

**Budget Estimates, Fiscal Year 2009  
Congressional Submission**

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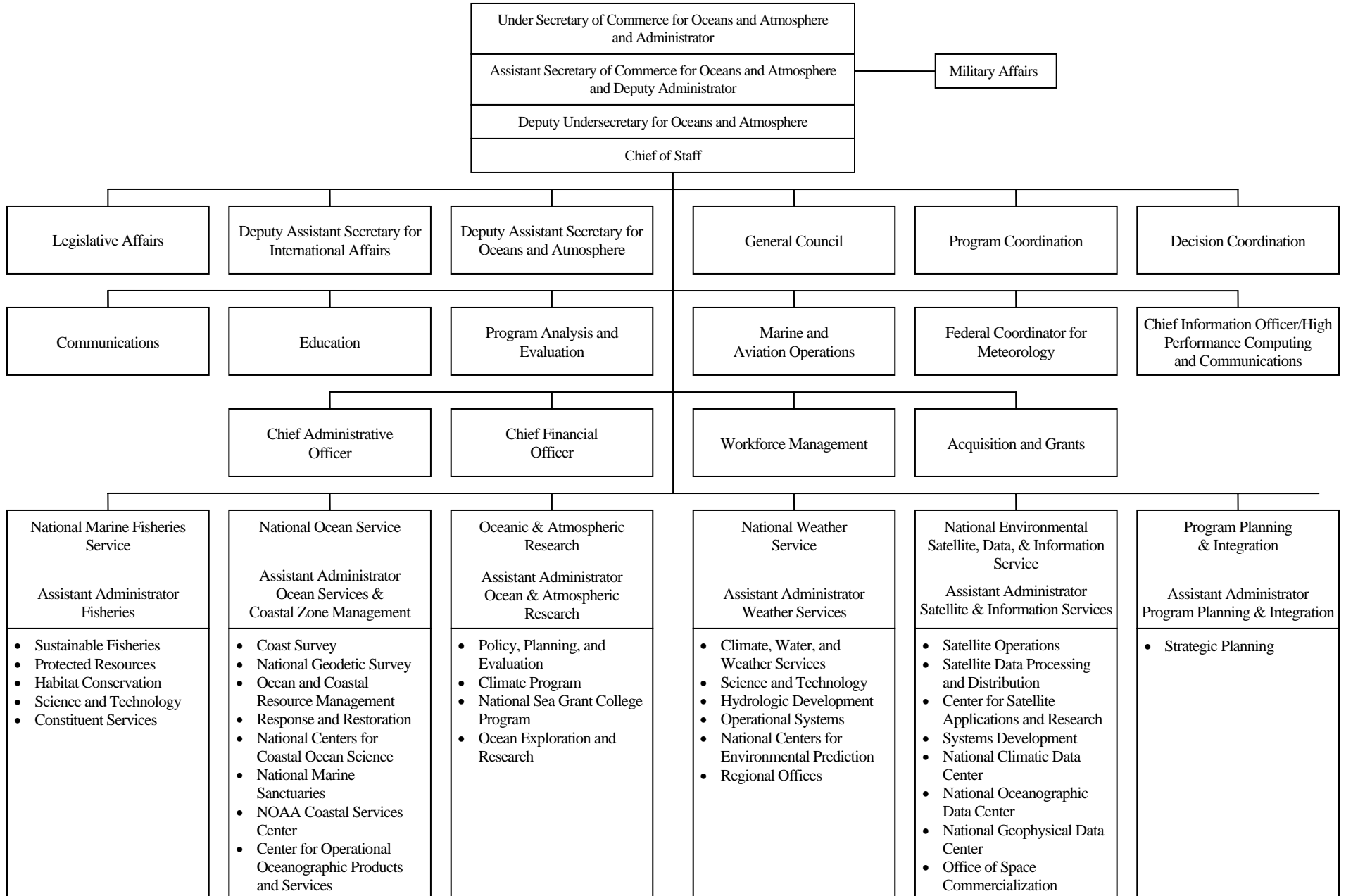
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**U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**



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Department of Commerce  
National Oceanic and Atmospheric Administration  
Operations and Research Facilities  
Budget Authority by Line Office  
(Dollars in thousands)

Line Office	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		FTE	Amount
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
National Ocean Service	1,163	484,178	1,210	467,462	1,220	406,905	1,223	449,252	3	42,347
National Marine Fisheries Service	2,643	828,716	2,586	707,708	2,606	657,893	2,651	724,211	45	66,318
Oceanic and Atmospheric Research	713	363,538	714	387,554	735	362,476	735	372,270	-	9,794
National Weather Service	4,624	774,963	4,625	804,489	4,608	797,250	4,608	818,833	-	21,583
National Environmental Satellite, Data, and Information Service	597	177,191	678	178,975	678	156,897	678	165,292	-	8,395
Program Support	1,913	362,242	1,907	395,900	1,976	379,076	2,014	394,395	38	15,319
Adjustments to Budget Authority	-	-	-	(10,108)	-	(11,000)	-	(11,000)	-	-
<b>Total</b>	<b>11,653</b>	<b>2,990,828</b>	<b>11,720</b>	<b>2,931,980</b>	<b>11,823</b>	<b>2,749,497</b>	<b>11,909</b>	<b>2,913,253</b>	<b>86</b>	<b>163,756</b>

The dollars in this table represent budget authority. This includes both the discretionary and mandatory ORF.

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Department of Commerce  
National Oceanic and Atmospheric Administration  
Budget Authority by Line Office  
(Dollars in thousands)

<b>Line Office</b>	<b>FY 2007 Actuals</b>	<b>FY 2008 Currently Available</b>	<b>FY 2009 Base Program</b>	<b>FY 2009 Estimate</b>	<b>Increase/ Decrease</b>
National Ocean Service					
Operations, Research and Facilities	484,178	467,462	406,905	449,252	42,347
Procurement, Acquisition and Construction	56,945	56,540	20,250	27,385	7,135
Other Accounts - Discretionary	-	-	-	-	-
Other Accounts - Mandatory	(500)	(500)	(500)	(500)	-
Total NOS	540,623	523,502	426,655	476,137	49,482
National Marine Fisheries Service					
Operations, Research and Facilities	828,716	707,708	657,893	724,211	66,318
Procurement, Acquisition and Construction	11,190	2,019	-	-	-
Other Accounts - Discretionary	(13,146)	(9,832)	(12,000)	(44,000)	(32,000)
Other Accounts - Mandatory	104,169	126,487	99,694	99,694	-
Total NMFS	930,929	826,382	745,587	779,905	34,318
Oceanic and Atmospheric Research					
Operations, Research and Facilities	363,538	387,554	362,476	372,270	9,794
Procurement, Acquisition and Construction	34,900	10,121	10,131	10,379	248
Total OAR	398,438	397,675	372,607	382,649	10,042
National Weather Service					
Operations, Research and Facilities	774,963	804,489	797,250	818,833	21,583
Procurement, Acquisition and Construction	109,429	106,007	96,276	111,858	15,582
Total NWS	884,392	910,496	893,526	930,691	37,165

Department of Commerce  
National Oceanic and Atmospheric Administration  
Budget Authority by Line Office  
(Dollars in thousands)

Line Office	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/ Decrease
National Environmental Satellite, Data, and Information Service					
Operations, Research and Facilities	177,191	178,975	156,897	165,292	8,395
Procurement, Acquisition and Construction	806,074	775,147	774,896	992,588	217,692
Total NESDIS	983,265	954,122	931,793	1,157,880	226,087
Program Support					
Operations, Research and Facilities	362,242	395,900	379,076	394,395	15,319
Procurement, Acquisition and Construction	66,494	28,394	27,247	98,450	71,203
Other Accounts - Discretionary	1,820	1,802	1,934	1,934	-
Other Accounts - Mandatory	19,322	23,119	24,272	24,272	-
Total Program Support	449,878	449,215	432,529	519,051	86,522
Discretionary adjustments to Budget Authority	-	<i>(16,372)</i>	<i>(13,000)</i>	<i>(13,000)</i>	0
Discretionary Budget Authority	4,064,534	3,895,914	3,666,231	4,109,847	443,616
Mandatory Budget Authority	122,991	149,106	123,466	123,466	
Total Budget Authority	4,187,525	4,045,020	3,789,697	4,233,313	443,616



**Department of Commerce  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
EXECUTIVE SUMMARY**

**1. Introduction**

**In Fiscal Year (FY) 2009 National Oceanic and Atmospheric Administration (NOAA) requests a total of \$4,109,847,000, an increase of \$202,561,000 or 5.2% over the FY 2008 Enacted.** This request reflects NOAA's continuing effort to better serve the American people through advancing mission-critical services. The NOAA staff of dedicated professionals, working with extramural researchers and our international partners are extending our knowledge of climate change; expanding meteorological prediction capabilities; improving coastal resource management; charting more of our seas and coasts; and enhancing environmental stewardship.

Total requested calculated Adjustments to Base (ATBs) are \$42,032,000. 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 2009 base level will fund the estimated FY 2009 Federal pay raise of 2.9 percent and annualize the FY 2008 pay raise of 3.5 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.

**Priority Program Change Highlights**

NOAA's total requested program changes fall into two categories: Sustaining Critical Operations and priority program changes. The total requested program changes will include investments in four key areas: Supporting the U.S. Ocean Action Plan and the Magnuson-Stevens Fishery Conservation and Management Act; Improving Weather Warnings and Forecasts; Climate Monitoring and Research; and finally, Critical Facilities Investments. As always, NOAA places a high priority on sustaining current services. In FY 2009, NOAA will have expanded focus on supporting the President's Ocean Initiative. A summary of the highest priority items in this Budget Summary are highlighted below.

## **Sustaining Critical Operations**

NOAA's core values are people, integrity, excellence, teamwork, ingenuity, science, service, and stewardship. Our ability to serve the nation and accomplish the missions outlined below is determined by the quality of our people and the tools they employ. Our facilities, ships, aircraft, environmental satellites, data-processing systems, computing and communications systems, and our approach to management provide the foundation of support for all of our programs. Approximately \$42.0 million in net increases will support our workforce inflation factors, including \$37.5 million for salaries and benefits, and \$4.5 million for non-labor related adjustments. This year, NOAA has invested in the missions that support the core services through \$1.2 million for procurement and grants oversight. A funding increase of \$4.0 million will support aircraft operations for missions such as hurricane research, reconnaissance and surveillance, and other environmental forces. Finally, an increase of \$242.2 million in the Geostationary Operational Environmental Satellite (GOES-R) program will provide an uninterrupted flow of environmental data for users. The GOES-R data collected will assist in protecting, restoring, and managing the use of coastal and ocean resources through ecosystem-based management approaches; will provide an understanding of climate variability and change to enhance society's ability to plan and respond; will serve society's needs for weather and water information; and will support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

### **1) Supporting the President's Ocean Initiative**

Coastal and marine waters support over 28 million jobs, and the value of the ocean economy to the United States is over \$115 billion. The commercial and recreational fishing industries alone add over \$48 billion to the national economy each year.

#### *Ocean Science and Research:*

New investments in ocean science are aimed at monitoring and better understanding marine ecosystems. Increased funding of \$7.0 million is included for the Integrated Ocean Observing System (IOOS) to support Data Management and Communications, Regional Observations, and the Data Assembly Center (DAC), which delivers real-time, quality controlled data from NOAA and regional observing systems.

#### *Protecting and Restoring Marine and Coastal Resources:*

The FY 2009 request includes \$4.0M to support the mandates of the Marine Debris Research, Prevention, and Reduction Act of 2006, including competitive grant programs. An increase of \$5.4 million is requested to restore stream miles of fish habitats through watershed level projects.

### *Ensuring Sustainable Use of Ocean Resources:*

The Administration worked with Congress to reauthorize the Magnuson-Stevens Fishery Conservation and Management Act, and now NOAA requests \$31.8 million to continue to implement the new and expanded requirements of the Act. Included in the request are activities to end overfishing, to improve the collection and use of recreational fisheries data, to manage international fisheries stocks, and to implement a deep sea coral research and technology program.

### **2) Improving Weather Warnings and Forecasts**

Severe weather events cause \$11 billion in damages and approximately 7,000 weather-related fatalities yearly in the United States. Nearly one-third of the U.S. economy is sensitive to weather and climate. Realizing this, NOAA seeks to provide decision makers with key observations, analyses, predictions, and warnings for a variety of weather and water conditions to help protect the health, life and property of the U.S. and its economy. Increased funding of \$3 million will accelerate improvements of NOAA's hurricane forecasts. A \$3 million investment in NOAA's Unmanned Aerial System program will support research into new observation systems to fill critical gaps in hurricane reconnaissance and scientific understanding of hurricane systems. Additionally, NOAA seeks \$2.9 million to strengthen its NOAA Weather Radio (NWR) program by replacing its 10-year old Console Replacement System (CRS) and converting the NWR from a land-line single-point-of-failure circuit configuration to a robust satellite-based network.

### **3) Climate Monitoring and Research:**

Society exists in a highly variable climate system, and major climatic events can impose serious consequences on society. The 1997-98 El Nino, for example, had a \$25 billion impact on the U.S. economy, with property losses of \$2.6 billion and crop losses approaching \$2 billion. Conditions change over the span of seasons, years, decades, and longer, intersecting with complex interdisciplinary issues ranging from ecosystem and resource management to agriculture, energy production, and responses to extreme weather and climate events. NOAA is building a suite of information, products and services, to enable society to respond to changing climate conditions. NOAA will support the critical National Integrated Drought Information System (NIDIS) with an increase of \$2.0 million to develop and bring into operation the next generation Climate Forecast System (CFS), which will facilitate and enhance the transition of research advances in drought monitoring and prediction and lead to improved NOAA climate forecasts and application products. NOAA will also support research to improve understanding of the Atlantic Meridional Overturning Circulation (MOC) with an increase of \$1.0 million to fully fund a \$5.0 million effort in this area. This research will lead to new capabilities for monitoring and making predictions of MOC changes (an abrupt change early warning system), assessing the risks of rapid climate changes, and identifying impacts of these changes on the ocean, climate, extreme weather events, regional sea level changes, ecosystems, and carbon budgets.

#### **4) Critical Facilities Investment**

NOAA continues to invest in our critical facilities management and modernization efforts, to provide safe and efficient work environment for our employees. Of particular importance this year is the \$12.1 million funding increase to design and begin construction of a replacement facility at the Southwest Fisheries Science Center. NOAA is requesting \$40.3 million for continued construction of the new Pacific Region Center on Ford Island in Honolulu, HI. This increase in funding will allow NOAA to complete the exterior renovation of one of the Ford Island buildings, a crucial next step in the construction process. NOAA's budget includes \$11.7 million to provide a semi permanent structure at the Fairbanks Command and Data Acquisition Station in Fairbanks, Alaska. NOAA is requesting \$6.1 million to fund a major repair period (MRP) for the RAINIER, NOAA's most productive hydrographic survey vessel.

The program changes highlighted above will be addressed in greater detail in the remaining parts of the FY 2009 NOAA Budget Summary. We hope to build on our prior successes by addressing future challenges through implementing the management, operational, and technical enhancements proposed in this Summary.

**3. Exhibit 3A**

**FY 2009 ANNUAL PERFORMANCE PLAN (APP)**  
**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

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## Section 1.

### Mission

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

## Section 2.

### Corresponding DOC Strategic Goal and Objective/Outcome

#### DOC Strategic Goal 3: Promote environmental stewardship

One of the roles the Department of Commerce plays in advancing the Nation in the 21<sup>st</sup> 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 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.



**Section 3.**

**Program Assessment Rating Tool Summary (PART)**

The following highlights summarize NOAA’s status with the Program Assessment Rating Tool.

Program: Hydrology	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2007	74/Mod. Eff.	36	42	43
Open recommendations:					
<ol style="list-style-type: none"> <li>1. Develop and deliver the infrastructure and external communication procedures needed for community hydrologic modeling to increase efficiencies.</li> <li>2. Provide new water resource forecast information in Internet-assessable digital form suitable for use by decision support assistance systems.</li> </ol>					
Program: National Marine Fisheries Service ( <i>second review by OMB</i> )	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2007	72/Mod. Eff.	618	496	519
Open recommendations:					
<ol style="list-style-type: none"> <li>1. Increase the number of fisheries managed through market-based approaches to 16 by 2010. (There will be a one-year delay in meeting this goal due to the funding level enacted for FY 2008.)</li> <li>2. Establish sustainable annual catch limits for all managed fish stocks.</li> <li>3. Work with Regional Fishery Management Councils to implement sustainable annual catch limits for all managed fish stocks.</li> </ol>					
Program: Pacific Coastal Salmon Recovery Fund ( <i>second review by OMB</i> )	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2006	77/Mod. Eff.	67	67	35
Open recommendations:					
<ol style="list-style-type: none"> <li>1. Proposing a budget request to allocate funds based on listed salmon recovery goals</li> <li>2. Proposing a requirement that all states provide a 33% match for Federal funds</li> </ol>					
Program: NOAA Navigation Services ( <i>second review by OMB</i> )	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2006	84/Mod. Eff.	148	141	149
Open recommendations:					
<ol style="list-style-type: none"> <li>1. The Budget provides funding to expand the program’s capacity to build and maintain ENCs. (Requested in FY 2008 President’s budget.)</li> <li>2. The Budget proposes funding for state-of-the-art technology, Autonomous Underwater Vehicles (AUVs), to increase the efficiency of hydrographic survey data collection. (Requested in FY 2008 President’s budget.)</li> <li>3. Enhance performance measures to better demonstrate more efficient use of service contracts.</li> </ol>					

4. Determine the optimal investment strategy required to adequately survey the 500,000 square nautical miles of navigationally significant areas through the conduct of a rigorous cost, schedule and performance analysis.
5. Proposing a budget request to support hydrographic data to nautical chart streamlining improvements.

Program: Marine & Aviation Operations	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2006	72/Mod. Eff.	192	182	198
Open recommendations:					
<ol style="list-style-type: none"> <li>1. OMAO will work to implement measures that guide and demonstrate improved efficiencies.</li> <li>2. OMAO plans to perform more thorough analyses of alternatives for its capital acquisition activities to ensure that the program invests in assets that represent the best value to the government and the taxpayers.</li> <li>3. OMAO will synthesize internal ship, aircraft, personnel and administrative policies to increase operational effectiveness.</li> </ol>					

Program: NOAA Ecosystem Research Program	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2005	62/Adequate	173	162	164
Open recommendations:					
<ol style="list-style-type: none"> <li>1. Assessing the portfolio of research within NOAA's Ecosystem Research Program in order clarify the role of each of the Program's components and eliminate redundancies.</li> <li>2. Modifying planning and management processes so that research activities meet the highest priority science needs and provide a balanced response to local, regional, and national issues.</li> </ol>					

Program: NOAA Weather and Related Programs	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2005	76/Mod. Eff.	1,813	1,830	2,005
There are no open recommendations associated with this PART.					

Program: NOAA Protected Areas	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2004	68/Adequate	57	62	51
Open recommendations:					
<ol style="list-style-type: none"> <li>1. NOAA will establish review processes at the appropriate level and frequency to evaluate effectiveness and relevance of coastal and ocean area management programs.</li> <li>2. NOAA will work to enhance integration of area-based management programs.</li> </ol>					

Program: NOAA Climate Program	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2004	78/Mod. Eff.	267	266	251
Open recommendations: There are no open recommendations associated with this PART.					

Program: Coastal Zone Management Act Programs	Year	Score/Rating	2007 Funding Estimate	2008 Funding Estimate	2009 Funding Request
	2003	46/R.N.D.	105	103	98
Open recommendations: 1. Redirect a portion of the program funding to competitive grants that more directly address regional and national priorities.					

NOAA's FY 2009 Annual Performance Plan shows the linkages between each performance measure and the related program changes, and each program change narrative in the budget request contains at least one performance measure, with separate targets showing performance with and without the requested increase. The following are examples of how PART findings, through the NOAA Planning, Programming, Budget and Execution System, influenced the FY 2009 Budget:

Proposed Program Change (Increase/Decrease)	How did PART findings influence proposed program change?	Expected Impact
Navigation Services +\$3,700,000	The most recent NOAA Navigation Services PART recommended that NOAA determine the optimal investment strategy required to adequately survey the 500,000 square nautical miles of navigationally significant areas through the conduct of a rigorous cost, schedule and performance analysis. A key component of this effort is to reduce the time from data collection to delivery to the user, essentially reducing "ping to chart" even as data collection increases. In addition, the PART process and OMB findings (e.g., NOAA is somewhat below par in areas such as cost effectiveness, efficiency, and ability to achieve short and long term goals) have provided the program good direction by which to address its deficiencies.	The program increases proposed for Navigation Services relate in different ways to the PART findings; they all enable NOAA to operate Navigation Services more effectively. The program increases allow NOAA to: <ul style="list-style-type: none"> <li>√ pursue ping to chart data streamlining efficiencies to reduce the number of days that nautical chart data sits waiting for application; specifically, investments will help to reduce ping to chart time delay by 38% from 420 days in FY07 to 260 days by FY 2012;</li> <li>√ enable NOAA to continue expansion of the Physical Oceanographic Real Time System and Oceanographic Forecast System models to additional major seaports to reduce groundings and</li> </ul>

<b>Proposed Program Change (Increase/Decrease)</b>	<b>How did PART findings influence proposed program change?</b>	<b>Expected Impact</b>
		improve port operating efficiencies.
National Integrated Drought Information System (NIDIS) +\$2,000,000	The Climate Research Program PART recommended that NOAA invest in additional climate observations and research priorities to better understand climate variability.	The impact of this increase will be to improve climate predictive skill to 21 by the end of FY 2009 and to 25 by the end of FY 2013.
Complete and Sustain NOAA Weather Radio, +\$2,877,000	The Weather and Related Programs PART provided directed information on the need to improve warning and forecasting metrics and improve dissemination to the public.	The funding will provide improvements to infrastructure including processing time, reliability, and reduce costs, provide an interface with Department of Homeland Security and the Federal Emergency Management Agency, and provide a basis for future system enhancements.
Accelerate Hurricane Forecasting System Improvements, +\$4,273,000	The Weather and Related Programs PART provided directed information on the need to improve warning and forecasting metrics and improve dissemination to the public.	Hurricane evacuations are costly to the economy. The funding will improve hurricane track forecast accuracy by 50 percent and intensity forecast by 30 percent by FY 2016. Improvements in the accuracy and reliability of hurricane forecasts could save the economy billions of dollars a year.
Implementation of new requirements of Magnuson-Stevens Fishery Conservation and Management Act (MSA) +\$31,752,000	<p>The National Marine Fisheries Service's PART recommendations are to work with Congress to amend the Magnuson-Stevens Fishery Conservation and Management Act to set hard deadlines for ending overfishing and encourage the use of market-based approaches to management. The reauthorized MSA was signed into law in January, 2007, and it contains hard deadlines for ending overfishing and encourages the use of market-based approaches to management.</p> <p>The need for strong protection of fish populations was not only underscored by the reauthorization of the Magnuson Stevens Act, but also by reports from two national blue-ribbon panels – the independent Pew Oceans Commission</p>	Through the reauthorized MSA requirements, NOAA is able to increase the economic benefits to the U.S. by rebuilding depleted fish stocks and to end overfishing and sustain fish harvests. The ultimate impact of the actions supported by these proposed program changes is increased economic benefits from a strengthened seafood market within the United States.

<b>Proposed Program Change (Increase/Decrease)</b>	<b>How did PART findings influence proposed program change?</b>	<b>Expected Impact</b>
	<p>and the U.S. Commission on Ocean Policy, the latter appointed by President Bush.</p> <p>The implementation of new requirements of MSA resulted in eleven program increases totaling \$31.8 million. PART relevant highlights include:</p> <ul style="list-style-type: none"> <li>• continued funding for limited access privilege programs at a level that will increase the number of market-based approaches to 16 by 2011, one year later than recommended by the National Marine Fisheries Service PART assessment and the Ocean Action Plan. (The one-year delay in meeting this goal is due to the FY 2008 enacted budget.)</li> <li>• \$8.5 million to initiate new stock assessments. NMFS will continue to work with the Regional Fishery Management Councils to establish and implement annual catch limits and other management measures to end overfishing.</li> </ul>	
<p>Pacific Coastal Salmon Recovery Fund -\$32,000,000</p>	<p>NOAA requests a decrease of \$32,000,000 for the Pacific Coastal Salmon Recovery Fund. The remaining funds will provide resources for the recovery of ESA-listed Pacific salmon populations. This change reflects OMB's PART finding to allocate funds based on listed salmon recovery goals</p>	<p>At the reduced funding level, the recovery of ESA listed salmon populations may be delayed and the program will not address stocks important for Tribal treaty rights, or habitat restoration for non-listed salmonids. While fewer projects will be conducted, and progress in implementing recently adopted recovery plans will be slowed, resources will continue to be provided for some of the ESA-listed salmon and steelhead populations.</p>

## **Section 4.**

### **Priorities/ Management Challenges**

In Fiscal Year 2009 National Oceanic and Atmospheric Administration (NOAA) requests a total of \$4,109,847,000, an increase of \$202,561,000 or 5.2 percent over the FY 2008 Enacted. This request reflects NOAA's continuing effort to better serve the American people through advancing mission-critical services. The NOAA staff of dedicated professionals, working with extramural researchers and our international partners are extending our knowledge of climate change; expanding meteorological prediction capabilities; improving coastal resource management; charting more of our seas and coasts; and enhancing environmental stewardship.

Total requested calculated Adjustments to Base (ATBs) are \$42,032,000. 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 2009 base level will fund the estimated FY 2009 Federal pay raise of 2.9 percent and annualize the FY 2008 pay raise of 3.5 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.

#### **Priority Program Change Highlights**

NOAA's total requested program changes fall into two categories: Sustaining Critical Operations and priority program changes. The total requested program changes will include investments in four key areas: Supporting the President's Ocean Initiative and the Magnuson-Stevens Fishery Conservation and Management Act; Improving Weather Warnings and Forecasts; Climate Monitoring and Research; and finally, Critical Facilities Investments. As always, NOAA places a high priority on sustaining current services. In FY 2009, NOAA will have expanded focus on supporting the President's Ocean Initiative. A summary of the highest priority items in this Budget Summary are highlighted below.

#### **Sustaining Critical Operations**

NOAA's core values are people, integrity, excellence, teamwork, ingenuity, science, service, and stewardship. Our ability to serve the nation and accomplish the missions outlined below is determined by the quality of our people and the tools they employ. Our facilities, ships, aircraft, environmental satellites, data-processing systems, computing and communications systems, and our approach to management provide the foundation of support for all of our programs. Approximately \$42.0 million in net increases will support our workforce inflation factors, including \$37.5 million for salaries and benefits, and \$4.5 million for non-labor related adjustments. This year, NOAA has invested in the missions that support the core services through \$1.2 million for procurement and grants oversight. A funding increase of \$4.0 million will support aircraft operations for missions such as hurricane research, reconnaissance and surveillance, and other environmental forces. Finally, an increase of \$242.2 million in the Geostationary Operational Environmental Satellite (GOES-R) program will provide an uninterrupted flow of environmental data for users. The GOES-R data collected will assist in protecting, restoring, and managing the use of coastal and ocean resources through ecosystem-based management approaches; will provide an understanding of climate variability and change to enhance society's ability to plan and respond; will serve society's needs for weather and water information; and will support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

### 1) Supporting the President's Ocean Initiative

Coastal and marine waters support over 28 million jobs, and the value of the ocean economy to the United States is over \$115 billion. The commercial and recreational fishing industries alone add over \$48 billion to the national economy each year.

#### Ocean Science and Research:

New investments in ocean science are aimed at monitoring and better understanding marine ecosystems. Increased funding of \$7.0 million is included for the Integrated Ocean Observing System (IOOS) to support Data Management & Communications, Regional Observations, and a Data Assembly Center which delivers real-time, quality controlled data from NOAA and regional observing systems.

#### Protecting and Restoring Marine and Coastal Resources:

The FY 2009 request includes \$4.0 million to support the mandates of the Marine Debris Research, Prevention, and Reduction Act of 2006, including competitive grant programs. An increase of \$5.397 million is requested to restore stream miles of fish habitats through watershed level projects.

#### Ensuring Sustainable Use of Ocean Resources:

The Administration worked with Congress to reauthorize the Magnuson-Stevens Fishery Conservation and Management Act, and now NOAA requests \$31.8 million to continue to implement the new and expanded requirements of the Act. Included in the request are activities to end overfishing, to improve the collection and use of recreational fisheries data, to manage international fisheries stocks, and to implement a deep sea coral research and technology program.

### 2) Improving Weather Warnings and Forecasts

Severe weather events cause \$11 billion in damages and approximately 7,000 weather-related fatalities yearly in the United States. Nearly one-third of the U.S. economy is sensitive to weather and climate. Realizing this, NOAA seeks to provide decision makers with key observations, analyses, predictions, and warnings for a variety of weather and water conditions to help protect the health, life and property of the U.S. and its economy. Increased funding of \$3 million will accelerate improvements of NOAA's hurricane forecasts. A \$3 million investment in NOAA's Unmanned Aerial System program will support research into new observation systems to fill critical gaps in hurricane reconnaissance and scientific understanding of hurricane systems. Additionally, NOAA seeks \$2.9 million to strengthen its NOAA Weather Radio (NWR) program by replacing its 10-year old Console Replacement System (CRS) and converting the NWR from a land-line single-point-of-failure circuit configuration to a robust satellite-based network.

### 3) Climate Monitoring and Research:

Society exists in a highly variable climate system, and major climatic events can impose serious consequences on society. The 1997-98 El Nino, for example, had a \$25 billion impact on the U.S. economy, with property losses of \$2.6 billion and crop losses approaching \$2 billion. Conditions change over the span of seasons, years, decades, and longer, intersecting with complex interdisciplinary issues ranging from ecosystem and resource management to agriculture, energy production, and responses to extreme weather and climate events. NOAA is building a suite of information, products and services, to

enable society to respond to changing climate conditions. NOAA will support the critical National Integrated Drought Information System (NIDIS) with an increase of \$2.0 million to develop and bring into operation the next generation Climate Forecast System (CFS), which will facilitate and enhance the transition of research advances in drought monitoring and prediction and lead to improved NOAA climate forecasts and application products. NOAA will also support research to improve understanding of the Atlantic Meridional Overturning Circulation (MOC) with an increase of \$1.0 million to fully fund a \$5 million effort in this area. This research will lead to new capabilities for monitoring and making predictions of MOC changes (an abrupt change early warning system), assessing the risks of rapid climate changes, and identifying impacts of these changes on the ocean, climate, extreme weather events, regional sea level changes, ecosystems, and carbon budgets.

4) Critical Facilities Investment

NOAA continues to invest in our critical facilities management and modernization efforts, to provide safe and efficient work environment for our employees. Of particular importance this year is the \$12.1 million funding increase to complete design and begin construction of a replacement facility at the Southwest Fisheries Science Center. NOAA is requesting \$40.3 million for continued construction of the new Pacific Region Center on Ford Island in Honolulu, HI. This increase in funding will allow NOAA to complete the exterior renovation of one of the Ford Island buildings, a crucial next step in the construction process. NOAA’s budget includes \$11.7 million to provide a semi permanent structure at the Fairbanks Command and Data Acquisition Station in Fairbanks, Alaska. NOAA is requesting \$6.1 million to fund a major repair period (MRP) for the RAINIER, NOAA’s most productive hydrographic survey vessel.

The program changes highlighted above will be addressed in greater detail in the FY 2009 NOAA Budget. We hope to build on our prior successes by addressing future challenges through implementing the management, operational, and technical enhancements proposed in this section.

**Section 5. Target and Performance Summary Table (with brief measure descriptions)**

<b>Objective 3.1 – Protect, restore, and manage the use of coastal and ocean resources</b>						
<b>Measure 1a:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Fish Stock Sustainability Index (FSSI)</b>	457.5	481.5	501	524	530.5	542
<b>Description:</b> The FSSI tracks the rebuilding and maintaining of fish stocks at productive levels, along with critical components of NOAA’s efforts to get to that outcome such as managing fish harvest rates and increasing knowledge about the status of fish stocks. It is calculated by assigning a total score between 0 and 4 to each of 230 stocks selected for their importance to commercial and recreational fisheries. Together these stocks represent 90% of all commercial landings. Each stock receives one point if: 1) NOAA has determined whether the stock is overfished (half-point) and/or subject to overfishing (half point); 2) management						



measures are succeeding at ensuring fishing is at sustainable levels; 3) the stock population is above the overfished threshold; and 4) the stock population is at or near its optimal level. The score can range between 0 and 920. Since effort is required to maintain an FSSI score, the score can fall with insufficient resources, and increasing the score without an increase in resources is a significant accomplishment. For more information: <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>.

Comments on Changes to Targets:  
 Targets for FY 2008 and beyond have increased significantly due to two factors: 1) a higher than expected actual score for FY 2007, and 2) a change in the target setting methodology that takes into account the expected scores of stocks with planned assessments whose status is currently unknown.

<b>Relevant Program Change(s):</b>	<b>Title</b>	<b>Exhibit 12 Page #:</b>
\$5,050,000	Fisheries Research and Management – Stipends and Catch Limits	145
\$1,000,000	Western and Central Pacific Fisheries Management Commission	148
\$250,000	Pacific Whiting	146
\$1,000,000	Catch and Release Mortality Research	155

<b>Measure 1b:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts</b>	37.0%	37.5%	38.8%	40.6%	41.1%	42.8%

Description:  
 This measure tracks the percentage of living marine resources (priority fish stocks and protected species stocks) that have adequate population assessments and forecasts available and useful to resource managers. The fish stocks are the same 230 tracked by the FSSI. All protected species stocks listed under the MMPA and/or ESA, totaling 237 for 2006, 241 for 2007, and 242 for 2008 and 2009, are tracked by this measure. This measure combines the number of stock assessments for priority fish stocks and for protected species to produce a percentage of the total 472 LMR stocks for which assessments are available to determine the scientific basis for supporting and for evaluating the impact of living marine resource management actions. The standard of “adequate” is established by the Fisheries and Protected Species Stock Assessment Improvement Plans (SAIPs) and is described as Level III. To reach this standard, 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.

Comments on Changes to Targets:  
 Targets for FY 2008 and FY 2009 have been reduced to reflect funding levels, expiring assessments, and increased numbers of species tracked.

<b>Relevant Program</b>	Title	<b>Exhibit 12 Page #:</b>
<b>Change(s):</b>		
\$3,169,000	Pacific Salmon	134
\$8,484,000	Expand Annual Stock Assessments: Annual Catch Limits	158
\$1,247,000	Cooperative Research	207
\$8,224,000	Survey and Monitoring	166
\$3,015,000	Fisheries Statistics	164
\$4,729,000	Economics and Social Sciences	161

<b>Measure 1c:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Number of Protected Species Designated as Threatened, Endangered or Depleted with Stable or Increasing Population Levels</b>	24	24	26	26	22	23

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 all marine mammal stocks (except walruses, polar bears, and manatees) and those domestic non-marine mammal species listed as threatened or endangered under the Endangered Species Act (ESA) that are under the jurisdiction of the National Marine Fisheries Service. Marine mammal species included in this measure are those listed as “depleted” under the Marine Mammal Protection Act, which includes any listed under ESA. Recovery of threatened, endangered or depleted protected species is very slow and can take decades. While it may not be possible to recover or de-list a species in the near term, progress can be made to stabilize or increase the species population. For some, it is trying to stop a steep decline (right whales, stellar sea lions); for others it is trying to increase their numbers/abundance (Ridley turtles). NOAA’s protected species management efforts are focused on halting declines and conserving species while still allowing human activities to continue.

Comments on Changes to Targets: The decrease in targets for FY 2008 and FY 2009 reflects the reversion of four marine mammal species from a status of stable to unknown status. The assessments on which their stable determinations were based are too old to support the determinations, and there is no funding to perform new assessments. In general, the target declines reflect cuts in funding for FY 2006 and FY 2007 below FY 2005 levels. They also reflect two salmon stocks that were increasing but are now declining.

<b>Relevant Program</b>	Title	<b>Exhibit 12 Page #:</b>
<b>Change(s): N/A</b>		

<b>Measure 1d:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Number of Habitat Acres Restored (Annual/Cumulative since 2001)</b>	5,563/ 16,583	8,333/ 24,916	7,598/ 32,514	5,974/ 38,488	9,000/ 47,488	9,000/ 56,488
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 and supportive of anadromous fish species. The intent of this measure is to summarize or project the geographic area over which ecosystem function has been or will be improved as the direct result of habitat restoration efforts.						
Comments on Changes to Targets: Targets were increased to reflect the size of projects expected to reach completion in FY 2008 and FY 2009 as well as past performance relative to targets.						
<b>Relevant Program Change(s):</b> N/A	Title					<b>Exhibit 12 Page #:</b>

<b>Measure 1e:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Annual number of Coastal, Marine, and Great Lakes Ecological Characterizations that Meet Management Needs</b>	New	New	62	27	45	50
Description: Sound management of coastal and ocean ecosystems requires scientifically based information on their condition. Ecosystem characterizations include 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. Characterizations are the basis for many coastal and ocean forecasts, assessments, and management plans. Characterizations will be 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> . Characterizations conducted in essential fish habitat, National Marine Sanctuaries, National Estuarine Research Reserves, the Great Lakes, the coastal zone, and coral reef ecosystems will have different management needs and associated ecological characterizations.						

Comments on Changes to Targets: Because of uncertainty in program funding early in FY 2007, NOAA could not guarantee our full suite of characterizations for that year's target. Ultimately, these funds were obtained and the characterizations were done, but not included for this measure during FY 2007. In FY 2008, we have restored them to our targets.		
<b>Relevant Program Change(s):</b> \$4,000,000	Title  Marine Debris	<b>Exhibit 12 Page #:</b>  85

<b>Measure 1f:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Cumulative number of coastal, marine and Great Lakes issue-based forecasting capabilities developed and used for management</b>	16	25	31	35	38	41

Description:  
NOAA is developing discrete forecast models that allow resource managers to make decisions based on predicted environmental and socioeconomic impacts related to a particular issue. Managers will use issue-based forecasts to predict the impacts of a single ecosystem stressor (i.e., climate change, extreme natural events, pollution, invasive species, and land and resource use) and evaluate the potential options to manage those stressors. These forecasts will be based on field and laboratory studies, existing data, and models predicting environmental conditions under different scenarios. Forecast capabilities will be specific to a geographic area and will be counted for each ecosystem as they become operational. Harmful algal bloom forecasts in the Gulf of Mexico and Gulf of Maine are two separate forecast capabilities. Similarly, multiple, distinct forecast capabilities could be counted within a single ecosystem (i.e., harmful algal blooms, pink shrimp harvest, and hypoxia in the Gulf of Mexico). The ultimate goal is for resource managers to use NOAA's forecasts to better manage ecosystem use, condition, and productivity.

Comments on Changes to Targets: N/A

<b>Relevant Program Change(s):</b> N/A	Title	<b>Exhibit 12 Page #:</b>
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<b>Measure 1g:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Percentage of Tools, Technologies, and Information Services That are Used by NOAA Partners/Customers to Improve Ecosystem-based Management</b>	N/A	N/A	N/A	85%	86%	86%

<p>Description: This measure tracks NOAA's success in providing tools, technologies, and information services such as those for coastal and marine resource managers that enable progress toward the principles of ecosystem-based management in coastal, marine, and Great Lakes ecosystems. Tracking accessibility and use of tools, technologies, and information by target audiences allows NOAA to expand its most effective programs and products. NOAA partners and customers include Federal, state, local and tribal authorities who make decisions affecting resources in the U.S. coastal zone, and other users impacting the condition of coastal ecosystems (e.g., private industry).</p>		
<p>Comments on Changes to Targets: N/A</p>		
<p><b>Relevant Program Change(s):</b> \$4,000,000</p>	<p>Title Marine Debris</p>	<p><b>Exhibit 12 Page #:</b> 85</p>

Measure 1h:	FY 2004 Actual	FY 2005 Actual	FY 2006 Actual	FY 2007 Actual	FY 2008 Target	FY 2009 Target
<p><b>Annual Number of Coastal, Marine, and Great Lakes Habitat Acres Acquired or Designated for Long-term Protection.</b></p>	N/A	1,705	>86 million	3,020	2,000	2000

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. 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. This *long-term protection* measure tracks the number of acres acquired with NOAA funds by state or local government agencies from willing sellers for long-term protection of important coastal habitats, or the number of acres designated for long-term protection by NOAA or by state partners, such as through the National Marine Sanctuary Program (NMSP) and National Estuarine Research Reserve System (NERRS).

Comments on Changes to Targets:  
The protected acres are the actual number of acres newly protected in a fiscal year. The cumulative total represents acres acquired or designated to date for the NERRS, NMSP, and Coastal and Estuarine Land Conservation Program (CELCP). Beginning in FY 2008, this will also include acres acquired through the Coastal Zone Management Program. The goal for the long-term protection indicator is 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.

<b>Relevant Program Change(s):</b> \$7,000,000	Title  Coastal and Estuarine Land Conservation Program	<b>Exhibit 12 Page #:</b>  77
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<b>Objective 3.2 – Advance understanding of climate variability and change</b>						
<b>Measure 2a:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>U.S. Temperature Forecasts (Cumulative Skill Score Computed Over the Regions Where Predictions are Made)</b>	17	19	25	29	19	21
<p>Description: 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. Sea surface temperature fluctuations in the tropical eastern Pacific related to El Niño and La Niña control the seasonal climate patterns over the US. For example, the FY07 actual was an anomaly as effects from an El Niño and La Niña dropped out of the 48 month averages.</p>						
<p>Comments on FY 2006 and 2007 Actuals: This measure is computed using a 48-month running mean; the high scores from the end of the strong El Nino season of 1999-2000 (7 years ago) have all dropped out; the current values for this measure are no longer artificially high due to the El Nino/La Nina, and are more indicative of a “real” or “normal” climate skill. During periods of El Nino, weather patterns create more stable temperatures across the western United States. The 2006 Score is higher due to the El Nino effects and an excellent year for forecasters.</p>						
<b>Relevant Program Change:</b> N/A \$2,000,000	Title  National Integrated Drought Information System (NIDIS)					<b>Exhibit 12 Page #:</b>  261

<b>Measure 2b:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Uncertainty in the magnitude of the North American carbon uptake.</b>	Reduced Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/- 0.50 Gt. Carbon per Year	Reduced Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/- 0.40 Gt. Carbon per Year	Reduced Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/- 0.40 Gt. Carbon per Year	Reduced Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/- 0.40 Gt. Carbon per Year	Reduce Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/- 0.35 Gt. Carbon per Year	Reduce Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/- 0.30 Gt. Carbon per Year

**Description:**

Carbon dioxide is the most important of the greenhouse gases that are undergoing changes in abundance in the atmosphere due to human activity. On average, about one half of all the carbon dioxide emitted by human activity is taken up by the oceans and the terrestrial biosphere (trees, plants, and soils) -- reservoirs of carbon known as carbon "sinks" -- however, the variation in the uptake from year to year is very large and poorly understood. NOAA needs to assess and quantify the source of this variability if it is to provide scientific guidance to policymakers who are concerned with managing emissions and sequestration of carbon dioxide. NOAA accomplishes this by making regional-scale measurements of the vertical profile of carbon dioxide across the U.S. which, combined with improved transport models, can be used to determine carbon dioxide sources and sinks on a regional scale.

Comments on Changes to Targets: N/A

<b>Relevant Program Change(s):</b> N/A	Title	<b>Exhibit 12 Page #:</b>
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<b>Measure 2c:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Uncertainty in model simulations of the influence of aerosols on climate.</b>	N/A	N/A	Established 10% improvement in uncertainty in model	Established 10% improvement in uncertainty in model	Establish 15% improvement in uncertainty in model	Establish 20% improvement in uncertainty in model

			simulations of how North American aerosols influence climate	simulations of how North American aerosols influence climate	simulations of how North American aerosols influence climate	simulations of how North American aerosols influence climate
<p>Description:</p> <p>While greenhouse gases warm the atmosphere, aerosols (liquid or solid particles suspended in the atmosphere) and clouds can both counteract greenhouse gases by reflecting incoming solar radiation and cooling the atmosphere, or, under different conditions, some aerosols can absorb solar radiation and some clouds can trap heat, thus heating the atmosphere. The role of aerosols, clouds, and climate is deemed to be the largest single uncertainty in the prediction of how human activities influence climate change (IPCC, 2001). Reductions in the uncertainties surrounding aerosols relate directly to the confidence with which model simulations can support policy decisions on the climate issue therefore the desired outcome is an improved science-vetted set of options for changing the impact of North American aerosols on climate, which can be considered by governments, the private sector, e.g., transportation and energy production, and the public.</p>						
Comments on Changes to Targets: N/A						
<b>Relevant Program Change(s):</b>	Title					<b>Exhibit 12 Page #:</b>

<b>Measure 2d:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Determine the National Explained Variance (%) for Annual Average Temperature and Precipitation for the Contiguous United States using USCRN Stations.</b>	Captured more than 96% of the Annual National Temperature Trend and more than 90% of the National Annual Precipitation Trend for the Contiguous U.S.	Captured 96.9% of the Annual National Temperature Trend and 91.4% of the Annual National Precipitation Trend for the	Captured 97.1% of the Annual National Temperature Trend and 91.9% of the Annual National Precipitation Trend for the	Captured 97.7% of the Annual National Temperature Trend and 93.8% of the Annual National Precipitation Trend for the	Capture 98% of the Annual National Temperature Trend and 95% of the Annual National Precipitation Trend for the Contiguous U.S.	Capture 98% of the Annual National Temperature Trend and 95.1% of the Annual National Precipitation Trend for the Contiguous



		Contiguous U.S	Contiguous U.S	Contiguous U.S		U.S
<p><b>Description:</b>  This measure captures 98 percent of the long-term changes in the national annual average surface air temperature and 95 percent of the long-term changes in the national annual average precipitation throughout the contiguous U.S. using the U.S. Climate Reference Network (USCRN). The USCRN, a benchmark climate-observing network, will provide the nation with long-term (50 to 100 years) high quality climate observations and records with minimal time-dependent biases affecting the interpretation of decadal to centennial climate variability and change. This will increase assurance of long-term and bias-free national and global monitoring, including higher-precision, higher-confidence validation of NOAA's space-based (satellite) measurements and monitoring capabilities and overall, reduce the level of uncertainty when government and business decision-makers consider long-range strategic policies and plans.</p>						
<p>Comments on Changes to Targets: N/A</p>						
<b>Relevant Program Change(s):</b> N/A	Title					<b>Exhibit 12 Page #:</b>

<b>Measure 2e:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Error in global measurement of sea surface temperature.</b>	N/A	N/A	0.53 C	0.53 C	0.50 C	0.50C
<p><b>Description:</b>  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.</p>						
<p>Comments on Changes to Targets: N/A</p>						
<b>Relevant Program Change(s):</b> N/A	Title					<b>Exhibit 12 Page #:</b>

<b>Measure 2f:</b>		<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Ability of society to plan and respond to climate variability and change using NOAA climate products and information.</b>		N/A	N/A	33 regionally-focused climate impacts and adaptation studies communicated to decision makers	32 regionally-focused climate impacts and adaptation studies communicated to decision makers	35 regionally-focused climate impacts and adaptation studies communicated to decision makers	37 regionally-focused climate impacts and adaptation studies communicated to decision makers
<p>Description: This measure documents our success in working directly with stakeholders to develop and enhance a suite of climate data, monitoring, and prediction products that are valuable to our customers and stakeholders by measuring the number of peer-reviewed decision support resources – regionally-focused climate impacts and adaptation studies – authored by funded investigators. NOAA provides these state of the art science and discovery information products to a range of key decision makers, from water resource managers and regional forecast offices, to national and international assessments, such as the U.S. Climate Change Science Program (CCSP) and the Intergovernmental Panel on Climate Change (IPCC).</p>							
Comments on Changes to Targets: N/A							
<b>Relevant Program Change(s):</b> N/A	Title						<b>Exhibit 12 Page #:</b>

<b>Objective 3.3 – Provide accurate and timely weather and water information</b>						
<b>Measure 3a. Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
	17%	28%	32%	32%	32%	32%
<p>Description: NOAA tracks improvements in NOAA's ability to assist coastal areas by estimating the risks of natural hazards. Activities are underway to develop a coastal risk atlas that will enable communities to evaluate the risk, extent, and severity of natural hazards in coastal areas. The risk atlas will help coastal communities make</p>						

more effective hazard mitigation decisions to reduce impacts to life and property. Currently, many coastal communities make major decisions on land use, infrastructure development, and hazard responses without adequate information about the risks and possible extent of natural hazards in their areas. Through the risk atlas, NOS with other Federal and state agencies will provide a mechanism for coastal communities to evaluate their risks and vulnerabilities to natural hazards and improve their hazard mitigation planning capabilities. Because the current measure no longer represents the work that CEO conducts, the FY08 target of 35% will not be met. Instead, CEO is in the process of developing a more robust GPRA that will accurately measure coastal hazard impact assessment. Once developed, CEO will submit this new measure for review as a replacement of this current measure beginning in FY09.

