or a 10 percent match when two or more states partner on a project. This request would strategically leverage state and tribal funds and coordinate the recovery prioritization of protected species. Such cooperation is particularly needed for listed species for which NMFS does not have scientific expertise and depends on state, local, and tribal participation.

Through leveraging the financial, technical, and educational resources from states and tribes, NMFS can achieve a greater level of conservation of listed species. 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 states and tribes in the recovery of listed species also increases the buy-in for NMFS's regulatory actions, since states and tribes can aid NMFS in understanding the most effective means of conservation to reduce and eliminate threats to species. Finally, fostering relationships with other states and tribes 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

Performance Goal: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	25	25	30	33	37	37
Without Increase	25	25	29	32	35	35

Note that changes to the GPRA measure will begin to occur in FY2012 as it takes several years for funded and completed projects to show benefits to listed species, which in many cases have generation times of several years to decades. NMFS anticipates that this increase can benefit ESA-listed sturgeon, sea turtles, abalone, corals, sawfish, large whales and other listed marine mammals including Hawaiian monk seals and southern resident killer whales.

In FY 2010, NMFS will develop a database to track the implementation of actions included in species recovery plans and make the information publicly available through its website.

Pacific Salmon (+0 and +\$2,668,000): NOAA requests an increase of \$2,668,000 and 0 FTE for a total of 359 FTE and \$70,417,000 to monitor Pacific salmon reintroductions, evaluate the restoration effectiveness of Pacific salmon habitats, and expand NMFS's genetic stock identification capability. Pacific salmon represents a significant biological, cultural, and economic asset to the United States, especially to the Pacific Northwest. There are both direct and indirect economic benefits tied to salmon. Studies and analyses have shown these benefits ranging from hundreds of millions to billions of dollars annually derived from salmon fisheries.

Proposed Actions

Pacific Salmon Science (\$668,000)

Monitoring and Evaluation of Conservation Actions to Reintroduce Salmon and Restore Habitat – Funding will support fish tagging and tracking technology to monitor and evaluate watershed level salmon reintroduction and habitat restoration actions. This effort will provide critical information on salmon life history and survival requirements which will lead to more effective restoration of salmon habitats by improving the focus of restoration efforts to those habitat elements that can best increase survival. This improved focus will result in increased likelihood of recovery success.

Genetic Stock Identification (GSI) (\$2,000,000)

Genetic Tools and Stock Indicators – Funding will support: (1) at-sea sample collection of Chinook salmon tissue by fishermen; (2) genetic analysis of 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) expanded research on the development of additional genetic tools to reduce costs and increase efficiency of genetic analysis; (4) improved methods of fishery management and stock assessment that fully utilize the spatially explicit genetic information collected; and (5) a regional integrated data system that facilitates movement of data from fishing boats, genetics laboratories, and oceanographic sensors (which provide regional, physical, and chemical oceanographic data in real or near-realtime) into a centralized online database.

Obtaining stock specific ocean distribution and catch information is an essential component of managing mixed-stock fisheries. Currently, management of West Coast commercial Chinook and coho salmon fisheries is based primarily on recoveries of tagged hatchery releases. This methodology provides a coarse-scale picture of the temporal and spatial distribution of stocks along the West Coast. In order to effectively manage weak stocks and protect ESA-listed salmon populations, it is sometimes necessary to restrict fishing over large areas and thereby limit access to strong stocks. Inferences about wild stocks, many of which are protected under the ESA,

are typically based upon data from hatchery stock recoveries which may not accurately reflect wild stock distributions. Use of new sampling technologies that provide explicit spatial and temporal catch information, combined with genetic analysis to provide stock identification of both wild and hatchery stocks, is expected to provide much greater information on the stock-specific patterns of salmon ocean distribution than is presently available. The resulting data will allow analysis of stock-specific spatial catch distributions at a scale that may provide new opportunities to manage fisheries, in-season, to target strong stocks while limiting weak-stock impacts.

Statement of Need

This increase will improve the scientific information for Pacific salmon recovery allowing managers to effectively focus efforts on the most critical actions threatening salmon. Managers will be better able to predict ocean abundance and develop improved conservation strategies, improve success of restoration projects, and understand the risks of hatchery supplementation. In turn, better management of the salmon fishery should provide greater fishing opportunities.

The Magnuson-Stevens Reauthorization Act requires implementation of annual catch limits (ACLs) for all Federally-managed fisheries. Genetic Stock Identification enables catch composition estimates for a greater number of stocks with higher resolution than existing tools. It also enables more accurate stock-specific accounting of salmon bycatch in other fisheries (e.g., whiting). These estimates can be used at several stages in the management process to improve prediction, harvest management, and catch accounting to achieve ACLs and harvest goals mandated by the ESA and international agreements.

Improved, higher-resolution fishery management techniques are expected to enable harvest managers to target fisheries on more abundant runs and reduce impacts on weak stocks. This should provide greater fishing opportunity and sustainability for recreational and commercial fleets that have been stressed by recent fishery closures. Economic benefits will accrue to the fishermen and their supporting communities.

Performance Goals and Measurements Data

Achieving stable or increasing populations of ESA-listed salmon is a long-term effort because of the time it takes to determine responses to conservation measures. The request benefits the status of salmon evolutionary significant units (ESUs) in the Northwest region, as well as the status of ESUs in Northern California.

Performance Goal:	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c						
With Increase	25	25	29	32	36	36
Without Increase	25	25	29	32	35	35

CALFED Bay-Delta Program (+3 FTE and +\$1,000,000): NOAA requests an increase of 3 FTE and \$1,000,000 for a total of 4 FTE and \$1,600,000 to support its Water Operations Oversight and Coordination activities under the CalFED Bay Delta program. The CALFED Bay-Delta Program is a cooperative effort of 18 State and Federal agencies with regulatory and management responsibilities in the San Francisco Bay-Sacramento/San Joaquin River Bay-Delta to develop a long-term plan to restore ecosystem health and improve water management for beneficial uses of the Bay-Delta system.

Proposed Actions

Funding will support actions required under the new Operations Criteria and Plan (OCAP) Biological Opinion (final issued June 4, 2009) on ESA listed Chinook salmon, steelhead and green sturgeon. Funding will support coordination of ESA compliance and permitting with the Bureau of Reclamation and the California Department of Water Resources, including ESA section 7 consultations on infrastructure projects, long-term water contracts, fish screens, temperature control structures, and fish passage above dams. Funds will also be used to monitor compliance with the new Reasonable and Prudent Alternative (RPA) in the OCAP biological opinion by enabling NMFS to participate in ongoing reviews of water operations forecasts, participate on new technical teams, and assist in adaptive management decisions regarding real time operations of the state and Federal Central Valley water projects. Some of the RPA actions require NMFS technical review of new studies and monitoring stations. These actions and NMFS’s ongoing involvement will help protect habitat and reduce mortality to ESA-listed fish species and promote recovery. The actions will also benefit Southern Resident killer whales that rely on salmon from the Central Valley as a prey resource and assist in recovering the collapsed pacific salmon fishery.

Statement of Need and Economic Benefits

These funds are needed to support activities to implement the new OCAP Biological Opinion. Given the complexity of the project and listed species involved, NMFS will be required to provide on-going technical and scientific expertise at the local, watershed, and system-wide levels to ensure operations and other actions are implemented in a timely and technically appropriate manner. NMFS is required to provide technical review of new studies and monitoring stations, participate in review of water operations forecasts, assist in adaptive management decisions regarding real time operations of the state and Federal Central Valley water projects, and monitor compliance with the new Reasonable and Prudent Alternative in the OCAP biological opinion. The additional funding is also necessary to conduct ESA section 7 consultations on new infrastructure projects, long-term water contracts, fish screens, temperature control, and fish passage above dams, many of which have been awaiting the completion of the OCAP consultation. Benefits from NMFS’s ongoing involvement will help protect habitat and reduce mortality of ESA-listed fish species, promote recovery, and ensure consistent implementation of the RPA. In addition, the additional funding will also help staff the anticipated section 7 consultation workload resulting from the new projects pursuant to the OCAP biological opinion, which will benefit listed species and their habitats, and help project proponents expedite their projects.

Performance Goals and Measurement Data

Performance Goal:	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
OCAP-related section 7 formal consultations receiving early technical assistance						
With Increase	0	2	4	6	6	6
Without Increase	0	0	0	0	0	0
Description: Early technical assistance is expected to result in complete initiation packages upon request for formal consultation, and therefore, streamline the formal consultation process.						

Performance Goal: No. of technical teams fully staffed	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	4	6	8	10	10	10
Without Increase	4	4	4	4	4	4
Description: Technical teams include the seven specified in the NMFS OCAP Opinion, one in the U.S. Fish and Wildlife Service's OCAP Opinion, and ongoing CalFed/Delta Stewardship Council teams. The technical teams provide technical and scientific expertise at the local, watershed, and system-wide levels to ensure operations and other actions are implemented in a timely and technically appropriate manner.						

Atlantic Salmon (+0 FTE and -\$500,000) – NOAA requests a decrease of \$500,000 and 0 FTE for Atlantic Salmon for a total of 27 FTE and \$8,060,000. Remaining funds will be used to continue implementing projects to address fish passage barriers, restore habitat, study the major threats to Atlantic Salmon, and conduct ESA consultations on Federal projects that might impact Atlantic Salmon survival.

TERMINATIONS FOR 2011:

The following programs within Protected Resources, or portions thereof, are proposed for termination in FY2011: Species Recovery Grants (\$4,636,000); Marine Mammals (\$2,302,000); Marine Turtles (\$4,348,000); Alaska Sea Otter and Steller Sea Lion Commission, AK (\$300,000); Hawaiian Monk Seals, HI (\$275,000); Emergency Response and health Investigations for Endangered/Threatened Pinniped in Pacific (\$300,000); Center for Marine Education and Research Ocean Expo-Learning Center (\$1,000,000); and Marine Mammal Research, AK (\$500,000).

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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

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Fisheries Biologist	Seattle, WA	ZP-3	1	61,225	61,225
Fisheries Biologist	Gloucester, MA	ZP-3	1	62,758	62,758
Fisheries Biologist	Juneau, AK	ZP-3	2	52,661	105,322
Fisheries Biologist	Honolulu, HI	ZP-3	2	52,661	105,322
Fisheries Biologist	Long Beach, CA	ZP-3	1	63,942	63,942
Fisheries Biologist	St. Petersburg FL	ZP-3	1	57,408	57,408
Fisheries Biologist	Silver Spring, MD	ZP-4	1	89,033	89,033
Fisheries Biologist	Long Beach, CA	ZP-3	4	63,942	255,768
Total			<u>13</u>		<u>800,778</u>
less Lapse		25.0%	<u>3</u>		<u>200,195</u>
Total full-time permanent (FTE)			10		600,584
2011 Pay Adjustment (1.4%)					<u>8,408</u>
TOTAL					<u>608,992</u>

Personnel Data

Full-Time Equivalent
Employment

Full-time permanent

Other than full-time permanent

Total

Number

10

0

10

Authorized Positions:

Full-time permanent

Other than full-time permanent

Total

13

0

13

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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 Marine Fisheries Service
Subactivity: Protected Species Research and Management

Object Class	2011 Increase
11 Personnel compensation	
11.1 Full-time permanent	609
Total Personnel Compensation	609
12.1 Civilian personnel benefits	231
21 Travel and transportation of persons	36
23.3 Communications, utilities and miscellaneous charges	35
24 Printing and reproduction	10
25.1 Consulting services	2,225
25.2 Other services	3,473
26 Supplies and materials	5
31 Equipment	45
41 Grants and Fixed Charges	9,636
99 Total Obligations	16,304

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

Activity: National Marine Fisheries Service
 Subactivity: Protected Species Research and Management

	Object Class	2011 Decrease
41	Grants and Fixed Charges	(500)
99	Total Obligations	(500)

Subactivity: Fisheries Research and Management

Fisheries Research

The Fisheries Research and Management program has two goals. The first is to provide accurate and timely information and analyses on the biological, ecological, economic, and social aspects of the Nation's fisheries resources. The second is to 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's 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 abundance of fishery stocks in response to fishing and predict future trends of stock abundance for a variety of Fishery Management Plans (FMP) and non-FMP species of exploited fish and invertebrates. 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 conservation and exploitation requires substantial information about the fish stock and its ecosystem from fishery resources and fishery catch surveys. These assessments provide direct technical guidance to fisheries managers and stakeholders managing key fish species. For example, NMFS's stock assessments provide the technical basis for setting annual catch limits (ACL), a requirement of Magnuson-Stevens Fishery Conservation and Management Act. Accurate stock assessments with timely updates are a critical foundation for successful catch shares (limited access privilege) programs.

Fishery Resource Surveys: These fishery-independent surveys provide data on the abundance, distribution, and biological characteristics of fish stocks and their associated ecosystem. These data are key inputs to stock assessments, fishery management regulations, and the production of status reports for living marine resources and their fisheries. Fishery resource surveys use conventional and advanced sampling technologies deployed from NOAA Fishery Survey Vessels and various chartered vessels.

Fishery Participant Surveys: These fishery-dependent surveys collect data on a fishery from commercial or sport fishermen, fishery observers, and seafood dealers. Primary data are the amount of fishing effort and catch, and biological characteristics (age, length, sex, maturity) of the catch. These data are important for both stock assessments and for catch monitoring. The data may also be used to estimate economic and socio-cultural parameters of participants to support needed assessments of economic and socio-cultural impacts. Collection methods include the use of logbooks, portside sampling of catch, fishery observers, and telephone surveys to recreational fishermen.

Focus on Ecosystems: NMFS's resource management focuses on the connectivity of managed living resources with their predators and their prey, their habitats, and the effects of environmental variation within a determined ecosystem. Humans are also considered to be part of these ecosystems. 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's 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's forecasts allows for improved baseline data that managers from all sectors can use to make better informed decisions. NMFS's 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's science quality assurance activities and rigorous peer-review program ensure 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. In 2008, U.S. commercial fishermen landed 8.3 billion pounds of seafood valued at \$4.4 billion. It is estimated that the commercial fishing industry contributed \$35.0 billion (in value added) to the U.S. Gross National Product. U.S. recreational fishermen took almost 84.8 million fishing trips, and harvested over 196.7 million fish weighing 247.6 million pounds. In total, U.S. consumers spent an estimated \$69.8 billion for fishing products in 2008 (Fisheries of the US, 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. Exclusive Economic Zone (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 by the Regional Fishery Management 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 catch shares, which include Limited Access Privilege (LAP) programs, 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 catch shares 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 by the Secretary of Commerce, 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.

National Catch Share Program

“Catch share” is a general term for several fishery management strategies that allocate a specific portion of the total allowable fishery catch to individuals, cooperatives, communities, or other entities. Each recipient of a catch share is directly accountable to cease fishing when its specific quota is reached. The term includes specific programs defined in law such as limited access privilege (LAP) and individual fishing quota (IFQ) programs, and other exclusive allocative measures such as Territorial Use Rights Fisheries (TURFs) that grant an exclusive privilege to fish in a geographically designated fishing ground. Catch share management provides an option to improve the economic and ecological quality of certain fisheries.

A number of U.S. fisheries are under-performing biologically and economically and require the consideration of additional tools to improve management effectiveness. For example, rebuilding U.S. stocks would increase the annual commercial dockside value by an estimated \$2.2 billion (54 percent). Given the challenges facing U.S. fishery managers, the best available science and practical experience support the conclusion that it is in the public interest to encourage and support the evaluation of catch share programs authorized under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Congress, in its 2006 amendments to the MSA, and national experts, have recognized that catch shares are a tool that should be available for use in any fishery, subject to general guidelines for their design.

This management strategy is not new. Catch share programs have been used in the U.S. since 1990 and now include 14 different fisheries from Alaska to Florida managed by six different Councils. Additional U.S. fisheries are in the process of adopting a catch share program in the coming years. Both here and in other countries catch shares have shown they can effectively achieve annual catch limits, reduce the negative biological and economic impacts of the race for fish, and when properly designed can eliminate overfishing and result in safer and more profitable fisheries while also addressing other social objectives.

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 Fishery Conservation and Management 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. Voluntary services, such as sanitation evaluation, product inspection and certification, auditing of food quality and safety programs, and training are also part of the program. Approximately 10 percent of the seafood industry uses NOAA services, and 20 percent 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. The program also 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, 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 2011:

National Catch Share Program (+10 FTE and +\$36,600,000): NOAA requests an increase of 10 FTE and \$36,600,000 for a total of \$54,002,000 and 17 FTE, to accelerate and enhance implementation of a National Catch Share Program. Rebuilding our Nation's fisheries is essential to preserving the livelihood of fishermen, the vibrancy of our coastal communities, a sustainable supply of healthy seafood, and restoring ocean ecosystems to a healthy state. Catch share programs give fishermen a stake in the benefits of a well-managed fishery, and therefore greater incentive to ensure effective management.

Proposed Actions

This increase will support the development, implementation, and operation of catch share programs in fisheries across the nation, in addition to finishing the conversion of the Northeast multispecies fishery. Market-based approaches to fisheries management—variously called catch shares, limited access privilege programs, and sector management—create incentives for fishermen to engage in sustainable and economically efficient fishing practices that conserve and protect the fishery, thereby maximizing the current and future value of the resource.

Fourteen limited access privilege programs (a type of catch share program) are currently in place, with a total of 16 scheduled to be operational by 2012. The transition in New England, which began in 2009, to sector management (a type of catch share program) for the Northeast multispecies fishery will improve the economic health of the fishing industry while also meeting conservation mandates. This will continue that work and implement share programs in fisheries in the Mid-Atlantic, Gulf of Mexico, and Pacific Coast regions. It supports analysis and evaluation of fisheries for catch share programs, the development of fishery management plans and regulations, observing and monitoring at sea and on shore for specific fisheries, and enforcement activities. It also continues to implement electronic log books, and dockside data collection and management, including quota accounting and lien registry. The funding also increases NMFS's analytical capacity to evaluate and report performance of catch share monitoring programs with respect to economic performance, fleet behavior, annual catch limits, and bycatch reduction.

During FY 2011, NMFS will:

- Continue implementation and support operation of four catch share programs:
 - Pacific: West Coast Trawl Individual Quota (TIQ)
 - Northeast: Northeast Multispecies Sectors, Mid-Atlantic Tilefish
 - Gulf of Mexico: Grouper and Tilefish
- Work with Regional Fishery Management Councils to analyze and evaluate fisheries for suitability of catch share programs.
- Develop additional catch share programs across the country.
- Work with industry to implement observing, catch monitoring, and quota monitoring systems needed for accurate and transparent catch share tracking.
- Integrate and standardize these systems to improve efficiencies and realize economies of scale.
- Develop a consistent, comprehensive approach for analyzing and documenting the biological, ecosystem, economic, and social impacts of management strategies; develop indicators for fishery sustainability; and provide consistency and economies of scale in managing the program nationwide.
- Align resources to enable NOAA Enforcement to monitor adherence to the changing guidelines and regulations for the catch share fisheries, including enforcement of individual and group quotas.

As catch share programs mature, resources will be reallocated in future years to support the transition to and implementation of catch share programs in additional candidate fisheries.

Statement of Need and Economic Benefits

Catch shares allocate a dedicated percentage or share of a fishery's total catch to individual fishermen, communities, and/or associations. When participants have a secure portion of the catch, they gain the flexibility to make business decisions that improve safety, enhance the value of their share, and promote sustainable fishing of the stocks. Coupled with an observing, monitoring, and catch accounting system, incentivizing specific entities to control catch is extremely effective in preventing overfishing. Catch shares eliminate the race for fish among fishermen competing for a common quota—a race that can lead to overcapacity in the fishery, increased bycatch and waste, and overfishing. Catch shares improve the economics of the fishery by allowing fishermen to harvest their shares when the markets are best and to take other actions to reduce costs and increase revenue without fear of losing access to their share of the quota. One of the major benefits of catch share programs is that they provide incentives to self-govern, thereby reducing the need for more rigid regulatory measures. They also provide a mechanism for capacity reduction through consolidation, help address bycatch issues, and give industry greater control over their own fate, all while helping to end overfishing and rebuild stocks.

To implement a nationwide catch share management approach, NOAA must conduct comprehensive analysis and evaluation of the Nation's fisheries, work with the Regional Fishery Management Councils to develop the catch share programs through fishery management plan amendments and regulations, integrate systems to monitor catches, and track permit transfers. Evaluating the economic and social performance of catch share programs will require new social science data collection programs and research initiatives. For programs currently in place, NOAA has developed most of these systems on an ad-hoc basis, but now NOAA needs to integrate and standardize them to improve efficiencies and realize economies of scale. This transition will ultimately ensure the long-term sustainability of these fisheries. Because a higher level of monitoring is needed to ensure that individual or group quotas are adhered to—particularly in a mixed stock fishery—monitoring and enforcement costs may be greater than for the other management programs.

The requested increase builds on NOAA's existing capabilities for analysis, regulation, administration, enforcement, training, and logistical support for observers and monitors and is based on an agency-wide analysis conducted with input from all levels of NOAA. NOAA began implementation of ACLs in 2009. ACLs will continue to be an important management tool under catch shares, providing a scientific basis for determining the amount of fish that can be harvested sustainably. Catch share programs build on ACLs by allocating the harvest among participants.

The scientific evidence is compelling that catch shares can also help restore the health of ecosystems and put fisheries on a path to profitability and sustainability. A recent Environmental Defense study, *Sustaining America's Fisheries and Fishing Communities*, shows catch shares protect the environment, increase profits, provide higher quality fish, create more full-time jobs, and save lives. The use of well-designed catch shares is a proven way for many fisheries to meet the conservation mandates of the Magnuson-Stevens Act while keeping fisheries profitable and sustainable. The Surf Clam and Ocean Quahog program in the Mid-Atlantic region and the Pacific Halibut and Sablefish program in Alaska have been in place more than 15 years and have a record of economic and conservation success. For example, the length of the season in the Halibut and Sable Fishery has been extended from less than a week each year to eight months allowing fishermen to earn sustainable income. In addition, bycatch dropped 80% following implementation of catch shares. In the Gulf of Mexico Red Snapper Fishery, discards decreased 70% while commercial overfishing is being addressed and the price per pound of red snapper increased 18%.

Performance Goals and Measurement Data

Performance Goal: Number of catch share programs implemented (output)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	1	4	4	4	5	8
Without Increase	1	1	1	1	1	1
Description: The number of catch share programs increases as new programs are implemented.						

Performance Goal: Number of key catch share programs objectives met	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	7	14	16	16	17
Without Increase	0	7	7	7	7	7
Description: This measure tracks the number of key objectives met by catch share programs. The key objectives are: <ul style="list-style-type: none"> • Increased total revenue of fishery (with catch share program)* • Increased or full utilization of target species* • Decreased bycatch* • ACL not exceeded *Changes will be determined by comparing the performance under the catch share program with the average performance prior to implementation of the catch share program.						

Performance Goal: Number of catch share programs meeting all objectives	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	0	3	4	4	4
Without Increase	0	0	0	0	0	0
Description: The number of key catch share program objectives met includes the four key objectives that are expected outcomes of implementing catch share programs. By meeting these key objectives, the programs will demonstrate their success in improving the ecological and economic health of that fishery. More detailed information will be reported on a fishery-by-fishery basis when available.						

Fisheries Oceanography (+ 5 FTE and +\$5,400,000): NOAA requests an increase of 5 FTE and \$5,400,000—for a total of 9 FTE and \$7,478,000—to support the creation of Integrated Ecosystem Assessments (IEA) for three of NOAA’s eight Regional Ecosystems. In 2011, this effort will focus primarily on the California Current Ecosystem and include work on the Gulf of Mexico and Northeast Shelf IEAs.

Proposed Actions

IEAs will provide a more comprehensive science-based decision-making framework for NOAA’s management of coastal and marine ecosystem resources. IEAs bring scientific and technological rigor to resource management decisions by incorporating diverse sources of data into ecosystem models, including socioeconomic data, that evaluate trade-offs between ecosystem and societal goals. The management strategy evaluation tools provided by IEAs will allow managers to make better management decisions by allowing them to weigh trade-offs between sectoral uses (e.g., fishing, aquaculture, offshore alternative energy development, recreation, and other ecosystem goods and services sectors) and the socioeconomic implications of management actions.

NOAA will develop an IEA framework, providing the analytical basis for ecosystem-based decision support tools, which can be used to assist resource managers and stakeholders in making management action decisions. With the requested funding, NOAA will:

- Develop a set of integrative ecosystem indicators needed to assess the current and future status of these Regional Ecosystems, such as species diversity, mean trophic level of catch, and proportion of non-commercial species.
- Develop an ecosystem modeling framework to assess and forecast ecosystem status and trends.
- Develop a regional ecosystem data management system that supports all aspects of IEAs and makes ecosystem data accessible.
- Develop technical capabilities for ecosystem/ecological modeling and data management to support IEAs.
- Make IEA capabilities fully operational, including web-based IEA products and services and peer-reviewed documentation.

Funding will also be used to ensure continued access to existing biological, oceanographic, and socioeconomic data required by the ecosystem models to simulate and forecast conditions, and ultimately evaluate the efficacy of management options. The data management system and ecosystem modeling framework will enable analysis of the indicators, and will be used to inform policy regarding potential management actions, monitor changes resulting from actions taken, and develop the ability to evaluate and forecast outcomes resulting from management options. IEA development will begin in the California Current Ecosystem, and NOAA will extend the application of the resulting products and tools to implement IEAs in the Gulf of Mexico and Northeast Shelf Regional Ecosystems.

Statement of Need and Economic Benefits

IEAs provide a comprehensive and holistic approach to ecosystem-based management (EBM), and are an important tool for NOAA's management of the Nation's highly complex and evolving marine ecosystem resources and services. IEAs will enable the application of an ecosystem-based approach to such critical mandates as fisheries stock assessments, protected resources monitoring, and habitat restoration, as well as evaluation and guidance of management decisions for living marine resources. The application of IEAs to EBM does not imply that traditional stock assessments or monitoring programs are obsolete or ineffective, rather that IEAs capitalize on NOAA's single- and multi-species stock assessments by incorporating assessment and monitoring data along with other data collected by NOAA into ecosystem-wide models that evaluate trade-offs between ecosystem and societal goals. Thus, existing surveys and assessment programs provide critical data for IEAs. The development of IEAs requires an investment of new and dedicated funding for IEA implementation and growth on a national scale to improve our ability to responsibly manage marine resources for the future.

Integrated Ecosystem Assessments will quantify the status of marine ecosystems for regional management bodies, industries (e.g., fishermen and associated groups), and the public to enable them to prepare for environmental changes to the ecosystem. IEAs will not only improve management actions but will also reduce costs to agencies and the public for compliance with environmental regulations. For example, the closure of the 2008 California salmon fisheries was due in part to poor ocean conditions. It is estimated that the closure resulted in over \$100 million in lost revenue to fishermen and coastal communities that rely on the fisheries. With an IEA capability, managers could have forecasts of coastal waters' productivity, and thus the expected status of important fishery populations, providing advance warning of the need for closures and enabling them to take early action to mitigate the effects.

In addition to bringing increased scientific and technological rigor to management decisions, IEAs promote job retention and economic growth by supporting sustainable resource use within various sectors (e.g., fishing, aquaculture, offshore alternative energy development, recreation, and other coastal and marine ecosystem goods and services). The management strategy evaluation tools provided by IEAs will allow managers to weigh trade-

offs between sectoral uses and determine socioeconomic implications of management actions. For example, understanding the balance between offshore wind energy farms, commercial fisheries, and aquaculture facilities is key to maximizing economic growth and job creation/preservation in each sector while considering ecosystem health. This provides greater consistency and dependability in job sectors reliant on marine ecosystems. At a local- to regional-scale, IEAs will require support for data management and ecosystem modeling, thus spurring creation of green jobs. Furthermore, this project directly supports both federal and non-federal jobs through the growth of the IEA program by hiring experts to advance scientific and technological development to further NOAA's understanding of ecosystem processes.

Performance Goals and Measurement Data

Performance Goal:	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Number of defined management needs, identified through the Integrated Ecosystem Assessment process, met by Management Strategy Evaluations (cumulative)						
With Increase	0	4	6	8	10	16
Without Increase	0	0	0	4	4	4
Description: This measure tracks the annual performance of Integrated Ecosystem Assessments (IEAs) by identifying the number of management needs, as defined by resource managers through the IEA process, that are met by a Management Strategy Evaluation (MSE). MSEs are a formal approach using models and forecast scenarios, based on the best available science, to evaluate the benefits and risks (trade-offs) of proposed management actions on ecosystems (including the human component) and to inform management decisions.						

Salmon Management Activities (-0 FTE and -\$5,400,000): NOAA requests a decrease of 0 FTE and \$5,400,000 for a total of 0 FTE and \$11,100,000 to reflect the planned completion of activities in FY 2010 related to the implementation of the Pacific Salmon Treaty.

Proposed Actions

The reduction of \$5.4 million is planned with the implementation of the treaty. The remaining \$11.1 million will maintain the following amounts to implement the 2008 Chinook salmon agreement:

- Coded Wire Tag (CWT) Program Improvements: \$1.5 million
- Puget Sound Critical Stocks Augmentation: \$2.1 million
- Alaska Fishery Adjustment Mitigation: \$7.5 million

Statement of Need and Economic Benefits

The 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. The original treaty was signed in 1985 and renewed in 1999, with most of the fishery arrangements set to expire at the end of 2008. A new a bilateral agreement for the conservation and harvest sharing of Pacific salmon between Canada and the United States was negotiated in May 2008. The new arrangements are in effect through 2018.

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 ESA. The Chinook regime represents a major step forward in bilateral cooperation, science-based conservation, and sustainable harvest-sharing of the salmon resource. The new provisions of the Pacific Salmon Treaty significantly reduce allowable annual Chinook harvests in Southeast Alaska and off Canada's west coast of Vancouver Island. Over the 10-year life of the Agreement, approximately 1 million 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.

TERMINATIONS FOR 2011:

The following programs within the Fisheries Research and Management subactivity, or portions thereof, have been proposed for termination in the FY 2011: Fisheries Research and Management Programs (\$750,000); Salmon Management Activities (\$10,000,000); Oyster Hatchery Economic Pilot Program, Morgan State University, MD (\$200,000); Hawaii Seafood Safety and Inspections, HI (\$1,500,000); Scallop Fishery Assessment, MA (\$1,000,000); Maine Groundfish Industry Emergency Economic Assistance, ME (\$1,000,000); Disease Reduction in Klamath River Salmon, OR (\$600,000); Shrimp Industry Fishing Effort Research Continuation, MD (\$700,000); Virginia Trawl Survey, VA (\$300,000); Ecosystem Based Fisheries Management, AL (\$750,000); Hawaii Fisheries Development, HI (\$400,000); NH Commercial Fisherman Sustainability Initiative (\$825,000); Institute for Seafood Studies (\$325,000); Gulf of Mexico Recreational Fishery Electronic Logbook Pilot (\$50,000); Herring Monitoring Research (\$300,000); and Turtle Protection Funding/Gulf of Mexico Grouper Fishery (\$250,000).

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

Activity: National Marine Fisheries Service
Subactivity: Fisheries Research and Management

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Fishery Biologist	Gloucester, MA	ZP-4	1	89,449	89,449
Fishery Biologist	St. Petersburg FL	ZP-4	1	81,823	81,823
Fishery Biologist	Seattle, WA	ZP-4	1	87,306	87,306
Enforcement	St. Petersburg FL	ZA-4	2	81,823	163,646
Enforcement	Long Beach, CA	ZA-4	2	91,141	182,282
Enforcement	Seattle, WA	ZA-4	2	87,306	174,612
Fishery Biologist	Galveston, TX	ZP-2	1	43,734	43,734
Fishery Biologist	Seattle, WA	ZP-3	1	61,225	61,225
Fishery Biologist	Seattle, WA	ZP-3	1	61,225	61,225
Fishery Biologist	Newport, OR	ZP-3	1	57,408	57,408
Fishery Biologist/Oceanographer	Silver Spring, MD	ZP-4	1	89,033	89,033
Fishery Biologist	La Jolla, CA	ZP-3	1	62,451	62,451
Social Scientist	Seattle, WA	ZP-3	1	61,225	61,225
IT Specialist	Pacific Grove, CA	ZP-3	1	67,963	67,963
IT Specialist	Woods Hole, MA	ZP-3	1	62,758	62,758
IT Specialist	Miami, FL	ZP-3	1	60,742	60,742
Total			19		1,406,882
less Lapse		25.0%	5		351,721
Total full-time permanent (FTE)			14		1,055,162
2011 Pay Adjustment (1.4%)					14,772
TOTAL					1,069,934

Personnel Data

	Number
Full-Time Equivalent Employment	
Full-time permanent	14
Other than full-time permanent	0
Total	14

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

Authorized Positions:

Full-time permanent	19
Other than full-time permanent	<u>0</u>
Total	19

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

Activity: National Marine Fisheries Service
Subactivity: Fisheries Research and Management

Object Class	2011 Increase
11 Personnel compensation	
11.1 Full-time permanent	1,070
11.5 Other Personnel Compensation	141
Total Personnel Compensation	1,211
12.1 Civilian personnel benefits	320
21 Travel and transportation of persons	1,070
23.1 Rental Payments	72
23.3 Communications, utilities and miscellaneous charges	425
24 Printing and reproduction	158
25.1 Consulting services	13,292
25.2 Other services	19,588
26 Supplies and materials	1,553
31 Equipment	1,825
41 Grants and Fixed Charges	2,486
99 Total Obligations	42,000

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

Activity: National Marine Fisheries Service
 Subactivity: Fisheries Research and Management

	Object Class	2011 Decrease
41	Grants and Fixed Charges	(5,400)
99	Total Obligations	(5,400)

Line Item: Enforcement and Observers / Training

The goal of the NOAA Enforcement Program (ENF) and the NMFS Office for Law Enforcement (OLE) is to ensure compliance with the laws and regulations promulgated to conserve and protect our Nation's 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. The office implements three primary capabilities: investigations, monitoring (which includes conducting patrols and inspections), and outreach and education. OLE special agents and officers deter, detect, investigate, and document for prosecution any violations of Federal laws and regulations under the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, the Endangered Species Act, the National Marine Sanctuaries Act, the Lacey Act, and other Federal statutes and international agreements related to living marine resources. OLE manages the vessel monitoring system program (VMS). VMS is a significant portion of OLE's monitoring effort. VMS provides real-time data that significantly increases NOAA's ability to monitor and enforce areas closed for the protection of endangered species, critical habitat, and to support the rebuilding and maintenance of sustainable fisheries.

The OLE extends its enforcement and monitoring capabilities and resources by establishing 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, near shore patrols, and some offshore vessel patrols. While OLE is currently authorized to employ 160 Special Agents and 19 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 and 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. As well as, 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 and collect 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.

Observer programs are implemented in each of its six regions. 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. Approximately, 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, the Marine Mammal Protection Act, and the Endangered Species 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. The Act also 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 many fisheries.

The information collected by fishery observers ensures that Fishery Management Plans (FMPs) are consistent with the requirement for a standardized bycatch reporting methodology (MSA Section 303(a)). 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)

Section 118 of the MMPA 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 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). They 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 for collecting this information.

Endangered Species Act (ESA)

The ESA requires that the Federal Government protects and conserves 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, salmon, seabirds, and marine mammals. Observers monitor bycatch and, in some cases, certify that takes of endangered species do not exceed the authorized incidental take limit. Observer data are also used to prepare recovery plans, which generally include a requirement to reduce incidental capture of protected species in commercial fishing operations for marine species. Fisheries may be restricted or closed if they impose mortality rates on protected species that impede the recovery of the listed population. In 2007, the NMFS Office of Protected Resources finalized a rule under the ESA that provides NMFS with the authority to place fisheries

observers aboard vessels in state and Federal fisheries operating in the territorial seas or EEZ where sea turtle interactions may occur. Observers will help determine whether existing measures to reduce sea turtle bycatch are working or whether new or additional measures are needed.

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PROGRAM CHANGES FOR FY 2011:

No program changes are proposed for FY 2011.

TERMINATIONS FOR 2011:

The following programs within Enforcement and Observers sub-activity, or portions thereof, have been proposed for termination in FY 2011: Enforcement (\$600,000); and Observers/Training (\$3,015,000).

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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 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 the following programs: Community-based Restoration Program; Open Rivers Initiative; Chesapeake Bay Oyster Restoration; and the Great Lakes Habitat Restoration Program.

Community-based Restoration Program: The Community-based Restoration Program (CRP) provides on-site technical assistance and funding to help communities conduct meaningful restoration that instills strong conservation values by activity engaging volunteers. A model for community collaboration, partnership building, and interagency cooperation, NOAA's CRP encourages hands-on citizen involvement in restoration projects, leading to long-term stewardship of the Nation's coastal and marine resources. The CRP has a proven history of establishing effective partnerships with national and regional groups as well as local grass roots organizations to restore the diverse coastal, marine, and migratory fish habitats crucial to recreational and commercial fishing industries. This highly successful national effort catalyzes partnerships with industry, nonprofit organizations, and state and local governments and generates three to four times the federal investment in cash and in-kind contributions.

Open Rivers Initiative: 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 two million dams block the passage of migratory fish in U.S. streams and rivers. While, dams provide numerous benefits for modern society, they also contribute to the habitat and water quality degradation occurring in estuaries, deltas, and riverine environments. Those dams that no longer provide the benefits for which they were built can often provide greater watershed-level benefit to fish and communities upon their removal or bypass. Dams like those on the Shasta River in California and on the Rogue River in Oregon are good examples of where ORI can effectively restore fish passage to upstream spawning and rearing habitat and conduct primary restoration at the site of barrier removal or bypass to enhance fish populations particularly where species are threatened or endangered.

Chesapeake Bay Oyster Restoration: Oysters provide critical ecological services and habitat for the Chesapeake Bay. Disease, poor water quality, and harvest pressure have decimated the Bay's native oyster population. Working with federal, state, and other partners, NOAA provides technical assistance and enters into cooperative partnerships to support larger scale native oyster restoration initiatives. Activities include: conducting habitat assessments to target restoration efforts; improving bottom conditions; placing oysters where they will grow successfully; and, monitoring their health and survival.

Great Lakes Habitat Restoration Program: In FY 2009, NOAA launched its Great Lakes Habitat Restoration Program to plan, implement, and fund coastal habitat restoration projects throughout the region. Much of NOAA's work in the region is focused on supporting community-identified restoration priorities in Areas of Concern (AOC), environmentally degraded areas within the Great Lakes basin. The Program strives to demonstrate meaningful, measurable, and sustainable ecological benefits to coastal and near-shore resources. This is done by addressing habitat beneficial use impairments such as loss of fish and wildlife habitat; degraded fish and wildlife populations; degraded benthos; and restrictions on fish and wildlife consumption.

PROGRAM CHANGES FOR FY 2011:

Fisheries Habitat Restoration (+0 FTE and +\$10,364,000) NOAA requests an increase of 0 FTE and \$10,364,000 for a total of 0 FTE and \$23,765,000 for Community Based Restoration Programs to implement larger-scale ecological restoration that will achieve significant benefits for threatened and endangered species. NOAA will focus on increasing habitat to support recovery of listed species by reversing the loss of coastal wetlands that provide spawning and rearing habitat, improving hydrological function of coastal wetlands, and restoring the ecological functions of our rivers. The requested funding will advance national priorities for larger-scale habitat restoration and strengthen NOAA's leadership role in science-based conservation.

Proposed Actions

- Target coastal and marine habitat conservation investments on larger-scale restoration projects in priority coastal, marine and estuarine areas to achieve regionally significant ecological restoration benefiting listed species.
- Advance priority restoration strategies for furthering protected species conservation through:
 - River restoration – improving ecological function of rivers through riparian restoration
 - Wetlands restoration – restoring natural hydrology to improve habitat condition at the watershed-scale
 - Fish passage – remove barriers to improve trends in listed and migratory species populations and their prey.

Statement of Need and Economic Benefits

Habitat destruction, degradation, and modification are a threat to endangered and threatened species populations and a major factor limiting recovery of these populations. With the requested increase, NOAA can support recovery efforts for listed species by improving habitat condition and ecosystem function through larger-scale habitat restoration in targeted areas. NOAA will capitalize on its experience implementing larger-scale habitat restoration projects gained through the American Recovery and Reinvestment Act (ARRA), and further strengthen its leadership role in science-based habitat conservation.

Coastal areas are tremendous economic resources, generating more than 28 million jobs in the United States. Commercial and recreational saltwater fishing generates \$185 billion in sales to the nation's economy (*Fisheries Economics of the U.S., 2006*). Approximately 75 percent of commercial and recreational fish species depend on the coasts for their primary habitat, spawning grounds, and nursery areas. Large-scale restoration efforts also help protect communities and infrastructure to improve coastal resiliency to storms and flooding, increase habitat connectivity and migratory corridors for fish and wildlife, and provide critical green space for public recreation and enjoyment within the most rapidly developing areas of the United States.

This funding allows NOAA to support larger-scale initiatives that address agency priorities for reducing threats that limit recovery of threatened and endangered species, restoring wetlands and opening fish passage that provide spawning and rearing habitat for fish, and helping provide storm protection from flooding and storm surge in the most vulnerable coastal communities. These large-scale initiatives would address habitat degradation that is caused by human impacts and further exacerbated by climate change.

Performance Goals and Measurement Data

Performance Goal: Performance Measure: Acres of habitat restored for ocean, coastal, and Great lakes resources, Measure 1d	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	7,000	6,000	7,300	7,600	7,600	7,600
Without Increase	7,000	6,000	6,300	5,050	5,050	5,050

Performance Goal: Performance Measure: Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase*	25	25	29	32	35	36
Without Increase	25	25	29	32	35	35
*With the requested increase NMFS does not anticipate seeing a change resulting from the program increase until FY 2015, due to a lag in actions that affect species.						

Performance Goal: Performance Measure: Stream miles made accessible.	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	200	210	240	260	260	260
Without Increase	200	210	230	200	200	200
Description: This performance measure counts stream miles made accessible as a result of Habitat Program activities. Stream miles made accessible in this context will include barrier removal and fish passage projects that support recovery of listed species.						

TERMINATIONS FOR 2011:

The following programs within Habitat Conservation and Restoration sub-activity item, or portions thereof, have been proposed for termination in FY 2011: Fisheries Habitat Restoration (CBRP & Open Rivers) (\$6,320,000); Bronx River Restoration, NY (\$1,000,000); Chesapeake Bay Oyster Restoration, MD (\$3,000,000); Merrimack River Fish Habitat, NH (\$300,000); Natural Stream Restoration Program, WV (\$1,500,000); Pontchartrain Basin Restoration (\$250,000); Narragansett Bay Shellfish Restoration (\$500,000); Protected Species Habitat at Kure Atoll (HI) (\$100,000); Hawaii Marine Fund (\$1,000,000); and Ecosystem Vitality Through Habitat Restoration (\$200,000).

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

Activity: National Marine Fisheries Service
Subactivity: Habitat Conservation and Restoration

	Object Class	2011 Increase
21	Travel and transportation of persons	50
22	Transportation of things	2
24	Printing and reproduction	5
25.1	Consulting services	5,267
31	Equipment	40
41	Grants and Fixed Charges	5,000
99	Total Obligations	10,364

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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), Regional Studies, and facilities maintenance.

Aquaculture

NOAA is at the forefront of an ongoing national effort to increase the domestic production of safe and sustainable seafood. Domestic aquaculture is a safe and critical component of the U.S. seafood supply. A more robust sustainable aquaculture industry will increase the locally grown seafood supply and provide new economic opportunities for U.S. coastal communities. Currently, 84 percent of the U.S. seafood supply is imported, and about half of these imports are from aquaculture. NOAA's overall aquaculture efforts are focused on creating an environmentally sustainable domestic seafood supply to meet the Nation's growing demand for seafood, while creating jobs and stabilizing the economies of the United States' working waterfronts. Efforts are also focused on establishing aquaculture as a viable technology for replenishment of important commercial and recreational marine fisheries and habitats, 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. The Aquaculture Program works with personnel in NOAA's other line offices, including:

- Office of Oceanic and Atmospheric Research (OAR), which includes the national and state Sea Grant programs;
- National Environmental Satellite, Data, and Information Service (NESDIS), which includes the NOAA Library's Aquaculture Information Center; and
- National Ocean Service (NOS), which includes the National Centers for Coastal Ocean Science.

Base funds support the efforts of the NMFS Aquaculture Program staff office to lead and coordinate regulatory, science/research, and outreach activities for marine aquaculture. The Aquaculture Program also supports aquaculture and stock enhancement science activities at NMFS Science Centers. Base funds requested through NOAA's Office of Oceanic & Atmospheric Research also support the National Marine Aquaculture Initiative through a competitive grants program and is considered part of the NOAA Aquaculture Program.

In FY 2009, NOAA was tasked with developing a new national aquaculture policy as an agency-wide policy document. The national policy will build on NOAA's significant work to date to safeguard U.S. coastal and ocean environments, while enabling sustainable domestic aquaculture that adds to the U.S. seafood supply and supports important commercial and recreational fisheries. The policy also will include development of coordinated federal principles to guide Administration requirements for aquaculture facilities in federal waters and strategies to provide the scientific information needed for permitting decisions.

NOAA's involvement in marine aquaculture is conducted under a number of legislative and policy drivers, including the reauthorized Magnuson-Stevens Fishery Conservation and Management Act, National Aquaculture Act of 1980 (reauthorized by the 2008 Farm Bill), 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 give NOAA the authority to develop and provide financial assistance for both public-sector and private-sector aquaculture.

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 2009 President's Budget Request. Within the Regional Studies budget line, the NOAA Chesapeake Bay Office (NCBO) (<http://chesapeakebay.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.

In support of the Chesapeake Bay Executive Order, NOAA is supporting large-scale restoration projects designed to restore the ecological functions of degraded habitats in priority areas. This is in addition to being a principal partner in the cooperative, intergovernmental Chesapeake Bay Program. The program identifies science-based management options for restoration and protection of critical habitats; monitors and assesses the status of living resources; evaluates the effectiveness of management actions; and implements 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. Marine Fisheries Service's Southeast Regional Fisheries Science Center, has overall management authority and responsibility for this program.

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, Alaska facility. 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 Resource and Conservation Engineering 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.

PROGRAM CHANGES FOR FY 2011:

Aquaculture (+1 FTE and +\$2,352,000) – NOAA requests an increase of 1 FTE and \$2,352,000 for a total of 16 FTE and \$8,416,000 for research and development to support the NOAA/U.S. Department of Agriculture (USDA) Alternative Feeds Initiative. These funds will support NOAA’s partnership with USDA in the Alternative Feeds Initiative. The goal of the initiative is to develop aquaculture feeds that require less fish meal and fish oil from marine forage fish. In turn, this will reduce fishing pressure on these species, and reduce the cost of finfish diets.

Proposed Actions:

- Hire a scientist in the NOAA Fisheries Northwest Fisheries Science Center to lead NOAA’s internal and external research on alternative feeds and expand alternative feeds research at the NOAA Fisheries science centers.
- Conduct a competitive grants initiative on priority alternative feed research topics.
- Work with the NMFS Fishery Finance Program and other DOC and federal agencies to transfer technology and enable expanded alternative aquaculture feeds production in the United States.

Statement of Need and Economic Benefits

Fish meal and fish oil are important components in the feeds for many farm-raised species, from pigs and poultry to farmed fish. However, as recognized in the 2008 GAO Report “Offshore Aquaculture: Multiple Administrative and Environmental Issues in Establishing a U.S. Regulatory Framework,” the growing pressure on the wild fisheries that supply the fish meal and fish oil and the relatively high cost of fish meal and fish oil make alternative feeds one of the top issues facing the aquaculture industry. Areas of alternative feed research that show particular promise and will be key focus areas are: (1) plant-based proteins and oils (e.g., from marine algae, soy, and other plants) to replace fish meal and fish oil and (2) exploring means to recapture fish trimmings (e.g. heads and tails) from seafood processing plants to use in fish feeds.

Current research has made progress in reducing the amount of fish meal and fish oil required in commercial aquaculture feed diets. NOAA and other federal agencies play a vital role in the research and the transfer of the technology to industry. The Alternative Feeds Initiative will highlight this type of ongoing research and identify new priority areas. This effort has the added benefit of getting the most value out of harvested fish. It would enhance wild stocks by conserving up to 130,000 metric tons annually of forage fish and reduce the ratio of forage fish required for finfish aquaculture. It would provide seafood processing plants a source of additional revenue, especially out of season, and could potentially save jobs.

NMFS and OAR/Sea Grant will jointly respond to the four research area gaps identified in the GAO Report concerning the environmental effects of aquaculture. These gaps were: (1) alternative fish feeds, (2) best management practices to minimize environmental impacts, (3) how escaped cultured fish might impact wild stocks, and (4) disease management strategies. While NMFS will increase its support for alternative feeds research, OAR/Sea Grant will focus its \$2.7 million increase for aquaculture on the other three research gap areas through the Sea Grant Extension network and via an extramural competitive grants program. In FY 2010, NMFS also directed \$2 million for in-house research at its Northeast and Northwest Fisheries Science Centers to address a broad range of environmental issues associated with both shellfish and finfish marine aquaculture. The work of these science centers will focus on issues of concern to regulatory agencies such as appropriate siting of aquaculture facilities, aquatic animal health, and wild stock and habitat impacts.

This initiative will play a vital role in expanding alternative feeds research and transferring the technology to industry. This has two significant benefits. First, it will be less likely that forage fish stocks will be overexploited to supply the growing demand for finfish feeds. Second, it will enable economic viability of aquaculture operations. Feed costs are the highest single cost in most finfish aquaculture operations; and fish meal and fish oil prices have doubled in the past 15 years. Reducing the amount required in fish feeds will

therefore have dramatic economic benefits to seafood processors and the aquaculture industry. As U.S. citizens increasing eat more aquaculture seafood, studies are also needed to help maintain the human health benefits of eating seafood. In order to do this, suitable alternatives with marine nutrients are needed.

Performance Goals and Measurements Data

Performance Goal: Thousand metric tons of forage fish conserved*	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	0	0	33	98	130
Without Increase	0	0	0	0	0	0
Description: Developing alternative feeds for aquaculture will reduce the amount of marine fish required to supply fishmeal diets. * Research and development conducted in FY 2011 will not begin having impacts until FY 2013						

Performance Goal: Ratio of forage fish required for finfish aquaculture *	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	2.0	2.0	2.0	1.8	1.6	1.4
Without Increase	2.0	2.0	2.0	1.9	1.9	1.8
Description: This performance measure projects improvements in the “fish in to fish out” ratio – the number of kilograms of marine forage fish used as feed to grow one kilogram of aquaculture finfish. The reduction in the ratio will translate into conservation of forage fish as aquaculture facilities become less dependent on their use in feed operations and fishing pressure is reduced on these species. * Research and development conducted in FY 2011 will not begin having impacts until FY 2013.						

Chesapeake Bay Fisheries and Habitat Monitoring & Restoration (+\$4 FTE and +\$5,000,000): NOAA requests an increase of \$5,000,000 and 4 FTE—for a total of \$7,135,000 and 16 FTE—to support execution of the Chesapeake Bay Executive Order (EO). In FY 2011, the funds will be used to improve the quality of NOAA’s research in the Chesapeake Bay through the acquisition of new technology and infrastructure improvement projects. This funding will ensure NOAA has state-of-the-art science capacity and necessary field and laboratory equipment in place in FY 2011 in order to proceed with implementing the requirements of the EO in FY 2012 and beyond.

Proposed Actions

Habitat Characterization and Restoration (\$2.2 million)

NOAA will meet the requirements of the EO by supporting large-scale restoration projects designed to restore the ecological functions of degraded habitats in priority areas to benefit fish and wildlife. Upgraded field survey technology is critical to the success of these projects. In FY 2011, the NOAA Chesapeake Bay Office (NCBO) will procure equipment, including replacement vessels and necessary shore-side support facilities to enhance field restoration efforts in the Bay and prevent poaching of newly established oyster sanctuaries. The NCBO will also provide staff support to plan and implement habitat assessments and characterization activities.

This investment will strengthen NOAA’s ability to implement new requirements from the EO, including:

- Conducting habitat assessment and characterization surveys, as well as socioeconomic and cultural analyses, to target specific Bay tributaries for large-scale restoration and special area protection. This will include benthic mapping, habitat evaluation and classification, and infaunal and water column sampling to identify areas of high habitat value for focused protection and restoration.
- Conducting tributary-specific, targeted restoration efforts in priority locations to advance native oyster populations and habitat for key living resources.

- Establishing pre- and post-restoration monitoring programs to evaluate the success, including ecological benefits of large-scale restoration projects, as well as current oyster restoration projects utilizing *in situ* mapping, diving, ecological assessments, current profiling, and sediment sampling.

These enhancements to NCBO capacity will ensure the execution of new efforts necessary to meet EO requirements in FY 2012 and beyond.

Ecosystem Assessment and Fisheries Science Integration (\$2.3 million)

NOAA is a partner in the federal–state Cooperative Oxford Laboratory (COL), located in Oxford, Maryland. NOAA will utilize its assets at the Oxford Laboratory in collaboration with state partners to develop new scientific tools, including decision support called for by the EO, to protect and restore the living resources and water quality of the Chesapeake Bay and its watershed. As outlined in the EO draft strategy, NOAA proposes to restore native oysters in 20 tributaries by the year 2020. NOAA will work with the states of Maryland and Virginia to establish a network of native oyster sanctuaries in the Bay. For these restoration and protection projects to be successful, adequate infrastructure and science capacity is critical to overcome the constraints that have limited success of oyster restoration to date, including, oyster diseases, water quality problems, insufficient oyster habitat, and losses to poaching. In FY 2011, substantial improvements will be made at COL to develop a Chesapeake Bay geospatial modeling core capability, coupled with upgrades to laboratory facilities. These improvements will ensure smarter planning and execution of future restoration projects, protect public investments and monitor long-term success. The funding will also provide staff support for ecosystem assessment and fisheries science integration.

This investment will strengthen NOAA’s ability to implement new requirements of the EO including:

- Developing an ecosystem-based science and habitat research program to fully develop the ecological connections between living resources and habitat.
- Providing support for ecosystem-based fishery management through an evaluation of health, size, trends, and distribution of key commercially and ecologically important fishery populations of species in the Chesapeake Bay.
- Identifying inconsistencies and areas of overlap in State fishery monitoring surveys; proposing methods to standardize fisheries data across jurisdictions; and conducting surveys to fill gaps in information.
- Conducting science to support the development of ecosystem-based fisheries management models and plans for priority Bay species, including blue crab, oysters, menhaden, striped bass, and alosines (e.g., herrings).
- Enhancing ecosystem-based decision support tools such as multispecies trophic and habitat models to strengthen living resource and fisheries management in the Bay.

Observations (\$500,000)

The EO requires NOAA to strengthen scientific support for decision-making to restore the Chesapeake Bay and its watershed, including expanded environmental research and monitoring and observing systems. The Chesapeake Bay Interpretive Buoy System (CBIBS) is designed to address multiple observing requirements including geophysical, biological, habitat, and climate change information. CBIBS is a state-of-the-art observing system that provides valuable information to enhance weather forecasts, marine safety bulletins, ecosystem-based modeling, climate change prediction, and fisheries models.

With this requested funding in FY 2011, NOAA will enhance operations and maintain CBIBS and will incorporate data into the Integrated Ocean Observing System regional network of observations, as well as state and federal monitoring systems in the Bay. In addition, NOAA will collect, organize, and analyze appropriate data related to the Bay and develop modeling and forecasting capabilities linking habitat characteristics.

Statement of Need and Economic Benefits

The 64,000-square-mile Chesapeake Bay watershed is the largest estuary in the Nation. It drains six states—New York, Pennsylvania, Maryland, Delaware, Virginia and West Virginia—and the District of Columbia. It provides tremendous economic value to the region as well as ecological and cultural significance. The population of the Chesapeake Bay watershed is nearly 17 million people. While the population of the region has increased by about 8 percent in the past decade, the amount of impervious surface has increased by over 40 percent. These trends have drastically altered the hydrology and natural filtering systems of the Bay, overtaking restoration and protection efforts to date with large infusions of sediment and nutrients. As a result, many of the Bay's living resources and key habitats—such as wetlands, submerged grasses, oysters, crabs, and finfish—have suffered.

Despite these challenges, the Chesapeake blue crab commercial fishery is valued at more than \$50 million per year. In Maryland alone, boating activity accounts for approximately \$2 billion per year. Furthermore, a University of Maryland study indicates that the total economic value of the Bay exceeds \$1 trillion. However, these economic benefits are offset by decline; once-profitable industries, such as the commercial oyster fishery, have been decimated, along with a way of life for the oystermen and their families. Oyster populations are now estimated at less than one percent of their original size, having succumbed to overharvest, disease, pollution, and predation.

Current restoration and protection efforts in the Bay are widely recognized as inadequate by federal and state agencies, academics, non-governmental organizations (NGOs), and the public. Previous targets and restoration goals are not being reached, threatening the economic and ecological vitality of the region. President Obama issued Executive Order 13508, calling for a renewed Federal commitment to protect and restore the Chesapeake Bay. More support from NOAA is needed to advance habitat protection and restoration and for critical fisheries science necessary to improve our understanding of relationships between living resources and their habitats.

NCBO's field infrastructure is aging. Permanent warehouse and dockage space, as well as replacement vessels and equipment are needed to maintain and enhance field restoration and protection efforts in the Bay. The requested funding will improve our infrastructure and provide the foundation for long-term restoration and protection of the Chesapeake Bay. It will help ensure that state and national efforts to restore the bay, as called for by the EO, are directed at the most pressing needs and that adequate monitoring, research, and evaluation functions can be performed.

The increase will provide enhanced understanding of the relationships between the Bay's living resources and habitat, protection and restoration of key species and habitats of the Chesapeake Bay across jurisdictional lines, and a coordinated system of monitoring platforms distributed across the Bay.

Performance Goals and Measurement Data

Performance Goal: Performance Measure:	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
The number of decision support tools or assessments developed and utilized for ecosystem based fishery management.*						
With Increase	2	4	6	8	8	8
Without Increase	2	2	2	2	2	2
Description: This measure tracks the number decision support tools and assessments developed to support fishery management plans. NOAA is working closely with Maryland and Virginia to develop ecosystem-based fishery management plans for key Bay species. Each one of these plans will rely in part on output from trophic and ecosystem-based models. The models are supported by data collected from field research initiated by NOAA and the states. *Improvements through the acquisition of new technology and renovations in FY 2011 will lead to performance measure increases in the out-years						

Performance Goal: Performance Measure:	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Number of acres restored in priority tributaries						
With Increase	0	0*	30	30	30	30
Without Increase	0	0	0	0	0	0
Description: This performance measure counts acres of habitat restored as a result of Habitat Program (HAB) activities within prioritized areas throughout the Bay. Acres restored in this context will include oyster bars with new populations that persist for at least 2 years following a restoration. This directly supports the goal of restoring native oysters in 20 tributaries by 2020.						

Cooperative Research (-13 FTE and -\$4,565,000) – NOAA requests a decrease of \$4,565,000 for Cooperative Research for a total funding amount of 17 FTE and \$7,101,000. This decrease is offset by increases in other fisheries research.

At this level of funding, NOAA’s cooperative research program will continue to support high-level projects nationwide through competitive grant and contract procurements, as well as cooperative agreements. Identifying research priorities to be addressed by cooperative research will be done in consultation with the Regional Fishery Management Councils, Interstate Fishery Commissions, and stakeholders. Of the total funding amount, \$3,000,000 will be directed toward developing environmentally friendly fishing gear.

Cooperative research leverages partnerships to maximize agency investments in science. Section 318 of the reauthorized Magnuson-Stevens Fishery Conservation and Management Act requires this 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. Cooperative research provides a means for commercial and recreational fishermen to become involved in the collection of fundamental fisheries information, such as fishery catch, index of stock abundance from surveys, and biological characteristics of stocks. Cooperative research efforts are also aimed at developing more selective fishing gears and operational practices that

minimize bycatch, and for enhancement of at-sea electronic data capture systems to provide more detailed and timely data.

NOAA recognizes the value of cooperative research in supplementing its existing mandated and core research programs; however this decrease will allow NOAA to continue to fund higher-priority projects. NOAA will continue to leverage cooperative partnerships to maximize agency investments in science.

Southwest Fisheries Science Center (0 FTE and -\$1,000,000): NOAA requests a planned decrease of 0 FTE and \$1,000,000 for a total of \$0 related to the prior year leasing of temporary office and laboratory space in La Jolla, California.

TERMINATIONS FOR 2011:

The following programs within Other Activities Supporting Fisheries, or portions thereof, have been proposed for termination in FY 2011: Yukon River Drainage Association (\$100,000); New England Multi-Species Survey (\$3,000,000); Science Consortium for Ocean Replenishment at Mote marine Lab (\$1,500,000); Lobster Institute CORE Initiative - Univ of Maine (\$200,000); New England Fisheries Assistance (\$9,000,000); Consortium for Wildlife Bycatch Reduction MA & NH (\$1,250,000); Joint Institute for Marine and Atmospheric Research, HI (\$1,250,000); Continuation of Protected Species Bycatch Reduction Maine Groundline Exchange Program (\$550,000); Cooperative Research and Technical Assistance, RI (\$600,000); Western and Central Pacific Fisheries Commission (WCPFC) Big Eye Tuna Quotas (\$3,000,000); Emergency Plan to Save Oyster Production on the West Coast (\$500,000); US/Canada Yukon River Salmon Agreement Studies (\$500,000); Western Pacific Integrated Ecosystem Assessments (\$500,000); Partnership for Mid-Atlantic Fisheries Science (PMAFS) Fish Stock Improvement Initiative (\$1,000,000); Bering Sea Crab Management and Research (\$300,000); Metagenomic Analysis of Chesapeake Bay (\$100,000); and Magnuson-Stevens: Marine Education and Training (\$1,000,000).

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
Physical Scientist	Annapolis, MD	ZP-4	1	89,033	89,033
Fisheries Biologist	Annapolis, MD	ZP-3	1	62,467	62,467
Policy Specialist	Annapolis, MD	ZP-3	1	62,467	62,467
Communications Specialist	Annapolis, MD	ZP-3	1	62,467	62,467
Field Technician	Annapolis, MD	ZP-2	1	42,209	42,209
Fishery Biologist	Seattle, WA	ZP-4	1	87,306	87,306
Total			<u>6</u>		<u>405,949</u>
less Lapse		25.0%	<u>2</u>		<u>101,487</u>
Total full-time permanent (FTE)			5		304,462
2011 Pay Adjustment (1.4%)					<u>4,262</u>
TOTAL					<u>308,724</u>

Personnel Data**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

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
Cooperative Research Director	Narragansett, RI	ZP-4	1	(89,449)	(89,449)
Cooperative Research Coordinator	Gloucester, MA	ZP-4	1	(89,449)	(89,449)
Cooperative Research Specialist	Gloucester, MA	ZP-2	1	(42,206)	(42,206)
Cooperative Research Admin Support	Narragansett, RI	ZA-2	1	(42,406)	(42,406)
Coop Res - OMI -Grants FPO	Woods Hole, MA	ZA-3	1	(62,758)	(62,758)
Coop Res Survey Bio Technicians	Woods Hole, MA	ZP-3	3	(62,758)	(188,274)
Coop Res -Data Mgmt Support	Woods Hole, MA	ZP-3	2	(62,758)	(125,516)
Coop Res - Fisheries Res Biologist	Woods Hole, MA	ZP-3	1	(62,758)	(62,758)
Coop Res - Fisheries Res Biologist	Woods Hole, MA	ZT-2	2	(34,234)	(68,468)
Total			<u>13</u>		<u>(771,284)</u>
less Lapse		25.0%	<u>N/A</u>		
Total full-time permanent (FTE)			13		(771,284)
2011 Pay Adjustment (1.4%)					<u>N/A</u>
TOTAL					<u>(771,284)</u>

Personnel Data

	Number
Full-Time Equivalent Employment	
Full-time permanent	13
Other than full-time permanent	<u>0</u>
Total	13
Authorized Positions:	
Full-time permanent	13
Other than full-time permanent	<u>0</u>
Total	13

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

Activity: National Marine Fisheries Service
Subactivity: Other Activities Supporting Fisheries

Object Class	2011 Increase
11 Personnel compensation	
11.1 Full-time permanent	309
Total Personnel Compensation	309
12.1 Civilian personnel benefits	92
21 Travel and transportation of persons	58
22 Transportation of things	20
25.1 Consulting services	3
25.2 Other services	841
25.3 Purchase of goods and services	40
26 Supplies and materials	80
31 Equipment	1,158
32 Lands and structures	2,594
41 Grants and Fixed Charges	2,157
99 Total Obligations	7,352

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

Activity: National Marine Fisheries Service
Subactivity: Other Activities Supporting Fisheries

Object Class	2011 Increase
11 Personnel compensation	
11.1 Full-time permanent	(771)
11.5 Other personnel compensation	(15)
Total Personnel Compensation	(786)
12.1 Civilian personnel benefits	(228)
21 Travel and transportation of persons	(44)
22 Transportation of things	(7)
23.2 Rental payments to others	(2)
23.3 Communications, utilities and miscellaneous charges	(55)
25.1 Consulting services	(89)
25.2 Other services	(3,656)
25.3 Purchase of goods and services	(390)
26 Supplies and materials	(5)
31 Equipment	(43)
41 Grants and Fixed Charges	(260)
99 Total Obligations	(5,565)

Appropriation: Pacific Coastal Salmon Recovery Fund

GOAL STATEMENT:

The goal of the Pacific Coastal Salmon Recovery Fund (PCSRF) is to develop partnerships with state and local entities to recover Pacific salmon and steelhead populations to sustainable levels. These activities support the National Oceanic and Atmospheric Administration's (NOAA) Strategic Plan Goal to "Protect, Restore, and Manage the Use of Coastal and Ocean Resources Through an Ecosystem Approach to Management."

BASE DESCRIPTION:

The PCSRF was established by NMFS in FY 2000 to address the listings of Pacific salmon and steelhead populations under the ESA and the impacts of the Pacific Salmon Treaty Agreement between the United States and Canada. Under the PCSRF, NMFS manages a program to provide funding to states and tribes of the Pacific Coast region (Washington, Oregon, California, Idaho, Nevada, and Alaska) to implement projects that restore and protect salmonid populations and their habitats. Through FY 2009, over \$800 million has been provided to thousands of projects throughout the region that have made important contributions to improve the status of ESA-listed species, preventing extinctions and helping to protect currently healthy populations. In addition to the PCSRF federal funds, states provide significant matching funds through their grant allocation processes. Furthermore, the federal and state matching funds are supplemented by private and local contributions at the project level, including additional funding, volunteer time, and other in-kind donations. The FY 2011 President's Request includes \$65,000,000 for this account.

PROPOSED LEGISLATION:

For necessary expenses associated with the restoration of Pacific salmon populations, \$65,000,000, to remain available until September 30, 2012: Provided, That of the funds provided herein the Secretary of Commerce may issue grants to the States of Washington, Oregon, Idaho, Nevada, California, and Alaska, and Federally-recognized tribes of the Columbia River and Pacific Coast (including Alaska) for projects necessary for conservation of salmon and steelhead populations that are listed as threatened or endangered, or identified by a State as at-risk to be so-listed, for maintaining populations necessary for exercise of tribal treaty fishing rights or native subsistence fishing, or for conservation of Pacific coastal salmon and steelhead habitat, based on guidelines to be developed by the Secretary of Commerce: Provided further, That all funds shall be allocated based on scientific and other merit principles and shall not be available for marketing activities: Provided further, That funds disbursed to States shall be subject to a matching requirement of funds or documented in-kind contributions of at least 33 percent of the Federal funds.

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PROGRAM CHANGES FOR FY 2011:

Pacific Coastal Salmon Recovery (+0 FTE and +\$15,000,000): NOAA requests an increase of \$15,000,000 and 0 FTE for a total request of \$65,000,000 for the Pacific Coastal Salmon Recovery Fund (PCSRF).

Proposed Actions

These funds will continue to be distributed under a competitive funding process that allocates funds based on NMFS’ mission goals and regional priorities for salmonid recovery. Grant funds will be used by partners to: implement priority actions to restore salmon and steelhead populations that are listed as threatened or endangered; maintain populations necessary for the exercise of tribal treaty fishing rights or native subsistence fishing; for the restoration and conservation of Pacific coastal salmon and steelhead habitat; and, monitoring the status and trend of Pacific salmon and their habitat or the effectiveness of restoration actions. Such actions may include: protecting and restoring degraded salmon habitats; conducting salmonid research, monitoring and evaluation; providing public outreach, education and landowner assistance; conducting watershed assessments and developing recovery plans to identify and prioritize restoration actions; and, implementing tribal salmonid enhancement and tribal harvest management projects.

Statement of Need and Economic Benefits

Pacific salmon and steelhead are significant biological, cultural, and economic assets to Pacific Coast states and tribes and to the United States as a whole. Changes in coastal ecosystems, from both human and natural factors, have contributed to the decline of Pacific salmonids since the early 1900s. Certain land-use, water-use, fishery harvest, and hatchery practices have increased the vulnerability of salmonid populations and resulted in the listing of many populations as threatened or endangered species under the federal Endangered Species Act (ESA). For tracking and assessment purposes, individual populations of salmon and steelhead are grouped into Evolutionarily Significant Units (ESUs) for salmon and Distinct Population Segments (DPSs) for steelhead. There are 37 salmon ESUs and 15 steelhead DPSs (52 total) within the Pacific Coast region (not including Alaska). Of these, 17 ESUs and 11 DPSs are currently listed as threatened or endangered under the ESA. Since 2000, NOAA’s investment in cooperative salmon recovery efforts in Washington, Oregon, California, Idaho, and Alaska has restored more than 650,000 acres of habitat and opened access to 4,299 miles of salmon and steelhead streams.

Performance Goal: Ecosystems Number of Habitat Acres Protected	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	26,000	28,000	29,000	29,000	27,000	25,000
Without Increase	26,000	28,000	29,000	27,000	23,000	19,000
Description: This measure tracks the number of habitat acres protected through the Pacific Coastal Salmon Recovery Fund.						

TERMINATIONS FOR 2011:

The following programs within Pacific Coastal Salmon Recovery Fund, or portions thereof, have been proposed for termination in FY2011: Pacific Coastal Salmon Recovery Fund (\$30,000,000).

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

	Positions	FTE	Appropriation	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	80,000	80,000	80,032
less: Prior Year Obligations	0	0	0	0	(32)
less: Terminations	0	0	(30,000)	(30,000)	(30,000)
plus: 2011 Adjustments to Base	0	0	0	0	0
FY 2011 Base	0	0	50,000	50,000	50,000
plus: 2011 Program Changes	0	0	15,000	15,000	15,000
FY 2011 Estimate	0	0	65,000	65,000	65,000

Comparison by activity/subactivity		FY 2009 Actuals		FY 2010 Currently Available		FY 2011 Base Program		FY 2011 Estimate		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Pacific Coastal Salmon Recovery Account	Pos/BA	0	79,920	0	80,000	0	50,000	0	65,000	0	15,000
	FTE/OBL	7	79,897	0	80,032	0	50,000	0	65,000	0	15,000
Total: Pacific Coastal Salmon Recovery Account	Pos/BA	0	79,920	0	80,000	0	50,000	0	65,000	0	15,000
	FTE/OBL	7	79,897	0	80,032	0	50,000	0	65,000	0	15,000

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	79,897	0	80,032	0	50,000	0	65,000	0	15,000
Total Obligations	0	80,009	0	80,032	0	50,000	0	65,000	0	0
Adjustments to Obligations:										
Unobligated balance, expiring	0	0	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(9)	0	(32)	0	0	0	0	0	0
Unobligated balance, adj. EOY	0	32	0	0	0	0	0	0	0	0
Total Budget Authority	0	79,920	0	80,000	0	50,000	0	65,000	0	15,000
Financing from Transfers and Other:										
Transfer to ORF	0	80	0	0	0	0	0	0	0	0
Net Appropriation	0	80,000	0	80,000	0	50,000	0	65,000	0	15,000

Department of Commerce
National Oceanic and Atmospheric Administration
Pacific Coastal Salmon Recovery
SUMMARY OF FINANCING
(Dollar amounts in thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	79,897	80,032	50,000	65,000	15,000
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)	(32)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	32	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	79,920	80,000	50,000	65,000	15,000
Financing:					
Transfer to ORF	80	0	0	0	0
Appropriation	80,000	80,000	50,000	65,000	15,000

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Pacific Coastal Salmon Recovery
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Marine Fisheries Service
 Subactivity: Pacific Coastal Salmon Recovery

	Object Class	2011 Increase
41	Grants and Fixed Charges	15,000
99	Total Obligations	15,000

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Pacific Coastal Salmon Recovery
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Object Class	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
11 Personnel compensation					
11.1 Full-time permanent	596	0	0	0	0
11.3 Other than full-time permanent	7	0	0	0	0
11.5 Other personnel compensation	18	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	621	0	0	0	0
12.1 Civilian personnel benefits	184	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	34	0	0	0	0
22 Transportation of things	7	0	0	0	0
23.1 Rental payments to GSA	8	0	0	0	0
23.2 Rental payments to others	11	0	0	0	0
23.3 Commun., util., misc. charges	34	0	0	0	0
24 Printing and reproduction	19	0	0	0	0
25.2 Other services	446	0	0	0	0
26 Supplies and materials	31	0	0	0	0
31 Equipment	9	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	78,493	80,032	50,000	65,000	15,000
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

Increase/

Department of Commerce
 National Oceanic and Atmospheric Administration
 Pacific Coastal Salmon Recovery
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

Object Class	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	(Decrease) over 2011 Base
99 Total Obligations	79,897	80,000	50,000	65,000	15,000
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(9)	(32)	0	0	0
Plus unobligated balance, EOY	32	0	0	0	0
Unobligated Balance, expiring	0	0	0	0	0
Total Budget Authority	79,920	80,000	50,000	65,000	15,000

Personnel Data

Full-Time equivalent Employment:

Full-time permanent	7	0	0	0	0
Other than full-time permanent	0	0	0	0	0
Total	7	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 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.

PROPOSED LEGISLATION:

For carrying out the provisions of Title IV of Public Law 95-372, not to exceed \$350,000, to be derived from receipts collected pursuant to that Act, to remain available until expended.

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PROGRAM CHANGES FOR FY 2011:

Fishermen's Contingency Fund (\$350,000 and 0 FTE) – NOAA requests budget authority of \$350,000 for the Fishermen's Contingency Fund for the payment of claims filed by fishermen. These funds should be sufficient to cover the estimated amount of claims for FY 2011.

Proposed Actions

Title IV established the Fishermen's Contingency Fund (FCF) to compensate commercial fishermen for damage or loss caused by obstructions associated with oil and gas activities on the Outer Continental Shelf (OCS).

Although FCF program funding is derived from assessments collected from oil and gas companies operating on the OCS, these funds can only be expended to the extent authorized in appropriations acts.

Statement of Need and Economic Benefits

For several years, claims have been paid with funds remaining from previous years' authorizations. Because the authorized funds have now been depleted, claims cannot be paid until funds currently on deposit in the FCF are authorized in the next available appropriations act. In total, the FCF has a balance of \$1,292,146, with only \$10,020 currently authorized as available for expenditure.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Fishermen's Contingency Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	1	1	0	10
plus: Obligations from prior year balances	0	0	0	(10)
FY 2011 Base	1	1	0	0
plus: 2011 Program Changes	0	0	350	350
FY 2011 Estimate	1	1	350	350

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals Personnel Amount		Currently Available Personnel Amount		Base Program Personnel Amount		Estimate Personnel Amount		Personnel	Amount
Fishermen's Contingency Fund	Pos/BA	0	0	1	0	1	0	1	350	0	350
	FTE/OBL	0	176	1	10	1	0	1	350	0	350
Total: Fishermen's Contingency Fund	Pos/BA	0	0	1	0	1	0	1	350	0	350
	FTE/OBL	0	176	1	10	1	0	1	350	0	350

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fishermen’s Contingency Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/	
	Actuals		Currently Available		Base Program		Estimate		Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	176	1	10	1	0	1	350	0	350
Total Obligations	0	176	1	0	1	0	1	350	0	350
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(176)	0	(10)	0	0	0	0	0	0
Unobligated balance, EOY	0	10	0	0	0	0	0	0	0	0
Total Budget Authority	0	0	1	0	1	0	1	350	0	350
Financing from Transfers and Other:	0	0	0	0	0	0	0	0	0	0
Net Appropriation	0	0	1	0	1	0	1	350	0	350

Department of Commerce
National Oceanic and Atmospheric Administration
Fishermen's Contingency Fund
SUMMARY OF FINANCING
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	176	10	0	350	350
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	(176)	(10)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	10	0	0	0	0
Unobligated balance, rescission	0	0	0	0	0
Budget Authority	0	0	0	350	350
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	0	0	0	350	350

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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)

Object Class	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
42 Insurance claims and indemnities	176	10	0	350	350
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total Obligations	176	0	0	350	350
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(176)	(10)	0	0	0
Plus unobligated balance, EOY	10	0	0	0	0
Total Budget Authority	0	0	0	350	350

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.

PROPOSED LEGISLATION:

Of the unobligated balances available to the Foreign Fishing Observer Fund, \$350,000 are hereby permanently cancelled.

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PROGRAM CHANGES FOR FY 2011:

Foreign Fishing Observer Fund (-\$350,000 and 0 FTE) - NOAA requests a cancellation of \$350,000 from unobligated balances for the foreign fishing observer fund. NOAA does not anticipate foreign fishing in the U.S. EEZ requiring funds from this account.

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	0	0
less: Obligations from prior year balances	0	0	0	0
FY 2011 Base	0	0	0	0
plus: 2011 Program Changes	0	0	(350)	0
FY 2011 Estimate	0	0	(350)	0

Comparison by activity/subactivity		FY 2009 Actuals Personnel Amount		FY 2010 Currently Available Personnel Amount		FY 2011 Base Program Personnel Amount		FY 2011 Estimate Personnel Amount		Increase/ Decrease Personnel Amount	
Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	(350)	0	(350)
	FTE/OBL	0	0	0	0	0	0	0	0	0	0
Total: Foreign Fishing Observer Fund	Pos/BA	0	0	0	0	0	0	0	(350)	0	(350)
	FTE/OBL	0	0	0	0	0	0	0	0	0	0

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		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	(522)	0	(522)	0	(522)	0	(522)	0	0
Unobligated balance, EOY	0	522	0	522	0	522	0	522	0	0
Unobligated balance, rescission	0	0	0	0	0	0	0	(350)	0	(350)
Total Budget Authority	0	0	0	0	0	0	0	(350)	0	(350)
Financing from Transfers and Other:										
Unobligated balance, EOY	0	0	0	0	0	0	0	350	0	350
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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	0	0	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	(522)	(522)	(522)	(522)	0
Unobligated balance, end of year	522	522	522	522	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, rescission	0	0	0	(350)	(350)
Budget Authority	0	0	0	0	0
Financing:					
Transfer to other accounts	0	0	0	350	350
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)

<u>Object Class</u>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 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	0	0	0	0
43 Interest and dividends	0	0	0	0	0
44 Refunds	0	0	0	0	0
99 Total Obligations	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Foreign Fishing Observer Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(522)	(522)	(522)	(522)	0
Plus unobligated balance, EOY	522	522	522	522	0
Unobligated balance, rescinded	0	0	0	(350)	(350)
Total Budget Authority	0	0	0	(350)	(350)

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 Account

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 of 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:

Subject to section 502 of the Congressional Budget Act of 1974, during fiscal year 2011, obligations of direct loans may not exceed \$12,000,000 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.

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PROGRAM CHANGES FOR FY 2011:

Fisheries Finance Program Account (\$0 and 0 FTE) — NMFS requests no increase for the Fisheries Finance Program (FFP) account. No funds are necessary in the FY 2011 budget proposal because the two loan authorities included in the request have an estimated negative subsidy rate. Under the Federal Credit Reform Act (FCRA), both the historic FFP Individual Fishery Quota (IFQ) lending and FFP traditional lending activity have had low levels of default, which resulted in negative subsidy rates as calculated under FCRA. When a loan program has a poor payback history, a positive subsidy and appropriate funding are needed. Because this 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.

Proposed Actions

The FY 2011 budget proposes to increase IFQ loan authority from \$8 million to \$12 million. 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. Regulations for the Bering Sea and Aleutian Islands king and tanner crab fisheries authorized financing and refinancing of the purchase cost of IFQs. 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. The increased loan authority will support additional participation in the crab IFQ loan program.

In addition to the financing and refinancing of IFQs, 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). Historically, the FFP traditional lending has received an 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.

Statement of Need and Economic Benefits

Three major benefits will result 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. The increase from \$8 million to \$12 million will support the implementation of the crab IFQ loan required by the management plan approved by the North Pacific Fisheries Management Council. 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
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	5,777	5,777
less: 2011 Adjustments to Base	0	0	(5,777)	(5,777)
less: Negative Subsidy Receipts Adjustment	0	0	0	0
FY 2011 Base	0	0	0	0
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals Personnel Amount		Currently Available Personnel Amount		Base Program Personnel Amount		Estimate Personnel Amount		Personnel	Amount
Fisheries Financing Program Account	Pos/BA	0	1,501	0	5,777	0	0	0	0	0	0
	FTE/OBL	0	1,996	0	5,777	0	0	0	0	0	0
Total: Fisheries Financing Program Account	Pos/BA	0	1,501	0	5,777	0	0	0	0	0	0
	FTE/OBL	0	1,996	0	5,777	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 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		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	1,996	0	5,777	0	0	0	0	0	0
Total Obligations	0	1,996	0	5,777	0	0	0	0	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(3,163)	0	(2,668)	0	(2,668)	0	(2,668)	0	0
Unobligated balance, EOY	0	2,668	0	2,668	0	2,668	0	2,668	0	0
Unobligated balance, transfer to ORF	0	0	0	0	0	0	0	0	0	0
Total Budget Authority	0	1,501	0	5,777	0	0	0	0	0	0
Financing from Transfers and Other:										
Less: Permanent Indefinite Authority (Mandatory)	0	(1,996)	0	(5,777)	0	0	0	0	0	0
Transfer from ORF	0	495	0	0	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	0	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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Cost Loan Subsidy	0	0	0	0	0
Credit Re-estimates	1,996	5,777	0	0	0
Total Obligations	1,996	0	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	(3,163)	(2,668)	(2,668)	(2,668)	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	2,668	2,668	2,668	2,668	0
Unobligated balance, transfer to ORF	0	0	0	0	0
Mandatory Appropriation	0	0	0	0	0
Budget Authority	1,501	5,777	0	0	0
Financing:					
Less: Permanent Indefinite Authority (Mandatory)	(1,996)	(5,777)	0	0	0
Transfer to ORF	495	0	0	0	0
Appropriation	0	0	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)

<u>Object Class</u>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 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	1,996	5,777	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	1,996	5,777	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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(3,163)	(2,668)	(2,668)	(2,668)	0
Plus unobligated balance, EOY	2,668	2,668	2,668	2,668	0
Unobligated Balance, Transfer to ORF	0	0	0	0	0
Total Budget Authority	1,501	5,777	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.

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	4	4	8,771	12,208
less: Obligations from prior year balances	0	0	0	(3,437)
plus: 2011 Adjustments to Base	0	0	0	0
FY 2011 Base	4	4	8,771	8,771
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	4	4	8,771	8,771

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Promote and Develop Fisheries Products	Pos/BA	2	29,511	4	8,771	4	8,771	4	8,771	0	0
	FTE/OBL	2	26,726	4	12,208	4	8,771	4	8,771	0	0
Total: Promote and Develop Fisheries Products	Pos/BA	2	29,511	4	8,771	4	8,771	4	8,771	0	0
	FTE/OBL	2	26,726	4	12,208	4	8,771	4	8,771	0	0

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	2	26,726	4	12,208	4	8,771	4	8,771	0	0
Total Obligations	2	26,726	4	12,208	4	8,771	4	8,771	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(450)	0	(3,437)	0	0	0	0	0	0
Recoveries	0	(202)	0	0	0	0	0	0	0	0
Unobligated balance, adj. EOY	0	3,437	0	0	0	0	0	0	0	0
Total Budget Authority	2	29,511	4	8,771	4	8,771	4	8,771	0	0
Financing from Transfers and Other:										
Transfer from Other Accounts	0	(108,511)	0	(113,371)	0	(113,371)	0	(113,371)	0	0
Transfer to ORF	0	79,000	0	104,600	0	104,600	0	104,600	0	0
Net Appropriation	2	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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	26,726	12,208	8,771	8,771	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	(202)	0	0	0	0
Unobligated balance, start of year	(450)	(3,437)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	3,437	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	29,511	8,771	8,771	8,771	0
Financing:					
Transfer from other accounts	(108,511)	(113,371)	(113,371)	(113,371)	0
Transfer to other accounts	79,000	104,600	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 Products
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

<u>Object Class</u>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
11 Personnel compensation					
11.1 Full-time permanent	163	0	0	0	0
11.3 Other than full-time permanent	0	0	0	0	0
11.5 Other personnel compensation	32	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	195	0	0	0	0
12.1 Civilian personnel benefits	50	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	143	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	641	0	0	0	0
24 Printing and reproduction	0	0	0	0	0
25.2 Other services	6,484	0	0	0	0
26 Supplies and materials	534	0	0	0	0
31 Equipment	103	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	18,576	12,208	8,771	8,771	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	26,726	12,208	8,771	8,771	0

Department of Commerce
National Oceanic and Atmospheric Administration
Promote and Develop Fisheries Products
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar Amounts in Thousands)

Object Class	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
Less prior year recoveries	(202)	0	0	0	0
Less unobligated balance, SOY	(450)	(3,437)	0	0	0
Plus unobligated balance, EOY	3,437	0	0	0	0
Total Budget Authority	29,511	8,771	8,771	8,771	0

Personnel Data

Full-Time equivalent Employment:

Full-time permanent	4	4	4	4	0
Other than full-time permanent	0	0	0	0	0
Total	4	4	4	4	0

Authorized Positions:

Full-time permanent	4	4	4	4	0
Other than full-time permanent	0	0	0	0	0
Total	4	4	4	4	0

Appropriation: Federal Ship Financing Fund

The Federal Ship Financing Fund is the liquidating account necessary for the collection of premiums and fees of 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.

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	0	260
plus: 2011 Adjustments to Base	0	0	0	(260)
FY 2011 Base	0	0	0	0
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
		Actuals Personnel Amount		Currently Available Personnel Amount		Base Program Personnel Amount		Estimate Personnel Amount		Personnel	Amount
Federal Ship Financing Fund	Pos/BA	0	(144)	0	(740)	0	0	0	0	0	0
	FTE/OBL	0	1	0	260	0	0	0	0	0	0
Total: Federal Ship Financing Fund	Pos/BA	0	(144)	0	(740)	0	0	0	0	0	0
	FTE/OBL	0	1	0	260	0	0	0	0	0	0

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	1	0	260	0	0	0	0	0	0
Offsetting collections, mandatory	0	0	0	0	0	0	0	0	0	0
Total Obligations	0	1	0	0	0	0	0	0	0	0
Adjustments to Obligations:										
Unoblig Bal, SOY	0	(33)	0	0	0	0	0	0	0	0
Unoblig Bal, EOY	0	0	0	0	0	0	0	0	0	0
Offsetting Collections	0	(112)	0	(1,000)	0	0	0	0	0	0
Total Budget Authority	0	(144)	0	(740)	0	0	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Federal Ship Financing Fund
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	1	260	0	0	0
Offsetting collections from:					
Federal funds	(112)	(1,000)	0	0	0
Trust funds					
Non-Federal sources					
Recoveries	0	0	0	0	0
Unobligated balance, start of year	(33)	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	(144)	(740)	0	0	0
Financing:					
Transfer to Treasury	144	740	0	0	0
Appropriation	0	0	0	0	0

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Federal Ship Financing Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

		FY 2009	FY 2010	FY 2011	FY 2011	Increase/ (Decrease) over 2011 Base
Object Class		Actuals	Currently Available	Base	Estimate	Base
33	Investments and loans	1	0	0	0	0
99	Total Obligations	1	0	0	0	0
	Less prior year recoveries	0	0	0	0	0
	Less unobligated balance, SOY	(33)	0	0	0	0
	Plus unobligated balance, EOY	0	0	0	0	0
	Mandatory Appropriation	0	0	0	0	0
	Less Offsetting Collections	(112)	0	0	0	0
	Total Budget Authority	(144)	0	0	0	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

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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.

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	506	10,147
less: obligations from prior year balances	0	0	0	(9,641)
plus: 2011 Adjustments to Base	0	0	2,533	2,533
FY 2011 Base	0	0	3,039	3,039
plus: 2010 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	3,039	3,039

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Environmental Improvement & Restoration Fund	Pos/BA	0	9,641	0	506	0	3,039	0	3,039	0	0
	FTE/OBL	0	9,322	0	10,147	0	3,039	0	3,039	0	0
Total: Environmental Improvement & Restoration Fund	Pos/BA	0	9,641	0	506	0	3,039	0	3,039	0	0
	FTE/OBL	0	9,322	0	10,147	0	3,039	0	3,039	0	0

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	9,322	0	10,147	0	3,039	0	3,039	0	0
Total Obligations	0	9,322	0	10,147	0	3,039	0	3,039	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(9,322)	0	(9,641)	0	0	0	0	0	0
Unobligated balance, EOY	0	9,641	0	0	0	0	0	0	0	0
Total Budget Authority	0	9,641	0	506	0	3,039	0	3,039	0	0
Financing from Transfers and Other:										
Net Appropriation	0	9,641	0	506	0	3,039	0	3,039	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Environmental Improvement and Restoration Fund
SUMMARY OF FINANCING
 (Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	9,322	10,147	3,039	3,039	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	(9,322)	(9,641)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	9,641	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	9,641	506	3,039	3,039	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	9,641	506	3,039	3,039	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>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 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	9,322	10,147	3,039	3,039	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	9,322	10,147	3,039	3,039	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Environmental Improvement and Restoration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(9,322)	(9,641)	0	0	0
Plus unobligated balance, EOY	9,641	0	0	0	0
Total Budget Authority	9,641	506	3,039	3,039	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: Limited Access System Administration

Under the authority of the Magnuson-Stevens Fishery Conservation and Management Act, Section 304(d)(2)(A), NMFS must collect a fee to recover the incremental costs of managing and enforcing a Limited Access Privilege (LAP) program. Fees shall not exceed 3 percent of the ex-vessel value of fish harvested under any such program, and shall be collected at either the time of the landing, filing of a landing report, or sale of such fish during a fishing season or in the last quarter of the calendar year in which the fish is harvested. Of the funds collected for the Halibut and Sablefish Individual Fishing Quota, 75 percent of fees collected are to be made available for management and enforcement and 25 percent for appropriation to support the North Pacific Individual Fishing Quota loan program. Also, in establishing a LAP program, a Regional Council can consider, and may provide, if appropriate, an auction system or other program to collect royalties for the initial or any subsequent distribution of allocations. If an auction system is developed, revenues from these royalties are deposited in the Limited Access System Administration Fund.

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	7,444	22,721
less: Obligations from Prior Year Balances	0	0	0	(15,277)
FY 2011 Base	0	0	7,444	7,444
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	7,444	7,444

Comparison by activity/subactivity		FY 2009		FY 2010 Currently Available		FY 2011 Base Program		FY 2011 Estimate		Increase/ Decrease	
		Personnel Amount	Personnel Amount	Personnel Amount	Personnel Amount	Personnel Amount	Personnel Amount	Personnel Amount	Personnel Amount		
Limited Access System Administration Fund	Pos/BA	0	6,270	0	7,444	0	7,444	0	7,444	0	0
	FTE/OBL	32	6,394	0	22,721	0	7,444	0	7,444	0	0
Total: Limited Access System Administration Fund	Pos/BA	0	6,270	0	7,444	0	7,444	0	7,444	0	0
	FTE/OBL	32	6,394	0	22,721	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 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	6,394	0	22,721	0	7,444	0	7,444	0	0
Total Obligations	0	6,394	0	7,444	0	7,444	0	7,444	0	0
Adjustments to Obligations:										
Recoveries	0	(178)	0	0	0	0	0	0	0	0
Unobligated balance, adj. SOY	0	(15,223)	0	(15,277)	0	0	0	0	0	0
Unobligated balance, EOY	0	15,277	0	0	0	0	0	0	0	0
Total Budget Authority	0	6,270	0	7,444	0	7,444	0	7,444	0	0
Financing from Transfers and Other:										
Net Appropriation	0	6,270	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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Obligations	6,394	22,721	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	(178)	0	0	0	0
Unobligated balance, start of year	(15,223)	(15,277)	0	0	0
Unobligated balance transferred	0	0	0	0	0
Unobligated balance, end of year	15,277	0	0	0	0
Unobligated balance, unavailable	0	0	0	0	0
Budget Authority	6,270	7,444	7,444	7,444	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	6,270	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>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
11 Personnel compensation					
11.1 Full-time permanent	1,979	0	0	0	0
11.3 Other than full-time permanent	22	0	0	0	0
11.5 Other personnel compensation	292	0	0	0	0
11.8 Special personnel services payments	0	0	0	0	0
11.9 Total personnel compensation	2,293	0	0	0	0
12.1 Civilian personnel benefits	1,173	0	0	0	0
13 Benefits for former personnel	0	0	0	0	0
21 Travel and transportation of persons	149	0	0	0	0
22 Transportation of things	54	0	0	0	0
23.1 Rental payments to GSA	350	0	0	0	0
23.2 Rental payments to others	4	0	0	0	0
23.3 Commun., util., misc. charges	13	0	0	0	0
24 Printing and reproduction	27	0	0	0	0
25.2 Other services	738	0	0	0	0
25.3 Purchases of goods & svcs from Govt accounts	0				
26 Supplies and materials	67	0	0	0	0
31 Equipment	221	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	1,305	22,721	7,444	7,444	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
 Limited Access System Administration Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

44	Refunds	0	0	0	0	0
		FY 2009	FY 2010	FY 2011	FY 2011	Increase/ (Decrease)
		Actuals	Currently Available	Base	Estimate	over 2011 Base
99	Total Obligations	6,394	22,721	7,444	7,444	0
	Less prior year recoveries	(178)	0	0	0	0
	Less unobligated balance, SOY	(15,223)	(15,277)	0	0	0
	Plus unobligated balance, EOY	15,277	0	0	0	0
	Total Budget Authority	7,444	7,444	7,444	7,444	0

Personnel Data

Full-Time equivalent

Employment:

Full-time permanent

Other than full-time permanent

Total

Authorized Positions:

Full-time permanent

Other than full-time permanent

Total

		32	0	0	0	0
		0	0	0	0	0
		0	0	0	0	0
		0	0	0	0	0
		0	0	0	0	0
		0	0	0	0	0

Appropriation: Marine Mammal Unusual Mortality Event Fund

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."

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Marine Mammal Unusual Mortality Event Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	0	406
less: Obligations from prior year balances	0	0	0	(406)
FY 2011 Base	0	0	0	0
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Actuals Personnel Amount	Personnel Amount	Currently Available Personnel Amount	Amount	Base Program Personnel Amount	Estimate 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	166	0	406	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	166	0	406	0	0	0	0	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 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	166	0	406	0	0	0	0	0	0
Total Obligations	0	166	0	406	0	0	0	0	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(572)	0	(406)	0	0	0	0	0	0
Unobligated balance, EOY	0	406	0	406	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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Discretionary Obligations	166	406	0	0	0
Total Obligations	166	406	0	0	0
Adjustments to Obligations:					
Unobligated balance, start of year	(572)	(406)	0	0	0
Unobligated balance, end of year	406	406	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>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 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	41	0	0	0	0
25.2 Other services	125	406	0	0	0
99 Total Obligations	166	406	0	0	0
Less prior year recoveries	0	0	0	0	0
Less unobligated balance, SOY	(572)	(406)	0	0	0
Plus unobligated balance, EOY	406	406	0	0	0
Total Budget Authority	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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
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 Conservation and Management Fund

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 2011:

No program changes are proposed for FY 2011.

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	0	0
less: 2010 Obligations from prior year balances	0	0	0	0
FY 2011 Base	0	0	0	0
plus: 2010 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2009 Actuals Personnel Amount	FY 2010 Currently Available Personnel Amount	FY 2011 Base Program Personnel Amount	FY 2011 Estimate Personnel Amount	Increase/ Decrease Personnel Amount
Fisheries Conservation and Management Fund	Pos/BA	0	0	0	0	0
	FTE/OBL	0	0	0	0	0
Total: Fisheries Conservation and Management Fund	Pos/BA	0	0	0	0	0
	FTE/OBL	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 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		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)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 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>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 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	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

Department of Commerce
 National Oceanic and Atmospheric Administration
 Fisheries Conservation and Management Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
<u>Personnel Data</u>					
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: Western Pacific Sustainable Fisheries Fund

Section 204(e) of the 2006 amendments to the Magnuson-Stevens Fishery Conservation and Management Act authorizes the establishment of the Western Pacific Sustainable Fisheries Fund. A Pacific Insular Area Fishery Agreement must be established in order to allow foreign fishing within the U.S. Exclusive Economic Zone (EEZ) in the Western Pacific. Before entering into such an Agreement, the Western Pacific Fishery Management Council must develop a Marine Conservation Plan that provides details on uses for any funds collected NOAA. Marine Conservation Plans must also be developed by the Governors of the Territories of Guam and American Samoa and of the Commonwealth of the Northern Mariana Islands. Funds collected from any permit payments received for foreign fishing within the U.S. EEZ around Johnston Atoll, Kingman Reef, Palmyra Atoll, and Jarvis, Howland, Baker and Wake Islands, sometimes known as the Pacific remote island areas (PRIA), are to be deposited into the Western Pacific Sustainable Fisheries Fund.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Western Pacific Sustainability Fisheries Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	0	884
less: 2010 Obligations from prior year balances	0	0	0	(884)
FY 2011 Base	0	0	0	0
plus: 2010 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	0	0

Comparison by activity/subactivity		FY 2009 Actuals Personnel Amount	FY 2010 Currently Available Personnel Amount	FY 2011 Base Program Personnel Amount	FY 2011 Estimate Personnel Amount	Increase/ Decrease Personnel Amount
Western Pacific Sustainability Fisheries Fund	Pos/BA	0	650	0	0	0
	FTE/OBL	0	0	0	884	0
Total: Western Pacific Sustainability Fisheries Fund	Pos/BA	0	650	0	0	0
	FTE/OBL	0	0	0	884	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Western Pacific Sustainability Fisheries Fund
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar Amounts in Thousands)

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		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	884	0	0	0	0	0	0
Adjustments to Obligations:										
Unobligated balance, adj. SOY	0	(234)	0	(884)	0	0	0	0	0	0
Unobligated balance, EOY	0	884	0	0	0	0	0	0	0	0
Total Budget Authority	0	650	0	0	0	0	0	0	0	0
Financing from Transfers and Other:										
Net Appropriation	0	650	0	0	0	0	0	0	0	0

Department of Commerce
National Oceanic and Atmospheric Administration
Western Pacific Sustainability Fisheries Fund
SUMMARY OF FINANCING
(Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ Decrease/ over 2011 Base
Total Discretionary Obligations	0	0	0	0	0
Total Obligations	0	884	0	0	0
Adjustments to Obligations:					
Unobligated balance, start of year	(234)	(884)	0	0	0
Unobligated balance, end of year	884	0	0	0	0
Budget Authority	650	0	0	0	0
Financing:					
Transfer to other accounts	0	0	0	0	0
Appropriation	650	0	0	0	0

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Western Pacific Sustainability Fisheries Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

<u>Object Class</u>	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 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	0	0	0	0	0
41 Grants, subsidies and contributions	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	(234)	0	0	0	0
Plus unobligated balance, EOY	884	0	0	0	0
Total Budget Authority	650	0	0	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Western Pacific Sustainability Fisheries Fund
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
 (Dollar Amounts in Thousands)

	FY 2009 Actuals	FY 2010 Currently Available	FY 2011 Base	FY 2011 Estimate	Increase/ (Decrease) over 2011 Base
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

OCEANIC AND ATMOSPHERIC RESEARCH FY 2011 OVERVIEW

For FY 2011, NOAA requests a total of \$55,850,000 and 26 FTE over the FY 2011 base program for a total of \$464,860,000 and 773 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.