**Comments on FY 2009 Target:**

This measure tracks the Coastal Risk Atlas. NOS will take actions other than improving the Coastal Risk Atlas to accomplish the outcome of reducing coastal hazard impacts in FY 2009.

<b>Relevant Program</b> <b>Change(s):</b> N/A	Title	<b>Exhibit 12 Page #:</b>
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<b>Measure 3b: Severe Weather Warnings Tornadoes – Storm Based</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Lead Time (Minutes),</b>					11	12
<b>Accuracy (%)</b>	N/A	N/A	N/A	N/A	67	69
<b>False Alarm Rate (FAR, %)</b>					74	72

**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.

**Comments on Changes to Targets:** Beginning in FY 2008, NOAA National Weather Service transitioned from County-Based Tornado Warnings to Storm-Based Tornado Warnings. The introduction of improved technology over the last five year has made the transition possible. Storm-Based warnings reduce the geographic area warned during a tornado event, which results in less economic loss. Target decreases from FY 2007 are a result of greater difficulty in forecasting over a smaller area, which gives forecaster less margin of error.

<b>Relevant Program Change(s):</b> \$2,877,000 \$4,752,000 \$6,605,000	Title  Complete and Sustain NOAA Weather Radio NOAA Profiler Conversion AWIPS Product Improvement	<b>Exhibit 12 Page #:</b>  666 669 661
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<b>Measure 3c: Severe Weather Warnings for Flash Floods</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Lead Time (Min)</b>	47	54	50	60	48	49
<b>Accuracy (%)</b>	89	88	88	90	89	90

Description:  
The lead time for a flash flood warning is the difference between the time the warning was issued and the time the flash flood affected the area for which the warning was issued. The lead times for all flash flood occurrences within the continental United States are averaged to get this statistic for a given fiscal year. This average includes all warned events with zero lead times and all unwarned events. Accuracy is measured by the percentage of times a flash flood actually occurred in an area that was covered by a warning. The difference between the accuracy percentage figure and 100 percent represents the percentage of events without a warning.

Comments on Changes to Targets: NOAA National Weather Service continues to incorporate improvements to forecaster tools including adding the availability of Hydrologic Models, additional Automated Surface Observing tools, and Real-Time Observation Network stations. These improvements have resulted in unanticipated acceleration of improvements to the Flash Flood Warning metrics. Additionally, FY 2007 had a higher number of events than the previous three years, which allows forecasters more opportunity to refine their skills. NOAA National Weather Service is currently monitoring the Lead Time metric to determine if FY 2007 actual will be predictive of future scores.

<b>Relevant Program Change(s):</b> \$2,877,000 \$6,605,000	Title  Complete and Sustain NOAA Weather Radio AWIPS Product Improvement	<b>Exhibit 12 Page #:</b>  666 661
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<b>Measure 3d: Hurricane Forecast Track Error (48 Hour)</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Estimate</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
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	94	101	97	97	109	108
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**Description:**  
The public, emergency managers, government institutions at all levels in this country and abroad, and the private sector use NOAA hurricane and tropical storm track forecasts to make decisions on life and property. This goal measures the difference between the projected location of the center of these storms and the actual location in nautical miles (nm) for the Atlantic Basin. The goal is computed by averaging the differences (errors) for all the 48-hour forecasts occurring during the calendar year. This measure can show significant annual volatility. Projecting the long-term - trend, and basing outyear goals on that trend, is preferred over making large upward or downward changes to the goals each year.

**Comments on FY 2006 Actual and Targets:**  
In the FY 2006 DOC Performance and Accountability Report the FY 2006 actual was estimated at 101; the CY 2006 actual is reported here. The targets are developed based on analysis of long term performance thereby taking into account year-to-year natural variability. Therefore, NOAA has not extrapolated from the recent downward trend in forecast errors to derive new lower GPRA targets. Overall, however, NOAA expects forecast errors to decrease as we continue to make improvements to our observing systems and forecast models, and we continue to review and analyze past performance to determine when downward revision of the GPRA goal may be appropriate.

<b>Relevant Program Change(s):</b>	<b>Title</b>	<b>Exhibit 12 Page #:</b>
\$3,000,000	Accelerate Hurricane Forecast System Improvements	385
\$2,877,000	Complete and Sustain NOAA Weather Radio	666
\$1,100,000	TAO Tropical Moored Buoy Technology Refresh	365
\$6,605,000	AWIPS Product Improvement	661
\$3,000,000	Florida/Caribbean Hurricane Data Buoy (O&M)	367
\$1,350,000	Ocean Sensor (O&M)	369
\$1,230,000	Hurricane Supplemental	370

<b>Measure 3e: Hurricane Forecast Intensity Error (48hr)</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Target</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
	N/A	N/A	N/A	N/A	14	13

**Description:**  
The public, emergency managers, government institutions at all levels in this country and abroad, and the private sector use NOAA hurricane intensity forecasts to make decisions on life and property. This measure will represent the difference between the projected intensity of these storms and the actual

intensity in knots for all hurricanes, tropical storms, and tropical depressions for the Atlantic basin. The target baseline was computed by averaging the differences for all 48-hour forecast made for tropical cyclones forming during the calendar year.

Comments on Changes to Targets: N/A

<b>Relevant Program Change(s):</b>	<b>Title</b>	<b>Exhibit 12 Page #:</b>
\$3,000,000	Accelerate Hurricane Forecast System Improvements	385
\$2,877,000	Complete and Sustain NOAA Weather Radio	666
\$6,605,000	AWIPS Product Improvement	661
\$1,100,000	TAO Tropical Moored Buoy Technology Refresh	365
\$3,000,000	Florida/Caribbean Hurricane Data Buoy (O&M)	367
\$1,350,000	Ocean Sensor (O&M)	369
\$1,230,000	Hurricane Supplemental	370
\$1,000,000	Improvements to Operational Weather Forecasts	291

<b>Measure 3f:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Accuracy (%) (Threat Score) of Day 1 Precipitation Forecast</b>	29	29	30	31	29	29

**Description:**  
 This performance measure tracks the ability of the weather forecasters of NOAA’s Hydrometeorological Prediction Center to predict accurately the occurrence of one inch or more of precipitation (rain or the water equivalent of melted snow or ice pellets) twenty-four hours in advance across the contiguous U.S. Through this measure, the HPC focuses on relatively heavy amounts of precipitation, usually a half inch or more in a 24-hour period (short-term flood and flash flood warnings), because of the major safety and economic impacts such heavy precipitation can have in producing flooding, alleviating drought, and affecting river navigation.

Comments on Changes to Targets:  
 The target will remain constant until further technological or modeling improvements are made.

<b>Relevant Program Change(s):</b>	<b>Title</b>	<b>Exhibit 12 Page #:</b>
\$2,877,000	Complete and Sustain NOAA Weather Radio	666
\$6,605,000	AWIPS Product Improvement	661

<b>Measure 3g: Winter Storm Warnings</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Lead Time (Hours)</b>	15	17	17	18	15	16
<b>Accuracy (%)</b>	91	91	89	92	90	91
<p>Description: A winter storm warning provides NOAA customers and partners advanced notice of a hazardous winter weather event that endangers life or property, or provides an impediment to commerce. Winter storm warnings are issued for winter weather phenomena like blizzards, ice storms, heavy sleet, and heavy snow. This performance indicator measures the accuracy and advance warning lead time of winter storm events. Improving the accuracy and advance warnings of winter storms enables the public to take the necessary steps to prepare for disruptive winter weather conditions.</p> <p>Comments on Changes to Targets: The impacts of improved forecaster training and coordination between local forecast offices during winter storm events has improved metrics for this measure at a better than anticipated rate from FY 2005 to FY 2007. Winter Storm targets will increase beginning in FY 2009 and FY 2010.</p>						
<b>Relevant Program Change(s):</b> \$2,882,000 \$6,605,000	<p>Title</p> <p>Complete and Sustain NOAA Weather Radio AWIPS Product Improvement</p>					<p><b>Exhibit 12 Page #:</b></p> <p>666 661</p>

**Objective 3.4 – Support safe, efficient, and environmentally sound commercial navigation**

<b>Measure 4a:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Reduce the Hydrographic Survey Backlog Within Navigationally Significant Areas (square nautical miles surveyed per year)</b>	2,070	3,079	2,851	3,198	2,500	3,000
<p>Description: NOAA conducts hydrographic surveys to determine the depths and configurations of the bottoms of water bodies, primarily for U.S. waters significant for</p>						

navigation. This activity includes the detection, location, and identification of wrecks and obstructions with side scan and multi-beam sonar technology and the Global Positioning System (GPS). NOAA uses the data to produce traditional paper, raster, and electronic navigational charts for safe and efficient navigation. In addition to the commercial shipping industry, other user communities that benefit include recreational boaters, the commercial fishing industry, port authorities, coastal zone managers, and emergency response planners.

Comments on Changes to Targets:  
 The FY 2008 target is based on fuel issues, vessel lay-ups and shortened field season. The FY09 target factors in the revised operational date for the new NOAA Survey Vessel HASSLER and the FY09 President's Request.

<b>Relevant Program Change(s):</b>	<b>Title</b>	<b>Exhibit 12 Page #:</b>
\$700,000	Mapping and Charting Base - AUVs	37
\$1,000,000	Mapping and Charting Base - Ping to Chart Infrastructure Streamlining	35

<b>Measure 4b:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Percentage of U.S. counties rated as fully enabled or substantially enabled with accurate positioning capacity</b>	N/A	32%	43.25%	51.6%	60%	75%

Description:  
 This measure tracks progress of NOAA's Geodesy program in facilitating the capacity of state and local governments and the private sector to utilize accurate positioning information. 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. 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. 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. Fully enabled capacity indicates the county has validated NOAA-enabled infrastructure, tools, and local capacity needed for accurate positioning.

Comments on Changes to Targets: N/A



<b>Relevant Program Change(s):</b> N/A	Title	<b>Exhibit 12 Page #:</b>
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<b>Measure 4c:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Marine Wind – Percentage of Accurate Forecasts</b>	57	57	55	73	68	69
<b>Marine Wave Heights – Percentage of Accurate Forecasts</b>	67	67	70	78	73	74

Description:  
 In FY 2007, this measure was revised from using a complex skill score that was difficult to deconstruct and analyze to reflect the individual wind speed and wave height components. 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.

Comments on Changes to Targets: N/A

<b>Relevant Program Change(s):</b> N/A \$6,605,000	Title  AWIPS Product Improvement	<b>Exhibit 12 Page #:</b>  661
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<b>Measure 4d:</b>	<b>FY 2004 Actual</b>	<b>FY 2005 Actual</b>	<b>FY 2006 Actual</b>	<b>FY 2007 Actual</b>	<b>FY 2008 Target</b>	<b>FY 2009 Target</b>
<b>Aviation Forecast for Ceiling/Visibility (3mi/1000 ft or less)</b>						
<b>Accuracy (%)</b>	45	46	43	61	63	64
<b>False Alarm Rate (%)</b>	65	63	64	40	44	43

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. Implemented in FY 2007, the new metric will be of significance to all general aviation users and critical to most commercial users.

**Comments on Actuals and Targets:**

In FY 2007, this measure was revised to encompass the entire Instrument Flight Rating (IFR) spectrum instead of a narrow band. Data prior to FY 2007 are not directly comparable to data subsequent to FY 2007.

<b>Relevant Program Change(s):</b>	Title	<b>Exhibit 12 Page #:</b>
\$711,000	Aviation Weather	373
\$6,605,000	AWIPS Product Improvement	661
\$712,000	ASOS Operations and Maintenance	393

**Section 6.**

**FY 2009 Program Changes**

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

Program Change (Dollars in Millions)	Accompanying GPRA		Base		Increase/Decrease		
	APP Page #	Performance Measure #	FTE	Amount	FTE	Amount	Page of Exhibit 12 Discussion
<b>ORF</b>							
Mapping and Charting Base - Ping to Chart Infrastructure Streamlining	li	4a	0	\$0	0	\$1,000,000	35
Mapping and Charting Base - AUVs	li	4a	303	\$45,553,000	0	\$700,000	37
Physical Oceanographic Real Time System	N/A	N/A	0	\$3,000,000	1	\$2,000,000	55
NOAA IOOS	N/A	N/A	0	\$2,500,000	0	\$4,000,000	67
IOOS Regional Observations	N/A	N/A	3	\$11,555,000	3	\$3,000,000	69
Ocean Research Priorities Plan Implementation	N/A	N/A	0	\$0	1	\$10,000,000	71,73
National Estuarine Research Reserve System (NERRS)	N/A	N/A	0	\$16,692,000	0	\$5,232,000	103
Atlantic Salmon	N/A	N/A	12	\$5,829,000	0	\$4,167,000	131
Marine Debris	li, lii	1e, 1g	0	\$0	1	\$4,000,000	85
Marine Mammal Protection	N/A	N/A	2	\$39,840,000	7	\$1,500,000	132
Pacific Salmon ESA Recovery and Research	li	1b	193	\$59,710,000	0	\$3,169,000	134
Fisheries Research and Management – Stipends and Catch Limits	li	1a	0	\$1,000,000	0	\$5,050,000	145

Program Change (Dollars in Millions)	Accompanying GPRA		Base		Increase/Decrease		
	APP Page #	Performance Measure #	FTE	Amount	FTE	Amount	Page of Exhibit 12 Discussion
Pacific Whiting	lii	1a	0	\$500	1	\$250,000	146
Western and Central Pacific Fisheries Management Commission	lii	1a	0	\$0	3	\$1,000,000	148
Limited Access Privilege Programs	N/A	N/A	0	\$1,174,000	8	\$4,826,000	150
Regulatory Streamlining	N/A	N/A	0	\$3,864,000	7	\$2,829,000	151
Highly Migratory Research	N/A	N/A	0	\$0	0	\$3,000,000	153
Catch and Release Mortality	lii	1a	0	\$0	0	\$1,000,000	155
Comparative Analysis of Marine Ecosystem Organization	N/A	N/A	6	\$1,250,000	0	\$3,750,000	156
Expand Annual Stock Assessments: Annual Catch Limits	lii	1b	0	\$0	10	\$8,484,000	158
Economics and Social Sciences Research	lii	1b	25	\$5,929,000	5	\$4,729,000	161
Fisheries Statistics – Recreational Fisheries Information	lii	1b	0	\$3,500,000	0	\$3,015,000	164
Survey and Monitoring Projects	lii	1b	0	\$15,046,000	0	\$8,224,000	166
Reduce Bycatch	N/A	N/A	0	\$0	0	\$567,000	169
Enforcement and Surveillance (IUU)	N/A	N/A	0	\$0	4	\$1,084,000	177
Deep Coral Research & Technology Program	N/A	N/A	0	\$0	0	\$1,500,000	191
Sustainable Habitat Management	N/A	N/A	232	\$18,994,000	0	\$458,000	191

Program Change (Dollars in Millions)	Accompanying GPRA		Base		Increase/Decrease		
	APP Page #	Performance Measure #	FTE	Amount	FTE	Amount	Page of Exhibit 12 Discussion
Open Rivers Initiative	N/A	N/A	0	\$2,603,000	0	\$5,397,000	194
Great Lakes Habitat Restoration	N/A	N/A	0	\$2,142,000	0	\$1,496,000	195
Cooperative Research	liii	1b	0	\$10,208,000	0	\$1,247,000	207
National Integrated Drought Information System	liii	2a	102	\$8,365,000	0	\$2,000,000	261
Improvements to Operational Weather Forecasts	liii	3e	0	\$0	0	\$1,000,000	291
Unmanned Aircraft Systems	N/A	N/A	4	\$3,000,000	0	\$3,000,000	293
Aviation Weather	liii	4d	0	\$4,542,000	0	\$711,000	373
Fire Weather Modeling Support	N/A	N/A	0	\$0	0	\$600,000	363
TAO Tropical Moored Buoy Technology Refresh	liii	3d, 3e	0	\$0	0	\$1,100,000	365
Florida/Caribbean Hurricane Data Buoy (O&M)	liii	3d, 3e	0	\$1,400,000	0	\$3,000,000	367
Ocean Sensor (O&M)	liii	3d, 3e	0	\$0	0	\$1,350,000	369
Hurricane Supplemental	liii	3d, 3e	0	\$0	0	\$1,230,000	370
Accelerate Hurricane Forecasting System Improvements	liii	3d, 3e	60	\$1,040,000	6	\$3,000,000	385
ASOS Operations and Maintenance	liii, liii	3b, 4d	44	\$8,945,000	0	\$712,000	393
Satellite Command and Control	N/A	All GPRA Measures	179	\$44,817,000	0	\$1,564,000	409
Product Processing and Distribution	N/A	All GPRA Measures	123	\$30,230,000	0	\$1,227,000	415
Product Development, Readiness	N/A	All GPRA	101	\$26,991,000	0	\$1,385,000	423

Program Change (Dollars in Millions)	Accompanying GPRA		Base		Increase/Decrease		
	APP Page #	Performance Measure #	FTE	Amount	FTE	Amount	Page of Exhibit 12 Discussion
& Application		Measures					
Archive, Access, and Assessment	N/A	All GPRA Measures	256	\$38,760,000	0	\$829,000	455
Ocean Surface Vector Winds Studies	N/A	All GPRA Measures	0	\$3,000,000	0	\$3,000,000	447
Acquisition and Grants Integrated System	N/A	All GPRA Measures	104	\$12,661,000	9	\$1,200,000	499
Payment to the DOC Working Capital Fund	N/A	All GPRA Measures	0	\$34,780,000	0	\$1,803,000	506
NOAA Wide Corporate Services and Agency Management	N/A	All GPRA Measures	670	\$96,665,000	0	\$5,035,000	506
NOAA Education Program	N/A	All GPRA Measures	0	\$16,192,000	0	1,000,000	504
Maritime Safety and Crew Rotation	N/A	All ECO GPRA Measures	806	111,334,000	29	1,700,000	504, 505
Additional O&M for Aircraft	N/A	All GPRA Measures	102	\$26,170,000	0	\$4,000,000	517
<b>PAC</b>							
Coastal and Estuarine Land Conservation Program	liv	1h	1	\$8,000,000	0	\$7,000,000	717
Complete and Sustain NOAA Weather Radio	N/A	All W&W GPRA Measures	0	\$8,460,000	0	\$2,877,000	666
NOAA Profiler Conversion	N/A	All W&W GPRA Measures	0	\$4,978,000	0	\$4,752,000	669
AWIPS Product Improvement	N/A	All W&W GPRA	15	\$12,459,000	0	\$6,605,000	661

Program Change (Dollars in Millions)	Accompanying GPRA		Base		Increase/Decrease		
	APP Page #	Performance Measure #	FTE	Amount	FTE	Amount	Page of Exhibit 12 Discussion
		Measures and 4c, 4d					
Geostationary Systems – R	N/A	All GPRA Measures	20	\$234,773,000	0	\$242,227,000	685
Climate Sensors	N/A	All GPRA Measures	0	\$0	0	\$74,000,000	685
Pacific Regional Center	N/A	All GPRA Measures	0	\$20,000,000	0	\$40,250,000	749
Southwest Fisheries Science Center	N/A	All GPRA Measures	0	\$2,928,000	0	\$12,072,000	751
Fairbanks Command & Data Acquisition Station	N/A	All GPRA Measures	0	\$0	0	\$11,700,000	753
RAINIER Major Repair Period	N/A	All C&T GPRA Measures	0	\$0	0	\$6,100,000	763
BELL M. SHIMADA Calibration	N/A	All ECO GPRA Measures	0	\$0	0	\$1,000,000	766

**Section 7.**

**Resource Requirements Summary**  
**Obligations, not BA**  
(\$ in Thousands)

Objective 3.1 - Protect, restore, and manage the use of coastal and ocean resources	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Base	Increase/Decrease	FY 2009 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)					
National Ocean Service					
ORF	243,109	249,221	211,340	15,790	227,130
PAC	36,768	19,535	14,755	7,135	21,890
National Marine Fisheries Service					
ORF	800,090	679,378	628,821	62,790	691,611
PAC	-	-	-	-	-
Oceanic and Atmospheric Research					
ORF	111,761	111,852	102,236	(11,100)	91,136
PAC	-	-	-	-	-
National Weather Service					
ORF & PAC	-	-	-	-	-
National Environmental Satellite, Data, & Information Service					
ORF	12,684	11,774	12,026	1,026	13,052
PAC	-	-	-	-	-
Program Support					
ORF & PAC	-	-	-	-	-
Other-Discretionary and Mandatory	95,023	130,255	101,712	(32,000)	69,712
<b>Total Obligations, Coastal and Ocean Resources</b>	<b>1,299,435</b>	<b>1,202,015</b>	<b>1,070,890</b>	<b>43,641</b>	<b>1,114,531</b>



FTE	3,044	3,044	3,071	44	3,115
IT Funding	43,613	44,255			45,174

Objective 3.2 - Advance understanding of climate variability and change	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Base	Increase/Decrease	FY 2009 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)					
National Ocean Service					
ORF & PAC	-	-	-	-	-
National Marine Fisheries Service					
ORF	1,490	1,463	1,497	558	2,055
PAC	-	-	-	-	-
Oceanic and Atmospheric Research					
ORF	166,828	189,673	180,957	15,951	196,908
PAC	22,834	0	0	0	0
National Weather Service					
ORF	12,771	13,544	13,771	672	14,443
PAC	493	483	425	12	437
National Environmental Satellite, Data, & Information Service					
ORF	33,032	54,870	29,689	614	30,303
PAC	7,011	6,315	6,321	155	6,476
Program Support					
ORF & PAC	-	-	-	-	-
Other-Discretionary and Mandatory	-	-	-	-	-
Total Obligations, Climate	244,459	266,348	232,660	17,962	250,622
FTE	526	527	527	0	527
IT Funding	113,376	123,314			130,783

Objective 3.3 - Provide accurate and timely weather and water information	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Base	Increase/Decrease	FY 2009 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)					
National Ocean Service					
ORF	35,850	19,330	29,684	8,677	38,361
PAC	-	-	-	-	-
National Marine Fisheries Service					
ORF & PAC	-	-	-	-	-
Oceanic and Atmospheric Research					
ORF	67,447	64,949	66,124	4,200	70,324
PAC	10,368	10,121	10,131	248	10,379
National Weather Service					
ORF	713,280	736,424	733,192	19,141	752,333
PAC	76,121	66,880	69,479	15,338	84,817
National Environmental Satellite, Data, & Information Service					
ORF	28,887	8,483	8,635	208	8,843
PAC	2,138	965	966	74,024	74,990
Program Support					
ORF	-	-	-	-	-
PAC	12,566	0	0	0	0
Other-Discretionary and Mandatory	-	-	-	-	-

Total Obligations, Weather and Water	946,657	907,152	918,211	121,836	1,040,047
FTE	4,567	4,564	4,571	1	4,572
IT Funding	212,126	211,177			226,809

Objective 3.4 - Support safe, efficient, and environmentally sound commercial navigation	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Base	Increase/Decrease	FY 2009 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)					
National Ocean Service					
ORF	159,712	133,501	126,868	16,171	143,039
PAC	-	-	-	-	-
National Marine Fisheries Service					
ORF & PAC	-	-	-	-	-
Oceanic and Atmospheric Research					
ORF & PAC	-	-	-	-	-
National Weather Service					
ORF	19,605	21,689	20,188	1,086	21,274
PAC	-	-	-	-	-
National Environmental Satellite, Data, & Information Service					
ORF	10,067	8,970	9,181	278	9,459
PAC	-	-	-	-	-
Program Support					
ORF & PAC	-	-	-	-	-
Other-Discretionary and Mandatory	-	-	-	-	-
Total Obligations, Navigation	189,384	164,160	156,237	17,535	173,772

FTE	727	728	728	1	729
IT Funding	40,784	37,223			43,178

<b>Performance Goal for Mission Support: Provide critical support for NOAA's mission</b>	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Base	Increase/Decrease	FY 2009 Request
Operations, Research, Facilities (ORF) and Procurement, Acquisition, and Construction (PAC)					
National Ocean Service					
ORF	45,507	65,410	39,013	1,709	40,722
PAC	20,177	37,005	5,495	0	5,495
National Marine Fisheries Service					
ORF	27,136	26,867	27,575	2,970	30,545
PAC	11,190	2,019	-	-	-
Oceanic and Atmospheric Research					
ORF	17,502	21,080	13,159	743	13,902
PAC	1,698	-	-	-	-
National Weather Service					
ORF	29,307	32,832	30,099	684	30,783
PAC	32,815	38,644	26,372	232	26,604
National Environmental Satellite, Data, & Information Service					
ORF	92,521	94,878	97,366	6,269	103,635
PAC	796,925	767,867	767,609	143,513	911,122
Program Support					
ORF	362,242	395,900	379,076	15,319	394,395
PAC	53,928	28,394	27,247	71,203	98,450
Other-Discretionary and Mandatory	21,142	24,921	26,206	-	26,206
Total Obligations, Mission Support	1,512,090	1,535,817	1,439,217	242,642	1,681,859
FTE	3,071	3,068	3,137	40	3,177
IT Funding	180,514	191,727			269,334

	FY 2007	FY 2008	FY 2009
	Estimate	Estimate	Request
Direct	4,192,025	4,075,492	4,260,831
Reimbursable	242,444	242,444	242,000
<b>Total NOAA Obligations</b>	<b>4,434,469</b>	<b>4,317,936</b>	<b>4,502,831</b>
FTE	11,935	11,931	12,120
IT Funding	590,413	607,696	715,278



**Section 8.**

**Data Validation and Verification**

NOAA’s Budget Office coordinates an annual review of the performance data to ensure that it is complete and accurate. During this process, significant deviations from projected targets, if any, are discussed with the appropriate NOAA Line Office so that changes or corrections can be made to help meet NOAA’s performance goals. The actual validation process is conducted by individual NOAA Line Offices. The verification aspects depend on individual Line Office. For oceans and fisheries-related measures, stock assessments and reviews (internal, and/or peer) are common. For weather related measures, the verification process is, among other things, through comparison of predicted weather to the actual event. For the climate-related measures, verification is through, among other things, quality control of data. Satellite data are compared with on site data to help validate data accuracy.

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
Measure 1a: The Fish Stock Sustainability Index (FSSI)	Stock assessments and status determinations	Quarterly	NMFS Stock Information System (SIS)	Results will be reported quarterly in a signed memo from the Fishery Management Program Manager to the NMFS Chief Financial Officer and are housed and made available in a database managed by the NMFS Office of Management and Budget; monthly reporting on performance to NOAA Deputy Under Secretary	Results can only be reported when the SIS is updated with new information from the field	
Measure 1b: Percentage of Living Marine Resources with Adequate Population Assessments and Forecasts	Stock assessments reports and ESA status reviews	Quarterly	NMFS Stock Information System (SIS) and Excel spreadsheet maintained by NMFS’ Office of Protected Resources	Results will be approved by the NMFS Chief Science Advisor and reported quarterly in a signed memo from the Ecosystem Observations Program Manager to the NMFS Chief Financial Officer and are housed and made available in a	Results can only be reported when the SIS is updated with new information from the field	Discussions are ongoing to include protected species in the NMFS Stock Information System

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
				database managed by the NMFS Office of Management and Budget; quarterly reporting on performance to NOAA Deputy Under Secretary		

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
Measure 1c: Number of protected species designated as threatened, endangered, or depleted with stable or increasing population levels	MMPA stock assessment reports and ESA status reviews	Annual	Excel spreadsheet maintained by NMFS' Office of Protected Resources	Results are reported quarterly in a signed memo from the Protected Species Program Manager to the NMFS Chief Financial Officer and are housed and made available in a database managed by the NMFS Office of Management and Budget; quarterly reporting on performance to NOAA Deputy Under Secretary	MMPA stock assessment reports are updated only once a year and ESA status reviews are updated only every one to five years depending on priority and fund availability	Discussions are ongoing to include protected species in the NMFS Stock Information System
Measure 1d: Number of acres of coastal habitat restored (annual/cumulative)	Interim and final progress reports from each project	Quarterly	The Restoration Center Database (RCDB)	Results are reported quarterly in a signed memo from the Habitat Program Manager to the NMFS Chief Financial Officer and are housed and made available in a database managed by the NMFS Office of Management and Budget;	Data is primarily provided by grantees	None

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
				quarterly reporting on performance to NOAA Deputy Under Secretary.		
Measure 1e: Annual number of coastal, marine, and Great Lakes ecological characterizations that meet management needs.	Characterizations focus on ecosystem sites: National Marine Sanctuaries, National Estuarine Research Reserves, coral reef ecosystems, the coastal zone, Great Lakes, essential fish habitat, ecological species units, and unexplored areas.	Annual	Metadata from all contributing sources to the measure is maintained by managers for the coastal and marine resources and ecosystem research programs and stored in an Excel database with limited access. The final performance data reported in quarterly and annual performance reports is managed in a secure NOS database for annual milestones and annual and long-	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.	NOAA focuses on protected areas or areas where NOAA has a clear management mandate. NOAA works to identify key parameters for characterizing their conditions and develop assessments of their present health. Characterizations from all contributors are being tracked in this new measure in addition to criteria defining the indicator of what meets management needs for each ecosystem site because characterizations vary temporally and geographically.	

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
			term performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow approval system).			
Measure 1f: Cumulative Number of Coastal, Marine, and Great Lakes Issue-Based Forecasting Capabilities Developed and Used for Management.	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	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	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

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
	Research (OAR) Sea Grant, Atlantic Oceanographic and Meteorological Laboratory (AOML, in part), and Great Lakes Environmental Research Laboratory (GLERL)]		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).			management action/inaction.
Measure 1g: Percentage of tools, technologies, and information services that are used by NOAA partners/customers to improve ecosystem based management.	NOAA's Line Offices (OAR and NOS) executing the NOAA programs through the Strategic Plan goal/program structure	Annual	Each Line Office has an internal secure system for tracking the data contributions.	Use values will be reported by program offices as X number of tools, technologies, and information services (TTIS) used out of X number of TTIS provided. Each Line Office will report total annual values to a central repository where a single percentage value will be determined and archived in a secure repository. Data is	NOAA needs to ensure tracking systems are secure and data is validated and verified.	A secure central NOAA repository for matrixed measures is under development for improved management and tracking purposes.

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
				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.		
Measure 1h: Annual number of coastal, marine, and Great Lakes habitat acres acquired or designated for long-term protection (Annual/Cumulative)	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.	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 annual and long-	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 plans to expand the measure in FY 2008 to capture the CZM program contributions.  NOAA is looking at the feasibility of further harmonizing methodologies used among contributing program components.

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
			<p>term performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow approval system).</p>			
<p>Measure 2a: U.S. temperature – skill score</p>	<p>Forecast data, observations from U.S. Weather Forecast Offices, and from a cooperative network maintained by volunteers across the nation</p>	<p>Annual</p>	<p>NWS' National Centers for Environmental Prediction</p>	<p>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;</p>	<p>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</p>	<p>None</p>

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
					La Nina dropped out of the 48 month averages.	
Measure 2b: Reduced Uncertainty in the Magnitude of the North American Carbon Uptake	NOAA's Global Carbon Cycle Research Program	Annual	NOAA's Earth System Research Laboratory	Quality assurance and calibration against known standards performed by NOAA	Number of tall tower/aircraft sites and our ability to incorporate these data into advanced carbon models	None
Measure 2c: Reduced Uncertainty in Model Simulations of the Influence of Aerosols on Climate	NOAA's Atmospheric Composition and Climate Program	Annual	NOAA's Earth System Research Laboratory	Quality assurance and comparisons against 2001 international assessments by leading experts in the aerosol-climate community	Number of monitoring sites for vertical distribution of aerosols, process studies that include intensive field campaigns and laboratory based data, and our ability to include these in global models	None
Measure 2d: Determine the Actual Long-term Changes in Temperature and Precipitation Over the United States	NOAA's National Climatic Data Center	Quarterly	NOAA's National Climatic Data Center	Monte Carlo simulations based on operation stations;	Number of stations commissioned in the Climate Reference Network	None
Measure 2e: Reduced Error in Global Measurement of Sea Surface Temperature	NOAA's Climate Program Office	Quarterly	NOAA's Climate Program Office	Quarterly reporting mechanism on uncertainty in sea surface temperature measurements	Number of deployed observing platforms in the global ocean	None
Measure 2f: Improve society's ability to plan	NOAA's Climate Program	Annual	NOAA's Climate Program	Annual examination of grants awarded and research	Challenge of systematically	None



<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
and respond to climate variability and change using NOAA climate products and information	Office		Office	activities undertaken that result in various outputs (e.g. peer review publications, workshops) showing evidence of research-based interactions with decision makers	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.	
Measure 3a: Cumulative percentage of U.S. shoreline and inland areas that have improved ability to reduce coastal hazard impacts	National Ocean Service (NOS) Coastal Services Center, National Satellite, Data and Information Service (NESDIS) National Coastal Data Development Center and other Federal and state agencies	Annually	NOS and NESDIS will collect information, conduct assessments, and store data.	This measure tracks the cumulative percent of shoreline and inland areas with improved ability to reduce the impact of coastal hazards. In the past, the types of projects included in the reported results differed from one year to the next; therefore, the potential for counting a portion of the shoreline more than once existed. For example, one year a project may improve an area's ability to reduce the impacts of hurricanes, and then another year a separate project may improve the same area's ability to reduce the impacts of another coastal	This measure tracks the development and implementation of the Coastal Risk Atlas as an indicator of improved ability to identify the extent and severity of coastal hazards. Reaching these targets will depend on the activities of other Federal and state agencies with management responsibilities in this area.	Need to modify the measure to more accurately reflect the measurement of a range of contributions: suggested change to: annual percentage of tools and technologies used to address coastal community risk, vulnerability, and resilience to coastal hazards.

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
				hazard such as inland flooding. To avoid confusion, this measure currently only tracks the development and implementation of the Coastal Risk Atlas. All data used in the Coastal Risk Atlas are quality controlled and the risk assessment methodologies have been peer reviewed with quarterly reporting on performance to NOAA Deputy Under Secretary.		
Measure 3b: Lead time (minutes), accuracy (%), and false alarm rate (FAR, %) of severe weather warnings for tornadoes (to change from county-based to storm-based in FY 2008)	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 every NWS office, quality controlled, and matched to confirmed tornado reports. Reports are validated by WFOs using concise and stringent guidelines outlined in NWS Instruction 10-1605. From these data, verification statistics are computed. OCWWS monitors monthly performance throughout	Only confirmed tornado reports are used to verify tornado warnings. Radar reports are not used. If a tornado occurs but is not reported, it doesn't go into the database for verification. Therefore, it is possible for tornadoes to be under-reported, especially in sparsely populated areas.  While long-term	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.

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
				<p>the NWS, and the regional headquarters monitor performance within their respective regions.</p> <p>All data is reported on to NWS and NOAA leadership on a monthly basis.</p>	<p>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. 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, higher accuracy, and lower false alarm rates. The peak level of tornadic activity occurs April through June each year. A</p>	

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
					secondary peak activity time period is October and November in the southeastern United States.	
Measure 3c: Lead Time (Minutes) and Accuracy (%) for Severe Weather Warnings for Flash Floods	National Weather Service (NWS) field offices	Monthly	NWS headquarters and the Office of Climate, Water, and Weather Services (OCWWS)	<p>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.</p> <p>All data is reported on to NWS and NOAA leadership on a monthly basis.</p>	<p>While long-term performance has shown a steady increase in forecast accuracy, inter-annual scores tend to fluctuate due to varying weather patterns from year to year. Some weather patterns are more difficult to forecast than others.</p> <p>Typically, 1st and 2nd Quarters have higher lead times, while the 3rd and 4th Quarters, during the convective season, bring the annual average down. Spring/summer mesoscale events (e.g., thunderstorms) are more difficult to predict than larger</p>	Review all warnings and storm data after each event to learn from past experiences. Use the information learned to improve forecast skill and product quality in the future.

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
					synoptic scale systems; hence lower scores are expected in the 3 <sup>rd</sup> and 4 <sup>th</sup> quarters.	
Measure 3d: Hurricane Track Forecasts Error (48 Hours)	NWS/Tropical Prediction Center (TPC)	Annual	TPC	<p>Hurricane storm verification is performed for hurricanes, tropical storms, and tropical depressions regardless of whether these systems are over land or water. The TPC issues track and intensity forecast throughout the life of a hurricane. The actual track and intensity are verified through surface and aircraft measurements. NOAA calculates the average accuracy of the TPC track and intensity forecasts for the Atlantic basin at the end of each hurricane season. Reported errors are for hurricane and tropical storm stages only because of a more limited historical verification record for tropical depressions.</p> <p>All data is reported to</p>	Verification of actual track and intensity versus forecast is very accurate. However, actual annual scores vary up to 20% in some years due to the type and location of the hurricane events. Some types of systems can be more accurately forecasted than others. For example, hurricanes that begin in the northern sections of the hurricane formation zone tend to be much harder to accurately forecast. Out-year measures depend on a stable funding profile and take into account new satellites, improved forecast models, new and continued research activities of the U.S. Weather Research Program (USWRP), and investments in critical observing	NOAA will report on the tracking of forecasts at 24, 48 and 72-hour intervals.

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
				NWS and NOAA leadership on an annual basis.	systems	

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
Measure 3e: Hurricane Intensity Forecast Error (48 Hours)	NWS/Tropical Prediction Center (TPC)	Annual	TPC	<p>Hurricane storm verification is performed for hurricanes, tropical storms, and tropical depressions regardless of whether these systems are over land or water. The TPC issues track and intensity forecast throughout the life of a hurricane. The actual track and intensity are verified through surface and aircraft measurements. NOAA calculates the average accuracy of the TPC track and intensity forecasts for the Atlantic basin at the end of each hurricane season. Reported errors are for hurricane and tropical storm stages only because of a more limited historical verification record for tropical depressions.</p> <p>All data is reported to NWS and NOAA leadership on an annual basis.</p>	<p>Verification of actual track and intensity versus forecast is very accurate. However, actual annual scores vary up to 20% in some years due to the type and location of the hurricane events. Some types of systems can be more accurately forecasted than others. For example, hurricanes that begin in the northern sections of the hurricane formation zone tend to be much harder to accurately forecast. Out-year measures depend on a stable funding profile and take into account new satellites, improved forecast models, new and continued research activities of the U.S. Weather Research Program (USWRP), and investments in critical observing systems.</p>	<p>Hurricane Intensity is planned to be added as a performance measure prior to FY 2008 OMB submission.</p>

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
Measure 3f: Accuracy (%) (Threat Score) of day 1 precipitation forecasts	The Hydrometeorological Prediction Center and state agencies	Monthly	World Weather Building	<p>The Hydrometeorological Prediction Center has produced Quantitative Precipitation Forecasts since the early 1960s and has kept verification statistics related to the Quantitative Precipitation Forecast program since that time. HPC forecasters work under the supervisory control of the Senior Branch Forecaster (SBF), who is responsible for the quality and content of all products issued during the shift. The SBF having the additional duty of 24 hour precipitation forecast verification verifies the precipitation forecasts.</p> <p>All data are examined for accuracy and quality control procedures are applied, as described in the Description of Measure section.</p> <p>Verification is the process of comparing the predicted</p>	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.	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.



Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
				<p>precipitation amounts to the observed amounts over the conterminous U.S.</p> <p>All data is reported on to NWS and NOAA leadership on a monthly basis.</p>		
<p>Measure 3g: Lead Time (Hours) and Accuracy (%) of Winter Storm Warnings</p>	<p>National Weather Service (NWS) field offices</p>	<p>Quarterly</p>	<p>The regional headquarters, NWS headquarters and the Office of Climate, Water, and Weather Services (OCWWS)</p>	<p>Verification is the process of comparing predicted weather to a reported event. Warnings are collected from each NWS office; quality controlled, and matched to confirmed winter storm 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.</p> <p>All data is reported on to NWS and NOAA leadership on a quarterly</p>	<p>While long-term performance has shown a steady increase in forecast accuracy, inter-annual scores tend to fluctuate due to varying weather patterns from year to year. Some weather patterns are more difficult to forecast than others.</p>	<p>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>

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
				basis.		
Measure 4a: Reduce hydrographic survey backlog within navigationally significant areas (square nautical miles surveyed per year)	Progress reports on data collected from hydrographic survey platforms	Monthly	National Ocean Service maintains hydrographic survey performance data at NOAA's Hydrographic Surveys Division.	National Ocean Service applies its established verification and validation methods. The measure has a +/- 50 square nautical mile variance. Targets are set annually based on resources available; monthly reports on performance to NOAA Deputy Under Secretary.	NOAA-owned ships and contractor survey assets can be affected by changes in vessel availability or condition. Weather can also affect scheduled surveys.	National Ocean Service maintains hydrographic survey performance data at NOAA's Hydrographic Surveys Division.
Measure 4b: Percentage of U.S. counties rated as fully enabled or substantially enabled with accurate positioning capacity (Goal: Increase percentage of counties rated as substantially or fully enabled, with the infrastructure, tools, and demonstrated local capacity for accurate positioning, from 32.2% in 2005 to 92% in 2011).	NOAA's Online Position User Service (OPUS)	Quarterly	Automated database at National Ocean Service	NOAA will validate a County's capacity for local positioning through direct coordination with localities, such as OPUS project acceptance by NOAA. By assessing the user needs of county surveyors, counties, and their associations through successive limited distributions of a county scorecard, NOAA will validate that the geodesy program is meeting local positioning needs; quarterly reporting on performance to NOAA Deputy Under Secretary.	OPUS customer data is limited and will be expanded through Paperwork Reduction Act-approved surveys of customers.	None
Measure 4c: Accuracy	NWS field	Monthly	The NWS and	Verification is the process	Due to the large	NOAA will

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
(%) of Forecast for Winds and Waves (Marine Forecasts)	offices		the National Centers for Environmental Prediction's Ocean Modeling Branch	<p>of comparing the predicted weather with the actual event.</p> <p>Forecasts and observations are collected from each marine zone for which the NWS issues a forecast. The OCWWS stores and quality controls all data, compares forecasts to observations, and computes verification statistics.</p> <p>WFO managers regularly monitor forecast performance. The regional headquarters and the OCWWS monitor performance monthly for their respective management areas.</p> <p>All data is reported to NWS and NOAA leadership on a monthly basis.</p>	<p>volume of data gathered and computed, documentation for the accuracy of forecast for wind and waves cannot be finalized until well into the following fiscal year. Out-year measures depend on a stable funding profile and take into account improved use of the WSR-88D, new satellites, improved forecast models, new and continued research activities of the USWRP, and investments in critical observing systems, and implementation of AWIPS.</p> <p>Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to forecast than others. Marine wind speed and wave height forecasts scores naturally vary</p>	<p>deploy enhanced versions of AWIPS, upgrade new forecast models, implement new wave forecast models, and improve communication and dissemination techniques to marine users. In FY 2008, the Marine Wind Speed Forecast Accuracy metric (FY 2008 target of 58%) will be replaced by a new Marine Wind Forecast Accuracy metric, "Percentage of Accurate Forecasts," with a target of 68%. In FY 2008, the Marine Wave</p>

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
					(accuracy +/- 4% per year) due to fluctuations in the number of extreme events measured over NWS marine areas per year.	Height Forecast Accuracy metric (FY 2008 target of 68%) will be replaced by a new Marine Wind Forecast Accuracy metric, "Percentage of Accurate Forecasts," with a target of 73%.
Measure 4d: Accuracy (%) and FAR (%) of Forecasts of Ceiling and Visibility (Aviation Forecasts)	NWS field offices	Monthly	NWS headquarters and OCWWS	<p>Forecasts and observations are collected from each airport for which the NWS issues a forecast. The OCWWS stores and quality controls all data, compares forecasts to observations, and computes verification statistics.</p> <p>Forecasters within each WFO are able to stratify verification statistics to his/her personal scores on specific days to learn from recent experience.</p> <p>WFO managers regularly</p>	Due to the large volume of data gathered and computed, documentation for this measure 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	<p>Forecasters within each WFO will continue to monitor their recent past forecast performance to learn from experience.</p> <p>The regional headquarters and the OCWWS will continue to monitor performance monthly for</p>

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
				<p>monitor forecast performance. The regional headquarters and the OCWWS monitor performance monthly for their respective management areas.</p> <p>All data is reported on to NWS and NOAA leadership on a monthly basis.</p>	<p>implementation of AWIPS.</p> <p>Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to forecast than others.</p> <p>Year to year variability is plus or minus 3 percent for both Accuracy and FAR. Typically, 3<sup>rd</sup> and 4<sup>th</sup> quarter scores during the convective season have lower accuracy scores and increased FARs than the 1<sup>st</sup> and 2<sup>nd</sup> Quarter cool season months.</p>	<p>their respective management areas.</p> <p>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</p>

<b>Performance Measure</b>	<b>Data Source</b>	<b>Frequency</b>	<b>Data Storage</b>	<b>Internal Control Procedures</b>	<b>Data Limitations</b>	<b>Actions to be Taken</b>
						Alarm Rate for Ceiling/Visibility (3 mi/1000 ft or less).