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 enable 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.

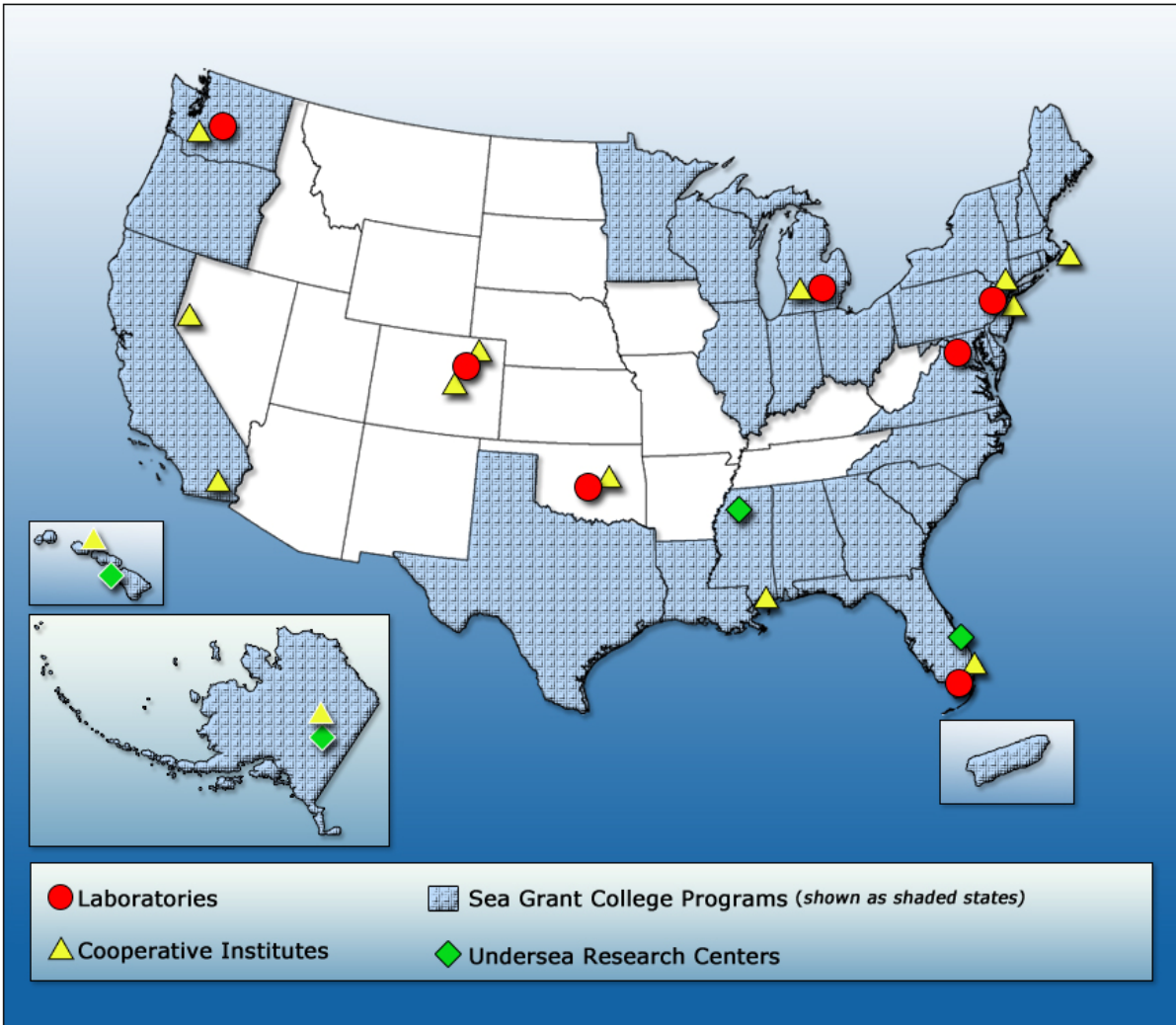
NOAA Research Laboratories and Cooperative Institutes

OAR has 7 laboratories and many 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 products and services and to provide the basis for improved decision making by policy makers and the public.

Research Laboratories

Air Resources Laboratory (ARL), headquartered in Silver Spring, MD, carries out research on a variety of processes that impact air quality. 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. AOML primarily contributes 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. 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. ESRL primarily works to understand the roles of gases and particles that contribute to climate change, provides climate information related to water management decisions, improves weather prediction, studies the recovery of the stratospheric ozone layer, and develops air quality forecast models. ESRL has 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 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. 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 interdependencies with the atmosphere and sediments. GLERL emphasizes a systematic 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 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, the 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 the Climate Program Office (CPO) and GFDL.
- **The Cooperative Institute for Climate Science (CICS)**, located at Princeton University's Forrestal Campus in Princeton, NJ, conducts research on earth system modeling development and analysis, earth system modeling applications, and data assimilation. CICS collaborates primarily with CPO and GFDL.
- **The Cooperative Institute for Alaska Research (CIFAR)**, located at the University of Alaska-Fairbanks, AK, conducts research on ecosystem function, coastal hazards, and climate change and variability. CIFAR collaborates primarily with CPO and PMEL.
- **The Cooperative Institute for Limnology and Ecosystems Research (CILER)** is a ten-member consortium of academic institutions in the Great Lakes region. CILER is administratively housed at the University of Michigan in Ann Arbor, MI. CILER conducts research on Great Lakes forecasting, invasive species, observing systems, protection and restoration of resources, and integrated assessment. 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 Marine Resource Studies (CIMRS)**, located at Oregon State University, Corvallis, OR, conducts research on West Coast fisheries, ocean environment, and marine mammal acoustics. CIMRS collaborates primarily with PMEL and NWFSC.
- **The Cooperative Institute for the North Atlantic Region (CINAR)** is located at Woods Hole Oceanographic Institution, Woods Hole, MA. CINAR conducts research on ecosystem forecasting, ecosystem monitoring, ecosystem management, protection and restoration of resources, and sustained ocean observations and climate research. CINAR collaborates primarily with the CPO and NEFSC.
- **The Cooperative Institute for Ocean Exploration, Research, and Technology (CIOERT)**, located at Florida Atlantic University's Harbor Branch Oceanographic Institution in Boca Raton, FL, conducts research on the development of advanced underwater technologies, exploration and research in the frontier regions of the eastern U.S. continental shelf, and vulnerable deep and shallow coral reefs. CIOERT collaborates primarily with the Office of Ocean Exploration and Research.
- **The Cooperative Institute for Research in the Atmosphere (CIRA)**, located at the Colorado State University in Fort Collins, CO, conducts research on satellite algorithm development training and education, regional to global scale modeling systems, data assimilation, climate-weather processes, and data distribution. 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 CPO and ESRL, and NESDIS.
- **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, 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-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.nrc.noaa.gov/ci>

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 other line offices (including NESDIS, NWS, NMFS, and NOS) and works with many external partners. 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) managing 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 World Meteorological Organization (WMO), key bilateral partners, and other climate leadership organizations; and (6) promoting climate literacy and outreach activities.

More information about CPO is available at: <http://www.climate.noaa.gov/>

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 coastal, 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, Vermont, and Puerto Rico. Most Sea Grant programs include multiple campuses of different universities across the state. These programs have aligned their efforts around the NOAA National Sea Grant College Program Strategic Action Agenda, which focuses on four critical areas: Safe and Sustainable Seafood Supply, Sustainable Coastal Development, Healthy Coastal Ecosystems and Hazard Resilience in Coastal Communities.

More information about Sea Grant is available at: <http://www.seagrant.noaa.gov/>

Office of Ocean Exploration and Research (OER)

OER is comprised of the former NOAA Undersea Research Program (NURP) and the Ocean Exploration (OE) Program. OER's two primary functions are:

- *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) utilizing new sensors and systems for ocean exploration; and (4) engaging a wide variety of audiences by innovative means, including new telepresence technologies. OER operates the *Okeanos Explorer*, a converted T-AGOS class vessel dedicated to support NOAA ocean exploration missions.
- *Research* - OER utilizes a network of regional centers and two institutes to focus on the following areas: (1) core research based on national and regional undersea priorities, including frontiers of the extended

continental shelf, and deep and shallow corals; (2) development, testing, and transition for advanced technologies associated with ocean observatories, submersibles, advanced diving technologies, remotely operated vehicles, autonomous underwater vehicles, and new sampling and sensing technologies; (3) discovery, study, and development of natural resources and products from ocean, coastal, and aquatic systems; and (4) undersea science-based education and outreach programs to enrich ocean science education and public awareness of the oceans and Great Lakes.

Office of Weather & Air Quality (OWAQ)

OWAQ has two major missions. The first is to provide research and development that supports 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 which impact human health, cause crop damage, and affect private-sector power-generation planning. The second is to support research that provides 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 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 2011 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 3 FTE and \$4,504,000 to fund adjustments to current OAR base program activities. The increase will fund the estimated FY 2011 Federal pay raise of 1.4 percent and annualize the FY 2010 pay raise of 2.4 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 Research also requests the following transfers for a net change to NOAA of \$0.

From Office	Line	To Office	Line	Amount
Oceanic and Atmospheric Research	Competitive Research	Oceanic and Atmospheric Research	Integrated Ocean Acidification	\$4,000
National Marine Fisheries Service	Climate Regimes & Ecosystem Productivity	Oceanic and Atmospheric Research	Integrated Ocean Acidification	\$1,500

OAR requests technical adjustments to transfer \$4,000,000 from the OAR Competitive Research Program line to the OAR Integrated Ocean Acidification line and \$1,500,000 from the NMFS Climate Regimes & Ecosystem Productivity line to the OAR Integrated Ocean Acidification line. This realignment will facilitate the integration of all NOAA ocean acidification activities into a NOAA ocean acidification program.

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. Global Change Research Program (USGCRP). 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 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/>

LABORATORIES AND COOPERATIVE INSTITUTES

Research conducted at Climate Laboratories and Cooperative Institutes contributes to the ability to predict climate variability and change and to 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 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.

CLIMATE DATA AND INFORMATION

NOAA's Climate Data and Information Program manages the 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. More information is available at: <http://www.drought.gov>.
- 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 the 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 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>
- The National Climate Model Portal will 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.

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 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

The Competitive Research Program has a diverse research portfolio to improve our understanding of climate variability and change and address the interface between scientific information and various decision-making needs. This portfolio is a critical component of NOAA's comprehensive climate science and services strategy, to infuse knowledge and expertise from the broader academic community into NOAA's operational climate forecasts and services. 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. The competitive research line includes the following activities in the base.

- Climate Observations and Monitoring Program (\$6,667,000) provides the fundamental observational data for detection and prediction of climate variability and change. This includes US contributions to the Global Ocean Observing System for climate and the overarching Global Climate Observing System; observations of essential climate variables over the US, including physical climate and carbon system parameters; and a particular focus on observations of Arctic climate. Also included are analyses for using these data for detection and attribution of climate change.
- Earth System Science Program (\$25,896,000) provides process-level understanding of the climate system through observation, modeling, research, analysis and field studies to support the development of improved climate models and predictions. ESS-sponsored activities are carried out

at NOAA and other Federal laboratories, NOAA Cooperative Institutes and academic institutions. Research supported by ESS advances understanding of: 1) the location and quantification of global carbon sources and sinks, 2) the role of aerosols and chemically-active greenhouse gases in the global climate system, 3) the behavior and predictability of land-atmosphere-ocean-cryosphere system interactions giving rise to climate variability and change on multiple timescales and 4) ocean ecosystems and climate.

- Modeling, Analysis, Predictions and Projections Program (\$25,312,000) provides the coupling, integration and application of Earth System Modeling and Analysis (ESMA) across NOAA, among partner agencies, and with the external research community. MAPP's objectives include: improving Earth System Models; supporting climate system analysis capabilities; improving methodologies for global and regional analysis, predictions and projections; and developing integrated hydrologic and ecosystem forecasting capabilities relevant to decision makers based on climate analyses, predictions and projections.
- Climate and Societal Interactions Program (\$30,474,000) provides national leadership in the development of climate services that are responsive to user needs (relative to both climate variability and change) by supporting programs and research in three areas: 1) Identification of, and support for, innovative and broadly applicable approaches to support decision-making, especially for risk characterization (initially with regard to water and coastal resources then branching to related sectors), 2) Establishment of a broad network of regionally scoped, long-term efforts to support risk management and decision support at scales of relevance to local to regional decision making; and 3) Promotion of the transfer of knowledge, tools, and products across climate service development efforts (within NOAA, across the Federal government, nationally, and internationally).

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)* (\$59,563,000 - Note: This total includes \$44,070,000 from the Competitive Research Program base and \$15,493,000 from the Laboratories and Cooperative Institutes Base.) – 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 interdependent elements working together provide the needed system.
- *Baseline Observatories* (\$1,859,000) – 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* (\$6,081,000– an additional \$6,824,000 is included in the Climate Laboratories & Cooperative Institutes line) 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 OPERATIONS

OAR's Climate Operations programs provide accurate and timely climate information and operational forecasts. 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 lives and property. Through Climate Operations, NOAA is working to improve its ability to produce and disseminate operational forecast products 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 2011:

NOAA Climate Services Portal (+2 FTE and +\$1,500,000): NOAA requests an increase of 2 FTE and \$1,500,000 for a total of 2 FTE and \$1,500,000 to support development of a new NOAA Climate Services Portal Program that will provide easy public access to NOAA's climate data, information, and services.

Proposed Actions

Important measures of success for NOAA's climate services will be the ease with which diverse public user communities are able to access and use the data products and information services that NOAA provides, the frequency with which they do so, and the trust they place in NOAA's climate resources. With the funds requested, OAR will work with partners across NOAA to build a comprehensive new NOAA Climate Services Portal (NCS Portal). The NCS Portal will be a central component of NOAA's commitment to integration and delivery of climate services by enhancing public access to useful climate data and information. In addition to data and products, the NCS Portal will offer a broad array of climate communications, outreach, and educational materials that demonstrate NOAA's leadership in climate science research, observations, modeling, and service to society.

As the public's primary online point of entry into NOAA Climate Services, the NCS Portal will be a central component in the agency's climate communications, education, extension, and outreach strategy. The NCS Portal will have audience-focused sections designed to serve four key segments of society: (1) climate science decision makers and policy leaders; (2) scientists and applications-oriented data users (e.g., resource managers and business leaders); (3) educators; and (4) climate interested and attentive members of the public. The NCS Portal will provide easily accessible, user-friendly climate data and information produced in styles and formats targeted to meet the needs of these four key stakeholder communities. Recent developments in web-based technologies make it possible for NOAA to present both existing data and new products in formats that are readily usable by decision-makers in government agencies and businesses (e.g., geospatial tools that enable resource managers to place information on impacts and affected resources in a place-based context relevant to planning or permitting).

Because the NCS Portal is central to NOAA's climate services, development of a Prototype for the NCS Portal began in September 2008 and is currently underway courtesy of temporarily donated personnel from four NOAA Line Offices. At the end of the Prototyping Phase, the Prototype will contain (1) a main home page as primary point of entry; (2) a nascent climate science magazine for outreach to the public (called "ClimateWatch"); (3) a small subset of NOAA's catalog of climate data and services contained in an initial "Data & Services" section for data users; (4) links to existing climate-related education materials in the Education section; and (5) links to existing, already reviewed factual information about climate for policy leaders.

With the funds requested, NOAA will transition from the Prototype Phase to a phase of active development of the comprehensive NCS Portal that will represent the full breadth and depth of NOAA's climate science and services. Specifically, the funding will include improvements to the Portal's interface, and a more complete build out of the four audience-focused sections of the Portal, along with procurement and integration of the NOAA Climate Portal server system, and hiring full-time administrative personnel to manage the system. Beginning in FY 2011, the NCS Portal will have a dedicated Program Manager located in the OAR Climate Program Office to direct and oversee its development. Additionally, this request includes 2 positions to help coordinate the NCS Portal's development and to ensure there is a seamless integration of all NOAA's climate-relevant data products, services, and resources into the NCS Portal.

The NCS Portal will be guided by interactive public dialogues, users' requests, and other audience engagements. NOAA will use new Web technologies to serve climate data and products in formats that are readily usable by targeted segments of society. The full NCS Portal's scope, product content, and functionality will evolve based

on user needs and expectations for climate data and information. User feedback on products and services available through the NCS Portal will also provide important insights into user applications and climate information needs that can help guide the future evolution of NOAA climate services.

Statement of Need and Economic Benefits

Societal concern about the impacts of climate change is growing. Citizens in public and private sectors want easy access to credible climate science information to help them make informed decisions affecting their lives and livelihoods. Weather and climate influences almost every sector of society, and affects up to 40 percent of the United States' \$10 trillion annual economy. (NRC report, 2003 entitled "Satellite Observations of the Earth's Environment: Accelerating the Transition of Research to Operations"). As the leading provider of climate, weather, and water information to the nation and the world, NOAA is a logical source for citizens to turn to for climate information. NOAA must expand and improve the way it communicates, educates, reaches out to, and engages with public stakeholders to better meet the nation's needs for timely, authoritative climate data and information.

Citizens are increasingly going online to seek credible, authoritative climate information. However, users report having difficulty locating and using NOAA's online data products and services. Thus, resolving this online accessibility issue will be one of the NCS Portal's main benefits. The use of portal technology and emerging data integration and visualization tools provide an opportunity for NOAA to bring together multiple datasets from diverse disciplines and sources to deliver a more comprehensive picture of climate in the context of affected resources, communities and businesses. Additional benefits include wider extension of NOAA's data to other media such as television and free-choice learning venues, thereby increasing public exposure and engagement.

This scalable approach to the NCS Portal development will allow NOAA to centralize access to the agency's climate data and information resources and provide audiences with opportunities to provide feedback to help NOAA make ongoing, iterative refinements in its climate services.

Schedule & Milestones

- Conduct user testing of the NCS Portal Prototype interfaces (FY 2011)
- Evolve NCS Portal's interface and expand its scope based upon user-driven feedback about its functionality and contents (FY 2012)
- Develop and deliver seamless, user-friendly, map-based tools for browsing and retrieving NOAA's climate data records across the various agency's data centers (FY 2013)
- Develop and deliver online modules for science educator (middle and high school grades) professional development; develop and deliver online modules for students (middle and high school) to conduct inquiry-based, online investigations of the climate system (FY 2014)
- Conduct user-driven refinement of NOAA Climate Portal functionality and interface (FY 2014 and 2015)

Deliverables

- Improved access to NOAA's climate data and information via a single, comprehensive Web portal with four audience-focused interfaces and a comprehensive assessment and evaluation of the Portal's overall impacts on our target audiences.

Performance Goals and Measurement Data:

Performance Goal: Climate Performance Measure: Percentage improvement in the Quality of Relationship with users in the delivery and communication of climate information and services (Quality of Relationship is a formal method of measuring indicators like trust, satisfaction and reliability)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	0	10	15	20	25
Without Increase	0	0	0	0	0	0
Description: A baseline measure of quality of relationship with each of our four audience segments will be made using a representative sample and the tools of social science. Relationship quality is comprised of three indicators—trust, satisfaction, and reliability—all of which can be measured. NOAA’s aim is improve the quality of its relationships with the four audience segments mentioned under “Proposed Actions” and to grow the numbers and the frequencies with which they visit and use the NCS Portal.						

Performance Goal: Climate Performance Measure: Percentage growth in number of unique visits to NOAA’s Climate Portal over the FY 2010 level.	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	0	10%	10%	10%	10%
Without Increase	0	0	0	0	0	0
Description: This performance measure will show the ongoing increase in the average number of unique visits to the Portal among the four target audiences the NCS Portal serves.						

Earth System Modeling: Urgent Climate Issues (+10 FTE and +\$6,980,000): NOAA requests an increase of 10 FTE and \$6,980,000 for a total of 14 FTE and \$9,580,000 to enable continued development and use of state-of-the-art Earth System Models to address urgent climate issues, including sea level rise and Arctic climate change.

Proposed Actions

NOAA will use this funding to expand capacity with a combination of 10 FTE, post-doctoral researchers, contracts and grants managed primarily by its Geophysical Fluid Dynamics Laboratory with assistance from the Earth System Research Laboratory. The Climate Program Office’s Climate Variability and Predictability Program will manage the grants for this request. This will allow NOAA to continue development of Earth System Models to:

Reduce uncertainties in sea level rise projections (\$2,580K) including: an ice sheet dynamics model, ocean-ice shelf and ocean-iceberg interactions, ice shelf cavity circulations and regional variations in sea level rise. This includes the development of an interoperable global ocean modeling capability for climate based on community standards, with routine global ocean data assimilation capabilities linked to Global Ocean Observing System observations and a nesting capability for coastal ecosystem models to assess the impact of climate change on ocean and coastal ocean ecosystems.

Reduce uncertainties in the terrestrial carbon cycle and future biogeochemical feedbacks on climate (\$2,150K) through more realistic model treatment of the terrestrial biosphere including: modeling the nitrogen and

phosphorous cycles, biomass burning, wetland and freshwater biogeochemistry, and land-use management. This includes data assimilation.

Address gaps in the understanding of the Arctic climate system, including rapid changes and future projections (\$900K). The sea ice component of the NOAA's Earth System Model will be enhanced to include ridging of ice sheets and improved radiation treatment. Influences of soot and dust aerosol on ice albedo will be examined. A new modeling framework for Arctic climate change will be developed for assessing various causes of past Arctic changes.

Augment Decadal Climate Predictions and Abrupt Change (\$1,350K) to complete decadal prediction model evaluation, assess predictability of high-impact climate extremes (heat waves, flooding, etc.) and assess the causes of past/ongoing decadal climate changes.

Statement of Need and Economic Benefits

Numerical models that simulate the Earth System are the Nation's principal tool for understanding past climate and predicting future climate. The increased demand for projections of climate change at regional scales and understanding of potential climate impacts requires increased modeling resolution and realism, as well as improved scientific understanding of the reliability of models and downscaling techniques for various regional climate applications. This effort to address urgent climate issues by improving Earth System Models, developing decadal prediction systems, and integrating earth system model development with regional ecosystem and coastal process models will be supported directly by recent investments in high performance computing resources for climate modeling in the American Recovery and Reinvestment Act of 2009. Societal benefits include:

- Sea level rise has the potential to be among the most costly consequences of climate change. Coastal states support 81 percent of the U.S. population and generate approximately 83 percent (\$11.4 trillion in 2007) of U.S. gross domestic product (GDP) (National Ocean Economics Program, "State of the U.S. Ocean and Coastal Economies," 2009). The homes and livelihoods of millions of Americans and infrastructure worth billions would be imperiled by sea level rise of a few feet. Improved models to help narrow uncertainty on future global sea level rise, as well as its regional variations, will help decision-makers form mitigation and adaptation responses to mitigate costs to society and harm to near-shore ecosystems.
- Creating links between global ocean models and regional and coastal ocean models and assimilating ocean data into ocean modeling systems for predictions of ecosystem parameters will serve ecosystem managers, because many marine ecosystems are sensitive to changes in ocean conditions associated with climate change.
- Reduced uncertainty in climate change projections will help decision makers consider strategies to mitigate or adapt to the impacts of climate change. For example, the absence of an interactive carbon cycle was a serious limitation in the global climate models used for the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC AR4), which will be addressed to better understand how the carbon cycle and its feedbacks reduce or amplify anticipated global warming by several degrees by 2100.
- Better prediction of rapid changes in the Arctic will help decision-makers address key impacts on: Arctic citizens and their livelihoods; Arctic ecosystems; shipping; homeland security; fisheries; and strategic energy resources.
- Developing decadal climate predictions of sea surface temperature will lead to skillful decadal predictions of several phenomena of great economic importance, including hurricanes, drought, and heat waves, and ecosystems.

Schedule & Milestones

FY 2011: Develop new modeling capabilities and initiate synthesis efforts for application to Earth System Models.

FY 2012: Further develop and implement new Earth System Modeling capabilities for use in climate change assessments. Perform initial integrations of new Earth System Models. Continue process studies and report results in peer-reviewed publications.

FY 2013-15: Continue long-term development and refinement of Earth System Modeling capabilities for use in future national and international climate change assessments. Simulate 20th and 21st century sea level rise using prototype next-generation models of ice sheet dynamics and other physics. Report on Arctic climate change assessment. Communicate Earth System Modeling research findings to policymakers and other stakeholders through assessments, publications and climate services.

Deliverables

- Sea level rise projections with improved model physics, representation of physical processes, and reduced uncertainty relative to current projections & sea level forecasts of near shore waves/extremes.
- A common global ocean modeling framework based on community standards that incorporates features of several leading ocean models and enables nesting with coastal models and routine global ocean data assimilation.
- State-of-the-art Earth System Models with improved representation of the terrestrial biosphere and reduced uncertainty in future carbon cycle feedbacks.
- Assessments of the causes of recent and ongoing Arctic climate changes through improvements to sea ice modeling and Arctic climate process models. More confident projections of future climate changes in the Arctic.
- A decadal climate prediction system, including an assessment of the level of predictability realizable from the system, in terms of sea surface temperature predictions, and predictions of related changes in extreme events (hurricane activity, drought, heat waves, flooding, etc.).
- Enhanced contributions to assessments of human impacts on climate through inclusion of more realistic physical processes & important feedbacks in climate models; greater confidence in projections of regional climate impacts.

Performance Goals and Measurement Data

Performance Goal: Climate Performance Measure: Number of regional scale projections for assessments & decision support (cumulative).	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	3	5	7	8	8
Without Increase	0	2	2	2	2	2
Description: Regional scale projections will contribute to international assessments (e.g. IPCC AR5, scheduled for 2013), national assessments under the U.S. Global Climate Research Program, and other assessments as requested. The number of meaningful regional projections possible will increase as NOAA’s Earth System Model increases in realism and complexity. Examples of regional scale projections include: regional sea level rise projections that require explicit representation of the global eddy field in the ocean models; projections of parameters essential to ocean and coastal ecosystem forecasting; assessment of regional carbon budgets; and projections of climate change in the Arctic region that require improved sea ice models.						

Performance Goal: Climate Performance Measure: Percentage uncertainty in possible 21 st century sea level rise (0-1m = 100% uncertainty)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	75%	74%	65%	55%	50%	40%
Without Increase	75%	74%	73%	72%	71%	70%
Description: This metric is calculated using the IPCC 4 th Assessment Report estimates for the range of 21 st century global-mean sea level rise. Completion of the proposed effort will reduce the uncertainties by almost half as a result of modeling that better captures the more accurate measurements of ice-sheet discharge, thermal expansion, and regional anomalies due to ocean circulation and heat storage. Reducing the uncertainty in sea level rise will allow government and industry to have better information on projected sea level rise and therefore tailor their planning and actions to address the impacts.						

Assessment Services (+3 FTE and +\$10,000,000): NOAA requests an increase of 3 FTE and \$10,000,000 for a total of 3 FTE and \$10,000,000 to provide a permanent capability to produce climate assessments at national and regional scales. The assessments will synthesize, evaluate and report on climate change research findings, evaluate the effects of climate variability and change for different regions, and identify climate vulnerabilities and uncertainties as part of an ongoing effort to understand what climate change means for the United States.

Proposed Actions

Understanding and characterizing the nation's vulnerability to climate change and its adaptive capacity to reduce that vulnerability is not only essential for informed, near-term decisions regarding government actions to promote adaptation to committed warming (i.e., unavoidable warming that will occur due to historic emissions of greenhouse gases) but is also an essential input to decisions regarding how aggressively to reduce greenhouse emissions. Regional and national assessments will meet an increasing range of demands for climate change decision support across the Nation. Building on the past two decades of experience, and pairing existing expertise with emerging capacity, NOAA will support a collaborative, participatory assessment process that engages scientists, government officials, businesses, and communities in the investigation of climate impacts and effective mitigation and adaptation. This evolving program of shared learning and joint problem solving will serve as a foundational component of NOAA climate services. Assessment processes are a proven way to conduct effective dialogue between users and producers of climate change information, as well as to enhance integration among involved experts of diverse backgrounds spanning academia, government, and private industry; thus assessments support the constructive expert and user-provider partnerships needed for a national climate change enterprise. Assessments provide the critical connection between the research and the development of tools and products that decision makers can apply; they are also critical in communication and education efforts to improve understanding of climate variability and change and its impacts. International scientific and technical assessments by the Intergovernmental Panel on Climate Change provide key inputs to multi-national negotiations, and U.S. scientific participation supports sound, up-to-date information for policy-makers.

NOAA will build permanent capacity for regional climate assessment services. This assessment services capability will serve as a cornerstone of NOAA's climate services. The request includes \$7,000,000 for regional and sectoral assessments, which includes (1) \$400,000 to staff interagency efforts for directing national assessment activities, (2) \$4,300,000 for grants to conduct regional assessments through regional working groups and to build/sustain regional networks, and (3) \$2,300,000 to support overall coordination, a technical and scientific support unit for provision of scientific and graphical expertise, data accessibility, stewardship, and visualization for observations and model output, communication expertise, and other scientific and technical support for regional assessments, as well as support for U.S. Global Change Research Program (USGCRP)-led

sectoral assessments. The request also includes \$3,000,000 for regional downscaling modeling efforts, which includes: (1) \$2,200,000 for grants to support regional downscaling/impact modeling efforts, including assisting with the development of a consistent downscaling approach for regional groups to apply, and (2) \$800,000 to provide centralized regional downscaling expertise and coordination.

These assessment services augment existing regional and sectoral focal points across the agency and with our Federal and non-Federal partners (states academia, user communities, etc) to begin to integrate, evaluate and interpret climate change related observations, models and projections, and evaluate the effects of climate variability and change for approximately 10 regions and 1 sector (water) covering the United States and coastal waters. In addition, NOAA will play an important role in helping to develop a framework for consistent approaches and application of downscaling efforts to support regional decision making, including facilitating better connectivity of high resolution data with decision processes and models. NOAA will also play a supporting role in a USGCRP-led effort, undertaken through other agencies, to assess sectoral climate impacts (e.g. energy, transportation, health, etc.). Building on a systematic engagement of regional communities across the United States during FY 2010, critical climatic vulnerabilities of particular regions are in the process of being identified and considered in the context of other changes in the nation's environment, resources, and economy. These initial investigations are forming the basis of input to define priority variables and needs in regional downscaling/impact model activities. This high-resolution output, along with coordinated observational data, and appropriate connection to impact and decision models, will support regional assessments that will not only characterize the likelihood of a specific climate change, but also its major impacts upon regionally-important ecosystems, social systems, and economic systems, and begin to outline the ability of each system to adapt to climate changes, either naturally or through human actions. The assessments will also identify uncertainties about which we must know more to understand climate impacts, vulnerabilities, and our ability to adapt.

Cumulatively, the assessments will contribute to ongoing efforts to understand what climate change means for the United States and what services are necessary to allow for informed decision-making. These assessments will be tied to outreach and education efforts that inform Americans about climate change and its impacts and provide scientific support for end users. This information will provide an objective basis for adaptation and mitigation strategies at a variety of temporal and spatial scales. These assessments will also contribute to the legislatively mandated National Climate Assessment and future international assessments, including those of the Intergovernmental Panel on Climate Change.

Climate assessment services will involve both operational and research elements of NOAA, and will build upon many existing NOAA resources and functions including research in the physical, biological, and social sciences, observing, data management, modeling and forecasting, education and outreach. NOAA will also enhance its capabilities and tailor its products through partnerships with other Federal agencies, and the academic, public and private sectors. NOAA's Climate Program Office will manage the necessary implementation of funds to regional entities.

Statement of Need and Economic Benefits

The Global Change Research Act of 1990 (GCRA) calls for the President (through a Federal interagency body) to prepare and submit to the Congress, on a periodic basis (not less frequently than every 4 years), an assessment which: 1) integrates, evaluates, and interprets the findings of the Federal interagency research effort and discusses the scientific uncertainties associated with such findings; 2) analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and 3) analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years. The last two of these assessments have been completed under existing NOAA scientific leadership. (The next National Assessment is due in 2013).

Schedule & Milestones

FY 2010 Carry out scoping sessions in consultation with White House Office of Science and Technology Policy, the Council on Environmental Quality, and other Federal partners to establish goals, working relations, and responsibilities for a National Assessment. Establish a technical support unit, a Federal Advisory Committee, and a framework for assessment of multiple regions determined by climate change impacts. Execute contracts and regional grants to organize and hold 10 regional workshops and to initiate a dialogue on evaluating vulnerability and impacts through select engagement of user communities. Produce a technical summary of each workshop indicating key vulnerabilities and data/modeling needs. Support U.S. involvement in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Support USGCRP-led effort to assess key U.S. economic and social sectors through other agencies. Produce broad outline of 10 regional assessments and one sectoral assessment. Begin preliminary investigation into how existing assessments are used by stakeholders.

FY 2011. Execute grants and contracts to assist in drafting a framework for consistent downscaling approaches across regions and modeling efforts. Produce regional-scale projections of major climate variables (including temperature, precipitation, storms, heat waves, etc.) for the United States. Execute contracts and grants to continue and complete first reviewable draft of assessments of regional impacts, vulnerability and response options for each of 10 regions and for one sector. Support U.S. involvement in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Support USGCRP-led effort (via participating Federal agencies) to produce climate assessment of key US economic and social sectors. Begin formulation of a U.S. National Assessment. Complete an outline of report into how assessments are used and how usability could be enhanced, including analysis and case studies of connection from regional scale data to impact and decision support models.

FY 2012 Produce regional-scale projections of a larger number of vulnerable pressure points covering more regions and sectors. Support U.S. involvement in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Complete 10 regional assessments and one sectoral assessment (water). First reviewable draft of National Assessment. Complete a publicly-reviewable draft report into how assessments are used and how usability could be enhanced, including analysis and case studies of connection from regional scale data to impact and decision support models. Support GCRP-led completion of publicly reviewable drafts of climate assessments of key U.S. economic/social sectors

FY 2013 Maintain regional framework and user dialogue to prioritize research into vulnerability, adaptation, and impacts through limited workshops and listening sessions. Execute outreach and dissemination of the National Assessment. Support U.S. involvement in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change and its outreach and dissemination in the U.S. Complete and release National Assessment (as called for in GCRA 1990). Complete report into how assessments are used and how usability could be enhanced.

FY 2014 Begin formal updates of regional vulnerability assessments (including impacts and adaptation measures) for each of 10 regions. Maintain regional framework and user dialogue to prioritize research into vulnerability, adaptation, and impacts through workshops and listening sessions. Produce regional-scale projections of a larger number of vulnerable pressure points covering all regions and sectors. Complete U.S. involvement in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change and its outreach and dissemination in the United States. Produce publicly reviewable draft report on the use of these assessments in the decision-making process.

FY 2015 Produce publicly reviewable drafts of 10 updated regional assessments and one updated sectoral assessment. Maintain regional framework and user dialogue to prioritize research into vulnerability, adaptation, and impacts through workshops and listening sessions. Provide continuing outreach on Fifth Assessment Report of the IPCC. Support USGCRP-led climate assessments on key U.S. economic/social sectors. Initiate

planning for the next National Assessment (due in 2017). Produce report on the use of these assessments in the decision-making process.

Deliverables

January 2011— Regional scale projections of key climate variables for the United States. First reviewable draft of 10 regional assessments and one sectoral assessment.

January 2012—Completion of 10 regional assessments and one sectoral assessment. First reviewable draft of the National Climate Assessment. First reviewable draft of report on how assessments are used and how usability could be enhanced

January 2013—Public Release of National Climate Assessment (as called for in GCRA 1990); focus on outreach and assisting decisionmakers to use the information. Report into how assessments are used and how usability could be enhanced

January 2014— Regional scale projections of larger number of vulnerable pressure points for regions and sectors for the United States. Draft updates for major variables in regional assessments.,Publicly reviewable draft report on the use of these assessments in the decision-making process.

January 2015—Produce publicly reviewable drafts of 10 updated regional assessments and one updated sectoral assessment, Public release of report on the use of these assessments in the decision-making process

Performance Goals and Measurement Data

Performance Goal: Climate Performance Measure: Number of climate-change related impact, vulnerability, adaptation, or mitigation information topics addressed in the Assessments	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	0	8	12	12	25	25
Without Increase	0	0	0	0	0	0
Description: This performance measure will demonstrate the role of formal climate change assessments in decisions to address climate change impacts by identifying the number of topics addressed in the assessments that are considered by business, government, or the public that affected decisions related to improved climate resilience. Priority topics will be determined by the interaction with stakeholders over the course of 2010						

Carbon Observing and Analysis System (+7 FTE and +\$8,000,000): NOAA requests an increase of 7 FTE and \$8,000,000 for a total of 47 FTE and \$20,905,000 to complete and sustain an observation and analysis system to determine uptake and emissions of carbon dioxide and greenhouse gases across North America.

Proposed Actions

The CarbonTracker Observing and Analysis System is an observational and analysis network that measures carbon dioxide (CO₂) and other greenhouse gases (GHG), providing observational data necessary for predicting future climate change and ocean acidification and will serve as the backbone of a system for verifying GHG emission reduction and mitigation efforts in North America. The network collects continuous measurements from tall towers, air sampled in flasks, aircraft profiling, and satellite remote sensing, and needs to be expanded to provide the accuracy and precision to quantify the exchange of GHGs between the atmosphere and terrestrial ecosystem and to characterize the regional distribution of GHG emissions and uptake. With this funding, NOAA will:

1. Install and operate 6 new tall towers (for a total of 14 tall towers) to measure CO₂ and other GHGs at several heights in the atmosphere.

2. Increase frequency of flights at 14 existing sites by a factor of four and begin collecting twice-weekly vertical profiles of GHGs with aircraft up to ~8 km height at 10 additional sites across North America to achieve twice-weekly vertical profiles at a total of 24 sites.
3. Improve modeling for NOAA's CarbonTracker tool by including NOAA forecast data and the latest NOAA transport models.
4. Use results from CarbonTracker observations and direct aircraft profiles to compare, verify, and validate CO₂ satellite retrievals.

This effort builds on NOAA's strong observation, modeling, and analysis capabilities; involves coordination with national and international partners; and serves as a structural, operational, and research backbone in a global effort to understand the carbon cycle and verify reduction and offsets of CO₂ and other GHG emissions. NOAA's Earth System Research Laboratory (ESRL) will continue to lead this effort and work in coordination with the Cooperative Institute for Research in Environmental Sciences (CIRES), several Federal agencies, the World Meteorological Organization and other international bodies. The Climate Program Office will manage the grants process. This proposal will fund nine Federal positions (7 FTE).

Statement of Need and Economic Benefits

According to the latest IPCC Assessments, global climate change is unequivocal. It is driven by GHGs, mainly anthropogenic release of CO₂, and is posing a major threat to agriculture, human health, the economy, and national security. The rapid increase of CO₂ is essentially the sole cause of global ocean acidification, which is threatening our marine ecosystem and fisheries.

Addressing climate change and its impacts has become both a national and an international priority. Numerous efforts to reduce CO₂ emissions have already begun both around the world and at the state and local levels within the United States. Additionally, the US government has begun processes to federally regulate GHG emissions. President Obama highlighted the issue in his first budget and has proposed a U.S. CO₂ cap and trade program to be operational by 2012. The U.S. EPA is preparing to control atmospheric CO₂ as a pollutant using the Clean Air Act (Federal Register (Volume 74, Number 78) Proposed Rule: Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act, April 24, 2009, and reviewing the potential use of the Clean Water Act for addressing CO₂ in the oceans (i.e. ocean acidification) (Federal Register (Volume 74, Number 71) Notice of data availability: Ocean Acidification and Marine pH Water Quality Criteria, April 15, 2009).

Regulating CO₂, evaluating mitigation strategies and understanding and predicting future climate change and ocean acidification will require an accurate, reliable and independent system for tracking sources and sinks of CO₂ and other GHGs. No emission reduction effort has ever succeeded without ongoing verification (e.g. acid rain and sulfur emission reduction, ozone recovery, and regional air quality policies). NOAA's CarbonTracker program needs to be expanded to reduce the uncertainties in emissions reporting and estimation that challenge our ability to make informed decisions to limit greenhouse gas levels in the atmosphere, certify tradable permits, measure GHG emission offsets, support and verify treaty negotiations, provide accurate inventories of emitters, and implement reliable GHG policies.

Reliable verification can only be made from a widespread observation and analysis system greater than what is currently in place. The current sparse network of observation sites across North America give us only a rough estimate of annual continental fluxes of CO₂, while successful mitigation requires fluxes to be resolved within much smaller regions. Ultimately, satellites will be involved in evaluating GHG emission reduction efforts and changes in global emissions. It will be essential to have a ground based and in situ observational network for testing, improving, and ultimately verifying satellite retrievals.

Historically, NOAA has played a leading role in the monitoring of GHGs. As the need for increased information about GHG emissions increases, NOAA's monitoring, modeling and analysis capabilities must also expand. This

has been recognized by the US Global Change Research Program's (USGCRP) - 13 US agencies) and by the North American Carbon Program (NACP - 13 Federal Agencies), which is requiring NOAA to provide increased atmospheric data on CO₂ and other GHGs from surface sites, tall towers, and aircraft across North America. Additionally, at its June 2008 Summit, the international Group on Earth Observations (GEO) called for the development of a global observation and analysis system for supporting global mitigation of GHG emission. NOAA's improved CarbonTracker network will provide the core atmospheric observations for the combined U.S. contribution to a global system and ultimately serve as the backbone for a system to verify reduction of CO₂ and other GHG emissions.

These increasingly urgent improvements cannot be made without additional resources or without compromising other parts of NOAA's critical long-term global monitoring network.

Schedule & Milestones

FY 2011 – 4 sites (1 tall tower & 3 aircraft) installed; begin or continue satellite retrieval comparisons and validations (e.g., GOSAT, AIRS, IASI, OCO-2)

FY 2012 – 4 sites (1 tall tower & 3 aircraft) installed; new lab instrumentation operational; CarbonTracker assimilations to include NOAA transport data along with European data

FY 2013 – 4 sites (2 tall tower & 2 aircraft) installed; Extensive QA/QC and Data management enhancement verified & operational

FY 2014 – 4 sites (2 tall tower & 2 aircraft) installed; Regional Flux Estimates Defined

FY 2015 – Seasonal Estimating Capability in place

Deliverables

- 14 fully operational tall towers (12 NOAA tall towers plus 2 collaborative tall towers), measuring greenhouse gases continuously across North America
- 48 sets of aircraft vertical profiles of ~50 greenhouse gases and tracers across North America each week
- CarbonTracker operating with both NOAA's and European (ECMWF) global meteorology to produce sustained monthly outputs
- Satellite retrieval verification capability in place

Performance Goals and Measurement Data

Performance Goal: Climate Performance Measure: Reduce Uncertainty of the North American Carbon Sink (million tons C/y) Measure 2b.	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	400	380	350	300	<300	<<300
Without Increase	400	400	500	500	550	550

Arctic Watch (+1 FTE and +\$3,000,000): NOAA requests an increase of 1 FTE and \$3,000,000 for a total of 3 FTE and \$6,295,000 to make progress toward completing and sustaining Arctic observations as part of the U.S. contribution to the International Arctic Observing Network and the associated Global Ocean Observing System (GOOS).

Proposed Actions

An expanded, more robust, integrated and coordinated NOAA Arctic program is necessary for addressing immediate and near-term impacts of climate change and supporting NOAA's response capabilities to stakeholders, particularly those in Alaska and the Pan-Arctic region, but also throughout the Nation.

- Enhanced Alaskan and Arctic observations – Establish with international partners an Arctic Observing Network that integrates observations from new and existing atmospheric, coastal, and oceanographic observatories; ocean moorings; ice buoys and stations; and ship transects. These actions will complement other NOAA observations in the region, such as the Carbon Observations and Analysis System and the Climate Reference Network. The additional observations also will feed directly into other NOAA activities, including:
- Modeling and Analysis – Improve and increase representation of Arctic climate processes in global climate models, regional physical-ecological models, and Arctic System Reanalysis and explore development of a predictive capability for Arctic sea ice.
- Provide Alaska/Arctic regional climate and decision-making information and services, user-focused research assessments and projection tools for planners, including data management activities and support for the Alaska RISA.

A coordinated and comprehensive approach, Arctic Watch, will produce the information and applications driven research outputs, such as nowcasts and forecasts tailored to Arctic stakeholder needs, and projections for planning and policy. Many of the necessary components for a NOAA-led Arctic Watch already exist in varying stages of development and execution. However, a greater investment in regional observations and data management are critical for allowing NOAA to serve as a key provider and honest broker of information, enforce its regulatory responsibilities, and enable effective decision-making across a range of issues affecting or affected by the Arctic. This increase will expand NOAA's Arctic observing capacity and produce data that will allow existing NOAA programs to improve modeling, analysis, and assessment products. The NOAA Climate Program Office will lead this effort and will utilize the capabilities of the NOAA Joint and Cooperative Institutes, such as The Cooperative Institute for Research in Environmental Sciences (CIRES) and the Cooperative Institute for Alaska Research (CIFAR). Other institutions will also play a role, receiving grant support through the Climate Program Office. Due to the complexities of the international collaboration necessary for this program, one new Federal employee position is requested.

Statement of Need and Economic Benefits

The Arctic region is currently undergoing profound atmospheric, terrestrial and oceanic changes related to climate variation and change. In many cases, observed changes far exceed the current model projections. These changes impact human health, infrastructure, fisheries, ecosystems, coastal communities, international maritime activity, and regional to mid-latitude climate shifts. Diminishing sea ice cover contributes to significant changes in weather patterns both within and surrounding the Arctic, modifies ecosystems, opens new shipping channels, and provides access to previously unobtainable natural resources. Additionally, the current U.S. energy crisis has increased interest in the Arctic region as a source for oil and natural gas exploration/extraction and as part of a national energy policy.

The state of Alaska, academia, Federal agencies with Arctic responsibilities, industry, international partners, and other users have expressed concern that current available climate observations and data are not at the spatial scale necessary for guiding Arctic management decisions. The NOAA Alaska Regional Collaboration Team has completed a comprehensive Integrated Services Plan that identifies current and future capabilities that NOAA must provide in support of Alaskans and regional customers, which includes climate observations, monitoring, and applied research to support economic development and allows for informed adaptation and planning efforts. More broadly, the National Academy of Sciences has called for establishment of an internationally coordinated Arctic Observing Network. NOAA, with the National Science Foundation, co-leads the U.S. effort to fulfill this need.

At a national level, increased understanding of critical environmental thresholds, such as the dramatic reduction in sea ice cover, warming ocean/coastal temperatures, glacial melt/fresh water intrusions, potential release of carbon and methane associated with permafrost thaw, and sea level rise are essential for addressing our

environmental, economic, and national security needs. Higher resolution regional models of climate change, sea ice loss and sea level rise are needed for guidance on climate change at scales important for planning, mitigating, and adapting. To achieve these results, it is necessary to better observe the basic physical state of the Arctic. Stakeholders struggle to utilize the information that does exist because there is currently no cohesive, coordinated clearinghouse or service available. Arctic Watch would fill this niche by providing integrated, scientifically robust, unbiased, and authoritative Arctic climate information necessary for mitigation and adaptation efforts.

The combination of rapid change and increased interest in this region places significant pressure on NOAA to provide support services and information that are required to respond to increased climate change consequences and balance new and existing activities in this region. Additional resources are necessary as NOAA expands and integrates its Arctic observations and services to meet the needs of this rapidly changing environment.