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2008 Currently Available	12,306	11,720	2,856,277	2,931,980	2,985,616
less: Carryover	-	-	-	-	(48,636)
less: Terminations	-	-	(220,347)	(220,347)	(220,347)
plus: 2009 Other Adjustments to Base	99	103	31,567	37,864	43,864
FY 2009 Base	12,405	11,823	2,667,497	2,749,497	2,760,497
plus: 2009 Program Changes	103	86	163,756	163,756	163,756
FY 2009 Estimate	12,508	11,909	2,831,253	2,913,253	2,924,253

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/	
		Actuals		Currently Available		Base Program		Estimate		Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
National Ocean Service	Pos/BA	1,221	484,178	1,271	467,462	1,282	406,905	1,285	449,252	3	42,347
	FTE/OBL	1,163	473,313	1,210	493,831	1,220	406,905	1,223	449,252	3	42,347
National Marine Fisheries Service	Pos/BA	2,775	828,716	2,715	707,708	2,736	657,893	2,796	724,211	60	66,318
	FTE/OBL	2,643	827,410	2,586	715,176	2,606	657,893	2,651	724,211	45	66,318
Oceanic and Atmospheric Research	Pos/BA	749	363,538	750	387,554	772	362,476	772	372,270	-	9,794
	FTE/OBL	713	362,171	714	390,428	735	362,476	735	372,270	-	9,794
National Weather Service	Pos/BA	4,855	774,963	4,856	804,489	4,838	797,250	4,838	818,833	-	21,583
	FTE/OBL	4,624	773,958	4,625	808,300	4,608	797,250	4,608	818,833	-	21,583
National Environmental Satellite, Data, and Information Service	Pos/BA	627	177,191	712	178,975	712	156,897	712	165,292	-	8,395
	FTE/OBL	597	176,546	678	179,907	678	156,897	678	165,292	-	8,395

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel	Amount
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Program Support	Pos/BA	2,008	362,242	2,002	395,900	2,065	379,076	2,105	394,395	40	15,319
	FTE/OBL	1,913	365,784	1,907	397,974	1,976	379,076	2,014	394,395	38	15,319
Adjustments to Budget Authority	Pos/BA	-	-	-	(5,108)	-	-	-	-	-	-
	FTE/OBL	-	-	-	-	-	-	-	-	-	-
Total	Pos/BA	12,235	2,990,828	12,306	2,936,980	12,405	2,760,497	12,508	2,924,253	103	163,756
	FTE/OBL	11,653	2,979,182	11,720	2,985,616	11,823	2,760,497	11,909	2,924,253	86	163,756



**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 NOAA Corp Retirement Pay (Mandatory)  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2008 Currently Available	-	-	23,119	23,119	23,119
plus: 2009 Other Adjustments to Base	-	-	1,153	1,153	1,153
FY 2009 Base	-	-	24,272	24,272	24,272
plus: 2009 Program Changes	-	-	-	-	-
FY 2009 Estimate	-	-	24,272	24,272	24,272

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
NOAA Corps Retirement Pay (Mandatory)	Pos/BA	-	20,541	-	23,119	-	24,272	-	24,272	-	-
	FTE/OBL	-	20,541	-	23,119	-	24,272	-	24,272	-	-
Total: Program Support	Pos/BA	-	20,541	-	23,119	-	24,272	-	24,272	-	-
	FTE/OBL	-	20,541	-	23,119	-	24,272	-	24,272	-	-
Total	Pos/BA	-	20,541	-	23,119	-	24,272	-	24,272	-	-
	FTE/OBL	-	20,541	-	23,119	-	24,272	-	24,272	-	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Operations Research and Facilities  
**SUMMARY OF RESOURCE REQUIREMENTS**  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	11,653	2,979,182	11,720	2,985,616	11,823	2,760,497	11,909	2,924,253	86	163,756
<b>Total Obligations</b>	<b>11,653</b>	<b>2,979,182</b>	<b>11,720</b>	<b>2,985,616</b>	<b>11,823</b>	<b>2,760,497</b>	<b>11,909</b>	<b>2,924,253</b>	<b>86</b>	<b>163,756</b>
<b>Adjustments to Obligations:</b>										
Cash Refund	-	(1,577)	-	-	-	-	-	-	-	-
Recoveries	-	(8,974)	-	(5,000)	-	(11,000)	-	(11,000)	-	-
Unobligated balance, adj. SOY	-	(27,151)	-	(48,636)	-	-	-	-	-	-
Unobligated balance, EOY	-	48,636	-	-	-	-	-	-	-	-
Unobligated balance, Expiring	-	712	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	<b>11,653</b>	<b>2,990,828</b>	<b>11,720</b>	<b>2,931,980</b>	<b>11,823</b>	<b>2,749,497</b>	<b>11,909</b>	<b>2,913,253</b>	<b>86</b>	<b>163,756</b>
<b>Financing from Transfers and Other:</b>										
Transfer from P&D	-	(79,000)	-	(77,000)	-	(79,000)	-	(79,000)	-	-
Transfer from CZMF	-	(3,000)	-	(3,000)	-	(3,000)	-	(3,000)	-	-
Transfer from Pacific Salmon	-	(67)	-	(67)	-	-	-	-	-	-
Transfer from PAC	-	(1,086)	-	(979)	-	-	-	-	-	-
Transfer to FFPA	-	-	-	235	-	-	-	-	-	-
Unobligated Balance, Rescission	-	-	-	5,108	-	-	-	-	-	-
<b>Net Appropriation</b>	<b>11,653</b>	<b>2,907,675</b>	<b>11,720</b>	<b>2,856,277</b>	<b>11,823</b>	<b>2,667,497</b>	<b>11,909</b>	<b>2,831,253</b>	<b>86</b>	<b>163,756</b>

Department of Commerce  
 National Oceanic and Atmospheric Administration  
 NOAA Corp Retirement Pay (Mandatory)  
 SUMMARY OF RESOURCE REQUIREMENTS  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Mandatory Obligation	-	20,541	-	23,119	-	24,272	-	24,272	-	-
<b>Total Obligations</b>	-	<b>20,541</b>	-	<b>23,119</b>	-	<b>24,272</b>	-	<b>24,272</b>	-	-
<b>Adjustments to Obligations:</b>										
<b>Total Budget Authority</b>	-	<b>20,541</b>	-	<b>23,119</b>	-	<b>24,272</b>	-	<b>24,272</b>	-	-
<b>Financing from Transfers and Other:</b>										
<b>Net Appropriation</b>	-	<b>20,541</b>	-	<b>23,119</b>	-	<b>24,272</b>	-	<b>24,272</b>	-	-

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**SUMMARY OF FINANCING**  
(Dollar amounts in thousands)

	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Direct Discretionary Obligation	2,979,182	2,985,616	2,760,497	2,924,253	163,756
Direct Mandatory Obligation	20,541	23,119	24,272	24,272	0
Reimbursable Obligation	251,374	359,913	242,000	242,000	0
<b>Total Obligations</b>	<b>3,251,097</b>	<b>3,368,648</b>	<b>3,026,769</b>	<b>3,190,525</b>	<b>163,756</b>
<b>Adjustments and Obligations:</b>					
Federal funds	(129,493)	(57,000)	(56,000)	(56,000)	-
Non-Federal Sources	(82,780)	(190,000)	(186,000)	(186,000)	-
Cash Refund	(1,577)	-	-	-	-
Recoveries	(8,974)	(5,000)	(11,000)	(11,000)	-
Unobligated balance, adj. SOY	(27,151)	(48,636)	-	-	-
Unobligated balance, EOY	48,636	-	-	-	-
Unobligated balance, expiring	712	-	-	-	-
Unobligated balance, SOY Reimbursable	(152,014)	(112,913)	-	-	-
Unobligated balance, EOY Reimbursable	112,913	-	-	-	-
<b>Total Budget Authority</b>	<b>3,011,369</b>	<b>2,955,099</b>	<b>2,773,769</b>	<b>2,937,525</b>	<b>163,756</b>
<b>Financing from Transfers and Other:</b>					
Transfer from P&D	(79,000)	(77,000)	(79,000)	(79,000)	-
Transfer from CZMF	(3,000)	(3,000)	(3,000)	(3,000)	-
Transfer from USDA	-	-	-	-	-
Transfer to other accounts	-	-	-	-	-
Transfer to FFPA	-	235	-	-	-
Transfer to/from Dept of Interior	-	-	-	-	-
NOAA Corps Retirement Pay (Mandatory)	(20,541)	(23,119)	(24,272)	(24,272)	-
Transfer from Pacific Salmon	(67)	(67)	-	-	-
Transfer from PAC	(1,086)	(979)	-	-	-

**Department of Commerce**  
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**SUMMARY OF FINANCING**  
(Dollar amounts in thousands)

	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Unobligated Balance, Rescission	-	5,108	-	-	-
Net Appropriation	2,907,675	2,856,277	2,667,497	2,831,253	163,756

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**CHANGES TO BASE**  
(Dollar amounts in thousands)

	FTE	Amount
<b>Adjustments:</b>		
Restoration of FY 2008 Deobligations	0	5,000
Terminations	0	(220,347)
Restoration of FY 2008 Unobligated Balance Rescissions	0	5,108
FTE Re-estimate	77	0
Subtotal, Adjustments	77	(210,239)
<b>Financing:</b>		
Deobligations		(11,000)
Subtotal, Financing		(11,000)
<b>Transfers:</b>		
Transfer of NERRS from NOS PAC to NOS ORF		288
Transfer of NWS PAC Cooperative Observer Network Modernization to NWS ORF for MADIS.		500
Transfer of NWS ORF Local Warnings and Forecast to NWS PAC for Weather Radio Improvement.		(3,000)
Transfer of NESDIS Geo Netcast PAC to ORF Satellite Command and Control (GEONETCast).		500
Subtotal, Transfer	0	(1,712)

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
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**CHANGES TO BASE**  
(Dollar amounts in thousands)

## Other Changes:

Annualization of Jan., 2008 Pay Raise		8,996
2009 Pay raise		25,731
Payment to the Working Capital Fund		425
Full year costs of positions financed in part-year in FY 2008	26	1,942
Change in Compensable Days (one less day)		(4,526)
OMAO Wage Marine overtime on NOAA ships		126
Civil Service Retirement System (CSRS)		(1,708)
Federal Employees Retirement System (FERS)		2,726
Thrift Savings Plan		488
Federal Insurance Contribution Act (FICA) - OASDI		1,591
Health insurance premiums		1,139
Employee Compensation Fund		551
Per diem		1,980
Mileage		185
Rental payments to GSA		1,509
Printing and reproduction		86
NARA Storage & maintenance costs		38
Working Capital Fund		802
Postage		66
CBS		174
Other Services		10,141
Transportation of Things		281



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Operations Research and Facilities  
**CHANGES TO BASE**  
(Dollar amounts in thousands)

Rental payments to others		251
Comm., Util., and misc.		1,021
Supplies and Materials		1,779
Equipment		806
Grants		702
NWC Norman, OK – OAR		85
NERO Regional Office		541
Subtotal, Other Changes	26	57,928
Less Absorption	0	(16,649)
Subtotal Changes		41,279
Total Adjustments to Base	103	(181,672)

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**JUSTIFICATION OF CHANGES TO BASE**  
(Dollar amounts in thousands)

	FTE	Amount
<u>Adjustments:</u>		
Less Unrequested Projects		(220,347,000)
Restoration of FY 2008 deobligations	0	5,000,000
Restoration of FY 2008 Unobligated Balance Rescissions	0	5,108,219
FTE Re-estimate	77	0
Subtotal Adjustments	77	(210,238,781)
<u>Financing:</u>		
In 2009, NOAA expects to realize recoveries of prior year obligations of \$11,000,000. This amount will be used to offset the budget authority in 2009.	0	(11,000,000)
Subtotal Financing	0	(11,000,000)
<u>Transfers:</u>		
NOS transfer from PAC to ORF to provide necessary resources for the operations of the National Estuarine Research Reserve System (NERRS). NERRS uses a network of 27 protected areas established for long-term research, education and coastal stewardship.		288,000

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**JUSTIFICATION OF CHANGES TO BASE**  
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NWS transfer from Cooperative Observer Network Modernization PAC to ORF to provide funding for Meteorological Assimilation Data Ingest System (MADIS).		500,000
NWS transfer from Local Warnings and Forecast ORF to PAC to provide funding for Weather Radio Improvement.		(3,000,000)
NESDIS transfer from POES account in PAC to ORF Satellite Command and Control (GEONETCast).		500,000
		(1,712,000)
<u>Pay Raises</u>		0
Full-year cost of 2008 pay increase and related costs: A pay raise of 3.5% was effective January 1, 2008.		35,152,167
Total cost of 2008 pay raise	35,983,167	
Less amount funded in 2008	<u>(26,987,000)</u>	
Adjustment for FY 2009 of FY 2008 pay increase	8,996,167	
2009 pay increase and related costs: A general pay raise of 2.9% is assumed to be effective January 1, 2009. Total cost in 2009 of pay increase		

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**JUSTIFICATION OF CHANGES TO BASE**  
 (Dollar amounts in thousands)

		34,308,000
Less amount not funded in 2009	<u>(8,577,000)</u>	
Total cost of January 2009 pay increase		25,731,000
Payment to Working Capital Fund	<u>425,000</u>	
Total, adjustment for 2009 pay increase		26,156,000

Full-year cost in 2009 of positions financed for part-year in 2008 26 1,941,804

An increase of \$1,941,804 is required to fund the full-year cost in 2009 of positions financed for part-year in 2008. The computation follows:

Annual salary of new positions in 2009	124	7,033,442
Pay adjustment of annual salary of new positions in 2008 budget		246,170
Less 5 percent lapse	<u>(6)</u>	<u>(363,982)</u>
Full-year cost of personnel compensation	118	6,915,630
Less personnel compensation included in the 2008 budget	<u>(92)</u>	<u>(5,433,333)</u>
Cost of personnel compensation in 2008	26	1,482,297
Adjustment for 2008 pay raise	<u>0</u>	<u>32,240</u>
Add'l amount required for personnel compensation	26	1,514,537
Benefits		427,267
Total adjustments-to-base	<u>26</u>	<u>1,941,804</u>

Compensable Day (4,525,558)

The decrease cost of one less compensable days in FY 2009

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**JUSTIFICATION OF CHANGES TO BASE**  
 (Dollar amounts in thousands)

compared to FY 2008 is calculated by dividing the FY 2008 estimated personnel compensation (\$3,793,714) and applicable benefits (\$731,844) by 262 compensable days. The cost of one less day is (\$4,525,558).

<u>OMAO Wage Marine overtime on NOAA ships</u>	0	126,000
An increase of \$126,000 is required to cover the cost of overtime for OMAO's Wage Mariners in 2009.		
Total cost in 2009 of Wage Marine overtime		168,000
Less amount not funded in 2009		<u>(42,000)</u>
Total cost of January 2009 pay increase		126,000
 <u>Civil Service Retirement System (CSRS)</u>	 0	 (1,707,512)
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 25.2% in 2008 to 22.6% in 2009 for regular and increase from 3.7% in 2008 to 4.2% in 2009 for law enforcement employees. Contribution rates will remain the same.		

Regular:

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 (Dollar amounts in thousands)

2009 \$940,153,000 x .226 x .07		14,873,220	
2008 \$940,153,000 x .252 x .07		16,584,299	
Subtotal		(1,711,079)	
 Law Enforcement:			
2009 \$9,513,000 x .042 x .075		29,966	
2008 \$9,513,000 x .037 x .075		26,399	
Subtotal		3,567	
 Total adjustment to base		 (1,707,512)	

Federal Employees Retirement System (FERS)

0            2,726,404

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 employees covered by FERS will rise from 74.8% in 2008 to 77.4% in 2009 for regular employees. The estimated percentage of payroll for law enforcement employees covered by FERS will decrease from 96.3% in 2008 to 95.8% in 2009. The contribution rates will remain the same.

 Regular:			
2009 \$940,153,000 x .774 x .112		81,499,983	
2008 \$940,153,000 x .748 x .112		78,762,258	
		(2,736,725)	

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 (Dollar amounts in thousands)

Subtotal	2,737,725
Law Enforcement:	
2009 \$9,513,000 x .958 x .238	2,169,002
2008 \$9,513,000 x .963 x .238	2,180,323
Subtotal	(11,321)
Total adjustment to base	2,726,404

Thrift Savings Plan

0      487,928

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%.

Regular:	
2009 \$940,153,000 x .774 x .02	14,553,568
2008 \$940,153,000 x .748 x .02	14,064,689
Subtotal	488,879
Law Enforcement:	
2009 \$9,513,000 x .958 x .02	182,269
2008 \$9,513,000 x .963 x .02	183,220



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**JUSTIFICATION OF CHANGES TO BASE**  
 (Dollar amounts in thousands)

Subtotal	(951)
Total adjustment to base	487,928

<u>Federal Insurance Contribution Act (FICA)</u>	0	1,590,847
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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 \$102,300 in 2008 to \$106,425 in 2009. The OASDI tax rate will remain 6.2% in 2009.

Regular:	
2009 \$940,153,000 x .774 x .971 x .062	43,807,696
2008 \$940,153,000 x .748 x .971 x .062	42,336,120
Subtotal	1,471,576
Other	
2009 \$78,029,000 x .774 x .971 x .062	3,635,866
2008 \$78,029,000 x .748 x .971 x .062	3,513,731
Subtotal	122,135
Law Enforcement:	
2009 \$9,513,000 x .958 x .971 x .062	548,648

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**JUSTIFICATION OF CHANGES TO BASE**  
(Dollar amounts in thousands)

2008 \$9,513,000 x .963 x .971 x .062	551,512		
Subtotal			
	(2,864)		
 Total adjustment to base	 1,590,847		
 <u>Health insurance premiums</u>		0	1,138,626
Effective January 2009, NOAA's contribution to Federal employees' health insurance premiums increased by 1.7%. Applied against the 2008 estimate of \$66,978,000, the additional amount required is \$1,138,626.			
 <u>Employees Compensation Fund</u>		0	551,000
Effective January 2008, NOAA's contribution to Federal employees' compensation fund will increase by \$551,000.			
 <u>Mileage rate increase</u>		0	184,680
Effective February 2007, the General Services Administration raised the mileage rate from 44.5 cents to 48.5 cents per mile, a 9% rate increase. This percentage was applied to the 2008 estimate of \$2,052,000 to arrive at an increase of \$184,680.			
 <u>Per diem increase</u>		0	1,979,796

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(Dollar amounts in thousands)

Effective October 2006, the General Services Administration raised per diem rates. This increase resulted in a 4.9% increase to this bureau. This percentage was applied to the 2008 estimate of \$40,404,000 to arrive at an increase of \$1,979,796.

<u>Rental payments to GSA</u>	0	1,508,760
<p>GSA rates are projected to increase 2.40% in 2009. This percentage was applied to the 2008 estimate of \$62,865,000 to arrive at an increase of \$1,508,760.</p>		
<u>Postage</u>	0	66,249
<p>Effective May 14, 2007, postage rates for first-class mail increased from 39 cents to 41 cents. The percentage increase of 5.1% will be applied to the 2008 estimate of \$1,299,000 to arrive at an increase of \$66,249.</p>		
<u>GPO Printing</u>	0	85,538
<p>GPO has provided an estimated rate of 1.9%. This percentage was applied to the 2008 estimate of \$4,502,000 to arrive at an increase of \$85,538.</p>		
<u>NARA Storage &amp; maintenance costs</u>	0	38,430
<p>The estimated cost of NARA storage and maintenance is projected to increase by \$38,430.</p>		
<u>Working Capital Fund</u>	0	802,000

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(Dollar amounts in thousands)

An increase of \$802,000 is required for Working Capital Fund.

<u>CBS</u>	An increase of \$174,000 is required for the Commerce Business System.	0	174,000
<u>General Pricing Level Adjustment</u>	This request applies OMB economic assumptions for FY 2009 to object classes where the prices the government pays are established through the market system. Factors are applied to transportation of things (\$281,143); rental payment payments to others (\$251,009); communications, utilities and miscellaneous charges (excluding postage) (\$1,021,250); other contractual services (\$10,141,341); supplies and materials (\$1,778,932) and equipment (\$805,809).	0	14,279,483
<u>Grants</u>	Grants are projected to increase 3.9% in 2009. This percentage was applied to the 2008 estimate of \$17,988,000 arrive at an increase of \$701,532.	0	701,532
<u>NOAA National Weather Center – OAR</u>	For net rent cost increases associated with the facilities at the Climate Program Office in Silver Springs, MD	0	85,025
<u>Northeast Regional Office (NERO)-NMFS</u>		0	541,000

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(Dollar amounts in thousands)

For net rent cost increases associated with the NMFS facilities at the NERO  
in Gloucester, MA.

Subtotal, Other Changes	26	57,928,199
Less Absorption	0	<u>(16,649,000)</u>
Total Changes to Base	103	(181,671,582)

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NATIONAL OCEAN SERVICE  
OPERATIONS RESEARCH AND FACILITIES  
FY 2009 OVERVIEW

**SUMMARIZED FINANCIAL DATA**  
(\$ in thousands)

Operations Research and Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Navigation Services	165,891	141,435	137,424	149,026	11,602
Ocean Resources Conservation and Assessment	175,014	182,569	135,488	157,093	21,605
Ocean and Coastal Management	143,273	143,458	133,993	143,133	9,140
<b>TOTAL</b>	484,178	467,462	406,905	449,252	42,347
FTE	1,163	1,210	1,220	1,223	3

Note: The dollars in this table represent budget authority.

For FY 2009, NOAA requests an increase of \$42,347,000 and an increase of 3 FTE over the FY 2009 base program for a total of \$449,252,000 for the National Ocean Service (NOS) Operations, Research and Facilities account.

The National Ocean Service (NOS) is the primary Federal agency working for the Nation through the observation, measurement, assessment, and management of the Nation's coastal and ocean areas, as well as conducting response and restoration activities to protect vital coastal resources. An estimated 154 million people lived in coastal counties in 2004. Although coastal population growth has generally reflected the same rate of growth as the entire Nation since 1980, the limited land area of coastal counties is increasingly strained by the density of the population growth. This increasing density, coupled with the fast-growing economy of coastal areas, makes the task of managing coastal resources increasingly difficult, especially with the Nation's coastal population expected to increase by more than 6 million by 2008 and 11 million by 2015 (*Population Trends Along the Coastal United States: 1980-2008*).

As a national leader for coastal stewardship, NOS promotes a wide range of research activities aimed at better understanding ocean, coastal, and Great Lakes ecosystems. This research provides the strong science foundation required to effectively manage and advance the sustainable use of our coastal and ocean systems. NOS provides improvements in the quality, quantity, geographic distribution, and timeliness of ocean and coastal observations. Observations by NOS assets and NOS partners are critical components of the Nation's Integrated Ocean Observing System (IOOS), as well as fundamental contributors to the Global Earth Observation System of Systems (GEOSS). NOS mapping, charting, geodetic, and oceanographic activities build on marine and coastal observations collected to increase the efficiency and safety of maritime commerce, support coastal resource management and address

coastal flooding and water quality concerns. NOS protects and restores coastal resources damaged by releases of oil and other hazardous materials. NOS also manages marine sanctuaries, the Papahānaumokuākea Marine National Monument, and through partnerships with coastal states, manages the Nation's valuable coastal zones and nationally significant estuarine reserves. NOS helps federal, state, local, and international managers build the suite of skills needed to protect, restore, and use coastal ecosystems by providing technical assistance, process and technical skill training, and other capacity building activities.

NOS has three subactivities: Navigation Services, Ocean Resources Conservation and Assessment, and Ocean and Coastal Management. The objectives of the Navigation Services subactivity are to:

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

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

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

- Establish the framework through which the authorities of Federal and state agencies can be focused to protect and restore coastal resources.
- Recommend management actions to minimize the cumulative effects of coastal development on natural resources, especially NOAA's trust resources.
- Conduct research to define the nature and extent of human activities and conditions that threaten the health and productivity of the Nation's coastal resources.
- Conduct damage assessments to support negotiated settlements and litigation for recovering funds for restoration of injuries to NOAA's trust resources.
- Apply scientific expertise to mitigate the effects of human activities and facilitate environmental recovery, and undertake actions to restore ecosystem functions and resource values.
- Develop a Federal/state capability to research, monitor, assess, and predict coastal ecosystem structure and function to detect changes, evaluate management strategies, and identify actions to effectively manage threats to ecosystem health.
- 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 protect, restore and use coastal ecosystems.



- Improve public understanding of functions and values of coastal ecosystems and enhance public access to information on coastal environmental quality and health risks from pollutants.
- Support NOAA's and the Nation's obligations under international treaties and conventions, and increase effectiveness of international programs for coastal environmental science and technology, integrated coastal zone management, and sustainability of coastal resources.

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

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

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

To achieve these objectives, NOAA conducts activities in several program areas within the Office of Ocean and Coastal Resource Management, the Marine Protected Areas Center and the National Marine Sanctuary Program. These activities are conducted under the authority of the Coastal Zone Management (CZM) Act, Executive Order 13158, and the National Marine Sanctuaries Act.

In addition, NOS contributes significantly to achieving two of NOAA's Strategic Plan Mission Goals: Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation, and protect, restore, and manage the use of coastal and ocean resources through ecosystem-based

management. While these two goals capture much of the National Ocean Services' activities, NOS also supports and makes important contributions to NOAA's other mission goals: understand climate variability and change to enhance society's ability to plan and respond, serve society's needs for weather and water information, and Mission Support.

**Research and Development Investments:**

The NOAA FY 2009 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 incorporates the President's Management Agenda and the Office of Science and Technology Policy's Research and Development Investment Criteria (relevance, quality, and performance) for NOAA's R&D programs, and leads to NOAA budget proposals that reflect the R&D investment criteria.

**Significant Adjustments-to-Base (ATBs):**

NOAA requests a net increase of 10 FTE and \$5,032,000 to fund adjustments for National Ocean Service activities. Within this increase, program totals will fund inflationary adjustments for labor and non-labor.

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

<b>From Office</b>	<b>Line</b>	<b>To Office</b>	<b>Line</b>	<b>Amount</b>
NOS	Pribilof Islands Cleanup	PS	Environmental Compliance & Safety	\$727,000
NOS	NERRS Acquisition/Construction	NOS	National Estuarine Research Reserve System	\$288,000

NOAA requests a technical adjustment to move \$727,000 from NOS to Program Support. NOS will complete the cleanup efforts in FY2008. The remaining funding will support the Chief Administrative Officer's efforts to conduct long-term monitoring and property transfers.

NOAA requests a technical adjustment to move \$288,000 from NOS NERRS Acquisition/Construction to NOS National Estuarine Research Reserve System to provide the necessary resources for the operations of the National Estuarine Research Reserve System (NERRS). NERRS is a network of 27 protected areas established for long-term research, education and coastal stewardship.

**Subactivity: Navigation Services**  
**Line Item: Mapping & Charting**

**GOAL STATEMENT:**

NOAA's National Ocean Service (NOS) will reduce the risks to life, property and the coastal environment and enhance NOS' role of coastal stewardship by providing a comprehensive set of products and services to meet the Nation's need for accurate and up-to-date marine navigation information.

**BASE DESCRIPTION:**

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

The Mapping and Charting Line Item consists of five primary program elements. Each program element within the Mapping and Charting Line directly supports NOAA's Commerce and Transportation, Weather and Water, and Ecosystems goals. The Mapping and Charting Line Item also includes grant funding research and development center for new hydrographic technologies and applications.

Program Assessment and Rating Tool (PART): NOAA's Mapping and Charting program was reviewed with OMB's PART during FY 2006. As a result, NOAA's Mapping and Charting program is performing a rigorous analysis of hydrographic surveying components to ensure that NOAA uses the most effective approach to addressing hydrographic surveying requirements. This analysis is expected to be completed in September 2008.

Base activities support the objective, "Support safe, efficient, and environmentally sound commercial navigation" under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

### **NAUTICAL CHARTING PROGRAM**

The Nautical Charting Program is carried out by NOS' Office of Coast Survey (OCS). 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. Title 33 of the Code of Federal Regulations requires that NOAA charts be carried on all self-propelled vessels greater than 1600 gross tons. Nautical charts and related navigation publications are the basic tools for marine navigation, ocean operations, and marine resources planning and management. NOAA's digital nautical charting products, such as Electronic Navigational Charts (ENCs), serve as the basic information component required in the electronic navigation systems used by commercial mariners. ENCs help meet demands for greater protection of life, property, and the environment, and improve the efficiency of maritime commerce. Products like NOAA's ENCs give the user more complete and valuable information than the paper chart, and provide much greater accuracy than traditional chart products. More than just a picture, ENCs are essentially a database of chart features that are intelligently processed and displayed by electronic charting systems. An ENC displayed by an electronic charting system, when combined with input from other sources such as GPS and real-time oceanographic data, is able to warn of hazards to navigation and situations where the vessel's current track will take it into danger. NOAA is building its ENC suite comparable to the traditional chart suite coverage to conform to new U.S. Coast Guard regulations for electronic chart carriage in U.S. waters.

### **HYDROGRAPHIC SURVEY PROGRAM**

The Hydrographic Survey Program is also carried out by OCS. The program addresses the critical hydrographic surveys needed in U.S. waters. These hydrographic surveys provide the most basic data for the production of nautical charts. Coastal and ocean hydrographic data are also fundamental components of the Nation's Integrated Ocean Observing System. In 1994, NOAA identified approximately 510,000 square nautical miles of the EEZ as navigationally significant and in need of survey (or resurvey). Since that time, NOAA has focused primarily on surveying in the highest priority areas, many of which carry heavy commercial traffic, and are less than 30 meters deep. In addition, because of the dynamic nature of the commercial shipping industry, shipping lanes are changing constantly, and thus their charting needs change constantly as well. These characteristics significantly increase the risk to marine transportation. However, this critical area constitutes only a small portion (8%) of the entire navigationally significant area used by large commercial vessels and recreational boaters. NOAA's surveying activities employ the latest full bottom coverage sounding technologies to survey the Nation's coastal areas for navigation. NOAA utilizes private contractors to supplement its internal resources to conduct hydrographic data collection. All funding for the operation and maintenance of NOAA's hydrographic survey vessels is requested by NOAA's Office of Marine and Aviation Operations.

### **MARINE MODELING AND GEOSPATIAL TECHNOLOGY PROGRAM**

OCS also carries out the Marine Modeling and Geospatial Technology Program, as the research and development focal point for NOAA's mapping and charting work. 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. Projects include estuarine and port modeling and forecasting, coastal modeling and forecasting, and operational data resources. These models are an important contributor to the utility of a national Integrated Ocean Observing System, because they provide the capacity for data integration, such as with VDatum, or the National Vertical Datum Transformation Tool. VDatum's models enable users to transform data sets to different vertical datums,

allowing disparate data sets to integrate for efficiency and utility. The program also develops techniques and technology for improving nautical charts, providing vector data for marine Geographic Information Systems, efficiently and accurately measuring depths, shoreline and bottom characteristics, and locating underwater hazards. Efforts include bathymetric/topographic projects, vector electronic chart standards development, technology advances in shallow-water multibeam and high-speed high-resolution side-scan sonars, and on-the-fly Global Positioning System (GPS) for settlement and squat determination and vertical control of hydrographic surveys.

### **NAVIGATION SERVICES PROGRAM**

Finally, OCS connects with stakeholders through the Navigation Services Program. This Program provides a focal point for customer requests and associated responses on charting issues, conducts fast-response hydrographic surveys to verify chart changes and accuracies, and maintains the Coast Pilot, a supplemental aid to the nautical chart. NOAA Navigation Managers are regionally based representatives who resolve charting and navigation questions, educate constituents on emerging charting technologies and their uses, and solicit feedback on NOAA's navigation products and services from the commercial maritime industry. This face-to-face contact improves NOAA's response to customer needs and issues. NOAA's Navigation Response Teams (NRTs) are another crucial means of connecting with the maritime community. These teams have proven their worth in a number of ways. Established under the guidelines of the Hydrographic Services Improvement Act of 1998, the NRTs are designed to be fully mobile regional survey teams. The NRTs conduct ENC validation surveys, chart discrepancy and shoreline boundary examinations using diving operations, data collection, and mapping support capabilities. Because NRTs operate and are on call 365 days a year, at any hour, they also provide a critical emergency response role for stakeholder survey requests following natural or man-made disasters. NOAA's NRTs perform post-hurricane surveys to ensure safety of navigation and resumption of maritime commerce, survey in the wake of maritime accidents to locate the cause and remaining debris, and support Homeland Security efforts through the testing of equipment and the supply of sea bottom data for the Defense Technology Support Working Group, U.S. Coast Guard, and U.S. Navy Mine Counter Measures. In 2005, NOAA deployed four of its NRTs to the Hurricane Katrina/Rita/Wilma response in order to locate hazards to navigation and re-open impacted ports to maritime commerce and recovery efforts.

### **COASTAL MAPPING PROGRAM**

The Coastal Mapping Program is carried out by NOS' National Geodetic Survey (NGS). 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 and many other uses. These shoreline data are considered authoritative when determining the official shoreline for the United States. The Hydrographic Services Improvement Act of 1998 provides NOAA with explicit authority to promulgate national standards for all information acquired for nautical charting purposes, which includes shoreline. NOAA recommends that critical portions of the national shoreline around port areas be redefined on a 5-year cycle (a 10-year cycle is recommended for other areas). Products of the Coastal Mapping Program are essential to NOAA's nautical charting program and other environmental programs dealing with the coastal zone.

**PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize the Hydrographic Services Improvement Act.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Navigation Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Mapping & Charting					
Mapping & Charting Base	62,976	44,326	45,553	47,639	2,086
Joint Hydrographic Center	7,397	7,240	-	-	-
Hydrographic Research & Technology Development	-	-	7,247	7,424	177
Electronic Navigational Charts	4,241	4,388	4,392	6,128	1,736
Shoreline Mapping	3,184	2,364	2,366	2,424	58
Address Survey Backlog/Contracts	31,409	26,328	26,355	31,173	4,818
Dune System Assessment & Shoreline Change Analysis	-	868	-	-	-
Subtotal: Mapping & Charting	109,207	85,514	85,913	94,788	8,875
TOTAL	109,207	85,514	85,913	94,788	8,875
FTE	314	311	312	312	0

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Mapping and Charting Base -Ping to Chart Infrastructure Streamlining (0 FTE + \$1,000,000):** NOAA requests an increase of \$1,000,000 to manage the increasing size and quantity of hydrographic datasets collected by NOAA, contract and third-party data providers. This requested increase upgrades NOAA's Information Technology (IT) capacity to support quick, reliable data transfer and storage of hydrographic survey data, in addition to an updated backup and recovery system that allows NOAA to transition away from tape media. The increase will prevent the loss of critical data from the large investment NOAA makes in hydrographic surveys. It will also enable direct access to all files and improve the flow of survey data from collection to processing, and on to users. The increase brings NOAA's data management and processing capacity in line with the rate of hydrographic data (the sonar "ping") collection. The data management systems upgrade is a key part of NOAA's goal to reduce "ping to chart" time and improve NOAA's ability to process the data and get it to nautical chart users in a timely fashion. Achieving a reduction in "ping to chart" time is also a recommended action in the latest Office of Management and Budget Performance Assessment Rating Tool (PART) review of the NOAA Navigation Services program.

**Statement of Need**

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

The most important aspect of the nautical chart is the depiction of depths and obstructions that mariners must avoid. NOAA's hydrographic surveying program collects this critical data as mandated by the Coast and Geodetic Survey Act of 1947 and the Hydrographic Services Improvement Act of 1998/2002. In recent years, budget requests and appropriations have been very supportive of this data collection effort. But the increase in data collection, when combined with current advances in sonar survey technology, has resulted in an overwhelming volume of data coming into NOAA's hydrographic data processing branches. In addition the hydrographic program now receives additional data from an increasing number of NOAA ships equipped with multibeam sonars, as well as data collected by other agencies such as the U.S. Navy. The sharing and multipurpose use of this third-party data capitalizes on other federal investments, and supports the U.S. Ocean Action Plan's focus on Integrated Ocean and Coastal Mapping (IOCM). However, the imbalance between collection and processing capacity is causing a backlog of hydrographic data that NOAA must address quickly in order to deliver updated nautical charts to the mariners navigating on U.S. waters. Without the requested increase, the time it takes for data to reach the mariner will increase rather than decrease as data loads continue to grow and eventually overwhelm the aging systems currently in place.

Hydrographic data in support of nautical charting is submitted to either the Atlantic Hydrographic Branch (AHB) in Norfolk, VA, or the Pacific Hydrographic Branch (PHB) in Seattle, WA. PHB's tape drive library system is no longer supported by the manufacturer. AHB's system is reaching the end of its useful life expectancy. A full tape backup of either system takes between 20 and 30 hours to complete. Further, the current systems do not have the capacity to store all unprocessed data from coastal surveys. Data is initially placed on the system for quality control and assurance, then removed from the system and stored on tape, where it is subject to possible damage or loss, for over a year at this time. Finally, data is transferred between the hydrographic branches, to headquarters, and to the backup facility on tape via Fedex. Damage or loss of a single data set would result in the waste of an entire survey mission, the cost of which is generally between \$500,000 and \$1 million.

### **Proposed Actions**

To address these issues, NOAA must modernize its hydrographic data storing, archiving and recovery IT systems in order to quickly, reliably and efficiently process the data and move it to the charting units to produce navigation products in a timely manner. The requested funds will allow NOAA to begin overhauling the storage and communications capacity of NOAA survey platforms and the processing branches to improve reliability and accommodate the expected increases in data volume in a robust way by:

- Acquiring the necessary communication bandwidth sufficient to mirror collected and processed data for all collection and processing points.
- Establishing and maintaining a central data repository with sufficient space to store, archive and meet Continuity of Operations (COOP) requirements at NOAA's National Geophysical Data Center in Boulder, Colorado.
- Transferring data currently stored on tape that can degrade and corrupt to the new archive system and phasing out long term tape storage.
- Implementing continual upgrades to data storage, software and maintenance at the processing branches and on NOAA hydrographic platforms.

### **Benefits**

This increase will provide secure data storage and transfer, avoiding the potential loss of critical data, the loss of time in warning mariners of critical changes to charts, and the waste of resources on a survey mission whose data was lost or corrupted. Further, this increase is a part of a larger effort in NOAA to reduce the overall "ping to chart" timeframe, an agency goal as well as an Office of Management and Budget PART recommendation. NOAA anticipates that it can accomplish many of the process improvements necessary to reduce the time from 16 months to 90 days within current resources, but the nature of this improvement requires additional funds. Ultimately, this increase request will enhance NOAA's ability to deliver accurate and timely navigation information in support of safe and efficient marine transportation, which was considered to be the highest priority by MTS stakeholders in the 1999 "Assessment of the Marine Transportation System" Report to Congress. Upgrading the IT infrastructure that moves hydrographic data from collection through processing will help to ensure that all NOAA survey data is available and recoverable in a timely manner and that the data systems comply with Department of Commerce and Administration IT security directives. In addition, it will allow quick recovery of data during an emergency, supporting COOP activities and restoration of critical functions. Finally, it expands the capacity of the program to manage the ever-growing data sets coming into NOAA from hydrographic surveying and IOCM efforts, supporting both IOCM uses of the data and the program's top priority of navigation safety.

### Performance Goals and Measurement Data

This increase will support the objective, “Support safe, efficient, and environmentally sound commercial transportation” under the Department of Commerce strategic goal to “Promote environmental stewardship” This increase also supports NOAA’s Commerce and Transportation Performance Objective to “Enhance navigational safety and efficiency by improving information products and services” and the following performance measure:

<b>Performance Goal: Commerce and Transportation</b> <b>Performance Measure:</b> Reduce Ping to Chart timeframe (470 days in 2004)	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase (reflects improvements made throughout the process)	420	400	410	410	410	410
With Increase (reflects combined effect of all improvements)	--	--	380	350	310	260
<b>Description:</b> NOAA collects hydrographic data much faster than it can process and compile into navigation products. And NOAA currently lacks capacity in data storage/processing to move this data through the pipeline causing a significant delay in “ping to chart” timeframe (or data collection to dissemination). NOAA plans to establish and maintain a central data repository with sufficient space to store, archive and meet Continuity of Operations requirements. This measure tracks performance expected to improve NOAA’s contributions to increased efficiency through ping to chart streamlining.						

**Mapping and Charting Base - Autonomous Underwater Vehicles (0 FTE and +\$700,000):** NOAA requests an increase of \$700,000 to integrate new technology into its ocean surveying and mapping efforts for more cost-effective, multi-mission operations. NOAA will incorporate hydrographic sensors on Autonomous Underwater Vehicles (AUVs) to maximize survey platform capacity and hydrographic survey data collection. The proposed area of investment contributes significantly to NOAA’s efforts to: build an Integrated Ocean Observing System (IOOS); respond to the U.S. Ocean Commission’s recommendations on sustaining IOOS, modernizing ocean data and information systems, and supporting marine commerce and transportation; and implement the Administration’s Ocean Action Plan with respect to IOOS and Integrated Ocean and Coastal Mapping (IOCM).

### Statement of Need

One of NOAA’s primary missions is to deliver accurate nautical charts and related hydrographic information into the hands of mariners navigating on U.S. waters. NOAA’s navigation products and services are designed to support safe marine transportation and efficient movement of commerce. As the Nation’s dependence on the Marine Transportation System (MTS) grows with the impending doubling of container trade by 2020, it is crucial for mariners to know where and when changes occur in our ports, harbors, and waterways to help prevent accidents and groundings. Reducing these risks to lives, cargo and the environment will be achieved, in part, by improving the quality, quantity, and timeliness of navigation information that NOAA provides to the Nation.

NOAA is responsible for surveying the 3.4 million square nautical miles of the U.S. Exclusive Economic Zone (EEZ). NOAA has evaluated the EEZ to determine which areas truly are navigationally significant, and of these, which are the top priority for survey. At present survey capacity, it will

take over 12 years to survey the most critical areas. Incorporating AUVs into NOAA survey operations will expand the capacity of NOAA's existing platforms to collect more data on each survey project in less time.

### **Proposed Actions**

The requested funds will improve navigation safety by enabling NOAA to continue its transition of AUV technology from research to efficient operations. NOAA has demonstrated the effectiveness of AUVs equipped with side scan sonar to extend its capabilities to detect underwater obstructions. An AUV has been successfully deployed in rapid response environmental and navigation safety exercise, for routine surveys aboard a NOAA vessel, and has been used to detect potential unexploded ordnance in a protected marine environment. Side scan sonar AUVs are ready for operational deployment to support NOAA missions.

Also in FY 2008, NOAA will take delivery of an AUV funded through a partnership with the Defense Department's Technology Support Working Group (TSWG). The goal of the TSWG partnership is to demonstrate AUVs for port security surveys, which is a complementary task to NOAA's nautical charting mission and requires identical operation capabilities. This AUV will be delivered with side scan sonar, but the AUV's modular design and the advancement of sensor technology means that it could support a Phase Differencing Bathymetric Sonar which is capable of providing bathymetric measurements, as well as object detection. This means that an AUV could have the same data acquisition capabilities as a standard survey launch. This will significantly increase the effectiveness of AUVs as hydrographic survey tools. This increase will provide for the purchase, integration, and certification of a Phase Differencing Bathymetric Sonar in the TSWG AUV, as well preparation of the support infrastructure aboard a host hydrographic survey vessel.

### **Benefits**

The primary function of NOAA's hydrographic data is to support safe and efficient marine navigation, but it also supports multiple NOAA missions and applications, and provides basic data for engineering, scientific and other commercial and industrial activities. The integration of AUVs into NOAA's current hydrographic survey operations offers the following potential gains:

- In a one-to-one comparison with a NOAA hydrographic survey launch, the AUV will conservatively increase launch performance by 25%. Survey coverage will be increased by approximately 50 square nautical miles per year per AUV. When fully incorporated into NOAA's survey fleet, the relatively low additional operating cost of AUVs will substantially decrease the overall cost per square nautical mile over time of surveying the navigationally significant areas in U.S. waters.
- More effective deployment of personnel and fleet resources to survey complicated inshore areas while AUVs survey relatively simple regions in open water.
- Increased survey operation hours - because AUVs operate while submerged, they are able to acquire more high-quality data under a wider range of weather conditions than surface vessels, therefore leading to less surveying "down-time."
- Greater accuracy and efficiency in ship-based multibeam surveying by using AUVs to automate water column sampling for data validation.

### Performance Goals and Measurement Data

This increase will support the objectives, “Support the Nation’s commerce with information for safe, efficient, and environmentally sound transportation” and “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental needs.”

<b>Performance Goal:</b> Commerce and Transportation <b>Performance Measure:</b> Reduce the hydrographic survey backlog within navigationally significant areas (snm per year)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Without Increase	3198	2500	3000	3100	3700	3700
With Increase	N/A	N/A	3050	3200	3850	3900
<b>Description:</b> NOAA conducts hydrographic surveys to determine the depths and configurations of the bottoms of water bodies, primarily for U.S. waters significant for navigation. This activity includes the detection, location, and identification of wrecks and obstructions with side scan and multi-beam sonar technology and the Global Positioning System (GPS). NOAA uses the data to produce traditional paper, raster, and electronic navigational charts for safe and efficient navigation. In addition to the commercial shipping industry, other user communities that benefit include recreational boaters, the commercial fishing industry, port authorities, coastal zone managers, and emergency response planners.						

**Mapping and Charting Base (0 FTE and +\$7,175,000):** An increase of \$7,175,000, for a total of \$94,788,000, is requested to for the following projects: Mapping and Charting Base (+\$386,000); Hydrographic Research & Technology Development (+\$177,000); Shoreline Mapping (+\$58,000); Electronic Navigational Charts (+\$1,736,000); Address Survey Backlog (+\$4,818,000). This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

### TERMINATIONS FOR 2009:

The following programs have been terminated in FY 2009: Dune System Assessment and Shoreline Change Analysis (\$868,000).



## **Subactivity: Navigation Services**

### **Line Item: Geodesy**

#### **GOAL STATEMENT:**

Within the United States and its territories, anyone should be able to obtain centimeter level accuracy in positions (latitude, longitude, and height) anywhere, anyplace, anytime.

#### **BASE DESCRIPTION:**

The mission of the NOAA Geodesy Program is to evolve and deliver the Nation's foundation of reference for positioning activities to support public safety, economic prosperity, and environmental well being. NOAA's Geodesy Program is carried out by the National Geodetic Survey (NGS), which manages the National Spatial Reference System (NSRS) – the national coordinate system that specifies latitude, longitude, height, scale, gravity, and orientation throughout the Nation. NSRS must continually evolve to meet the growing demand for more accurate, timely, and consistent positioning services. The Geodesy Line Item can be grouped into five major overlapping program elements: Permanent Network infrastructure, Continuously Operating Reference Stations (CORS) support, Height Modernization, Data Access and Outreach, and Tool and Model Development. Each program element within the Geodesy Line directly supports NOAA's Commerce and Transportation Goal.

Base activities support the objective, "Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

#### **PERMANENT NETWORK**

A major component of NSRS is a network of permanently marked points including the Federal Base Network (FBN), the Cooperative Base Network, and the User Densification Network. These networks form a crucial foundation for all geographically referenced activities conducted in the United States.

NOAA's primary network responsibility is the development of the national geodetic framework, the FBN. NOAA is committed to establishing, observing, monitoring, and maintaining a very high-accuracy, four-dimensional network of monumented stations at a 1 degree by 1 degree (75 km to 125 km) nominal spacing throughout the U.S. and its territories. The network contains additional stations as needed in areas of crustal motion in support of Federal aircraft navigational requirements. The goal of the FBN is to supply the highest level accuracies of geodetic latitudes, longitudes, and heights to benefit all users of positioning services.

#### **NATIONAL CORS**

NOAA collects and distributes GPS observational data from a nationwide network of permanently operating GPS receivers. The CORS System, consisting of these stations, a central data facility and a mirror-site in Boulder, CO, make observational data available over the Internet from the network presently consisting of over 1,100 GPS receivers, with 100 percent of the conterminous U.S. being within 200 km of at least one CORS. The primary objective of National CORS is to provide local users with ties to the NSRS for post-processing position determination. CORS stations have been

positioned, three dimensionally, at the 1-to 3-centimeter level (1/2 to 1 1/2 inches), and are used to greatly improve the accuracy of users' GPS positioning activities through the use of Differential GPS (DGPS) techniques. National CORS primarily serves the surveying, civil engineering, and geographic information system communities for locating, building, monitoring, and maintaining the Nation's physical infrastructure in support of the broader national economy.

The U.S. Department of Homeland Security operates the Coast Guard Maritime DGPS and the Nationwide DGPS. Both systems are used for transportation and navigation and both systems are incorporated into the National CORS network. NOAA, through National CORS, provides the integrity monitoring for these systems, helping to ensure their reliability for real-time transportation applications.

### **HEIGHT MODERNIZATION**

Height Modernization is an NGS-led effort to enhance the vertical aspect of NSRS through the establishment of accurate, reliable heights using GPS technology in conjunction with traditional leveling, gravity work, and remote sensing information. Height Modernization will provide better access to accurate and consistent height data at the local level. Applications that benefit from this effort include:

- Sea level rise monitoring,
- Coastal erosion monitoring,
- Floodplain mapping,
- Storm surge modeling,
- Subsidence and uplift monitoring,
- Surveying and mapping,
- Pollution trajectory modeling,
- Navigation: under-keel and under-bridge clearance,
- Precision agriculture,
- Structural monitoring: bridges, dams, and buildings,
- Intelligent transportation systems.