Schedule & Milestones

Milestones/Deliverables	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Ice Buoys/Stations Reporting (Cumulative Total #) <i>Typically 2-yr life-cycle refresh.</i>	2	10	16	16	16	16
Sub-surface Moored Buoys deployed (Total #/yr) <i>Typically replace all each year.</i>	8 (NSF cost share)	8	10	16	16	16
Ship Transects (Total #/year) <i>Transects repeated each yr.</i>	1	2	3	3	3	3
Coastal Observatories Operational (Cum Total #)	2	2	3	3	3	3

Deliverables

By FY 2015, NOAA will contribute annually the following to the International Arctic Observing Network (IAON):

- 16 Ice Buoys (30% of US total planned contribution to IAON)
- 16 Moorings (40% of US total planned contribution to IAON)
- 3 Annual Ship Lines (25% of US total planned contribution to IAON)
- 3 International Coastal Observatories with our Canadian, Russian, and Norwegian partners (75% of US total planned contribution to IAON)

Performance Goals and Measurement Data

Performance Goal: Climate Performance Measure: Reduce percent error in seasonal forecast of Arctic sea ice loss and regrowth	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	50%	50%	50%	40%	30%	25%
Without Increase	50%	50%	50%	50%	50%	50%
Description: Percent reduction from the FY 2008 baseline in forecast error relative to observations. Current sea ice outlook is based on statistical evaluation of recent past years and is only generated for summer months. Proposed new observations and modeling will enable a transition starting in 2012 to model-based, probabilistic forecasts for all seasons based on initial state of sea ice, and real-time observations of ocean heat content, snow cover on ice, surface air temperature, atmospheric circulation patterns, and solar radiation. New experimental forecasts begin in 2012 with a goal of being at least as good as statistical outlooks, with significant improvement over time as experience is gained.						

Global Ocean Observing System (+0 FTEs and +\$4,820,000): NOAA requests an increase of 0 FTE and \$4,820,000 for a total of 89 FTE and \$67,383,000. This includes the \$6,295,000 request for Arctic Watch, a component of GOOS. This will continue implementation of the Global Ocean Observing System (GOOS) with an emphasis on improving sea level rise monitoring and understanding. A sustained global observing system is the foundation of all climate research and services. In 2011 incremental advancements across the ocean networks will be accomplished, focusing on tracking sources of global sea level rise and storage of heat in the ocean. This will contribute to national preparedness, resilience, and early warning for coastal inundation due to sea level rise coupled with extreme events. This initiative also addresses opportunities identified in NOAA's report to the House of Representatives in 2009, *Implementing the Sustained Global Ocean Observing System for Climate*.

Proposed Actions

Specific enhancements to the global ocean observing system that will advance the FY 2011 priorities of monitoring global sea level rise and its drivers include:

- Tide Gauge Stations (\$400 K): Ten reference tide gauge stations will be equipped with GPS receivers and real-time reporting transmitters each year to provide measurement of absolute sea level rise and satellite ground truth, and to provide real-time monitoring for tsunamis, El Niño, and storm surge events.
- Deep Argo Floats (\$1,400 K): Development and deployment of deep Argo profilers capable of descending to 3000+ meters to measure changes in ocean heat resulting in the expansion of seawater and hence sea level rise.
- Full-depth Ocean Surveys (\$400 K): Systematic sampling of the full depth ocean using CTD (conductivity-temperature-depth) casts from research vessels to collect temperature and salinity data for ocean heat content analysis.
- Ocean Reference Stations (\$1,200 K): Real-time reporting deep ocean monitoring systems will be deployed initially in: 1) the Gulf Stream, a boundary current location important to monitor energy and carbon exchanges between the ocean and atmosphere, upper ocean temperature and salinity, and near-surface currents; and 2) the Agulhas Return Current off the SE coast of South Africa, a region with some of the largest air-sea heat fluxes and uptake of carbon dioxide, and in other key locations in the out years.
- Dedicated Ship Time (\$720 K): Thirty days of ship support will be chartered to deploy deep Argo floats in remote ocean regions and ocean reference stations for measurement of the ocean's heat storage and the air-sea exchange of heat and carbon.
- Ocean Analysis and Data Management (\$700 K): NOAA will engage researchers to analyze ocean data to develop products that will aid in evaluating and improving ocean models. Model improvement will provide better estimates of the current climate state as well as projections of climate change, specifically improving sea level change predictions. Additionally, the supporting data analysis and delivery infrastructure will be enhanced to facilitate extracting the maximum information from observational data.

Statement of Need and Economic Benefits

Episodes of devastating coastal inundation over the last decade have emphasized the critical importance of fielding an ocean observing system that can continuously monitor for approaching marine hazards and provide early warnings to the coasts for hazard mitigation. Storm surge, El Niño, tsunamis, as well as gradual sea level rise, all originate in the deep ocean well beyond the coastal zone, where much of our observing capacity currently exists. Gradual sea level rise results from an increase in mass due to melting ice and thermal expansion from ocean heating, which causes an increase in the amount of sea water. Recent studies suggest that much of the ocean heat driving sea level rise may be stored in the deep ocean, beyond routine observation by current technology. Emerging technology, such as deep Argo floats, will be able to better track this heat exchange.

More broadly, the global ocean observing system must deliver continuous real-time measurements that will allow the modeling community to improve data assimilation and therefore improve the accuracy of climate model projections. It must also be capable of delivering quantitative ocean indicators at a few strategic reference locations that will alert the nation and the world if and when major changes are occurring.

Economists project that investment in observing system technology will be amplified by orders of magnitude in socio-economic advantage to the nation in planning for impacts and responses to climate change generally and sea level rise, in particular. The coupling of climate related sea level change with the high water levels due to extreme events such as hurricanes bring billion-dollar socio-economic impacts and dramatic shifts in our coastal marine ecosystems. Over half of the U.S. population resides in a coastal county, and three quarters of the American economy is generated in coastal states. Sea level rise threatens the stability of our coastal communities, economies, and ecosystems. Improving our understanding of and ability to predict sea level rise will allow for improved planning, informed investments, and the development of targeted risk reduction strategies. Further, US contributions to the global system have been historically more than matched by the contributions of international partners.

Schedule & Milestones

SCHEDULE / MILESTONES	FY 10 Target	FY 11 Target	FY 12 Target	FY 13 Target	FY 14 Target	FY15 Target
Installation of permanent GPS receivers at climate reference tide gauge stations		X	X	X	X	X
Development of deep diving Argo floats		X	X			
Deployment of deep diving Argo floats				X	X	X
Deployment of research vessels to sample the deep ocean		X	X	X	X	X
Ocean Reference Stations deployed		X	X	X	X	X
Ship time (Days at Sea)		X	X	X	X	X
Ocean Analysis / Data Management		X	X	X	X	X

Deliverables:

OUTPUT	FY 10 Target	FY11 Target	FY 12 Target	FY 13 Target	FY 14 Target	FY 15 Target
Deliverables						
Tide Gauge Reference Stations w/GPS installed (Cum Total #)	103	113	123	133	143	153
Deep Argo deep floats deployed (Cum Total #/yr)	0	0	0	10	40	90
Research Vessel Surveys completed (Ship days/yr)		11	11	11	11	11
Ocean Reference Stations deployed (Cum Total)	10	11	12	12	13	14
Dedicated ship support (Cum days at sea/year)	492	522	552	582	612	642

Deliverables

Ocean analysis deliverables to be developed and disseminated include observationally-based and model-based products. Observationally-based products (e.g., global maps of observed ocean heat content, salinity, sea level, currents, etc.) will aid in evaluating and improving ocean and climate models, with a

view towards providing improved predictions of climate change (e.g., improved predictions of sea level rise). In addition, model-based products (e.g. ocean state estimated from assimilation of ocean data into ocean models) will be queried to produce targeted products on an “as needed” basis in response to emerging climate priorities. Additionally, the supporting data analysis and delivery infrastructure will be enhanced to facilitate extracting the maximum information from observational data.

Performance Goals and Measurement Data

Performance Goal: Climate Performance Measure: Reduce the error in global measurement of sea level change (mm/yr)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	3.5	2.7	2.7	2.0	2.0	2.0
Without Increase	3.5	3.5	3.5	3.5	3.5	3.5
Description: This experimental outcome-based performance measure provides a quantifiable metric for evaluating the effectiveness of the tide gauge network. Enhanced implementation of the GOOS, including deep Argo floats and full-depth ocean surveys, along with data analysis resulting from this increase will enable the delivery of a more robust measure of sea level change.						

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are propose for termination in FY 2011: Laboratories and Cooperative Institutes (\$2,200,000); Regional Climate Assessments (\$9,000,000); Climate System Research Center, MA (\$495,000); Climate Change and Air Pollutant Impacts to New England's Rare Alpine Zone, NH (\$350,000); and Advanced Study Institute for Environmental Prediction, MD (\$150,000); Carbon Sequestration & Climate Change Models for NYS Forests (\$100,000); Integrated Climate Change in Restoring Chesapeake Bay/Watershed, MD (\$3,000,000).

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

Activity: Office of Oceanic & Atmospheric Research
 Subactivity: Climate Research

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Physical Scientist	Asheville, NC	ZP-V	1	113,735	113,735
Physical Scientist	Asheville, NC	ZP-V	2	113,735	227,470
Technical Writer-Editor	Asheville, NC	ZP-V	1	113,735	113,735
Oceanographer/Physical Scientist	Silver Spring, MD	ZP-IV	1	89,033	89,033
Physical Scientist	Seattle, WA	ZP-IV	1	87,306	87,306
Physical Scientist	Boulder, CO	ZP-IV	7	87,815	614,705
IT Specialist	Boulder, CO	ZP-III	2	61,612	123,224
Physical Scientist	Princeton, NJ	ZP-IV	10	92,259	922,590
Oceanographer	Princeton, NJ	ZP-III	1	64,729	64,729
Physical Scientist	Boulder, CO	ZP-IV	2	87,815	175,630
IT Specialist	Charleston, SC	ZP-IV	1	81,823	81,823
IT Specialist	Asheville, NC	ZP-IV	1	81,823	81,823
Physical Scientist	Camp Springs, MD	ZP-IV	1	89,033	89,033
Total			<u>31</u>		<u>2,784,836</u>
less Lapse		25%	<u>8</u>		<u>696,209</u>
Total full-time permanent (FTE)			23		2,088,627
2011 Pay Adjustment (1.4%)					<u>29,241</u>
TOTAL					<u>2,117,868</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	23
Other than full-time permanent	<u>0</u>
Total	23

Authorized Positions:

Full-time permanent	31
Other than full-time permanent	<u>0</u>
Total	31

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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: Office of Oceanic and Atmospheric Research
Subactivity: Climate Research

Object Class	2011 Increase
11 Personnel compensation	2,118
11.9 Total personnel compensation	2,118
12 Civilian personnel benefits	635
21 Travel and transportation of persons	666
22 Transportation of things	20
24 Printing and reproduction	50
25.2 Other services	10,372
26 Supplies and materials	250
31 Equipment	2,090
41 Grants and fixed charges	18,099
99 Total Obligations	34,300

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Appropriation: Operations, Research, and Facilities
Subactivity: Weather and Air Quality Research

The objectives of the Weather and Air Quality Research subactivity are to:

- Support Research and Development that provides the Nation with more accurate and timely warnings and forecasts of high impact weather events and improved air quality information; and
- Support research that provides 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. Activities 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;
- Evaluating the capacity of Unmanned Aerial System (UAS) platforms, payloads, and data products to meet critical NOAA observing requirements not adequately satisfied by other means - current focus is on applications in the Arctic (e.g., climate change), Gulf of Mexico (e.g., hurricane reconnaissance), and Pacific (e.g., marine protected areas) as well as optimizing key measurement capabilities needed for NOAA operations (e.g., ocean color and ocean surface winds);
- 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 aid 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 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 research and development program among NOAA, the Department of Defense, the Department of Homeland Security and the Federal Aviation Administration 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. MPAR 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 MPAR technology is successful, NOAA will realize significant improvements in lead times for tornado warnings and other forms of hazardous weather. More information on MPAR 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 2011:

Water Resources Research to Operations (+0 FTE and +\$7,672,000): NOAA requests an increase of \$7,672,000 and 0 FTE for a total of \$12,921,000 and 13 FTE to research, develop and implement Integrated Water Resource Services, a NOAA Regional Collaboration Priority. OAR laboratories and National Weather Service river and weather forecast centers will partner to develop and transition to operations new precipitation, river, estuary and coastal flood-forecast capabilities.

Proposed Actions

NOAA seeks to support three projects designed to improve our Nation's water forecasts: (1) The Hydrometeorological Testbed (HMT), which is focused on reducing regional precipitation observation and forecasts errors by 50% for three-day forecasts; (2) an international program, THORPEX, that is designed to improve our global precipitation forecasts out to 14 days and provide information on forecast uncertainty, which is currently not available; (3) Coastal Estuary River Information System (CERIS), which is intended to increase the number of communities for which detailed stream and river forecasts are available.

The Hydrometeorology Testbed (HMT) (\$5,020,000) focuses on accelerating the infusion of new observing technologies and strategies, precipitation forecast model improvements, and new precipitation science into NWS operational forecasts. Because observing and forecasting precipitation varies by region of the country and by season, NOAA has identified both west and east coast areas for investigation. Specifically NOAA will establish representative test-beds in California and the Carolinas. Field experiments are conducted to deploy new observing systems, conduct experimental model forecasts, and test new forecasting techniques in concert with operational weather and river forecast offices. Subsequently, laboratory studies will analyze and interpret the data collected during field programs to improve forecasts, observational interpretation algorithms, and forecast decision aids. Finally, NOAA will feed demonstrated advances to National Weather Service operations.

THORPEX (\$1,452,000) is an international program under the World Meteorological Organization, designed to improve global forecasts of high-impact weather with improved precipitation forecasting as the key objective. Regional field programs collect and assess the importance of observations in data-sparse areas for global forecasts, accelerate improvements to global numerical forecast models with emphasis on expressing the uncertainty in forecasts, and conduct socio-economic studies to assess the use and benefits of new forecast products. Since regional and local forecasts depend on global models for their initial and boundary conditions, accurate global forecasts of precipitation are required for accurate local forecasts. THORPEX activities are conducted at NOAA's National Centers for Environmental Prediction (NCEP).

CERIS (\$1,200,000) develops and transitions to operations: (1) new river, estuarine, and coastal flood-forecast capabilities and (2) estuarine ecosystem health using the Tar River Basin and Pamlico Sound in North Carolina for operational prototyping. This initiative will seek to quadruple the number of communities receiving stream and river forecasts in Tar River Basin. Because the Tar River Basin is representative of other river basins and NOAA has existing partnerships in the area, it is an ideal location for a pilot project. CERIS is designed to collect data and information related to freshwater supply, coastal watersheds, and flooding (including flash flooding and inland flooding from hurricane rainfall and storm surge) in order to mitigate natural hazards; couple atmospheric, river, and estuarine models to develop information for decision-support tools; and enable outreach and education that gets the outputs of science into the hands of policy makers and the public.

Statement of Need and Economic Benefits:

NOAA is the only Federal agency with the legislative mandate to provide water forecasts. Such forecasts are now not provided along our Nation's coasts. To forecast these areas, NOAA must research, develop and deliver water forecasting services for coastal areas. Commerce and populations along the coasts will benefit from these forecasts. Population concentrations, drought caused by recent climate changes, and "just-in-time" commerce

have made water resource and precipitation monitoring and forecasting critical challenges. At the same time, water can be the most dangerous natural hazard. “In most years, flooding causes more deaths and damage than any other type of severe weather. In many years it is common for three-quarters of all Federal declared disaster declarations to be due, at least in part, to flooding.” (http://www.weather.gov/oh/hic/flood_stats/index.shtml) Compounding the problem, quantitative precipitation forecasts, particularly for significant rain events (>1 inch of rain) on national average can have an error of 0.5 inch or more. Such errors can severely compromise the accuracy of river forecasts and degree of flooding. HMT is focused on reducing regional precipitation observation and forecasts errors by 50% for zero-to- three day forecasts. THORPEX is designed to improve our global weather forecasts out to 14 days and provide forecast uncertainty information which is currently not available. CERIS is intended to remedy the fact that stream and river forecasts are provided today for approximately 10% of communities. This initiative will provide receiving stream and river forecasts in the tidal areas of the Tar River Basin. Studies show agriculture can realize a \$30 per acre/year yield increase (+20% profit) when irrigated corn production is based on weekly water resource forecasts. Other studies have shown that there is a \$12 realized benefits each year for every one-time investment of \$1 in river forecast improvements. Increasing the lead times of flash floods and other floods will save lives and mitigate property damage. Another study has shown that with 4 hours of flood mitigation time, the damage to a residential property can be reduced by as much as 72%.

Schedule & Milestones

- Complete processing and delivery of quality controlled precipitation observations from HMT-West field phase for hydrologic modeling; adapt a high-resolution hydrologic model to the Tar River watershed in North Carolina; For HMT-west, set up, run, and verify a high resolution ensemble weather modeling systems and deliver a preliminary report on model verification of Quantitative Precipitation Forecasts (QPF) , moisture flux and snow level (key elements for flood forecasting). Develop plan and coordinate path to operations for HMT observation systems. (2011)
- Assess and document the ability of gap filling radars to augment legacy observing systems (e.g., NEXRAD) in the west. Document and coordinate model development and operations plan to increase number of communities served by stream and river forecasts for CERIS region. Couple ensemble QPF models to CA and Tar River hydrological models & deliver a preliminary report on quality of forecast runoff and probabilities. (2012)
- Deliver algorithms for implementation on the NWS AWIPS systems to assist forecasters in reducing precipitation forecast errors. Complete a report documenting the results of the THORPEX TPARC experiment, assessing the impact of improved observations on global forecasts. Prepare and coordinate plan to develop, evaluate and make operational new generation of global uncertainty forecasts for precipitation. Provide a plan for implementing coupled precipitation and hydrological models in operations. (2013)
- Assess and document various observing system strategies used in the HMT eastern region to reduce observing errors by 50%. Deliver final report on new data assimilation methods for global forecasts to address uncertainty in extended precipitation forecasts. Complete a summary report documenting the findings of THORPEX socio-economic benefits study. Collect and process atmospheric and river stage data sets suitable for developing and testing coupled models during CERIS. (2014)
- Complete a report summarizing the results of development and testing of THORPEX modeling studies to produce improved precipitation forecasts with uncertainty information; develop and transition to operations new Coast, Estuary, River Information Services (CERIS) for the Tar River and Pamlico Sound; conduct training and outreach to assess effectiveness of new products and services. (2015)

Deliverables:

- Transition Plan to transition new HMT observation systems to operations. (2011)
- Report documenting utility of gap-filling radars and other new observing systems along the western slopes and coast (2012)

- Report on deterministic and probabilistic verification of Quantitative Precipitation Forecasts (QPF) quality of forecast runoff, and river flow (2012)
- Algorithms for the NWS operational implementation on the AWIPS information technology system for improved analysis and forecasting of western US precipitation (2013)
- New generation global-uncertainty forecasts for precipitation plan (2013).
- HMT eastern region observing system strategies report (used to reduce precipitation errors by 50%) (2014)
- THORPEX socio-economic benefits study (2014)
- Prototype Extreme Precipitation Information System (EPIS) with regionally specific input and output environmental data sets for atmospheric and river forecast model development and testing in the HMT west region. (2014)
- Transition to operations a new Coastal Estuary River Information System (CERIS) and prototype it in Tar River and Pamlico Sound (2015)

Performance Goals and Measurement Data:

Performance Goal: Weather and Water Performance Measure: Demonstrate improved Regional River Flood Warning Lead Time and absolute timing error (<i>change from baseline in hours/hours</i>)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	Establish baseline	New baseline	+0.2/-0.2	+0.4/-0.4	+0.6/-0.6	+0.8/-0.8
Without Increase	Establish baseline	New baseline	+0.1/-0.1	+0.2/-0.2	+0.3/-0.3	+0.4/-0.4

Description: NOAA is evaluating possible adoption of a new operational performance measure for “River Flood Warning Lead Time,” which focuses on larger rivers and longer-lived flooding that is not currently assessed using the existing “Flash flood warning lead time,” which focuses on smaller and short-lived flood events. Baselines for the new performance measures must be established, and the measures shown here are the incremental improvements expected above those baselines.

Performance Goal: Weather and Water Performance Measure: Demonstrate Flash flood lead-time in minutes.	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
With Increase	49	52	54	56	58	60
Without Increase	49	49	49	49	49	49

Description: The measure “without increase” shown here is the NWS operational GPRA measure for flash warning lead times in minutes. The measure “with increase” is a warning lead-time hypothesis using these new technologies. This research will seek to demonstrate that the current targets can be improved to the amounts shown.

	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Output 1: Number of flood and precipitation forecasting tools transitioned into NWS operations						
With Increase Number of prototype systems transitioned/cumulative		2	3	4	5	6
Without Increase	0	0	0	0	0	0
Output 2: Field projects (#)/S&T Advances						
With Increase Number of field demonstration projects/Number of Science & Technology Advances		2/4	3/4	3/4	3/4	3/4
Without Increase	0	0/0	0/0	0/0	0/0	0/0
Output 3: Prototype improved forecasts of extreme precipitation with one day lead time (change from baseline in CSI%/Absolute error inches)						
With Increase	None	Establish baseline	New baseline	2/-0.1	4/-0.2	6/-0.3
Without Increase	None	Establish baseline	New baseline	1/-0.0	2/-0.1	3/-0.1

Weather & Air Quality Research Labs & Cooperative Institutes (+0 FTE and +\$25,000): NOAA requests an increase of 0 FTE and \$25,000. This increase is requested to support existing program requirements within this subactivity but not provided for in the Omnibus Appropriations Act, 2010.

Multi-Function Phased Array Radar (+0 FTE and +\$6,000,000): NOAA requests an increase of 0 FTE and \$6,000,000 for a total of 4 FTE and \$10,022,000 to continue research to demonstrate that MPAR technology can cost effectively replace aging operational weather and aircraft tracking radars. The MPAR program is being jointly funded by NOAA and the FAA and both agencies are coordinating their budget requests.

Proposed Actions

This investment in MPAR provides the resources needed for the next step of the project that engages industry to add polarization to the radar by FY 2013. Polarization is not currently available on phased array radars but is a requirement for the NWS. Matching funding will be provided by the FAA to fulfill its requirement for airport terminal weather and aircraft tracking. 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 times. In FY 2009 and FY 2010, a contract vehicle will be put in place to acquire a dual-polarized MPAR antenna. Subsequently, the following will happen:

- Research and development will be performed to determine how best to add dual polarization to the MPAR to provide improved rainfall and hail estimates and meet new NWS baseline requirements. (FY 2011-FY 2013) (\$600K in FY 2011)
- Design and fabrication of dual-polarized, single-faced, PAR demonstrator with FAA. (FY 2011-FY 2012) (\$5,000K in FY 2011)
- Verify through research that tornado warnings can be improved by scanning the atmosphere faster, by focusing radar beams primarily on critical regions within storms (vs. wasting resources on non-storm areas), and by using new knowledge gained on tornado evolution. (FY 2011-FY 2015) (\$400K in FY 2011)
- Studies will be performed to assess MPAR polarized antenna array configurations for both weather (NOAA weather and FAA airport terminal weather mission) and air surveillance operations (FAA mission) (FY 2013-FY 2015)
- With industry, design, fabricate, and acquire a fully functional, 4-faced, polarized MPAR prototype antenna. (FY 2013-FY 2017)

The intent is to complete risk reduction activities and research needed to inform decision makers within NWS and FAA on the feasibility of deploying MPAR as a solution to future NWS and FAA radar requirements.

Statement of Need and Economic Benefits

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 (\$3.0B due to fewer radars) (*Federal Research and Development Needs and Priorities for Phased Array Radar* FCM-R25-2006). Given historically it takes 20-25 years to perform the research, develop a prototype, test and deploy new weather radar systems, it is imperative this activity begin now since the FAA radars are already past end of life (and costing increasing amounts of money to extend their life), while the NWS radars are reaching their expected end of life in only 15 years.

The need to measure phenomena such as tornadoes on the time scale that they occur (minutes) and the need to initialize high resolution cloud models with high resolution radar data to move current operational warnings from “warn on detection” to “warn on forecast”. Independent reports supporting the need for a risk reduction of phased array technology including:

- National Research Council's (NRC) 2002 report, “Weather Radar Technology beyond NEXRAD”, identified phased array radar as a candidate technology. The technical characteristics, design, and costs of PAR systems should be established;
- The Office of the Federal Coordinator for Meteorology (OFCM)-sponsored report, “Federal Research and Development Needs and Priorities for Phased Array Radar”, June 2006, FCM-R25-2006, 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 (WG/MPAR) to coordinate and report on the R&D activities of participating agencies;
- U.S. DOC Office of Inspector General March, 2007, Audit Report No. DEN-18354-7-0001 2007 (pg 14) “PAR is a very promising technology that has been proven effective for military applications, and has the potential to revolutionize weather forecasting...”; and
- NRC Report 2008, “Evaluation of the Multifunction Phased Array Radar Planning Process”, was an evaluation of the Multifunction Phased Array Radar planning process that concluded “the MPAR R&D program be continued with the objective of evaluating the degree to which a deployable MPAR system can satisfy the national weather air surveillance needs cost effectively.”

Schedule & Milestones

- Complete Request for Information (RFI) for design proposals for a dual-polarized PAR demonstrator radar. (2011)
- Complete analysis demonstrating improved severe weather observing and monitoring service improvements. (2012)
- Complete pre-prototype construction of a polarized phased array radar sub-arrays. (2012)
- Complete construction of at least two candidate dual polarized demonstrator radars. (2013)
- Complete assessment of PAR antenna array configurations needed to build a fully functional MPAR prototype. (2013)
- Complete contract signing to engage industry in construction of at least two MPAR prototypes (at least two vendors) (2014)
- Complete study and a report that documents potential for improved tornado warnings produced in collaboration with NWS forecasters within the NOAA hazardous weather testbed (HWT). (2015)

Deliverables

- Accept delivery of 5-6 different contractor designs for Phase I: dual polarized PAR sub-antenna array (2011)
- Contract completed to engage 3 contractors in fabrication of dual polarized, phased array antenna sub-arrays (Phase II). (2011)
- Report summarizing MPAR's potential service improvements (2012)
- Final design selected for dual polarized antenna completing Phase II. (2013)
- Final antenna array configuration design selected for full demonstrator radar; Phase III begins. (2014)
- Completed multi-faced, dual polarized antenna demonstrator; Phase IV begins – design and fabrication of final prototype (2015)
- Report documenting potential for improved tornado warnings produced in collaboration with NWS forecasters within the NOAA hazardous weather testbed (HWT). (2015)

Phase I & II: Dual polarized prototype

- FY11- \$1 million to conduct research through Cooperative Institute to evaluate dual polarized designs; \$5M for design (by a contractor to be determined through competitive procurement)
- FY12 - \$6 million for fabrication and demonstration of dual polarized PAR prototype (by a contractor to be determined through competitive procurement).

Phase III: Multi-faced, dual polarized prototype

- FY13 - \$6 million for contract preparation, design solicitation, and contract award for 5-6 contractors to design multi-faced PAR demonstrators
- FY14-15 - \$6 million for fabrication by 2-3 contractors to build multi-faced, dual polarized MPAR demonstrators (pre-prototypes)

Performance Goals and Measurement Data

Performance Goal: Weather & Water	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Demonstrate Dual Polarization capability for Phased Array Radar Technology as part of MPAR risk reduction (% complete)						
With Increase	0	10%	50%	100%	--	--
Without Increase	0	0	0	0	0	0
Description: This measure tracks the completion of a polarized version of the MPAR (NWS requirement), which is a key step in the risk reduction process and in proving (or not) that MPAR is a viable alternative to the aging NWS/NEXRAD and FAA systems.						

Performance Goal: Weather & Water	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Demonstrate multi-faced capability for Phased Array Radar Technology as part of MPAR risk reduction (% complete)						
With Increase	0	0	0	10%	20%	50%
Without Increase	0	0	0	0	0	0
Description: This measure tracks the completion of the demonstration of multi-faced capability. It is a risk reduction element with respect to adding more than one antenna face to the demonstration PAR. Uncertainties to be investigated include how to handle weather events that cross from one antenna field of view to the second antenna field (continuity issue), how to process the radar data from each antenna face separately and simultaneously (to maximize processing speed leading to faster warnings), and how to allow each antenna face to operate independently with respect to radar beam scan strategies (to maximize concentration of effort on hazardous weather events and minimize time spent on non-hazardous events).						

Performance Goal: Weather & Water	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Demonstrate improved tornado warning lead Time (minutes)						
With Increase	13	14	14	15	16	17
Without Increase	13	13	13	13	13	13
Description: This measure tracks the demonstrated improved tornado warning lead time. This is a demonstration of GPRA measure 3b. Using the demonstration PAR, forecasters within the Hazardous Weather Testbed issue mock tornado warnings to show that faster scanning (4x over existing NEXRAD) increases fidelity of developing hazardous weather events (e.g., tornadoes) and allows faster and more confident tornado warnings than can be issued with existing technology.						

Unmanned Aircraft Systems (UAS) (-0 FTE and -\$3,000,000): NOAA requests a reduction of 0 FTE and \$3,000,000 to reflect the planned completion of the High Altitude Long Endurance (HALE) UAS testing and demonstration program. The results of the test observing missions over the Atlantic Ocean, Central Pacific, and the Arctic completed in FY 2010 will be evaluated over the next year with respect to a possible future expansion

of NOAA's suite of observing capabilities to include this new technology, which may be capable of expanding NOAA's observational reach with greater efficiency and less risk to human life than current methods.

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: Nutrient & Mercury Speciation Measurement Stations (\$650,000); National Weather Radar Testbed Phased Array Radar, OK (\$2,000,000); Redstone UAS Development for Weather and Atmospheric Research, AL (\$300,000); AIRMAP at University of New Hampshire, NH (\$500,000); Boise Center Aerospace Laboratory (BCAL) Watershed Modeling Utilizing LiDAR, ID (\$500,000); Atmospheric Science Research, TN (\$1,000,000); and Southeastern Mercury Consortium, FL (\$500,000); Aviation & Hurricane Research Utilizing UAS, FL (\$300,000); Observations, Modeling & Visualizing Storm-Surge Inundation, FL (\$100,000); New England Weather Technology & Research Initiative, NH (\$250,000).

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

Activity: Office of Oceanic and Atmospheric Research
Subactivity: Weather & Air Quality Research

	Object Class	2011 Increase
25.1	Consulting Services	6,200
25.2	Other services	1,200
25.3	Research and development contracts	3,500
31	Equipment	1,547
41	Grants and fixed charges	1,250
99	Total Obligations	<u>13,697</u>

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

Activity: Office of Oceanic and Atmospheric Research
Subactivity: Weather & Air Quality Research

	2011
Object Class	Decrease
21 Travel and transportation of persons	(100)
23.1 Rental payments to GSA	(50)
23.3 Communications, utilities and miscellaneous charges	(100)
24 Printing and reproduction	(20)
25.1 Consulting Services	(400)
26 Supplies and materials	(80)
31 Equipment	(8)
41 Grants and fixed charges	(2,242)
99 Total Obligations	<u>(3,000)</u>

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 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 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 aligned in four focus areas: Safe and Sustainable Seafood Supply, Sustainable Coastal Development, Healthy Coastal Ecosystems and Hazard Resilience in Coastal Communities. 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, Vermont, and Puerto Rico. Most Sea Grant programs include multiple campuses of different universities across the participating 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 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 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 to work on 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) is the product of a merger between 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:

- **Interdisciplinary 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 oceans, returning to poorly known areas to refine 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 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.
- **Systematic 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.
- **Underwater Technology**– This function of the OER program identifies and anticipates NOAA’s undersea technology needs and develops, tests, and transitions those technologies. It addresses diverse cutting-edge challenges, including in the fields of Autonomous Underwater Vehicle (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.
- **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 deepwater 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 enables OER 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 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 the 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 at a reasonable cost, improve food safety, and help alleviate the 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 place-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.

PROGRAM CHANGES FOR FY 2011:

Helping Coastal Communities Prepare for and Respond to Natural Hazards and Extreme Events (+0 FTE and \$2,000,000):

NOAA requests an increase of 0 FTE and \$2,000,000 for a total of 0 FTE and \$2,000,000 to support regional research, training, and technology transfer to enhance the resiliency of coastal communities to persistent natural hazards such as climate-induced sea-level rise and to extreme events such as coastal storms.

Proposed Actions

NOAA Sea Grant research and stakeholders' engagement will be driven by the priorities established based on completed NOAA and interagency planning efforts. This includes: the Ocean Research Priorities Plan (ORPP), the National Sea Grant College Program 2009-2013 Strategic Plan, NOAA's Five-Year Research Plan, and the Regional Research and Information planning effort that is being facilitated by NOAA Sea Grant as an approach to down-scaling the national ORPP.

In FY 2011 NOAA Sea Grant will focus on a regional approach to Theme #2 "*Increase Resiliency to Natural Hazards*" and the near term priority of "*Forecasting the Response of Coastal Ecosystems to Persistent Forcing and Extreme Events*" which are two areas highlighted in the ORPP. NOAA Sea Grant will conduct the research needed to assess hazard-related risks and increase the availability and usefulness of hazard-related information and forecasting for citizens, industries, and decision-makers in coastal communities. NOAA Sea Grant will:

- Conduct risk assessment research in the context of hurricanes, other coastal storms, and climate-related changes;
- Assist public and private decision-makers in creating and adopting policies, plans, and ordinances to reduce risks, manage catastrophic events, and speed recovery;
- Conduct research and communicate information on how the use of natural features and new technologies can help communities prepare for and mitigate the impacts of hazardous events and climate change;
- Make Sea Grant's local knowledge and contacts available to work with Federal, state, regional, and local agencies, non-governmental organizations, and international partners that have hazardous event responsibilities, to facilitate the speed and quality of response to these crises;
- Identify viable strategies and formulate plans to prepare for, mitigate and adapt to climate expected impacts; and
- Consolidate best research-based practices in risk analysis, assessment, mitigation, adaptation and communications, and disseminate risk information to citizens, industries and decision makers in coastal communities.

NOAA Sea Grant will bring together the regional institutional infrastructure represented by the network of state Sea Grant programs to create a powerful regional science and outreach capability. Sea Grant will use a competitive RFP process to fund large-scale regional studies, ensuring that scarce NOAA resources will be targeted at the most tractable approaches, using a process that will be integrated from the start, will be mutually dependent, and will involve management and stakeholder participation.

Statement of Need and Economic Benefits

Sea level rise, the increased number and intensity of coastal storms, the ongoing threat of oil spills, and other natural and human hazards are putting more people and property at risk along the nation's coasts, with major implications for human safety and the economic and environmental health of coastal areas. It is essential that residents of coastal communities understand these risks, adapt and learn what they can do to reduce their vulnerability and respond quickly and effectively when events occur. This issue would benefit from a regional approach involving all coastal programs including NOAA's Coastal Services Center (CSC) and the Ocean and Coastal Resource Management Program (OCRM). NOAA Sea Grant will use its integrated research, training,

and technical assistance capabilities, and its presence in coastal communities, in collaboration with CSC and OCRM, to play a major role in helping local citizens, decision-makers, and industries plan for hazardous events and optimize the ability of their communities to respond and rebuild.

Schedule and Milestones

- Regional competitions based on ORPP themes to address regional issues (FY 2011-15)
- Regional workshops to develop science plans and disseminate research results/products (FY 2011-15)
- Incorporate research information, tools, and forecasts into regional management plans and IEAs (FY 2015)
- Transfer prototype ecological and predictive forecasts to NOAA laboratories for transition to operations (FY 2015)

Deliverables:

Through the funding of integrated regional research efforts, the proposed increase will allow NOAA to:

1. Ensure that coastal residents are aware of and understand the physical processes that produce hazards and climate change and the implications of those events for their communities.
2. Ensure that coastal communities address social and environmental barriers to improve the community's ability to mitigate and respond to natural hazards.
3. Ensure that coastal communities are able to effectively respond to coastal catastrophes.
4. Develop technologies and tools required to increase understanding of ocean, coastal, and Great Lakes ecosystems, facilitate the ecosystem approach to management, and promote responsible and sustainable use of ocean, coastal, and Great Lakes resources;
5. Ensure coastal communities have access to and the ability to utilize data and innovative and adaptive tools and techniques to minimize hazard risks (i.e. planning and construction BMPs, standards, resiliency index, retrofits, flood-zone maps and freeboard).
6. Strengthen stewardship through outreach and education to enhance informed decision making by coastal communities, stakeholders, and users of ocean, coastal and Great Lakes resources, as well as to facilitate the application of new research, technologies, and tools.

Performance Goals and Measurement Data

Performance Goal: Ecosystems	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Performance Measure: Number of coastal communities provided with information/trained in local hazard resiliency, and hazard mitigation tools, techniques, and best practices.	Target	Target	Target	Target	Target	Target
With Increase	0	5	10	15	20	25
Without Increase	0	0	0	0	0	0
Description: Coastal communities and decision-makers benefit from improved availability and usefulness of hazard-related information and forecasting for citizens, industries, and decision-makers in coastal communities and understand the benefits of coastal hazard risk planning.						

Performance Goal: Weather and Water and Ecosystem	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Percentage of U.S. coastal states and territories demonstrating 20% or more annual improvement in resilience capacity to weather and climate hazards (%/yr)* GPRA 3a						
With Increase	N/A	36%	41%	47%	53%	59%
Without Increase	26%	29%	31%	34%	34%	34%
Description: For this measure, resilience is defined as the increased capacity of a community exposed to hazards to: 1) absorb impacts while maintaining an acceptable level of functioning; 2) reduce the amount of time and financial resources needed to return to full level of functioning; and, 3) adapt to future risks by learning from past disasters and adopting risk reduction measures. This performance measure will evaluate the results of NOAA's wide-ranging contributions to resilience at state and local levels. The measure will be supported by an accountability and reporting system (Coastal Resilience Report Card) that will identify NOAA's contributing resilience activities, link contributions to annual progress, and track the long-term results of these efforts through progress indicators.						

Performance Goal: Climate	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Number of regionally-focused climate impacts and adaptation studies, tools, and capacity-building utilized by coastal and emergency management						
With Increase	N/A	1	5	7	8	10
Without Increase	N/A	0	0	0	0	0
Description: This measure tracks the number of regionally-focused climate impacts and adaptation studies, tools, and capacity-building utilized by coastal and emergency management. The use of these products will improve management responses to climate change.						

Sea Grant National Marine Aquaculture Initiative (+0 FTE and +\$2,700,000): NOAA requests an increase of 0 FTE and \$2,700,000 for a total of \$4,327,000 to implement a two-pronged approach to address marine aquaculture: competitive extramural research and transfer of research by Sea Grant Extension. These efforts will complement, accelerate, and enhance current aquaculture activities in the National Marine Fisheries Service (NMFS) and address research gaps identified in the 2008 Governmental Accountability Office (GAO) report titled "Offshore Marine Aquaculture: Multiple Administrative and Environmental Issues Need to be Addressed in Establishing a U.S. Regulatory Framework" (GAO-08-594, May 9, 2008), with the goal of adaptive strategies that improve NOAA's ability to manage fisheries, end overfishing, and ensure the viability of the multibillion-dollar U.S. seafood industry. Together with the NMFS Aquaculture Program Office, NOAA will address all four aquaculture research areas identified in the 2008 GAO report.

Proposed Actions

By combining competitive research and research delivery via Sea Grant Extension, OAR proposes to address three of the four research needs identified in the 2008 GAO report: 1) best management practices to minimize environmental impacts, 2) data on how escaped aquaculture fish might impact wild fisheries, and 3) strategies to breed and raise fish while effectively managing disease. Alternative fish feeds, the fourth research need, will be addressed by a complementary increase in NMFS.

This increase will advance sustainable, domestic aquaculture through a competitive research initiative that addresses high priority issues for aquaculture combined with an enhanced aquaculture extension effort. This

Land Grant/Sea Grant research-extension model is based on local extension agents delivering current research findings and technology directly to coastal constituents and serving as conduits to identify knowledge gaps to “ground truth” future research priorities. Our present understanding of, and solutions for issues associated with implementing marine aquaculture is limited, hindering our ability to manage living marine resources. With this proposed increase, NOAA will increase capacity to address issues identified by the GAO: program administration; permitting and site selection; environmental management; and research. This FY 2011 coordinated effort will enable the NOAA Aquaculture Program, a matrix program containing offices in OAR, NMFS, NOS, and NESDIS, to advance sustainable, domestic aquaculture.

NOAA will address the following:

1. Research to Support Sustainable Aquaculture (\$1,100,000) – NOAA, through Sea Grant, will leverage existing competitive research funding (\$1,600,000) included in Sea Grant base funding for marine aquaculture to focus the extramural research community on research gaps addressed in the 2008 GAO report: (1) research on technical aspects of innovative mitigation or “smart design” approaches to sustainable aquaculture, such as integrated multi-trophic aquaculture or other ways to design aquaculture production in an ecosystem management context, which will address impacts of escaped fish and hatchery management issues associated with disease; (2) development of planning tools or approaches to aid site selection for new or expanded aquaculture facilities in the context of coastal and marine spatial planning, including planning and zoning tools for coastal managers, which will aid permitting and site selection; (3) research on the social and economic issues associated with current and new marine aquaculture, which aids the development of best management practices. Research to develop alternative fish feeds would be addressed by a complementary effort in the NOAA Fisheries Aquaculture Program Office and Science Centers.
2. Aquaculture Extension Enhancement (\$1,600,000) – NOAA, through Sea Grant, will enhance Aquaculture Extension with emphasis on regional needs for outreach. This will allow NOAA to deliver research findings directly to coastal constituents. This effort, driven by extension agents who live and work in coastal communities, will provide tangible outcomes after 3 years that clearly lead to impacts within 5 years. Extension activities (including 12 new hires and targeted extension projects) will include: demonstration of increased production and jobs in innovative sustainable aquaculture, especially in coastal communities; alternative or supplemental employment opportunities for fishermen in aquaculture; new or revised aquaculture policy and streamlined permitting; improved management; increased product quality and acceptance; and cooperative training at aquaculture facilities. The Sea Grant model has proven effective in the transfer of technology and information to coastal constituents.

Statement of Need and Economic Benefits

Many fishing communities are facing severe economic hardships as declining fish stocks and the need to end overfishing have necessitated reduced fish harvests levels. New approaches are therefore required to end overfishing and supply safe and sustainable seafood while maintaining economically vibrant coastal communities. Benefits include: 1) providing working waterfront alternatives for fishing communities; 2) increasing and stabilizing flow of seafood product to markets; 3) stabilizing incomes and jobs; and 4) promoting locally grown, sustainable seafood.

Fishing and aquaculture in the U.S. have not met increased demand for seafood for a variety of reasons, including limits to domestic wild catch and regulatory uncertainties facing the U.S. aquaculture industry. As a result, over 80% of our seafood supply is imported, with half of that coming from foreign aquaculture, and tens of thousands of potential jobs have been outsourced overseas. An expanded U.S. aquaculture industry has the potential to supply safe, local seafood grown in the U.S., create jobs in coastal communities, help support fishing communities, and complement existing fishing activities while ending overfishing. This initiative would also help to implement the Magnuson-Stevens Fishery Management Conservation Act (MSA): “Conservation and management measures shall...take into account the importance of fishery resources to fishing

communities...and...to the extent practicable, minimize adverse economic impacts on such communities.” One barrier to proper management of fishery resources is a lack of trust and direct information transfer between management agencies and coastal constituents (including citizens, community leaders, and industries). Constituents need more training, information and technical assistance to remain competitive and respond to new fisheries and aquaculture management challenges. The training and neutral facilitation provided by Sea Grant extension agents will help build trust with fishing and aquaculture communities, improving NOAA’s ability to manage fisheries, end overfishing, and ensure the viability of the multibillion-dollar U.S. seafood industry.

The 2008 GAO report found that it is important for a regulatory framework to include federally funded research to address gaps in current knowledge on a variety of issues related to offshore aquaculture. Stakeholders identified four research areas as particularly appropriate for Federal funding: the development of alternative fish feeds; the development of best management practices; the investigation of how escaped aquaculture-raised fish might impact wild fish populations; and the development of hatchery technologies to breed and grow fish, while effectively managing disease. This effort would address these issues and transfer research findings to coastal constituents who demand this information.

Schedule and Milestones

Aquaculture Research & Infrastructure	FY11	FY12	FY13	FY14	FY15
Initiate new extension personnel and projects	X	X			
Select competitive aquaculture research projects	X	X	X	X	X
Outreach & Product Delivery	FY11	FY12	FY13	FY14	FY15
Extension outreach to coastal communities		X	X	X	X

Deliverables

- Site specific commercial, pilot, or technology transfer projects to establish technical and economic feasibility of innovative mitigation or “smart design” approaches to aquaculture, such as integrated multi-trophic aquaculture or other ways to design aquaculture production in an ecosystem management context
- Assemble/reaffirm regional advisory group to tackle hurdles and opportunities for aquaculture (e.g., strategic planning, identifying stakeholders)
- Develop/update state and regional plan development (including permitting, policy). Aquaculture plans vary across the country. Extension agents working with the National Sea Grant Law Center and Sea Grant legal programs can determine the status of each state in developing/revising aquaculture plans that cover permitting, disease control, interstate transfer of shellfish, and regional best management practices
- Bring new aquaculture products/species online, develop innovative marketing approaches, and catalyze new business opportunities (e.g., ecosystem service markets)
- Incorporate aquaculture into Marine Spatial Planning efforts

Performance Goals and Measurement Data

Performance Goal: Ecosystems	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Performance Measure:	Target	Target	Target	Target	Target	Target
Number of coastal communities that have adopted/implement sustainable - economic and environmental - aquaculture development practices and policies as a result of Sea Grant activities						
With Increase	1	4	6	8	10	12
Without Increase	1	1	1	1	1	1

Description: This provides technology and information transfer to coastal constituents (including citizens, community leaders, and industries). Armed with this information, coastal constituents can adopt sustainable aquaculture that will contribute to healthy coastal communities, while balancing among multiple social, economic, and environmental uses. New practices and policies will be based on reports from coastal community leaders and aquaculture operations and verified by local Sea Grant extension personnel.

Integrated Ocean Acidification (+3 FTE and +\$6,100,000): NOAA requests an increase of 3 FTE and \$6,100,000 to implement a NOAA Integrated Ocean Acidification (OA) initiative for a total of 3 FTE and \$11,600,000. Efforts will complement, accelerate, and enhance current NOAA OA activities and provide: comprehensive research, dedicated monitoring, and enhanced forecasting capabilities leading to adaptive strategies toward the improved management of living marine resources impacted by OA.

Proposed Actions

Our present understanding of the processes associated with OA and its impacts on large marine ecosystems is not sufficient to derive adaptive management strategies, especially those targeting the management of living marine resources – a mainstay of the economy. This coordinated effort will enable OAR, NMFS, and NOS to build on the current OA funding. This increase will support new technologies and ecosystem monitoring systems, better models, and dedicated research programs as prescribed in the draft NOAA OA Implementation Plan: (1) OA Monitoring, (2) Ecosystem Impacts of OA, (3) Biogeochemistry & Ecosystem Models, (4) Human Dimensions, (5) Data Synthesis & Information Products, and (6) Engagement.

1. Research on Physiological and Ecosystem-level Responses and Development of Ecosystem/Socioeconomic Models (\$2,500,000) – Assess physiological and ecosystem-level effects of OA on commercial and recreational marine fish stocks and key species critical to NOAA-managed resources to define critical thresholds and adaptive strategies through in-house and competitive research grants. Incorporate these impacts into both existing and newly developed models to predict ecological, trophic level and socioeconomic response in regions where those OA-impacted species reside. (Themes 2, 3 & 4)
2. Develop advanced OA technologies and sensors (\$1,100,000) - Provide advanced carbonate chemistry technologies including sensors deployable on a range of platforms that are cost efficient, operate autonomously over extended periods of time, and provide NOAA with the tools and technological capability to continuously monitor OA across a diverse set of marine environments. (Theme 1 & 2)
3. Ecosystem OA Monitoring Network (\$1,300,000) – Create a Coral Reef OA Observing Network designed to monitor ecosystem response to and feedback from OA to better resolve critical thresholds. The network would comprise discrete biological and chemical observations with advanced observing systems providing real-time information products from selected reef environments. Achieving full capability will require development of advanced ocean acidification technologies (i.e., advanced sensors– funded in #2 above). Biological and biogeochemical surveys and reef process studies are also necessary components of this ecosystem observing network. (Theme 1)
4. Build Carbonate Analytical Capabilities (\$1,200,000) – Leveraging existing marine research facilities to serve as dedicated research foci and support standardized sample analyses will be a significant step towards delivering uniformly calibrated data and products. These dedicated facilities will also serve as training and technology transfer agents for other laboratories expanding their analytical capacity. (Themes 1 & 2)

Statement of Need and Economic Benefits

Increased atmospheric carbon dioxide concentrations result in increased carbon levels in our oceans, causing changes in seawater chemistry that have been labeled ocean acidification. OA generates a unique suite of environmental changes that increasingly affect ocean ecosystems, fisheries, and other marine resources in such profound ways as reducing the ability of many organisms to build their shells and impacting both the carbon and nitrogen cycles that help sustain life on Earth. The economic consequences of these ecosystem-scale impacts of

OA could reverberate through the U.S. and the global economy. The U.S. is the world’s third largest seafood consumer with total consumer spending for fish and shellfish of approximately \$60 billion per year. Coastal and marine commercial fishing generates upwards of \$30 billion per year. The shellfish industry throughout the U.S. accounts for approximately half of this amount. In addition to the impact on fisheries, ocean acidification also has potentially devastating implications for coral reef ecosystems which provide coastal communities protection from storms and economic benefit through tourism.

Two legislative acts mandate action by NOAA: (1) The Federal Ocean Acidification Research and Monitoring (FOARAM) Act of 2009 requires NOAA to develop and implement a comprehensive monitoring and research plan for effectively characterizing the consequences of ocean acidification. (2) The Magnuson-Stevens Reauthorization Act requires that conservation and management measures shall account and allow for variations among fisheries, fishery resources, and catches caused by climate-scale processes, such as ocean acidification. Such requirements build upon existing NOAA capabilities and responsibilities, including long-term oceanographic monitoring, model development, and threshold assessments. This OA initiative enhances existing capabilities to help meet NOAA’s increased responsibilities.

Schedule and Milestones

Research & Technology Dev	FY11	FY12	FY13	FY14	FY15
ID new/existing platforms for OA instrument deployment (OAR-PMEL, AOML)					
Develop advanced OA technologies and sensors (OAR-OER)					
Competitive physiological and ecosystem-level research on OA impacts (NOS - NCCOS)					
Physiological research on targeted species (NMFS-AKC, NWC, NEC)					
Monitoring & Modeling	FY11	FY12	FY13	FY14	FY15
Coral reef OA observing network suite emplacement and maintenance (OAR-AOML, PMEL/ NOS-CRCP/NMFS-PIFSC)					
Forecasting & Management Applications	FY11	FY12	FY13	FY14	FY15
OA forecast on marine food web & managed resources (NMFS-AKC)					
Competitive regional ecosystem modeling (NOS-NCCOS)					
OA socioeconomic impacts – forecasts (OAR-Sea Grant)					
Outreach & Product Delivery	FY11	FY12	FY13	FY14	FY15
Regional OA assessments (NOS-NCCOS)					
Coordinate national outreach activities (OAR- Sea Grant)					
Develop and implement climate change management tools (OAR-CPO/NOS-CRCP)					
Climate vulnerability assessments and capacity-building workshops (OAR-CPO/NOS-CRCP)					

Deliverables

- FY 2011-14: Advanced OA monitoring technologies developed; Atlantic coral reef OA observing test-bed established
- FY 2011: National Plan on ocean acidification with regional research priorities delivered to NOAA
- FY 2013: First regional climate vulnerability assessment report delivered to NOAA management
- FY 2013: Species-specific OA impacts research results available for model development and regional management response
- FY 2014-15: Ecosystem-level OA impacts research results available for regional management response
- FY 2013-15: Models developed to predict impacts on marine food webs and managed resources

Performance Goals and Measurement Data

Performance Goal: Ecosystems Performance Measure: (Long term) Improve confidence of the impacts of ocean acidification for each large marine ecosystem studied (IPCC reports* % Low - High ratings)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Without Increase	0%	2%	4%	5%	5%	5%
With Increase	0%	5%	10%	20%	40%	60%
Description: The uncertainty is a designated level of understanding assessed by a panel of NOAA investigators with regards to the anticipated impacts of ocean acidification on each of the ten Large Marine Ecosystems (LME) based upon the IPCC criteria (including likelihood and confidence). This designation is evaluated on an annual basis and expresses an aggregate of the uncertainties associated with each of the critical LME's facets posited to be impacted by ocean acidification.						

Performance Goal: Ecosystems Performance Measure: (Long term) Number of sites with mean annual ocean acidification index (Aragonite Saturation State) determined to be within 0.2 units	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Without Increase	1	2	3	4	5	5
With Increase	5	10	15	20	25	30
Description: Represents an annual inventory of in situ-based fixed and underway observing platforms dedicated to monitoring the rate, magnitude, and dynamics of ocean acidification in response to increasing atmospheric carbon dioxide. These ocean acidification observing platforms are defined by their inherent ability to fully constrain the carbonic acid system and must be capable of resolving decadal changes in ocean chemistry in response to ocean acidification						

* From the IPCC Third Assessment Report: "An explicit uncertainty range is a likely range. Estimates of confidence are: very high (95 %); high (67-94 %); medium (33-66 %); low (5-32 %); very low (< 5 %).

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: National Sea Grant College Program Base (\$1,115,000); Aquatic Invasive Species Program (\$1,001,000); Marine Aquaculture Program (\$3,178,000); Ocean Exploration Research Base (\$2,900,000); National Institute of Undersea Science and Technology, MS (\$5,000,000); National Sea Grant Law Center, MS (\$750,000); Northern Gulf Institute NGI (\$4,500,000); Monitoring Lake Erie Water Quality with Remote Sensing, OH (\$500,000); Hydrospectral Remote Sensing of AIS in Detroit River, MI (\$500,000); Lake Erie Hydrological & Climate Modeling, OH (\$100,000); Marine Aquaculture Lab Operations, MS (\$3,700,000).

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

Activity: Office of Oceanic & Atmospheric Research

Subactivity: Oceans, Coastal, and Great Lakes Research

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Program Office Manager	Silver Spring, MD	ZP-V	1	123,758	123,758
Program Officer	Silver Spring, MD	ZP-IV	1	89,033	89,033
Field/Lab Technicians	Miami, FL	ZT-III	1	50,204	50,204
Field/Lab Technicians	Seattle, WA	ZT-III	1	50,628	50,628
Total			<u>4</u>		<u>313,623</u>
less Lapse		25%	<u>1</u>		<u>78,406</u>
Total full-time permanent (FTE)			3		235,217
2011 Pay Adjustment (1.4%)					<u>3,293</u>
TOTAL					<u>238,510</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	3
Other than full-time permanent	<u>0</u>
Total	3

Authorized Positions:

Full-time permanent	4
Other than full-time permanent	<u>0</u>
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: Office of Oceanic and Atmospheric Research
Subactivity: Ocean, Coastal, and Great Lakes Research

Object Class	2011 Increase
11.1 Full-time permanent	239
11.9 Total personnel compensation	239
12 Civilian personnel benefits	72
23.3 Communications, utilities and miscellaneous charges	500
25.5 Research and development contracts	2,700
26 Supplies and materials	291
31 Equipment	800
41 Grants and fixed charges	6,198
99 Total Obligations	10,800

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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 (HPCC) 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.

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PROGRAM CHANGES FOR FY 2011:

Information Technology Research & Development (0 FTE and +\$53,000): NOAA requests an increase of 0 FTE and \$53,000. This increase is requested to support existing program requirements within this subactivity but not provided for in the FY 2010 Consolidated Appropriations Act.

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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: Office of Oceanic and Atmospheric Research
Subactivity: Information Technology Research and Development

	Object Class	2011 Increase
25.2	Other services	53
99	Total Obligations	53

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Appropriation: Procurement, Acquisition, and Construction
Subactivity: Systems Acquisition

The objective of OAR’s Systems Acquisition subactivity is to provide a state-of-the-art scalable supercomputer and supporting infrastructure to advance modeling programs critical to NOAA’s climate research.

RESEARCH SUPERCOMPUTING/ CLIMATE CHANGE RESEARCH INITIATIVE

NOAA’s R&D High Performance Computing System (R&D HPCS) 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 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 objective “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 2010 & Prior	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to complete*	Total
Research Supercomputing/CCRI								
Change from FY 2010 Base		0	0	0	0	0	-	
Total Request	264,023	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.

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NATIONAL WEATHER SERVICE FY 2011 OVERVIEW

For FY 2011, NOAA requests an increase of \$27,973,000 and 4 FTE over the FY 2011 base program for a total of \$1,003,193,000 and 4,649 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 science based 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. According to the American Meteorological Society, weather is directly linked to public safety, and about one-third of the U.S. economy (about \$4 trillion) is weather-sensitive. 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 expanding these limits by enhancing observation capabilities; by improving data assimilation that effectively uses 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.

The 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 severe weather.
- 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 is investing 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 users including 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 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 the Great Lakes. NWS is committed to working with our partners to continue improving 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 by providing relevant observations, warnings and forecasts of weather events impacting the transportation sector.
- 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 2011 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 1 FTE and \$14,600,000 to fund adjustments to current programs for NWS. The increase will fund the estimated FY 2011 Federal pay raise of 1.4 percent and annualize the FY 2010 pay raise of 2.4 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).

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

From Office	Line	To Office	Line	Amount
National Weather Service	Weather Forecast Office Construction	National Weather Service	Local Warnings & Forecasts	\$3,504,000

NWS requests technical adjustments to transfer \$3,504,000 from the Procurement, Acquisition, and Construction (PAC) Weather Forecast Office Construction line to the Operations, Research, and Facilities (ORF) Local Warnings and Forecasts line. This realignment will facilitate NWS managing all Weather Forecast Offices leases out of Operations, Research, and Facilities funds.

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 and authoritative United States 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 4,600 employees in 122 weather forecast 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 this entire 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.

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 NOAA Office of Oceanic and Atmospheric Research (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 Bureau of Land Management (BLM) and 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 dispatch zones and crews use this information to plan staffing levels, equipment placement, prescribed burns conditions, and assess the daily fire danger. Once per day, NWS meteorologists issue forecasts for specific wildland observation sites for input into the National Fire Danger Rating System (NFDRS). NFDRS determines land use restrictions and informs the public of the daily fire danger via the Smokey Bear awareness campaign. 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 assessments for one, two and three to eight days in advance of the development of critical fire weather patterns. These include large-scale areas that may experience critical fire weather conditions including the occurrence of "dry thunderstorms." These are thunderstorms, containing little precipitation, that spark thousands of fires.

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. There are 70 IMETs nationally with IMET equipment.

In the last two years, NWS has implemented regional digital weather files to complement currently-provided spot forecasts. The weather output enables Fire Behavior Analysts 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. These improvements are particularly important near zones where planned communities meet the wildland forests. FY 2010 improvements also include an improved spot forecast program, allowing spot forecast for fires, hazardous spills, search and rescue and marine/coastal incidents. In addition, NWS will continue excellent interagency relations with the wildland fire community through implementation of a new Interagency Agreement for Meteorological Services.

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 programs. CSD 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 regional and local 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. CSD provides internal training for NWS operational field personnel, and external user targeted training and outreach on climate variability and change. CSD coordinates 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 various regional, state and local climate stakeholders.

Water Resource Forecast Services extend basic NWS hydrologic forecasting services to include a Community Hydrologic Prediction System (CHPS) and provide water resource managers with localized water and soil condition forecasts. CHPS, the backbone NOAA's national water information strategy, 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. Through CHPS, NOAA will deliver 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 university and private sector research groups. Furthermore, these activities will enable NOAA to deliver a national database of hydrologic analyses and predictions, and generate user-friendly Geographic Information Systems (GIS) products for monitoring floods and drought. This activity contributes to the National Integrated Drought Information System (NIDIS). CHPS will be fully operational by FY 2012 and Water Resources Forecast Services will be provided for 7 percent of the Nation.

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.

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. AWC is one of two centers funded through Local Warnings and Forecasts.

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. SWPC is the other center funded through Local Warnings and Forecasts.

The Aviation Weather Center and the Space Weather Prediction Center are managed by the National Center for Environmental Prediction, which is described under Central Forecast Guidance.

Air Quality Forecasting: The NWS Air Quality Forecast Services capability (http://www.nws.noaa.gov/ost/air_quality/index.htm) 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 on the National Digital Guidance Database at weather.gov, on ftp-servers at the NWS Telecommunications Gateway, and via 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, and implemented the smoke predictions for the same domain. In FY 2008 and FY 2009, expansions to the smoke prediction over AK and

HI were provided as experimental products, and prototype ozone predictions over AK and HI were developed. Operational coverage for smoke and ozone predictions is targeted for deployment over 50 states in FY 2010. 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.

Alaska Data Buoys: This program was instituted to expand the Alaskan coastal buoy network. The buoys report hourly marine weather information including wind speed and direction, air and sea temperature, atmospheric pressure, and detailed wave information such as swell height, significant wave height, period, and steepness. These buoys provide data which result in more accurate weather forecasts and warnings by providing routine near real-time meteorological and oceanographic information that was not otherwise available. Weather information transmitted by the buoys is added to the computer models that help meteorologists with long range outlooks in addition to short term forecasts and warnings.

Sustain Cooperative Observer Network: This continued investment maintains the 120 year old nationwide network of volunteer operated weather observing sites used by NOAA to prepare climate forecasts including climatological norms and averages. The observational data obtained from the network is critical for flood outlooks, flood forecast guidance modeling, monitoring of droughts, and issuing local weather forecasts. In FY 2002, NWS began network refurbishment with the replacement of rain gauges and temperature sensors. The network's instruments require continued refreshment to ensure sustainability and accuracy. This funding provides for the required sustainment and modernization activities as recommended by the National Research Council in 1998.

NOAA Profiler Network (NPN): NPN is a network of 35 operational Wind Profilers across the Nation used to track 24/7 upper air wind profiles that detect the potential development of severe convective weather. The Wind Profilers also provide information that leads to improved forecasts of other types of dangerous weather, such as winter storms, and provides useful information to aviation weather forecasters.

Pacific Island Compact: The U.S. maintains a Compact of Free Association (COFA) or agreement with the Republic of the Marshall Islands (RMI), the Federated States of Micronesia (FSM), and the Republic of Palau (ROP) to provide basic government and commerce services including weather services to these island nations. The Compact provides the necessary funding to support the NWS Weather Service Offices (WSO) and associated weather warning, forecast, and observation services for these islands including WSO Majuro, RMI; WSOs Pohnpei, Yap and Chuuk of the FSM; and WSO Koror of ROP. This continued investment will also preserve critical weather observation infrastructure and services in the Pacific necessary to support core NOAA mission responsibilities in the Pacific such as aviation, typhoon, and marine forecasts; climate monitoring; and support to U.S. Navy operations.

Strengthen U.S. Tsunami Warning Network is 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. Observational data is also collected from the NOAA Deep Ocean Assessment and Reporting of Tsunamis (DART®) Buoy Network. The DART® Buoy Network consists of 39 deep water buoys located throughout the Pacific Ocean, Atlantic Ocean, and Caribbean. 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.

ADVANCED HYDROLOGICAL PREDICTION SERVICES

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 2011, AHPS development activities will continue, resulting in advanced river-flow and forecast services at 3,070 AHPS forecast locations nationwide (i.e., 77% of the total to be implemented).

AVIATION WEATHER

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. 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 multiple meteorological data elements (including moisture) from aircraft. A 2006 assessment in Central Region revealed that where aircraft provided vertical profiles of moisture data, an improvement in the Probability of Detection of low ceiling and visibility resulted. The False Alarm Ratio (FAR) also improved. NWS is continuing to determine the impact this enhanced moisture data set has on improved numerical model prediction.

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 development of the Weather Information Database. In addition, higher resolution forecast models and improved guidance tools will be integrated into the Aviation Forecast Preparation System (AvnFPS).

WEATHER FORECAST OFFICE MAINTENANCE

This continued investment allows NWS to fund recurring maintenance contracts and address priority maintenance repair actions. WFOs provide forecasters with modernized facilities, supporting the advanced technology systems and the provision of weather service to the public. As the WFOs continue to age, the facilities require recurring and cyclic maintenance. This investment allows NWS to protect the \$250 million capital investment in modernized facilities in accordance with GSA and private industry standards.

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 offshore waters and high seas of the Northern Hemisphere for planning and operational purposes. Its warnings and products go directly to ships at sea via several dissemination methods, and are vital for the protection of life and property. The OPC also provides guidance for WFOs with coastal responsibilities, which extend out to nearly 100 nautical miles. Coastal WFOs have responsibility for forecasts and warnings out to that limit; while the centralized OPC has responsibility for offshore and high seas waters.

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 *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.

NCEP also maintains three 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 (i.e. satellites, radar, etc.).

NOAA Center for Weather and Climate Prediction (NCWCP) in College Park, Maryland. 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, NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) Office of Research and Applications and Satellite Services Division, and NOAA's Office of Oceanic and Atmospheric Research (OAR) 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.

PROGRAM CHANGES FOR FY 2011:

Local Warnings & Forecasts: Complete C&A of the National Critical Space Weather System (+0 FTE and +2,000,000): NOAA requests an increase of \$2,000,000 and 0 FTE for a total of \$13,014,000 for the National Space Weather Prediction Center. Along with a redirection of base resources, a total of \$4,700,000 will be used to make required IT security improvements to the Nation's National Critical Space Weather System in order to prevent the loss of authority to operate, which would result in the shutdown of NOAA's space weather predictions and forecast program.

Proposed Actions

In FY 2011, the additional funding of \$2,000,000, combined with a redirection of resources provided in the base to enhance Space Weather modeling, will be used to address IT security deficiencies that jeopardize the SWPC authority to operate and provide the nation with space weather forecasts and warnings. The requested funding will be used to:

Acquire hardware and software for Space Weather Forecast Center backup (\$1,000,000): Currently the National Weather Service has a single forecast office to issue the Nation's space weather alerts, watches, and warnings. This investment will provide the hardware and software to establish an alternate backup site for the system.

Modernize hardware and software to support satellite data ingest (\$2,300,000): Space weather satellite ingest is currently done only in Boulder and is considered a single point of failure. This funding will purchase new hardware and software to support a secondary location for space weather data ingest.

Update unsupportable legacy software (\$1,400,000): Software for space weather product generation systems was developed 25 years ago and cannot be supported by modern technology. The hardware to support this technology is no longer available and the software is not patchable to meet modern security requirements. A labor contract will be established to support the re-development and installation of the space weather product generation software to a modern, supportable, and secure platform.

Impact of Authorization to Operate

NOAA's Space Weather Program depends on the National Critical Space Weather System to: monitor, measure, and specify the space environment and provide timely and accurate operational space weather forecasts, warnings, alerts, and data to critical customers in the US and around the world. The Program is the sole civilian entity that (1) operates and maintains the US National Critical Space Weather System, (2) ingests and processes NOAA data as well as data from other sources, (3) supports research to understand the processes that cause severe space weather, (4) transitions research into operations to improve services, and (4) archives data from NOAA and the Department of Defense (DoD) and makes it accessible to customers. Without the Authorization to Operate, all of the above activities will cease and the space weather products and services critical to our Nation's infrastructure and defense will be lost. The Assistant Administrator for the National Weather Service has responsibility for granting the Authority to Operate (ATO) for the National Critical Space Weather System based on requirements for certification, accreditation, and ATO in the following: The Federal Information Security Management Act (FISMA), OMB Circular A130, and NIST Special Publication 800-37.

Statement of Need and Economic Benefits

In 2005, the Space Weather Prediction Center (SWPC), then called Space Environment Center, was transferred into the NWS in recognition of its operational importance. Up to this time, SWPC was functioning within a research environment that was not designed to stand the rigors and requirements of NWS operations. This weakness became clear when in October 2007, NOAA's 3210 (National Critical Space Weather System) failed the certification and accreditation required by the Office of Management and Budget (OMB). The SWPC currently is operating under an interim authority to operate. Without substantial improvements, NOAA will be forced to shut down this critical national asset. This investment is requested to: (1) maintain the operational

viability of the Nation's National Critical System Space Weather System, (2) to meet the Certification and Accreditation (C&A) requirements mandated for Federal information systems by the Federal Information Security Management Act of 2002 (FISMA), P.L. 107-347, and (3) to ensure the Nation's Authority to Operate this critical national resource.

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 systems (GPS). NOAA will provide these critical services by modernizing its aging space weather infrastructure, securing critical data to enable predictions and warnings, and integrating space weather and terrestrial weather products to support key industries such as commercial airline, electric power, and the GPS industry. Our national security and economic well-being that are now dependent on our advanced technologies are in danger without accurate 1-4 day advanced warnings of impending geomagnetic storms. According to a recent report by the National Academies, storm-disabled electric power grids and collateral impacts could result in projected economic and societal costs of approximately \$1 to \$2 trillion, and full recovery could take 4 –10 years. Precision GPS-enhanced agriculture is an \$8 billion per year enterprise, and the Next Generation Air Transportation System is based entirely on GPS-enabled positioning, navigation and timing. Aircraft flying polar routes now include space weather as an integral part of the weather pre-brief, providing the pilot a big-picture view of the flight environment, including potential impacts to critical communication and navigation systems, and the potential for hazardous solar radiation exposure. Strong storms with the potential to impact critical elements of our Nation's infrastructure can occur over 100 times during a solar cycle. The nation's advanced technology service providers will be looking to NOAA for alerts, watches and warnings needed to protect lives and livelihood and ensure continuity of critical operations. This funding ensures that NOAA will be prepared to meet their needs with actionable information.

Schedule & Milestones

FY 2011: Begin software development necessary to move product generation code to supportable environments.

FY 2011: Begin migration of critical components of SWPC National Critical System to supportable environments.

FY 2011: Begin development of an alternate processing facility to overcome the many single points of failures that exist within the current infrastructure.

FY 2012: Complete migration of critical components of SWPC National Critical System to supportable environments.

FY 2012: Complete testing of disaster recovery systems.

FY 2012: Complete the build out of the alternate processing facility at a geographically separate site and begin limited operations.

FY 2013: Complete remaining actions necessary to satisfy C&A and receive full authorization to operate.

FY 2013: Establish refresh cycles to ensure systems remain current.

FY 2013: Full operations at both the primary and alternate processing environments including the introduction of annual fail-over exercises (COOP).

Deliverables

FY 2012: All components of the National Critical Space Weather System migrated to supportable platforms.

FY 2013: NWS C&A and Authorization to Operate for NOAA 3210 National Critical Space Weather System

FY 2013: Operate under two fully accredited space weather systems: National Critical (3210) and Business essential (3200) Space Weather System.

FY 2013: Fully functional primary and alternate processing facilities.

FY 2014: Space Weather IT Systems refreshed regularly as directed per industry standard best practices.

Performance Goals and Measurement Data

Performance Goal: Weather & Water Performance Measure: Achieve Authorization to Operate (ATO) for NOAA 3210 National Critical Space Weather System	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase				Yes		
Without Increase				No		
Description: This measure shows when the National Critical Space Weather System will achieve full Authority to Operate.						

Performance Goal: Weather & Water Performance Measure: Lead-time of Geomagnetic Storm Warnings	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	40 min.	40 min.	40 min.	40 min.	40 min.	40 min.
Without Increase	40 min.	0	0	0	0	0
Description: This measure shows the current lead time for geomagnetic storm predictions. Without this increase, NOAA will discontinue issuing geomagnetic storm warnings.						

Aviation Weather (+4 FTE and +\$15,136,000): NOAA requests an increase of \$15,136,000 and 4 FTE for a total of \$26,676,000 and 9 FTE to fund the planned second year Next Generation Air Transportation System (NextGen) development activities in the multi-year effort to improve aviation weather services and meet the aviation weather requirements of the multi-agency NextGen initiative. This requested increase will support the NOAA-led effort to field a Weather Information Database (WIDB) for aviation users as required by the NextGen Integrated Work Plan. This WIDB will integrate observed and forecast weather information and enable its use within an automated, multi-agency coordinated, air traffic management system.

Proposed Actions

Build on the FY 2010 NOAA investment in NextGen to:

- 1) *Improve aviation weather observations, analyses and forecasts (\$9,670,000).* NextGen requires high resolution digital observational, analysis and forecast (temporal and spatial) information that is rapidly updated and consistent. To achieve this, NOAA must fully leverage its extensive investment in atmospheric observations through enhanced assimilation capabilities and integration of this data into its numerical weather prediction capabilities. It must also leverage the significant Federal Aviation Administration (FAA) investment which has produced automated 4-D weather predictions of icing, turbulence and convection by fully transitioning those products into NWS operations.
- 2) *Improve access to information (\$3,386,000).* Aviation weather information must be provided to National Airspace System (NAS) decision makers in a timely manner, in standard formats that are compatible with user’s systems. NOAA is working closely with FAA to develop interagency data standards and an architecture enabling the rapid transfer of weather information between users. These capabilities leverage investments in AWIPS-II, and will be compatible with NOAA’s Global Earth Observation Integrated Data Environment (GEO-IDE) data standards. NOAA’s IT infrastructure, including the National Digital Forecast Database (NDFD) for selected digital forecast data sets, and analyses in the National Digital Guidance

Database will also be enhanced to meet NextGen data standards, performance requirements, and be compatible with the developed architecture.

- 3) Assist in the integration of weather information into FAA and user decision support systems (\$780,000). NOAA will play a key role in ensuring weather information is appropriately integrated into NAS decisions by providing expert advice to FAA in the translation of weather information and its impact on air traffic management decisions. NOAA will utilize social science principles to ensure that aviation products, services, and information, with appropriate expressions of uncertainty, are effectively communicated to decision makers.
- 4) Develop and field advanced operationally relevant verification capabilities (\$1,300,000). Forecast verification is the key for improving forecast quality, accuracy, and consistency, and is a major contributor to the common weather picture. New vertical digital analyses from the Analysis of Record (AOR) project are needed to support the verification of new gridded aviation forecasts. Enhanced verification techniques and concepts must be developed and deployed so that assessments of forecast quality and accuracy reflect the impact to the operational decisions of air traffic managers and airspace users. Verification tools that provide methodologies for assessment of the value added by the forecaster are also critically needed.

The National Weather Service (NWS) leads the NOAA effort to meet NextGen environmental information requirements. It will provide the program management structure, coordinate improvements to the weather forecast process, and provide for IT-related development activities. NOAA's Office of Oceanic and Atmospheric Research (OAR) will lead the development of NextGen verification systems, assessment of the value meteorologists add to guidance and automatically generated forecasts, and will examine techniques for producing a common operating picture of weather for NAS operations. Additionally, OAR and NWS will cooperate to develop and deploy advanced data assimilation techniques, higher resolution numerical weather prediction models, and advanced techniques for analysis and verification of gridded data in three dimensions. The NextGen effort will also extend the AWIPS enterprise services into a system of systems linking currently incompatible systems and enhancing existing efforts, such as MADIS, Analysis of Record, and surface and aircraft observations.

The NextGen weather capability will be implemented in three phases: The Initial Operational Capability (IOC) is due in 2013, Mid Operational Capability (MOC) in 2016 and Full Operational Capability (FOC) in 2022. IOC will deliver a significantly enhanced weather infrastructure that provides modestly improved meteorological data to all users of the Nation's Air Transportation System, enabling all decision makers access to a common operating picture of weather. This investment continues the development and fielding of the WIDB IT infrastructure for IOC. Between 2013 and 2016, NextGen will begin to implement automated decision assistance tools and algorithms for managing the air space. These tools require higher resolution weather forecasts and observations with a greater degree of accuracy and precision at MOC. Additional investment will be required beginning in FY 2012 to meet MOC objectives. NOAA's investments in improvements of environmental modeling and human forecast tools will contribute to the greater resolution, accuracy and timeliness required by NextGen. By FOC in 2022, NextGen weather must meet all meteorological and engineering performance requirements to support the NextGen traffic management systems. The long-term R&D investments needed to meet these requirements will be significant, but will yield benefits across most NWS service areas and throughout the NOAA information management enterprise.

Statement of Need and Economic Benefits

The Air Transportation industry generates 5.4 percent of America's Gross Domestic Product, \$640 billion in revenue and over 11 million jobs. The Congressional Joint Economic Committee estimates that air traffic delays cost the U.S. Economy over \$41 billion in 2007, of which 70% are related to adverse weather. The FAA has determined that two thirds of these weather delays are avoidable with better, more integrated weather information, potentially saving \$19 billion annually (See FAA's Research, Engineering and Development Advisory Committee (REDAC), in its "*Report of the Weather-ATM Integration Working Group* (3 Oct, 2007)). As the demand for air traffic grows, air traffic delays and the associated economic toll will only increase. The

multi-agency Joint Planning and Development Office (JPDO) has developed a plan to achieve these required improvements and accommodate the expected growth in demand. A critical component of the NextGen plan is the integration of weather information into air traffic operations. To enable this integration, JPDO is calling for the creation of rapidly updated, high-resolution probabilistic weather information consistent across space and time and accessible to all NAS managers and users through a network-enabled infrastructure. This information will be produced by an enhanced forecast process, where meteorologists are able to add value to guidance and rapidly updated gridded datasets produced by automation. 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.

NOAA is legislatively mandated by Title 49 of the U.S. Code to provide weather information to the FAA. In addition, Public Law No 108-176 directs DOT, FAA, DOC, NASA and JPDO to conduct integrated planning for research to operations to support NextGen. This requested increase will build on the FY 2010 budget request by addressing the required technical and scientific challenges in developing the NextGen Weather capability. This investment is critical to meet NOAA's obligations as laid out in the NextGen Integrated Work Plan which calls for a NextGen Weather IOC in 2013 and full operational capability in 2022. This investment represents a coordinated effort spanning two line offices and three NOAA programs. It will require an extended investment over many years, resulting in a significant increase in weather prediction and dissemination capabilities with wide-ranging benefits across NOAA.

A significant portion of the NextGen investment will improve broader NOAA and NWS mission areas beyond aviation. Higher resolution forecast guidance driven by NextGen will enhance most NWS service areas, including fire weather, marine weather and public weather, especially the Warn on Forecast capability needed to increase NWS thunderstorm and tornado warning lead times. The IT and data services research will increase the efficiency of how NWS shares its environmental information with internal and external customers. NextGen capabilities support the Global Earth Observation System of Systems (GEOSS) requirements. More importantly, it will allow our public and private partners broader access to all NWS products and services and provide tools that will enable full exploitation of NWS data for decision support.

Schedule & Milestones

FY 2011

- Finalize IOC architecture and requirements
- Develop WIDB data retrieval process
- Develop service adapters for legacy information sources
- Award production contract for WIDB systems
- Develop and evaluate forecast processes for NextGen weather information
- Implement NextGen data standards
- Develop radar data assimilation techniques
- Enhance High Resolution Rapid Refresh model for NextGen required elements
- Complete interagency data standards and services
- Further expansion of WIDB testbed to provide weather data to NextGen Air Traffic Management Demonstrations
- Develop Meteorologist in the Loop (MITL) tools for the generation of aviation weather elements
- Develop training programs for WIDB operators and users
- Develop new NextGen performance measures

FY 2012

- Begin building and deploying NextGen data services infrastructure
- Demonstrate WIDB capabilities required for IOC

- Develop SAS techniques and standards
- Test NEVS capabilities for IOC
- Develop concepts and preliminary business rules for establishing a common operational picture of weather for IOC
- Improved satellite and radar data assimilation techniques transitioned to operations
- Transition High Resolution Rapid Refresh model to operations at NCEP
- Begin detailed requirements and planning for MOC

FY 2013

- Test and deploy IOC WIDB
- Test SAS capabilities for IOC
- Deploy Network-Enabled Verification Service (NEVS) to support NWS IOC aviation field operations
- Completion of forecast process and forecast consistency technique development
- Implement approved IOC forecast process changes

FY 2014

- Develop enhanced data management systems and infrastructure to meet all NextGen requirements
- Enhance probabilistic modeling techniques for aviation parameters.
- Enhance business rules governing information comprising the Single Authoritative Source
- Enhancements to NEVS for additional WIDB product verification
- Begin detailed requirements and planning for MOC
- Begin development of follow-on capabilities including additional geographic areas and weather elements

FY 2015

- Develop MOC forecast process alternatives
- Extend NEVS technology for access to real-time verification information
- Begin construction of advanced forecast process tools
- Begin development of nested spatial scale, high resolution model

Deliverables

FY 2011

- Final WIDB IOC architecture and system design documents
- Initial set of network enabled information compliant with NextGen data standards

FY 2012

- IOC Forecast processes and advanced user-specific metrics implemented
- Operational Prototype of WIDB completed & ready for OPERATIONAL TEST & EVALUATION

FY 2013

- NextGen Weather Information Database IOC
- Network Enabled Verification System operational for NWS products
- CONUS high resolution ensemble model deployed

FY 2014

- Draft MOC requirements and plans complete

FY2015

- Final MOC requirements and plans complete
- Prototype MOC forecasts of additional weather elements

Performance Goals and Measurement Data

Performance Goal: Commerce and Transportation	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Aviation Forecast Accuracy of Ceiling/Visibility, Measure 4e						
With Increase	65%	67%	68%	72%	73%	74%
Without Increase	65%	66%	67%	68%	69%	69%
Performance Measure: Aviation Forecast False Alarm Rate for Ceiling/Visibility, Measure 4f						
With Increase	42%	40%	39%	36%	35%	34%
Without Increase	42%	41%	40%	39%	38%	38%

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: Susquehanna Flood Forecast and Warning System (\$2,400,000); Upper Spring River Flood Warning System (\$125,000); National Mesonet Network (\$19,000,000); Remote Infrasonic Monitoring of Natural Hazards (\$2,000,000); Regional Ensembling System for Atmospheric Dispersion Forecasting (\$1,000,000); Joint Center for Hurricane Research (\$500,000); Delaware River Enhanced Flood Warning System (\$200,000).

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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 & Research

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Project Engineer	Silver Spring, MD	GS-14	1	105,211	105,211
Project Planner	Silver Spring, MD	GS-13	1	89,033	89,033
Outreach Coordinator	Silver Spring, MD	GS-13	1	89,033	89,033
Logistics Coordinator	Silver Spring, MD	GS-12	1	74,872	74,872
Contract Manager	Silver Spring, MD	GS-12	1	74,872	74,872
Total			<u>5</u>		<u>433,021</u>
less Lapse		25%	<u>1</u>		<u>108,255</u>
Total full-time permanent (FTE)			4		324,766
2011 Pay Adjustment (1.4%)					<u>4,547</u>
TOTAL					<u>329,312</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	4
Other than full-time permanent	<u>0</u>
Total	4

Authorized Positions:

Full-time permanent	5
Other than full-time permanent	<u>0</u>
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: National Weather Service
Subactivity: Operations and Research

Object Class	2011 Increase
11 Personnel compensation	329
11.9 Total personnel compensation	329
12 Civilian personnel benefits	92
25.2 Other services	7,240
25.5 Research and development contracts	9,475
99 Total Obligations	17,136

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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 160 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 2011, NWS will continue to operate and maintain its network of 122 operational NEXRAD systems and 12 non-operational radars, 6 of which will be upgraded in the NEXRAD product improvement project.

The *Automated Surface Observing System* (ASOS) (<http://www.weather.gov/asos/>) is the joint NWS/FAA/DOD automated surface observation system consisting of 1,001 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 2011 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 2011 NWS will continue operations and maintenance of 169 fielded systems under a new, performance-based Operations & Maintenance (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, enhance the national economy, and prevent system obsolescence.

NWS Telecommunications Gateway Backup (<http://www.weather.gov/tg/>) was established to provide backup operations for the primary National Weather Service Telecommunication Gateway (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 NWSSTG, and these data affect a wide-range of economic and emergency management decisions. Without this backup capability, NWSSTG is a single point of failure, vulnerable to natural disasters, human error, computer viruses, hacker attacks, and terrorism. If NWSSTG 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. NWSSTG 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 NWSSTG for whatever reason.

In conjunction with NWSSTG Backup, the Legacy Replacement Project replaced the legacy NWSSTG core mainframe-based message switching system with server-based technology, and upgraded the facility support infrastructure. Full operational capability of the Legacy Replacement was achieved on June 19, 2006. Full operational capability of NWSSTG backup was achieved on May 31, 2007. With the useful life of the current hardware now on the horizon and expected increased demand for processing capacity due to the demand for higher resolution weather products, planning for the next generation NWSSTG architecture is underway.

PROGRAM CHANGES FOR FY 2011:

NEXRAD O&M (+0 and +127,000): NOAA requests an increase of 0 FTE and \$127,000 for a total of \$46,383,000 for NEXRAD O&M. This increase is requested to increase the base level of funding to that recommended in the FY 2010 President's Budget but not provided for in the Consolidated Appropriations Act, 2010.

ASOS O&M (+0 and +202,000): NOAA requests an increase of 0 FTE and \$202,000 for a total of \$11,260,000 for ASOS O&M. This increase is requested to increase the base level of funding to that recommended in the FY 2010 President's Budget but not provided for in the Consolidated Appropriations Act, 2010.

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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: System Operations and Maintenance

	Object Class	2011 Increase
31	Equipment	329
99	Total Obligations	329

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

The NWS Systems Acquisition subactivity includes the following line items:

Automated Surface Observing System (ASOS) Product Improvement

ASOS serves as the nation’s primary surface weather observing network. ASOS provides reliable, 24-hour, continuous surface weather observations which are vital to aviation safety and are important data points for numerical models and weather forecasting and warning services. The product improvement portion of this acquisition program is developing new ASOS sensor capabilities to meet changing user requirements and decrease maintenance costs for NOAA, DOD, and FAA in this tri-agency program.

The ASOS Product Improvement Sensors are crucial for aviation safety and continued support to numerical modeling and weather forecasting and warnings services. While ASOS is designed to support weather forecast and warning activities and aviation operations, at the same time it supports the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, continuously updating observations minute-by-minute, every day of the year, ensuring the critical surface observations are available to forecasters, Air Traffic Controllers, and the aviation community. Getting more accurate information on the atmosphere more frequently and from more locations is vital 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 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, and improve availability of critical surface observations and weather information as the U.S. moves into the NextGen era.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to complete*	Total
ASOS Product Improvement								
Change from FY 2011 Base		-	-	-	(324)	(1635)		
Total Request	44,936	1,635	1,635	1,635	1,311	0	-	51,152

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

**Funding for FY 2010 and prior reflects funding beginning in FY 2000.

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 all available 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 visualize environmental processes to create timely and accurate forecasts and warnings. AWIPS is the only display for NEXRAD Doppler weather radar data at NWS Weather Forecast Offices (WFOs) and River Forecast Centers (RFCs).

Sustained investments in the AWIPS hardware, communications, and software infrastructure, are necessary for realizing return on NOAA investments in many other programs such as NEXRAD, weather satellites, other weather radars, sensors, and instruments. 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. Improvements in NWS Tornado Warning Lead Time, Flash Flood Warning Lead Time and Winter Storm Warning Lead Time goals can only be realized with continued support of, and improvements to AWIPS using new and improved science, and exploiting more accurate and higher resolution data and weather forecast model information.

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 and other warning products.

In FY 2007 LINUX Phase III was completed with server replacements including the Local Data Acquisition and Dissemination (LDAD) Server. Additionally, in 2006 software re-architecture was begun and IT security enhancements were started which included replacement of all routers. Router replacement was completed during 2009. The maintenance philosophy adopted for the AWIPS Program (purchasing extended OEM warranties on all servers, workstations and switches) mandates that both PAC and ORF funding continue to be available as refresh vehicles.

Software re-architecture (AWIPS II) will continue through 2010 with an anticipated completion date of the third quarter, FY 2011.

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. When the AWIPS II network migration is complete with new LINUX equipment and SOA software architecture, the National Critical IT system designation will require a new NIACAP certification. It is anticipated that the C&A will be performed prior to the new software being released for operational use.

AWIPS II Extended is a multi-phase program to add significant improvements to AWIPS II after its initial deployment (which adds no new functionality at initial deployment). The AWIPS Extended effort delivers new and improved functionalities and capabilities to NWS field forecasters, NOAA partners and the public.

These capabilities include the National Centers AWIPS (NAWIPS) integration with AWIPS, remote access capabilities to support Incident Meteorologists mission requirements, and training capabilities. In addition, AWIPS II Extended will add new capabilities to more effectively access data providers (data delivery), improve collaboration capabilities to support collaboration among NWS operational units and NOAA trusted partners, improve means to generate information to support decision makers, and improve ways for forecasters to access and visualize meteorological information.

AWIPS II Extended, when complete, will allow forecasters to more effectively access the increasingly voluminous data sets such as GOES-R and higher resolution models, and more effectively access and provide information to the NEXTGen Weather Information Data Base. In addition, improved collaboration will improve the product consistency across the NWS enterprise and allow for more effective decision support to NOAA partners and customers and ultimately, the public.

The Outyear Funding Estimates are provided with the program change requested for this activity.

Next Generation Weather Radar (NEXRAD)

The NEXRAD Doppler weather system is the single most important element in NOAA's capability to warn for severe weather such as tornados, hail, and damaging thunderstorm induced-high winds. 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 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 hydro-meteorological 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 United States 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 continued execution of the Dual Polarization project, currently in the test phase of a five-year development/implementation contract.

Recent NPI achievements include:

- Coordination and funding of the implementation of Super-Resolution, a signal-processing technique which supports the capability of NEXRAD to detect smaller tornadoes at greater distances (June 2008).
- Deployment of 45 systems which connect to FAA Terminal Doppler Weather Radars and provide the weather data from those radars to NWS weather forecast offices to supplement data provide by NEXRAD. (September 2008)
- Implemented a system to connect to an FAA air traffic radar in NW Washington state to address local weather radar coverage issues (December 2008).

NPI Science Improvements have made significant improvements in NEXRAD performance, products, and data that led to improvements such as increased warning lead time for tornados, lower false alarm rate for severe weather warnings, and more accurate hail and precipitation amount forecasts. Because of problems in the Dual Polarization acquisition effort which jeopardize the deployment schedule, base resources for lower priority non-dual polarization activities within the program will be redirected to the dual polarization effort beginning in FY 2010.

As stated above, NPI is managing the Dual Polarization modification to NEXRAD. Dual Polarization 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. 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. NWS plans to upgrade all 122 NWS NEXRAD systems with the Dual Polarization capability, as well as 26 United States Air Force NEXRADs and 12 FAA systems under reimbursable agreements.

The Dual Polarization modification contract was awarded in September 2007. Initial deployment of the modification is scheduled for late FY 2011 and is scheduled for completion in FY 2013. The program was accelerated in FY 2009 using funds from the American Reinvestment and Recovery Act. The Outyear Funding Estimates are provided with the program change requested for this activity.

NWS Telecommunications Gateway Legacy Replacement

The NWS TG (<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 NWS TG system with up-to-date technology will reduce the current delays in collecting and disseminating data by reducing transit time through the NWS TG. 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 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete *	Total
NWSTG Legacy Replacement								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	9,859	1,195	1,195	1,195	1,195	1,195	1,225	17,059

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

**Funding for FY 2010 and prior reflects funding beginning in FY 2000.

Radiosonde Replacement Program

The NWS radiosonde network is the primary real-time upper air observation system for NOAA prediction models for severe weather, aviation, and marine prediction models and forecasts for day 2 and beyond. Observations of temperature, pressure, humidity, and wind speed/direction are taken twice a day at locations nationwide and in the Caribbean and Pacific using the Global Positioning System (GPS) radiosonde, a balloon-borne instrument transmitting data from the surface to 30 kilometers via narrow band radio signal to a ground receiving and processing station located at a Weather Forecast Office. The network observations are also used to benchmark the satellite and ground-based thermodynamic profiler measurements of temperature and moisture. Additionally, accumulated radiosonde data fill portions of the climate record and is the foundation of other atmospheric research.

The replacement ground receiving and GPS-based radiosonde system installed at 78 of 102 locations has already provided a six fold increase in independent vertical observing levels; reduced the number of second radiosondes releases by 50 percent; and virtually eliminated data observations losses due to nearby obstructions and the loss of wind speed and direction due to low antenna angle observations by the jet stream carrying the radiosonde to the radio horizon and slightly beyond. The replacement network in the air and on the ground has also met NOAA's legislative mandate under the Omnibus Budget Reconciliation Act to vacant radio frequency spectra for auction and telecommunication utilization; reduce bandwidth and interference on the frequencies used to transmit data from the radiosonde to the ground receiving station as well as hand held and portable data communication systems. The Radiosonde Replacement Program is meeting the meteorological data collection, observation, and climate record goals.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to complete*	Total
Radiosonde Replacement System								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	59,348	4,014	4,014	4,014	4,014	4,014	4,014	83,532

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

**Funding for FY 2010 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.

NWS also maintains a backup supercomputing capability. The backup supercomputer system is a clone of the primary supercomputer system and is 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 ensures 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 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete *	Total
Weather & Climate Supercomputing								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	236,691	29,169	29,169	29,169	29,169	29,169	N/A	Recurring

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

**Funding for FY 2010 and prior reflects funding beginning in FY 2000.

Historical Climate Network – Modernization (HCN-M)

The goal of the USHCN-M Program (formerly known as Cooperative Observer Network Modernization (COOP-M) and NOAA’s Environmental Real Time Observation Network (NERON) is to install a regional network of 1,000 newly sited and automated observing systems across the nine United States Climate Regions. The fully deployed modernized Historical Climatology Network (HCN) will 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 deploy 1,000 modernized stations to automatically collect temperature and precipitation data. The modernized HCN will also provide expansion capability to allow the collection of other data sets in the future, such as soil temperature and soil moisture. The sites selected and equipment deployed will conform to the Climate Monitoring Principles developed by NOAA and adopted by the Global Climate Observing System (GCOS). Through enhanced siting requirements, the modernized HCN will reduce human and other influences affecting measurements to ensure accurate and more reliable measurements of temperature and precipitation; both critical elements for detecting the Regional Climate Signal. The stations will be equipped with a triple configuration of calibrated sensors; and will digitally record and transmit 5-minute temperature and precipitation observation data hourly.

Data from this network will contribute to programs across NOAA and is an integral contribution to the National Integrated Drought Information System (NIDIS) requirements. In addition, the network will contribute to U.S. Integrated Earth Observation System (IEOS) and the Global Earth Observation System of Systems (GEOSS) concept of operations by improving the design and integration of regional climate observation stations.

Separately, the USHCN, a data subset of the NWS Cooperative Observer Program (COOP) network, remains the Nation’s only long term climate record. At a time when quality climate data is becoming increasingly important for understanding climate variability and change, the continuity of the existing regional data set is threatened due to degraded siting, equipment obsolescence, data quality, and reporting vulnerabilities. Much of the USHCN, currently used for regional and local climate monitoring, relies on manual observations and reporting subjecting the Nation’s climate record to error, reporting delays, and potential loss. These data are vital to facilitate the synthetic data record for the establishment and operation of the USHCN-M network of new sites.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete *	Total
COOP Modernization/ NERON/HCN/Surface Wx								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	20,193	3,734	3,734	3,734	3,734	3,734	7,839	47,422

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

**Funding for FY 2010 and prior reflects funding beginning in FY 2000.

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 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 the Department of Homeland

Security (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 for NOAA Weather Radio, the National Weather Service faces challenges due to equipment obsolescence and 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 logistical 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 FY2011, approximately 326 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. WRIP will replace the logistically unsupportable Console Replacement System (CRS) through deployment of NOAA Weather Radio Broadcast Management System (NWR BMS). 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 NWR to alert the public. The current CRS has reached its end of life and cannot be supported at the current level due to parts obsolescence. It is critical that we address this issue now in order to avert outages that might affect our ability to disseminate warnings to the public.

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 transmitters addressing and direct interface into the NWR system by DHS and FEMA, neither of which exist today.

The Outyear Funding Estimates are provided with the program change requested for this activity.

NOAA Profiler Conversion

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. NPN winds improve probability of detection (+27%), decrease false alarm rate (-20%), and improve lead time (+14%) for tornado warnings, as well as severe thunderstorms, flash floods, and winter storms.¹ They also improve warnings related to aviation and fire weather.

¹ Wolf, P. L., 2004. Science and Operations Officer (SOO) White Paper on "The Need for Real-Time, High-Frequency, Observational Wind Profile Data Nationwide for Improved Forecast and Warning Operations." U.S. Dept. of Commerce, NOAA/NWS Central Region HQ, Kansas City, MO

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 subsequently allocated the 404 MHz frequency to search and rescue satellites (SARSAT) and granted the NPN permanent use of 449 MHz. The 30 operational 404 MHz Wind Profilers require transmitter conversion from 404 to 449 MHz by the end of the FY 2012 to avoid interference from scheduled completion of the European Space Agency's SAESAT (*Galileo*) satellite constellation. The 30 operational wind profilers operating at 404MHz are located in the central U.S. along "tornado alley."

In addition to the 30 operational sites, there are two additional training and test 404 MHz Wind Profilers at the National Reconditioning Center and National Weather Service Training Center. 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.

The NPN has 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 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 Outyear Funding Estimates are provided with the program change requested for this activity.

PROGRAM CHANGES FOR FY 2011:

NEXRAD Product Improvement (NPI) (+0 FTE and +\$3,150,000): The National Weather Service (NWS) requests an increase of \$3,150,000 and 0 FTE for a total of \$11,126,000 to fund projected costs associated with acquisition and deployment of Dual Polarization technology to 122 operational and 6 support site NWS NEXRAD locations. This funding addresses requirements in the fourth option year of the five-year Dual Polarization contract.

Proposed Actions

This increase with outyear profile will allow the additional procurement of the necessary hardware and deployment to complete the full complement of 122 operational NWS NEXRAD sites and 6 support sites through FY 2013. Deployment prioritization will be based upon historical levels of precipitation and severe weather, for which Dual Polarization provides improved rainfall estimation, severe weather detection and data quality, and proximity to population centers. Prioritization will be made in coordination with forecast offices and NWS regional headquarters.

Statement of Need and Economic Benefits

Doppler weather radar is the primary tool for issuing local storm warnings for flash floods, tornados and severe thunderstorms. Currently, NEXRAD only transmits and receives a horizontally polarized signal. Dual Polarization adds a vertically polarized component. The addition of a vertical component greatly improves accuracy in estimation (quantity) and differentiation (rain, hail, snow, freezing rain, etc.) of precipitation. The outcome will be improved flash flood warnings; improved identification of, and warnings for tornadoes, severe hail, dangerous freezing rain, snow; and enhanced water management capability. Expected benefits include:

- NEXRAD enhanced precipitation estimate capability will improve flash flood warnings and water management.
- The Dual Polarization modification to NEXRAD has been demonstrated to greatly improve the probability of hail detection and reduce the false alarm rate which will improve severe weather warnings.
- National Severe Storms Laboratory dual polarization data have been shown to identify specific tornado debris clouds, a capability which will support greater areal specificity in tornado warnings for rain-wrapped and nighttime tornadoes. This improved accuracy in tornado warnings will increase public confidence in tornado warnings.
- The capability of dual polarization to distinguish between non-meteorological scatterers (e.g., birds) and meteorological scatterers (precipitation) results in higher quality data used across the NWS enterprise and more accurate weather products.