NOAA administers the National Height Modernization program through four cornerstone states: California, Wisconsin, Louisiana, and North Carolina (partnering with South Carolina). Other regional leaders, such as Spatial Reference Centers (SRC) in California, Washington, Louisiana, and Texas, have been established and are working extensively with the communities in their regions. SRCs serve geographic zones with common geodetic issues, and provide a program management structure that optimizes the resources, technology, and benefits among states. These states and SRCs are critical for efficiently implementing the National Height Modernization Program.

To fully expand Height Modernization nationwide is an enormous undertaking that will take many years. The task cannot be carried out entirely by the Federal Government. NOAA has been implementing Height Modernization since 1999 through collaboration with state governments, local partners, the



private sector, and other federal agencies. NOAA has determined that rather than implementing Height Modernization on a state-by-state basis, a regional approach is preferable for a number of reasons. Many of the elevation issues addressed by Height Modernization are regional in nature. Issues such as coastal and riverine flooding in the Mid-Atlantic, tectonic movement along the West Coast, post-glacial rebound and improved efficiencies of intermodal transportation in the Great Lakes, and subsidence along the Gulf of Mexico, reach across state boundaries to affect entire geographical regions. A regional approach to National Height Modernization is also a more efficient use of both NOAA and partner funds and workforce.

#### **NSRS TOOLS AND MODELS**

NOAA's NGS develops standards, specifications, guidelines, and best practices for the surveying and positioning industry, as well as a variety of models describing geophysical and atmospheric phenomena that affect spatial measurements. These tools and models are crucial to scientific and commercial positioning activities.

#### **NSRS DATA ACCESS AND OUTREACH**

NOAA's NGS archives and provides access to geodetic control, shoreline, and aeronautical survey data from its own surveys and from cooperating organizations. These data are made available via the Internet on a full time basis. As part of its technology transfer efforts, NGS conducts a series of workshops and constituent forums in various parts of the country. NGS also manages the State Geodetic Advisor Program, which is a cost-sharing program that provides a liaison between NOAA and the host state to guide and assist the state's geodetic and surveying programs. This program covers over half the states, and responds to the states' desire to improve their surveying techniques to meet Federal standards and specifications.

#### **PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize the Hydrographic Services Improvement Act.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Navigation Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Geodesy					
Geodesy Base	29,374	21,707	22,328	22,860	532
National Height Modernization	-	4,995	2,541	2,541	-
Height Modernization Regional Expansion - NGS Implementation	2,530	-	-	-	-
Geospatial Data Analysis Center, AL	-	423	-	-	-
Geodetic Survey - KY	-	376	-	-	-
Geodesy Height Modernization	-	353	-	-	-
Alabama Statewide GIS Mapping Program	-	422	-	-	-
Coastal & Ocean Navigation & Hazards Assist - SC	-	188	-	-	-
<b>TOTAL</b>	<b>31,904</b>	<b>28,464</b>	<b>24,869</b>	<b>25,401</b>	<b>532</b>
FTE	139	183	183	183	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Geodesy (0 FTE and +\$532,000):** An increase of \$532,000, for a total of \$25,401,000, is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR 2009:**

The following programs have been terminated in FY 2009: National Height Modernization (\$2,454,000); Geodetic Survey – KY (\$376,000); Geodesy/Height Modernization – IL (\$353,000); Geospatial Data Analysis Center, AL (\$423,000); Alabama Statewide GIS mapping program, (\$422,000); Coastal and ocean navigation and hazards assistance, SC (\$188,000).

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**Subactivity: Navigation Services**  
**Line Item: Tide & Current Data**

**GOAL STATEMENT:**

Provide the navigation community, first responders and others with access to real-time data and predictions of current speed and direction, water levels, and meteorological data (wind speed and direction, gusts, barometric pressure, etc.) to enable safer and more efficient vessel routing, flood warnings, emergency response operations to spills of hazardous materials, homeland security, and for real-time control of harbor maintenance dredging.

**BASE DESCRIPTION:**

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 Act of August 6, 1947 (61 STAT, 787, 33 U.S.C. §§ 883 a-f) authorizes collection and dissemination of water level data; Section 883a authorizes NOAA to conduct "Hydrographic ... tide and current observations;" Section 883b authorizes NOAA "to analyze and predict tide and current data, and process and publish data, information, compilations, and reports." The TCDP is operated by NOS' Center for Operational Oceanographic Products and Services (CO-OPS). Observations and predictions of water levels and currents are collected and distributed to the marine transportation community and other users. The Tide and Current Data Line Item is composed of four primary program elements, each of which contributes to NOAA's Commerce and Transportation Goal and Weather and Water Goal.

Base activities support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

**NATIONAL WATER LEVEL PROGRAM**

CO-OPS operates and maintains the National Water Level Observation Network (NWLON), a system of over 200 observation stations located in U.S. coastal areas, the Great Lakes, and U.S. Territories and possessions. Information from the NWLON ranges from the high frequency content in the record (tsunamis and storm surge) to the long-term content (sea level trends and lake level trends). It provides vertical reference datums for all marine boundary applications, for national shoreline and nautical chart products, for coastal construction, dredging, for habitat restoration projects and for hurricane evacuation route planning. The NWLON system provides a nation-wide capability for storm surge monitoring, and serves as an observing system for the Tsunami Warning System. Some of these observations have been ongoing for more than 150 years, representing some of the longest geophysical records in the U.S. The data are becoming increasingly valuable to climate change researchers.

CO-OPS performs quality assurance procedures on the data from NWLON stations, computes tidal and Great Lakes datums and predicts tides and tidal currents for all U.S. coastal areas. NWLON is a critical underpinning for tools such as the Physical Oceanographic Real-Time System (PORTS<sup>®</sup>) and also serves as a federal backbone for the Integrated Ocean Observation System. Data collected by the NWLON supports all four of NOAA's Strategic Mission Goals.

### **NATIONAL CURRENT PROGRAM**

NOAA and its predecessor agencies have been collecting information on the currents in various ports and harbors, and the Gulf Stream, since the mid 1800's. The Coast and Geodetic Survey first published tidal current predictions for the use by mariners in 1890 for the East Coast and 1898 for the West Coast. The program is presently operated by NOAA's Center for Operational Oceanographic Products and Services. 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<sup>®</sup>)**

Physical Oceanographic Real Time Systems (PORTS<sup>®</sup>) 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<sup>®</sup> 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<sup>®</sup> is a cost-sharing program requiring local partners to bear the cost of installation, operation and maintenance of the sensor systems. This recognizes the local benefits of such systems. NOAA's responsibility is to provide the technical expertise required to design the systems and provide ongoing management of the data. Fourteen PORTS<sup>®</sup> (Tampa, New York, San Francisco, Narragansett Bay, Chesapeake Bay, Anchorage, Soo Locks (MI), Los Angeles/Long Beach, Delaware Bay, Houston/Galveston, Tacoma, New Haven, Columbia River, and Mobile Bay) are currently operating around the U.S. These PORTS<sup>®</sup> service 40 U.S. seaports through which 44 percent of U.S. cargo by tonnage transits on an annual basis. PORTS<sup>®</sup> information is used by mariners, port authorities, and the shipping industry to support safe and efficient navigation. Access to accurate real-time water level data and model forecast guidance allows U.S. port authorities and maritime shippers to make sound decisions regarding maximizing tonnage (based on available bottom clearance), and limiting passage times, without compromising safety.

### **OPERATIONAL FORECAST MODELS PROGRAM**

CO-OPS also operates nowcast and forecast models, typically in conjunction with PORTS<sup>®</sup> 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.



Historically, mariners in the United States have had only NOAA's Tide Tables to depend on for the best estimate of expected water levels and currents at a given time in the future. While these tables provide accurate predictions of the astronomic tide, they do not account for a number of other physical factors that can affect water levels, such as wind, air pressure, and river flow. NOAA has developed and is currently operating three-dimensional hydrodynamic models which take such variables into account, and are able to forecast water levels and currents accurately up to 24-30 hours in advance. Operational Forecast Systems currently exist for the Chesapeake Bay, the Port of New York / New Jersey, Houston/Galveston, St. Johns River, and the five Great Lakes. NOAA's models of oceanographic and atmospheric conditions, which are provided through PORTS<sup>®</sup>, provide crucial advance data for re-routing of vessel traffic, port conditions forecasts, and low visibility navigation to keep traffic moving and prevent congestion or delays in other less affected areas. Marine modeling also supports emergency response to hazardous material spills through predictions of the oceanic and atmospheric dispersion of spilled substances.

**PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize the Hydrographic Services Improvement Act.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Navigation Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Tide & Current Data					
Tide & Current Data Base	24,780	26,142	26,642	28,837	2,195
Alaska Current & Tide Data	-	1,315	-	-	-
TOTAL	24,780	27,457	26,642	28,837	2,195
FTE	105	107	107	108	1

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Tide and Current Data (1 FTE and +\$2,000,000):** NOAA requests an increase of 2,000,000 and 1 FTE to improve and expand the delivery of real time and forecasted navigation information through the PORTS<sup>®</sup> and Operational Forecast Model Programs. Accurate, reliable, and timely information is critical to ensure that marine transportation at U.S. ports is safe and efficient, thus enhancing commerce and economic growth, and protecting the environment from marine accidents that can spill hazardous materials and cause other damage. The Physical Oceanographic Real Time System (PORTS<sup>®</sup>) Program is a cost shared partnership program that provides US Marine Transportation System (MTS) users with access to quality controlled real time oceanographic and meteorological data critical for safe and efficient navigation. PORTS<sup>®</sup> is a decision support tool that integrates and disseminates real-time environmental observations, forecasts and other geospatial information. Coupling PORTS<sup>®</sup> data to a nowcast/forecast model that projects accurate environmental forecasts 24-30 hours into the future significantly expands the window of time that a user has accurate information upon which to make important safety and efficiency decisions.

This investment is one of the high priority investments required for NOAA's implementation of the Integrated Ocean Observing System (IOOS) as the coastal and open ocean component of the Global Earth Observing System of Systems (GEOSS). Combined with other like-identified IOOS investments across NOAA, it is part of NOAA's strategy to provide initial benefits of an integrated ocean observing system, focusing on enhancing key observational capabilities throughout NOAA, and the ability to provide customers with enhanced coastal data and information.

**Statement of Need**

The US Coast and Geodetic Survey Act of 1947 mandates that NOAA collect tide and current data to support safe and efficient marine navigation. The 1999 Assessment of the Marine Transportation System report provided to Congress by the interagency Marine Transportation System Task Force noted that the highest priority for MTS stakeholders was the need for accurate, reliable, and timely navigation information. NOAA's Hydrographic Services Review Panel, an advisory committee, has identified the national implementation of PORTS<sup>®</sup>, coupled with forecast models, as a high priority for NOAA. The Hydrographic Services Improvement Act Amendments of 2002 provided that NOAA "shall, subject to the availability of appropriations, design, install, maintain, and operate real-time hydrographic monitoring systems to enhance navigation safety and efficiency." The Nation's commerce, which passes through our seaports, is an economic lifeline of our country. More than 95 percent of U.S. overseas trade by volume and 37 percent by value, including nine million barrels of imported oil daily, passes through our seaports. Over 99 percent of the over 2.3 billion tons passes through the top 175 (out of almost 300) U.S. seaports. Increasingly, U.S. seaports are becoming chokepoints in our Nation's intermodal transportation system. Mariners need decision support tools that provide them with a complete understanding of the physical environment in which they operate. Accurate real time data and short term (up to 30 hours) operational forecasts of water levels, currents and other critical oceanographic parameters provide the environmental data required for informed decision making regarding safety and efficiency of marine transportation and saving lives, property and environmental resources.

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<sup>®</sup> 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 users. Access to accurate real-time and forecasted water level data allows U.S. port authorities and maritime shippers to make

sound decisions regarding vessel safety, maximize tonnage (based on available bottom clearance), and limit passage times, without compromising safety. NOAA's partners fund the installation and the local operation and maintenance costs for PORTS<sup>®</sup>. NOAA's responsibilities are to provide the technical expertise required to design, implement and maintain PORTS<sup>®</sup>, manage contracts to establish and maintain PORTS<sup>®</sup>, establish national standards, perform 24x7 quality control of the real time data, operate the data management system, conduct the research and development needed to infuse new technology into PORTS<sup>®</sup> and disseminate the data via a variety of media such as the internet, voice modem, and operational forecast models. By FY 2009 NOAA's capacity to support the establishment and maintenance of additional PORTS<sup>®</sup> will have been reached at approximately 50 seaports, depending on the size and complexity of each seaport. NOAA's capacity to implement operational forecast models has already been reached at the existing 9 locations. The increase will enable NOAA to continue expanding the cost shared PORTS<sup>®</sup> partnership by approximately 50 additional U.S. seaports over a 5 year time frame and as well as fully leverage the value of the real time data by implementing operational forecast models that project accurate environmental forecasts 24-30 hours into the future and significantly expand the window of time that a user has accurate information upon which to make important safety and efficiency decisions.

### **Proposed Actions**

To support the further expansion of PORTS<sup>®</sup>, NOAA will support its ability to work with an expanding circle of partners, to quality control and manage the increasing volume of continuous real time data collected by PORTS<sup>®</sup> instruments and sensors, to ensure that sensor performance issues are promptly analyzed and corrective actions implemented to minimize sensor down times, to operate additional nowcast/forecast models, and provide adequate customer outreach, onsite management and product feedback. With the requested increase, NOAA will:

- Strengthen development and technical oversight capacity (\$750,000 for contract support). The PORTS<sup>®</sup> system expansion requires the delivery of suitable and equitable forecast models for each location. Five contractors and contract services are required to develop, monitor, trouble shoot, and enhance additional operational forecast models that are brought on line. In addition, these personnel will support the transition of community models from the research sector into NOS operations. NOS will evaluate and develop models with external partners, and work to deliver this operational forecast capability to all PORTS<sup>®</sup>.
- Strengthen operational oversight (\$400,000 for 1 FTE and 3 contractors). One FTE is required to manage the increased volume of agreements and contracts that are used to implement and maintain PORTS<sup>®</sup>. New agreements/contracts as well as ensuing amendments require a significant amount of time and attention to ensure the required administrative mechanisms are in place for NOAA to implement and support new PORTS<sup>®</sup>. One contractor is required to expand NOAA's ability to perform analysis of sensor issues flagged by NOAA's 24 by 7 Continuously Operational Real-time Monitoring System and implement solutions through contract or in-house mechanisms. Problems that may arise with PORTS<sup>®</sup> instruments must be quickly analyzed to determine the issue and identify required corrective actions to ensure that critical sensors are returned to service as soon as possible. Two contractors are required to maintain NOAA's ability to provide good customer service to its PORTS<sup>®</sup> partners through periodic training, product evaluation, feedback and improvement, and technology infusion.

- Strengthen data management (\$600,000 for 3 Information Technology (IT) contractors and 2 data processors): Three IT contractors are required to handle increased data management system requirements from an expanded PORTS<sup>®</sup> program. A database administrator is required to ensure accessibility, availability, and integrity of the growing volume of PORTS<sup>®</sup> data from within the data management system. Two software engineers are required to maintain and improve the real-time operational software products that exist and are being developed for PORTS<sup>®</sup> as well as strengthen the staff responsible for providing IT operational support for the PORTS<sup>®</sup> Quality Assurance/Quality Control Monitoring System. Two data processors are required to analyze data, compute tidal datums, and generate tide and tidal current predictions and other data processing activities associated with PORTS<sup>®</sup> broad suite of environmental sensors.
- Support increased communications costs, equipment, and supplies (\$250,000): Additional PORTS<sup>®</sup> require high speed internet lines to retrieve data, telephone lines as backup, and voice modem costs associated with data dissemination over cellular phones. Additional software licenses and servers are required to support the implementation of operational forecast models and PORTS<sup>®</sup> related IT applications. Travel is required to meet with prospective partners, conduct requirements assessments, perform site reconnaissance for design specifications, and provide contract oversight.

### **Benefits**

In a typical large port, the shipping and port industries alone may have an economic impact of approximately \$12 billion dollars to the local economy. The safe and efficient transit of the ever-larger and deeper draft vessels in our Nation's constricted ports and harbors relies on accurate and timely navigation tide and current data. Knowledge of accurate tides and currents can help vessels avoid groundings, collisions, and allisions with stationary objects such as bridges, rocks, docks, etc. The economic and environmental consequences of a marine accident, particularly when hazardous materials are spilled, can run into the millions or even billions of dollars as evidenced by the *Exxon Valdez*.

Accurate and timely navigation data can be used to increase the efficiency of ship transits, as well as reduce the risk of economic and environmental impacts. Accurate water levels can enable vessels to optimize how much cargo is loaded – or not loaded. The ability to load just one extra foot of cargo based on available depth can increase revenues ranging from the tens to the hundreds of thousands of dollars depending on the cargo and vessel size per transit. Alternatively, accurate water levels can allow the decision to be made to not load additional cargo and transit port on schedule. Moreover, many ships approach or even exceed the channel depths at low tide, thus must delay their transit until periods of higher predicted tides. Real time data, leveraged 30 hours into the future through forecast models, provide mariners with the situational awareness they need to make best decisions on safety and efficiency.

To help assess the economic benefits of PORTS<sup>®</sup> data and their coupled operational nowcast/forecast models, NOAA developed a value of information model that can be applied to existing or prospective PORTS<sup>®</sup>. To date, this model has been applied to two existing PORTS and is currently in progress at a third. In July of 2005, a report sponsored by the Tampa Bay Harbor Safety and Security Committee was published documenting realized quantifiable benefits from the Tampa Bay PORTS<sup>®</sup> to be in the range of \$4.4 to \$7 million annually. In addition, a 2007 report on the Houston Galveston Bay PORTS<sup>®</sup>

documents realized quantifiable benefits to be in the range of \$14 to \$18 million annually. In both cases, groundings declined by approximately 50% in the period of time after a PORTS<sup>®</sup> was established. The economic benefits of the New York/New Jersey PORTS<sup>®</sup> are currently being evaluated.

**Performance Goals and Measurement Data**

By enabling increased safety and efficiency of the U.S. marine transportation system, this increase will support the objective, “Support safe, efficient, and environmentally sound commercial navigation” under the Department of Commerce strategic goal of “Promote environmental stewardship.” This increase supports the Commerce and Transportation Performance Goal and the Performance objective “Enhance navigational safety and efficiency by improving information products and services” and the following performance measures.

<b>Performance Goal: Commerce and Transportation</b> <b>Performance Measure:</b> Number of top 175 seaports with access to Physical Oceanographic Real Time System information	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	50	50	50	50	50	50
With Increase	N/A	N/A	60	70	80	90
<b>Description:</b> This measure tracks performance to meet the mandate expressed in the US Coast and Geodetic Survey Act, which mandates NOAA collect tide and current data to support safe navigation. Physical Oceanographic Real Time System (PORTS <sup>®</sup> ) provides integrated, quality controlled, real time oceanographic and meteorological data. PORTS <sup>®</sup> provides significant annual economic benefits, \$7M for Tampa Bay PORTS <sup>®</sup> and \$18M for Houston Galveston PORTS <sup>®</sup> alone.						

<b>Performance Goal: Commerce and Transportation</b> <b>Performance Measure:</b> Increase number of operational coastal oceanographic forecast models (cumulative total)	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	9	9	9	9	9	9
With Increase	N/A	N/A	11	13	15	17
<b>Description:</b> This measure tracks performance to continue to improve safety through reduced groundings through better ocean and coastal modeling and increasing the number of operational forecast system models that leverages PORTS <sup>®</sup> real time data by providing accurate forecasts 30 hours into the future						

**Tide and Current Data (0 FTE and +\$195,000):** An increase of \$195,000, for a total of \$28,837,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008..



**TERMINATIONS FOR 2009:**

The following programs have been terminated in FY 2009: Tide and Current Data in Alaska (\$1,315,000).

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**Subactivity: Ocean Resources Conservation and Assessment**  
**Line Item: Ocean Assessment Program (OAP)**

**GOAL STATEMENT:**

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.

**BASE DESCRIPTION:**

Several NOS programs are located within the Ocean Assessment Program Line Item, including NOAA's Coastal Services Center, the NOAA Coral Reef Program, NOAA's Coastal Storms Program, the Cooperative Institute for Coastal and Estuarine Environmental Technology, NOAA's Integrated Ocean Observing System, and NOAA's Oceans and Human Health Initiative.

Base activities support the objective, "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management" and "Serve Society's needs for weather and water information" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

**COASTAL SERVICES CENTER**

The NOAA Coastal Services Center's (Center) mission is to build capacity for informed decision making about our coasts. The Center conducts its mission under several authorities, including 16 U.S.C. 1456c, which authorizes NOAA to provide coastal managers with technical assistance. The Center's primary customers are the Nation's coastal managers, including natural resource managers, planners, and emergency officials. Working with other NOAA programs, the Center provides services, products, and expertise to this community that would otherwise be unavailable or unaffordable. By doing so, the Center is effectively "buying down" the cost of improving state and local coastal management programs, thereby enabling more effective and targeted implementation of the Coastal Zone Management Act. Partnerships between the Center and state and local coastal management organizations and their partners give rise to more than 100 projects each year. These projects produce new tools and approaches that often are applied nationwide. The Center has developed a collaborative strategy, building effective working relationships not only across NOAA but also with other federal mission agencies.

In developing projects, the Center focuses on issues identified as important to the coastal resource management community—including hazards, habitat, the national spatial data infrastructure, coastal growth, and ocean and coastal observing systems. Customer requirements for programs and activities are determined through statutory guidance, direct interactions, needs assessments, surveys, evaluations, prototyping, CONOPS processes, competitive analysis, and partnering. Projects and activities must be 1) customer oriented; 2) focused on results; 3) undertaken in partnership; and 4) national in scope, yet local in approach. The Center is composed of employees from throughout the bureau, and the Center's annual operating plan is coordinated among all of NOAA's Line Offices. The Center's functional areas of expertise include coastal management; access to information and technology; data development,

integration and management; geographic information systems; remote sensing; technical assistance and training; and capacity building. The Center also leads the NOS-wide coordination of the Pacific Services Center in Hawaii, which brings NOS services to the State of Hawaii and other U.S. Pacific flag islands territories, and is deploying assets to other coastal areas to support and enhance NOAA's regional interactions and delivery of products and services. The Center also co-coordinates the Coastal Storms Program, a cross-NOAA Line Office effort, with the National Weather Service.

### **CORAL REEF PROGRAM**

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

Coral reefs are some of the most biologically rich and economically valuable ecosystems on Earth. These biologically complex ecosystems have great economic, social and cultural importance to the U.S. and other countries. They provide a wide variety of valuable products and services including:

- economic stability and food security for millions of people;
- significant sources of revenue and employment through tourism and other industries;
- environmental services such as shoreline protection and climate change mitigation;
- chemicals and pharmaceuticals that contribute to improved human health; and
- areas of natural beauty and biodiversity.

The global value of products and services from coral reef ecosystems has been estimated at over \$300 billion. Coral reef ecosystems and their products and services are now seriously threatened by a variety of human impacts and environmental factors. Key threats include: over-exploitation and destructive fishing practices; pollution and sedimentation associated with urban development, deforestation and agriculture; habitat loss resulting from dredging and shoreline modification; vessel groundings and other direct physical impacts; invasive species; disease outbreaks; and impacts associated with climate change such as coral bleaching.

### **COASTAL STORMS**

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 specific regions to address challenges unique to those regions. Efforts to integrate existing product service lines to meet unique needs are also included. Targeted geographies include the St. John's water management district in northeast Florida, the coastal portion of the Lower Columbia River watershed, and the Southern California Bight. The specific issues addressed are determined by regional needs as articulated by

users. Commonalities are emerging in observations, modeling, outreach, risk and vulnerability, and decision-maker needs assessments among pilot regions.

### **INTEGRATED OCEAN OBSERVING SYSTEM**

NOAA has begun the implementation of data management and communications (DMAC) to build an initial operating capability for the Integrated Ocean Observing System (IOOS). NOAA has developed a data integration framework that enables integration of core variables. Integrated data has the potential to expedite new product development and improve model accuracy for a suite of existing NOAA products and services including, but not limited to, hurricane intensity models, harmful algal bloom (HAB) forecasts, integrated ecosystem assessments, and coastal inundation models. NOAA is also working to develop the regional component of IOOS, which complements Federal ocean observing assets by providing additional data, models, and information products tailored to the economic and environmental requirements of the community. Integrating Federal and regional observing system assets will improve our understanding, forecasting, stewardship, and use of coastal waters. Ultimately an integrated approach will allow optimization of observing system investments and provide a consistent capability for all users.

### **GULF OF MEXICO REGIONAL COLLABORATION**

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

### **OCEANS AND HUMAN HEALTH**

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 conduct and coordinate research, outreach, education, and data management programs across NOAA and with a host of external partners. NOAA also supports traineeship activities to build a network of scientists skilled in working at the interface of ocean biomedical and public health disciplines.

### **PROPOSED LEGISLATION:**

NOAA will work with Congress to reauthorize the Coral Reef Conservation Act.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Ocean Resources Conservation and Assessment	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Ocean Assessment Program (OAP)					
Ocean Research Priorities Plan Implementation	-	-	-	10,000	10,000
IOOS Regional Observations	-	-	11,555	14,555	3,000
Gulf of Mexico Regional Collaboration	-	4,875	4,880	5,000	120
Integrated Ocean Observing System	-	26,334	-	-	-
NOAA IOOS	24,923	-	2,500	6,500	4,000
Regional Geospatial Modeling Grants	-	7,992	-	-	-
Alliance for Coastal Technologies	-	939	-	-	-
Coastal Storms	1,233	1,463	1,464	2,874	1,410
Coastal Services Center	20,374	23,402	20,254	20,254	-
Pacific Coastal Services Center	4,438	-	-	-	-
CREST	-	1,516	-	-	-
NERRS Research (formerly Coop Institute for Coastal and Estuarine Enviro Tech)	-	6,496	6,496	0	(6,496)
Coral Reef Program	26,840	29,254	25,897	25,897	-
Ocean Health Initiative	3,844	2,925	1,000	1,000	-
Lake Erie Monitoring	-	353	-	-	-
Louisiana Environmental Research Center	-	353	-	-	-
<b>TOTAL</b>	<b>81,652</b>	<b>105,902</b>	<b>74,046</b>	<b>86,080</b>	<b>12,034</b>
FTE	103	65	68	69	1

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Integrated Ocean Observing System (0 FTE and +\$4,000,000):** NOAA requests an increase of \$4,000,000 to further the implementation of the Integrated Ocean Observing System (IOOS). IOOS is a coordinated national and international network of observations and data transmission, data management and communications (DMAC), and data analyses and modeling that systematically and efficiently acquires and disseminates data and information on past, present and future states of the oceans and U.S. coastal waters. Of the requested amount, \$3,000,000 supports a national technical capability within NOAA and \$1,000,000 supports a data assembly center at the National Data Buoy Center (NDBC). This investment supports national leadership for IOOS; and sustains integration of physical oceanographic and marine meteorological data from NOAA and other observing platforms.

**Statement of Need**

National implementation of IOOS requires NOAA to provide leadership in implementing the President's Ocean Action Plan, assist in the execution of the NOAA elements of Global Earth Observing System of Systems (GEOSS), and deliver on NOAA's commitment to the First U.S. IOOS Development Plan recommendations. Effective leadership is an essential requirement for IOOS because its implementation requires intensive coordination and cooperation among existing ocean observing activities and capabilities at the federal and regional levels, including the publication and adoption of standards necessary to operate IOOS both within a national and global framework. To this end, NOAA will continue to build a dedicated IOOS Program with technical capability to serve as the hub for coordinating and integrating IOOS activities across NOAA and among Federal agencies, regions, and States. The NOAA IOOS Program is working to 1) establish the national structure for the adoption of standards necessary to operate IOOS both within the National and International Framework, 2) bring the capacity of the regional components and the Federal components into an operational status, and 3) assess the operational gaps and ensure regional IOOS components develop regional system design plans.

**Proposed Actions**

With the requested funds, NOAA will lead Federal efforts to publish, adopt, and implement standards for the twenty IOOS core variables by working through the interagency working group on ocean observations (IWGOO), which is subordinate to the National Science and Technology Council Joint Subcommittee on Ocean Science and Technology (JSOST). The goal is for NOAA and its federal and non-federal partners to use the same standards for the 20 core IOOS variables. With the requested funds, the NOAA will work to ensure full implementation of the standards by NOAA observing assets, and to extend implementation to regional observing systems as feasible. The process will require a sequence of deliberative steps to evaluate existing standards and procedures, to identify and develop adaptations needed to address weaknesses relative to the data interoperability requirements, to publish the resulting standards for public review and comment, to refine and adopt the standards based on the public comments, and to support their use in operating organizations by providing technical training resources.

The implementation of IOOS standards by data providers and consumers (i.e., models and decision support tools) will enable increased timeliness and utility of critical data sets to meet defined end user needs. Consistent with application areas highlighted as IWGOO priorities, the NOAA

IOOS Program will make these data available to improve performance of Harmful Algal Bloom forecasts and Integrated Ecosystem Assessments, two applications with significant health and economic impact. The Program will also support monitoring and prediction of the coastal inundation through improved water level predictions and increased data availability, particularly for wind, water level, and, potentially, waves. These actions will be conducted in partnership with a wide range of NOAA and other federal organizations, as well as the IOOS regional component. NOAA IOOS Program and partners will also deliver national surface water current data and predictions from coastal high frequency radar measurements.

Through the National Data Buoy Center in Stennis, Mississippi, NOAA has pioneered the 24 hour a day/7 days a week delivery of quality controlled real-time data to create a more highly resolved “picture” of available in situ coastal conditions and provide the initial quality control checks of this data before delivering to the Global Telecommunications System (GTS). The pilot effort has demonstrated the ability to deliver 2.5 million quality controlled real-time observations per year from regional IOOS components. With the requested increase, NOAA will transition this capability to operational status and maintain the existing data delivery capability. The requested funding will be used to purchase contract support for data processing and QA/QC support.

### **Benefits**

Investment in leadership of IOOS is essential to achieving a coordinated, effective national IOOS at the federal and regional level. Publication and adoption of data standards and their implementation are key to realizing benefits of the nation’s ocean observing capacities. Interoperable ocean data sets have the potential to stimulate private sector investments in the development of new commercial products and services as has been done by the private sector for weather using federally funded meteorology data. Additionally, integrated data has the potential to expedite new product development and improve model accuracy for a suite of existing NOAA products and services including, but not limited to, hurricane intensity models, harmful algal bloom (HAB) forecasts, integrated ecosystem assessments, and coastal inundation models. Improved surface current measurements and predictions enhance safe maritime operations, improve search and rescue, and increase effectiveness of hazardous material spill response. Modernizing the IOOS data integration framework will support NOAA’s regional collaboration approach and improve community resilience.

Investment in the Data Assembly Center (DAC) provides capacity to process and make ocean observations from NOAA and non-NOAA observing systems widely available. Raw observations are translated through the application of national standards and protocols into “verified data”, which is structured for ingest into Advanced Weather Interactive Processing System (AWIPS), National Centers for Environmental Prediction (NCEP), Coast Survey Development Laboratory, other NOAA operational decision support systems, as well as the Web and the GTS for international, national, and local dissemination. Once mature, the DAC will include data from the National Water Level Observation Network, the strengthened US Tsunami Warning Program buoys, the Pacific and Atlantic Tropical Atmosphere Ocean (TAO) and Pilot Research Moored Array in the Atlantic (PIRATA) buoys, Argo floats and the Voluntary Observing Ship Program. Additionally, this DAC capability enables NOAA to capture and incorporate observations produced from the IOOS Regional Associations (RA) and private industry into NOAA operational data streams, while providing RAs with a common foundation for assembly and quality control. Data processed through the DAC produce direct improvements in National Weather Service marine forecaster “skill”, NCEP Ocean and Wave modeling capability, and the inclusion of significant wave height as a forecast parameter in the National Digital Forecast Database.

### Performance Goals and Measurement Data

This increase will support all objectives under the Department of Commerce strategic goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.”

<b>Performance Goal: All Goals Performance Measure:</b> Number of data standards published for core variables (80 total)	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	4	12	12	12	12	12
With Increase	0	0	20	28	36	44
<b>Description:</b> NOAA will continue to build programmatic leadership through a dedicated NOAA IOOS Program with technical capability to serve as the hub for coordinating and integrating IOOS activities across NOAA and among Federal agencies, regions, and States. NOAA will track its publishing of data standards for IOOS core variables.						

<b>Performance Goal: All Goals</b> Performance Measure: Number of IOOS real-time observations from regional components distributed to NOAA operational Centers. (number of observations per year); unit is millions	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	2.5	2.5	0	0	0	0
With Increase	N/A	N/A	2.5	2.5	2.5	2.5
<b>Description:</b> Effective implementation of IOOS requires intensive coordination and cooperation among existing ocean observing activities and capabilities at the federal and regional levels. NOAA will continue to track its demonstrated ability to deliver 2.5 million quality controlled real-time observations per year from regional observing systems through the National Data Buoy Center.						

**Integrated Ocean Observing Systems Regional Observations (0 FTE and +\$3,000,000):** NOAA requests an increase of \$3,000,000 to enhance the regional component of the Integrated Ocean Observing System (IOOS) by increasing funding for competitively awarded sub-regional and regional coastal ocean observing systems, bringing total request in FY2009 to \$14,555,000. This increase builds upon FY2008 efforts by increasing capacity to support sub-regional elements of the regional coastal ocean observing systems and will advance NOAA’s priorities through regional collaboration by improving the regional component of IOOS.

### Statement of Need

The First U.S. Integrated Ocean Observing System Development Plan (OceanUS, 2006) calls for an integrated system of observations that support national and regional priorities. The IOOS Development Plan distinguishes between those observing and data infrastructure components managed

directly by Federal agencies to meet national priorities and those infrastructure components managed at the regional level, termed Regional Coastal Ocean Observing Systems (RCOOS). The two are co-dependent components of IOOS, with the regional components complementing Federal ocean observing assets by providing additional data, models, and information products tailored to the economic and environmental requirements of regional and local communities. Implementing IOOS on a national scale will afford all regions the opportunity to establish and enhance observation systems, data management and communications as well as modeling and analysis systems in support of creating hazard resilient communities.

### **Proposed Actions**

This request will enable NOAA to increase the level of funding available for competitive awards for regional observing systems. This increased level of funding will support existing regional observing capacity, build incremental improvements and will continue activities to bring non-NOAA core variables into the data integration framework. Transitioning to competitive award of grants and contracts gives NOAA the means to guide the development of the IOOS regional component with the objective of addressing regionally identified needs and NOAA mission requirements. Investments in regional systems have resulted in increasing the spatial density of in situ observations available for incorporation into decision support tools, which has improved the ability of NOAA weather forecasters to make local predictions and of local managers to anticipate adverse affects of ocean conditions. NOAA will identify common capabilities and services that are needed from the regions to support a national system, while meeting local priority needs. Through the competitive funding process, NOAA will guide the regions to adopt the standards and best practices necessary to ensure compatibility with Federal IOOS data . The knowledge gained from regional activities will be broadly shared among the IOOS community. These actions will maximize the return on Federal investment, both to IOOS and the Nation, and leverages the distinctive competencies of the regional partners for the overall benefit of IOOS.

### **Benefits**

A 2004 study found a potential economic benefit of \$500 million to \$1 billion per year from new investments in coastal ocean observing systems. These benefits are derived primarily from increased economic activities as a result of improved information about coastal marine conditions (Kite-Powell et al). Integrating federal and regional observing system assets will improve our understanding, forecasting, stewardship, and use of coastal waters. In the current state, observing systems have been developed by individual agencies and entities to accomplish their own missions and needs and operate under different protocols and standards. IOOS will make more effective use of these resources and establish a data integration framework and information network that will help NOAA to address national priorities while supporting NOAA's regional collaboration approach and improving community resilience. RCOOS enable the collection of regionally and locally specific data to support needs identified by regional user groups and stakeholders. This data can be targeted to regionally specific issues and can fill gaps in data needed by commercial mariners, coastal managers, scientists, educators, search and rescue teams, public health officials, and others. For example, the Gulf of Maine Ocean Observing System (GoMOOS) has been using data to test several computer models, including one to predict wave height and period. This model can be used by different sectors such as commercial fishermen as they plan fishing trips or search and rescue teams as they plan rescue operations. Investing in the operational capabilities of the regions will establish coastal and ocean observing systems that complement the federal capabilities to manage and deliver region-specific data and information to users, while at the same time contributing data and information to address national priorities.

### Performance Goals and Measurement Data

This increase will support the objectives “Serve Society’s needs for weather and water information“ under the Department of Commerce strategic goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.”

<b>Performance Goal: All Goals Performance Measure:</b> Percent of regional system data delivered to a NOAA data assembly center that meets DMAC compliance requirements	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	0	10%	10%	10%	10%	10%
With Increase	--	--	25%	50%	75%	100%
<b>Description:</b> Integrating federal and regional observing system assets improves understanding, forecasting, stewardship, and use of coastal waters. Regional observations are key to IOOS and enable the collection of regionally and locally specific data to support needs identified by regional user groups and stakeholders. NOAA will track the percentage of regional system data delivered to a NOAA data assembly center that meets requirements for IOOS.						

**Ocean Research Priorities Plan – Response of Coastal Ecosystems to Persistent Forcing and Extreme Events (0 FTE and +\$5,000,000):** NOAA requests an increase of \$5,000,000 to support end-to-end development and integration of observations, research, and forecast models. Specifically, this development and integration will lead to decision-support tools to help policy makers and managers (coastal, resource, and emergency) anticipate and prepare for the response to extreme weather events, natural disasters, and changing natural and human influences.

Effective integration of observational and forecast systems with research products will provide coastal resource managers, coastal zone planners, and emergency and public health officials with short and long-term forecasts of changing coastal conditions. Key federal partners include USGS, EPA, US Army Corps of Engineers, and the National Science Foundation. Building off of the US Group on Earth Observations and NSTC Subcommittee for Disaster Reduction’s Improved Observations for Disaster Reduction Near Term Opportunity Plan, this near-term priority identified in the Ocean Research Priorities Plan (ORPP) will focus on three pilot regions: the northern Gulf of Mexico, Southern California, and the Southeast U.S. Initial efforts in all three pilot regions would begin in FY 2009. For the pilot regions, these managers and officials will have the tools and knowledge to ensure that decisions about land and resource use, management practices, and development in the coastal zone and adjacent watersheds will be evaluated with a complete understanding of the probable effects on public health, coastal ecosystems, and community hazard resilience. The leveraging of capabilities across all sectors and the development of regionally relevant decision support tools will be clearly demonstrated in the pilot areas with lessons learned identified for broader national implementation.

### **Statement of Need**

Every year, natural and technological hazards in the United States cost an estimated \$1 billion per week in the form of lives lost and public and private properties destroyed. In 2004, more than 60 major disasters, including floods, hurricanes, earthquakes, tornadoes, and wildfires, struck the United States. The 2005 hurricane season was the costliest ever, with losses estimated at \$200 billion, due to the impacts of storm surge, flooding and wind associated with the storms. In 2005, Southern California experienced severe winter storms that resulted in debris flows that destroyed property and adversely affected water quality. El Nino conditions are pointing to increased storm activity for this region this winter. Although we have greatly reduced the number of lives lost each year to natural disasters, the costs of major disasters continue to rise, as 71 percent (\$7B) of annual U.S. disaster losses occur in coastal areas where dense populations live and work in the paths of strong storms.

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

### **Proposed Actions**

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

- Acquisition, integration and assimilation of monitoring and mapping data from existing and enhanced observation platforms including tide and water levels. Workshops conducted with stakeholders to develop specific regional requirements for forecasts, and tools for preparedness, planning, response, and recovery. Collaborate directly with USGS on the geospatial framework (as part of the National Map) and implementation of the National Water Quality Monitoring Network (NWQMN). Specifically, observation parameters collected by the Regional Coastal Ocean Observing Systems (RCOOS) (e.g., tides, water levels) will be important contributors to this effort. The IOOS Regional Associations will contribute to stakeholder outreach regarding observing needs and the integration of observations into decision support tools. (\$1,675,000)
- Community inundation and ecosystem modeling to provide critical information for anticipating storm vulnerability, oil spill movements, and ecological and human dimension impacts. (\$1,835,000)
- Building a geospatial framework and digital elevation models (DEM) in pilot areas essential for decision support tools including socio-economic indices to address regional decision making, planning and community awareness. For example, DEMs would contribute to the development of GIS based decision support tools that include model output and real time and historical observations related to coastal inundation (e.g., storm surge) for emergency, floodplain and coastal managers. (\$1,490,000)

**Benefits**

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

**Performance Goals and Measurement Data**

This increase will support all objectives, under the Department of Commerce strategic goal of “Observe, protect, and manage the Earth’s resources to promote environmental needs.”

<b>Performance Goal: Weather &amp; Water</b>						
<b>Performance Measure:</b> Number of regions with benchmark data and decision support tools to address watershed impacts of coastal storms.	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	--	--	0	0	0	0
With Increase	--	--	1	2	3	3
<b>Description:</b> This measure tracks the number of regions in the U.S. where coastal planners, resource and emergency managers, and policy makers at all governmental levels have benchmark data and decision support tools at their disposal to make the best decisions for their coastal constituents and economies regarding to coastal hazards.						

**Ocean Research Priorities Plan -- Sensors for Marine Ecosystems (1 FTE and +\$5,000,000):** NOAA requests an increase of \$5,000,000 and 1 FTE to develop and improve sensors for ocean biological and physical parameters at multiple spatial (from individual cells to the global ocean) and temporal (from seconds to decades) scales. These multi-scale oceanographic observations, combined with existing data, will provide a new way of “seeing” and better understanding ecosystem function and response to environmental stressors including climate variability and change. This information will be used to support improved ecosystem management strategies and protection of public health, including use for beach closure forecasts related to pathogens and harmful algal blooms, fisheries and protected species management, and coastal ecosystem health assessments. This request is in direct response to the near-

term priorities in the Ocean Research Priorities Plan (ORPP) and consistent with the goals and objectives of the Interagency Oceans and Human Health Research Implementation Plan.

### **Statement of Need**

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 the marine environment for recreation each year, yet pollution impairs the use of 51 percent of assessed estuarine square miles. 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. *Vibrio parahaemolyticus*, long linked to seafood-borne infections in Asia, is increasing in US waters; a recent outbreak in Prince William Sound was attributed in part to warmer than usual ocean temperatures. Management of our Nation's fisheries—for food supply and for economic security—could be significantly improved with appropriate information about overall ecosystem functions necessary to sustain and optimize fisheries yield.

Great strides are being made in observing the ocean at large spatial scales, such as overall circulation patterns, changes in sea surface temperature and salinity, and the movement of large masses of algae. In order to use these tools to improve ecosystem-based management of fisheries, protected species, and public health, however, additional small scale and more rapidly delivered information about water quality in the near shore and coastal environments, and about the ocean biology underpinning fisheries production and protected species management is necessary. The ability to rapidly and accurately monitor and assess biodiversity and marine ecosystem health, at levels from the genetic to the ecosystem, is an essential component of any effort to effectively implement an ecosystem approach to resource management and protect public health. Efforts to develop marine genomic tools and technologies and employ them to construct biosensors are just beginning and must be supported in order to garner a more complete understanding of ecosystem health and the effects of environmental stressors on marine organisms and humans. Similarly, the ability to rapidly and accurately identify and enumerate planktonic stages of marine organisms is crucial to understanding the feeding, reproduction and recruitment of species of particular interest. Currently, taxonomy and identification of marine organisms is labor intensive, slow, and subject to misinterpretation. Plankton video recorders are now being used in a highly-specialized research mode but must be enhanced to become operational for routine deployment across a broader range of applications, including the management of protected species, including Right Whales. To integrate these innovative tools into future environmental monitoring, assessment, and management programs, we must gain a clearer understanding of both the genomic level responses and the ecosystem context for these responses. Both biosensors and plankton recorders have significant potential for development and deployment as part of the IOOS within the next five to seven years, although both require further development and testing

NOAA-supported researchers already can accurately test for the presence of up to ten species of toxic algae in less than four hours; are linking remotely sensed sea surface data with the presence of the human disease-causing organism, *Vibrio parahaemolyticus*; and are remotely tracking and modeling sewage spills in the Great Lakes and correlating pathogens with surface temperature for the development of a functional beach closure forecast. While promising technologies are currently being developed and used by NOAA and its partners (e.g., DNA bar-coding of some organisms under the Census of Marine Life effort, and video plankton recorders), there is no common library of marine genomics or barcodes, and plankton recorder technology remains



limited. Because the volume of data generated is so high, this approach must also include investment in building extensive libraries of DNA and video taxonomic information, a strong bioinformatics component, and development of additional computer processing capabilities from the outset. These building blocks for health forecasting systems and fisheries management have already proven their worth, but require additional investment and effort to become operational on a routine, nationwide basis.

### **Proposed Actions**

Over the next five years, NOAA and its partners will markedly increase our efforts to develop and apply genomic microarrays and other technologies that will allow rapid and accurate detection, identification, and quantification of numerous species of microbes in marine waters and seafood, and of health threats in sentinel marine organisms which may indicate health risks to humans. NOAA will transition a highly sophisticated research-based plankton video recording technology to an operational mode with expanded range of applications, including both fisheries and protected species. The agency will significantly expand work to develop and share DNA libraries for numerous marine organisms, and to investigate changes in gene expression in oysters, shrimp, marine mammals, and other species in response to environmental conditions and disease.

With the requested funding NOAA will:

- Develop *in situ* sensors for rapid detection of pathogens, harmful algae and their toxins and determine how such sensors can be deployed within the Integrated Ocean Observing System including methods to integrate biosensor data with other ocean observations, especially those associated with extreme events such as hurricanes (\$1,500,000)
- Develop, evaluate, and validate microarrays and other genomic and proteomic tools and essential supporting bioinformatics infrastructure to elucidate effects of multiple environmental stressors on key marine organisms, leading to new levels of understanding of ecosystem processes and impacts of individual and cumulative stresses, including climate change (\$1,500,000)
- Develop genomic libraries and associated information to support DNA-based identification of a range of marine organisms in order to advance understanding of marine biodiversity and its role in ecosystem processes, as well as species abundance and distribution (\$1,000,000)
- Improve video plankton recorders and related technology and demonstrate utility for recruitment process studies, leading to improved resource management (\$1,000,000)

The first four years of the proposed activity would be spent in laboratory and field studies, while the fifth year would be used to synthesize, assess, and report findings and identify the most useful new technologies, including documentation of accuracy, precision, and reliability. The program would be managed through the NOAA Coastal Services Center's (CSC) Oceans and Human Health Initiative (OHHI) in coordination with other ORPP activities. Funds would be distributed both internally within NOS and NMFS and through an external grant competition. Limited funds would be provided to the OHHI for program management. If appropriate, funds may also be spent collaboratively with NSF and NASA on marine sensors. If other agencies are also

working on the development of marine sensors, consideration will be given to making funds for the external research community available through a joint interagency process such as the NOPP Broad Agency Announcement.

**Benefits**

These funds will allow NOAA and its external partners to advance the development of marine biological sensors to initial operational phases and begin testing their use for operational beach closure forecasts and coastal ecosystem health assessments. These funds will also allow the transition of currently used highly-specialized, research-oriented plankton video recorders to dependable and deployable operational technology which will be used to improve ecosystem based management for fisheries and protected species. Linking the work of external scientists directly to NOAA’s efforts will ensure rapid testing and transfer of technologies to operational observing systems. The development of multi-scale oceanographic biological sensors, genomic and proteomic tools, and plankton recorders, and the transition of these to operational status will significantly improve NOAA’s ability to support ecosystem-based management of critical marine and coastal systems and protected species, provide crucial information to safeguard public health and provide useful beach forecasts, and support IOOS and GEOSS societal goals.