Schedule & Milestones

FY 2009

- Install Dual Polarization Production Prototype and conduct System Testing.

FY 2010

- Deploy Dual Polarization to initial 5 operational NEXRAD sites and conduct Operational Acceptance Test.
- Utilize ARRA funding to award contract for purchase and deployment of 21 Dual Polarization modification kits.

FY 2011-2013

- Deploy Dual Polarization to the remaining 96 NWS operational and 6 support NEXRAD sites.

Deliverables

- Deliver 122 NWS NEXRAD operational systems upgraded with Dual Polarization capability.
- Reduce precipitation error within the NEXRAD domains of the 122 Dual Polarization modified sites.

Performance Goals and Measurement Data

Performance Goal: Weather & Water	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Rainfall estimation accuracy						
With Increase	n/a	±30%	±25%	±20%	±20%	±20%
Without Increase	±35%	±35%	±35%	±35%	±35%	±35%
Performance Measure: Hail detection false alarm rate						
With Increase	n/a	30%	20%	10%	10%	10%
Without Increase	39%	39%	39%	39%	39%	39%
The improvement in the NEXRAD system's accuracy in precipitation estimation provides forecasters and hydrologists with improved algorithms and tools enabling them to issue more accurate and timely flash flood warnings and an improved capability to conduct water management.						

OUTYEAR FUNDING ESTIMATES
(BA in thousands)

	FY 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete *	Total
NEXRAD Product Improvement								
Change from FY 2011 Base		3,150	(2,157)	(7,976)	(7,976)	(7,976)		
Total Request	97,268	11,126	5,819	0	0	0	0	114,213

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

**Funding for FY 2010 and prior reflects funding beginning from FY 2000.

Complete & Sustain NOAA Weather Radio (NWR): Weather Radio Improvement Project (WRIP) (+0 FTE and +\$1,614,000): The National Weather Service (NWS) requests an increase of \$1,614,000 and 0 FTE for a total of \$12,614,000 to support the NOAA Weather Radio Improvement Project (WRIP). This increase is required to keep the project on schedule for completion in FY 2012.

Proposed Actions

The most critical component of WRIP is the replacement of the obsolete, unsupported broadcast recoding equipment, the Console Replacement System (CRS), at each of the 122 Weather Forecast Offices (WFO). NWS will deploy the NWR Broadcast Management System (BMS) as a replacement for the CRS. The CRS is a main component of NOAA Weather Radio that converts text warning messages into the digital voice that gives the NWS the ability to quickly disseminate severe and high impact weather warnings, watches and forecasts and non-weather emergency messages to 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. The requested funding would allow WRIP to complete the CRS replacement by FY 2012. Specifically, the funds will impact the following activities:

- Complete installation of BMS and associated hardware at all 122 WFOs.
- Provide O&M support for deployed NWR Master Processing Center (MPC)/NOAA Weather Wire Service System and satellite/communication network

Statement of Need and Economic Benefits

Specific needs that must be addressed by WRIP to sustain and improve the NWR and NOAA Weather Wire Service (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. Ongoing support of CRS is high risk due to parts obsolescence and declining availability. The CRS must 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 addressing and direct interface into the NWR system by DHS and FEMA, neither of which exist today.
- **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.

The NWS is required to provide weather watches and warnings and other non-weather emergency messages to the public and emergency managers through the NWR and NWWS networks. As part of the overarching National Dissemination Network (NDN) program, WRIP was initiated to evaluate, update and modernize NWR and NWWS. This will achieve the NDN's goal of bringing the current NWS dissemination systems into a consolidated, cost-effective network which meets current and future stakeholder missions, requirements, and needs.

Schedule & Milestones

Milestone/ Schedule	FY2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
MPC/NWWS System	Preliminary Design Review Critical Design Review	Conduct Operational Acceptance Test/ Complete Deployment	System Operational	Steady State	Steady State	Steady State
BMS Deployment		Begin BMS Deployment (6) to 122 WFO's	Complete BMS Deployment (116) to 122 WFO's	Steady State	Steady State	Steady State

Deliverables

- Complete deployment of BMS to WFO's.

Performance Goals and Measurement Data

Performance Goal: Weather and Water	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: NWR high priority message transport delay						
With Increase	n/a	n/a	<30 sec	<30 sec	<30 sec	<30 sec
Without Increase	60 sec	60 sec	60 sec	60 sec	60 sec	60 sec
Performance Measure: NWR real-time voice message transport delay						
With Increase	n/a	n/a	<30 sec	<30 sec	<30 sec	<30 sec
Without Increase	n/a	n/a	No capability	No capability	No capability	No capability
Description: NOAA Weather Radio does not provide for real-time voice messaging across its network. With WRIP, the NWS, and other agencies if necessary, will have the capability to initiate real-time broadcasts across the entire 1,000 transmitter coverage area in the event of a national emergency. NOAA is using high priority and real-time voice message transport delay to improve its dissemination services.						

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete *	Total
Complete & Sustain NWR								
Change from FY 2011 Base		1,614	(5,406)	(5,406)	(5,410)	(5,410)		
Total Request	36,284	12,614	5,594	5,594	5,590	5,590	19,201	90,467

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

**Funding for FY 2010 and prior reflects funding beginning from FY 2000.

NOAA Profiler Conversion (+0 FTE and +\$2,230,000): NOAA requests a restoration of 0 FTE and \$2,230,000 for a total of \$9,730,000 and 0 FTE to increase the base level of funding for the NOAA Profiler Network (NPN) to continue the planned tech refresh and operating frequency conversion of the 20-year old NPN to that recommended in the FY 2010 President’s Budget but not provided for in the Consolidated Appropriations Act, 2010.

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. NPN Wind Profilers improve probability of detection (+27%), decrease false alarm rate (-20%), and improve lead time (+14%) for tornado warnings, as well as severe

thunderstorms, flash floods, and winter storms.² They also improve warnings related to aviation and fire weather.

Thirty of the 35 wind profilers are using an experimental transmitter frequency of 404 MHz issued by the National Telecommunications and Information Administration (NTIA). NTIA has subsequently allocated the 404 MHz frequency to search and rescue satellites (SARSAT) and granted the NPN permanent use of 449 MHz. The 30 operational 404 MHz Wind Profilers require transmitter conversion from 404 to 449 MHz by the end of the FY 2012 to avoid interference from scheduled completion of the European Space Agency's SAESAT (*Galileo*) satellite constellation. The 30 operational wind profilers operating at 404MHz are located in the central U.S. along "tornado alley."

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-two (32) 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: Seven (7) profilers will be modernized and their operating frequencies converted from 404MHz to 449MHz
- FY 2011: Eight (8) profilers will be modernized and their operating frequencies converted from 404MHz to 449MHz
- FY 2012: Four (4) 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: Nine (11) profilers will be modernized and their operating frequencies converted from 404MHz to 449MHz
- 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

The NPN has 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 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. 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

² Wolf, P. L., 2004. Science and Operations Officer (SOO) White Paper on "The Need for Real-Time, High-Frequency, Observational Wind Profile Data Nationwide for Improved Forecast and Warning Operations." U.S. Dept. of Commerce, NOAA/NWS Central Region HQ, Kansas City, MO

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 2011 Antenna and transmitter components for frequency conversion and technology refresh of 8 Profilers.

Performance Goals & Measurement Data

The table below reflects performance measures for those WFOs within the NOAA Profiler Network:

Performance Goal: Weather and Water	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measures:						
GPRM Performance Measure						
Tornado Warning						
Tornado Warnings Accuracy (%), Measure 3c						
With Increase	70	70	69	70	70	70
Without Increase	70	70	69	68	68	68
False Alarm Ratio (%), Measure 3d						
With Increase	72	72	71	70	70	70
Without Increase	72	72	71	72	72	72
Lead Time (min.), Measure 3b						
With Increase	12	12	11	12	12	12
Without Increase	12	12	11	10	10	10

The GPRM measure targets reflect NOAA Profiler Network impacts only and excludes other GPRM target improvements. The drop in performance during FY 2012 reflects partial shutdown of the NOAA Profiler Network due to SARSAT interference.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete*	Total
NOAA Profiler Network								
Change from FY 2011 Base	-	2,230	2,230	4,460	(7,500)	(7,500)	-	
Total Request	23,243	9,730	9,730	11,960	0	0	-	54,663

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

**Funding for FY 2010 and prior reflects funding beginning from FY 2000.

AWIPS Tech Infusion (+0 FTE and +364,000): NOAA requests an increase of 0 FTE and \$364,000 for a total of \$24,364,000 for AWIPS Tech Infusion. This increase is requested to increase the base level of funding to that recommended in the FY 2010 President’s Budget but not provided for in the Consolidated Appropriations Act, 2010.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2010 & Prior**	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to complete*	Total
AWIPS Tech Infusion								
Change from FY 2011 Base		364	364	364	364	364		
Total Request	172,873	24,364	24,364	24,364	24,364	24,364	N/A	Recurring

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

**Funding for FY 2010 and prior reflects funding beginning in FY 2000.

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Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: National Weather Service
Subactivity: System Acquisition

	Object Class	2011 Increase
25.2	Other services	4,594
25.5	Research and development contracts	475
31	Equipment	2,289
99	Total Obligations	7,358

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Appropriation: Procurement, Acquisition & Construction
Subactivity: Construction

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.

The Outyear Funding Estimates are provided with the program change requested for this activity.

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PROGRAM CHANGES FOR FY 2011:

Weather Forecast Office (WFO) Construction (+0 FTE and +3,150,000): National Weather Service (NWS) requests an increase of \$3,150,000 and 0 FTE for a total of \$3,150,000 for construction projects in Alaska and the Pacific Regions and replacement of the heating, ventilating, and air conditioning (HVAC) systems at WFOs with modern, high efficiency (green) units.

Proposed Actions

The increase of \$3,150,000 will complete on-going construction modernization projects in the Alaska Region and the Pacific Region and replacement of six (6) HVAC projects. In FY 2011, the total funding increase of \$3,150,000 will be used for:

Pacific Facility Projects

Weather Service Office (WSO) Koror Relocation: \$1,000,000

Alaska Facility Projects

Complete Barrow WSO, Upper Air Inflatable Shelter (UAIS) and Housing: \$500,000

HVAC Replacements

HVAC Units (6): \$1,650,000

Statement of Need and Economic Benefits

WFO Construction program started in the late 1980s as part of the National Weather Service (NWS) modernization to meet facility requirements. Completed in FY 1999, the original project scope 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. The original modernization scope did not include the upgrade and modernization of Alaska and Pacific Region Weather Service Offices (WSOs) and associated employee housing units. The original facilities are reaching twenty years in age. In order to maintain the vitality of these facilities, capital improvements are required such as HVAC, roof and uninterruptible power supply (UPS) replacements. In addition, this effort is essential to maintaining compliance with Federal law and national and local building codes.

Schedule & Milestones

FY 2011

- Complete Barrow, AK Housing
- Complete Barrow, AK WSO and Upper Air Inflation Shelter (UAIS)
- Award Weather Service Office (WSO) Koror Renovation contract
- Award 6 HVAC replacement contracts

FY 2012

- Award renovation contract of WSO in Chuuk, Federated States of Micronesia
- Award 3 HVAC replacement contracts

FY 2013

- Award renovation contract of WSO in Bethel, AK

FY 2014

- Award Bethel, AK UAIS building contract
- Award King Salmon, AK UAIS building contract

- Award Kodiak, AK UAIS building contract
- Award Kotzebue, AK UAIS building contract

FY 2015

- Award McGrath, AK UAIS building contract
- Award Cold Bay, AK UAIS building contract
- Award Engineering and Design contracts for Valdez, AK Employee Housing
- Award Engineering and Design contracts for Yakutat, AK Employee Housing
- Award 4 HVAC replacement contracts

Deliverables

FY 2012

- Award final Pacific Facility Modernization contracts
- Begin WFO Lease Conversion

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2010 & Prior	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete*	Total
WFO Construction								
Change from FY 2011 Base		3,150	0	0	0	0		
Total Request	117,822	3,150	3,150	3,150	3,150	3,150	N/A	Recurring

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

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: Cooperative Institute and Research Center for Southeast Weather and Hydrology (\$14,000,000).

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: National Weather Service
Subactivity: Construction

	Object Class	2011 Increase
25.1	Consulting services	500
25.2	Other services	750
32	Lands and structures	1,900
99	Total Obligations	3,150

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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE FY 2011 OVERVIEW

For FY 2011, NOAA requests an increase of \$847,585,000 and 4 FTE over the FY 2011 base program for a total of \$2,209,019,000 and 835 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 of the nation's civil operational environmental satellites and corresponding data. 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) serving as the lead U.S. agency for the Search and Rescue satellite system, including operating and maintaining the mission control center; (8) monitoring global sea ice conditions to support safe and effective marine transportation; and (9) 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 2011:

- 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 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 2011, 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 2011:

- Geostationary Systems – N Series
- Geostationary Systems – R Series
- Polar Orbiting Systems – POES
- Altimetry Mission – Jason-3
- Polar Orbiting Systems – Joint Polar Satellite System (formerly National Polar-orbiting Operational Environmental Satellite System (NPOESS))
- Constellation Observing System for Meteorology Ionosphere and Climate-2 (COSMIC-2)
- Deep Space Climate Observatory (DSCOVR)
- Earth Observing System (EOS) and Advanced Polar Data Processing, Distribution and Archiving Systems
- Critical Single Points of Failure (CIP)
- Comprehensive Large Array Data Stewardship System (CLASS)
- NPOESS Preparatory Data Exploitation
- Restoration of Climate Sensors

In FY 2011, the NESDIS Construction sub-activity consists of the budget line item Satellite CDA Facility.

Research and Development Investments:

The NOAA FY 2011 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 \$2,378,000 to fund adjustments to current programs for NESDIS. The increase will fund the estimated FY 2011 Federal pay raise of 1.4 percent and annualize the FY 2010 pay raise of 2.4 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 secure and efficient 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, Department of Defense (DOD), and other 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 24 hours per day, 365 days per year. 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 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.

NOAA Satellite Operating Facility (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 U.S. National Ice Center, which monitors global sea ice conditions to support safe and effective maritime transportation in the Polar Regions, Great Lakes, 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) system. Since SARSAT's inception in 1982, more than 25,000 people have been saved worldwide, including over 6,000 lives in the U.S.

PRODUCT DEVELOPMENT, READINESS & APPLICATION

The goal of 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, Oregon State, and the City College of New York). The academic expertise and the results of investigations are infused into product development, readiness, and applications that either lead 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, wildfire, 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 Joint Polar Satellite System 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)

OSC, 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 provide a framework where these partners can develop new projects and coordinate 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 the Global Earth Observation System of Systems (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.

PROGRAM CHANGES FOR FY 2011:

Product, Processing and Distribution – IT Security (0 FTE and + \$3,108,000): NOAA requests an increase of 0 FTE and \$3,108,000 for a total budget request of 0 FTE and \$5,708,000 to implement mandated security controls over the most critical IT assets in the NESDIS Portfolio. NOAA's environmental data and products are used as input to daily weather forecasts, hurricane tracking, and the nation's public weather warnings which directly support NOAA's mission. NOAA must protect its computing systems that collect and distribute environmental data to minimize disruptions in service. Disruptions in these vital services could lead to loss of life, injury, and damage to the economy.

Proposed Actions

Several of NESDIS's IT security infrastructure requirements were largely unrecognized until the implementation of a markedly more rigorous Certification and Accreditation (C&A) process in FY 2005. Since the original identification of this issue, requirements have continued to escalate. The requested funds will be used to address the most critical of IT assets in the NESDIS portfolio and are intended to fund the implementation of the National Institute of Standards and Technology (NIST) and Federal Information Processing Standard (FIPS) 200 minimum required security controls. These security controls are mandated and cannot be waived, making the implementation a non-discretionary action. NESDIS has worked to improve its IT security program, but without additional funding, the security program is incomplete and will not adequately secure NESDIS information, assets, and services.

The funds will be used to perform IT system certification and accreditation compliance, provide the ability to mitigate risk for the integrity and availability of NOAA's polar and geostationary satellite data, and support compliance with the Federal Information Security Management Act (FISMA) and Department of Commerce IT security policies. The request ensures that NOAA can meet its core mission to command and control operational environmental satellites and to protect the computational resources necessary to ingest, process, and disseminate environmental satellite data and products. Specifically, funding will provide for continued configuration management of hardware and software; update operation and maintenance of system security tools and controls; intrusion detection/prevention; incident handling, including rapid response to cyber security incidents; implementation of policies and standards; and system reporting to track and mitigate risk to system integrity. This work will be accomplished using contractors. Systems are located at the NOAA Satellite Operations Facility (NSOF) in Suitland, MD, and the Command and Data Acquisition Stations (CDAS) in Wallops, Virginia and Fairbanks, AK.

Starting in FY 2011, the Environmental Satellite Processing Center (ESPC) will annually upgrade IT Security of the NOAA/NESDIS Satellite Operations Facility (NSOF) in Suitland, MD. In addition, Satellite Operations Control Center/Command and Data Acquisition (SOCC/CDA) at the NOAA NSOF, the Wallops, VA and Fairbanks, AK Command and Data Acquisition Stations (CDAS) will receive funds as part of the IT Security upgrade for NOAA/NESDIS IT operations.

Statement of Need and Economic Benefits

The Department of Commerce Inspector General has identified a material weakness in the area of IT security across the Department. The visibility of these national critical systems highlights the importance of removing this material weakness. Currently, NESDIS is forced to accept a high degree of risk for its operational mission critical systems.

All NOAA national systems must be in full compliance with the Federal Information Security Management Act (FISMA); Clinger Cohen Act; Office of Management and Budget (OMB) Circular A-130, Appendix III; Security of Federal Automated Information Resources; National Institute of Standards and Technology Publications/Guidance and Federal Information Processing Standards; and the

Department of Commerce IT Security Policies. NESDIS has diligently labored to improve its IT security program. This funding addresses the most critical requirements for an acceptable IT security posture. The bulk of this funding will address particularly vexing problems in implementing legally mandated security controls in a legacy system environment, containing the majority of NOAA's National Critical and (High Impact) systems. In addition, these systems make up a major portion of DOC National Critical systems and correcting security control inadequacies will have a major impact on the overall security posture of the Department.

The national critical and high impact systems that provide critical infrastructure services to the American people which this increase will help secure include:

- Environmental Satellite Processing Center (ESPC) – Provides computing resources necessary to produce satellite products used to prepare daily weather forecasts, track hurricanes, and supply the Nation with public watches and warnings.
- Geostationary Operational Environmental Satellite (GOES) Ground Segment – Provides infrastructure and computing resources necessary to operate the GOES satellites, which are used to provide advanced warnings of thunderstorms, floods, hurricanes and other severe weather.
- Polar-orbiting Operational Environmental Satellite (POES) Ground Segment - Provides infrastructure and computing resources necessary to operate the POES satellites, which are used for a broad range of environmental monitoring applications including weather forecasting, climate research, and monitoring land usage.
- Data Collection System (DCS) – Provides Federal, state and local agencies the ability to monitor the environment through transmission of observations from surface-based platforms through NOAA satellites, and is instrumental in providing emergency managers with early warning of floods and other hazards.
- Constellation Observing System for Meteorology, Ionosphere & Climate (COSMIC) – Joint United States –Taiwan mission whose goal is to gain inexpensive profiles of temperature and moisture across the globe by intercepting GPS signals using a constellation of satellite-based receivers, resulting in improved weather forecasting.
- Jason-2 and -3 – Provides command and control computing resources for a four-partner radar altimeter mission to measure sea surface height and sea-level rise which helps with monitoring climate change.
- Initial Joint Polar Satellite System Communication Element (IJPSS CE) - Provides infrastructure and computing resources for the communication element for a joint NOAA - European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) mission.
- Satellite Antenna System (SAS) – System containing all satellite services antenna equipment used in the command and control systems.

Schedule & Milestones

- Conduct annual penetration testing on all systems.
- Complete Plan of Action and Milestone (POA&M) requirements for each system
- Implement and operate security controls to protect systems
- Conduct Certification and Accreditation in accordance with NIST 800-53 standards for NOAA system ID's in:
FY 2011: GOES (5003), ESPC (5045)
FY 2012: Jason-2 (5046)
FY 2013: POES (5026), SAS (5059), COSMIC (5047), DCS (5004), IJPSS CE (5058)
FY 2014: GOES (5003), ESPC (5045)

FY 2015: Jason-2 and -3 (5046)

FY 2016: POES (5026), SAS (5059), COSMIC (5047), DCS (5004), IJPSS CE (5058)

Deliverables

Maintain current Certification and Accreditation packages for all eight high impact systems within the satellite services program consistent with NIST 800-53 requirements.

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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 Environmental Satellite Data and Information Service
 Subactivity: Environmental Satellite Observing Systems

	Object Class	2011 Increase
25.2	Other Services	3,108
99	Total Obligations	3,108

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Appropriation: Operations, Research, and Facilities
Subactivity: Data Centers & Information Services

Through NOAA's three National Data Centers, 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 subactivity provides the core funding for the three Data Centers: the National Climatic Data Center, the National Oceanographic Data Center, and the National Geophysical Data Center. This subactivity also supports the nation-wide NOAA library system.

NOAA's National Data Centers 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 visit the NCDC website; and 338 terabytes of data are 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 contributor in partnership with OAR and 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 risks associated with weather and climate extremes. 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. 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 climatology for the U.S. reports. These and other climate assessments support business and government policy makers and implementers. NCDC also works very closely with various regional, state and local stakeholders. NCDC's production of Climate Data Records 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 . . . which can address the current state of the climate at the accuracies and resolution required by the users; [and] to provide capability to assimilate large and complex data sets into Earth systems models..."

Ocean Archive, Access, and Assessment: The National Oceanographic Data Center (NODC), located in Silver Spring, MD, is the Nation's permanent archive for oceanographic data, ensuring the public access to and the scientific stewardship of long-term observational records 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 provides 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 hydrographic 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 developing 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 of 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 and also operates World Data Centers for solid earth geophysics, marine geology and geophysics,

solar terrestrial physics, and glaciology 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 (10^{12}) 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 were not readily available to users, and the paper and film media were deteriorating threatening their loss.

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, such as: Uruguay and Mexico data are being imaged and digitized as well as upper air data from several countries in Africa. Additionally, 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 the private sector.

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 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, 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 that make decisions to 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, as well as 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 and 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 National 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/Integrated Observations System.

PROGRAM CHANGES FOR FY 2011:

Data Center Operations (+2 FTE and + \$2,000,000): NOAA requests an increase of 2 FTE and \$2,000,000 for a total of 2 FTE and \$3,500,000 for Data Center Operations to provide NOAA the operational capability to close the gap in long-term safe storage of and access to the Nation's environmental data and information.

Proposed Actions

This request will provide NOAA the operational capability to allow users to search for and acquire the increased amount of archived data. This operational component will address the anticipated increase in data volume of greater than 3,000% over the next several years and ensure environmental observations remain useful and accessible to the widest range of current and future users. It will ensure that environmental observations collected at great expense remain useful and understandable to the widest range of current and future generations. Users will be able to search for and acquire archived data by seamlessly connecting CLASS ingest, storage, and access capabilities with the NOAA Data Center archive management system. This increase also meets emerging requirements associated with implementing NOAA's climate services that include the long-term preservation of the Nation's climate record.

Funding will be used for: two FTEs who will be responsible for coordinating the contractors' efforts, preparing the requirements needed for each major data set and ensuring the objectives are met; communications bandwidth that delivers these large data volumes from the source to the data centers for long term storage (archive and access), required upgrades to software (S/W) and hardware (H/W) to keep the system functional and compatible (integrated), and operators at the data centers for the system S/W and H/W.

Statement of Need and Economic Benefits

A 3,000% increase in data volume, generated from NOAA's investment in observations such as NPP and the Joint Polar Satellite System (formerly- NPOESS), requires additional support for operational capabilities to archive and access data. This increase will enable users to search for and acquire the increased amount of archived data by seamlessly connecting the CLASS IT infrastructure capabilities with the Data Center archive management system.

This funding will allow for sustaining the data archiving capability once the increased data comes on line. Operational costs continue to grow as data volumes increase, such as the projected 3,000% increase in data volume in FY 2011 and projected increases in the climate model outputs. This will be followed by an additional projected 3,000% increase in data volume due to the availability of Joint Polar Satellite System data. To fill the gap in NOAA's archive capability and capacity, NOAA will incrementally develop and then transition reliable storage components from CLASS to the NOAA Data Centers. This capability will seamlessly link the CLASS enterprise with the National Climatic Data Center, National Geophysical Data Center, and the National Oceanographic Data Center archive and access management systems.

Schedule & Milestones

	FY09	FY10	FY11	FY12	FY13	FY14
Introduce CLASS Capability at Data Centers			X	X	X	X
Expand/Operate & Maintain CLASS Capacity			X	X	X	X
Major Data Generating Programs						
NPOESS Preparatory Program (NPP) – 3,000% increase in data volume			X	X	X	X
Joint Polar Satellite System– additional 3,000% increase in data						X
GOES-R						X
NOAA NEXRAD (operational and enhanced – FY 12 Dual Polarized/Phased Array)				X	X	X
JASON-2 and-3	X	X	X	X	X	X
NOAA POES/DOD DMSP (operational: historical and new data)	X	X	X	X	X	X
NOAA GOES (operational: historical and new data)	X	X	X	X	X	X
EUMETSAT MetOp (operational: historical and new data)	X	X	X	X	X	X
NCEP Models/Reanalysis Products (operational: historical and new data)			X	X	X	X

Deliverables

FY 2011: CLASS Operational **Capability** – CLASS system components integrated into Data Centers’ archival/access management systems.

FY 2012-2015+: CLASS Operational **Capacity** – Expand CLASS safe storage/access capacity to meet introduction of NOAA observational investments and sustain operations and maintenance of CLASS operational components at the Data Centers.

Establishing initial operational capabilities (IOC) at Data Centers – hardware (storage/access), software (OS, processing, and metadata), IT security, communications, and training, and introducing future development components, upgrades, as well as expanded storage/access capacities as each major NOAA observational campaign is deployed.

Performance Goals and Measurement Data

Performance Measure: Ensure the long-term preservation and access to NOAA’s environmental observations from new data streams with information on provenance, content, and quality, hence increasing the value and utility of the data to its maximum potential. (Cumulative total number of data streams)	FY10 Target	FY11 Target	FY12 Target	FY13 Target	FY14 Target	FY15 Target
With Increase	-	1	2	3	5	9
Without Increase	-	0	0	0	0	0
Description: NOAA will successfully address the gap in long-term safe storage of and access to the Nation’s data and information to ensure that the observations collected at great expense remain useful and understandable to current and future generations. Data streams include the future NPP, Joint Polar Satellite System, and GOES-R, as well as the NWS NEXRAD, climate model outputs, and ocean observations.						

Climate Data Records (+2 FTE and + \$11,000,000): NOAA requests an increase of 2 FTE and \$11,000,000 for a total of 2 FTE and \$18,000,000 for Climate Data Records (CDRs) to transform raw satellite data into unified and coherent long-term environmental observations and products that are critical

to climate modelers and decision makers concerned with advancing climate change understanding, prediction, mitigation and adaptation strategies, policies, and science.

Proposed Actions

This change funds 2 critical activities needed to support the Nation's climate science and services:

1. POES & GOES Multi-satellite CDRs - Builds multi-decadal, historical climate information records required by scientists to detect, assess, model and predict climate change, and by decision-makers to devise effective strategies to respond, adapt, and mitigate the impacts of climate change.
2. NPP Raw CDRs – Assures quality and repackages raw NPP data for climate use (e.g., ocean color and temperature, clouds, sea ice, aerosols, ozone) to ensure NOAA archives capture and disseminate credible information to support private/public decision-makers and scientists.

Major CDR development and production actions include:

- Algorithm Development, Processing and Re-Processing of POES/GOES/NPP Data Series
- Calibration, Validation and Characterization of Data
- Science and Climate Information Records
- Long-term Stewardship (ensure CDRs are easily understood, accessible and of highest quality possible)
- Applications for Climate Change Mitigation and Adaptation, and
- Project Management Support

The Program is primarily executed through competitive grants, NOAA Cooperative Institutes, and contracts. Competitive grants are utilized to capture the best community algorithms and adapt them for all past/future data sets. NOAA Cooperative Institutes are used to provide scientific research expertise in support of CDR development. Contracts are utilized for product processing and maintenance. The budget request includes essential IT infrastructure and labor costs for two FTE in FY 2011. The Program leverages prior U.S. investments by transitioning research products from NASA and other agencies into sustained NOAA operations.

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 ... which can address the current state of the climate at the accuracies and resolution required by the users; [and] to 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 errors and biases in satellite data
- Delivers long term, seamless, homogeneous records (50+ years) characterizing climate change/variation
- Reprocesses the entire period of record as new climate algorithms or sensor knowledge is developed

NOAA's CDR processing capability enhances satellite data to have significant use and value for climate studies because they provide the long-term data series needed to study climate change. The US GEO/GEOSS, USGCRP/CCSP (2003), WMO/GCOS (2003), and National Academy of Sciences (2004; 2006) have called for a sustained CDR program. The IPCC's 4th Assessment Report (2007) underscores the urgent need for these data. Key NOAA constituents, including national defense entities and major private sector industries such as insurance, agriculture, 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, 2007).

NOAA’s CDR Program is initially focused on critical CDRs that address key societal issues including:

- Water, drought, floods
- Energy, renewable energy
- Hurricanes, coastal hazards

Improved knowledge in these areas translates into lives and property protected or saved.

Deliverables

Execution requires incremental CDR starts over a long period due to the large work volume. Major annual milestones are:

FY 2010: 3 CDRs produced operationally and 7 CDRs in development

FY 2011: 10 CDRs produced operationally and 8 CDRs in development

FY 2012: 14 CDRs produced operationally, 4 CDRs in development, start transitioning to NPP satellite

FY 2013: 18 CDRs produced operationally, and continue transitioning to NPP satellite input

FY 2014: 18 CDRs produced operationally, and start transitioning to Joint Polar Satellite System satellite input

FY 2015: 18 CDRs produced operationally and continue transitioning to Joint Polar Satellite System satellite input

Performance Goals and Measurement Data

Performance Measure: # of CDRs transitioned to NOAA Operations (Cumulative)	FY10 Target	FY11 Target	FY12 Target	FY13 Target	FY14 Target	FY15 Target
With Increase	3	10	14	18	18	18
Without Increase	3	3	3	3	3	3
Description: The increase will continue transforming raw satellite data into unified and coherent long-term environmental observations and products that are critical to climate modelers and decisions makers concerned with advancing climate change understanding, prediction, mitigation and adaptation strategies, policies, and science.						

Coastal Data Development (0 FTE and + \$38,000): NOAA requests an increase of 0 FTE and \$38,000. This increase is requested to support existing program requirements within this subactivity but not provided for in the Consolidated Appropriations Act, 2010.

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: Archive, Access and Assessment (\$20,116,000); Regional Climate Centers (\$3,500,000); Integrated Data and Environmental Applications and Information Center (\$3,000,000); and Southern Regional Climate Center (\$850,000).

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

Activity: National Environmental Satellite, Data, and Information Service

Subactivity: NOAA Data Centers and Information Services

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Physical Science	Silver Spring, MD	ZP-04	1	89,033	89,033
Physical Science	Boulder, CO	ZP-04	1	87,815	87,815
Physical Science	Asheville, NC	ZP-04	1	81,823	81,823
IT Management (Specialist)	Asheville, NC	ZP-03	1	57,408	57,408
Physical Scientist (CDRs)	Asheville, NC	ZP-04	1	81,823	81,823
Management and Program Analyst (CDRs)	Asheville, NC	ZA-04	1	81,823	81,823
Total			6		479,725
less Lapse		25%	2		-119,931
Total full-time permanent (FTE)			4		359,794
2011 Pay Adjustment (1.4%)					5,037
TOTAL					364,831
Personnel Data			Number		
Full-Time Equivalent Employment					
Full-time permanent			4		
Other than full-time permanent			0		
Total			4		
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 Environmental Satellite Data and Information Service
Subactivity: NOAA Data Centers and Information Services

Object Class	2011 Increase
11.1 Full-time permanent	365
11.9 Total personnel compensation	365
12 Civilian personnel benefits	111
21 Travel and transportation of persons	225
23.3 Communications, utilities and miscellaneous charges	862
25.1 Consulting services	1,659
25.2 Other services	2,510
26 Supplies and materials	721
31 Equipment	824
41 Grants and Fixed Charges	5,761
99 Total Obligations	13,038

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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 satellites 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, commercial shipping, utilities, etc).

GOES data provide:

- Cloud images and precipitation estimates for hurricanes and other coastal storms;
- NOAA CoastWatch 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, hydrometeorological 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 Satellite Programs

The goals of the Polar-orbiting Operational Satellite programs 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 Joint Polar Satellite System (formerly 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 providing support for all of the other strategic plan goals as well as 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 chemicals (particles) 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 ensure 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 aids the public by generating timely and accurate environmental data/weather information. A primary function of the GOES Program is supporting the National Weather Service (NWS) in forecasting, tracking, and monitoring severe storms. The improved accuracy of the NWS forecasts by using GOES data for severe storms results in weather forecasting/advisories to impacted areas to ensure authorities and the public are equipped with decision-making information to protect lives and property. This 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.

GOES N Launch Schedule

Spacecraft	Planned Launch Date	Operational Date
GOES-O (14)	June 27, 2009	December 2011
GOES-P	April 2010	December 2014

GOES-O (14) was successfully launched on June 27, 2009. Funding is necessary starting in FY 2011 for contractor support, technical management support, additional instrument contractor support, satellite maintenance and storage costs, and the modification of the GOES-N series contract to provide oversight of on-orbit engineering support after the launch of GOES-P for coverage of potential on-orbit anomaly problems.

NOAA is not requesting a program change over the FY 2011 base, but rather an increase of \$8,101,000 over the FY 2011 amount estimated in the FY 2010 President's submission profile. This one year adjustment is also reflected in the revised total life-cycle cost estimate.

FY 2011 OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
GOES-N	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Change from FY 2011 Base			(11,707)	(18,400)	(20,172)	(20,379)		
Total Request	2,015,767	57,601	45,894	39,201	37,429	37,222	121,354	2,354,468

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

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, 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 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.

The Outyear Funding Estimates are provided with the program change requested for this activity.

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 Joint Polar Satellite System (formerly - 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 will carry U.S. instruments and provide data services coverage from a mid-morning polar-orbit through 2020. The Joint Polar Satellite System will maintain the Nation's polar observation requirements for the afternoon orbit with higher resolution data and products for improved forecasts, warnings, and climate monitoring.

The Outyear Funding Estimates are provided with the program change requested for this activity.

SATELLITE ALTIMETRY MISSION – JASON-3

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 the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT). The Jason series has been transitioned as a research endeavor from NASA and the Centre National d'Etudes Spatiales (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 Outyear Funding Estimates are provided with the program change requested for this activity.

JOINT POLAR SATELLITE SYSTEM (FORMERLY -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.

Beginning in FY 2010, the program will undergo a management restructure and capacity realignment, with DOD managing satellite acquisition for the morning orbit and NOAA—with the assistance of NASA—managing acquisition for the afternoon orbit. NOAA/NASA will continue to provide joint ground system support and DOD will continue to provide early morning data sets to NOAA's numerical weather models. The Outyear Funding Estimates are provided with the program change requested for this activity.

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)								
	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Earth Observing System Data Archive & Access System Enhancement								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	12,352	990	990	990	990	990	2,970	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, MD, by providing a backup capability at Wallops, VA 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)								
	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Critical Single Points of Failure								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	22,119	2,772	2,772	2,772	2,772	2,772	8,385	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 of its Joint Polar Satellite System satellites (formerly NPOESS), which will provide a 3,000% 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)								
	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
CLASS								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	62,819	6,476	6,476	6,476	6,476	6,476	1,352	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 Joint Polar Satellite System (formerly NPOESS) products and services, once the data have been delivered to NOAA. In order to realize the benefits of Joint Polar Satellite System data, NOAA must implement capabilities to process the observations into useful products that meet the requirements of NOAA’s operational centers and other civilian users. The NDE program 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. NESDIS and the National Weather Service have collaborated to establish a priority for NDE product

developments. As a result, the NDE program will generate data products derived from the following high priority requirements for NOAA within two years after NPP launch: atmospheric and ocean surface radiances, snow cover, sea surface temperature, aerosol optical thickness, vegetation index, and ozone.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
NPOESS Preparatory Data Exploitation (NDE)								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	18,196	4,455	4,455	4,455	4,455	4,455	13,426	53,897

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

RESTORATION OF CLIMATE SENSORS

NOAA will continue the development of the re-manifested climate sensors, Total Solar Irradiance Sensor (TSIS) and the Clouds and Earth's Radiant Energy System (CERES), started prior to FY 2010. 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, CERES has been re-manifested on NPP and is planned to fly on the first Joint Polar Satellite System satellite. Options for carrying TSIS on orbit are still under development. Work on the Ozone Mapping and Profiler Suite (OMPS), also manifested on NPP, is anticipated to begin in FY 2011 and continue in FY 2012 through FY 2015, for integration on subsequent Joint Polar Satellite System satellites. These instrument development projects are essential to meeting the NOAA Strategic Plan Climate Goal to understand climate variability and change. These sensors will ensure the Agency continues to provide current, accurate, relevant and timely climate information to the scientific community and other interested parties through the monitoring of atmospheric conditions (including carbon dioxide, sulfur dioxide, nitrous oxide, water vapor, methane, ozone, soot, and aerosols), measurements of solar energy reaching the Earth's atmosphere (radiative forcing), and the Earth's reflected and radiated energy. These measurements are performed most accurately above the Earth's atmosphere via space-borne instruments. Without these sensors, alternative and less accurate methods would have to be employed to meet the Climate Goal, severely impacting NOAA's ability to discriminate the anthropogenic effects from the natural climate variability.

The Outyear Funding Estimates are provided with the program change requested for this activity.

PROGRAM CHANGES FOR FY 2011:

GOES-R Series (0 FTE and +\$62,500,000): NOAA requests an increase of 0 FTE and \$62,500,000 for a total of 46 FTE and \$730,000,000 to provide continued satellite engineering development and production activities for the instruments, satellite, and ground system development under contract in order to meet the planned launch readiness dates.

The spacecraft contract was awarded in December 2008. Due to a protest and re-evaluation, all performance under this contract had been suspended. In July 2009, the final protest was withdrawn allowing work to resume. Because of the extended length of the award protest, a new Launch Readiness Date has been determined and rebaselined. NOAA awarded the ground system contract in May 2009.

Following the spacecraft and ground system final contract awards, and the delay of seven months for executing the spacecraft contract, the GOES-R program completed further analysis of the budget outyear profile. The FY 2011 profile does not change the total life cycle cost, but instead moves risk funding initially budgeted in the near-years to later years to provide a more balanced approach to contingency funding for integration of GOES-R and GOES-S.

Proposed Actions

FY 2011 GOES-R funding will be used for:

- Acquisition & Operations including continued development of GOES-R & S spacecraft and ground system. The program will continue to work towards the Critical Design Review (CDR) for the GOES-R Series system, for both spacecraft and ground system;
- Continued instruments already under contract: Advanced Baseline Imager (ABI), Solar Ultra Violet Imager (SUVI), Extreme Ultra Violet Sensor/X-Ray Sensor Irradiance Sensor (EXIS), Space Environmental In-Situ Suite (SEISS), and Geostationary Lightning Mapper (GLM);
- Continued funding of flight models and spares for each instrument in FY 2011 and product algorithm development for the ABI Instrument for GOES-R and GOES-S satellites; and
- Continuation of the ground system antenna contract.

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;
- Needed as a backup to GOES O or P; part of a system of two operational satellites and an on-orbit spare;
- Provides advances in NOAA's observation capabilities for all NOAA mission goals including improvements to coastal, space weather, and lightning observations; and
- 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).

Average annual damage from tornadoes, hurricanes, and floods is \$11.4 billion with about 100 deaths annually (Extreme Weather Sourcebook 2001: *Economic & Other Societal Impacts Related to Hurricanes, Floods, Tornadoes, Lightning, and Other U.S. Weather Phenomena*. Collaborative Program on the Societal Impacts and Economic Benefits of Weather Information, Boulder, CO). Approximately \$4 billion per year is lost in economic efficiencies as a result of weather-related air traffic delays (NOAA, 2002: GOES-R Sounder and Imager Cost/Benefit Analysis, NOAA NESDIS Office of Systems Development, Silver Spring, MD). Lightning causes between \$4 and \$5 billion in losses each year in the civilian sector with about 47 deaths and

303 injuries per year (NOAA, 2004: GOES-R Sounder and Imager Cost/Benefit Analysis - Phase III. NOAA/NESDIS/Office of Systems Development, Silver Spring, MD). By helping to produce more accurate forecasts and warnings, the GOES-R series will minimize these losses.

Schedule & Milestones

The current launch schedule for GOES-R and GOES-S are:

Spacecraft	Launch Baseline Date	Planned Operational Date
GOES-R	October 2015	December 2016
GOES-S	February 2017	May 2020

Deliverables

FY 2011: Continue development of instruments and spares, software and acquisition of hardware for Ground System. Conduct Preliminary Design Review (PDR) for Ground System, Spacecraft and total GOES-R system.

FY 2012: Achieve Ground System, Spacecraft, and GOES-R System level CDR. Delivery of first flight models of ABI, SEISS, GLM and EXIS Instruments. Continue design efforts for software and acquisition of hardware for Ground System. Continue Spacecraft development.

FY 2013: Delivery of first 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.

FY 2014: Delivery of second flight units for ABI, 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. First release of Ground system software.

FY2015: Prepare for GOES-R launch.

Performance Goals and Measurement Data

GOES-R falls under the Department of Commerce Strategic Goal, Promote Environmental Stewardship. This increase will support the general objective to Provide Critical Support for NOAA's Mission. This program supports NOAA's four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

NOAA's Planned Performance Measure: The continuous monitoring of total lightning flash rate from the new Geostationary Lightning Mapper (GLM) together with the dramatic improvements in observations from the Advanced Baseline Imager (ABI) will provide the potential to contribute to a 10% improvement in the accuracy of hurricane intensity forecasts in the 24- to 48-hour time frame and a 5% improvement in hurricane track forecasts out to 5 days. The GLM will also contribute to a potential improvement of 7 minutes for tornado warning lead time.

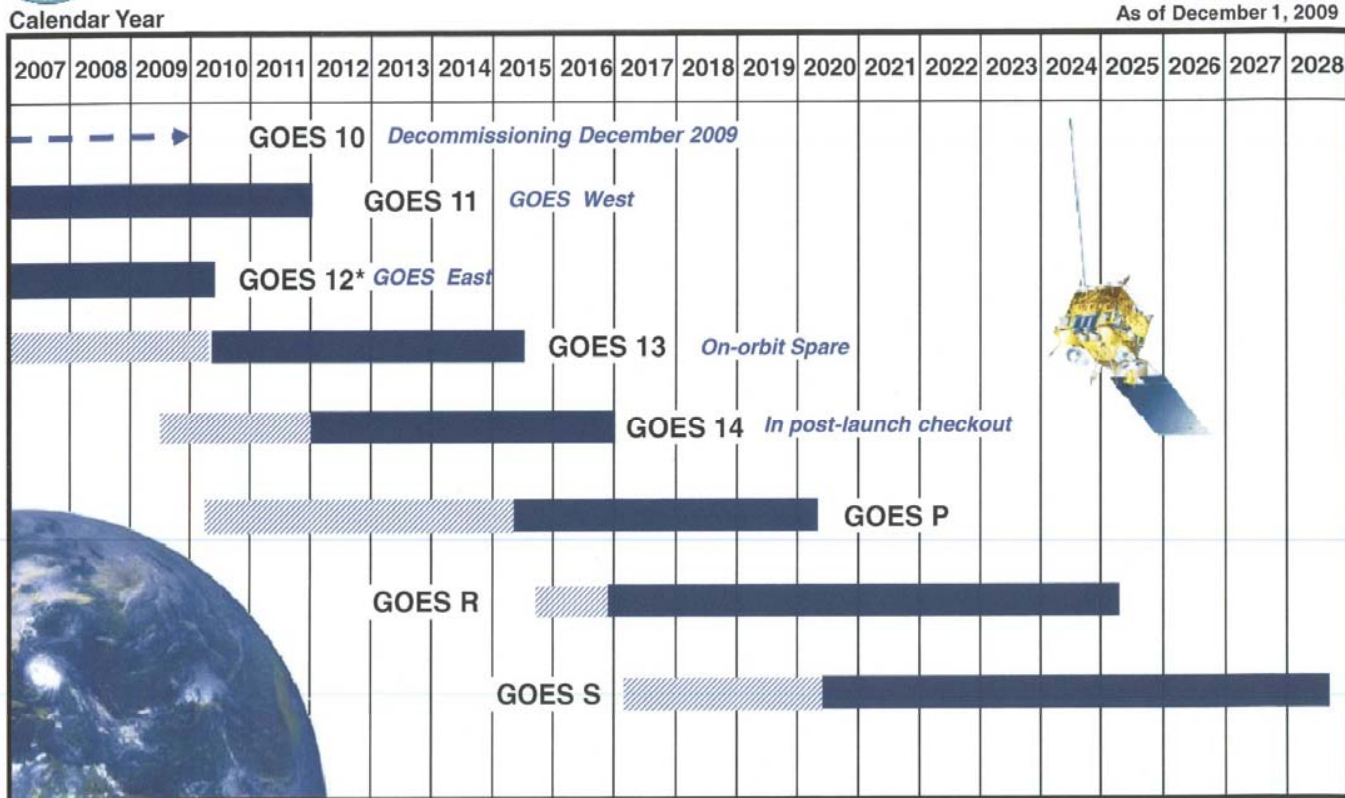
FY 2011 OUTYEAR FUNDING ESTIMATES (BA in thousands)								
GOES-R	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Change from FY 2011 Base		62,500	106,200	110,300	112,000	112,800		
Total Request	2,156,544	730,000	773,700	777,800	779,500	780,300	1,674,162	7,672,006

*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.



Continuity of GOES Operational Satellite Program



Approved: Abigail Hager
 Deputy Assistant Administrator
 for Systems

* Backup and South American Coverage
 beginning June 2010

Satellite is operational beyond design life
 On-orbit GOES storage
 Operational

Polar-Operational Environmental Satellite Systems (POES) NOAA Polar K-N' (0 FTE, and -\$2,261,000):

NOAA requests a decrease of 0 FTE and \$2,261,000 for a total of 22 FTE and \$40,874,000 for the continuation of the POES program, and continued support for the MetOp program. This is a planned decrease that was reflected in the FY 2010 President's Budget resulting from the successful launch of the last POES satellite, NOAA 19, in February 2009.

Proposed Actions

Continued funding in FY 2011 will provide satellite and instrument anomaly support to the on-orbit POES satellites, maintain ground system for their operations, and support the procurement, maintenance and testing of the U.S. instruments on the European MetOp satellites.

Statement of Need and Economic Benefits

The polar satellite program consists of NOAA's Polar-orbiting Operational Environmental Satellites (POES), and the provision of U.S. instruments for flight on the European Polar System (EPS) satellites known as MetOp. 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 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, and adjacent waters and ocean area that assists in the protection of life and property and enhances the national economy. This mission requires a continuing 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; and 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 and climate change;
- Environmental air quality monitoring and emergency response;
- Detection and analysis of fires and volcanic eruptions; and
- Short-term and mesoscale forecasts.

Schedule & Milestones

FY 2011: Continue on-orbit support for NOAA-19 and prepare for MetOp-B Launch including US instruments

FY 2012: Support MetOp-B Launch including U.S. instruments

FY 2013 - 2015: Support annual reactivation for MetOp-C including U.S. instruments

Performance Goals and Measurement Data

Promote environmental stewardship. Specifically, this program supports NOAA's four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
POES	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Change from FY 2011 Base		(2,261)	(2,261)	(2,261)	(2,261)	(2,261)		
Total Request	\$2,368,529	\$40,874	\$40,874	\$40,874	\$40,874	\$40,874	\$25,946	\$2,598,845

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

Joint Polar Satellite System (formerly - National Polar-orbiting Operational Environmental Satellite System (NPOESS)) (0 FTE and + \$678,600,000): NOAA requests an increase of 0 FTE and \$678,600,000 for a total of 61 FTE and \$1,060,800,000 to continue development of instruments and acquire the spacecraft for the afternoon orbit under the restructured Joint Polar Satellite System.

The restructured Joint Polar Satellite System 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, 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.

Proposed Actions

The Joint Polar Satellite System continues a number of management and acquisition reforms that will be initiated in FY 2010 to deliver polar observations necessary to meet both the civil and military needs for weather and climate information. Some work remains to develop the most effective transition and alignment of responsibilities, as well as to refine the launch readiness dates. A detailed transition plan is to be developed in the coming months.

NOAA will:

- Continue to develop the suite of instruments originally planned for the NPOESS mission (VIIRS, CrIS, ATMS, and OMPS)
- Acquire a satellite bus for the afternoon orbit based on NASA's NPOESS Preparatory Project (NPP) spacecraft design
- Continue to provide ground system support for the civil and military polar observations

NASA will provide the acquisition management for those segments of the Joint Polar Satellite System that support the afternoon mission requirements, as well as those segments common to both the civil and military mission (e.g., ground systems). The Department of Defense will continue the acquisition of its early morning orbit assets.