**Performance Goals and Measurement Data**

This increase will support two of NOAA’s primary mission goals –“to protect, restore and manage the use of coastal and ocean resources through ecosystem-based management” and “to understand climate variability and change to enhance society’s ability to plan and respond.”

<b>Performance Goal: Ecosystem</b> <b>Performance Measure:</b> Number of new marine sensors and ecosystem tools developed or applied to enhance ecosystem-based management for fisheries, protected species, and public health	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	0	0	0	0	0	0
With Increase	0	0	1	2	3	4
<b>Description:</b> This measure tracks efforts to develop and apply genomic microarrays and other technologies that will allow rapid and accurate detection, identification, and quantification of numerous species of microbes in marine waters and seafood, and of health threats in sentinel marine organisms which may indicate health risks to humans.						

**Ocean Assessment Program (0 FTE and +\$1,530,000):** An increase of \$1,530,000, for a total of \$86,080,000, is requested for the following projects : Coastal Storms (+\$1,410,000) and Gulf of Mexico Regional Collaboration (+\$120,000). This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**NERRS Research (formerly Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET)) (0 FTE and -\$ 6,496,000):**

NOAA requests a decrease of \$6,496,000 for the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET). This reduction reflects a reassessment of NOAA's required level of funding for the Institute. This reduction is taken to reallocate funding to a competitive research grants program that will be administered by the NERRS Program.

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Integrated Ocean Observing System (\$12,334,000); Alliance for Coastal Technologies (\$939,000); Coastal Services Center (\$3,567,000); Regional Geospatial Modeling Grants (\$7,992,000); Coral Reef Program (\$3,457,000); Coastal Restoration and Enhancement through Science and Technology (CREST) (\$1,516,000); Ocean Health Initiative (\$1,925,000); Lake Erie Monitoring (\$353,000); Louisiana Environmental Research Center (\$353,000).

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**Subactivity: Ocean Resources Conservation and Assessment**  
**Line Item: Response and Restoration**

**GOAL STATEMENT:**

The Office of Response and Restoration (OR&R) responds to threats in order to protect and restore coastal resources.

**BASE DESCRIPTION:**

NOAA responds to approximately 100 significant oil or chemical spills each year as scientific advisors to the U.S. Coast Guard, and provides solutions to cleanup agencies that protect and restore coastal resources at more than 200 hazardous waste sites each year along the Nation's ocean and Great Lakes coasts. When oil or hazardous substances threaten or injure coastal and marine resources, NOAA and other state and federal natural resource trustees are responsible for ensuring that cleanup actions protect those resources from further injury; for assessing and recovering natural resource damages to restore the injured resources; and for seeking compensation on behalf of the public for the loss of services that the natural resources provided. NOAA's authorities for responding to threats to the Nation's trust resources derive from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) and the Oil Pollution Act of 1990 (OPA). NOAA's Office of Response and Restoration (OR&R) implements CERCLA and OPA requirements by providing 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. OR&R's three primary program elements contribute to NOAA's Strategic Plan Mission Goals to "Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation", and "Protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management."

Base activities support the objective, "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

**EMERGENCY RESPONSE PROGRAM**

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

OR&R field staff is co-located with regional U.S. Coast Guard offices to ensure close cooperation and coordination for planning and responding to spill events and other emergencies. In addition to maintaining a highly prepared response team that coordinates on-scene scientific activities and provides scientific support for operational decisions during oil or hazardous material spills or other threats, OR&R supports local communities in developing and

evaluating oil and hazardous materials response plans, fulfills trustee responsibilities as the Department of Commerce Regional Response Team representative, serves as the Department of Commerce's representative on the National Response Team (NRT), and chairs the NRT's Science and Technology Committee.

### **HABITAT PROGRAM**

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

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

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

Another significant arena of activity is through OR&R's partnership with the NOAA Fisheries Service Restoration Center and General Counsel under the Habitat program. This partnership, known as the Damage Assessment, Remediation, and Restoration Program (DARP) allows NOAA to approach harm to coastal trust resources in an integrated way. During the past decade, DARP injury scientists, economists, restoration specialists, and attorneys have provided expertise and leadership to restore wetlands, fisheries, wildlife, and human uses of these resources.

This program also supports NOAA-wide activities mandated by the Estuary Restoration Act of 2000. NOAA works with other partners to implement a national estuary habitat restoration strategy designed to ensure a comprehensive approach towards habitat restoration projects. NOAA's activities include the development of scientifically sound monitoring protocols and standards for coastal habitat restoration projects. In addition, NOAA is developing restoration databases that provide quick and easy access to accurate and up to date information regarding all projects funded under the Estuary Restoration Act of 2000, as well as information on projects throughout the country that meet the standards established as a part of the Act for monitoring and data collection to provide scientists and resource managers with information critical to successful estuary habitat restoration efforts.

**PRIBILOF ISLANDS CLEANUP**

Under The Fur Seal Act, Public Law 104-92, and the Pribilof Islands Transition Act, NOAA is responsible for conducting environmental restoration on designated properties, and for transferring those properties to the native Aleuts. In FY 2008 NOAA will complete the remediation of the Pribilof Islands. NOAA remains responsible for conducting long term monitoring of groundwater, maintaining free product removal system, and completing the transfer of properties. This includes maintenance and sampling of groundwater monitoring wells on both islands per Alaska Department of Environmental Conservation and the maintenance and operation of the St. George free product removal system including proper disposal of all product removed. NOAA anticipates groundwater monitoring will continue through 2025 and that property transfers will be completed in 2009.

**PROPOSED LEGISLATION:**

No legislation is proposed.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Ocean Resources Conservation and Assessment	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Response and Restoration					
Response and Restoration Base	17,616	11,506	12,021	17,266	5,245
Estuary Restoration Program	1,184	1,159	1,160	1,188	28
Damage Assessment Program	2,959	-	-	-	-
Marine Debris	5,178	3,169	-	4,000	4,000
Marine Debris Removal-Alaska	-	1,315	-	-	-
Aquatic Resources Environmental Initiative	-	1,127	-	-	-
Pribilof Islands Cleanup	6,903	5,292	4,565	-	(4,565)
Aquidneck Island Westside Plan	-	188	-	-	-
Suisun Bay, CA Assessment Study	-	1,498	-	-	-
<b>TOTAL</b>	<b>33,840</b>	<b>25,254</b>	<b>17,746</b>	<b>22,454</b>	<b>4,708</b>
FTE	115	110	110	111	1

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Marine Debris (1 FTE and +\$4,000,000):** NOAA requests an increase of \$4,000,000 and 1 FTE to implement NOAA's new mandates under the Marine Debris Research, Prevention, and Reduction Act of 2006. This request further supports NOAA's commitment to implement the Administration's Ocean Action Plan with regards to marine debris and the First Lady's Marine Debris Initiative that was announced in November, 2007. The urgent need to address marine debris has been highlighted by a number of recent events. For example, the permanent protection of the Northwestern Hawaiian Islands as a Marine National Monument highlighted their vulnerability to derelict fishing gear and plastic debris. In the Gulf of Mexico, the tremendous amount of marine debris generated by Hurricane Katrina continues to threaten navigation safety and fishermen's livelihoods throughout the region. These events and others add to the growing awareness of the extent and impacts of debris on the nation's ocean and coastal resources. This requested increase will enable the NOAA Marine Debris Program to accomplish the research, prevention, and removal activities mandated in the Act. This increase also enables NOAA to coordinate with other Federal agencies, and enter into partnerships and provide grants through a competitive process to State, local, and tribal governments, NGOs, universities, and industry. The request will support critical activities mandated by the Act that cannot be conducted at current base funding levels, including mapping, identification, prevention, and removal of marine debris.

**Statement of Need**

Since 1985, NOAA has undertaken discrete and limited marine debris cleanup and research activities across the agency. In 2005, the NOAA Marine Debris Program was established to coordinate efforts within the agency and develop effective strategies for research, prevention, and reduction of marine debris. In December 2006, the President signed the Marine Debris Research, Prevention, and Reduction Act into law, which codified the program and supports NOAA as the nation's leader in combating marine debris and reducing its impacts on our trust resources.

Every year, marine debris injures and kills marine wildlife, harms ocean habitats, interferes with navigation safety, causes economic losses to shipping, fishing, and coastal industries, and poses a threat to human health. A 2004 study by the International Coastal Cleanup cites fishing line as the cause of over 47% of entanglements. Monofilament line and commercial fishing gear are designed to be strong, durable and nearly invisible in the water. Unfortunately when left in the marine environment, monofilament line and other derelict fishing gear continue to catch fish, unintentionally entangling marine life. A 1997 study found that at least 267 species have been affected by marine debris worldwide, including 86% of all sea turtle species, 44% of all seabird species, and 43% of all marine mammal species. Marine debris also threatens the livelihood of the nation's fishing community. "Ghost fishing," the entanglement of fish and marine mammals in lost fishing gear represents a serious threat to marine life, including endangered species such as Hawaiian monk seals and North Atlantic right whales. Recent studies suggest that ghost fishing in Puget Sound accounts for approximately 10% of the annual Dungeness crab take per year. Coral reefs, seagrass beds, and other fragile coastal habitats have been harmed by marine debris. This global problem is particularly evident in the Northwestern Hawaiian Islands, which include 69% of all U.S. coral reefs by area. Annual accumulation of derelict fishing gear there has been estimated at 52 metric tons. The current "maintenance mode" cleanup effort at 21 metric tons per year has fallen short of the annual accumulation rate. Additional cleanup and prevention resources are required to protect this Marine National Monument, as well as Puget Sound and other coastal regions around the nation.

Human impacts are significant as well. Coastal communities spend millions of dollars cleaning up marine debris on their beaches. U.S. ports and harbors are in a constant battle to keep the nation's waterways free of hazardous debris and allow maritime commerce to flow efficiently. In 2005, recreational boaters reported a total of 369 collisions with floating and submerged objects, causing 15 fatalities and 116 injuries totaling over \$2.86M in property damages. These figures do not include debris impacts on military, fishing, or research vessels, cruise ships, or shipping lines. A partial assessment of submerged debris generated by Hurricane Katrina in the Gulf of Mexico revealed over 5,000 items, half of which were submerged by less than 5 feet. This debris poses collision hazards to fishing vessels and fouling hazards to fishing gear, leading to lost gear and lost revenue for the fishermen. To protect NOAA trust resources and fishing livelihoods, it is essential to build NOAA's capacity to identify marine debris locations, types, and densities in known hotspots such as the Gulf, the Northwestern Hawaiian Islands, Alaska, Puget Sound, the Chesapeake Bay, and the eastern coast of Florida.

### **Proposed Actions**

The requested increase will allow NOAA, through internal capabilities and with external partners—via grants, cooperatives agreements, and contracts—to implement the Marine Debris Act, the Administration's Ocean Action Plan and Marine Debris Initiative by conducting the following activities:

- Award competitive grants and build NOAA internal capabilities in six strategic areas (\$3,150,000)
  - Assess the amount, sources, and impacts of debris in important ecosystems, starting with the identified marine debris hotspots and areas within the National Marine Sanctuaries system. These assessments will support regional removal operations and aid in prevention strategies.
  - Maintain support for effective marine debris removal efforts that protect critical habitat and endangered species.
  - Develop best management practices tailored to each region's needs to allow safe, cost-efficient, and effective removal of debris from areas where it poses the greatest risk.
  - Develop effective non-regulatory measures and incentives to reduce the amount of derelict fishing gear.
  - Develop alterations in fishing gear to make it more difficult to lose, easier to recover, and less efficient at "Ghost-fishing" when it is lost.
  - Conduct outreach activities targeted at key industries and segments of the population to raise awareness of the extent and impacts of marine debris
- Lead the Interagency Marine Debris Coordinating Committee (IMDCC) and submit required reports to Congress (\$100,000).
- Develop and maintain a Federal information clearinghouse on marine debris (\$350,000).
- Manage and administer grants, project database, and other program components (\$400,000).

### **Benefits**

The assessment, prevention, and reduction activities enabled by this increase will allow NOAA to fulfill its mandates from the new Act and support the Administration's Ocean Action Plan. The Federal information clearinghouse on marine debris will serve as a one-stop shop for scientists to share information and improve understanding of the extent, impacts, and solutions to marine debris. Outreach activities will lay the basis for prevention of marine debris within specific target audiences, including the plastics, shipping, and fishing industries. Because up to 80% of marine debris is generated on land, other outreach efforts directed at specific audiences within the public will provide the knowledge, training, and motivation for them to voluntarily change their behavior. As an example, NOAA is working with BoatUS Foundation to provide monofilament recycling bins in coastal fishing areas and marinas of

greatest need to prevent the introduction of monofilament into the marine environment. It is estimated that over 1,700 miles of monofilament line will be recycled per year (MA coastline is approx 1,500 miles). Assessments of debris location, source, type, and accumulation rates will provide much needed information to support removal and prevention strategies. Determining the safest and most cost-effective methods of locating and removing debris will save human and financial resources as well as natural resources. Targeted prevention and removal activities will protect the nation's trust resources and navigation safety from the threats of marine debris, with special emphasis on NOAA's National Marine Sanctuaries and Monument and other areas where habitats and marine species are most threatened by derelict fishing gear, plastics, and other marine debris. While NOAA maintains considerable expertise in research, assessment, and removal of marine debris, a coordinated federal effort is required to address the requirements. The IMDCC ensures the coordination of multiple Federal agencies in the development of alternative strategies to reduce, mitigate, prevent, and control the harmful affects of marine debris; the social and economic costs and benefits of such alternatives; and recommendations to reduce marine debris both domestically and internationally.

#### Performance Goals and Measurement Data

This increase will support the objective, "Protect, restore, and manage the use of coastal and ocean resources" under the DOC Strategic Goal of "Promote environmental stewardship." Specifically, this increase supports NOAA's Ecosystem and Commerce & Transportation strategic goals and the performance measures below.

<b>Performance Goal: Ecosystem</b>						
<b>Performance Measure:</b> Cumulative number of Sanctuaries/ Debris hot spots assessed for marine debris	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	1	1	1	1	1	1
With Increase	1	1	2	2	3	4
<b>Description:</b> Marine Debris Act signed by the President (December 2006) codifies NOAA's role. Marine debris threatens the fishing industry, kills marine wildlife, and interferes with navigation safety. This measure will track NOAA capabilities and capacities to identify, assess, reduce and prevent marine debris (FY 09-13)						

<b>Performance Measure:</b> Metric tons of marine debris removed from coastal and nearshore waters (per year)	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	450	27	27	27	27	27
With Increase	450	27	80	90	90	90
<b>Description:</b> This measure will use a Federal information clearinghouse on marine debris, manage and administer grants, project database, and other program components, to track progress toward removal of marine debris from coastal and nearshore waters.						

<b>Performance Measure:</b> Cumulative number of gear innovations developed to reduce loss	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	0	0	0	0	0	0
With Increase	0	0	1	2	3	3
<b>Description:</b> This measure will track progress toward achieving best practices in marine debris removal by tracking development of gear innovations to reduce gear losses when used.						

<b>Performance Measure:</b> Cumulative percent completion of federal information clearinghouse on marine debris	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	10%	10%	10%	10%	10%	10%
With Increase	10%	10%	50%	75%	100%	100%
<b>Description:</b> This measure will track progress toward completion of Federal information clearinghouse on marine debris, a central tool in the effort to track marine debris reduction.						

**Response and Restoration (0 FTE and +\$5,273,000):** An increase of \$5,273,000, for a total of \$22,454,000, is requested for the following projects: Response and Restoration Base (+\$5,245,000) and Estuary Restoration Program (+\$28,000). This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Pribilof Islands Environmental Cleanup and Long-term monitoring (0 FTE and -\$4,565,000):** NOAA proposes a decrease of \$4,565,000 for Pribilof Islands environmental clean up and long-term monitoring. NOAA was responsible for performing environmental clean up and restoration activities related to past commercial fur sealing on the Pribilof Islands in Alaska's Bearing Sea. The Pribilof Islands Environmental Clean up effort will be completed in FY 2008. Specifically, the FY 2008 President's request will allow NOAA to achieve 100 percent completion of environmental remediation of the Pribilof Islands in cooperation with the State of Alaska. In FY 2009, NOAA will transfer the properties back to the local entities and begin the transition. With 100% completion of the environmental remediation efforts, the FY 2009 request of \$727,000 will support the Chief Administrative Officer's efforts to conduct long-term monitoring and property transfers.

#### **TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Aquatic Resources Environmental Initiative (\$1,127,000); Marine Debris (\$3,169,000); Marine Debris Removal – Alaska (\$1,315,000); Suisun Bay, CA Assessment Study (\$1,498,000); Aquidneck Island Westside Plan (\$188,000)

**Subactivity: Ocean Resources Conservation and Assessment**  
**Line Item: National Centers for Coastal Ocean Science**

**GOAL STATEMENT:**

NOAA's National Ocean Service (NOS) will conduct and support monitoring, research, assessment, and assistance for the range of NOAA's coastal stewardship responsibilities. Through the National Centers for Coastal Ocean Science, NOS provides a sound scientific and applied basis for effective coastal management decisions and conducts the high-quality science needed to predict the potential impacts of multiple stressors on coastal ecosystems and living resources.

**BASE DESCRIPTION:**

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 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. As a focal point for coastal resource research within NOAA, NCCOS' activities primarily support NOAA's Strategic Plan Mission Goal to "Protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management." Through its research into the effects of climate change and freshwater inflow on coastal ecosystems, NCCOS also contributes to NOAA's goals to "Understand climate variability and change to enhance society's ability to plan and respond", and "Serve society's needs for weather and water information." NCCOS education activities support NOAA's goals for "A well informed public that acts as a steward of coastal and marine ecosystems."

NCCOS research responds to the needs of other NOAA programs and its legal mandates, including the Oceans and Human Health Act, the reauthorized Harmful Algal Bloom and Hypoxia Research and Control Act, the Coastal Zone Management Act, the Coral Reef Conservation Act, and the Great Lakes Task Force Executive Order. As part of NOAA's Ecosystem Goal Team and Ecosystem Research Program, NCCOS conducts integrated assessments and ecological forecasts at a regional scale to inform ecosystem-based management. As part of the Ecosystem Observations Program, NCCOS conducts a long term monitoring program of toxic contaminants in water, biota, and sediments.

NCCOS is comprised of four research centers: The Center for Coastal Monitoring and Assessment (CCMA), the Center for Coastal Fisheries Habitat Research (CCFHR), the Center for Coastal Environmental Health and Biomolecular Research (CCEHBR), and the Center for Sponsored Coastal Ocean Research (CSCOR). Each center brings unique and complementary expertise and capabilities to address critical coastal resource issues. NCCOS also includes the Hollings Marine Laboratory and the Cooperative Oxford Laboratory.

Base activities support the objective, “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental needs.”

#### **COASTAL MONITORING AND ASSESSMENT (Silver Spring, MD)**

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

#### **COASTAL FISHERIES AND HABITAT RESEARCH (Beaufort, NC)**

NCCOS’ Center for Coastal Fisheries Habitat Research (CCFHR) in Beaufort, North Carolina 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 Environmental Health and Biomolecular Research (CCEHBR) in Charleston, South Carolina, 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.



### **HOLLINGS MARINE LAB (Charleston, SC)**

The Hollings Marine Laboratory (HML), located in Charleston, SC, 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. 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. By applying genomics techniques to define gene sequences that indicate immune responses and disease resistance in marine organisms to various stressors, scientists can make connections between biochemical changes, organism responses, and ecosystem alterations. HML scientists are also developing faster and cheaper indicators of physiological and ecosystem health for use in monitoring and evaluating the status of ecosystems and organisms of interest. Other studies examine the biomolecular effects of different chemical contaminants resulting from human activities. HML was established as a Joint Project Agreement between NOAA, the National Institute of Standards and Technology, the South Carolina Department of Natural Resources, the University of Charleston, SC, and the Medical University of South Carolina.

### **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. Funded subject areas, as well as corresponding funding levels, vary from year to year over these life cycles. These operating principles were incorporated into the design for the program to ensure the timeliness and relevance of its research in addressing coastal ocean mandates across the agency. The program relies upon established processes that reflect the requirements and advice of both the management and science communities in setting its priorities to ensure the utility and credibility of its research.

CSCOR coordinates NOAA's research efforts on a number of issues critical to effective coastal resource management. Research funded by CSCOR is designed to improve our ability to forecast the ecological effects of ecosystem stressors to support coastal management decisions. Major ecosystem studies on the joint impact of climate and harvesting on marine populations in the Gulf of Maine, the Pacific Northwest coastal waters, and the coastal Gulf of Alaska are being conducted as the United States component of the Global Ocean Ecosystems Dynamics initiative. The program also seeks to understand the biological, physical, and chemical processes that regulate HABs in major ecosystems like the Gulf of Maine, Chesapeake Bay, and Florida's Gulf Coast, while developing methods to prevent, control and mitigates the impacts of HABs. Land and resource use research focuses on the poorly understood impacts of population shifts to U.S. coastal regions, including habitat modification, nutrient and toxic chemical inputs, and fresh water diversions. CSCOR funded research efforts were integral to the formulation of the Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico, and CSCOR research will aid in determining the impact of mitigation efforts proposed under the Action Plan.

### **PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize the Nonindigenous Aquatic Nuisance Prevention and Control Act.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Ocean Resources Conservation and Assessment	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: National Centers for Coastal Ocean Science					
National Center for Coastal Ocean Science (NCCOS)	49,660	-	31,983	32,758	775
Competitive Research	9,862	11,701	11,713	15,801	4,088
Center for Coastal Environmental Health & Biomolecular Base	-	13,651	-	-	-
Oxford, MD	-	4,388	-	-	-
Subtotal: Center for Coastal Environmental Health & Biomolecular Research	-	18,039	-	-	-
CCFHR Base	-	5,599	-	-	-
Subtotal: Center for Coastal Fisheries Habitat Research	-	5,599	-	-	-
CCMA Base	-	4,470	-	-	-
Subtotal: Center for Coastal Monitoring & Assessment	-	4,470	-	-	-
Center for Sponsored Coastal Ocean Research	-	2,632	-	-	-
NCCOS Headquarters	-	4,876	-	-	-
Marine Env Health Research Lab - MEHRL	-	4,096	-	-	-
<b>TOTAL</b>	<b>59,522</b>	<b>51,413</b>	<b>43,696</b>	<b>48,559</b>	<b>4,863</b>
FTE	176	241	241	241	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**National Centers for Coastal Ocean Science (0 FTE and +\$4,863,000):** An increase of \$4,863,000, for a total of \$48,559,000, is requested for the following projects: (National Centers for Coastal Ocean Science Base (+\$775,000); Competitive Research (+\$4,088,000). This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Center for Environmental Health and Biomolecular Research (\$5,406,000); Oxford, MD (\$3,148,000).

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**Subactivity: Ocean and Coastal Management**  
**Line Item: Coastal Management**

**GOAL STATEMENT:**

The goal of the Coastal Zone Management Act (CZMA) of 1972, as amended, (16 U.S.C. 1451 et seq.), administered by NOS' Office of Ocean and Coastal Resource Management (OCRM), is to ensure the rational use and conservation of the lands and waters of the Nation's 35 coastal and Great Lakes states and territories. OCRM provides financial and management assistance to 34 coastal states and territories, enabling them to: (1) develop and implement comprehensive coastal resource management programs; (2) undertake new and innovative projects to enhance management and protection of the coastal zone; and (3) establish and manage estuarine research reserves to protect estuarine areas for long-term research and education, and support coastal decision-making. OCRM also administers NOAA's implementation of Executive Order 13158, which has the following goals: (1) to develop a national system of marine protected areas (MPAs) and (2) to improve the stewardship of existing MPAs.

**BASE DESCRIPTION:**

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

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

Program Assessment and Rating Tool (PART): NOAA's Coastal Management program was reviewed with OMB's Program Assessment and Rating Tool (PART) during the FY 2005 and 2006 budget processes. NOAA is on track to meet OMB's PART recommendations. The CZMA Programs completed OMB's three recommendations, including development of a suite of long-term performance measures which are being implemented. In addition, the National Estuarine Research Reserve program continues to integrate with NOAA's research programs by ensuring that the Graduate Research Fellowship Program's focus areas are aligned with NOAA's strategic plan, and by developing links between its environmental monitoring programs and the Nation's Integrated Ocean Observing System.

Base activities support the objective, "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

### **CZM GRANTS**

The purpose of the national Coastal Zone Management (CZM) Program is to maintain and improve the quality and utility of the Nation's coastal lands and waters through a national network of federally-approved, coordinated, and supported state management programs that seek 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).

The 2009 budget continues the proposal to increase the amount of CZM grant funding that is awarded competitively, with a goal of better targeting and increasing the effectiveness of CZM programs. Increased competition and funding flexibility will enable the coastal management program to better focus on significant national issues. NOAA has been working 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.

### **NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM (NERRS)**

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 and serve as local, regional, and national sources of technical information and testing grounds for the improvement of coastal resource management. There are currently 27 designated reserves in 22 states and territories covering over one million acres of estuarine lands and waters.

### **CZM PROGRAM ADMINISTRATION**

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

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

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 managers and stakeholders to develop a comprehensive and integrated national system of MPAs that more effectively conserves and protects our significant areas of natural and cultural marine heritage. Moreover, the Center facilitates coordination among the various federal, state and tribal MPA programs to improve the effectiveness of existing MPAs and accomplish conservation goals that could not otherwise be achieved. With a headquarters office in Silver Spring, Maryland, the MPA Center has regional and scientific support in Boston, Massachusetts, and Monterey and Santa Cruz, California. A diverse MPA Federal Advisory Committee -- including representatives of industry, user groups, scientists, and others -- was established in 2003 to provide advice on the establishment and management of the national system.

### **PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize the Coastal Zone Management Act.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Ocean and Coastal Management	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Coastal Management					
CZM Grants	65,780	64,358	64,423	66,146	1,723
CZMA Program Administration	6,780	6,728	7,036	8,155	1,119
National Estuarine Research Reserve System	22,894	16,388	16,692	22,326	5,634
Nonpoint Pollution Implementation Grants	-	3,900	-	-	-
Marine Protected Areas	1,480	1,463	1,464	2,128	664
TOTAL	96,934	92,837	89,615	98,755	9,140
FTE	59	56	56	56	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**National Coastal and Estuarine Research and Technology Program (0 FTE + \$5, 232,000):** NOAA requests an increase of \$5,232,000 to establish a competitive national coastal and estuarine research and technology program which operates in partnership with the National Estuarine Research Reserve System (NERRS). Funds will be used to conduct research and transform the best available science into practical innovative tools that coastal managers can use to detect, prevent and reverse the impacts of coastal pollution and habitat degradation. Coastal and estuarine managers need to better understand what tools are available, how well they work, and how best to apply them to detect, prevent, and reverse the impacts of coastal pollution and habitat degradation.

**Statement of Need**

Every year, new residents and visitors pour into coastal areas, and with them come development and impacts to coastal and estuarine resources. New homes, roads, parking lots and businesses enrich local economies, but they can also compromise the very qualities that make coastal living so attractive - clean water, thriving ecosystems, and the natural beauty where the land meets the sea. Balancing the use of coastal and estuarine resources with the need to protect human and environmental health is a national challenge for coastal resource managers. To address it, coastal managers need the right science, tools, and technologies.

**Proposed Actions**

With the requested funds, NOAA will:

- Foster targeted, competitive research to understand the impacts of human activities on coasts and estuaries and develop, demonstrate and apply tools and technologies that can be used to detect, prevent, or reverse impacts.
- Use the system of 27 National Estuarine Research Reserves and state agency and university partners as living laboratories for research and development of science-based solutions to coastal pollution and habitat degradation.
- Develop, demonstrate, and deliver effective and affordable technological solutions to address coastal management challenges.
- Catalyze collaboration across geographic and organizational boundaries, bringing local, State, and Federal government, academia, cooperative institutes, and the private sector together to work on solutions to coastal and estuarine environmental problems.
- Evaluate the barriers to the use of coastal and estuarine environmental technologies and ways to remove or overcome them.

**Benefits**

The development of coastal areas is proceeding at a rapid pace and with it impacts to coastal resources. The economic vitality of these coastal areas and the quality of life of residents are at risk if development decisions and approaches are not based on sound science and best practices. Establishment of a national coastal and estuarine research and technology program will ensure that coastal decision makers have access to current science and relevant tools

and technologies, and that they will know how to use them. By using the existing network of living laboratories at the 27 National Estuarine Research Reserves, research, technology development and testing, and tech transfer to coastal decision makers can be done efficiently.

### Performance Goals and Measurement Data

This increase will support two of NOAA's primary mission goals –“to protect, restore and manage the use of coastal and ocean resources through ecosystem-based management” and “to understand climate variability and change to enhance society’s ability to plan and respond.”

<b>Performance Goal: Ecosystem Performance Measure: Number of coastal and estuarine research and technology projects</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	0	0	0	0	0	0
With Increase	0	0	10	10	10	10
<b>Description:</b> This measure tracks the number of competitively awarded projects to understand the impacts of human activities on our Nation's coasts and estuaries. Tools and technologies will be developed that can be used to detect, prevent, or reverse impacts.						

**Coastal Management (0 FTE and +\$3,908,000):** An increase of \$3,908,000, for a total of \$98,755,000, is requested for the following projects: Coastal Zone Management Grants (\$1,723,000); Coastal Zone Management Program Administration (\$1,119,000); National Estuarine Research Reserve System (\$402,000); Marine Protected Areas Center (\$664,000). This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

### TERMINATIONS FOR 2009:

The following program has been terminated in FY 2009: Nonpoint Pollution Control Implementation Grants (\$3,900,000).

**Subactivity: Ocean and Coastal Management**  
**Line Item: Ocean Management (Marine Sanctuary Program)**

**GOAL STATEMENT:**

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

**BASE DESCRIPTION:**

In the Ocean Management Line Item, NOAA administers the National Marine Sanctuary System under authority of the NMSA. There are 13 designated national marine sanctuaries and a National Monument in the Northwestern Hawaiian Islands (NWHI). The Papahānaumokuākea Marine National Monument (established by the President on June 15, 2006 as the NWHI Marine National Monument) is the largest marine protected area in the world and stretches 1,200 miles, the distance from Chicago to Miami. The 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 Monument 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 National Marine Sanctuary System is increasing our knowledge and understanding of complex marine ecosystems. By monitoring human and natural changes, NOAA's marine sanctuaries and the Monument help preserve the Nation's marine environments.

Program Assessment and Rating Tool (PART): The NMSP was reviewed along with the Marine Protected Area Center as "Protected Areas" with OMB's Program Assessment and Rating Tool (PART) during the FY 2004 budget processes, and earned a rating of "adequate." NOAA is on track to meet OMB's PART recommendations, including developing meaningful long-term measures. The program has developed a suite of measures, which have begun to be implemented.

Base activities support the objective, "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

### **NATIONAL MARINE SANCTUARY PROGRAM (NMSP)**

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

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

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

### **PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize the National Marine Sanctuaries Act.



**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Ocean and Coastal Management	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Ocean Management (Marine Sanctuary Program)					
Marine Sanctuary Program Base	46,339	46,806	44,378	44,378	-
Northwest Straits Citizens Advisory Commission	-	1,561	-	-	-
Maritime Museum, AL	-	470	-	-	-
Point Loma Enhanced Monitoring Program, CA	-	892	-	-	-
Urban Coast Institute, NJ	-	892	-	-	-
<b>TOTAL</b>	<b>46,339</b>	<b>50,621</b>	<b>44,378</b>	<b>44,378</b>	<b>-</b>
<b>FTE</b>	<b>152</b>	<b>137</b>	<b>143</b>	<b>143</b>	<b>-</b>

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

No program changes are proposed for FY 2009.

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Marine Sanctuary Program Base (\$3,042,000); Northwest Straits Citizen Advisory Commission (\$1,561,000); Maritime Museum, AL (\$470,000); Point Loma Enhanced Monitoring Program, CA (\$892,000); Urban Coast Institute, NJ (\$892,000).

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
National Ocean Service  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
(Dollar amounts in thousands)

<b>National Ocean Service</b>	FY 2007 Actual	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Current Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Commerce and Transportation</b>					
Commerce and Transportation	159,712	133,501	126,868	143,039	16,171
Total CT	159,712	133,501	126,868	143,039	16,171
<b>Ecosystems</b>					
Ecosystems	243,109	249,221	211,340	227,130	15,790
Total ECO	243,109	249,221	211,340	227,130	15,790
<b>Mission Support</b>					
MS	45,507	65,410	39,013	40,722	1,709
Total MS	45,507	65,410	39,013	40,722	1,709
<b>Weather and Water</b>					
Weather and Water	35,850	19,330	29,684	38,361	8,677
Total WW	35,850	19,330	29,684	38,361	8,677
Total National Ocean Service	484,178	467,462	406,905	449,252	42,347

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: National Ocean Service		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Navigation Services											
Mapping & Charting	Pos/BA	330	109,207	327	85,514	328	85,913	328	94,788	-	8,875
	FTE/OBL	314	89,859	311	109,506	312	85,913	312	94,788	-	8,875
Geodesy	Pos/BA	146	31,904	192	28,464	192	24,869	192	25,401	-	532
	FTE/OBL	139	31,670	183	28,652	183	24,869	183	25,401	-	532
Tide & Current Data	Pos/BA	110	24,780	112	27,457	112	26,642	113	28,837	1	2,195
	FTE/OBL	105	26,690	107	27,967	107	26,642	108	28,837	1	2,195
Total: Navigation Services	Pos/BA	586	165,891	631	141,435	632	137,424	633	149,026	1	11,602
	FTE/OBL	558	148,219	601	166,125	602	137,424	603	149,026	1	11,602
Ocean Resources Conservation and Assessment											
Ocean Assessment Program (OAP)	Pos/BA	108	81,652	68	105,902	71	74,046	72	86,080	1	12,034
	FTE/OBL	103	81,691	65	106,228	68	74,046	69	86,080	1	12,034
Response and Restoration	Pos/BA	121	33,840	116	25,254	116	17,746	117	22,454	1	4,708
	FTE/OBL	115	39,810	110	25,257	110	17,746	111	22,454	1	4,708
National Centers for Coastal Ocean Science	Pos/BA	185	59,522	253	51,413	253	43,696	253	48,559	-	4,863
	FTE/OBL	176	59,734	241	51,418	241	43,696	241	48,559	-	4,863
Total: Ocean Resources Conservation and Assessment	Pos/BA	394	175,014	437	182,569	440	135,488	442	157,093	2	21,605
	FTE/OBL	414	181,235	416	182,903	419	135,488	421	157,093	2	21,605

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: National Ocean Service		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount	
Ocean and Coastal Management											
Coastal Management	Pos/BA	62	96,934	59	92,837	59	89,615	59	98,755	-	9,140
	FTE/OBL	59	97,179	56	94,181	56	89,615	56	98,755	-	9,140
Ocean Management (Marine Sanctuary Program)	Pos/BA	159	46,339	144	50,621	151	44,378	151	44,378	-	-
	FTE/OBL	152	46,680	137	50,622	143	44,378	143	44,378	-	-
Total: Ocean and Coastal Management	Pos/BA	221	143,273	203	143,458	210	133,993	210	143,133	-	9,140
	FTE/OBL	211	143,859	193	144,803	199	133,993	199	143,133	-	9,140



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

Subactivity:      Navigation Services	Activity:            National Ocean Service		
Title		Grade	Number
Program Analyst	Silver Spring, MD	ZP-04	1
Total			1
Less Lapse	25%		0
Total full-time permanent (FTE)			1
2009 Pay Adjustment (2.9%)			
Total			1
Personnel Data			Number
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

**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	Grade	Number	Annual Salary	Total Salaries
Physical Scientist	Silver Spring, MD ZP-04	1	94,149	94,149
Program Analyst	Silver Spring, MD ZA-03	1	64,494	64,494
Total		2		158,643
Less Lapse	25%	0		(39,661)
Total full-time permanent (FTE)		2		118,982
2009 Pay Adjustment (2.9%)				3,450
Total				122,433
<u>Personnel Data</u>		<u>Number</u>		
Full-time permanent		2		
Other than full-time permanent		0		
Total		2		
<u>Authorized Positions</u>		<u>Number</u>		
Full-time permanent		2		
Total		2		

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

Activity: National Ocean Service  
Subactivity: Navigation Services

	Object Class	2009 Increase
11	Personnel compensation	
11	Personnel compensation	70
11.9	Total personnel compensation	70
12	Civilian personnel benefits	19
21	Travel and transportation of persons	70
22	Transportation of things	20
23.3	Communications, utilities and miscellaneous charges	50
25.1	Advisory and assistance services	9,546
25.2	Other services	200
26	Supplies and materials	265
31	Equipment	1,362
99	Total Obligations	11,602

**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	2009 Increase
11 Personnel compensation	
11.1 Full-time permanent	117
11.5 Other personnel compensation	3
11.9 Total personnel compensation	120
12 Civilian personnel benefits	34
21 Travel and transportation of persons	172
24 Printing and reproduction	10
25.2 Other services	17,788
25.3 Other purchases of goods and services from Govt accounts	3,264
26 Supplies and materials	96
31 Equipment	442
41 Grants, subsidies and contributions	10,740
99 Total Obligations	32,666

**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	2009 Decrease
21	Travel and transportation of persons	(200)
22	Transportation of things	(150)
24	Printing and reproduction	(10)
25.2	Other services	(4,065)
26	Supplies and materials	(75)
31	Equipment	(65)
41	Grants, subsidies and contributions	(6,496)
99	Total Obligations	(11,061)

**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	2009 Increase
25.2	Other services	2,185
41	Grants, subsidies and contributions	6,955
99	Total Obligations	9,140

NATIONAL MARINE FISHERIES SERVICE  
OPERATIONS RESEARCH AND FACILITIES  
FY 2009 OVERVIEW

**SUMMARIZED FINANCIAL DATA**  
(\$ in thousands)

Operations Research and Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Protected Species Research and Management	141,015	163,827	157,144	167,241	10,097
Fisheries Research and Management	301,580	327,008	295,937	344,806	48,869
Enforcement and Observers / Training	78,126	84,809	85,906	89,085	3,179
Habitat Conservation & Restoration	43,544	50,195	44,554	43,405	(1,149)
Other Activities Supporting Fisheries	213,721	81,869	74,352	79,674	5,322
Alaska Composite Research and Development	50,730	0	0	0	0
<b>TOTAL</b>	828,716	707,708	657,893	724,211	66,318
FTE	2,643	2,586	2,606	2,651	45

Note: The dollars in this table represent budget authority.

For FY 2009, NOAA requests a total of \$724,211,000 and 2,651 FTE for the National Marine Fisheries Service (NMFS) Operations, Research, and Facilities account.

In partnership with other federal agencies and state and local governments, NOAA is responsible for managing the Nation's coastal zone and protected areas; planning for, mitigating, and responding to hazardous events; restoring degraded habitats; protecting and ensuring wise and appropriate use of ocean, coastal, and Great Lakes resources; and providing advice, technical tools, information, and training to coastal residents, communities, and other decision makers and users of ocean, coastal, and Great Lakes areas. NOAA is also responsible for protecting, restoring, and managing species listed under the Endangered Species Act and Marine Mammal Protection Act, 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 tool 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 the ecosystem.

To accomplish these longer-term objectives, NOAA will invest in improving our understanding of ecosystems; identifying regional ecosystems; developing ecosystem health indicators; and applying new methods of governance to establish the necessary knowledge, tools, and capabilities to fully implement an ecosystem approach to management. The following are strategies for implementing the ecosystem goal's objectives:

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

### **NMFS Mission Overview**

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



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

Major NMFS facilities are located at the following sites:

- Northeast:      Regional Office - Gloucester, MA  
                    Science Center - Woods Hole, MA  
                    Major Laboratories - Milford, CT; Narragansett, RI; J.J. Howard, Sandy Hook, NJ  
                    Satellite/Special Purpose Facilities - Smithsonian (National Systematics Lab), Washington, DC
- Southeast:      Regional Office - St. Petersburg, FL  
                    Science Center - Miami, FL  
                    Major Laboratories - Beaufort, NC; Galveston, TX; Panama City, FL; Pascagoula, MS  
                    Satellite/Special Purpose Facilities - Stennis Space Center (Bay St. Louis, MS)
- Southwest:      Regional Office - Long Beach, CA  
                    Science Center - La Jolla, CA  
                    Major Laboratories - Santa Cruz, CA  
                    Satellite/Special Purpose Facilities - Pacific Grove, CA
- Northwest:      Regional Office - Seattle, WA at Sand Point  
                    Science Center - Seattle, WA at Montlake  
                    Satellite/Special Purpose Facilities - Manchester, WA; Mukilteo, WA; Pasco, WA; Newport, OR; Hammond, OR
- Alaska:          Regional Office - Juneau, AK  
                    Science Center - Seattle, WA at Sand Point  
                    Major Laboratories – Ted Stevens Marine Research Institute, AK; Auke Bay, AK; Kodiak, AK  
                    Satellite/Special Purpose Facilities - Little Port Walter, AK
- Pacific Islands: Regional Office – Honolulu, HI  
                    Science Center – Honolulu, HI

**Research and Development Investments**

The NOAA FY 2009 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 incorporates the President’s Management Agenda including Research and Development Investment Criteria (relevance, quality, and performance) for NOAA’s R&D programs, and leads to NOAA budget proposals that reflect the R&D investment criteria.

**Significant Adjustments to Base:**

NOAA requests an increase of 20 FTE and \$10,700,000 to fund adjustments to current programs for NMFS activities. The increase will fund the estimated FY 2009 federal pay raise of 2.9% and annualize the FY 2008 pay raise of 3.5%. 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 NMFS of \$0.

<b>From Office</b>	<b>Line</b>	<b>To Office</b>	<b>Line</b>	<b>Amount</b>
NMFS	Chesapeake Bay Studies and Southeast Area Monitoring and Assessment Program (SEAMAP)	NMFS	Regional Studies	\$6,371,000
NMFS	Magnuson-Stevens Implementation off Alaska	NMFS	Regional Science and Operations	\$7,474,000

NOAA requests a technical adjustment to move \$6,371,000 from the Chesapeake Bay Studies line and the Southeast Area Monitoring and Assessment Program line to a new Regional Studies line. NOAA also requests a technical adjustment to move \$7,474,000 from the Magnuson-Stevens Implementation off Alaska line to a new Regional Science and Operations line.

**Subactivity: Protected Species Research and Management**  
**Line Item: Protected Species**

**GOAL STATEMENT:**

Provide accurate and timely information and analyses for the conservation of the Nation’s living marine resources, and implement and monitor living marine resource management measures to recover protected species in support of the NOAA Strategic Plan goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.” The ultimate desired outcome is to recover and sustain all protected species (i.e., all species listed under the Endangered Species Act and all marine mammal populations) to be fully functioning components of their ecosystems. Base activities support the objective to “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce Strategic Plan goal to “Promote environmental stewardship.”

**BASE DESCRIPTION:**

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

**Protected Species Conservation and Management:** NMFS shares the responsibility for implementing the ESA and MMPA with the Department of the Interior’s Fish and Wildlife Service. In general, the Department of the Interior is responsible for the conservation of terrestrial and aquatic (freshwater) organisms and some marine mammals, and NOAA is responsible for conservation of living marine resources, which includes most marine mammals, most marine and anadromous fish (both commercially valuable and non-harvested species), turtles at sea, 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 ESA-listed species. NMFS also coordinates outreach and education activities, and international activities related to protected species. This work cuts across all program sectors, from proactive conservation efforts to recovery.

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

**Federal agency consultations:** Section 7 requires federal agencies, in consultation with the Secretary of Commerce and the Secretary of the Interior, to ensure that any action they fund, authorize, or undertake is not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat that has been designated for such species. In addition to conducting section 7 consultations, NMFS performs training, quality control, and guidance development. NMFS is required to complete consultation with action agencies under strict timeframes, and these demands are especially high for consultations on the registration of pesticides and on Clean Water Act criteria. NMFS requires additional resources to keep up with an increased demand for these consultations, and has invested heavily in efficiency improvements.

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

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

**Recovery actions and partnerships with States and Tribes:** NMFS administers agreements with states and Territories under section 6 of the ESA and provides limited funding in the form of grants to implement conservation actions for listed, recently de-listed, and candidate species. Funding may support the development and implementation of management strategies, scientific research, or public outreach and education activities. NMFS currently has section 6 agreements with 12 states, and is working to develop additional agreements. NMFS has also entered into agreements with West Coast states and tribes to implement the Pacific Coastal Salmon Recovery Fund (PCSRF). NMFS administers the PCSRF by coordinating development of performance measures and preparing an annual report to Congress on funded activities. Under the MMPA, NMFS has entered into agreements with Alaska Native groups regarding the management of harvested marine mammal stocks in Alaska; these agreements provide funding for cooperative management of these stocks.

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

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

**Protected Species Science:** NMFS conducts ongoing population surveys and assessments for management-directed research to answer specific questions about protected species and their environment. NMFS protected species science is directed toward protection, recovery, and conservation of protected living marine resources, including understanding the dynamics of these resources within their ecosystems and the environment. Surveys systematically gather information on species, including regional densities and overall abundance, seasonal distributions and movements, and sources and levels of human-related mortality and serious injury. Systematic, statistically based surveys collect information on the seasonal distribution of, and habitat types used by, protected species. In recent years, newly developed passive acoustic detection methods have demonstrated the potential for significantly augmenting traditional visual-based surveys by allowing the expansion of surveys in time and space, during conditions of poor visibility, and at night. Autonomous sensing devices (e.g., acoustic recorders) enable cost-effective detection of protected species in habitats and areas not suited to traditional surveys (e.g., polar seas and open ocean during winter) and at minimal risk to human safety.

**Assessments** use surveys and other information to develop “status of stocks” assessments in the short term; over the long term they use time series of those assessments and predictive statistical modeling methods to forecast protected species population trends in the context of conservation actions and natural environmental factors. Status of stock assessments, analyses of population trends over time, and assessments of human-induced mortality and serious injury provide the biological basis for management actions to effectively recover and conserve protected species and minimize the impacts of human activities. NMFS is responsible for completing timely assessments of all marine mammals yearly and of ESA-listed species every 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.

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

#### **PROPOSED LEGISLATION:**

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

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Protected Species Research and Management	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Protected Species					
Protected Species Base	26,616	33,154	33,700	34,766	1,066
Atlantic Salmon	5,850	5,753	5,829	9,996	4,167
Pacific Salmon	57,227	58,507	59,710	62,879	3,169
Marine Turtles	13,537	13,651	10,003	10,003	-
Marine Mammals	32,795	40,415	39,840	41,340	1,500
Other Protected Species	4,990	7,967	8,062	8,257	195
Cook Inlet Beluga Whale Research	-	353	-	-	-
Right Whale Disentanglement Program, Center for Coast Studies	-	94	-	-	-
Aleut Pacific Marine Resources Observers, AK	-	117	-	-	-
Alaska Sea Life Center, AK	-	3,473	-	-	-
Alaska Sea Otter and Steller Sea Lion Commission, AK	-	202	-	-	-
Alaska Native Harbor Seal Commission, AK	-	141	-	-	-
<b>TOTAL</b>	<b>141,015</b>	<b>163,827</b>	<b>157,144</b>	<b>167,241</b>	<b>10,097</b>
FTE	628	657	663	670	7

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Protected Species Research and Management – (+0 FTE +\$1,066,000)** - NMFS requests an increase of \$1,066,000, for a total request of \$34,766,000, for the Protected Resources Research and Management Programs line item. The increase is requested for Protected Species Stock Assessment to bring the total request to that recommended in the FY 2008 President's Budget but not provided in the Consolidated Appropriations Act, 2008.

**Atlantic Salmon (+0 FTE and \$4,167,000)** – NOAA requests an increase of \$4,167,000 and 0 FTE for Atlantic salmon. This request will be used to support Atlantic salmon recovery and to address habitat needs in key watersheds historically used by Atlantic salmon.

**Statement of Need**

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

**Proposed Actions**

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

**Benefits**

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

### Performance Goals and Measurement Data

The increase supports the NOAA Strategic Plan goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management,” the NOAA Ecosystem goal outcome of “Healthy and productive coastal and marine ecosystems,” and the FY 2008 GPRA measure, “Number of protected species designated as threatened, endangered, or depleted with stable or increasing population levels.”

Number of projects benefiting Atlantic salmon (cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
<b>With Increase</b>	25	50	75	100	125
<b>Without Increase</b>	0	0	0	0	0

Stream miles opened for use by Atlantic salmon (cumulative)	FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
<b>With Increase</b>	230	460	690	920	1150
<b>Without Increase</b>	0	0	0	0	0

**Marine Mammal Protection Activities (+7 FTE +\$1,500,000)** – NOAA requests an increase of \$1,500,000 and 7 FTE to conduct conservation and recovery actions for marine mammals. The increase will maintain efforts to reduce the bycatch of marine mammals in fisheries, implement non-fishery-related conservation actions, respond to strandings of marine mammals, and improve permit issuance efficiency. This request will secure funding to maintain these important base marine mammal protection activities funded under the Marine Mammal Initiative. The Marine Mammal Initiative has supported base NMFS activities including stranding and unusual mortality event (UME) response coordination; collection and analysis of samples from strandings/UMEs; stock assessments; Take Reduction Team activities; and, permitting, as required under the MMPA and ESA for research on protected species designated as threatened, endangered, or depleted.

### Statement of Need

Under the mandates of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA), NMFS must conserve and recover marine mammals. Conservation and recovery is achieved through assessing the status of marine mammal populations (through regular surveys and associated research on the biology and ecology of marine mammals) and reducing or eliminating the threats to species survival and recovery. Fishing, where marine mammals are incidentally taken as bycatch or entangled in fishing gear, is the biggest threat to the survival of many marine mammal species. Under Section 117 and 118 of the MMPA, NOAA must report on the status of marine mammal stocks and convene multi-stakeholder take reduction teams to reduce bycatch of marine mammals in fisheries. NOAA must also reduce other threats to species survival through the issuance of incidental harassment authorizations, research permits, interagency consultations that assess the effects of proposed actions on ESA-listed species, and the development and implementation of recovery and conservation plans.

## **Proposed Actions**

Protected Species Fishery Interaction (\$450,000) - Under this action, NOAA will implement marine mammal take reduction plans finalized in FY 2008 for the pelagic longline fisheries and Atlantic trawl fisheries in the Atlantic Ocean. The program will also continue to implement take reduction plans for Atlantic large whales, bottlenose dolphins, harbor porpoise, and sperm whales in the Eastern Pacific. The program is currently investigating the need for a take reduction plan for false killer whales in the western Pacific. Implementation activities include developing outreach materials to teach fishermen about new fishing practices or modified fishing gear that could reduce the entanglement or bycatch of marine mammals.

Protected Species Monitoring and Assessment (\$450,000) – Under this action, NOAA will expand efforts to implement the stock assessment improvement plans. Funds will be used to continue data collections (surveys and observer programs) and analyses informing management decisions.

Health and Stranding Response (\$450,000) – Under this action, NOAA will continue to support regional marine mammal stranding response coordination and to respond to Unusual Mortality Events. These funds will provide resources for response to and investigation of unusual morbidity (illness) or mortality (death) events. The rapid mobilization of qualified individuals and laboratories are critical to ascertaining the causes of mass stranding events, maintaining human safety, evaluating the causes or contributors to such events, mitigating the event, and potentially reducing the impacts on the population. Enhanced coordination of the marine mammal health network and building of the response and analytical capabilities is critical to the evaluation of the causes of illness, injury or death. Response activities may include post event or disease biomonitoring, tissue/serum banking, and data management and analyses.

Protected Species Permitting (\$150,000) – Under this action, NOAA will review and authorize permits under the MMPA to conduct scientific research on protected species pursuant to the MMPA, and under the ESA to conduct research on endangered and threatened species of marine mammals, turtles, and anadromous fishes. Funding for this action is one step in improving the overall efficiency of the permitting process, as the permit program is also developing alternatives for a programmatic review and developing associated ESA and NEPA documentation that would allow for programmatic authorizations.

## **Benefits**

Increased funding for Marine Mammal Protection Activities will provide for the implementation of take reduction plans and outreach to fishermen to teach them about how to prevent incidental bycatch; update marine mammals stock assessments; enhance the capability to detect, respond to and investigate marine mammal illnesses, injuries and deaths; and improve the efficiency of the permitting process. This investment will provide NOAA with increased capability for marine mammal conservation and recovery, particularly for developing precise estimates of population status and identifying and mitigating human causes of injury and death of marine mammals. Finally, these funds will sustain the reduction in time required for processing permits that has been achieved with the Marine Mammal Initiative funding provided in appropriations since 2005.

### Performance Goals and Measurement Data

The increase supports the NOAA Strategic Plan goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management,” the NOAA Ecosystem goal outcome of “Healthy and productive coastal and marine ecosystems,” and the FY 2008 GPRA measure, “Number of protected species designated as threatened, endangered, or depleted with stable or increasing population levels.”

Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c, APP Page 12		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	23	25	26	28	28
	<b>Without Increase</b>	23	25	25	27	26

**Other Protected Species – (0 FTE, +\$195,000)** – NMFS requests an increase of \$195,000, for a total request of \$8,257,000 for the Other Protected Species line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Pacific Salmon ESA Recovery and Research (0 FTE and +3,169,000)** – NMFS requests an increase of \$9,224,000 for Pacific salmon recovery implementation and management actions, improved scientific advice for Pacific salmon recovery, and to respond to EPA consultation workload. This program change restores funding to complete projects that were anticipated in the FY 2008 President's Budget but were not able to be completed with the FY 2008 Omnibus Language. NMFS also requests a decrease of \$6,055,000 FTE from the Columbia River Power System Biological Opinion (BiOp) Implementation so that NOAA can fund other priorities, while aligning spending with the required level of effort to maintain a minimum monitoring effort in the basin. The remaining funds will provide resources for status and trends monitoring data, and for action effectiveness data needed for evaluating the effectiveness of the 2000 BiOp.

*Recovery Implementation and Management Actions:*

#### Statement of Need

The ESA Pacific salmon program is required to conduct ESA listings, develop recovery plans, issue research, enhancement, and incidental take permits, develop habitat conservation plans, complete ESA section 7 consultations, and implement recovery actions for Pacific salmon.

#### Proposed Actions

- *Habitat Conservation Planning* – Funds will be used to ensure the successful development and implementation of Habitat Conservation Plans for Pacific salmon. These plans are a cornerstone of efforts to conserve ESA listed species on non-Federal lands. They are essential to the recovery of

Pacific salmon as a majority of existing and potential high quality salmon habitat occurs on private lands. Implementation of these efforts also contributes to the Administration's efforts to promote Cooperative Conservation with private landowners.

- *ESA section 7 consultations* – Over the past several years, the protected species program has worked to reduce the backlog of ESA consultations and improve the timeliness of consultations with other Federal entities. Consultations vary widely in complexity and controversy and have required increased resources to respond to demands by Congress, the courts, the public, and litigation from nongovernmental organizations and industry. These demands include greater precision, scientific certainty, and transparency in the decision-making process. At their most complex, formal consultations can now take several months or years and can become the centerpiece of extensive legal challenges. Without increased support for consultations, the program will revert to a point where consultations are continually delayed and constituents are continually unhappy with the pace of the effort.
- *Recovery Implementation with local partners* – In FY 2009, the Protected Species program will continue implementing the recovery plans for Puget Sound and the Upper Columbia River. The full implementation of these plans relies on a cooperative effort from local partners. The Protected Species Program will help guide recovery efforts and provide expert advice to those looking to implement recovery actions. Increased funding will allow the program to track the performance of recovery implementation efforts and monitor the success of recovery plan implementation.

### **Benefits**

The items above provide a solid foundation for Pacific salmon recovery on the West Coast. These efforts are critical to achieving recovery on an expedited timeframe, while at the same time providing good customer service to constituents looking to implement recovery actions, as well as carry out other lawful activities.

### *Improved Pacific Salmon Science Support*

#### **Statement of Need**

This increase will focus on predicting ocean survival of Pacific salmon, evaluating management actions, improving research on the effects of hatcheries on salmon recovery, and evaluating the cost effectiveness of various recovery actions.

#### **Proposed Actions**

- *Predictors of Salmon Survival in the Ocean* – Predictors of how ocean conditions affect salmon survival are needed to improve commercial and recreational harvest guidelines and to assess effectiveness of restoration and recovery activities in freshwater habitats. Physical and biological metrics will be integrated into an index of 'ocean condition' that will be related to low, average, or high returns of salmon.
- *Evaluation of Management Actions on Salmon Production and Survival using New Technologies* – Recent advances in fish tagging and tracking technology will dramatically improve evaluation of the efficacy of restoration actions at a watershed and provincial level. This information will provide critical new information on salmon life history and survival and may radically alter our estimates of salmon response to restoration. This new information could affect policy and greatly improve future management of Pacific salmon recovery.
- *Hatcheries as Recovery Tools* – The long-term genetic impact on wild fish fitness due to hatchery supplementation is one of the most critical uncertainties in salmon recovery planning. NMFS will initiate a long-term research project to directly measure the rate of genetic domestication

that occurs due to hatchery breeding and rearing. This research is essential to understand the benefits and risks of hatchery supplementation to improve depleted populations.

*Cost-effectiveness of salmon and steelhead recovery actions* – There is a significant gap in data on the economic costs and biological effects of recovery actions for ESA listed salmon. Data necessary to assess the cost-effectiveness of those actions, including harvest reductions, hatchery reforms, modifications to hydropower facilities and operations, and habitat restoration and protection, will be collected. This project is essential to facilitate recovery planning and the results will be incorporated into recovery planning implementation documents.

### **Benefit**

The increased information will be directly used by managers to improve recovery actions and focus recovery efforts on those actions with the highest likelihood of success. Salmon managers will be better able to predict ocean abundance and develop improved harvest and protection strategies, improve prioritization of restoration projects, understand the benefits and risks of hatchery supplementation, and focus limited resources on those actions with the highest benefit and lowest cost.

*Section 7 Consultations - Environmental Protection Agency (EPA) Pesticide Court Decision Workload* – This increase will be used for necessary costs to meet court-ordered time lines to conduct ESA section 7 consultations with EPA. These consultations are required by rulings on pesticide lawsuits in California, Oregon, Idaho, and Washington State, which impact pesticide use adjacent to listed salmon habitats. Other lawsuits are pending. NMFS can generally complete a draft biological opinion of average complexity in 135 days. Because pesticide consultations are relatively new, and often very complex, NMFS estimates that initial development of draft biological opinions on pesticides may take significantly longer.

### **Statement of Need**

Until recently, EPA did not conduct section 7 consultations on the actions they funded, authorized, or carried out pursuant to the Clean Water Act (CWA) and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). In 2002, EPA initiated consultation with NMFS on its registration or re-registration of several pesticides in response to legal challenges in the States of Washington and California. In response to these legal challenges, and in the interest of preventing future legal challenges, EPA plans to routinely consult with NMFS on its registration and re-registration of pesticides. These requests are expected to add about 50 formal and 100 informal consultations to NMFS' existing, annual workload.

The pesticide consultation workload represents a significant increase to NMFS. Pesticide consultations are extremely complex and require specialized technical expertise (e.g., toxicology), which NMFS currently lacks. The proposed increase would allow NMFS to obtain toxicological expertise and fund additional research to address data gaps. The increase will allow senior Section 7 biologists to be dedicated full-time to write and coordinate Biological Opinions with the assistance of toxicologists, spatial analysts, and junior staff biologists. Existing staff capacity is not adequate to absorb the new pesticide workload without creating significant impacts to other consultation programs.

The actions flowing from the administration of FIFRA will result in a new and significant increase in NMFS' consultation workload. In addition, NMFS' section 7 consultations with EPA have historically been among the most complex, owing to the chemical and toxicological expertise required and the

amount of legal and political controversy surrounding these issues. To address this increased consultation workload and ensure that the results of NMFS' consultations can withstand rigorous legal challenge, NMFS must increase the number of consulting biologists, their technical expertise, and the amount of toxicological expertise available in NMFS Science Centers. As a result, more financial support will be required for NMFS to respond to the entire increased workload associated with these consultations.

### **Proposed Actions**

With the requested increase, NMFS will increase its capacity in three areas: (1) addressing the increased consultation workload; (2) conducting risk assessments of environmental pollutants; and (3) acquiring, evaluating, and producing data and information associated with the chemistry and toxicology of environmental pollutants, the impact of pollutants on aquatic ecosystems, and the physiological responses of living marine resources to those pollutants.

### **Benefits**

Increasing NMFS' capacity to conduct and complete consultations with EPA will allow NMFS to fulfill its statutory mandates and, by reducing the impact of water pollution on threatened and endangered species, these consultations will make substantial contributions to the recovery of threatened and endangered species.

### **Performance Goals and Measurement Data**

The increase supports the NOAA Strategic Plan goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management," the NOAA Ecosystem goal outcome of "Healthy and productive coastal and marine ecosystems," and the FY 2008 GPRA measure, "Number of protected species designated as threatened, endangered, or depleted with stable or increasing population levels."

Number of Protected Species listed as threatened, endangered, or depleted with stable or increasing population levels, Measure 1c, APP Page 12		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	25	26	27	28	28
	<b>Without Increase</b>	23	25	25	27	26

### *Pacific Salmon - Columbia River Biological Opinion (BiOp)*

#### **Statement of Need**

After two years of full funding (FY 2006 and FY 2007), NOAA began slowly decreasing funding for the Columbia River BiOp implementation in FY 2008.

**Proposed Actions**

At the reduced level, the research, monitoring, and evaluation program will progress in meeting the provisions of the Biological Opinion on the management of the FCRPS at the lowest level of effort possible. The core activities of baseline status and trends monitoring and important effectiveness monitoring would be maintained.

**Benefits**

This requested decrease will allow NOAA to fund higher priority activities, while aligning spending with the required level of effort to maintain a minimum monitoring effort in the basin.

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Marine Mammals (\$1,194,000), Marine Turtles (\$3,861,000), Cook Inlet Beluga Whale Research (\$353,000), Right Whale Disentanglement Program (\$94,000), Aleut Pacific Marine Resources Observers (\$117,000), Alaska Sea Life Center (\$3,473,000), Alaska Sea Otter and Steller Sea Lion Commission (\$202,000), and Alaska Native Harbor Seal Commission (\$141,000).



**Subactivity: Fisheries Research and Management**  
**Line Item: Fish**

**GOAL STATEMENT:**

Provide accurate and timely information and analyses on the biological, ecological, economic, and social aspects of the Nation's fisheries resources and develop, implement, and monitor living marine resource management measures to support the NOAA Strategic Plan goal to, "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

**BASE DESCRIPTION:**

**Fisheries Research**

NMFS develops scientific information needed for the stewardship of the Nation's living marine resources. NMFS' regional Science Centers encompass 25 principal laboratories, employing more than 1,550 scientific and support personnel and another 380 full- or part-time contractors. They provide the scientific knowledge base for NMFS' Regional Offices, 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 the NMFS' core functions is to determine the changes in the abundance of fishery stocks in response to fishing and predict future trends of stock abundance. Assessments provide the technical basis for setting annual fishery quotas and other fishery management measures that will achieve optimum yield from the fishery while avoiding overfishing and ecosystem harm. Confidently achieving this balance between exploitation and conservation requires substantial information about the fish stock and its ecosystem from fishery resource surveys. These assessments provide direct technical guidance to fisheries managers and stakeholders managing key fish species. For example, NMFS' stock assessments provide the technical basis for setting annual catch limits (ACL), a requirement of MSA, and an integral component of the President's U.S. Ocean Action Plan, which advocates the wider implementation of limited access privilege programs.

*Fishery Resource Surveys:* Understanding the factors affecting the abundance and life history of fish stocks requires collecting catch and effort data, measuring biological characteristics, and developing biostatistical analyses for a variety of Fishery Management Plan (FMP) and non-FMP species of exploited fish and invertebrates. Fishery-dependent and fishery-independent resource surveys provide age and size samples, catch composition, and indices of relative abundance. These data are key inputs to stock assessments, fishery management regulations, and the production of status reports for living marine resources and their fisheries.

A fishery independent survey is data collected independently of the activity of the commercial or recreational fishing sector. This approach avoids biases when collecting data on life history characteristics for a species, such as age, natural mortality, growth rates, and reproductive capacity. Conversely, a

fishery dependent survey collects data on a fishery from commercial or sport fishermen and seafood dealers. Collection methods include the use of logbooks, portside sampling of catch, fishery observers, and telephone surveys to recreational fishermen.

*Focus on Ecosystems:* NMFS' resource management focuses on the connectivity of living and non-living resources within a determined ecosystem. This ecosystems approach to management relies upon research and analyses that integrate biological, socio-economic, environmental, and oceanographic data into predictive models that improve the Nation's forecasting capabilities for fisheries management. NMFS' use of an ecosystems approach increases the ability to make scientifically-sound management decisions that are less prone to risk and more likely to succeed. Improved scientific analyses ensure that constituents receive the most accurate and complete analyses, thereby fostering a constructive public stewardship process.

*Social and Economic Data Collection:* To understand human uses of ecosystems and its impact, NMFS collects socioeconomic data, which enables NMFS to develop options to manage fisheries for economic as well as biological growth and sustainability. Integration of socioeconomic indices into NMFS' forecasts allows for improved baseline data that managers from all sectors can use to make better informed decisions. NMFS' social and economic assessments are crucial for the successful development of market-based systems for fisheries management.

*Use of the Best Available Science:* Managing the nation's marine fisheries at sustainable harvest rates and rebuilding depleted fish stocks requires the best available scientific information to implement sound management and conservation actions. NMFS is responsible for ensuring that management decisions are based on the highest quality scientific information on the biological, social, and economic status of the fisheries. This includes species' responses to environmental changes, species interactions, exploitation, and other human activities that affect species and their habitat. Social, cultural, and economic behaviors and incentives that influence human/marine interactions are also addressed.

### **Fisheries Management**

Commercial and recreational marine fisheries are an important source of revenue and jobs. U.S. commercial fishermen landed 9.6 billion pounds valued at \$3.9 billion in 2005. Overall, it is estimated that the commercial fishing industry contributed \$32.9 billion (in value added) to the U.S. Gross National Product. U.S. recreational fishermen took an estimated 83.4 million fishing trips, and harvested 174.3 million fish weighing 254.4 million pounds. In total, U.S. consumers spent an estimated \$65.2 billion for fishing products in 2005. 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. 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 Rule-making Process:*

Domestic fisheries within the US EEZ are managed regionally by regional Councils. Atlantic highly migratory species (e.g., tunas, sharks, swordfish, and billfish) are managed directly by the Fisheries Management Program. The Fisheries Management Program partners with the Interstate Marine Fisheries Commissions and states to manage coastal marine fisheries. Regional Councils, their advisory bodies, interstate Commissions, and states meet regularly

during the year to conduct a transparent decision making process for recommending fishery management actions. Before final action is taken, comprehensive ecological and socioeconomic analyses are prepared using NMFS' fisheries research and presented at public hearings during Council, Advisory Panel, and Commission meetings. These bodies and the Fisheries Management Program are charged with developing and implementing Limited Access Privilege Programs (LAPP) in addition to addressing overfishing, bycatch, essential fish habitat, and rebuilding issues through the development of fishery management plans and amendments. Goals of the Fisheries Management Program include increasing the number of fisheries managed with LAPPs and improving the status of fish stocks by ending overfishing and increasing stock biomass.

NMFS reviews management programs proposed by the Councils, and if they are approved, NMFS implements the required federal regulations. The six NMFS Regional Offices facilitate and expedite the approval and implementation of fishery management plans and amendments, including the preparation of analytical documents and management of other activities in support of rulemaking (e.g., implementing regulations, in-season actions, permits, etc.) for fisheries and fishery trade activities managed by the Fisheries Management Program under multiple authorities. The Fisheries Management Program considers comments from private sector organizations (commercial and recreational fishing organizations, environmental groups, fishermen, and the general public) regarding management of U.S. commercial and recreational fisheries activities. The Fisheries Management Program also partners with the Interstate Marine Fisheries Commissions and states to manage coastal marine fisheries through regulatory analysis, evaluation, and implementation.

*Consistency Requirements:* Management of 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 is the primary authority for fisheries management in the US Exclusive Economic Zone (EEZ; three to 200 nautical miles offshore of the United States). The Act establishes authority within the U.S. Department of Commerce, through NMFS and the Councils, for management of U.S. fishing operations and imposes strict timelines for review and implementation of fishery management plans and regulations submitted by Councils and approved by the Secretary of Commerce.

*Managing Seafood Quality:* The Fisheries Management Program promotes the economic sustainability of fishermen and fishing communities and provides for healthy seafood. The Fisheries Management Program provides for improvements in the fishing fleet and shoreside processing operations, reductions in overcapacity in fisheries, and a voluntary seafood inspection service to ensure compliance with all applicable food regulations. The National Seafood Inspection Laboratory provides an analysis laboratory, data management, regulatory compliance risk analysis, and information transfer expertise to support the Department of Commerce's National Seafood Inspection Program. The seafood inspection program provides voluntary services such as sanitation evaluation, product inspection and certification, auditing of food quality and safety programs, and training. Approximately 10% of the industry uses NOAA services and 20% of the seafood consumed in the US is inspected by the seafood inspection program.

*International and Transboundary Management:* The Fisheries Management Program is responsible for the conservation and management of international transboundary fish stocks (such as salmon) straddling and shared fish stocks, and highly migratory species including tunas, sharks, swordfish, and billfish.

Consequently, the Fisheries Management Program must participate in negotiations of international agreements as well as provide and coordinate support for the U.S. commissioners on international commissions for living marine resources. 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.

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Fisheries Research and Management	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Fish					
Fisheries Research and Management Base	145,136	135,473	138,080	159,585	21,505
Anadromous Grants	1,974	1,950	-	-	-
American Fisheries Act	-	4,876	5,008	5,351	343
Interjurisdictional Fisheries Grants	2,556	2,504	2,508	2,569	61
Economics & Social Science Research	6,231	5,851	5,929	10,658	4,729
Expand Annual Stock Assessment – Improve Data Collection	26,612	31,599	32,020	40,504	8,484
Fisheries Information Network/Data Collection	21,569	21,653	21,782	22,013	231
Fisheries Oceanography	493	967	971	995	24
Fisheries Statistics	12,861	12,855	13,137	16,152	3,015
National Standard 8	998	991	1,011	1,035	24
Product Quality and Safety	6,775	6,803	6,960	7,127	167
Reduce Fishing Impacts on Essential Fish Habitat (EFH)	500	497	505	517	12
Reduce Bycatch	2,777	2,738	2,793	3,360	567
Regional Council and Fisheries Commissions	25,065	25,675	26,660	27,289	629
Salmon Management Activities	24,184	23,403	23,527	24,381	854
Survey and Monitoring Project	14,837	14,627	15,046	23,270	8,224
Other fisheries-related projects	9,012	-	-	-	-
Maine and New Hampshire Inshore Trawl Survey	-	188	-	-	-
Migratory Shark Research at Mote Marine Laboratory	-	1,501	-	-	-
Reef Fish Monitoring and Research, FL Fish & Wildlife Conservation Commission	-	939	-	-	-
Chesapeake Bay Multi Species Fisheries Management	-	352	-	-	-
Gulf Oyster Industry Program, University of Florida	-	188	-	-	-
Narraganset Bay Window Program, University of Rhode Island Coastal Institute	-	915	-	-	-
Oyster Hatchery Economic Pilot Program, Morgan State	-	470	-	-	-

Subactivity: Fisheries Research and Management	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
University, MD					
Papahanaumokuakea Marine National Monument Fishery Assistance	-	6,690	-	-	-
Massachusetts Groundfish Support, MA	-	13,382	-	-	-
Monkfish and Migratory Finfish Trawl Surveys, NJ	-	1,338	-	-	-
Southern New England Cooperative Research Institute, RI	-	1,338	-	-	-
Hawaii Seafood Safety and Inspections	-	669	-	-	-
Trawl Survey, Chesapeake Bay	-	447	-	-	-
Horseshoe Crab Research, Virginia Tech, VA	-	447	-	-	-
Oregon Salmon Weak Stock Solutions Research, OR	-	447	-	-	-
Fisheries Infrastructure, Investigation, Assessment & Improvement Project, AL	-	376	-	-	-
Scallop Fishery Assessment, MA	-	1,784	-	-	-
Center for Ecosystem-based Fisheries Management, AL	-	2,629	-	-	-
Pelagic Tagging, CA	-	446	-	-	-
<b>TOTAL</b>	<b>301,580</b>	<b>327,008</b>	<b>295,937</b>	<b>344,806</b>	<b>48,869</b>
<b>FTE</b>	<b>1,376</b>	<b>1,444</b>	<b>1,451</b>	<b>1,485</b>	<b>34</b>

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

**Fisheries Research and Management Programs (19 FTE +\$21,505,000)** – NMFS request an increase of \$21,505,000 for a total of \$159,585,000 for Fisheries Research and Management Programs. Detailed descriptions of the net increase are described below.

**Council Committees/Annual Catch Limits & Stipends (0 FTE +\$5,050,000)** – NMFS requests an increase of \$5,050,000 to support the improvement and enhancement of the independent peer-review process for scientific data required to appropriately set the annual catch limits for all managed fisheries. In addition, NMFS will support the payments or stipends to the Councils' Scientific and Statistical Committees and enhance the interaction with the domestic Councils, to reach the goal of ending overfishing by 2010 required under the reauthorized Magnuson-Stevens Fishery Conservation and Management Act.

**Statement of Need**

This increase to support independent scientific review of fisheries data is critical to ensuring that NMFS attracts and retains high-quality scientists who provide the best advice to the Councils. Having access to good scientific knowledge increases the Councils' ability to end overfishing and manage the Nation's fisheries at sustainable levels. Expert peer review is essential in ensuring the quality of science for decision making and in improving public understanding and confidence in the stock assessment process. As more stock assessments are conducted in response to requirements to end overfishing under the Magnuson-Stevens Act, more funding will be needed for independent peer review.

The reauthorized Magnuson-Stevens Act mandates that each Regional Fisheries Management Council establish, maintain, and appoint the members of a Scientific and Statistical Committee (SSC) to assist in the development, collection, evaluation, and peer review of statistical, biological, economic, social, and other scientific information relevant to the Councils' development and amendment of any Fishery Management Plan. Each SSC provides its Council with ongoing scientific advice for fishery management decisions, including recommendations for determining acceptable biological catch, preventing overfishing, achieving maximum sustainable yield, and setting rebuilding targets. Each SSC must also provide its Council with reports on stock status and health, bycatch, habitat status, social and economic impacts of management measures, and sustainability of fishing practices. The reauthorized Magnuson-Stevens Act mandates that NMFS support a payment for stipends to members of the SSC or advisory panels who are not employed by the federal government or a state marine fisheries agency, to the extent practicable. With the information provided by the committees, the Council will develop annual catch limits for each of its managed fisheries that may not exceed the fishing levels recommended by its SSC or the peer-review process.

**Proposed Actions**

This request will support the independent peer review of scientific data (stock assessments). Scientists will provide independent and authoritative reviews of fisheries science and will make recommendations necessary for the management of marine fisheries resources that are under NMFS purview. In addition, the funds will support stipends for non-government-employee SSC members to cover their participation at meetings so NMFS can attract and retain high-quality scientists on these committees and benefit from their expert recommendations. This funding will support NOAA's effort to ensure that annual catch limits are developed and implemented consistently with the administrative procedural requirements of the National Environmental Policy Act, the Magnuson-Stevens Act, the Endangered Species Act, the Marine Mammal Protection Act, and numerous other laws and Executive Orders.

**Benefits**

This funding will enhance the peer-review process for fisheries data used by NMFS to set annual catch limits necessary for sustainable fisheries management and ensure high-quality science for the Councils. High-quality, credible science will allow NMFS to end overfishing on more stocks by 2010 and directly affect increases in the Fish Stock Sustainability Index.

**Performance Goals and Measurement Data**

This increase supports the objective, “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce strategic goal to “Promote environmental stewardship.” It also supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.” The increase supports the Ecosystem Performance Goal and Proposed GPRA measure, Fish Stock Sustainability Index.”

<b>The Fish Stock Sustainability Index (FSSI), Measure 1a, APP Page 10</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	542.5	545.5	552.5	544.5	547.5
	<b>Without Increase</b>	542.5	545.5	552.5	538.5	540.5
<b>Note:</b> This shows the effect of this program change (+\$5,050K) on the FSSI. This is a component of the total number reported in the Annual Performance Plan (APP). * Effects of FY 2009 funding request on the FSSI will not occur until FY 2012 due to lag time in stock status changes from pending management decisions and planned stock assessments.						

<b>The Fish Stock Sustainability Index (FSSI), Measure 1a, APP Page 10</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	542.5	545.5	552.5	566.5	569.5
	<b>Without Increase</b>	542.5	545.5	552.5	538.5	540.5
<b>Note:</b> This shows the combined effect of the Annual Catch Limit (+\$5,050K), the Pacific Whiting (+\$250K) and the Western and Central Pacific Fisheries Management Commission (+\$1,000K) program changes on the FSSI.						

Pacific Whiting (1 FTE +\$250,000) – NMFS requests an increase of \$250,000 and 1 FTE to work with its Canadian counterparts to establish an advisory panel, joint management and technical committees, and the scientific review group required for implementation of the Pacific Whiting Treaty as required under the reauthorized Magnuson-Stevens Act. This process will lead to a sustainable Pacific Hake/Whiting fishery and sustained economic benefits to the U.S. fleet.



**Statement of Need**

The Pacific Whiting Act promulgates the international agreement with Canada on Pacific Hake/Whiting, signed November 21, 2003. Implementing this treaty is important for the sustainable management of Pacific hake/whiting because it will provide the United States and Canada a venue and mechanisms to set quotas and catch limits to end overfishing and rebuild the stock for both countries. The reauthorized Magnuson-Stevens Act includes a provision that mandates NOAA to have four representatives in the various committees established by the Pacific Whiting Act. In the absence of treaty support, the United States and Canada set independent harvest quotas that result in overfishing of the combined resource.

**Proposed Actions**

The Pacific Whiting Act calls for NOAA to set four appointed positions (one each from each NOAA, Pacific Fisheries Management Council, tribal sector, and commercial sector) with experience in issues concerning offshore whiting resources, to represent the United States on the Joint Management Committee established by the agreement. Two seats are set for the Scientific Review Group, and six to 12 seats for both the Joint Technical Committee and Advisory Panel. The Act establishes the procedures and roles for this management body, and provisions in the event of no approved catch recommendation. The Pacific Whiting Joint Management Committee will provide a needed forum for the co-management of the Pacific whiting fisheries. This additional funding will provide support for 1 FTE, travel expenses, and other costs associated with U.S. representation on the committees.

**Benefits**

U.S. representation on the committees established by the Pacific Whiting Act will support and allow for better co-management of Pacific hake/whiting resources. The United States, in cooperation with Canada through this treaty, will establish quotas and catch limits that ensure the end of overfishing and support rebuilding of the fishery in both countries.

**Performance Goals and Measurement Data**

This increase supports the Department objective and NOAA goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce strategic goal to “Promote environmental stewardship.”

<b>The Fish Stock Sustainability Index (FSSI), Measure 1a, APP Page 10</b>		<b>FY 2009Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	542.5	545.5	552.5	544.5*	547.5
	<b>Without Increase</b>	542.5	545.5	552.5	538.5	543.5

**Note:** This shows the effect of this program change (+\$250K) on the FSSI. This is a component of the total number reported in the Annual Performance Plan (APP). \* Effects of FY 2009 funding request on the FSSI will not occur until FY 2012 due to lag time in stock status changes from pending management decisions and planned stock assessments. Assumes that insufficient funding for management of Pacific Whiting will result in a lower FSSI score by 2012 (3 pts. moving to overfishing, low Bmsy, & overfished).

<b>The Fish Stock Sustainability Index (FSSI), Measure 1a, APP Page 10</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	542.5	545.5	552.5	566.5	569.5
	<b>Without Increase</b>	542.5	545.5	552.5	538.5	540.5
<b>Note:</b> This shows the combined effect of the Annual Catch Limit (+\$5,050K), the Pacific Whiting (+\$250K) and the Western and Central Pacific Fisheries Management Commission (+\$1,000K) program changes on the FSSI.						

Western and Central Pacific Fisheries Management Commission (3 FTE, +\$1,000,000): NMFS requests an increase of \$1,000,000 and 3 FTEs to provide leadership for the U.S. delegation to the Western and Central Pacific Fisheries Commission (WCPFC) as mandated by the reauthorized Magnuson-Stevens Fishery Conservation and Management Act. The WCPFC is responsible for the conservation and management of highly migratory fish stocks in the Western and Central Pacific Ocean.

#### **Statement of Need**

The WCPFC is a new treaty-based regional fishery management organization established to conserve and manage tunas and other highly migratory fish stocks across a vast range of the Pacific Ocean. The WCPFC will manage highly migratory fish stocks valued at \$2 billion annually, and will become the “International Commission for the Conservation of Atlantic Tuna (ICCAT) of the Pacific” in terms of ocean-wide significance to U.S. fisheries policy. The United States has the largest exclusive economic zone (EEZ) within the WCPFC Convention Area (including waters of Hawaii, Guam, American Samoa and Northern Mariana Islands). The Commission will manage stocks of bigeye, yellowfin, and skipjack tuna; swordfish; and marlins – stocks whose range includes the high seas and areas under U.S. management jurisdiction. NMFS currently has no base funding to support the U.S. Commissioner to the WCPFC, or to provide for the necessary support staff for the Advisory Panel that gives U.S. stakeholders the opportunity to participate in WCPFC management decisions. At risk is the ability of the United States to meet its international treaty obligations and its ability to shape the agenda and the work of the Commission. More importantly, at risk is the ability for the United States to be seen as a leader in the region and to shape the future for a part of the world having ever greater significance to U.S. national interests. Some stocks under WCPFC management, including bigeye and yellowfin tuna are being overfished. Because these are shared stocks found in U.S. waters, failure by the United States to actively address this problem at the international level will have adverse repercussions on U.S. fishermen, U.S. consumers of these tuna resources, and the island economies that are highly dependent on the sustainable management of high value-marine resources.

#### **Proposed Actions**

This request will support three FTEs and associated funds for travel and supplies for the Pacific Island Regional Office. Specifically, two program analysts and a fisheries biologist in the Pacific Islands Regional Office, and WCPFC coordination at NMFS headquarters (Office of International Affairs) will be supported. NMFS will work to ensure the long-term sustainability of highly migratory fish stocks in the Convention area and ensure that measures taken to achieve this objective are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield. NMFS will also assess the impacts of fishing, other human activities, and environmental factors on target stocks, non-target

species, and species belonging to the same ecosystem or dependent on or associated with the target stocks. NMFS will adopt measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target species (both fish and non-fish species) and impacts on associated or dependent species, in particular endangered species. NMFS will promote the development and use of selective, environmentally safe and cost-effective fishing gear and techniques, and will implement and enforce conservation and management measures through effective monitoring, control and surveillance.

**Benefits**

Sustainable management of these stocks is critical to the economies of the U.S. islands (Hawaii, Guam, America Samoa, and the Northern Mariana Islands) and to broader national interests. With the increase, the United States will be able to serve in a strong leadership role to advance U.S. conservation, management, enforcement, and economic interests within the Commission and to safeguard U.S. management measures within our EEZ. Sustainable management of highly migratory species is the defining economic, environmental, cultural, and security issue for the Western and Central Pacific Ocean region and the wider Pacific basin. Appropriate fishery management measures, resulting from Commission negotiations, will prevent overfishing across the range of the stocks and ensure the long-term viability of the fisheries.

**Performance Goals and Measurement Data**

This increase supports the Department objective and NOAA goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce strategic goal to “Promote environmental stewardship.”

<b>The Fish Stock Sustainability Index (FSSI), Measure 1a, APP Page 10</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	542.5	545.5	552.5	557.5	559.5
	<b>Without Increase</b>	542.5	545.5	552.5	538.5*	540.5

**Note:** This shows only the effect of this program change (+\$1,000K) on the FSSI. This is a component of the total number reported in the Annual Performance Plan (APP). \* Effects of FY 2009 funding request on the FSSI will not occur until FY 2012 due to lag time in stock status changes from pending management decisions and planned stock assessments. Assumes that insufficient funding for management of the FSSI stocks managed by WCPFC will result in a lower FSSI score by 2012 (18 points reduced for overfishing, low Bmsy, & overfished in those stocks currently "known").

<b>The Fish Stock Sustainability Index (FSSI), Measure 1a, APP Page 10</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	542.5	545.5	552.5	566.5	569.5
	<b>Without Increase</b>	542.5	545.5	552.5	544.5	547.5

**Note:** This shows the combined effect of the Annual Catch Limit (+\$5,050K), the Pacific Whiting (+\$250K) and the Western and Central Pacific Fisheries Management Commission (+\$1,000K) program changes on the FSSI.

Limited Access Privilege Programs (8 FTE, +\$4,826,000): NOAA requests an increase of \$4,826,000 and 8 FTEs to support goal to double the number of Limited Access Privilege programs (LAPPs). This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008. LAPP programs—e.g., individual fishing quota (IFQ), community development, cooperative, and area-based quota programs— can reduce overcapacity and end the “race for fish.” The Administration’s *U.S. Ocean Action Plan* committed to the greater use of these market-based systems for fisheries management, and subsequently set a goal to double the eight programs in place in 2006, to 16 by 2011.

### **Statement of Need**

A number of U.S. fisheries are characterized by overcapacity and are subject to fisheries closures to rebuild stocks and reduce bycatch. LAP programs are needed to eliminate the “race for fish” inherent in open-access fisheries, which also leads to overcapitalization and contributes to overfishing of ocean resources. MSRA specifically authorizes the use of these programs. NOAA needs additional LAPPs to contribute to safer fisheries, as vessel operators can choose not to fish in bad weather without fearing that the quota will be taken by someone else; increase the availability of high-quality fresh fish; improve the economic performance of the fishery; and reduce bycatch.

Currently there are 11 LAP programs in place. NOAA plans to increase this number to 14 in 2009 and 16 in 2011. Although the benefits of LAP programs are significant, they are also expensive to develop, implement, and operate. The Magnuson-Stevens Fishery Conservation and Management Act provides for cost recovery up to 3 percent of the value of landed catch in an operational LAPP fishery. However, in some occasions NOAA cannot recover full operational costs of certain LAP programs. For this reason the funding requested will support the cost of the three phases of a LAP program (described below). The requested funds will primarily be used for the development and implementation of new LAP programs, as well as for the additional, non-recoverable costs of existing operational LAP programs.

### **Proposed Actions**

With this funding NOAA will continue to use a three-phase approach to develop, implement, and operate LAP programs. NOAA anticipates starting the operation of two new LAPPs in FY 2009. The three phases are as follows:

- 1) **Development Phase**: Formation of Fishery Management Action Teams, development of amendments or frameworks, analyses (e.g., National Environmental Policy Act, Regulatory Flexibility Act), consultations (e.g., Endangered Species Act, Essential Fish Habitat), and the Council process.
  - 2) **Implementation Phase**: Development of regulatory packages, developing databases and computer applications, issuing permits and initial shares, and implementing Vessel Monitoring Systems (VMS).
  - 3) **Operation Phase**: Enforcement, VMS tracking costs, tracking and monitoring of quota shares and quota pounds, observer program, data analysis, report writing, operation of cost recovery programs, adjustments to computer and accounting systems, and regulatory changes.
- In FY 2009, NMFS will have operational new LAPPs in the sea scallop and tilefish fisheries.

### Benefits

With this funding, NOAA will increase the number of fisheries managed using market-based LAP programs. LAPPs eliminate the “race for fish” inherent in open-access fisheries, which leads to overcapitalization and contributes to overfishing of resources. They contribute to safer fisheries, as vessel operators can choose not to fish in bad weather without fearing that the quota will be taken by someone else. LAPPs also increase the availability of high-quality fresh fish and improve economic performance of the fishery. The U.S. Commission on Ocean Policy recommended increasing the use of LAPPs in fishery management, and the Administration supports their use.

### Performance Goals and Measurement Data

This increase supports the Department objective and NOAA goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce strategic goal to “Observe, protect, and manage the Earth’s resources to promote environmental stewardship.” This proposed increase would provide funding to create thorough and comprehensive market-based fisheries programs.

<b>Number of Fisheries Managed Under Limited Access Privilege Programs (from a base of 8)</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	14	14	16	17	18
	<b>Without Increase</b>	12	12	12	12	12

### Regulatory Streamlining and Modernization (+7 FTE’s and \$2,829,000)

NOAA requests \$2,829,000 and 7 FTE’s to support the fishery plan development and regulatory analysis, evaluation, and implementation capabilities of the Fisheries Management Program, which encompasses the complete process of developing fishery management recommendations through their eventual analysis, approval, and implementation. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

With the implementation of the Regulatory Streamlining Program (RSP), NOAA will improve the quality and timeliness of regulatory processes and policy development for its Fishery Management Program through comprehensive impact analyses, full and timely consideration of all relevant issues, and compliance with all applicable laws and procedures. RSP will enable NOAA to efficiently address policy issues early in the regulatory process, rather than later when it becomes difficult to comprehensively address a new and possibly contentious issue.

NMFS has been working with the Regional Fishery Management Councils for the past few years to improve the timeliness and quality of its fishery management actions through the RSP. The increase will enable the Councils to develop fishery management recommendations with thorough analyses and public input. The increase will also enable NOAA to assist in the development, review, and implementation of Council-proposed actions and in the implementation efforts of NMFS regional offices. Improved quality and timeliness of regulatory processes combined with policy development will result in better-managed stocks and decreased litigation.

All Regional Fishery Management Councils and NMFS regions will receive support to frontload development, analysis, evaluation, and implementation of fishery management actions. Deliverables will include fishery management plans, plan amendments, implementation regulations (proposed and final rules), annual harvest specifications, and in-season management actions.

NOAA will assist in the development, review, and implementation of Council-proposed actions. Additional staff will be used to expand regional capacity to meet Council demands, including efforts to facilitate and expedite Secretarial approval and implementation of Fishery Management Plans (FMPs) and amendments and to prepare analytical documents in support of rulemaking.

The RSP is a fundamental reconsideration and redesign of the regulatory process within NMFS due to the unique challenges the MSRA creates for fishery managers. It broadly supports the capability of “achieving sustainable marine fisheries” in the President’s U.S. Ocean Action Plan by seeking to improve the underlying fisheries management processes. It does this by providing resources to meet increased demands on Councils, and to expedite the process of approving and implementing FMPs and amendments.

#### **Statement of Need**

NMFS works closely with Regional Fishery Management Councils, states, other federal agencies, and numerous constituencies to implement regulations for the management of sustainable fisheries; recovery and protection of endangered and threatened species, including marine mammals; and conservation of marine habitat.

NMFS regulatory activities account for 50% (by number) of Department of Commerce annual rulemakings—fourth among federal agencies in the number of regulations issued. In 2004, NMFS was successful in 93% of its legal challenges—an increase from a 45% success rate between 1997 through 2001. However, legal activities require intensive inputs of funding and personnel to produce analyses that will withstand legal challenge. To implement the law as intended, it is imperative that NOAA succeeds in withstanding legal challenges.

NMFS needs additional capacity to complete thorough and timely regulatory analyses and reviews within time frames required by applicable laws, particularly in the Regional Offices. Regulations issued by NMFS affect not only marine resources but also the people, businesses, and communities associated with these resources. This regulatory workload is complex and leads to frequent legal challenges. Extensive analyses and documentation are required to comply with the Magnuson-Stevens Act, Endangered Species Act, Marine Mammal Protection Act, Administrative Procedure Act, National Environmental Policy Act, Regulatory Flexibility Act, Paperwork Reduction Act, Coastal Zone Management Act, and various Executive Orders.

The RSP was created at the request of Congress. In 2002, a National Academy of Public Administration (NAPA) report gave recommendations to NMFS for regulatory improvements, and the RSP seeks to continue implementing NAPA’s suggested improvements. (A press release on the NAPA report is available at [http://www.napawash.org/resources/news/news\\_07\\_26\\_02.html](http://www.napawash.org/resources/news/news_07_26_02.html)).

**Proposed Actions**

NOAA will use the increase to support national oversight and NOAA-wide integration at NMFS headquarters and regional oversight and technical assistance at the field level. NOAA will coordinate fishery management action development and impacts with other federal activities, as appropriate.

**Benefits**

NOAA will improve the quality and timeliness of regulatory processes and policy development for its Fishery Management Program through comprehensive impact analyses, full and timely consideration of all relevant issues, and compliance with all applicable laws and procedures.

**Performance Goals and Measurement Data**

This increase supports the Department objective and NOAA goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce strategic goal to “Promote environmental stewardship.”

<b>Percentage of FSSI stocks known to be subject to overfishing for longer than 1 year with improved management measures in place to end overfishing.</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	72%	84%	100%	100%	100%
	<b>Without Increase</b>	72%	78%	84%	100%	100%

**Note:** This shows the effect of this program change (+\$2.829M) on an OMB PART measure.

Highly Migratory Species Research (0 FTE, +\$3,000,000): NMFS requests 0 FTE and \$3,000,000 for Highly Migratory Species (HMS) Research to Support Gulf of Mexico fisheries within the Fisheries Research and Management Program Line. This increase will address priority research needs for Gulf and Atlantic billfish, tunas, swordfish, and sharks. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Background**

Atlantic HMS are complex to understand, assess, and manage due to their wide ranging distribution (crossing 4 ecosystems), diverse life histories among species and life stages, and multiple management entities across their range. Many high profile HMS are overfished such as: bluefin tuna, white and blue marlin, dusky and sandbar sharks. Current scientific information is lacking to effectively rebuild these species. Additional resources are needed to integrate, coordinate, and improve all NOAA and non-NOAA scientific programs to rebuild these important stocks and support domestic and international management. Such programs include: fishery data collection programs, biology/life history, habitat, stock assessments, modeling, and analyses. Research needs for Gulf of Mexico highly migratory species include life history characteristics for

numerous shark species, gear research to reduce bycatch of protected species and bluefin tuna in longline fisheries, and post-release mortality information in commercial and recreational fisheries.

### **Statement of Need**

Additional funding will enable the Agency to better understand the biology (age and growth, gender, and maturity determination); conduct tagging studies; improve data collection programs; find ways to reduce bycatch and post-release mortality; and/or protect spawning sites of highly migratory species. Additional funding for other Gulf of Mexico highly migratory species will enable NMFS to address continuing bycatch concerns for sea turtles and marine mammals in pelagic longline and other fisheries.

### **Proposed Actions**

- HMS Priority Studies (\$150,000) - NMFS request will support a better understand the biology, support the status review process, find ways to reduce mortality, and/or protect spawning sites of key HMS stocks. Species of particular interest include the bluefin and yellowfin tunas and the blue and white marlin.
- Biological studies (\$650,000) - NMFS will conduct research on age and growth, gender and maturity determination, and spawning site identification of white marlin and other billfish.
- Tagging studies: (\$600,000) - NMFS will deploy conventional and pop-up satellite tags, and use spatial analysis/GIS tools, to determine billfish movement and migration patterns.
- Data collection programs (\$500,000) - NMFS will develop and augment recreational and commercial HMS data collection programs to improve fisheries statistics on fishing effort, catches, landings, and discard estimates for billfish and other HMS.
- Bycatch Reduction of HMS Species (\$800,000) - NMFS will design, test, and implement gear modifications and fishing practices to reduce bycatch of white marlin, sea turtles, and other HMS.
- Reduce post-release mortality (\$300,000) - NMFS will research fishing methods, gear modifications, and handling protocols to reduce the mortality of white marlin, other billfish, sea turtles, and other HMS that are released.