Statement of Need and Economic Benefits

A successful Joint Polar Satellite System will continue to 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. The Joint Polar Satellite System 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 El Nino and La Nina events 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.

Schedule & Milestones

- FY 2010 transition afternoon orbit instrument asset acquisitions from DoD to NASA
- FY 2010 begin procurement of an afternoon orbit NPP-like bus and continue procurement of instruments for integration on NPP
- FY 2011 continue instrument and satellite bus procurements, and launch NPP
- FY 2012 deliver first set of instruments for the afternoon orbit
- FY 2013 complete development of the NPP-like bus

Support afternoon orbit launches:

1st satellites launch readiness in FY 2015

2nd satellites launch readiness in FY 2018

These dates may be adjusted as the transition plan is developed.

Deliverables

The Joint Polar Satellite System will:

- Deliver NPP launch readiness in FY 2011
- Deliver VIIRS, CrIS, OMPS, and ATMS instruments in FY 2013 to support a FY 2015 launch readiness of the first afternoon orbit satellite

Performance Goals and Measurement Data

The Joint Polar Satellite System falls under the Department of Commerce Strategic Goal: Promote Environmental Stewardship. This increase will support the general objective to Provide Critical Support for NOAA's Mission. Specifically, this increase supports NOAA's four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

NOAA's Planned Performance Measures: Advance the understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs.

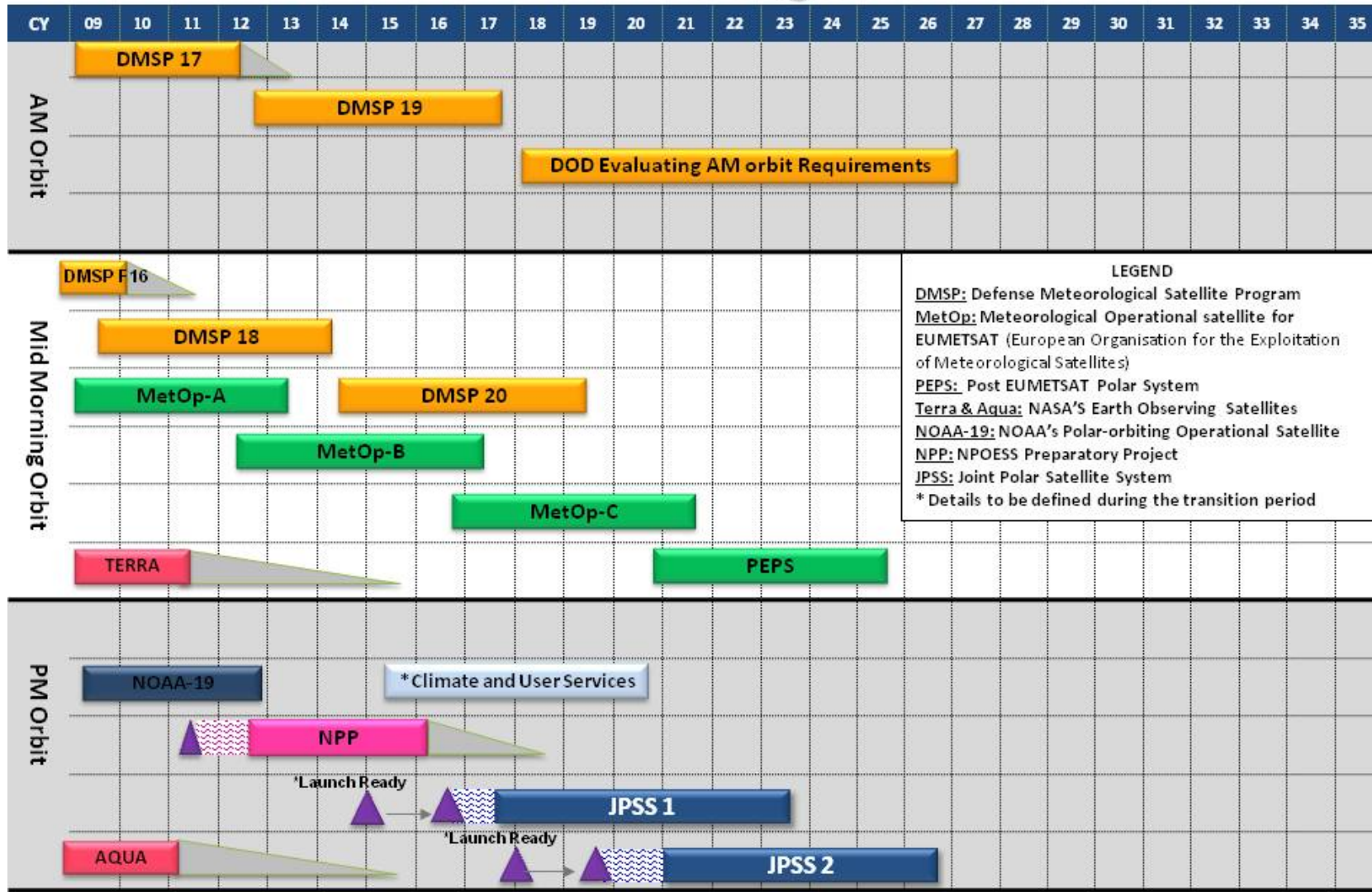
OUTYEAR FUNDING ESTIMATES ¹								
(BA in thousands)								
Joint Polar Satellite System (formerly NPOESS)	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Change from FY 2011 Base		678,600	777,800	577,800	357,800	227,800		
Total Request	2,908,494	1,060,800	1,160,000	960,000	740,000	610,000	4,489,506	11,928,800

* 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.



Continuity of Polar Operational Satellite Programs



Satellite Altimetry Mission-Jason-3 (0 FTE and + \$30,000,000): NOAA requests an increase of 0 FTE and \$30,000,000 for a total of 0 FTE and \$50,000,000 to provide continuity of precise measurement of sea surface heights by continuing the development of the Jason-3 satellite in partnership with our European partners, which started in FY 2010.

Proposed Actions

This funding will support the continued acquisition of Jason-3 components and launch services to ensure a launch of Jason-3 in 2013 to continue the data record of Topex/Poseidon, Jason-1 and Jason-2.

Jointly with our European partners, EUMETSAT and CNES, NOAA will procure a Jason-3 instrument, and provide for a satellite altimetry mission, which will be a follow on satellite to: Topex/Poseidon, launched in 1992; Jason-1, launched in December 2001; and Jason-2, launched in June 2008. Currently, Jason 3 is planned for launch in 2013. For Jason-3, NOAA will provide a microwave radiometer, precision orbit determination components (e.g., GPS), launch vehicle and services, and associated engineering services. The Jason-2 command and control, and data processing capabilities will be used for Jason-3. This action addresses NOAA's immediate need by enabling NOAA, EUMETSAT, and CNES to launch Jason-3 in CY 2013, allowing an overlap with the Jason-2 mission.

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 centimeters, 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. Additionally, the U.S. Climate Change Science Program has recently stated that these uncertainties “...*will likely lead to sea-level projections for the end of the 21st century that substantially exceed the [latest IPCC] projection.*” Because this will impact the 146 million people worldwide living within 100 centimeters of mean high water, it is critical that systematic observations of global sea level be collected on a continuing basis until these uncertainties are successfully addressed.

The only feasible way to resolve the spatial variability needed in an accurate determination of GSLR is by means of satellite altimetry, specifically the systematic collection of sea level observations initiated by *TOPEX/Poseidon* in 1992 and continued today by the on-going *Jason* series of satellite missions. A complementary global network of tide gauges provides essential cross-validation for GSLR, as well as key sites for the estimation of vertical land motion. Together, these observations suggest that GSLR is accelerating; in particular, the value of ~3.1 millimeter/year from altimeters over the past 1½ decades is almost twice the estimate of ~1.7 millimeter/year from tide gauges over the past century. Additionally, when compared with the IPCC projections, the observations of GSLR from altimetry do not fall within, but rather overlay the upper values of the ranges for the IPCC projections.

Ocean Climatology Benefits:

- Global sea-level rise – The Global sea [ocean]-level rise is 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 – Decadal variability has been shown to have an impact on fishery regime changes and 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. Overall, the 1997-1998 El Nino is estimated to have had total U.S economic impacts on the order of \$25 billion (Source: NOAA Economic Statistics, May 2006). Property losses were \$2.6 billion; crop losses approached \$2 billion (Source: NOAA Economic Statistics, May 2006). Altimetry data provided early warning of the 1997/1998 El Nino (NASA/JPL Publication). Long-range predictions were issued by NOAA's Climate Prediction Center (Source: NOAA Magazine November 2001). This led California to conduct major mitigation efforts leading to a reduction in losses of about \$1 billion. (Source: NOAA Magazine November 2001).
- 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 Advanced Very High Resolution Radiometer) 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: U.S. Department of the Interior Minerals Management Service
- Deep sea recovery
- Sport and recreational boating

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, the general public, the educational community, and NOAA's European partners:

European Center for Medium-Range Weather Forecasts (ECMWF), National Center for Ocean Forecasting of the UK Met Office, France, and MERCATOR.

Schedule & Milestones

- FY 2011:** Begin procurement of Laser Ranging Array (LRA)
Start Launch Vehicle build/test
Deliver MR, GPS and LRA to Europe
- FY 2012:** Support spacecraft integration and test
Ground capabilities ready to support Jason-3 launch
Deliver Launch vehicle to support launch
- FY 2013:** Launch Jason-3
Complete on-orbit check-out, calibration, and start routine ops
Complete overlap activity with Jason-2
- FY 2014 - 2015:** Continue routine operations: command and control, data acquisition, product generation and distribution including delivery to the Comprehensive Large Array Data Stewardship System (CLASS)

Performance Goals and Measurement Data

The Jason-3 Satellite Altimetry Mission falls under the Department of Commerce Strategic Goal, Promote Environmental Stewardship. This increase will support the general objective to Provide Critical Support for NOAA’s Mission. Specifically, this increase supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

NOAA’s Planned Performance Measures, starting in FY 2013:

- Capture 95% of observed data
- Deliver 95% of data to users within 5 hours from time of observation
- Measure sea surface height measurement to an accuracy of 3-4 cm
- Maintain Continuity of Sea Surface Height climate record

Without the funding increase, NOAA cannot carry out the Jason-3 mission, breaking over 20 years of climate data continuity.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
Satellite Altimetry Mission (Jason 3)	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Change from FY 2011 Base		30,000	33,000	9,000	(18,000)	(18,000)		
Total Request	20,000	50,000	53,000	29,000	2,000	2,000	3,000	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.

Restoration of Climate Sensors (0 FTE and +\$49,400,000): NOAA requests an increase of 0 FTE and \$49,400,000 for a total of 0 FTE and \$49,400,000 to continue the development and acquisition of six NPOESS climate sensors that were de-manifested as a result of Nunn-McCurdy certification process. These critical sensors will continue to be developed for use on the Joint Polar Satellite System and will address two climate-related objectives within the context of the U.S. Climate Change Science Program (CCSP). These objectives are (1) to fly critical climate sensors that had been planned for NPOESS which represent the continuation of NASA’s Earth Observing System (EOS) capabilities and (2) to fly those

sensors that represent a fundamental contribution to NOAA's Climate Mission, which includes both heritage satellite and in-situ observing systems.

Proposed Actions

This program is working to restore a number of sensors that were de-manifested from NPOESS as a result of the Nunn-McCurdy process. These critical sensors currently being acquired by NOAA, through NASA, will be used on the afternoon orbit satellite of the Joint Polar Satellite System. The FY 2011 request of \$49,400,000 will continue the build of CERES Flight Model 6 (FM-6), TSIS #1, and begin instrument development work for CERES FM-7 (for Earth Radiation Budget) and OMPS (for ozone). It is anticipated that CERES FM-6 and TSIS #1 will be manifested on satellites of the Joint Polar Satellite System.

Through an interagency agreement, NASA is NOAA's acquisition agent in procuring the climate sensors, but NOAA will retain overall program management responsibility. NASA will also provide support to integrate and test the instruments on the Joint Polar Satellite System.

Statement of Need and Economic Benefits

The National Research Council (NRC), as part of The National Academies, completed a decadal survey of earth science in 2007. Its findings are documented in the report, "Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond." Among its 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.

Acquiring these sensors for use on the Joint Polar Satellite System will ensure the continuity of the climate data records for solar irradiance, earth energy budget, ozone, and aerosol. Without funding, the impacts of the gap in the climate data record are:

- **TSIS Impact:** These measurements monitor the energy of the sun incident on Earth. They are crucial measurements that can be accurately determined only above the atmosphere. 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.
- **CERES Impact:** This measurement monitors the energy that maintains climate and can be accurately determined only above the atmosphere. 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.
- **OMPS Impact:** Stratospheric ozone absorbs incoming solar ultraviolet radiation that can be harmful to humans and other organisms. Anthropogenic emissions of halogen-containing gases (e.g., Freon) are now known to destroy stratospheric ozone. The Montreal Protocol on Substances Depleting the Ozone Layer has resulted in successful international actions to reduce atmospheric concentrations of halogen-containing gases. The continuation of stratospheric ozone observations is crucial to monitor and evaluate the recovery of the ozone layer.

The continuation of the data sets from these instruments will be critical to climate change research and understanding the impacts of climate change. The prospects of such climate changes have profound implications for global society and the environment, underscoring the need for information derived from these instruments to aid decision makers in developing and evaluating options for mitigating the impacts of climate change as well as alternatives for adapting to a changing climate. Climate sensors 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 and climate monitoring, benefiting agriculture, transportation, and energy production.

Schedule & Milestones

- FY 2011:** Continue /complete CERES FM6 and TSIS #1 climate sensor developments. Initiate new developments for follow on CERES instrument, as well as Ozone Mapping and Profiler Suites Nadir and Limb sensors
- FY 2012:** Integrate CERES FM-6 and TSIS on the first Joint Polar Satellite System satellite. Continue instrument development
- FY 2013:** Continue instrument development, initiate development of a second TSIS instrument.
- FY 2014:** Launch CERES FM-6 and TSIS on the first Joint Polar Satellite System satellite, continue instrument development
- FY 2015:** Continue instrument (CERES FM-7, OMPS, TSIS #2) development

Performance Goals and Measurement Data

Climate sensors support the Department of Commerce Strategic Goal, Advance Understanding of Climate Variability and Change. Specifically, this increase supports NOAA’s efforts by providing the necessary satellite infrastructure to maintain the observations for global environmental monitoring.

NOAA’s Planned Performance Measure:

Increased accuracy in the observations of solar irradiance, Earth’s radiative budget, and atmospheric ozone and aerosols, leading to reduced uncertainties associated with interannual variability in the global carbon cycle and the radiative influence of other atmospheric constituents in the forcing of climate change.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
Climate Sensors	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Change from FY 2011 Base		49,400	55,400	51,100	50,600	35,500		
Total Request	136,985	49,400	55,400	51,100	50,600	35,500	47,100	426,085

Constellation Observing System for Meteorology Ionosphere and Climate-2 (COSMIC-2) (0 FTE and +\$3,700,000): NOAA requests an increase of 0 FTE and \$3,700,000 for a total of 0 FTE and \$3,700,000 to collaborate with the Taiwan National Space Organization (NSPO) for the launch of 12 satellites to provide replenishment and operational upgrade for the current COSMIC constellation.

Proposed Actions

NOAA will procure 12 radio occultation (RO) sensors, provide launch services, provide ground station support, and sensor processing support. Taiwan will provide the spacecraft and integrate the sensors onto them. During FY 2011, NOAA would enter into a contract for engineering design support and software development, in addition to a subcontract for sensor hardware to be built by a selected contractor. This funding in FY 2011 will start the development efforts for the sensors for COSMIC-2, as well as systems engineering. This is necessary to meet the FY 2014 launch date.

Statement of Need and Economic Benefits

This funding is needed to begin development of the follow-on mission to the current COSMIC satellite constellation, which is expected to begin degradation in 2011. The COSMIC constellation of 6 satellites employs an Earth-observing technique called GPS radio occultation (GPSRO), which receives emitted GPS radio waves as they pass through the atmosphere, and is a cost-effective means of obtaining global

atmospheric temperature and moisture profiles. Launched in 2006, COSMIC has provided real-time atmospheric temperature and moisture data for operational weather forecasting since May 2007. The data has been tested within NOAA's operational system, demonstrating an improvement of weather forecasting by 8+ hours starting at day 4 of the forecast model.

Prior to COSMIC, approximately 1,000 radiosondes were launched in the world each day, typically over land. The current COSMIC constellation provides more global coverage with an additional 2,000 soundings per day that have an even distribution and accuracy rate over the ocean and land. COSMIC-2 will provide over 8,000 soundings per day distributed over ocean and land, significantly increasing the volume of quality observed global atmospheric soundings providing temperature, water vapor, and pressure profiles. This data is currently used to determine high accuracy atmospheric temperatures at various altitudes that improve weather forecasts and is not available globally from other sources. Losing this data will result in a significant performance degradation of NOAA's numerical weather models. Additionally, GPSRO data provides unique advantages that can be leveraged to improve what we do now with other NOAA sensors and, in some cases (e.g., ionospheric electron density profiles), fills a void of observations where they do not exist now and can lead to improved NOAA space weather services.

Many studies have been done and documented by NCEP to validate the benefits of the COSMIC system prior to the data becoming operational. Subsequent testing has validated the post operational benefits. In addition, the National Research Council's 2007 decadal survey titled, "Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond", recommends that NOAA transition to operations the use of GPS occultation sounders on Low Earth Orbiting (LEO) satellites. This is consistent with the recommendations from the U.S. Global Change Research Program (USGCRP), the U.S. Climate Change Science Program (CCSP), and the U.S. component of the Global Earth Observation System of Systems (GEOSS). Ref: "Preliminary Impact studies using Global Positioning Radio Occultation Profiles at NCEP", Cucurull, Derber, et al, *Monthly Weather Review*, 2007; "Assimilation of Global Positioning System Radio Occultation Observations into NCEP's Global Data Assimilation System", Cucurull, Derber et al. *Monthly Weather Review*, 2006.

Schedule & Milestones

- FY 2011:** Start procurement of the radio occultation (RO) sensors
RO Sensor Preliminary Design Review (PDR)
- FY 2012:** RO Sensor Critical Design Review (CDR)
Complete first set of 6 RO Sensors
- FY 2013:** System Integration Review (SIR)
- FY 2014:** First Launch of 6 COSMIC-2 satellites
- FY 2016:** Complete second set of 6 RO Sensors
- FY 2017:** Second Launch of 6 COSMIC-2 satellites

Performance Goals and Measurement Data

COSMIC-2 falls under the Department of Commerce Strategic Goal, Advance Understanding of Climate Variability and Change.

NOAA's Planned Performance Measure:

This data will continue to provide high accuracy atmospheric temperatures at various altitudes that improve weather forecasts, and make possible an 8-hour forecast skill improvement at day 4 in NOAA's Operational Global Numerical Weather Prediction Model.

Performance Goal: Performance Measure: Day 4 Forecast Improvement	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase		8 hrs	8 hrs	8 hrs	8 hrs	8 hrs
Without Increase		0 hrs	0 hrs	0 hrs	0 hrs	0 hrs
Description: This measure tracks Day 4 forecast improvement. The increase will sustain the current forecast capability, which currently uses a satellite constellation expected to degrade in FY2011.						

Performance Goal: Performance Measure: Day 7 Forecast Improvement	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase		15 hrs	15 hrs	15 hrs	15 hrs	15 hrs
Without Increase		0 hrs	0 hrs	0 hrs	0 hrs	0 hrs
Description: This measure tracks Day 7 forecast improvement. The increase will sustain the current forecast capability, which currently uses a satellite constellation expected to degrade in FY2011.						

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
COSMIC-2								
Change from FY 2011 Base		3,700	8,300	10,300	9,500	16,500	65,400	
Total Request		3,700	8,300	10,300	9,500	16,500	65,400	113,700

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

Deep Space Climate Observatory (DSCOVR) – Space Weather Observations (0 FTE and +\$9,500,000): NOAA requests an increase of \$9,500,000 and 0 FTE for a total of 0 FTE and \$9,500,000 and a total life cycle cost of \$85,100,000 to initiate refurbishment of the DSCOVR satellite, formerly known as Triana, and development of a Coronal Mass Imager (CME) imager to maintain continuity of solar wind data used for geomagnetic storm warnings.

Proposed Actions

NESDIS proposes the acquisition of Solar Wind data and CME imager to allow for the continuation of geomagnetic storm warnings. This acquisition will fund the refurbishment of the existing NASA satellite DSCOVR, which would be launched to provide solar wind data for geomagnetic storm forecasting, and to purchase and add a CME imager to the mission. Under a reimbursable agreement between NESDIS and NASA, NASA Goddard Space Flight Center (GSFC) will perform the refurbishment of the DSCOVR satellite which is currently housed at GSFC.

NESDIS studies have indicated that using a refurbished DSCOVR with an USAF launch vehicle would save the U.S. Government approximately \$30 million when compared to purchasing a new satellite and launch vehicle. For a cost of approximately \$85 million to refurbish the existing satellite and launch costs of a roughly similar amount to be provided by the USAF, NOAA will receive vital data which can help mitigate geomagnetic storm damage of \$1-2 trillion, according to a recent National Academies’ study.

Statement of Need and Economic Benefits

The only source for geomagnetic storm warnings are solar wind data, which are currently received from NASA's Advanced Composition Explorer (ACE). The geomagnetic storm 1-4 day forecasts use coronal mass ejection imagery received now from NASA/ESA's SOHO and NASA's STEREO satellites. Launched in 1995, 1997, and 2006, all of these satellites have exceeded their two-year design life. A large increase in geomagnetic storm frequency and severity is expected during the next solar maximum beginning in 2013 and lasting for several years.

The DSCOVR spacecraft already carries a magnetometer and plasma sensor for solar wind data. It is missing an Ion sensor, but the addition of a CME imager will compensate for that deficiency, and the data from the mission will allow NOAA to meet both our geomagnetic storm warnings and 1-4 day forecast needs. NOAA risks a total loss of these forecast products, especially the geomagnetic storm warning, if current data sources are lost.

It is anticipated that NOAA will lose two of its most critical observational data sources when the NASA ACE and the NASA/ESA SOHO satellites (which have already exceeded their operational life) fail. The coronagraph on the SOHO spacecraft can provide 1-4 day warnings of impending space weather storms. The Solar Wind Monitor on the ACE satellite provides the only reliable 15-45 minute warnings of space weather storms that are about to hit Earth. Low reliability of the satellites and sensors and the high risk of unavailability of the data pose one of the most serious gaps for NOAA's space weather services.

In 2005, NOAA issued a press release informing its geomagnetic storm warning customers that the alert might be discontinued at any time due to the current data source of solar wind, the ACE satellite, being years beyond its design life. Customers were invited to respond to us documenting the impact of the loss of the warning on them. Their responses were summarized in a report "Evaluation of Public Response to the Termination of Solar Wind Data", October 2006. Our customers have stated the strongest support for the continuation of these alerts.

Several industries and services could potentially suffer significant losses and damage without accurate advance warnings of geomagnetic storms. Members of the electrical power industry, which is vulnerable to geomagnetic storm-induced blackouts and transformer damage, have repeatedly corresponded with the Department of Commerce, the White House, and the Congress regarding their concerns for the risk posed by the potential loss in geomagnetic storm forecasting data. According to a recent report by the National Academies, geomagnetic storm-disabled electric power grids and collateral impacts could result in projected economic and societal costs of ~\$1 - \$2 trillion, and full recovery could take 4 - 10 years. 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 systems (GPS). For example, Precision GPS-enhanced agriculture is an \$8 billion per year enterprise, and the Next Generation Air Transportation System is based entirely on GPS-enabled positioning, navigation and timing. Aircraft that fly polar routes now include space weather as an integral part of the pilot's weather pre-brief, which provides the pilot with a big picture view of the flight environment including potential impacts to critical communication and navigation systems, and the potential for hazardous solar radiation exposure. This funding will help ensure that NOAA continues to supply geomagnetic storm warnings to support key industries such as the commercial airline, electrical power, and GPS industries. The Nation's advanced technology service providers will continue looking to NOAA for alerts, watches, and warnings needed to protect lives and livelihoods and ensure continuity of critical operations.

Schedule & Milestones

FY 2011: Initiate refurbishment of DSCOVR satellite and award CME contract

FY 2012: Environmental testing of recalibrated sensors and satellite

FY 2013: USAF delivers launch vehicle

Integration of sensors

FY 2014: Launch and operate DSCOVR
 Receive operational solar wind data and CME imagery

Deliverables

FY 2012: Refurbished and Tested DSCOVR, CME imager

FY 2014: Launch vehicle, Operational solar wind and data and CME imagery received

Performance Goal: Performance Measure: Geomagnetic Storm Warning lead time	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase		40 mins	40 mins	40 mins	40 mins	40 mins
Without Increase		0 mins	0 mins	0 mins	0 mins	0 mins
Description: This measure tracks the geomagnetic storm warning lead time. The increase will sustain the current warning capability, which currently uses a satellite that has exceeded its design life. Warnings provide notices of disturbances that are imminent, likely, or expected in the near future with high probability.						

Performance Goal: Performance Measure: Geomagnetic Storm Watch lead time	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase		1-4 days	1-4 days	1-4 days	1-4 days	1-4 days
Without Increase		0 days	0 days	0 days	0 days	0 days
Description: This measure tracks the geomagnetic storm watch lead time. The increase will sustain the current forecast capability, which currently uses satellites that have exceeded their design life. Watches provide notices of expected disturbances or events that are forecasted (i.e., conditions are favorable for occurrence.)						

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
DSCOVR								
Change from FY 2011 Base		9,500	38,300	25,400	3,800	2,400	5,700	
Total Request		9,500	38,300	25,400	3,800	2,400	5,700	85,100

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: Comprehensive Large Array Data Stewardship System (CLASS) (\$12,000,000).

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Environmental Satellite Data and Information Service
 Subactivity: NESDIS Systems Acquisition

	Object Class	2011 Increase
25.2	Other services	288,700
99	Total Obligations	288,700

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollar amounts in thousands)

Activity: National Environmental Satellite Data and Information Service
 Subactivity: NESDIS Systems Acquisition

	Object Class	2011 Decrease
25.2	Other services	(2,261)
99	Total Obligations	(2,261)

**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 2011, 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 so as to minimize or eliminate safety, hazardous materials, waste water treatment, and other deficiencies that could lead to outages and service disruptions. The Fairbanks Operations Building Complex is being replaced with funding from the American Recovery and Reinvestment Act of 2009.

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)								
	FY10 & Prior	FY11	FY12	FY13	FY14	FY15	*Cost to Complete	Total
Continuity of Critical Facilities								
Change from FY 2011 Base		-	-	-	-	-		
Total Request	13,324	2,228	2,228	2,228	2,228	2,228	6,739	31,203

* Outyears are estimates only. Final budgets will be developed through the annual budget process.

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PROGRAM SUPPORT FY 2011 OVERVIEW

For FY 2011, NOAA is requesting an increase of \$36,656,000 and an increase of 12 FTE over the FY 2011 base program for a total of \$294,188,000 and 1,037 FTE for Program Support.

Program Support activities support the people and 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, 3) the 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 as well as policy formulation and direction. In addition, there are various staff offices, including the offices of the Principal Deputy Under Secretary for Oceans and Atmosphere and the Deputy Under Secretary for Operations; Legislative Affairs and Intergovernmental Affairs; Communications and External Affairs; International Affairs; Office of Education; 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 in order 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 \$8,330,000 to fund adjustments to current programs for Program Support. The increase will fund the estimated FY 2011 Federal pay raise of 1.4 percent and annualize the FY 2010 pay raise of 2.4 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	Amount
Program Support	Education Program/Initiative	Program Support	Competitive Educational Grants and Programs	\$1,287,000
Program Support	Education Partnership/Minority Serving Institutions	Program Support	Competitive Educational Grants and Programs	\$14,323,000

NOAA requests a technical adjustment to better align the resources in support of NOAA's education mission.

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 and External Affairs – 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. The Office 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.
- Office of Legislative Affairs and Intergovernmental Affairs (OLAIA) – This office is responsible for devising and implementing the legislative strategy to carry out NOAA's initiatives requiring Congressional action. OLAIA articulates the views of NOAA, including its components, on Congressional legislative initiatives. OLAIA 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. OLAIA serves as the primary liaison for NOAA with the members 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 officials' relationship with international programs, as directed by the Office of the Under Secretary. OIA 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 Director of the Office of 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; also it 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, 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 are 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)** – AGO supports NOAA line and staff offices, and a number of other DOC bureaus, providing the planning, solicitation, award, administration and close-out of acquisitions and other financial assistance funding mechanisms. Through these functions, 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 through 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 safety, environmental compliance, and energy efficiency (“greening”) programs; 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 (FOIA) 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, along with systems and organizational analysis to provide support to senior management in making executive decisions that ensure operational efficiencies within NOAA.
- **Workforce Management Office** – The 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, as well as human resources data management and automation initiatives.

- Office of Program Analysis and Evaluation (PA&E) – 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, identifying the linkage between program requirements and available resources. PA&E provides a strong analytical foundation for programmatic decisions by evaluating opportunities, establishing priorities, and determining 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 operations and service delivery using IT systems; coordinates the preparation of NOAA’s IT budget; oversees selected NOAA-wide operational IT systems and services; and strengthens the security posture of NOAA’s enterprise IT investments. 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) – PPI provides corporate management to coordinate NOAA’s many lines of service with the Nation’s numerous 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 branch 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 NOAA Office of the Chief Information Officer (OCIO) is responsible for ensuring that NOAA programs make full and appropriate use of information technology (IT). OCIO develops policies and programs that support implementation of the following legislation, guidance, and policies: Clinger-Cohen Act; Federal Information Security and Management Act (FISMA), Federal Financial Management Improvement Act, Computer Security Act; Paperwork Reduction Act; Federal Managers’ Financial Integrity Act; Privacy Act; Government Paperwork Elimination Act; Electronic Government (e-Gov) Act; Federal Information Quality Act (Section 515); Rehabilitation Act (Section 508 – Accessibility); OMB Circulars (A-11, -123, -127, -130); and DOC IT Policies. The line also provides for management of IT Security for NOAA 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. NOAA IT Security Program policies represent management’s commitment to assuring confidentiality, integrity, availability, and control of NOAA IT resources. OCIO focuses a high priority on IT security, technology refresh of NOAA’s critical IT infrastructure, Homeland Security, and program management for NOAA’s IT investment portfolio. OCIO is committed to modernizing the IT infrastructure and improving the cost effectiveness, efficiency, and service of operations to support NOAA’s mission.

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PROGRAM CHANGES FOR FY 2011:

NOAAnet Single Enterprise Network (+2 FTE and +\$4,000,000) NOAA requests an increase of \$4,000,000 and 2 FTE for a total of \$4,000,000 and 2 FTE to acquire, install, operate, and maintain the NOAAnet Single Enterprise Wide Area Network (WAN).

Proposed Actions

NOAAnet will establish and operate a backbone network to provide secure, capable communications among NOAA's over 200 geographically-dispersed locations. The network will employ carrier-provided Multi-Protocol Label Switching (MPLS) technology to establish traffic separation over independent Virtual Private Networks (VPNs) and enable communications throughout NOAA while assuring the separation required to support unique security boundaries and supporting differing performance requirements. It will provide economies of scale in network operations that will be applied to provide a more complete network management.

Statement of Need and Economic Benefits

The current state is inefficient: Each Line Office (LO) and sub-LO operates its own independent WAN. Network management operations are duplicated across all NOAA Line Offices. There are numerous single points of failure. Network management is uncoordinated with duplicate network operations staff and duplicative circuits, with multiple separate acquisitions.

The NOAAnet architecture will assure efficiency, security, scalability, and reliability in the modern operational and research computing environments, and provides much-needed upgrades to decade-old telecommunications networks. NOAAnet will achieve coordinated network management, moving towards a NOAA enterprise model. Finally, NOAAnet is a critical component of NOAA's operational and research missions. Without NOAAnet, planned data streams from NEXTGEN, AWIPS II, NPOES, and GOES-R will not be leveraged to improve the quality and utility of NOAA's environmental products and services.

Additionally, in November 2007, OMB announced the implementation of Trusted Internet Connections (TIC) in Memorandum M-08-05. Without NOAAnet, the Department of Commerce cannot implement its plan to meet the OMB TIC mandate.

The NOAAnet Single Enterprise Network is critical to allowing secure, efficient, and highly-reliable transport of NOAA's extensive environmental data to accomplish its mission and ensure timely delivery of NOAA data and information products (e.g., tornado warnings, hurricane forecasts, climate models, tide data). NOAAnet will continue to ensure that NOAA's observing and modeling systems provide high-quality information and data products for public use 24 hours a day, 7 days a week. It is through this investment in its critical IT infrastructure that NOAA moves forward to achieve its goals and serve society in the best possible way. NOAA's environmental information products and resource management services are essential public goods used throughout the nation. NOAA strives to meet the needs of its constituents and partners by providing a suite of products and services that continues to improve in scientific and technical quality, economic value, and social relevance.

Deliverables and Performance Goals

The schedule of milestones in support of this request includes:

1. Stand up of consolidated Network Operations Centers (NOCs) – 9/30/12
2. Complete transition of all NOAA Line Office Wide Area Networks (WANs) to the NOAAnet – 6/30/2015
3. Complete hardening of NOAAnet in order to produce a 99.9% uptime network – 9/30/2015

Performance Goal: Mission Support Performance Measure: Total annual average wide-area network downtime (in hours per year)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	>26	<24	<21	<18	<9
Without Increase	>26	>26	>26	>26	>26	>26
Description: This measure tracks the annual network downtime. Network engineers monitor the systems comprising NOAA's wide-area networks and measure the cumulative amount of time that they are unavailable.						

Under Secretary and Associate Offices Base - NOAA General Counsel (+0 FTEs and +\$1,000,000):

NOAA requests an increase of 0 FTEs and \$1,000,000 to enable NOAA General Counsel (GC) to provide necessary legal support to NOAA programs.

Proposed Action

The FY 2011 request provides support to enable NOAA's Office of the General Counsel to support full implementation of the following programs:

- Limited access permit programs/catch shares under the Magnuson-Stevens Fishery Conservation and Management Act.
- Increased responsibilities to reduce illegal, unreported and unregulated fishing by foreign vessels on the high seas, including implementation and enforcement of the recently concluded FAO Port State Measures Agreement to Combat Illegal, Unreported and Unregulated Fishing.
- Implementation of Western and Central Pacific Fishery Commission and Western Pacific Marine National Monuments.
- Increased international responsibilities resulting from U.S. accession to the Law of the Sea Convention, which the U.S. is expected to join in 2010, including delimitation of the outer boundary of the U.S. extended continental shelf.
- Consultations under the Endangered Species Act on alternative energy and other high priority projects.

Statement of Need and Economic Benefits

Recent legislation and other emerging issues have created additional requirements for legal support. The 2007 amendments to the Magnuson-Stevens Fishery Conservation and Management Act imposed new requirements for rebuilding overfished fisheries and ending overfishing. One of the Administration's priority approaches to implementing these requirements is the establishment of catch share programs in U.S. fisheries. Establishment and ongoing implementation of catch shares programs nationwide is a priority strategy to rebuilding U.S. fisheries, with potential increases of \$2.2 billion in commercial dockside value of fisheries. Establishment and implementation of these programs requires intensive legal support in structuring the programs; allocation of shares to individual fishermen; including processing of appeals of allocations, and ongoing administration of the programs. Without additional legal support, efforts to meet these new requirements will be delayed and vulnerable to legal challenge. The Magnuson-Stevens Act amendments also require new enforcement activities to reduce illegal, unreported and unregulated fishing by foreign vessels. The United Nations Food and Agricultural Organization recently approved a new agreement establishing new requirements for member states to deny port entry and services to vessels engaged in illegal fishing. The U.S. must develop and enforce

implementing arrangements to ensure compliance with these requirements. Legal support is required (i) to assist in developing implementing arrangements to ensure that these arrangements meet the new international requirements and are consistent with domestic law, and (ii) to enforce these new arrangements domestically and internationally. Legal support is required to ensure timely development and enforcement of these arrangements. The Magnuson-Stevens Act amendments included legislation authorizing the U.S. to participate as a member of the Western and Central Pacific Fisheries Convention, an international fishery management organization. Legal support is required for the U.S. delegation to ensure that fishery management measures adopted by the Commission can be implemented under U.S. domestic law.

The development of alternative energy resources is an Administration priority that will increase requirements for consultations under the Endangered Species Act with NOAA by Federal agencies involved in licensing or permitting offshore alternative energy activities. Each such consultation requires legal review to ensure compliance with the Endangered Species Act. Without additional legal support, legal challenges to alternative energy projects could significantly delay implementation of such projects.

Deliverables and Performance Goals

Performance Goal: Ecosystem, Mission Support	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Availability of legal support to programs						
With Increase	N/A	99.9%	99.9%	99.9%	99.9%	99.9%
Without Increase	96%	96%	96%	96%	96%	96%
Description: This measure serves as an indicator of availability of legal resources to support program requirements.						

NOAA Wide Corporate Services and Agency Management – Acquisitions and Grants 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 fully staff the Policy and Oversight Division (POD) within the Acquisition and Grants Office (AGO). 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. 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 (FAR), Departmental and NOAA policy and to protect NOAA from instances of fraud, waste and abuse.

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). 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 (GAO-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. AGO currently performs approximately 16,000 acquisition actions and nearly 2,000 grants annually. 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 Joint Polar Satellite System, 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. Without additional staff to conduct the increasing acquisition and grants workload of NOAA, workload will surpass capacity, negatively impacting NOAA's ability to manage critical acquisition and grants programs.

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. C.Request is the system used to electronically prepare and 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. In FY 2011, NOAA will migrate its contract writing system to C.Award, an internet version of its current system. This migration will bring about the need to retrain about 250 users in the new system. NOAA AGO has been performing these functions without additional resources. Continually diverting the AGO

acquisition workforce to conduct these functions will correspondingly divert scarce acquisition talent and diminish the capacity of AGO to properly conduct acquisition actions. The proposed request of additional acquisition staff are essential to the successful fielding of C.Request/C.Award. 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, external 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 intense 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*”. 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 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 late FY 2009, AGO began improving the capabilities of the Grants Online System and utilizing it as an administration and assessment tool. This effort will continue through FY 2010. 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 will preclude a repeat finding on the next financial audit.

AGO Policy and Oversight Division – NOAA’s request will support actions 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 of NOAA’s 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 (FAR), 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 subject the agency 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, resulting in greater resource needs.

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 2010 Target	FY 2010 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 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
Description: This measure tracks the percentage of on time contract and grants actions as measured against NOAA’s published Procurement Action Lead Time (PALT) schedule. Timeliness is measured against the published procurement action lead time metrics (for each acquisition package) and is measured from the receipt of a requisition to the date of award. The dates are tracked in the CRequest/CStar procurement system. Percentages represent meeting the published PALT for that transaction.						

DOC Acquisitions Initiative (+1 FTE and +\$1,112,951): DOC requests an increase of 1 FTE and \$1,112,951 to support implementation of a DOC-wide acquisition intern program.

Proposed Actions

With these funds DOC would establish a DOC Acquisition Intern Program, which would be a three-year, career ladder developmental program. The interns would be brought into DOC as either GS-7 or GS-9 candidates and would be required to achieve formal certification levels, developmental goals, and acquisition expertise to continue in the program and eventually graduate into a journeyman level GS-13 position. The program would be housed at NOAA and run by a GS-14 contract specialist who will be responsible for program developmental, recruitment, establishment and monitoring of program metrics and oversight, as well as mentoring of the intern candidates. As DOC's largest acquisition office, NOAA's robust acquisition community and expertise will serve the entire Department. All DOC Acquisition Interns would receive training and developmental assignments in multiple bureaus. This model would promote interoperability between bureaus, provide increased opportunities for employee growth and development, and foster a sense of organizational unity.

The FY 2011 request supports the following:

- Fill an entry-level weakness within the DOC acquisition community.
- Replenish the workforce; One-half of the DOC acquisition community is retirement eligible.
- Implement succession planning and be able to hire and train members of the acquisition workforce to replace those who will retire.
- Enable the acquisition workforce to strengthen the skill mix imbalance at the entry and journeyman levels.
- Improve the quality of work and reduce errors, thereby reducing cost through less oversight.
- Achieve the Office of Management and Budget (OMB) goals of strengthening the acquisition workforce (Improving Government Acquisition, M-09-25, dated 29 July 2009) and increasing the workforce (OMB's Acquisition and Contracting Improvement Plans and Pilots, December 2009) to improve acquisition management performance.

To achieve long-term success, the DOC will need a robust intern recruiting program that includes rigorous recruiting, hiring and training practices to capture, retain and replenish the decreasing acquisition workforce.

Statement of Need and Economic Benefits

DOC's acquisition workforce supports a diverse portfolio of acquisition instruments from construction of buildings and ships to planes and satellites. To support the diversity of acquisition needs, the workforce must be agile, flexible and highly trained in the planning, solicitation, award, administration and close-out of acquisitions and financial assistance funding mechanisms. The competition for acquisition professionals is fierce; agencies that can establish an entry-level program to attract candidates and provide them formal and on-the-job training have demonstrated the ability to retain those professionals throughout the training program and into their journeyman level position. Once established within the agency, acquisition professionals become vested in the mission, vision and goals of the agency and are more likely to remain with the agency for a longer period of time. Without a means to attract entry-level candidates, DOC is left to compete for senior level professionals who are less likely to stay for long periods with the agency as other opportunities arise within a highly competitive career field.

Another benefit of an agency intern program is that the agency tailors development and oversees the quality of the intern's training and development activities, thereby producing greater results and effectiveness for agency-specific acquisition mission needs.

The requested funds will provide the following benefits:

- Reduce the cost of acquiring talent, as well as provide skills mix balance and succession planning opportunities for DOC.
- Provide an agile, highly trained and specialized DOC-wide acquisition workforce to improve the effectiveness of DOC in providing acquisition solutions, as well as improve the quality and standardization of work products across DOC.
- An agile workforce will improve the quality of planning and oversight along with the efficiency and effectiveness of acquisition programs.
- Rotational assignments within DOC will give interns many opportunities for growth and the ability to apply a wide variety of skills between bureaus.

Deliverables and Performance Goals

The schedule of milestones in support of this request includes:

1. Hire DOC acquisition Interns - FY 2011
2. Train DOC acquisition Interns – FY2011
3. Establish program metrics to capture types of experience and skill mix – FY2011
4. Establish and track percentage of training hours achieved toward FAC-C Certification Levels I and II – FY2011
5. Establish metrics to track successful completion of the program – FY2011
6. Develop a central career management plan- FY2011

Performance Measure: Successful completion of internship program	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	0%	0%	80%	90%	95%
Without Increase	0%	0%	0%	0%	0%	0%
Description: This measure tracks the percentage of interns that complete the three year internship program.						

Performance Measure: Completed Percentage of FAC-C Certification Levels I and II achieved at the Department level	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	25%	50%	75%	90%	95%
Without Increase	0%	0%	0%	0%	0%	0%
Description: This measure tracks the number of DOC Acquisition Interns that have achieved FAC-C Certification. Federal Acquisition Community (FAC) is the acquisition improvement act (equivalent to Defense Acquisition Workforce Improvement Act (DAWIA)) for non-DOD Federal Agencies. It requires the acquisition workforce to meet degree requirements in business and training to achieve Level I, II and III certification. Certification is the achievement of meeting training and experience requirements for each level. In order to keep the certification active, each acquisition professional must obtain 80 hours of additional training every two years to stay current in acquisition policy, processes, and methods. Only certified acquisition officials may serve as contracting officer for the Federal Government. Stringent training for the Federal acquisition workforce keeps them on par with public sector acquisition professionals, and helps them craft and drive better business solutions for the Federal Government.						

Acquisition Staffing (+4 FTEs and +\$795,463): DOC requests an increase of 4 FTEs and \$795,463 to support an acquisition and grants services initiative to build acquisition capacity within the Department to handle the increasing workload of grants and contracts.

Proposed Actions

This funding would allow each of the acquisition offices to fill critical vacancies to address the following deficiencies: increased focus on strategic acquisition planning, increased focus on proactive contract administration, and increased focus on closing-out completed contracts. The additional capacity also would allow for more one-on-one time to develop junior-level acquisition personnel and to focus on strategic sourcing initiatives across the Department to leverage the buying power of the Department both across DOC and in partnership with other Federal agencies.

The FY 2011 request supports the following actions:

- Replenish the workforce
- Implement succession planning
- Improve quality of work and reduce errors through standardization, peer reviews and increased training.

To achieve long term success, NOAA will need to put in place the rigorous recruiting, hiring and training practices to capture, retain and replace the decreasing workforce. Moreover, to accomplish and meet the DOC mission an increase in funding for resources who will ultimately add value to the mission is needed.

Statement of Need and Economic Benefits

NOAA Acquisition and Grants Office provides support to lines of business 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, DOC Acquisition and Grants helps 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. This initiative will increase DOC's qualified acquisition workforce and improve quality of work. Approximately one-half of the acquisition workforce is eligible to retire. Hiring additional contracts and grants specialists is critical to maintaining expertise within NOAA. An increasing number of NOAA acquisitions are for major systems involving state-of-the-art technology. This increase will allow NOAA to hire specialized contracts specialists to effectively handle these actions.

The requested funds will provide the following:

- Reduce time required to award contracts and grants.
- Reduce the time managers spend performing work typically assigned to their employees, leaving more time to manage, provide oversight and ensure risk reduction.
- Increase awards of new actions (obligating funds) and reduce cost by spending less time on administering existing actions.

The requested funding increase will allow NOAA to effectively manage its growing portfolio of acquisitions and grants.

Deliverables and Performance Goals

The schedule of milestones in support of this request includes:

- Hire DOC Acquisition and Grants Specialist - FY 2011
- Train DOC Acquisition and Grants Specialist - FY2011
- Develop succession plans for each bureau - FY2011
- Develop a central career management plan - FY2011

Quality improvements will be assessed by examining the number of administrative modifications that need to be executed to resolve quality problems. Our Policy and Oversight Branch will compile areas of statistical relevance to examine for systemic and targeted areas of improvement.

Performance Measure: Reduced errors in contracts and grants actions	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	75%	80%	85%	87%	90%	95%
Without Increase	75%	73%	73%	73%	73%	73%
Description: This measure tracks the number of error-free contract and grant actions. Performance will be tracked via system error reports, peer reviews, and evaluation by the AGO Policy and Oversight Division.						

Performance Measure: Customer satisfaction with services	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	70%	77%	80%	83%	85%	90%
Without Increase	70%	70%	70%	70%	70%	70%
Description: This measure tracks the satisfaction level of AGO customers. Performance will be tracked through semi-annual customer surveys, individual action customer surveys, and outreach by the Director of AGO.						

NOAA Wide Corporate Services and Agency Management – HPSD-12 (+0 FTEs and +\$945,000):

NOAA requests an increase of 0 FTEs and \$945,000 to support compliance with Homeland Security Presidential Directive-12 (HSPD-12), Personal Identity Verification-II (PIV-II) access requirements.

Proposed Action

The FY 2011 request provides for administrative and technical 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;
- Planning and development of physical access control systems integration with CAC;
- NOAA administrative costs for contractor support at NOAA-operated badging stations; and
- Replacing physical access control systems at the Silver Spring Metro Campus and Western Regional Center.

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. In FY 2010, NOAA aims to achieve one hundred percent rebadging of employees and contractors. In FY 2011, NOAA will continue to badge new employees and replace expired PIV-II cards for existing employees.

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 to 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 FY 2010
2. Re-issue CACs to employees and contractors issued CACs in FY 2008 – 4Q 2011 (CAC expires every three years)
3. Re-issue CACs to employees and contractors that were issued CACs in FY 2009 – 4Q FY 2012

Enterprise IT Security (+4 FTE and +\$4,700,000): NOAA requests an increase of 4 FTEs and \$4,700,000, for a total of 4 FTEs and \$6,750,000, to improve enterprise information technology (IT) security through services provided by NOAA's Office of the Chief Information Officer (OCIO).

Proposed Actions

The requested increase will fortify critical IT support of NOAA's mission by decreasing mission risk; enable NOAA to increase the coverage and capabilities of the NOAA Computer Incident Response Team (N-CIRT); and enhance nationwide security monitoring and incident response. This increase will provide an incremental implementation of the NOAA Cyber Security Center (NCSC). Funding will enable a new 5 x 12 security monitoring capability for the NCSC and enhance the existing 5 x 12 incident response capability to cover moderate- and high-priority reported incidents. Specifically, the requested increase will:

- Provide a NOAA Cyber Security Center (NCSC) facility,
- Provide critical enhancement to nationwide security monitoring and incident response (IR) capability,
- Continue improvements to NOAA's IR and reporting to meet all FISMA requirements,
- Provide highly skilled IT security engineers,
- Increase research and development for testing and evaluating products for security vulnerabilities prior to enterprise deployment.