### **Benefits**

Additional funding will enable NMFS to better understand the biology, find ways to reduce mortality, and/or protect spawning sites of white marlin in direct support of the upcoming status review process, and hopefully help improve the status of the species and prevent an ESA listing. Additional funding will also enable NMFS to improve estimates of post-release mortality and improve management of all highly migratory species in the Gulf of Mexico.

### **Performance Goals and Measurement Data**

This increase will support the objective “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, this increase supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”



Catch and Release Mortality Research (0FTE, +\$1,000,000): NMFS requests 0 FTE and \$1,000,000 for Catch and Release Mortality Research to support Gulf of Mexico fisheries within the Fisheries Research and Management Program Line. This increase will address priority research needs for estimating discard mortality for both the recreational and commercial sectors. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Background:**

Regulations to end over-fishing such as size, bag, and trip limits, often result in increased numbers of regulatory discards. For example, size limits are designed to protect spawning individuals or those that have not yet had a chance to grow to marketable size and/or breed. If under- or over-sized fish are caught, they must be discarded. Many discarded fish die from the capture-and-release process and discard mortality can account for a significant portion of the total mortality in some fisheries. Consequently, information on discarded fish and their survival is increasingly important to stock assessments. Estimates of release mortality rates are based on experimentation, logbooks, observer studies, and anecdotal information.

**Statement of Need**

While there has been research directed at estimating discard mortality for both the recreational and commercial sectors, fishers perceive that NMFS' estimates are either too high or too low. As stocks rebuild under restrictive management regimes, discards of caught fish, particularly those caught on recreational hook and line gear, can far exceed the landed portion of the total catch. Therefore, it is critical that estimates of release mortality are as accurate as possible. In some recreational fisheries, estimates of discard mortality can exceed the annual Total Allowable Catch due to the very high catch rate, restrictive harvest limits, and potentially incorrect estimates of the release mortality rate. Onboard monitoring can track the fish species that are released and record their disposition (floating or swimming away), and obtain depth of capture information. These types of data could be used to determine species-specific estimates of depth related mortality that could be included in stock assessments. In addition, this information will allow critical evaluation of the success of management measures such as minimum size limits intended to reduce mortality and increase yields.

**Proposed Actions**

This funding will support needed research for:

- 1) enhanced onboard monitoring of commercial fishing vessels to obtain accurate information on discarded species;
- 2) identification of species, total number, survival by depth, and size;
- 3) enhanced at-sea data collections onboard headboats to obtain complete angler interviews including accurate species identification and counts of discarded catch, the disposition of discarded catch, sizes of all landed and discarded fish, and depth of capture of released fish;
- 4) additional research and development including development of techniques to monitor long-term survival rates and comparative studies of gear types and practices which may reduce discard mortality;

- 5) collaborative field research with states, stakeholders, recreational and commercial fishing industries, and universities to test new techniques to monitor survival rates;
- 6) laboratory experimental studies to test new methods;
- 7) tagging studies to provide estimates of long-term survival; and
- 8) improved outreach and education to all fishery sectors on reducing mortality of released bycatch.

**Benefits**

Fishing groups have been critical of the use of size limits in fisheries such as red snapper. Technology, such as circle hooks and better venting techniques, can potentially improve the survival rates of discards. Research into gear technology and improved handling and release methods are needed to maximize fishery yields and avoid closures. Beyond research, outreach and education are needed to inform fishers of equipment (e.g., circle hooks, release gear) and methods (e.g., venting techniques, proper handling and release techniques) that reduce release mortality.

**Performance Goals and Measurement Data**

This increase will support the objective “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, this increase supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

<b>Percentage of Fish Stocks with Adequate Population Assessments and Forecasts</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	55.7%	60.9%	67.4%	67.4%	67.0%
	<b>Without Increase</b>	55.7%	55.7%	55.7%	55.7%	55.7%
<b>Description:</b> This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

Comparative Analysis of Marine Ecosystem Organization (CAMEO) (0 FTE, +\$3,750,000): NMFS is requesting an increase of \$3,826,000 and 0 FTEs to restore funding to implement one of the near-term priorities of the Administration’s Ocean Research Priorities Plan—improve forecasting of marine ecosystem responses to various management strategies to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Statement of Need**

NOAA’s request to restore funding to this program initiated in FY 2008 will enable NOAA to fully fund this national initiative. NOAA’s increase will advance regional ecosystem observation and characterization efforts as recommended by the reauthorized Magnuson Stevens Act of 2006.

The Administration's Ocean Research Priorities Plan (ORPP) outlined an approach for federal science agencies to meet the goals of the U.S. Ocean Action Plan (2004). The ORPP's Implementation Strategy identified how the various ocean science sectors (government, academic, industry, and other non-governmental entities) would establish national research priorities for ocean science in the United States over the next decade. The ORPP represents a cornerstone of the President's FY 2008 budget for ocean-related activities and has become a symbol of the President's commitment to the oceans. The FY 2008 President's Budget request supporting the ORPP within NOAA sustained decreases in the FY 2008 Omnibus package.

Forecasting marine ecosystem resource stability and sustainability requires an understanding of the underlying dynamics (e.g., species interactions, population structure, food webs, climate, and anthropogenic impacts) that control and regulate ecosystem processes. This request will support research that will focus on developing cutting-edge quantitative models and science-based forecasting tools to assess how marine ecosystems respond to human impacts and changes and environmental variation.

CAMEO represents a unique partnership among NOAA, the National Science Foundation, the Department of the Interior, the State of California, and two private foundations (Packard and Moore). The main objective of the CAMEO program is to improve management of marine ecosystems by understanding how biological components are linked and by evaluating the effectiveness of Marine Protected Areas (MPA) as a management tool. This new program will provide a greater basic understanding of processes controlling ecosystem productivity and practical tools for understanding how various management regimes may affect those ecosystems.

As an agency with responsibilities for maintaining and improving the viability of marine and coastal ecosystems, NOAA must remain current and responsive in an ever-changing world as it serves the Nation's needs for economic strength, environmental vitality, and human health. NOAA, as a key federal participant of the ORPP Implementation Strategy, must do its part to guide U.S. efforts in achieving this goal. NOAA's participation in this endeavor would provide the Nation with the scientific and technical expertise to redefine its relationship with the ocean over the next decade.

### **Proposed Actions**

NMFS will use the requested funds to expand pilot projects funded in FY 2008 through a competitive grants program. NMFS will evaluate these projects for their potential to scale up into larger programs in FY 2009. NMFS will also use the funds to form a formal steering committee that will develop a framework for large-scale ecosystem modeling. These grants will advance the development of methodologies for comparative analyses, including modeling frameworks that can be applied consistently across ecosystems, and that facilitate design of decision support tools.

### **Benefits**

NOAA's request for CAMEO will improve the management of the nation's marine ecosystems as recommended by the Administration's Ocean Action Plan. Improvement will only occur by elucidating the underlying dynamics that affect ecosystem processes at a variety of scales. This request will not only provide a greater basic understanding of these processes but will support enhanced coordination between resource management communities and the ocean science community.

**Performance Goals and Measurement Data**

This increase will support the objective “Enhance the conservation and management of coastal and marine resources to meet America’s economic, social, and environmental needs” under the Department of Commerce strategic goal to “Observe, protect, and manage the Earth’s resources to promote environmental stewardship.” Specifically, this increase supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

Fisheries Research and Management Programs (0 FTE and -\$200,000): NOAA requests a decrease of \$200,000 and 0 FTEs from the Fisheries Research and Management Programs line. NOAA will apply the \$200,000 decrease to fund higher-priority needs.

**Proposed Actions**

NOAA requests a decrease of \$200,000 in the Fisheries Research and Management Programs line. With the remaining funds, the Program will continue to improve management of the Nation’s living marine resources and address the Congressional mandate to end overfishing by 2010.

**Benefits**

This requested decrease will allow NOAA to fund higher-priority activities while continuing to support Fisheries Research and Management Programs activity.

Expand Annual Stock Assessments: Annual Catch Limits (+10 FTE and \$8,484,000): NMFS requests an increase of \$8,484,000 and 10 FTE to initiate new sampling programs and management procedures to end overfishing in all fisheries by 2011. NMFS will: update fish stock assessments from inadequate to adequate to produce the best technical advice to the Fishery Management Councils and support the implementation of Annual Catch Limits (ACL); support fishery independent surveys in the North Atlantic, Gulf of Mexico, West Coast, and deep-water fisheries on the continental slope; expand fishery-dependent biological sampling surveys at sea and in ports; and develop enhanced stock assessment models to improve ACL forecasts. NMFS’ stock assessments provide the scientific and technical basis for setting Annual Catch Limits—a new requirement of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 and an integral component of the President’s U.S. Ocean Action Plan.

**Statement of Need**

The reauthorized Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (The Act) sets a firm deadline to end overfishing in America by 2011. Overfishing occurs when more fish from a species are caught than is sustainable, endangering the species’ long-term existence. The Act directs regional Fishery Management Councils (Councils) to establish annual quotas in federally-managed fisheries to end overfishing by 2010 for fish stocks currently undergoing overfishing and by 2011 for all other Federally-managed fish stocks.

Annual Catch Limits for federally managed fisheries in the United States Exclusive Economic Zone must be based on the best scientific information available (e.g., stock assessments). In order to meet this accelerated deadline, NMFS must begin to update its stock assessments in FY 2009 to provide the best scientific and technical advice to the Councils to set new catch limits. Per section 104(b) of the Act, the ACL requirements will take effect in 2010 for stocks determined by the Secretary of Commerce to be undergoing overfishing. NMFS must increase its investments in surveys and staff to optimize its assessment models that will produce the best technical advice to proactively prevent overfishing. Without these additional investments in staff and program improvements, NMFS cannot provide a current knowledge base for NMFS to understand which stocks are undergoing overfishing or approaching overfishing by 2010.

Lastly, because stock assessments include impacts of various management scenarios on the status of the stocks and recovery trajectories for those stocks determined to be overfished, NMFS' stock assessments are categorized as Influential Scientific Information by the Office of Management and Budget (OMB, Memo M-05-03, The Final Information Quality Bulletin for Peer Review). Thus, NMFS requires additional funding to support additional quality control requirements for stock assessments to comply with the requirements of the Act and OMB Memo M-05-03. For example, stock assessment data must be current, accurate, and complete, and present a sufficient level of temporal and spatial resolution to ensure the credibility of the data presented to the Councils.

This request will enable NMFS to continue to play a key role in providing the best possible scientific information to the Councils and SSCs and sustains the use of peer-reviewed science in resource management decisions. NMFS must optimize its assessment models to produce required ACL advice. The agency's data and forecast models will require peer review to ensure accuracy and garner public trust. With this request, NMFS can quickly establish systems to translate the assessment results into ACL advice and provide accountability.

### **Proposed Actions**

Accurate stock assessments require three categories of data input:

- stock abundance data obtained from fishery-independent resource surveys and fishery-dependent sampling;
- total catch data obtained from fishery information systems,
- biological data obtained from fishery and survey fish samples.

The proposed actions include:

- Resource Survey Programs (\$4,000,000) – NMFS' request will support operational costs to conduct fishery-independent resource surveys of abundance to update inadequate stock assessments. Fishery-independent surveys provide age and size samples, catch composition, and indices of relative abundance. These data are key inputs into stock assessments, fishery management regulations, and the production of status reports for ACLs. Requested funds will also support needed charter vessel surveys of the West Coast groundfish fishery valued at \$104 million, including potential value of stocks on rebuilding plans, and the Atlantic sea scallop (*Placopecten magallanicus*) fishery valued at \$386 million in 2006.

- Fishery Sampling Programs (\$2,000,000) – NMFS’ request will enable the expansion of commercial catch monitoring programs so that ACL accountability programs have adequate and timely fishery-dependent data. Catch sampling programs are an important source of information as fish can be measured and weighed either at sea (by observers) or at landing sites (by port agents). NMFS will expand its biological sampling programs to increase the number of fish samples obtained for analyses and characterize more biological factors (e.g., species composition, age distribution, sex ratios, and prey items.) These data are necessary to separate the effects of natural factors on sustainability from those caused by the commercial fishery.
- Stock Assessment Methods and Enhanced Expertise (\$1,710,000) – Assessment models integrate the survey, commercial catch, and biological data to produce historical estimates and forecasts of stock status. This funding will facilitate the hiring of stock assessment staff (scientists, field biologists, field technicians, programmers, fish biologists, age readers, and port agents) to meet the highest need in each region. NMFS will also provide stock assessment fellowships to post-doctoral students to ensure access to the best talent.

With the additional staff, NMFS will develop enhanced stock assessment models that will be:

- more standardized—thus improving efficiency;
  - more capable of including environmental and ecosystem inputs—thus improving ACL forecasts;
  - more capable of calculating the probability that ACLs will prevent overfishing.
- Fishery Monitoring in Post-Katrina Gulf of Mexico Fisheries (\$774,000) – This request restores funding to complete fishery monitoring efforts projects to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008. NMFS will sustain efforts to collect data on landings, discarded bycatch, and life history data (growth, longevity, and mortality) in 2009 and integrate these data streams into peer-reviewed stock assessments to provide the scientific and technical basis for setting ACLs.

NMFS will take a multifaceted, tiered approach to update stock assessments to implement ACLs. The tiered approach directs the best level of assessment for each stock:

- For stocks that are already periodically assessed at an adequate level, NMFS will update these assessments so that ACLs set in 2010-2011 will reflect current stock conditions and will have a well-estimated probability of preventing overfishing;
- For stocks with currently inadequate assessments, NMFS will augment existing data collection programs and assessment efforts so that as many stocks as possible are assessed by 2011 and can be used for ACL adjustments shortly thereafter;
- For those stocks that lack sufficient data to conduct an adequate assessment in the near term, NMFS will analyze data from more data-rich stocks to evaluate the likely performance of proposed alternative methods for the data-limited stocks. NMFS will organize available information about the data-limited stocks to guide implementation of the alternative approaches to setting their ACLs.

The multiple facets of this approach highlight the diversity of work needed to produce adequate stock assessments and ACL advice. The assessment models must be optimized for producing the required ACL advice, and the data and models require peer review to ensure accuracy and garner public trust. Systems must be established to quickly translate the assessment results into ACL advice, with feedback systems to provide accountability.

**Benefits**

When ACLs are based on adequate and timely stock assessments NMFS can allow greater fishing opportunity, while still confidently preventing overfishing and allowing for the rebuilding of previously overfished stocks. This initiative provides a knowledge base for NMFS to work with regional Fishery Management Councils to promote the use of a market-based system for fisheries management.

This investment will prevent overfishing for additional fish stocks, and provide more timely determinations when currently overfished stocks have been rebuilt. For some stocks, more precise monitoring and assessments will make it possible to set the ACL level closer to overfishing limits without increasing risk of actually overfishing. NMFS stock assessment research will provide a comprehensive understanding of living marine ecosystems to meet the environmental, economic, and public safety needs of the Nation.

**Performance Goals and Measurement Data**

This increase will support the objective “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, this increase supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

In addition to supporting calculation of ACLs, the increased assessment activity will improve the performance metric for percentage of stocks with adequate assessments. There is not a one-to-one correspondence because in some cases it will be possible to support ACLs without achieving all the standards for a fully adequate assessment.

Percentage of Fish Stocks with Adequate Population Assessments and Forecasts		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	55.7%	57.4%	59.1%	57.8%	57.0%
	<b>Without Increase</b>	55.7%	54.3%	53.5%	52.2%	51.3%
<b>Description:</b> This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

**Economics & Social Sciences Research (5 FTE, +\$4,729,000):** NMFS requests an increase of 5 FTEs and \$4,729,000 to implement economic analyses projects to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008. This request will enable NOAA to address significant economic and social data gaps in major federal fisheries and to develop decision support tools

conduct MSRA-mandated cost-benefit analyses of regulatory options such as Annual Catch Limits. This investment ensures that conservation standards are achieved at the lowest cost to society and directly supports efforts to identify market-based solutions to fishery management issues as called for under the *U.S. Ocean Action Plan* and the *Economic Report of the President* (2007).

Specifically, this request enables NMFS to: 1) develop decision support tools that will enable NMFS to efficiently assess the management impacts on fishery participants, shoreside firms and fishing communities (sales, income and employment) in a timely manner; and 2) significantly expand NMFS' economic and social data that enable NMFS to identify management options that impose the least cost on stakeholders and achieve the greatest benefit to society.

### **Statement of Need**

The reauthorized Magnuson-Stevens Act of 2006 requires NOAA to consider the effects of regulations on the fishing industry and on fishing communities. This request will enable NMFS to achieve 100% of its economic data collection needs in all commercial and recreational fisheries by FY 2010, including the commercially important Gulf shrimp and reef fish fisheries; the Pacific Coast groundfish fishery, which alone supports a billion dollar industry; the Alaska and Northeast groundfish fisheries; and Atlantic sea scallop fishery.

In recent years, NMFS' economic analyses of management decisions have been challenged in every major federal fishery including in 2006 alone the Alaska salmon, Alaska groundfish, New England groundfish, South Atlantic snapper-grouper and Gulf reef fish fisheries. Although NMFS is mandated to provide fishery managers with economic and social impact assessments of all proposed management options prior to the management decision, NMFS has a limited pool of economists and social scientists to cover 47 fishery management plans (FMPs), many of which have multiple management actions in a single year. Thus, for the majority of fisheries, including those that support multi-billion dollar industries, NMFS must rely upon qualitative analyses of management options, an approach that lacks the precision, accuracy and transparency of quantitative analyses. Lack of staff and funding for data collections, stymies NMFS' ability to achieve conservation goals at the lowest cost society and threatens the long-term economic and social welfare of coastal communities as well as the economic viability of the Nation's seafood, marine recreation, and marine tourism industries.

### **Proposed Action**

The proposed data collection activities and assessments will close significant information gaps. Insufficient economic and social data and assessments currently hamstrings NMFS' ability to adopt regulations, including moving to market-based incentives programs such as LAPPs and implementing rebuilding programs.

- **Expand Data Collection Efforts** (\$2,594,000): Partnering with state agencies and fishing commissions, as appropriate, NMFS will expand its economic and social data collection programs. This investment will result in phased growth of NMFS economic and social data collection holdings that directly support management decisions and decision support tools for assessing economic and social impacts of management decisions.



- Develop Decision Support Tools for Socioeconomic Assessments** (\$2,135,000): NMFS will develop quantitative methods for conducting benefit-cost analyses. Specific tasks include: a) predicting the benefits and costs associated with specific stock rebuilding programs; b) quantifying the cumulative economic effects of management measures in a risk framework; c) developing inventories of the use values of marine ecosystems to their respective industries; and d) developing values associated with particular types of habitats, including the scope and sale of the ecosystems services provided by a habitat.

**Benefits**

Closing existing data and assessments gaps will enable NMFS to perform rigorous, legally defensible, and timely economic and social assessments including:

- developing indicators describing the status and trends of fishery participants and shoreside firms and communities, which will help detect economic and social hardship;
- assessing the benefits/cost-effectiveness of fisheries rebuilding programs and habitat and protected species recovery programs in an integrated ecosystem framework;
- assessing the economic and social impacts of management options and current policies on fishery participants, firms, and communities; and
- implementing LAPPs that do not result in excessive market share, are mindful of potential harmful effects on fishing communities, and ensure fair and equitable initial allocations of harvest privileges.

**Performance Goals and Measurement Data**

This increase will support the objective “Enhance the conservation and management of coastal and marine resources to meet America’s economic, social, and environmental needs” under the Department of Commerce strategic goal to “Observe, protect, and manage the Earth’s resources to promote environmental stewardship.” Specifically, this increase supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

<b>Percentage of Fish Stocks with Adequate Population Assessments and Forecasts</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	55.7%	57.4%	59.1%	57.8%	57.0%
	<b>Without Increase</b>	55.7%	54.3%	53.5%	52.2%	51.3%
<b>Description:</b> This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

**Salmon Management Activities – (+0 FTE, +\$854,000)** – NMFS requests an increase of \$854,000, for a total request of \$24,381,000 for the Salmon Management Activities line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Regional Councils and Fisheries Commissions – (+0 FTE, +\$629,000)** – NMFS requests an increase of \$629,000, for a total request of \$27,289,000 for the Regional Councils and Fisheries Commissions line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Fisheries Statistics (+0 FTE, +\$3,015,000)**: NOAA requests an increase of \$3,015,000 and 0 FTE to complete the final implementation phase of a new registry system for recreational fishermen and for-hire fishing vessels by January 1, 2009. NMFS must meet this congressionally-mandated deadline to execute the new requirements of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 pertaining to improvements in data collection, the redesign of survey and statistical methodologies, and coordination between state and federal programs. This request will enable NMFS to launch a marine recreational information program that provides the most accurate data on recreational catch and fishing effort. High-quality data on recreational fishing trends will lead to confident decision-making about how best to conserve marine ecosystems for present and future generations.

**Statement of Need:**

NMFS' current marine recreational statistics program conducts a suite of state and federal surveys that operate throughout the nation including the Marine Recreational Fisheries Statistics Surveys (MRFSS), the For-Hire Survey, and the Large Pelagic Survey. Originally designed to track trends, congressional mandates have required the surveys to provide more detailed information for stock assessments and management actions. Although considerable progress has been made in the collection of data and compilation of statistics for marine recreational fisheries, demands for more comprehensive, accurate, and timely statistics continue to increase as the nature and status of recreational fisheries change and management regimes become increasingly complex. Unfortunately, these surveys have had trouble keeping pace with the dynamic needs of fishery managers leaving them without a clear picture about the health and sustainability of the resource.

Within the past three years, the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (The Act) and a National Research Council report titled "Review of Marine Recreational Fishing Survey Methods" have called for improvements to the way NMFS collects and analyzes recreational fisheries information. The President's U.S. Ocean Action Plan responded to these concerns, stating that the Administration would work to further leverage data acquisition for fishery management purposes.

NMFS requires additional funding to improve and expand NMFS' data collection efforts for the monitoring of recreational fisheries impacts. As 14 million participants spend nearly \$15 billion a year on recreational fishing, this request would be a major step toward improving relations with the recreational fishing community and improving federal fisheries management.

**Proposed Actions:** NMFS' Office of Science and Technology will lead state-federal cooperative efforts to: (1) establish regionally based federal registry programs for anglers and for-hire fishing vessels, and (2) design and implement appropriate methodological improvements that will utilize the registries and improve the comprehensiveness, accuracy, and timeliness of recreational fisheries statistics needed to support fish stock assessments and fishery management decisions.

Greater precision of catch and effort statistics requires NMFS to survey more recreational fishermen. The number of surveys cannot be increased immediately, but must be implemented in a step-wise manner as improvements in NMFS' methods are tested and validated. The greater precision of catch and effort statistics will support more reliable stock assessment and more timely and accurate fisheries management decisions.

The funding request for FY 2009 includes:

- \$300,000 to continue incremental development and maintenance of an information system for the collection, integration, and management of telephone and address information on federally or state registered marine recreational anglers. This information system can be used as a basis for more efficient sampling surveys of marine recreational fishing effort on private boats, man-made shore structures, and natural shorelines.
- \$100,000 to continue incremental development and maintenance of an information system for the collection, integration, and management of telephone and address information on owners and operators of federally or state registered for-hire fishing vessels (charter boats, headboats, partyboats, and guide boats). This information system can be used as a basis for more efficient census or sampling surveys of recreational fishing effort and catch for the for-hire sector.
- \$800,000 to expand the use of surveys based on angler and vessel registries to more states while integrating them as needed with improved random-digit-dialing household telephone surveys into the transitional dual-frame approach recommended by the National Research Council. This expansion will ensure complete coverage of fishing effort where registries are not yet complete.
- \$200,000 to support an aggressive education program and media campaign to inform the public about the implemented survey improvements and to encourage the support and cooperation of anglers and for-hire vessel owners/operators in providing data on their marine recreational fishing activities.
- \$1,615,000 to incrementally increase sampling levels in the improved telephone, shoreside, and at-sea surveys developed during the ongoing re-design process to support more precise catch and effort statistics. Catch and effort statistics at finer levels of spatiotemporal resolution and higher levels of statistical precision will lead to more accurate stock assessments, and thus to more timely fisheries management in each region.

**Benefits:** Managing fish stocks at sustainable harvest rates is a key factor in rebuilding depleted fish stocks and achieving optimal benefits from the fisheries, and it requires accurate and timely monitoring of fishing impacts. NOAA will be able to provide comprehensive and timely fisheries statistics needed for stock assessments as identified by the NMFS' Stock Assessment Improvement Plan (SAIP) by improving collected recreational fisheries data. The funding will allow NOAA to more accurately determine population status and mortality through greater understanding of marine recreational fishing effort. The requested increase will improve the statistical precision of recreational fishery catch monitoring surveys and speed the integration of state-

federal fisheries information into regional-national networks for greater accessibility by stock assessment scientists, fishery managers, and the public. Improved understanding of recreational fishing will enhance the public's and industry's confidence in NMFS stock assessments.

#### Performance Goals and Measurement Data

This increase will support the objective "Protect, restore, and manage the use of coastal and ocean resources" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, this increase supports the NOAA Goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

Percentage of Fish Stocks with Adequate Population Assessments and Forecasts		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	55.7%	57.4%	59.1%	57.8%	57.0%
	<b>Without Increase</b>	55.7%	54.3%	53.5%	52.2%	51.3%
<b>Description:</b> This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

**Fish Information Networks – (0 FTE, +\$231,000)** – NMFS requests an increase of \$231,000, for a total request of \$22,013,000 for the Fish Information Networks line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Survey and Monitoring Projects (0 FTE, +\$8,224,000):** NMFS requests an increase of \$8,224,000 for a total of \$23,270,000 to the Survey and Monitoring Projects line item to enable NOAA's ability to administer research and monitoring programs in the Pacific Ocean, Alaskan waters, the Gulf of Mexico and the Northwest Atlantic. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

#### Statement of Need

Many fisheries lack adequate and timely monitoring of catch and fishing effort. Due to the recent reauthorization of the Magnuson-Stevens Act in 2006, it is imperative that NMFS address this deficiency rapidly. Without these funds, NOAA will be unable to meet the requirements for science-based Annual Catch Limits (ACL) in all fisheries. NOAA must continue to expend the resources necessary to maintain and expand its survey and monitoring capabilities.

#### Alaska Groundfish Monitoring and Surveys

NOAA Fisheries' Alaska Fisheries Science Center must calibrate its monitoring and survey programs with the State of Alaska to manage crab, scallop, and rockfish fisheries in federal waters. Without this funding, stock assessment scientists and the North Pacific Fishery Management Councils will not have sufficient data resolution required to produce ACLs for Alaskan crab and groundfish stocks as mandated by MSRA.

#### Bluefin Tuna Tagging

Atlantic bluefin tunas (*Thunnus thynnus*) are managed under the dual authority of the MSRA and the Atlantic Tunas Convention Act, which authorizes the Secretary of Commerce to implement the binding recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT). Under this agreement, NMFS scientists submit statistical data on bluefin tuna catch and distribution to the ICCAT. To fulfill these requirements, NMFS must conduct research that improves current satellite tracking technologies as well as addresses questions concerning the population dynamics and migration patterns of bluefin tunas.

#### Red Snapper Monitoring

The Gulf of Mexico red snapper (*Lutjanus campechanus*) population is currently overfished. NMFS managers require more data to accurately determine the population size of South Atlantic population. Estimation of red snapper discard mortality is a critical component for future stock assessments in the Gulf of Mexico. Monitoring data will help set Total Allowable Catch which ultimately influences the determination of individual shares for commercial fishermen (e.g., the red snapper Individual Fishing Quota).

#### West Coast Groundfish

The West Coast groundfish fishery is experiencing severe curbs on fishing because of seven severely overfished stocks. The West Coast groundfish survey program provides the only biomass estimates for all West Coast groundfish stock assessments, and these data are critically needed by NMFS and the Pacific Fishery Management Council to rebuild these stocks. Several species whose assessments are supported by data from this survey are managed under rebuilding plans and some of those have been the subject of litigation. NMFS' long-standing survey provides data on abundance, spatial distributions, sex ratios, length, weight, and age structure of groundfish. This survey is a vital, fishery-independent source for these data, which are necessary to integrate into stock assessments of managed groundfish species inhabiting trawlable and untrawlable habitats along the U.S. west coast.

#### **Proposed Action**

Alaska Groundfish Monitoring and Surveys (+\$3,887,000)- This program change restores funding to complete projects that were anticipated in the FY 2008 President's Budget but were not able to be completed with the FY 2008 Omnibus Language. This increase will restore long-term Alaska Fishery Science Center and Alaska Region survey and monitoring programs. This request includes a decrease of \$841,000 to the Bering Sea Pollock Research line item concluding this research program. NMFS will not conduct annual and biennial acoustic surveys of pollock biomass in the Bering Sea. The decrease will allow the Department of Commerce to fund other high-priority work, while maintaining the partnering opportunities provided through our fisheries research programs.

Bluefin Tuna Tagging (+\$850,000) – NMFS requests these funds to continue tagging activities currently related to bluefin tuna research. The request will enable NMFS to improve estimations on the abundance and distribution of bluefin tuna. NMFS can use the tagging data in combination with catch data from U.S. pelagic longline observer logbooks to reduce incidental catch mortalities in tuna spawning grounds in the Gulf of Mexico.

Red Snapper Monitoring (+\$1,106,000) - This program change restores funding to complete projects that were anticipated in the FY 2008 President's Budget but were not able to be completed with the FY 2008 Omnibus Language. This increase will support a FY 2009 assessment for red snapper. This is a critical assessment because it will assess the impacts of difficult regulations imposed on the fishery.

West Coast Groundfish (+\$1,377,000) – This program change restores funding to complete projects that were anticipated in the FY 2008 President's Budget but were not able to be completed with the FY 2008 Omnibus Language. This increase will restore NMFS' capabilities in monitoring and estimating discards of overfished fish stocks in the West Coast groundfish fisheries.

Other Survey and Monitoring Projects (+\$1,004,000) - This program change restores funding to complete projects that were anticipated in the FY 2008 President's Budget but were not able to be completed with the FY 2008 Omnibus Language. The increase will support the following Survey and Monitoring Projects: a Gulf of Maine groundfish survey, halibut and sablefish surveys in the Pacific Northwest, stock depletion assessments in New England waters, acoustic surveys on Atlantic herring and mackerel, and monitoring programs on fish and crustacean species in the Chesapeake Bay.

### **Benefits**

This research is directed towards filling current gaps in knowledge on the nation's valuable marine resources. The request for the Survey and Monitoring line will maintain NMFS' ability to: 1) manage fish and crab stocks; 2) estimate the distribution and abundance of the stocks; and 3) provide value-added analyses to the Fishery Management Councils for developing Annual Catch Limits as mandated by MSRA.

### **Performance Goals and Measurement Data**

This increase will support the objective "Protect, restore, and manage the use of coastal and ocean resources" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, this increase supports the NOAA Goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

In addition to supporting calculation of ACLs, the increased assessment activity will improve the performance metric for percentage of stocks with adequate assessments. There is not a one-to-one correspondence because in some cases it will be possible to support ACLs without achieving all the standards for a fully adequate assessment.

<b>Percentage of Fish Stocks with Adequate Population Assessments and Forecasts</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	55.7%	57.4%	59.1%	57.8%	57.0%
	<b>Without Increase</b>	55.7%	54.3%	53.5%	52.2%	51.3%
<b>Description:</b> This is a component of the NMFS GPRA Measure (1b) Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts.						

**Fisheries Oceanography – (+0 FTE, +\$24,000)** – NMFS requests an increase of \$24,000, for a total request of \$995,000 for the Fisheries Oceanography line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**American Fisheries Act – (+0 FTE, +\$343,000)** – NMFS requests an increase of \$343,000, for a total request of \$5,351,000 for the American Fisheries Act line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Interjurisdictional Fisheries Grants – (+0 FTE, +\$61,000)** – NMFS requests an increase of \$61,000, for a total request of \$2,569,000 for the Interjurisdictional Fisheries Grants line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**National Standard 8 – (+0 FTE, +\$24,000)** – NMFS requests an increase of \$24,000, for a total request of \$1,035,000 for the National Standard 8 line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Reduce Fishing Impacts on Essential Fish Habitat – (+0 FTE, +\$12,000)** – NMFS requests an increase of \$12,000, for a total request of \$517,000 for the Reduce Fishing Impacts on Essential Fish Habitat line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Reduce Bycatch (0 FTE, +\$567,000)** – NMFS requests an increase of \$567,000 to support the new bycatch mandates of the reauthorized Magnuson-Stevens Fishery Conservation and Management Act. This increase will allow NMFS, in cooperation with the Councils and other affected interests to establish the minimum requirements for the Bycatch Reduction Engineering Program mandated by the Act. The program will issue grants, provide national

coordination, and develop technological devices and other conservation engineering changes designed to minimize bycatch, bycatch mortality, seabird interactions, and post-release mortality in federally managed fisheries.

### **Statement of Need**

Bycatch of non-target species and habitat damage from fishing gear are two of the most serious impacts of fishing activities, and they represent a steep challenge to NOAA as we try to maintain sustainable fisheries and apply an ecosystem approach to marine conservation. Several major U.S. fisheries have a high level of discards and bycatch, including the trawl and dredge fisheries of the Gulf of Maine and the northeastern United States, the South Atlantic and Gulf of Mexico shrimp trawl fisheries, and the multispecies groundfish trawl fishery of the Pacific states. Fishery interactions threaten sea turtle, seabird, and marine mammal species listed under the Endangered Species Act. Bycatch also contributes significantly to overfishing in important U.S. fisheries, and NMFS is mandated to end overfishing by 2010.

NOAA must address these issues under the following policy and legislative mandates:

1. The Magnuson-Stevens Act mandates that NOAA establish a Bycatch Reduction Engineering Program, including grants, to develop technological devices and other conservation engineering changes designed to minimize bycatch, seabird interactions, bycatch mortality, and post-release mortality in Federally managed fisheries.
2. The Endangered Species Act requires the federal government to protect and conserve species and populations that are endangered, or threatened with extinction, and to conserve those ecosystems on which these species depend.
3. The Marine Mammal Protection Act seeks to maintain marine mammal stocks at optimum sustainable population levels and protect them from incidental mortality and serious injury resulting from fishing operations, and requires the development and implementation of take reduction plans for fisheries having the greatest impact on marine mammals.

In addition, the National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries requires NOAA and its partners to reduce seabird bycatch and continue ongoing research.

### **Proposed Actions**

With this increase, NMFS will provide national-level coordination between regional efforts to reduce bycatch, provide grants to partner organizations for the development of bycatch reduction technologies, provide information to fishery participants and encourage gear adoption, support Regional Fishery Management Council establishment of bycatch reduction incentives, and coordinate related projects to reduce adverse fishing gear effects on fish, seabirds, sea turtles, and marine mammals. The bycatch program will also report annually to Congress regarding funding for the program, new technologies developed, and improvements in bycatch reduction, as required by the Magnuson-Stevens Act.



**Benefits**

With this increase, NMFS will be able to develop and implement engineering solutions to bycatch challenges, enhance coordination of bycatch reduction efforts, and expand outreach efforts regarding bycatch in commercial and recreational fisheries and the effects of fishing on ecosystems and status of stocks. Additionally, bycatch reduction will directly support the end of overfishing in the Nation’s marine fish stocks - an Administration priority and a critical element in long-term sustainable fisheries management.

**Performance Goals and Measurement Data**

This increase supports the Department objective and NOAA goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management” under the Department of Commerce strategic goal to “Promote environmental stewardship.”

Specifically, NMFS’ work to reduce bycatch will improve the Fisheries Management Program Internal Performance Measures: “*Number of additional bycatch reduction engineering projects whose results are incorporated into management systems*” and “*Number of key fisheries that meet bycatch reduction goals.*”

Number of additional bycatch reduction engineering projects whose results are incorporated into management systems.		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	Development Begins	1 Project incorporated	1 Project incorporated	1 Project incorporated	1 Project incorporated
	<b>Without Increase</b>	N/A	0	0	0	0
<p><b>Description:</b> The Magnuson Stevens Fishery Conservation and Management Act mandates that NOAA establish a Bycatch Reduction Engineering Program, including grants. This measure tracks projects, under that Program, to develop technological devices and other conservation engineering changes designed to minimize bycatch, bycatch mortality, seabird interactions, and post-release mortality in federally managed fisheries. The projects are counted as the resulting devices or changes are incorporated into Fishery Management Plans or fishing practices.</p>						

<b>Number of key fisheries that meet bycatch reduction goals.</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	Development Begins	2	4	4	4
	<b>Without Increase</b>	0	0	0	0	0
<b>Description:</b> NMFS has identified key fisheries wherever bycatch is of particular concern. NMFS has developed specific targets for each key fishery to reduce bycatch to a specified level. This measure tracks the number of those fisheries that have met their reduction goal.						

**Product Quality and Safety – (+0 FTE, +\$167,000)** – NMFS requests an increase of \$167,000, for a total request of \$7,127,000 for the Product Quality and Safety line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

#### **TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Anadromous Grants (\$1,950,000), Maine and New Hampshire Inshore Trawl Survey (\$188,000), Migratory Shark Research at Mote Marine Laboratory (\$1,501,000), Reef Fish Monitoring and Research (\$939,000), Chesapeake Bay Multispecies Fisheries Management (\$352,000), Gulf Oyster Industry Program (\$188,000), Narraganset Bay Window Program (\$915,000), Oyster Hatchery Economic Pilot Program (\$470,000), Papahānaumokuākea Marine National Monument Fishery Assistance (\$6,690,000), Massachusetts Groundfish Support (\$13,382,000), Monkfish and Migratory Finfish Trawl Surveys (\$1,338,000), Southern New England Cooperative Research Initiative (\$1,338,000), Hawaii Seafood Safety and Inspections (\$669,000), Trawl Survey, Chesapeake Bay (\$447,000), Horseshoe Crab Research (\$447,000), Oregon Salmon Weak Stock Solutions Research (\$447,000), Fisheries Infrastructure, Investigation, Assessment and Improvement Project (\$376,000), Scallop Fishery Assessment (\$1,784,000), Center for Ecosystem-based Fisheries Management (\$2,629,000), and Pelagic Tagging (\$446,000).

**Subactivity: Enforcement and Observers / Training**  
**Line Item: Enforcement**

**GOAL STATEMENT:**

Provide a comprehensive program for the protection of the Nation's living marine resources through the enforcement of a variety of federal laws and regulations. The primary objective of the NMFS Office for Law Enforcement (OLE) is to ensure compliance with the laws and regulations promulgated to conserve and protect our Nation's living marine resources. OLE activities support the NOAA Ecosystems goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

**BASE DESCRIPTION:**

The NOAA Enforcement Program resides within the NMFS Office for Law Enforcement (OLE). OLE implements three primary capabilities: investigations, monitoring (which includes conducting patrols and inspections), and outreach and education. OLE special agents and officers detect, deter, investigate, and document for prosecution any violations of federal laws and regulations under the Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, Endangered Species Act, Lacey Act, and other federal statutes and international agreements relating to living marine resources. Under current monitoring capabilities OLE manages the vessel monitoring system program (VMS), which provides real-time data that significantly increases the ability to monitor and enforce closed areas for protection of endangered species and critical habitat, and rebuilding and maintenance of sustainable fisheries.

OLE currently expands enforcement and monitoring capabilities and resources by carrying out joint enforcement agreements (JEAs) with marine resource enforcement agencies of coastal states and U.S. territories. OLE has implemented JEAs with 22 coastal states and four U.S. territories. This program provides land-based patrols, near shore patrols, and some offshore vessel patrols. While OLE is currently authorized to employ 157 Special Agents and 20 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.

**PROPOSED LEGISLATION:**

NOAA, together with the Administration, will work with Congress to reauthorize the Marine Mammal Protection Act (MMPA), P.L. 103-238.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Enforcement and Observers / Training	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Enforcement					
TOTAL	51,837	53,318	53,998	56,405	2,407
FTE	207	188	188	192	4

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Enforcement (4 FTE, +\$2,407,000):** NMFS requests an increase of \$1,084,000 and 4 FTE's for Enforcement and Surveillance and an \$1,323,000 increase for Cooperative Agreements with States for a total Enforcement request of \$2,407,000 and 4 FTEs. The requested \$1,084,000 increase in Enforcement and Surveillance will allow NOAA to address the Illegal, Unregulated and Unreported (IUU) fishing requirements in the Reauthorized Magnuson-Stevens Act. Specifically, the funding will support NOAA's efforts to control and reduce IUU fishing on the high seas by reducing the amount of IUU product imported into the United States. This request also brings the total cooperative agreements projects request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008. The additional funds for Cooperative Agreements with states will provide the necessary support and capacity for the states to carry out their enforcement activities in full coordination with NOAA.

**Statement of Need**

The international community has identified IUU fishing as the primary threat to the sustainability of ocean fish stocks. The U.S. Ocean Commission, the U.S. Ocean Action Plan, and the reauthorized Magnuson-Stevens Act mandate that NOAA implement a plan for combating international IUU fishing. Because fishing on the high seas takes place well beyond the range of normal surveillance and enforcement mechanisms and beyond U.S. jurisdiction, NOAA's primary method for controlling IUU fishing is to close U.S. markets to IUU product. OLE must increase its ability to monitor imports of regulated products in order to identify IUU fished products, close our markets to those products, and prosecute violators of U.S. laws. OLE will increase its participation in Regional Fishery Management Organizations, stimulating improved documentation schemes, compliance with regulations, and deterrence of IUU. OLE also must increase cooperation and coordination with international partners through the International Monitoring Control and Surveillance network and bilateral activities.

The requested increase of \$1,323,000 in Cooperative Agreements with states will support expansion of the program to help end overfishing, provide enforcement services required within the National Marine Sanctuaries, and to protect marine mammals and other threatened species. Expansion of the Cooperative Enforcement Program is required to address Magnuson Stevens Act requirements to end overfishing through the imposition of annual catch limits, scheduled for no later than FY 10, and limited access privilege programs.

**Proposed Action**

OLE will dedicate more resources—investigators and analysts—to identify and investigate the illegal importation of living marine resource products resulting from IUU fishing activity. This funding will support core positions for coordination, analysis, and investigations. Positions may be assigned at Headquarters or at major points of entry for fishery products. Direct actions include coordination with foreign enforcement agencies and Regional Fishery Management Organizations; liaison with U.S. Customs and Border Protection, U.S. Food and Drug Administration, U.S. Department of Agriculture, and the U.S. Fish and Wildlife Service to monitor and control imports; direct investigations of the importation of proceeds of IUU fishing; and coordination of field staff monitoring and investigations.

**Benefits**

OLE will be able to dedicate resources to suppress international IUU fishing by reducing access to U.S. markets, thereby supporting U.S. Government initiatives to conserve living marine resources at sustainable levels. The increase will allow OLE to support NOAA and the U.S. Department of State in these efforts; will provide for continued active OLE participation within Regional Fishery Management Organizations; and will expand OLE’s collaboration with the U.S. Coast Guard, U.S. Customs and Border Protection, the U.S. Fish and Wildlife Service, the U.S. Food and Drug Administration, and the U.S. Department of Agriculture in their efforts to control illegal trade in regulated products from living marine resources.

The requested increase in the Cooperative Enforcement program with states will provide essential enforcement services to address annual catch limits and limited access privilege programs in the commercial fisheries and Sanctuary based enforcement.

**Performance Goals and Measurement Data**

This increase will support the objective “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce strategic goal to “Promote environmental stewardship.” It also supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

<b>Number of Investigations of International IUU fishing incidents resulting from imports of LMR products to the United States.</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	Without Increase	10	10	10	10	10
	With Increase	10	20	30	30	35
<b>Description:</b> This performance measure tracks the number of investigations conducted of International IUU fishing incidents resulting from illegal importation of living marine resource products.						



**Subactivity: Enforcement and Observers / Training**  
**Line Item: Observers & Training**

**GOAL STATEMENT:**

Provide accurate and timely information and analyses on the biological, ecological, economic, and social aspects of the Nation's fisheries resources and develop, implement, and monitor living marine resource management measures to support the NOAA Strategic Plan goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

**BASE DESCRIPTION:**

Since 1972, NMFS has deployed fishery observers to collect catch and bycatch data from U.S. commercial fishing and processing vessels. Observers have monitored fishing activities on all U.S. coasts, collecting data for a range of conservation and management issues. Observers are fishery biologists deployed at sea onboard commercial fishing vessels to collect data and information on fishery catch and bycatch (i.e. the incidental capture of unintended fish species and protected species). This includes information on fishing practices, vessel and gear characteristics, fishing locations and times, environmental conditions on the fishing grounds, compliance with fishing regulations, and, for some fisheries, socioeconomic data. Observers also collect biological samples and may assist in fish tagging and tag recovery, or in special data collections for stock assessment programs.

Nearly 40 fisheries are monitored by observer programs each year, and the data they collect are often the best means to gather current information on fisheries status. Without these programs, many fisheries would lack sufficient data for effective management. The authority to place observers on commercial fishing and processing vessels operating in particular fisheries is provided either by the Magnuson-Stevens Act or the Marine Mammal Protection Act (MMPA).

**Magnuson-Stevens Act**

The Magnuson-Stevens Act as amended through the reauthorized Magnuson Stevens Act of 2006 authorizes the placement of observers to collect information needed for fishery management and conservation. In addition, the Act requires that all fishery management plans establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery. Fishery observers are one of the most reliable methods for reporting bycatch and are a critical component of the reporting methodologies required in several fisheries with known levels of bycatch.

- The information collected by fishery observers ensures that Fishery Management Plans (FMP) are consistent with the requirement for a standardized bycatch reporting methodology. Observer programs also provide data for fishery managers to ensure that national standards for fishery conservation and management identified in Section 301 of the Magnuson-Stevens Act are met.
- National Standard 1: "Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry."

- National Standard 2: “Conservation and management measures shall be based upon the best scientific information possible.”
- National Standard 9: “Conservation and management measures shall, to the extent practicable, (a) minimize bycatch and (b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.”

### **Marine Mammal Protection Act (MMPA)**

MMPA Section 118 governs the incidental taking of marine mammals in the course of commercial fishing operations. It states that the immediate goal shall be to reduce the incidental mortality or serious injury of marine mammals to insignificant levels approaching rates of zero for mortality and serious injury. To achieve this goal, Section 118(d) directs NMFS to deploy observers on fishing vessels or remote vessels to monitor incidental mortality and serious injury of marine mammals during commercial fishing operations.

Section 118 describes the duties of observers, establishes guidelines for the distribution of observers among fisheries and among vessels within a fishery, and establishes priorities for the placement of observers. Observers are mandatory for fishermen participating in Category I and II fisheries (fisheries that have frequent or occasional incidental mortalities or serious injuries of marine mammals, respectively), and are voluntary for fishermen participating in Category III fisheries (fisheries that have a remote likelihood or no known incidental mortality or serious injury of marine mammals). Section 118 also directs NMFS to develop and implement take reduction plans for marine mammal stocks that interact with Category I or II fisheries. These plans shall include an estimate of marine mammals incidentally killed or seriously injured each year during the course of commercial fishing operations. Onboard fisheries observers are the most reliable source of this information.

### **Endangered Species Act (ESA)**

ESA requires the Federal Government to protect and conserve species and populations that are endangered or threatened with extinction. Federal or state actions that may impact endangered species, such as permitted fishing operations, must be minimized. Endangered species taken as bycatch in fishing operations include sea turtles, Pacific salmon, seabirds, and marine mammals. Observers monitor impacts and certify that takes of endangered species do not exceed the authorized incidental take limit. Observer data are also used to prepare recovery plans, and generally include a requirement to reduce incidental capture of protected species in commercial fishing operations for marine species. Fisheries may be restricted or terminated if they impose mortality rates on protected species that impede the recovery of the listed population.