Statement of Need and Economic Benefits

The frequency, sophistication, and maliciousness of cyber attacks in NOAA are rapidly increasing. Intrusion detection alerts are doubling every year. NOAA is at risk to data integrity losses, network failures, and website compromises that have a significant probability of compromising the collection, processing, and dissemination of forecast and warning information to the public and other government institutions, leading to the possible loss of life and property. This request will reduce NOAA's high vulnerability to cyber threats by:

- Transforming the N-CIRT into the NCSC,
- Providing needed cutting-edge IT security technologies to support NOAA's infrastructure (maintaining state-of-the-art monitoring equipment and near real-time IT security event correlation),
- Continuing reduction in the backlog and duration of incident investigations,
- Providing highly skilled IT security engineers,
- Improving Federal Information Security Management Act of 2002 (FISMA) mandated incident reporting capabilities,
- Improving research and development for testing and evaluation of applications and technologies prior to procurement and deployment,

- Improving the identification and remediation of security weaknesses,

Our time-sensitive data and information products (required to be accurate and available 24 x 7) are at risk, which in turn puts the American public (and nations that depend on NOAA products) at risk of significant loss of life and property. NOAA experiences thousands of attacks every month, and responded to over 900 reported incidents during FY 2009.

Deliverables and Performance Goals

The schedule of milestones in support of this FY 2011 request includes:

1. Deploy first new NOAAnet Intrusion Detection System (IDS) site - 09/2012
2. Deploy second new NOAAnet IDS site - 06/2014
3. Implement NCSC phase 2 - 09/2014
4. Deploy third new NOAAnet IDS site - 06/2015

Performance Goal: Mission Support Performance Measure: Full Authorization to Operate for all NOAA IT Systems (Complete C&A)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	100%	100%	100%	100%	100%
Without Increase	99%	98%	97%	96%	95%	94%
Description: The C&A process requires a fully-tested system with a complete set of security documentation (e.g., approved security plan, risk assessment, disaster recovery plans, security testing), prior to being deemed certified. All systems in NOAA (approximately 120-150 at any given point in time) have been inventoried for their relative ranking as National Critical, Mission Critical, or Business Essential.						

Performance Goal: Mission Support Performance Measure: Number of outstanding plans of action and milestones (POA&Ms) greater than 120 days past due	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	<150	<140	<130	<120	<110
Without Increase	250	300	350	400	450	500
Description: The C&A process requires a fully-tested system with a complete set of security documentation (e.g., approved security plan, risk assessment, disaster recovery plans, security testing), prior to being deemed certified. All systems in NOAA (approximately 120-150 at any given time) have been inventoried for their relative ranking as National Critical, Mission Critical, or Business Essential. Plans of action and milestones (POA&Ms) are assigned, and those that are outstanding beyond 120 days past their planned completion date are reported in this measure.						

Performance Goal: Mission Support Performance Measure: Number of Affected Devices	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	<3000	<3700	<4750	<6650	<9000
Without Increase	1800	3000	4400	6500	10300	15000

Description: NOAA uses a metric called “Affected Devices” to track the size and scope of computer security incidents. The metric tracks the number of information technology (IT) devices that were infected, compromised, or otherwise a victim of a security incident. The metrics are generated and reviewed quarterly. Reducing the number of affected devices reduces mission risk and helps ensure the availability of NOAA IT resources to execute the mission.

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

Activity: Program Support
Subactivity: Corporate Services

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Contracting Specialist	Silver Spring, MD	GS-13	3	89,033	267,099
Grants Specialist	Silver Spring, MD	GS-12	3	74,872	224,616
Contracts Specialist	Silver Spring, MD	GS-14	1	105,211	105,211
IT Specialist	Silver Spring, MD	GS-14	2	105,211	210,422
Network Engineer	Silver Spring, MD	GS-14	1	105,211	105,211
IT Specialist (INFOSEC)	Silver Spring, MD	GS-14	3	105,211	315,633
IT Specialist (INFOSEC)	Silver Spring, MD	GS-15	1	123,758	123,758
IT Specialist (INFOSEC)	Fairmount, WV	GS-15	1	113,735	113,735
Total			<u>15</u>		<u>1,465,685</u>
less Lapse		25%	<u>4</u>		<u>366,421</u>
Total full-time permanent (FTE)			11		1,099,264
2011 Pay Adjustment (1.4%)					<u>15,390</u>
TOTAL					<u>1,114,653</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	11
Other than full-time permanent	<u>0</u>
Total	11
Authorized Positions:	
Full-time permanent	15
Other than full-time permanent	<u>0</u>
Total	15

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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: Program Support
Subactivity: Corporate Services

Object Class	2011 Increase
11.1 Personnel compensation	1,115
11.5 Other personnel compensation	116
11.9 Total personnel compensation	<u>1,231</u>
12 Civilian personnel benefits	360
21 Travel and transportation of persons	93
22 Transportation of things	9
23.2 Rental Payments to others	87
23.3 Communications, utilities and miscellaneous charges	1,964
25.1 Advisory and assistance services	7,635
25.2 Other services	1,075
25.3 Purchase of goods & services from Gov't accts	521
26 Supplies and materials	1,073
31 Equipment	<u>2,850</u>
99 Total Obligations	<u>16,898</u>

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Appropriation: Operations, Research, and Facilities
Subactivity: 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; 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) seeks to increase collaborative 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 grants to attract historically underrepresented groups to the 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 MSIs.
- 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 contributions 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 2011:

There are no program changes proposed for FY 2011.

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, environmental compliance, and energy efficiency programs
- 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 a 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-owned capital assets total more than 400 owned buildings valued at approximately \$2.5 billion. The facility portfolio is aging, with over 30 percent of NOAA's owned buildings over 40 years old, and of those, 30 buildings over 60 years old (10 percent of the owned portfolio). 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. The Facilities 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, and projects designed to increase the energy efficiency of buildings. 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 10-year investment 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 NOAA's mission goals.

The Facility Program provides the resources necessary to comply with 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.

PROGRAM CHANGES FOR FY 2011:

NOAA Facility Construction (0 FTE and +\$5,000,000): NOAA requests an increase of 0 FTE and \$5,000,000 to support major restoration and modernization projects to address critical facility condition deficiencies, and improve safety and operating conditions in support of NOAA's mission.

Proposed Actions

The projects undertaken with this funding will support the completion of major restoration projects at NOAA's facilities, in order to address deteriorated building systems, and safety/environmental conditions. The FY 2011 request will support the restoration for NOAA's aging owned-facility portfolio. Funding would be targeted at high priority NOAA projects such as the replacement of the deteriorated bulkhead at the OMAO Marine Operations Center – Atlantic (MOC-A) facility in Norfolk, Virginia.

Statement of Need and Economic Benefits

NOAA owns over 400 buildings valued at over \$2.5 billion. These buildings support NOAA's scientific and operational mission and programs, and are designed to provide a safe working environment for NOAA's employees and contractors—in laboratory and research spaces, offices, and operational buildings. NOAA's facilities are geographically dispersed and aging. As facilities age, repair and restoration of deteriorated or damaged building conditions or systems, replacement of building systems (roofs, HVAC, etc.), abatement of asbestos and other safety/environmental conditions, and installation of new systems to meet current fire safety code requirements is necessary to sustain operational capabilities and provide a safe working environment. Historically, NOAA's investments in facility restoration have not kept pace with recommended maintenance schedules. The result has been a large backlog of restoration projects. Under-funding of restoration results in increased facility deterioration (one study estimated that repair backlogs increase by five to ten percent per year simply due to not addressing current repair needs), and decreased facility life. Lack of repair/restoration can also lead to potential facility failures, safety and health hazards such as the growth of mold, or environmental issues such as the release of asbestos or lead-based paint.

NOAA's mission as a science agency requires that substantial investments be made in modernizing and maintaining its facilities. To assess the conditions of its current facility assets, NOAA conducts an annual assessment of current facility conditions of NOAA's owned buildings, and identifies current and near-term investments in these assets required to address safety, building code and failing building systems at each facility. Building systems include: 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 if necessary repairs and building system replacement are not funded, impacting both safety and mission continuity. Failure to address deficiencies increases the risks to employee safety, service disruptions and critical system failures. This funding will support the most critical major restoration and modernization projects (i.e., projects with estimated costs greater than \$2 million, but less than \$10 million).

The MOC-A facility is a federally-owned waterfront facility and is an important asset that serves as a centralized operations and administration center providing administration, engineering, logistics, operational support and maintenance for NOAA ships in the Atlantic Ocean and Gulf of Mexico. The MOC-A bulkhead, which is forty-eight years old and has exceeded its 30-year design service life, has deteriorated severely, and its condition has increased the safety risks at the Center and restricted and disrupted operations. Numerous sink-holes that threaten the surface integrity of parking areas and ship service areas have increased frequency and severity. While NOAA has provided temporary "fill and patch" solutions to mitigate the safety impact of the sink-holes, engineering analyses have documented the inevitability of continued failure of the bulkhead unless a more permanent solution is achieved through replacement of the deteriorated bulkhead. Replacement will preclude the imminent failure of the existing bulkhead and facilitate uninterrupted OMAO support of NOAA's

mission. Engineering estimates suggest that the new bulkhead technology can provide a minimum of 50-years of reliable berthing for future NOAA operations and mission support.

Deliverables and Performance Goals

Performance Goal: Mission Support Performance Measure: Improved safety and condition indices at NOAA's facilities	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	NA	NA	6% reduction in increase to deficiency repairs	8% reduction in increase to deficiency repairs	10% reduction in increase to deficiency repairs	12% reduction in increase to
Without Increase	NA	5% increase in deficiency repair costs	6% increase in deficiency repairs costs	6% increase in deficiency repairs costs	7% increase in deficiency repairs costs	7% increase in deficiency repairs costs
Description: With the requested funding NOAA will be able to reduce the rate at which deficiencies are increasing in the facility portfolio. NOAA will be able to slow the deterioration of NOAA facilities but not stop it. However, without the requested funding, NOAA's facilities will continue to deteriorate more quickly due to the lack of resources needed to address all of NOAA's facility maintenance and repair and the cost to address those needs will continue to increase.						

Pribilof Islands Environmental Monitoring (+1 FTE and +\$758,000): NOAA requests an increase of 1 FTE and \$758,000 to restore funding for the long-term property transfer and environmental monitoring activities on Pribilof Islands.

Proposed Actions

The funding requested will provide OCAO the resources to manage the long-term responsibility for performance of property transfer activities, post-environmental remediation monitoring and supporting well and landfill cap maintenance on the Pribilof Islands (St. Paul and St. George). This effort involves:

- Sampling groundwater at a total of 47 monitoring wells to verify the cleanup effort has been successful at multiple sites on both islands
- Maintenance and repair of groundwater monitoring wells
- Monitoring the structural integrity of the landfill closure caps and making required repairs at island landfills.

These monitoring activities on the Pribilof Islands are required by Alaskan environmental regulations and are expected to continue into the foreseeable future for heavily contaminated areas on St. Paul and St. George islands.

Statement of Need and Economic Benefits

Pribilof Islands remediation and long-term monitoring are mandated by a 1996 Two Party Agreement (TPA) between NOAA and the State of Alaska, and Public Laws 104-91 of 1996 and 106-562 of 2000. Property transfers from DOC/NOAA to local island entities are mandated by a 1984 Transfer of Property Agreement (TOPA). There are no viable alternatives to funding and compliance with these agreements and mandates.

This adjustment-to-base was first requested in the FY 2009 President's Budget but was not subsequently reflected in Public Law 111-8, the Omnibus Appropriations Act, 2009.

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

Activity: Program Support
 Subactivity: Facilities

Title:	Location	Grade	Number of Position	Annual Salary	Total Salaries
Environmental Engineer	Silver Spring, MD	ZP-IV	1	89,033	89,033
Total			<u>1</u>		<u>89,033</u>
less Lapse		25%	<u>0</u>		<u>22,258</u>
Total full-time permanent (FTE)			1		66,775
2011 Pay Adjustment (1.4%)					<u>935</u>
TOTAL					<u>67,710</u>

Personnel Data

	<u>Number</u>
Full-Time Equivalent Employment	
Full-time permanent	1
Other than full-time permanent	<u>0</u>
Total	1
Authorized Positions:	
Full-time permanent	1
Other than full-time permanent	<u>0</u>
Total	1

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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: Program Support
Subactivity: Facilities

	Object Class	2011 Increase
11	Personnel compensation	67
11.9	Total personnel compensation	67
12	Civilian personnel benefits	20
21	Travel and transportation of persons	16
24	Printing and Reproduction	5
25.1	Advisory and assistance services	650
32.2	Buildings and other structures	5,000
99	Total Obligations	5,758

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Appropriation: Procurement, Acquisition, & Construction
Subactivity: Construction

NOAA's facilities constitute a significant and important capital investment, and are integral to accomplishing NOAA's mission. NOAA's Facility Modernization program is designed to ensure that NOAA has safe, sound and secure facilities and infrastructure to house our workforce, along with 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 the ability to attract and retain a high-performing workforce.

NOAA uses approximately 750 different facilities (i.e., both owned and leased buildings), and owns more than 400 buildings. NOAA's owned and leased buildings have a current replacement value (CRV) of over \$5 billion. Of that, more than 50 percent (423) are owned and operated by NOAA with a CRV of approximately \$2.5 billion. These buildings are aging, with over 30 percent of NOAA's owned buildings over 40 years old; of those, 30 buildings are over 60 years old (10 percent of the owned portfolio). NOAA's facilities are often subject to extremes of climate and weather, therefore requiring higher levels of maintenance and are also 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 major facility repair projects to restore and modernize facilities damaged by inadequate sustainment, excessive age, natural disasters, fires, accidents, or other causes; and major new construction projects to recapitalize, modernize, or consolidate facilities to promote improved operational and mission efficiencies.

The Office of the NOAA Chief Administrative Officer (OCAO) has overall responsibility for the NOAA Facilities Program and is specifically responsible for:

- Providing capital investment planning guidance.
- Establishing enterprise-wide investment priorities, facility repair, and modernization investments.
- Executing repair and modernization 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 (PPBES);
- 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 more effective use of real property assets.

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PROGRAM CHANGES FOR FY 2011:

Pacific Regional Center (0 FTE and +\$14,000,000): NOAA requests an increase of 0 FTE and \$14,000,000 for a total of 0 FTE and \$14,000,000 to support acquisition and installation of the IT infrastructure of the Main Facility being constructed at the new Pacific Regional Center (PRC) on Ford Island in Honolulu, HI.

Proposed Actions

NOAA received funding in the American Recovery and Reinvestment Act of 2009 (P.L. 111-5) and the Omnibus Budget Act of 2009 (P.L. 111-8) to complete the building construction phase of the PRC project and achieve full consolidation of its operations on the island of O'ahu, Hawaii, with construction of the Main Facility. The FY 2011 request will enable NOAA to complete acquisition and installation of the information technology infrastructure for the Main Facility and NOAA project management costs associated with the project.

Statement of Need and Economic Benefits

The Pacific Regional Center is a multi-phase, multi-year construction project to consolidate NOAA programs and operations (excluding the Honolulu weather forecast office) on the island of O'ahu into a single facility on federally-owned property at Ford Island. NOAA in Hawai'i manages an extensive portfolio of programs addressing fisheries, ocean, coastal, climate, and atmospheric issues in the Pacific. NOAA has funded the first two phases of the project: NOAA ship operations facility (completed in October 2007), and the marine science and storage facility (scheduled for occupancy in 2011). The Main Facility represents the final phase of the consolidation project. The benefit of this consolidated solution was recognized with the appropriation of funding under the ARRA and Omnibus Budget Act in 2009 for the building construction phase of the Main Facility, which is designed to consolidate and house over 600 staff currently dispersed over more than a dozen locations. By bringing its programs together into one facility, NOAA expects to realize benefits in improved operations and mission performance, longer-term operational savings, and opportunities for greater program collaboration and synergy—both within NOAA and with external partners.

The FY 2009 funding received under the American Recovery and Reinvestment Act of 2009 (P.L. 111-5) and the Omnibus Budget Act of 2009 (P.L. 111-8) has allowed NOAA to move forward with completion of the construction phase of the Main Facility—construction of the new facility, and adaptive re-use of historic structures where possible. The funding requested in FY 2011 will support acquisition and installation of the IT infrastructure (LAN/WAN, phone system, etc.) for the Main Facility.

Failure to support the funding required to outfit and equip the Main Facility will result in an incomplete building that will not be occupied because of lack of IT infrastructure.

Deliverables and Performance Goals

Multi-Year Project Schedule	
Program Phase	Schedule (Start - Complete)
Business Case Analysis	Completed – 2005
Phase 1: Ship Operations Facility	Completed – 2007
Phase 2: Building 130: Construction/Occupancy –	Construction Award: 4/09; Complete 12/11
Main Facility Design	10/08 – 1/10

Phase 3a: Main Facility Construction	7/10 – 2/13
Phase 3b: Main Facility Outfitting and Occupancy	7/11 -- 7/13

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2010 & Prior	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Cost to Complete	TOTAL
Pacific Regional Center								
Change from FY 2011 Base		\$14,000	\$1,000	\$1,000	\$0	\$0		
Total Request	\$301,595	\$14,000	\$1,000	\$1,000	\$0	\$0		\$317,595

Department of Commerce
National Oceanic and Atmospheric Administration
Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Program Support
Subactivity: Construction

	Object Class	2011 Increase
31	Equipment	12,000
32.2	Building and other structures	2,000
99	Total Obligations	14,000

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OFFICE OF MARINE AND AVIATION OPERATIONS FY 2011 OVERVIEW

For FY 2011, NOAA is requesting an increase of \$17,790,000 and 5 FTE over the FY 2011 base program for a total of \$220,947,000 and 1,040 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 2011 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 5 FTE and \$9,051,000 to fund adjustments to current programs for OMAO. The increase will fund the estimated FY 2011 Federal pay raise of 1.4 percent and annualize the FY 2010 pay raise of 2.4 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: 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 19 active ships and supports chartering vessels 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 2011, operation of NOAA's vessels will provide approximately 3,390 operating days and outsourcing will provide approximately 780 operating days to support NOAA's highest priority programs (additional operating days in support of specific NOAA programs are also acquired directly by various line office programs).

The Marine Operations Center (MOC) (<http://www.moc.noaa.gov/>) has Atlantic and Pacific regional offices currently 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 500 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, promotes standardization, 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 and 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
<i>Ronald H. Brown</i>	274 ft. - I	1,4	Charleston, SC
<i>Rainier</i>	231 ft.- II	3	Seattle, WA
<i>Fairweather</i>	231 ft.- II	3	Ketchikan, AK
<i>Ka'imimoana</i>	224 ft.- III	1	Honolulu, HI
<i>Miller Freeman</i>	215 ft.-II	1,2	Seattle, WA
<i>McArthur II</i>	224 ft.- III	1,2,4	Seattle, WA
<i>Oregon II</i>	175 ft.- III	2	Pascagoula, MS
<i>Thomas Jefferson</i>	208 ft.- II	3	Norfolk, VA
<i>Gordon Gunter</i>	224 ft.- III	2	Pascagoula, MS
<i>Oscar Elton Sette</i>	224 ft.- III	2	Honolulu, HI
<i>Delaware II</i>	155 ft.- IV	2	Woods Hole, MA
<i>Ferdinand R. Hassler</i>	124 ft. - II	3	New Castle, NH
<i>Nancy Foster</i>	187 ft.- III	1,4	Charleston, SC
<i>HI'ialakai</i>	224 ft.- III	1,4	Honolulu, HI
<i>Oscar Dyson</i>	208 ft. - II	2	Kodiak, AK
<i>Henry B. Bigelow</i>	208 ft. - II	2	TBD
<i>Pisces</i>	208 ft. - II	2	Pascagoula, MS
<i>Bell M. Shimada</i>	208 ft. - II	2	West Coast
<i>Okeanos Explorer</i>	224 ft.- III	1	Davisville, RI

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 19 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.

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PROGRAM CHANGES FOR FY 2011:

NOAA Dive Center Improvement Plan (+5 FTE and \$790,000): NOAA requests 5 FTE and \$790,000 to address the findings released in the NOAA Florida Keys National Marine Sanctuary Dive Fatality Incident Report. To date, 21 of 33 recommendations have been completed and a dive/small boat program database has been developed to more efficiently and effectively track critical data and measure execution of mission operations. The additional funding is required to provide the staff resources necessary to implement and oversee five of the remaining 12 recommendations.

Proposed Actions

- Implement on-site inspection program for all NOAA diving units every three years to increase safety and reduce the number of dive-related safety incidents and near-misses currently reported.
- Develop a diving standards and safety manual for conducting working dives, to establish all applicable regulations, standards and policies, and to comply with Occupational Safety and Health Administration (OSHA) requirements.
- Develop a web-based refresher training module in Oxygen Administration, Dive Procedures and Dive Regulations to increase safety and reduce the number of dive-related safety incidents and near-misses currently reported.
- Issue additional safety equipment (e.g., automated external defibrillators, diver recall systems and low-pressure alarm devices) to NOAA dive units in order to increase safety and reduce the number of dive-related safety incidents and near-misses currently reported.
- Develop a formalized science diver training and certification program to ensure science divers are properly trained in the “NOAA-way” of diving, thus increasing safety and reducing the number of dive-related safety incidents and near-misses currently reported.

STAFFING

- Increase of 5 FTE: The increased NDC annual workload requirements for administration, training, certification, equipment, medical, dive accident management support, NDC operations and maintenance, and unit inspections necessitate additional personnel.
- The Dive Center Manager will manage and oversee all personnel, activities, equipment and facility usage at the NDC. This is a new position.
- Three Dive Equipment Workers will be responsible for assisting with training, equipment maintenance and distribution, dive unit inspections, field support, and NDC operations and maintenance. These are new positions.
- The Secretary position will provide clerical support primarily for the Diving Safety Officer. This is a new position.
- Rent for temporary office space, utilities, telephone, and janitorial services will be required to house the new positions. This also requires miscellaneous supplies, equipment, material and services for the temporary office space.

Statement of Need and Economic Benefits

The NOAA Florida Keys National Marine Sanctuaries Diving Fatality Report included 33 corrective recommendations to mitigate similar incidents in the future. To date all but 12 of the recommendations have been completed or are in the final stages of being completed. Five of the remaining 12 recommendations cannot be accomplished without additional funding. Among these remaining recommendations is inspection of the individual diving units; current funding is insufficient to meet this recommendation. NDC needs additional funding for the following:

- To meet NOAA's data collection requirements with high customer satisfaction and with a desired outcome of ensuring continuous observation of critical environmental conditions.
- To ensure all diving conducted under NOAA's auspices is accomplished safely, efficiently, and cost-effectively.
- To ensure compliance with all applicable diving regulations, standards and policies.

Deliverables and Performance Goals

Training: The NOAA Dive Center will conduct a Diver Medical Technician Class, Working Diver Class, Divemaster Class, Standards of Training, Certification and Watchkeeping Medical Person-in-Charge Class, Diving Physician's Course, Tethered Scuba Class.

Publications: The NOAA Dive Center will issue an Annual Report and a new Operations Manual for conducting Working Dives in accordance with OSHA regulations.

Performance Goal: Mission Support Performance Measure: Number of dive units inspected / year	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	30	30	30	30	30
Without Increase	N/A	0	0	0	0	0
Description: One of the recommendations of the Dive Fatality Incident Report was to implement an on-site inspection program for all NOAA diving units every three years to increase safety and reduce the number of dive-related safety incidents and near-misses currently reported. One third of the 90 NOAA dive units will be inspected per year for a 3-year inspection cycle. Direct Dive Center oversight of each NOAA diving unit operation will provide a significant increase in dive operations standardization across the agency and provide essential opportunities for Dive Center personnel to recognize, foresee and prevent non-standard and unsafe operations.						

Performance Goal: Mission Support Performance Measure: Number of dive units with essential safety equipment	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	-	90	90	90	90	90
Without Increase	10	10	10	10	10	10
Description: The Dive Fatality Report recommended issuance of additional safety equipment (e.g., automated external defibrillators, diver recall systems, and low-pressure alarm devices) to NOAA dive units to increase safety and reduce the number of dive-related safety incidents and near-misses currently reported. This increase would allow all 90 NOAA dive units to be immediately outfitted with such equipment and to sustain this level of outfitting on an annual basis. Diver recall systems and low pressure alarms will serve to warn divers their gas consumption has reached a point where the diver needs to surface in order to maintain a safe ascent without exceeding the minimum air pressure requirement and to avoid drowning. Automated external defibrillators will be included as part of the NOAA Small Boats Program emergency medical equipment on designated small boats as an on-scene method of providing immediate medical assistance to injured divers. The introduction of this additional safety equipment greatly enhances NOAA's ability to reduce the risk of dive-related safety incidents of the type that led to the Florida Keys NMS dive fatality.						

Performance Goal: Mission Support Performance Measure: Reduction in dive-related near miss accidents	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	N/A	10%	11%	12%	13%	14%
Without Increase	N/A	0%	0%	0%	0%	0%
Description: This measure tracks the reduction near miss accidents among NOAA divers.						

Preventive, Corrective, and Deferred Ship Maintenance: (+0 FTE and \$6,200,000): NOAA requests 0 FTE and \$6,200,000 to continue correcting deferred maintenance items and decrease the number of Casualty Reports (CASREPS) that impact accomplished days at sea and scientific data collection for NOAA programs. This increase supports NOAA's Ship Recapitalization Plan to ensure its oldest ships can operate until replacements are delivered and to bridge the operational period until a Major Repair Period is implemented. It also builds on major vessel maintenance and repair investments that were made during FY 2010 using American Recovery and Reinvestment Act of 2009 (ARRA) funding. The proposed increase also accelerates the accomplishment rate of OMAO's shipboard maintenance management program to enhance at-sea safety and ship productivity and to meet emerging regulatory requirements.

NOAA will address the following items:

- \$ 1,358,000 Deferred Maintenance Backlog – Electronics Engineering
- \$ 2,742,000 Deferred Maintenance Backlog- Marine Engineering
- \$ 2,100,000 Increase Preventative Maintenance Accomplishment Rate
- \$ 6,200,000

Proposed Actions

A prioritized approach will be taken to correct the Maintenance Backlog by addressing the most critical items first. The most critical items are the items that affect the ship's ability to sail or items that will exacerbate over time and will incur greater expense to repair if left uncorrected for a significant time period. With this funding, after five years the preventative maintenance backlog for mission-related equipment and improvements to exterior and internal compartments to enhance crew safety and productivity will be eliminated. Four Fisheries Survey Vessels (FSVs) will be acoustically maintained annually, and each FSV acoustical signature tested every five years on a rotating schedule. The shipboard At-Sea Preventative Maintenance (PM) will be augmented with shore-based contractor support during winter inport periods, such that the current preventive-maintenance accomplished rate of 40 percent is increased by 10 percent per year.

1. The Deferred Maintenance backlog will be eliminated in five years. Annual amounts of approximately \$70,000 per ship/year for deferred electronics maintenance and approximately \$140,000 per ship/year for deferred mechanical maintenance are planned.
2. To increase the accomplishment rate of planned maintenance currently assigned to each crew, \$2,100,000 per year will be used to address systemic maintenance problems by supplementing crew-performed maintenance with contractor-performed maintenance. This will decrease lost days at sea resulting from casualties to systems, equipment or machinery.

Statement of Need and Economic Benefits

There has been an 89 percent increase in the number of significant mechanical/electronic failures as indicated in NOAA Ship Casualty Reports (i.e., Category 1 and 2 CASREPS) – from 95 in FY 2005 to 180 in FY 2008 – and a 62 percent increase in Lost Days at Sea (DAS) for NOAA programs – from 184 DAS in FY 2005 to 299 DAS in FY 2008. The FY 2011 increase will reduce lost Days at Sea and equipment failures due to lack of maintenance by a full ship-year of mission days by FY 2015, which translates to an annual improvement in the GPRA targets supported by the NOAA fleet. This increase will allow NOAA to properly maintain its

aging ships and meet increasingly restrictive maritime standards while ensuring that new ships continue to meet mission requirements and meet performance targets. In recent years NOAA has faced a growing list of deferred maintenance items, especially on older ships that have increasing need of the investment; the status quo reduces operational tempo and limits the value of scientific operations accomplished per unit ship cost.

Deliverables and Performance Goals

Performance Goal: Mission Support						
Performance measure: Annual number of Fleet Casualty Reports (CASREPS)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	170	160	140	110	70	20
Without Increase	200	210	220	230	240	250
Description: A decrease in CASREPS is one overall indicator of the success of a maintenance program and, depending on the severity of the CASREP, ultimately translates to a decrease in DAS lost to mechanical/electronic component failures.						

Performance Goal: Mission Support						
Performance measure: Operational Days Completed (fleet only)	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
With Increase	3,390	3,390	3,390	3,390	3,390	3,390
Without Increase	3,390	3,090	3,065	3,040	3,015	2,990
Description: A decrease in DAS due to increased mechanical failures will negatively affect the data collection capacity and proportionately affect the GPRA target for each mission the fleet supports.						

Performance Goal: Ecosystem		FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Percentage of Living Marine Resources with Adequate Population Assessments and Forecasts, supports Measure 1b*							
<i>Oscar Elton Sette</i>	Without Increase		0.6%	0.6%	0.6%	0.6%	0.6%
	With Increase		1.3%	1.3%	1.3%	1.3%	1.3%
<i>Gordon Gunter</i>	Without Increase		-0.6%	-0.6%	-0.6%	-0.6%	-0.6%
	With Increase		1.0%	1.0%	1.0%	1.0%	1.0%
<i>McArthur II</i>	Without Increase		-0.5%	-0.5%	-0.5%	-4.0%**	-0.5%
	With		0.9%	0.9%	0.9%	-0.1%	0.9%

	Increase						
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*From NOAA Ship Recapitalization Plan (October 2007), Chapter 11, Figure 9, Annual % Change Projected from FY07 GPRA Performance Baseline. The increase in GPRA target for each ship listed was calculated to incorporate the change in capacity associated with this increase. A percent change in operating days for each specific ship based on a decrease in lost days and CASREPS was multiplied by the number of Adequately Assessed Living Marine Resources associated with that ship. Target adjusted for change in assumption from an average of 240 DAS to 178 DAS.

**The Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA) mandate the frequency and content of NOAA's stock assessments. MMPA requires all listed species be reassessed every three years and "depleted" species every year. The ESA requires each listed species be reassessed every five years, or when new data becomes available. The change between FY 2013 and FY 2014 reflects the inability of NOAA to certify that listed species in the California Current Large Marine Ecosystem are in/are not in compliance with the three or five-year reassessment, as well as a lack of capacity due to *McArthur II's* Major Repair Period during FY 2014.

Performance Goal: Climate		FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Reduce the Error in Global Measurement of Sea Surface Temperature, supports Measure 2c*							
<i>Ka'imimoana</i>	Without Increase		-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
	With Increase		0%	0%	0%	0%	0%

*From NOAA Ship Recapitalization Plan (October 2007), Chapter 11, Figure 13, Annual % Change Projected from FY 2007 GPRA Performance Baseline.

Performance Goal: Commerce and Transportation		FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Measure: Reduce Hydrographic Survey Backlog Within Navigationally Significant Areas, Measure 4a*							
<i>Rainier</i>	Without Increase		0%	0%	0%	0%	0%
	With Increase		4.5%	4.5%	4.5%	4.5%	4.5%
<i>Fairweather</i>	Without Increase		-2.0%	-2.0%	-2.0%	-2.0%	-2.0%
	With Increase		3.9%	3.9%	3.9%	3.9%	3.9%

* From NOAA Ship Recapitalization Plan (October 2007), Chapter 11, Figure 15, Annual % Change Projected from FY 2007 GPRA Performance Baseline. The increase in GPRA target for each ship listed was calculated to incorporate the change in capacity associated with this increase. A percent change in operating days for each specific ship based on a decrease in lost days and CASREPS results in an increase to the hydrographic surveying performance measure. Target adjusted for change in assumption from an average of 240 DAS to 178 DAS.

TERMINATIONS FOR 2011:

The following programs, or portions thereof, are proposed for termination in FY 2011: Data Acquisition (\$2,500,000).

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

Activity: Office of Marine and Aviation Operations
Subactivity Marine Operations & Maintenance

Title:	Location	Grade	Number of Position	Annual Salary	Total Salaries
Supervisory Program Manager	Seattle, WA	ZA-04	1	87,306	87,306
Dive Safety Officer	Seattle, WA	ZA-04	1	87,306	87,306
Equipment Specialist	Seattle, WA	ZA-03	1	61,255	61,255
Training Specialist	Seattle, WA	ZA-03	1	61,255	61,255
Equipment Specialist	Seattle, WA	ZA-02	2	41,390	82,780
Secretary	Seattle, WA	ZS-03	1	33,414	33,414
Total			<u>7</u>		<u>413,316</u>
less Lapse		25%	<u>2</u>		<u>103,329</u>
Total full-time permanent (FTE)			5		309,987
2011 Pay Adjustment (1.4%)					<u>4,340</u>
TOTAL					<u>314,327</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: Office of Marine and Aviation Operations
Subactivity: Marine Operations & Maintenance

Object Class	2011 Increase
11 Personnel compensation	314
11.5 Other personnel compensation	54
11.9 Total personnel compensation	368
12 Civilian personnel benefits	94
21 Travel and transportation of persons	81
22 Transportation of things	2
23.2 Rental Payments to others	15
23.3 Communications, utilities and miscellaneous charges	17
25.1 Advisory and assistance services	50
25.2 Other services	5,849
25.3 Purchases of goods & services from Gov't accounts	2
26 Supplies and materials	512
99 Total Obligations	6,990

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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 2011, 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 supports 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:			
(3) 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 Otter DHC-6	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 2011:

No program changes are proposed for FY 2011.

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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 where a permanent homeport is not available. In FY 2011, these costs will be accommodated within the Marine Services activity in the ORF account.

A program change is requested for this activity.

Fleet Capital Improvements and Technology Infusion (formerly Vessel Equipment and Technology Refreshment): To replace mission equipment and conduct major repair periods 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.

The Outyear Funding Estimates are provided with the program change requested for this activity.

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PROGRAM CHANGES FOR FY 2011:

Fleet Capital Improvements and Technology Infusion – Miller Freeman Major Repair Period (+0 FTE and \$7,400,000): NOAA requests 0 FTE and \$7,400,000 to accelerate a planned FY 2013 Major Repair Period (MRP) on NOAA ship *Miller Freeman*. The funds requested will be used as follows:

\$ 4,000,000	Structural – hull, superstructure, decks, living and working spaces, interior bulkheads
1,500,000	Mechanical – machinery, piping, steering HVAC, auxiliary systems.
1,200,000	Electrical - switchboards, wiring, power supplies, motor controllers.
<u>700,000</u>	Electronic suite upgrades - mission electronics, ship communications, navigation.
\$7,400,000	

Proposed Actions

The *Miller Freeman* was delivered to NOAA in 1967 and is one of the oldest ships in the fleet. To extend ship service life and ensure safe operations, new capital investments must be made beyond routine annual maintenance cycles. This \$7,400,000 request will address the most critical major maintenance and repair needs. The NOAA Ship Recapitalization Plan currently schedules a major repair period (MRP) in FY 2013, with a new Fishery Survey Vessel (FSV7) replacement in FY 2017. However, the *Miller Freeman* has begun to experience increased mechanical breakdowns and shipyard delays. In order to safely operate the *Miller Freeman* through FY 2017, its planned decommissioning and 50th anniversary year, an MRP is required in FY 2011. If the MRP is not completed, OMAO risks continued unplanned mechanical or infrastructure failures due to poor structural integrity resulting from hull and structural metal loss that will result in lost days at sea. The ship's condition may also jeopardize OMAO's ability to meet the ship certification requirements of the American Bureau of Shipping (ABS), the governing regulatory body, and at a minimum would make certification compliance much more costly.

Statement of Need and Economic Benefits

Recent dry dock work and associated material assessments in FY 2009 confirm the ship's continuing and rapid deteriorating condition from its advanced age. In FY 2008 NOAA Fisheries experienced higher loss of *Miller Freeman* operating times (14 percent of fleet-wide lost days-at-sea) and 24 percent of scheduled days-at-sea due to mechanical breakdown and shipyard delays due to additional new repair requirements negatively affecting their ability to conduct critical science and stock assessments. Recent maintenance history shows an increasing incidence of mechanical and electrical casualty reports resulting in unplanned emergency repairs that include extended shipyard periods. It is anticipated that lost program sea days will only increase without a significant MRP investment.

Miller Freeman lost 60 program science days in FY 2009 due to 54 casualty breakdowns and the cancellation of one winter and two spring program projects. Charter vessels have been used to cover the cancelled cruises. The demand for *Miller Freeman* operating days has increased drastically with the recent decommissioning of NOAA ship *John N. Cobb* in FY 2008 and the limited operational status of *David Starr Jordan* in FY 2009, reducing the total number of NOAA days-at-sea available for fisheries assessments and research by approximately 400 per year. *Miller Freeman* currently supports the following mission activities: BASIS (oceanic juvenile salmon in the Bering Sea), Bering Sea and Gulf of Alaska squid and forage fish surveys, Bering Sea slope ichthyoplankton stock assessment surveys, Alaska right whale surveys, North Pacific mesopelagic fish surveys, and benthic habitat ecosystems research. These surveys are essential to meeting Magnuson-Stevens Reauthorization Act requirements.

In addition, the NOAA Fisheries Service is also facing the need to increase stock assessments and fisheries research in the Arctic due to climate change and loss of sea ice. All of these require the endurance and specific capabilities found on NOAA's fishery survey vessels, which cannot be accomplished with private charter vessels. The calibration of the scientific acoustic and survey trawl capabilities between the new FSV *Bell M.*

Shimada and the *Miller Freeman* are critical in maintaining the West Coast hake time series and are critical issues impacting the quality of data collection and assessment of this important stock. Due to the differences in vessel size, horsepower, trawl components, and radiated noise, it is highly critical that an inter-vessel calibration experiment be completed when the *Bell M. Shimada* comes on line (now scheduled for mid-to late 2010).

The *Miller Freeman* currently supports major field programs, representing decades-long biological and oceanographic time-series in Alaska and off the West Coast. The loss of *Miller Freeman* would severely impact annual investments in important data collections and impede the advancement of NOAA science in the North Pacific. Walleye pollock are the basis of the largest U.S. fishery by landed weight and dollar value. The Alaska Fisheries Science Center (AFSC) conducts annual winter and summer hydroacoustic surveys rotating between the Bering Sea and the Gulf of Alaska. The Northwest Fisheries Science Center (NWFSC) conducts a 60-day Pacific hake hydroacoustic survey, and annual Pacific groundfish surveys with the Southwest Fisheries Science Center (SWFSC). All of these surveys are conducted by the *Miller Freeman*.

Deliverables and Performance Goals

With a Major Repair Period, *Miller Freeman (MF)* will continue operations to FY 2017.

- Schedule: FY 2011 – Develop statement of work and requirements document (Q2)
- FY 2011 – Publish Solicitation (Q3)
- FY 2011 – Award contract (Q4)
- FY 2012 – Begin industrial work (Q1)
- FY 2012 – Ship returns to service (Q3)

		FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Goal: Ecosystem	Without Increase (<i>MF</i> Status Quo)	-1.4%	-2.8%	-4.2%	-5.6%	-7.0%
	With Increase (<i>MF</i> Service Life Extension)	NA	NA	0%	0.6%	1.3%
Performance Measure: Percentage of Living Marine Resources with Adequate Population Assessments and Forecasts, Measure 1b*						

*From NOAA Ship Recapitalization Plan (October 2007), Chapter 11, Figure 9, Annual % Change Projected from FY 2007 GPRA Performance Baseline. "NA" in FY 2012 with increase is due to *Miller Freeman's* major repair period occurring during that year. Target adjusted for change in assumption from an average of 240 DAS to 178 DAS

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
Performance Goal: Mission Support Fleet Capital Improvements and Technology Infusion	FY2010 & Prior	FY2011	FY2012	FY2013	FY2014	FY2015	Estimate to Complete	Total Program Estimate
Change from FY2011 Base	0	7,400	0	0	0	0		
Total Request	2,999	8,400	1,000	1,000	1,000	1,000	NA	Recurring

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 2011. 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. The *Oregon II* will reach the end of its useful service life in FY 2016. The ship's material condition and adherence to industry standards will prevent 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 GPRA's 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

FY2011

- Issue RFP for design of shallow-draft FSV

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
Performance Goal: Mission Support New Vessel Design and Construction (FSV 5)	FY2010 & 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	0	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.

New Vessel Construction (FSV6) (+0 FTE and \$1,400,000): NOAA requests 0 FTE and \$1,400,000 for a total of 5 FTE and \$1,400,000 to provide project management and change margin funds for Fisheries Survey Vessel (FSV 6). A total of \$78,000,000 was provided in the FY 2009 American Recovery and Reinvestment Act. The requested FY 2011 funding will be used as follows:

\$1,100,000 Project Management
300,000 Change Orders
 \$1,400,000

Proposed Actions

OMAO will continue construction of a fisheries research ship to replace the NOAA ship *David Starr Jordan*. In FY 2011, OMAO will procure continuity in the civilian expertise required to monitor and evaluate the contractor's progress at the shipyard during the construction phase. The government Construction Representative will review contractor deliverables and conduct on-site technical meetings to advise the FSV6 program manager of any problems/issues/corrective actions while tracking shipbuilding metrics and activities for meeting specification and contract requirements. OMAO also will procure engineering changes as necessary during the construction and testing of the vessel. These technical changes must be reviewed and fully assessed for cost and impact prior to be considered for government approval according to the project office's configuration control plan.

Statement of Need and Economic Benefits

The Fleet Recapitalization Plan provides for the replacement of *David Star Jordan*. The FSV6 is needed to perform acoustic surveys with complementary capabilities for direct sampling of fish and zooplankton and to launch and recover a work boat in open seas. The ship surveys need to comply with international standards on acoustic survey criteria to improve data collection, so the new ship must carry advanced acoustic detection systems and other mission unique equipment.

NOAA requires data collected at sea to achieve outcomes mandated by Congress and the economic impact is significant. The Magnuson-Stevens Fisheries Conservation and Management Reauthorization Act require sufficient data to establish annual catch limits for fisheries. If sufficient data is not available, catch limits must be reduced from current levels with an estimated negative impact on the commercial fishing industry of up to \$7 billion annually. The requested funding is necessary to effectively manage the construction and bring FSV6 into operations.

Deliverables and Performance Goals

Engineering change orders will provide material and manpower to incorporate a required ship component into the vessel. Staff will provide analysis and evaluation reports on ship progress to program managers.

FSV6 Delivery FY 2013
 FSV6 Operations FY 2014

		FY 2011 Target	FY 2012 Target	FY 2013 Target	FY 2014 Target	FY 2015 Target
Performance Goal: Ecosystem	Without Increase (DSJ to be retired FY10)	-0.9%	-1.8%	-2.7%	-3.6%	-4.5%
Performance Measure: Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts, supports Measure 1b*	With Increase (New FSV 6)	NA	NA	NA	NA	19.1%

*From NOAA Ship Recapitalization Plan (October 2007), Chapter 11, Figure 9, Cumulative Year-over-Year Change Projected from FY07 GPRA Performance Baseline. The change in GPRA target reflects the impact of this increase in bringing FSV6 online relative to providing no capability to replace David Starr Jordan.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
Performance Goal: Mission Support New Vessel Construction (FSV6)	FY2010 & Prior	FY2011	FY2012	FY2013	FY2014	FY2015	Estimate to Complete	Total Program Estimate
Change from FY2011 Base	0	1,400	1,400	2,900	0	0		
Total Request	78,000	1,400	1,400	2,900	0	0	0	83,700

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

Temporary Berthing (0 FTE and -\$1,000,000): NOAA requests a decrease of \$1,000,000 for temporary berthing for *Henry B. Bigelow* (FSV2). Actual to costs to berth the Bigelow are substantially lower and will be accommodated within the Marine Operations and Maintenance - Marine Services activity in the ORF account.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY2010 & Prior	FY2011	FY2012	FY2013	FY2014	FY2015	Estimate to Complete	Total Program Estimate
Temporary Berthing								
Change from FY 2011 Base		(1,000)	0	0	0	0		
Total Request	3,976	0	0	0	0	0		3,976

*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: Office of Marine and Aviation Operations
Subactivity: Fleet Replacement

Object Class	2011 Increase
21 Travel and transportation of persons	50
22 Transportation of things	1
23.3 Communications, utilities and miscellaneous charges	7
25.1 Advisory and assistance services	3,026
25.2 Other services	8,402
26 Supplies and materials	4
31 Equipment	310
99 Total Obligations	11,800

Department of Commerce
 National Oceanic and Atmospheric Administration
 Procurement, Acquisition, and Construction
PROGRAM CHANGE DETAIL BY OBJECT CLASS
 (Dollars amounts in thousands)

Activity: Office of Marine and Aviation Operations
 Subactivity: Fleet Replacement

	Object Class	2011 Decrease
23.2	Rental payments to others	1,000
99	Total Obligations	1,000

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, as well as upgrades of aircraft, aircraft systems, subsystems, and equipment.

PROGRAM CHANGES FOR FY 2011:

No program changes are proposed for FY 2011.

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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 administered by OMAO.

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 0 FTE and \$2,153,000 for a total of \$28,269,000 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, dependents, and annuitants.

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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 2010 Currently Available	0	0	26,116	26,116	26,116
plus: 2011 Other Adjustments to Base	0	0	2,153	2,153	2,153
FY 2011 Base	0	0	28,269	28,269	28,269
plus: 2011 Program Changes	0	0	0	0	0
FY 2011 Estimate	0	0	28,269	28,269	28,269

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Corps Retirement Pay (Mandatory)	Pos/BA	0	24,272	0	26,116	0	28,269	0	28,269	0	0
	FTE/OBL	0	23,033	0	26,116	0	28,269	0	28,269	0	0
Total: Office of Marine and Aviation Ops	Pos/BA	0	24,272	0	26,116	0	28,269	0	28,269	0	0
	FTE/OBL	0	23,033	0	26,116	0	28,269	0	28,269	0	0
Total	Pos/BA	0	24,272	0	26,116	0	28,269	0	28,269	0	0
	FTE/OBL	0	23,033	0	26,116	0	28,269	0	28,269	0	0

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

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	0	23,033	0	26,116	0	28,269	0	28,269	0	0
Total Obligations	0	23,033	0	26,116	0	28,269	0	28,269	0	0
Adjustments to Obligations:										
Unobligated Balance, SOY	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, EOY	0	0	0	0	0	0	0	0	0	0
Unobligated Balance, Expiring	0	1,239	0	0	0	0	0	0	0	0
Total Budget Authority	0	24,272	0	26,116	0	28,269	0	28,269	0	0
Financing from Transfers and Other:										
Net Appropriation	0	24,272	0	26,116	0	28,269	0	28,269	0	0

Appropriation: Medicare-Eligible Retiree Healthcare Fund Contribution - NOAA Corps
Subactivity: Medicare-Eligible Retiree Healthcare 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.

Significant Adjustments to Base (ATBs):

NOAA requests an increase of 0 FTE and \$2,000 for a total of \$1,936,000 for accrual contributions for future health care benefits for current NOAA Commissioned Corps officers. The accrual fund pays for healthcare benefits for Medicare-eligible retired officers, dependents, and annuitants. Accrual fund contributions were first mandated in FY 2003 Department of Defense legislation.

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Department of Commerce
 National Oceanic and Atmospheric Administration
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2010 Currently Available	0	0	1,822	1,822
plus: 2011 Adjustments to Base	0	0	114	114
FY 2011 Base	0	0	1,936	1,936
plus: 2011 Program Changes	0	0	0	0
FY 2011 Estimate	0	0	1,936	1,936

Comparison by activity/subactivity		FY 2009		FY 2010		FY 2011		FY 2011		Increase/Decrease	
		Actuals Personnel Amount		Currently Available Personnel Amount		Base Program Personnel Amount		Estimate Personnel Amount		Personnel Amount	
Medicare Eligible Retiree Health Fund Contribution - NOAA Corps	Pos/BA	0	1,674	0	1,822	0	1,936	0	1,936	0	0
	FTE/OBL	0	1,674	0	1,822	0	1,936	0	1,936	0	0
Total: Medicare Eligible Retiree Health Fund Contribution - NOAA Corps	Pos/BA	0	1,674	0	1,822	0	1,936	0	1,936	0	0
	FTE/OBL	0	1,674	0	1,822	0	1,936	0	1,936	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF RESOURCE REQUIREMENTS
 (Dollar amounts in thousands)

	FY 2009		FY 2010		FY 2011		FY 2011		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	0	1,674	0	1,822	0	1,936	0	1,936	0	0
Total Obligations	0	1,674	0	1,822	0	1,936	0	1,936	0	0
Adjustments to Obligations:										
Total Budget Authority	0	1,674	0	1,822	0	1,936	0	1,936	0	0
Financing from Transfers and Other:										
Net Appropriation	0	1,674	0	1,822	0	1,936	0	1,936	0	0

Department of Commerce
 National Oceanic and Atmospheric Administration
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF FINANCING
 (Dollar amounts in thousands)

	2009	2010	2011	2011	Increase/ Decrease/
	Actuals	Currently Available	Base	Estimate	over 2011 Base
Total Obligations	1,674	1,822	1,936	1,936	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	1,674	1,822	1,936	1,936	0
Financing:					
Previously unavailable unobligated balances					0
Transfer to other accounts					0
Appropriation	1,674	1,822	1,936	1,936	0

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Department of Commerce
National Oceanic and Atmospheric Administration
Medicare Eligible Retiree Health Fund Contribution - NOAA Corps
SUMMARY OF REQUIREMENTS BY OBJECT CLASS
(Dollar amounts in thousands)

		2009	2010	2011	2011	Increase/ (Decrease)
		Actuals	Currently Available	Base	Estimate	over 2011 Base
Object Class						
25.3	Other purchases of goods and services from Gov't accounts	1,674	1,822	1,936	1,936	0
99	Total Obligations	1,674	1,822	1,936	1,936	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	1,674	1,822	1,936	1,936	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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