NMFS implements observer programs in each of its six regions. In addition, improvements in data collection, observer training, and the integration of observer data with other research are coordinated by the Office of Science and Technology in NMFS headquarters. Collectively, the regional programs and the headquarters office comprise the National Observer Program, which supports observer programs and increases their contribution to NMFS' overall goals.

### **PROPOSED LEGISLATION:**

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

**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Enforcement and Observers / Training	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Observers & Training					
<b>TOTAL</b>	26,289	31,491	31,908	32,680	772
FTE	70	63	63	63	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Observers/Training – (+0 FTE, +\$772,000)** – NMFS requests an increase of \$772,000, for a total request of \$32,680,000 for the Observers/Training line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

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**Subactivity: Habitat Conservation & Restoration**  
**Line Item: Habitat Conservation**

**GOAL STATEMENT:**

Conduct a habitat program working in partnership with government agencies, the public, academia 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." Base activities in the Habitat Program support the Departmental objective and NOAA goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management," under the Department of Commerce Strategic Plan goal to "Promote environmental stewardship."

**BASE DESCRIPTION:**

Habitat conservation and restoration are key components of the NOAA Habitat Program and are integral to the NOAA Fisheries Management 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 will require 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 also is integral to ensuring healthy regional ecosystems and the host of societal benefits derived from robust, productive marine, coastal, and riverine habitats. Efforts relating to sustainable habitat management integrate research and management to provide scientific advice for use in permit, licensing, and management activities by (1) working directly with permit and license seekers to review the environmental acceptability of preliminary concepts; (2) consulting with federal agencies on proposed actions' impacts to habitat of NOAA trust resources; (3) supporting Regional Fishery Management Councils and interstate commissions in developing positions on specific projects; (4) increasing overall habitat conservation awareness within federal, state, and local agencies; and (5) improving programs that gather, transfer, and use data on habitats and biological diversity.

Among the most basic tools in NOAA's habitat protection kit is consultation—working with federal action agencies and their constituents to ensure that proposed actions posing threats to marine, coastal, and riverine habitats are undertaken in a manner that prevents, minimizes, or compensates for adverse effects. NOAA uses a streamlined consultation process to provide recommendations for construction projects, applications for dredging and filling wetlands, licenses for hydroelectric power plant operation, waste discharge permits, energy proposals, and other federal funding and permit activities. NOAA's mandates require coordination with public and private partners to ensure effectiveness and efficiency, as exemplified by trial-type hearings and alternatives analyses conducted for fishway prescriptions under the Federal Power Act and Energy Policy Act. The agency 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 on EFH/HAPC.

Each year NMFS regional offices and headquarters provide technical comments on about 4,000 individual actions (pre-application discussions, permit applications, license renewals, environmental analyses, management plans, and draft policies and guidance, among others). Collectively, this work reflects stewardship responsibilities under nearly a dozen federal authorities and represents a major effort to protect marine, estuarine, and riverine habitats that support NOAA trust resources. Technical comments provided by NMFS staff have modified a large majority of the state and federal projects for which they were made to avoid, minimize, or compensate for adverse effects on habitats of NOAA trust resources. This success rate on habitat protection reflects the value of NOAA science and management recommendations offered to state and federal decision makers, as well as NOAA's proactive efforts in educating the development community and conveying proper management applications. The agency works with its partners to develop guidance, best practices, research summaries, and other tools to add efficiency to this major component of its habitat protection effort.

NOAA also uses its expertise to influence decisions at the ecosystem or watershed level, where protection and restoration successes can be more lasting and profound. Using a regional ecosystem approach to management - evidenced in Habitat Program's Chesapeake Bay and the Great Lakes programs - 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 our goals of no net habitat loss, increased yields, streamlined efficiencies, and sustained societal benefits.

### **Fisheries Habitat Restoration**

NMFS habitat restoration efforts provide technical expertise, coordination, and financial support for habitat restoration and science. The NOAA Restoration Center oversees activities under this line item through four programs: 1) Community-based Restoration Program [CRP]; 2) Damage Assessment, Remediation, and Restoration Program [DARRP]; 3) Open Rivers Initiative [ORI]; and 4) Large-scale Ecosystem Restoration, which includes the Coastal Wetlands Planning, Protection, and Restoration Act [CWPPRA] Program.

The Community-based Restoration Program (CRP) catalyzes partnerships at national and local levels by providing on-site technical expertise, funding, and research capabilities in addition to engaging volunteers to restore coastal and estuarine fish habitat. A model for community collaboration, partnership building, and interagency cooperation, NOAA's CRP partners encourage hands-on citizen involvement in restoration projects, leading to long-term stewardship of the Nation's coastal and marine resources. The effectiveness of CRP is demonstrated in its ability to build partnerships that leverage funding and emphasize volunteer involvement to restore the diverse habitats crucial to recreational and commercial fishing industries. This highly successful national effort encourages partnerships with industry, nonprofit organizations, and state and local governments and has regularly leveraged non-federal funding to federal funds by factors of 5:1.

The Damage Assessment, Remediation, and Restoration Program (DARRP) addresses damages to coastal trust resources. Through legal settlements with responsible parties, NOAA claims damages on behalf of the public for injuries to marine resources resulting from oil spills, hazardous releases, ship



groundings, or other human-induced environmental disturbances. After successful settlement of natural resource damage claims, the NOAA Restoration Center manages the portion of DARRP activities that directs the planning, implementation, and monitoring of case-specific projects to restore NOAA trust resources.

The Open Rivers Initiative (ORI) is a comprehensive program that provides project oversight and management, technical expertise, and funding to remove small and large dams and fish passage barriers in coastal states. ORI builds on NOAA's existing restoration capabilities and uses a model similar to the CRP to identify priority projects through merit-based competitions. Over two million dams block the passage of migratory fish in U.S. streams and rivers. Dams provide numerous benefits for modern society, but they also contribute to the habitat and water quality degradation occurring in estuaries, deltas, and riverine environments. Although most U.S. dams serve their intended functions, many no longer provide the benefits for which they were built or may provide greater watershed-level benefit to fish and communities upon their removal or bypass, which is the case for such dams as those on the Penobscot River in Maine, Elwha River in Washington, and Rogue River in Oregon. ORI restores fish passage to upstream spawning and rearing habitat and conducts primary restoration at the site of barrier removal or bypass.

NOAA actively implements large-scale ecosystem restoration that will maximize the recovery of trust resources identified by public-private or agency partnerships. The Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) was enacted in 1990 to address the wetland loss in Louisiana, which is so severe that it threatens infrastructure (i.e., energy, ports, and natural resources) critical to the Nation as well as the safety of its citizens, local traditions and cultures, economy, and environment. CWPPRA is a multi-agency reimbursable program administered by the US Army Corps of Engineers. As a member of this multi-agency federal and state effort, NMFS through the coordination of the NOAA Restoration Center conducts all aspects of the restoration process, from site selection and engineering design to construction, evaluation and maintenance. The NMFS portion of CWPPRA has managed approximately \$10 million each year for on-the-ground restoration that has benefited thousands of acres of threatened wetlands and marine habitat.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Habitat Conservation & Restoration	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Habitat Conservation					
Sustainable Habitat Management	19,826	18,666	18,994	20,952	1,958
Fisheries Habitat Restoration	23,718	25,354	25,560	22,453	(3,107)
Mill River Habitat Restoration, MA	-	376	-	-	-
Bronx River Restoration, NY	-	939	-	-	-
NAIB Conservation and Education Programs, MD	-	892	-	-	-
Port Aransas Nature Preserve, TX	-	329	-	-	-
Chesapeake Bay Oyster Restoration, MD	-	1,784	-	-	-
Rehabilitation of Alaska Crab, AK	-	282	-	-	-
Oyster Bed Reseeding and Fishery Habitat Enhancement, AL	-	939	-	-	-
Lower Elwha River Habitat Restoration, WA	-	446	-	-	-
Merrimack River Fish Habitat, NH	-	188	-	-	-
<b>TOTAL</b>	<b>43,544</b>	<b>50,195</b>	<b>44,554</b>	<b>43,405</b>	<b>(1,149)</b>
FTE	362	234	234	234	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Sustainable Habitat Management (0 FTE, +\$1,958,000)** - NMFS requests an increase of \$1,958,000 for a total of \$20,952,000 for the Sustainable Habitat Management line item. Of this increase, \$458,000 is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Deep Sea Coral Research and Technology Program (0 FTE, +\$1,500,000):** NMFS requests an increase of \$1,500,000 to implement the new *Deep Sea Coral Research and Technology Program* mandated by Congress in the reauthorized Magnuson-Stevens Act. The program will use funding to begin to identify, understand, and provide information needed to protect deep sea coral habitats. Deep sea corals serve as habitat for rich and diverse fish and invertebrate communities, including some commercially important fish species, such as grouper, snapper, sea bass, rockfish, and crab.

**Statement of Need:**

Research during the past decade has revealed that coral and sponge habitats with very high biological diversity exist in deep ocean areas of many U.S. marine ecosystems. These areas are vulnerable to damage from bottom-tending fishing gears, especially from bottom-trawling. They may also be vulnerable to energy exploration and development, deployment of cables and pipelines, and other human activities. Recovery from damage may take decades to centuries as most deep sea corals grow slowly. The President's *Ocean Action Plan* and the reauthorized Magnuson-Stevens Act endorse the importance of these habitats and call for enhanced research, surveying and protection of deep sea coral communities. The *Deep Sea Coral Research and Technology Program* mandated by the reauthorized Magnuson-Stevens Act requires NOAA to conduct specific research, mapping, monitoring, technology development, and reporting activities related to deep sea corals.

Locating, mapping, and comprehensively characterizing deep sea coral and sponge habitats are central to conservation efforts. Such activities allow for improved assessments of potential fisheries impacts as well as other human-induced impacts. Data sought will (1) improve understanding of the ecology of deep sea coral habitats and how economically important managed fish stocks interact with and derive benefit from them (2) inventory the locations of vulnerable deep water habitats, and 3) improve understanding of fishery interactions with deep sea coral habitats. Such information is needed (and requested) by the Regional Fishery Management Councils to identify essential fish habitat, habitat areas of particular concern, and deep sea coral zones. This initiative will help the Councils and NOAA make sound management decisions to mitigate or remove the impacts of fishing on deep sea coral communities and to support ecosystem-based management.

**Proposed Action:**

The funds sought will support pilot projects undertaken cooperatively with NMFS, NOAA's National Ocean Service (NOS), and NOAA's Office of Oceanic and Atmospheric Research (OAR), and in coordination with the Fishery Management Councils, other federal agencies and research institutions. The following proposed actions are specified pursuant to Section 408 requirements of the reauthorized Magnuson-Stevens Act:

*1) Conduct research on deep sea corals and related species.*

Research conducted in association with mapping and characterization cruises will focus on the ecology of deep sea corals and their role and function in supporting various life stages of managed fish stocks. The program will also coordinate analysis of information from other mapping and research efforts in other regions.

*2) Locate and map locations of deep sea corals.*

This effort involves high-resolution surveys, ground-truthing, and development of interpretive products such as maps. Ship-based mapping surveys to locate deep sea coral communities would include high-resolution acoustic mapping with ground-truthing and finer scale characterization using remotely-operated vehicles or submersibles and other instruments. One large ecoregion will be chosen to begin new mapping efforts based on expected importance for deep sea coral communities. Thorough high-resolution mapping and characterization of a region will be conducted over multiple years.

*3) Monitor fishing and other activities in locations where deep sea corals are known or are likely to occur.*

In cooperation with fishing industry participants, NOAA will use currently collected information to map the distribution and intensity of fishing practices known to impact deep sea coral communities and analyze reports of coral bycatch, while ensuring appropriate confidentiality of fishing statistics. Observers in existing programs will be trained in deep sea coral and sponge identification in order to document coral and sponge bycatch.

*4) Publish, in consultation with the Councils, biennial reports to Congress on steps taken to identify, monitor and to protect, deep sea coral areas as required by the reauthorized Magnuson-Stevens Act.*

**Benefits:**

The benefits of the *Deep Sea Coral Research and Technology Program* will be:

- Improved assessments of potential fisheries impacts through increased acres of deep sea coral habitat acres mapped.
- Increased number of accurate habitat distribution maps to differentiate among areas with deep sea coral communities (vulnerable) and other areas (fishable).
- Maps of fishing and non-fishing activities in order to enhance understanding of the effects of human activities on deep sea coral habitats.
- Improved accuracy of models predicting the occurrence of deep sea coral and sponge habitat in order to facilitate management decisions.
- Increased number of deep sea coral and sponge species taxonomically described to improve understanding of deep sea corals.
- Improved descriptions of deep sea coral and sponge associations, and the role of these organisms as habitat for managed fish stocks.
- Enhanced understanding of the effects of human activities on deep sea coral and sponge habitats.
- Estimates of deep sea coral and sponge habitat recovery, which are central to conservation efforts.

In addition, information from slow-growing deep sea coral is used to track long-term climate trends. Data from deep sea coral specimens gathered through this program will contribute to improving climate models.

**Performance Goals and Measurement Data**

This increase will support the objective, “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce Strategic Goal to, “Promote environmental stewardship.” This increase will support NOAA's Goal, "Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management."

<b>Square Kilometers of Seafloor High Resolution Mapped for Deep Sea Coral Habitat</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	Without Increase	100	200	300	400	500
	With Increase	400	600	800	1000	1300
<p><b>Description:</b> The MSRA directs NOAA, <i>inter alia</i>, to “Locate and map locations of deep sea corals and submit such information to the Councils,” and to “Conduct research ... on deep sea corals and related species, and on survey methods.” This measure tracks the area mapped and characterized for the presence of deep corals. Priority will be given to mapping areas “where scientific modeling or other methods predict deep sea corals are likely to be present,” and where the maps will be most likely to support future management measures. Note: area mapped “without increase” reflects expected mapping that is conducted under other programs for other purposes that can nonetheless be utilized to identify the locations of deep sea corals.</p>						

<b>High Coral Bycatch Areas Identified</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	Without Increase	0	0	0	0	0
	With Increase	1	2	3	5	7
<p><b>Description:</b> The MSRA directs NOAA, <i>inter alia</i>, to “to monitor activity in locations where deep sea corals are known or likely to occur, based on best scientific information available...” The Program will allow NOAA to monitor fishery bycatch of corals and utilize this information to identify areas where high bycatch indicates areas of potential conservation concern or needed management. This measure tracks the number of such areas identified and will allow NOAA and the Regional Fishery Management Councils to utilize this information to reduce fishery interactions with deep sea corals.</p>						

**Fisheries Habitat Restoration (0 FTE, -\$3,107,000)** – NMFS requests a net decrease of -\$3,107,000 for a total of \$22,453,000 for the Fisheries Habitat Restoration line item. Specific increases and decreases requested within this line are detailed below.

Open Rivers Initiative (0 FTE, +\$5,397,000): NMFS requests an increase of \$5,397,000 to the Open Rivers Initiative to restore stream miles of fish habitat through watershed-level projects with multiple fish passage opportunities.

**Statement of Need:**

To support Executive Order 13352, which directs federal agencies to promote cooperative conservation in full partnership with state, local governments, tribes and individuals, NOAA requests an increase of \$5,397,000 to address high priority, watershed-level projects that restore vital river ecosystems, benefit communities, and enhance populations of NOAA trust species.

More than two million dams block the passage of migratory fish in U.S. streams and rivers. Dams often provide intended benefits for society, but they also contribute to habitat and water quality degradation in estuaries, deltas, and river environments. While most U.S. dams serve their intended functions, many no longer provide their intended benefits. Still others have outlived their planned life expectancy and present known public safety hazards and liability risks to owners of the structures. The Open Rivers Initiative (ORI) employs a competitive and cooperative approach to removing dam and river barriers in order to provide communities with an economic boost, enhanced public safety, and contribute to improved populations of NOAA trust resources such as striped bass, Atlantic and shortnose sturgeon, and Atlantic and Pacific Salmon.

**Proposed Action:**

The ORI builds on NOAA's existing capabilities in barrier removal projects and employs a cooperative model (i.e., working with state and local agencies, NGOs, and dam owners) to remove dam and river barriers in coastal states. The \$5,397,000 increase will address on-the-ground river enhancements that restore lost fish habitat. The model catalyzes partnerships at the national and local levels by providing funding, technical assistance, and encouraging volunteer stewardship. Using a community-based model, NOAA has removed more than 80 dams and stream blockages, opening 700 miles of high quality river habitat for migratory fish. These projects enhance river and coastal ecosystems and provide benefits to communities residing near these barriers.

NMFS has been and will continue to incorporate all ORI project information and monitoring results into the Restoration Center Database (RCDB) to monitor and document progress and success of restoration/removal efforts. Additionally, the ORI will continue to provide the necessary outreach, facilitation and technical assistance to stakeholders and communities participating in the repair of riverine ecosystems.

**Benefits:**

These restoration projects provide significant environmental improvements (e.g., opening access to spawning habitat and improving water quality) and offer noteworthy economic and societal benefits. They provide cost savings by eliminating the need for dam repairs; remove safety and liability risks associated with outdated structures; and create new opportunities for recreational fishing, river rafting, and kayaking. Removing dams and other barriers requires substantial time and effort because of environmental, safety, and socio-cultural considerations. All barrier removal projects benefit from a



collaborative process that engages a wide array of partners, including municipalities, state government, and private owners. These partnerships help build the interest and confidence required to achieve successful river restoration projects.

**Performance Goals and Measurement Data:**

This increase will support the President's Ocean Action Plan and the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of, "Observe, protect, and manage the Earth's resources to promote environmental needs." This increase will support NOAA's Goal, "Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management". Specifically, the increase supports the Ecosystem Goal's Corporate Measure and the Habitat Program's performance measure, "Stream miles made accessible for ocean, coastal, and Great Lakes resources".

<b>Performance Goal: Stream miles made accessible (miles per year).</b>	<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
Without Increase	75	75	75	75	75
With Increase	400	400	400	400	400

<b>Performance Goal: Number of Dams/Barriers modified.</b>	<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
Without Increase	7	7	7	7	7
With Increase	40	40	40	40	40

Great Lakes Habitat Restoration (0 FTE, +\$1,496,000) NOAA Fisheries Service requests an increase of \$1,496,000 to establish a Great Lakes Habitat Restoration Program, emphasizing restoration of NOAA trust resources at the watershed scale within the Great Lakes Areas of Concern.

**Statement of Need:**

The Great Lakes are North America's freshwater seas and one of the Nation's most important aquatic resources from an economic, geographic, international, ecological and societal perspective. Their restoration, protection and sustainable use are a matter of national priority. On May 18, 2004, Executive Order 13340 was signed creating the Great Lakes Interagency Task Force to help establish a regional collaboration of national significance for the Great Lakes. The Task Force brings together 10 agencies including DOC to work on restoring the Great Lakes. NOAA's program will focus on restoring Great Lakes aquatic resources, with an emphasis on commonly occurring lake-wide problems, such as providing technical support to assist in the remediation of contaminated sediment and the presence of persistent contaminants and the loss of high quality fish and wildlife habitat.

**Proposed Action:**

The Great Lakes Habitat Restoration Program will mobilize NOAA's restoration assets and use an ecosystem approach towards restoring Great Lakes' natural resources. The ecosystem approach to restoration is instrumental in identifying the sources of the problems (e.g., contaminated sediments), identifying an optimal restoration strategy and its intended benefits, evaluating the socio-economic consequences, and monitoring the success of the restoration effort in achieving its goal(s). To properly monitor the effectiveness of NOAA's Great Lakes Habitat Restoration Program, the program has identified a program performance measure; *acres restored per year*, which is a NOAA GPRA measure. The Great Lakes Restoration Program will incorporate all project information and monitoring results into the National Estuary Restoration Inventory (NERI) and the NOAA Restoration Center Database (RCDB) to monitor and document success of restoration at meeting goals for lake-wide ecosystem quality. Additionally, the Great Lakes Restoration Program will provide the necessary outreach, facilitation and technical assistance to stakeholders and communities participating in the restoration activities.

**Benefits:**

The two primary components of the Great Lakes Restoration Program will be: 1) the establishment of a cross-NOAA Great Lakes Habitat Restoration Program in the region and 2) the coordination of NOAA efforts to focus habitat restoration efforts at the watershed level in the Areas of Concern (AOC) identified under the Great Lakes Water Quality Agreement. It is expected that a competitive, cooperative agreement process for Great Lakes communities will provide for partnerships and additional funds from other federal agencies, states and local municipalities of an additional \$4 million to \$8 million. Overall, this program will develop a strong NOAA technical presence and leadership in habitat restoration within the Great Lakes region.

**Performance Goals and Measurement Data:**

This increase will support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of, "Observe, protect, and manage the Earth's resources to promote environmental needs." This increase will support NOAA's Goal, "Protect, Restore, and Manage the Use of Coastal and Ocean Resources Through an Ecosystem Approach to Management". Specifically, the increase supports the NOAA GPRA measure, "Number of Habitat Acres Restored" by targeting NOAA technical expertise and partnerships in the Great Lakes through establishing a cross-NOAA Great Lakes Habitat Restoration Program, and the coordination of NOAA efforts to focus habitat restoration efforts at the watershed level in the AOC, in conjunction with strong partnerships with a wide range of other agencies and customers.

<b>GPRA Performance Goal: Number of Acres of Habitat Restored (in the Great Lakes)</b>	<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
Without Increase	5	5	5	5	5
With Increase	80	80	80	80	80

Penobscot River Habitat Restoration (0 FTE and - \$10,000,000): NMFS requests a decrease of \$10,000,000 for the Penobscot River Habitat Restoration Project.

#### **Statement of Need**

Historically, the Penobscot River held Maine's largest populations of Atlantic salmon and other sea-run fish with annual salmon runs estimated at 50,000-70,000 adults prior to 1830. Now, populations of many of these fish are at or near all time lows due to migratory barriers, over harvest, water pollution, and habitat degradation caused by logging and dams. In 2004, Federal, state, and Tribal governments, PPL, Inc., and non-governmental organizations signed the Lower Penobscot River Comprehensive Settlement Accord, which includes the acquisition and removal or by-pass of three dams. The FY 2008 funds appropriated to NOAA for the Penobscot River Restoration Project will be used for the purchase of three hydropower dams on the river; to complete the preliminary engineering and design of the removal of the two most seaward dams and construction of a fish by-pass channel around the third dam; and to complete Federal and state license and permit applications for these construction activities.

#### **Proposed Action**

In FY 2009, NOAA is requesting no funding for this project. To assure that NOAA's investment in this project leads to successful completion, NOAA will continue to work with project partners to identify additional non-federal funds to complete engineering and design, and initiate construction and habitat restoration.

#### **Benefits**

The FY 2008 NOAA funding has allowed for the completion of the first two stages of the project. Funding through other sources, state, private, and federal contributions, will culminate in open access to nearly 1,000 miles of historical habitat in the Penobscot River watershed, restoring self-sustaining populations of 11 diadromous fish species, including Atlantic salmon, Atlantic and shortnose sturgeon, American shad, and American eel. The project will open 100% of historic spawning habitat for selected species in the lower Penobscot River. The project also provides the opportunity for hydropower generation to be maintained at 95% of the current generating capacity. This requested decrease will allow NOAA to fund higher-priority activities while continuing to support Fisheries Habitat Restoration activities.

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Mill River Habitat Restoration (\$376,000), Bronx River Restoration (\$939,000), NAIB Conservation and Education Programs (\$892,000), Port Aransas Nature Preserve (\$329,000), Chesapeake Bay Oyster Restoration (\$1,784,000), Oyster Bed Reseeding and Fishery Habitat Enhancement (\$939,000), Rehabilitation of Alaska Crab (\$282,000), Lower Elwha River Habitat Restoration (\$446,000), and Merrimack River Fish Habitat (\$188,000).

**Subactivity: Other Activities Supporting Fisheries**  
**Line Item: Other Activities Supporting Fisheries**

**GOAL STATEMENT:**

Programs in this subactivity support the Departmental objective and NOAA goal to, “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management,” under the Department of Commerce Strategic Plan Goal to, “Promote environmental stewardship.” These efforts also contribute to the following NOAA performance objectives: increase number of habitat acres conserved or restored, and increase portion of population that is knowledgeable of and acting as stewards for coastal and marine ecosystem.

**BASE DESCRIPTION:**

“Other Activities Supporting Fisheries” includes items that cross multiple NMFS programs and therefore do not fit under one specific subactivity. Activities funded include aquaculture, Antarctic research, climate research, computer hardware and software, cooperative research, information analysis and dissemination, the National Environmental Policy Act (NEPA), Chesapeake Bay Studies, and facilities maintenance.

**Aquaculture**

Aquaculture is the fastest growing form of food production in the world. It is also a significant source of protein for people in many countries, including the United States. Globally, nearly half the fish consumed by humans is produced by fish farms. This worldwide trend toward aquaculture production is expected to continue. At the same time, demand for safe, healthy seafood is also expected to grow.

NOAA is at the forefront of a national initiative to help the United States become more self-sufficient in the production of seafood. This initiative is based on sustainable commercial marine fisheries complemented by robust domestic aquaculture production. NOAA's overall aquaculture efforts are focused on creating domestic supply to meet the nation’s growing demand for seafood; establishing aquaculture and as a viable technology for replenishment of important commercial and recreational marine fisheries; and creating opportunities for the United States to engage the global aquaculture community through scientific and technological exchange.

NOAA’s Aquaculture Program (AQC) draws on managerial, policy, and scientific expertise from across the agency and from among its federal, state, local, tribal, and academic partners. Coordinated out of NMFS headquarters in Silver Spring, Maryland, the Aquaculture Program works with personnel in NOAA's other line offices, including:

- NOAA Research (OAR), which includes the national and state Sea Grant programs;
- NOAA Satellite and Information Service (NESDIS), which includes the NOAA Library’s Aquaculture Information Center; and
- NOAA Ocean Service (NOS), which includes the National Centers for Coastal Ocean Science

Base funds support the operation of the NMFS Aquaculture Program staff office to lead and coordinate regulatory, research, and outreach activities for marine aquaculture. Furthermore, the Aquaculture Program supports certain aquaculture and stock enhancement science activities at NMFS laboratories. In addition to base funds in NMFS, base funds requested through NOAA Research support the National Marine Aquaculture Initiative. This initiative is a competitive grants program that resides within OAR and is also considered part of the NOAA Aquaculture Program.

In FY 2008, NOAA finalized and adopted the 10-Year Plan for Marine Aquaculture as an agency-wide policy document. The plan is intended to guide the agency as it works toward establishing marine aquaculture as an integral part of the U.S. seafood industry and as a viable technology for replenishing important commercial and recreational fisheries. The plan provides specific goals for the NOAA Aquaculture Program and an assessment of the challenges the agency will face in its effort to reach four distinct goals:

- develop a comprehensive regulatory program for environmentally sustainable marine aquaculture;
- development of commercial marine aquaculture and replenishment of wild stocks;
- increase public understanding of marine aquaculture; and
- increase collaboration and cooperation with international partners

NOAA's involvement in marine aquaculture is conducted under a number of legislative and policy drivers. These include the reauthorized Magnuson-Stevens Fishery Conservation and Management Act of 2006, National Aquaculture Act of 1980, Marine Mammal Protection Act, Endangered Species Act, Coastal Zone Management Act, and National Environmental Policy Act. Under these laws, NOAA is responsible for considering the potential environmental impacts of planned marine aquaculture facilities on its trust resources through formal permit reviews and consultations. Lastly, the National Sea Grant College Program Act, the Saltonstall-Kennedy Act (as amended), and the Merchant Marine Act gave NOAA the authority to develop and provide assistance for both public- and private-sector aquaculture.

The Aquaculture Program will work with the regional Fishery Management Councils and other regional management bodies to develop regulations and/or permitting requirements through existing mandates (e.g., Magnuson-Stevens Act) until Congress passes a National Offshore Aquaculture bill.

### **Cooperative Research**

Cooperative research is the partnering of the fishing industry, fishermen and other stakeholders with federal and university scientists to collect fundamental fisheries information. The collection of information on fisheries resources through cooperative research programs assists scientists and managers by providing information to supplement the data currently collected through existing federal research programs.

The information collected through well-designed and scientifically valid 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 socio-economic studies.

NOAA's cooperative research program is conducted under a number of mandates including the reauthorized Magnuson-Stevens Act of 2006 (Act). The Act requires NMFS to encourage partnerships among federal, state, and tribal managers and scientists, fishing industry participants, and educational institutions.

**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. The primary mission of the Sandy Hook laboratory is to conduct ecological research for the Northeast Fisheries Science Center to improve understanding of both coastal and estuarine organisms and the effects of human activities on nearshore marine populations. Research for the Southwest Fisheries Science Center is focused on Pacific Coast groundfish and Pacific salmon. Groundfish under study include rockfishes, flatfishes, Pacific whiting, sablefish and lingcod; salmon include coho, Chinook, and steelhead. The Kodiak Fisheries Research Center (KFRC) is the primary facility for the Alaska Fisheries Science Center's (AFSC) Resource and Conservation Engineering (RACE) Shellfish Assessment Program. The KFRC facility also provides offices and research support for other NMFS program activities, including: Groundfish Assessment Program, North Pacific Groundfish Observer Program, National Marine Mammal Laboratory, and Alaska Regional Office, Sustainable Fisheries Division.

#### **PROPOSED LEGISLATION:**

The Administration is working with Congress to facilitate passage of the National Offshore Aquaculture Act.

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## SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Subactivity: Other Activities Supporting Fisheries	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Other Activities Supporting Fisheries					
Antarctic Research	1,473	3,029	2,142	2,639	497
Aquaculture	-	3,413	3,416	4,052	636
Chesapeake Bay Studies	3,486	1,918	-	-	-
Climate Regimes & Ecosystem Productivity	1,490	1,463	1,497	2,055	558
Computer Hardware and Software	1,985	3,296	3,336	3,417	81
Cooperative Research	12,397	10,058	10,208	11,455	1,247
Information Analyses & Dissemination	17,858	18,463	18,875	19,328	453
Magnuson –Stevens (MSA) Implementation off Alaska	-	7,314	-	-	-
Marine Resources Monitoring, Assessment & Prediction Program (MarMap)	839	821	822	842	20
National Environmental Policy Act (NEPA)	7,979	7,874	8,018	8,211	193
NMFS Facilities Operations and Maintenance	7,449	5,896	6,333	6,477	144
Southwest Science Center Temporary Relocation	1,972	975	976	1,000	24
Southeast Area Monitoring & Assessment Program (SEAMAP)	4,369	4,388	-	-	-
Regional Studies	-	-	6,371	7,124	753
Regional Science and Operations	-	-	7,474	8,071	597
Other Projects	7,169	4,876	4,884	5,003	119
Hurricane Recovery in Gulf of Mexico (PL 110-28)	84,915	-	-	-	-
Klamath River Fishery Assistance (PL 110-28)	60,340	-	-	-	-
Science Consortium for Ocean Replenishment at Mote Marine Lab	-	845	-	-	-
East Coast Shellfish Aquaculture Industry	-	422	-	-	-
Lobster Institute CORE Initiative - Univ of Maine	-	188	-	-	-
NOAA Save the Bay Education Program & Shellfish Restoration	-	188	-	-	-
Aquatic Genomics and Biosecurity Research	-	939	-	-	-

Subactivity: Other Activities Supporting Fisheries	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Groundline Exchange Program	-	376	-	-	-
Bering Sea Fishermen's Association	-	188	-	-	-
Yukon River Drainage Association	-	376	-	-	-
Gulf of Alaska Coastal Communities Coalition	-	188	-	-	-
Louisiana Fisheries Recovery Resource Center	-	490	-	-	-
New England Multi-Species Survey	-	2,676	-	-	-
Western Pacific Pelagic Fisheries Research	-	1,115	-	-	-
Fishing Mortality Education Program	-	94	-	-	-
<b>TOTAL</b>	<b>213,721</b>	<b>81,869</b>	<b>74,352</b>	<b>79,674</b>	<b>5,322</b>
FTE	-	-	7	7	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

**Antarctic Research (0 FTE, +\$497,000):** NMFS is requesting an increase of \$497,000 for a total of \$2,639,000 for the Antarctic Research line item to support NOAA's goal of managing the use of Southern Ocean resources through an ecosystem approach. The 2009 field season represents the 23rd year of NOAA's only ecosystem-based Antarctic program collecting biological and oceanographic information. This request will provide funds for increased ship charter days including fuel, technical staffing, and increased scientific personnel costs—enabling the continuation of one of NOAA's longest running data streams on the Antarctic marine ecosystem.

NOAA's Southwest Fisheries Science Center, a component of the National Marine Fisheries Service, is responsible for the Antarctic Marine Living Resources program. The principle mission of AMLR's research program is to collect the scientific information needed to detect, monitor, and predict the effects of harvesting and changing environmental conditions on targeted species (krill and fishes) and protected species (marine mammals and seabirds). Program scientists operate land-based predator research and ship-based research, conducting oceanographic, trawling, acoustic biomass sensing, and small boat operations to describe the fundamental relationship between krill, krill's predators, finfish, and key environmental variables under changing sea ice conditions. This research is part of the US commitment to the international treaty to preserve the Antarctic - the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR).

**Statement of Need**

NOAA's AMLR program is the only U.S. long-term ecosystem-based program designed specifically to address the management issues of the Southern ocean. The U.S. is the leading consumer of Antarctic marine resources (Patagonian toothfish) and in recent years, U.S. commercial fishing vessels have been active in the Antarctic, targeting crab, krill, and toothfish. Under the authority of the Antarctic Marine Living Resources Convention Act of 1984 (Public Law 98-623), NOAA must monitor the actions of U.S. and international fishermen, including scientific observation of fishing operations. Effects of the commercial harvesting on directed and dependent and associated species are directly affected by environmental factors. The program must monitor environmental variables (e.g., sea temperatures, salinity, nutrients, and oceanographic features) so management actions can be based on an ecosystem approach. Ecosystem management models will use these data to set catch limits that, for the first time, will account for climate variation.

The AMLR Program Development Plan estimates the amount of dedicated ship time required for Antarctic field work at 100+ days. Increased charter costs in conjunction with level funding have reduced the ship-based surveys to 35 days in FY 2007 and 70 days in FY 2008, allowing only for the minimum required effort. Staging requires a long lead time and these costs are additional to the cost of chartering the AMLR research vessel. Level funding is insufficient to cover staging and increased charter costs.

NOAA requires additional funds to provide an adequate number of sea days thereby allowing NOAA researchers to conduct comprehensive field surveys and subsequent analyses. This work will result in stock assessments for 26 targeted stocks of Antarctic fish, krill, and crab and informed management decisions for an additional 30 stocks that are made more difficult under changing environmental conditions. Without this funding, NOAA will be unable to

collect data necessary for ecosystem based management of the krill and finfish fisheries, which under the established precautionary management rules, may lead to closure of some fisheries and ensures that fisheries targeting depleted stocks remain closed.

### **Proposed Action**

NOAA's Antarctic Marine Living Resources (AMLR) program monitors finfish and krill fisheries, projects sustainable yields where possible, and formulates management advice and options. In addition, the program conducts field research with the long-term objective of describing the functional relationships between fish and krill, their predators, and their environment. The field program is based on two working hypotheses: (1) krill and fish predators respond to changes in the availability of their food, and (2) the distribution of krill and fish are affected by both physical and biological aspects of their environment.

This request will enable NMFS to (1) increase the amount of charter days (from 70 days to 103 days) needed to conduct fish surveys, (2) monitor over-winter survival and foraging success of fur seals and penguins, and (3) investigate ecosystem interactions to enhance advice provided to the Department of State and CCAMLR for management of the Southern Ocean marine living resources. The request will provide \$259,000 to cover field charter costs, \$33,500 to cover the port call to outfit the ship for fish trawling, and \$204,500 for fuel and oil.

### **Benefits**

NOAA's AMLR program emphasizes directed research to manage Antarctic marine living resources from an ecosystem perspective. AMLR is the most comprehensive research program using land-, sea-, and space-based platforms to gather information on the environment and ecology in the Antarctic Peninsula and Southern Ocean.

The long-term vision for this program is to quantify the functional relationships between finfish and krill, their environment, and their predators. Once NOAA elucidates these relationships, scientific advice provided to the Department of State and CCAMLR will allow for the management of the marine living resources in the Southern Ocean using an ecosystem approach to ensure sustainable harvesting of krill, fish, and crabs.

### **Performance Goals and Measurement Data**

This increase will support the objective "Protect, restore, and manage the use of coastal and ocean resources" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, this increase supports the NOAA Goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

<b>Number of Antarctic Fish Assessments</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target*</b>	<b>FY 2011 Target*</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	21	21	21	21	21
	<b>Without Increase</b>	5	5	5	5	5
<b>Description:</b> This measure tracks 26 stocks of Antarctic fish, krill and crab in order to quantify the functional relationships between finfish and krill, their environment and their predators. The numbers refer to the total number of fish stock assessments conducted by AMLR scientists based on field data derived from the extended number of days at sea. * After FY 2009, NMFS will be able to maintain the surveys of 26 stocks with this funding increase.						

<b>Number of Days at Sea for Antarctic Research</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	103	103	103	103	103
	<b>Without Increase</b>	70	70	70	70	70
<b>Description:</b> This measure tracks the number of sea days needed for NOAA researchers to conduct comprehensive field surveys for 26 stocks of Antarctic fish, krill and crab. The numbers refer to the total number of sea days in which AMLR scientists are in the field and able to collect data designed specifically to address the management issues of the Southern ocean.						

**Aquaculture – (0 FTE, +\$636,000)** – NMFS requests an increase of \$636,000, for a total request of \$4,052,000 for the Aquaculture line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Climate Regimes and Ecosystem Productivity – (0 FTE, +\$558,000)** – NMFS requests an increase of \$558,000, for a total request of \$2,055,000 for the Climate Regimes and Ecosystem Productivity line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Computer Hardware and Software – (0 FTE, +\$81,000)** – NMFS requests an increase of \$81,000, for a total request of \$3,417,000 for the Computer Hardware and Software line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Cooperative Research (0 FTE, +\$1,247,000)**: NMFS requests a net increase of \$1,247,000 for a total of \$11,455,000 for the Cooperative Research to expand and fully implement a nationwide, regionally based cooperative research and management program as directed by the reauthorized Magnuson-

Stevens Act. This increase will provide a means for commercial and recreational fishermen to become involved in the collection of fundamental fisheries information to support the development and evaluation of NOAA's management options for recreational and commercial fisheries.

### **Statement of Need**

Cooperative research is the partnering of the fishing industry, fishermen, and other stakeholders with federal and university scientists to collect fundamental fisheries information. The collection of information on fisheries resources through cooperative research programs assists scientists and managers by providing information to supplement the data currently collected through existing federal research programs. The information provided can cover a wide range of research areas, including fishery-dependent data, life history studies, conservation engineering, species abundance and distribution, habitat studies, and socioeconomic studies.

Section 318(a) of the reauthorized Magnuson-Stevens Act directs the Secretary of Commerce, in consultation with the Councils, to establish a cooperative research and management program to address needs identified under the Act and any other marine resource laws enforced by the Secretary. The Act requires NMFS to implement the new program on a regional basis and encourage 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.

### **Proposed Action**

NMFS will provide grants to groups to address critical needs identified by the Councils in consultation with the Secretary. The new program will award funding on a competitive basis and select programs that form part of a coherent program of research focused on solving priority issues identified by the Councils. In keeping with the Magnuson-Stevens Act, NMFS will give priority to the following focus areas: data collection that will improve, supplement, or enhance stock assessments; estimates of bycatch or post-release mortality occurring in a fishery; and conservation engineering projects designed to reduce bycatch.

The NMFS Cooperative Research Working Group (Group) provides input and recommendations in the development of annual budgets for the National Cooperative Research Program. The Group divides the funding from the National Cooperative Research Program equally among the six regions to assist in further implementation of research projects. Although NMFS cannot determine in advance the specific projects that will receive funding, each region has specific questions that need to be resolved.

**Northeast Region:** Increased funding would broaden and diversify community participation and include a greater diversity of fishery-gear combinations, vessel sizes and sport fishermen. Areas of emphasis for expanded ongoing and future cooperative research activities in this region include continuing support for industry-based surveys; expanding geographical coverage of essential fish habitat surveys; increasing the number and frequency of tagging programs; and testing alternate fishing gears in trawl-based surveys. These activities will not only provide an opportunity to engage fishermen (commercial and recreational) in cooperative research and community outreach and education, but will facilitate cooperative research approaches designed to improve the accuracy and precision of NMFS' stock assessments. As a result, managers will be able to review a greater range of management options.

**Southeast Region:** Increased funding would contribute to the South Atlantic, Gulf of Mexico, and Caribbean research priorities identified by the Councils and industry with emphasis directed towards the collection of relative abundance patterns, catch, effort, size frequency, bycatch, and socioeconomic information in recreational and commercial fisheries. This program is consistent with GAO recommendations to heighten working relations with stakeholders.

**Southwest Region:** Of the 80 species managed under the groundfish fishery management plan (FMP), fewer than 20 have sufficient data to allow determination of the stock status relative to stock size and harvest rate. Addressing this assessment gap and increasing our knowledge of habitat use by groundfish populations are central goals of the region's stock assessment program. Cooperative research is an integral component of this effort. Other cooperative research priorities include the establishment of a nearshore species survey, research on coastal pelagic species (e.g., market squid), and projects addressing gear interaction with protected species.

**Northwest Region:** Increased funding would allow for expansion of the cooperative groundfish bottom trawl surveys on the continental slope, which have provided invaluable fishery-independent information for several West Coast species including dover sole, thornyheads, and sablefish. These surveys represent the primary source of data for stock assessment models; this information has been critical in developing scientific advice for setting catch limits for these species. Additionally, industry is now partnering with Federal scientists to develop new surveys for overfished widow and canary rockfish. The industry is involved in all phases of these new surveys from planning, through design and execution.

**Alaska Region:** Establishing additional multi-year projects with fishing groups representing most of the major gear/fishery components of the Gulf of Alaska and Bering Sea crab and groundfish fisheries would be the primary focus for additional funding in the Alaska region. These projects will be implemented through the formation of additional non-profit foundations via NOAA Cooperative Agreements or Joint Project Agreements. In this way, industry and agency scientists can further pool their resources to conduct research projects as part of a long-range research plan. Plan development would be a cooperative process. The region would accomplish a range of projects including conducting species-specific resource surveys, collecting biological data to improve population parameter estimates for stock assessment modeling, collecting fishery data through electronic logbooks and observer programs, improving bycatch reduction technology and methods, evaluating the effects of fishing on essential fish habitat, and quantifying essential fish habitat.

**Pacific Islands Region:** Establishing a cooperative deep-slope resource survey to cover the entire Hawaiian archipelago would be a key focus of increased funding. This new survey would collect abundance and biological data—primarily on crustaceans and bottomfish, as well as ecological and habitat data throughout the archipelago. Data deficiencies exist for many insular species listed in the FMPs, resulting in stock status determinations with large uncertainties. A further expansion of this survey to include the Samoan and Mariana archipelagos, as well other Pacific remote island areas under the jurisdiction of Western Pacific Fishery Management Council is another long-term priority.

### Benefits

Cooperative research provides a means for commercial and recreational fishermen to become involved in the collection of fundamental fisheries information to support the development and evaluation of management options. In cooperative research, industry and other stakeholders can partner with NMFS and university scientists, in all phases of the research program, including survey/statistical design, conduct research, analysis of results, and communication of results.

### Performance Goals and Measurement Data

This increase will support the objective “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, this increase supports the NOAA Goal to “Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.”

<b>Number of Cooperative Research Projects Conducted Annually Across the Nation</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	24	24	24	24	24
	<b>Without Increase</b>	16	16	16	16	16
<b>Description:</b> This measure tracks the number of projects executed in a given fiscal year. The numbers refer to the total number of projects from all 6 NMFS regions. This measure gauges efforts to partner with fishing industry, fishermen and other stakeholders with federal and university scientists to collect fisheries information to improve the science and management of marine resources. Further details on the projects funded through the National Cooperative Research Program can be found at: <a href="http://www.st.nmfs.noaa.gov/st4/NationalCooperativeResearchCoordination.html">http://www.st.nmfs.noaa.gov/st4/NationalCooperativeResearchCoordination.html</a>						

**Information Analysis and Dissemination – (0 FTE, +\$453,000)** – NMFS requests an increase of \$453,000, for a total request of \$19,328,000 for the Information Analysis and Dissemination line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Regional Science and Operations – (0 FTE, +\$597,000)** – NMFS requests an increase of \$597,000, for a total request of \$8,071,000 for the Regional Science and Operations line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Marine Resources Monitoring, Assessment, and Prediction – (0 FTE, +\$20,000)** – NMFS requests an increase of \$20,000, for a total request of \$842,000 for the Marine Resources Monitoring, Assessment, and Prediction line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.



**National Environmental Policy Act (NEPA) – (0 FTE, +\$193,000)** – NMFS requests an increase of \$193,000, for a total request of \$8,211,000 for the National Environmental Policy Act (NEPA) line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**NMFS Facilities Maintenance – (0 FTE, +\$144,000)** – NMFS requests an increase of \$144,000, for a total request of \$6,477,000 for the NMFS Facilities Maintenance line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Other Projects – (0 FTE, +\$119,000)** – NMFS requests an increase of \$119,000, for a total request of \$5,003,000 for the Other Projects line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Southwest Fisheries Science Center Temporary Relocation – (0 FTE, +\$24,000)** – NMFS requests an increase of \$24,000, for a total request of \$1,000,000 for the Southwest Fisheries Science Center Temporary Relocation line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Regional Studies – (0 FTE, +\$753,000)** – NMFS requests an increase of \$753,000, for a total request of \$7,124,000 for the Regional Studies line item. This increase is requested to bring the total request to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

#### **TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Antarctic Research (\$923,000), Aquatic Genomics and Biosecurity Research (\$939,000), Groundline Exchange Program (\$376,000), Bering Sea Fishermen's Association (\$188,000), Yukon River Drainage Association (\$376,000), Gulf of Alaska Coastal Communities Coalition (\$188,000), Louisiana Fisheries Recovery Resource Center (\$490,000), New England Multispecies Survey (\$2,676,000), Western Pacific Pelagic Fisheries Research (\$1,115,000), Fishing Mortality Education Program (\$94,000), Science Consortium for Ocean Replenishment at Mote (\$845,000), East Coast Shellfish Aquaculture Industry (\$422,000), Lobster Institute CORE Initiative (\$188,000), and NOAA Save the Bay Education Program and Shellfish Restoration (\$188,000).

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**Subactivity: Alaska Composite Research and Development  
Line Item: AK Composite Research and Development Program**

**GOAL STATEMENT:**

Provide accurate and timely information and analyses on the biological, ecological, economic, and social aspects of Alaska's fisheries resources and develop, implement, and monitor living marine resource management measures to support the NOAA Strategic Plan goal to, "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

**BASE DESCRIPTION:**

The FY 2006 *Science, State, Commerce, Justice, and Related Agencies Appropriations Act* enacted funding for a new budget line titled the Alaska Composite Research and Development Program, which focused on Alaska fisheries and marine mammals. The appropriations bill enacted a significant consolidation of the NMFS budget resulting in the realignment of approximately 50 budget lines into a single PPA (Program, Project, or Activity) for the conservation and management of Alaska fisheries and marine mammals.

NOAA no longer requests funding for Alaska research and conservation activities under the Alaska Composite Research and Development line item. Since FY 2008, NOAA has requested funding for Alaska activities within the original budget lines that previously funded these activities.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Alaska Composite Research and Development	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: AK Composite Research and Development Program					
TOTAL	50,730	-	-	-	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
(Dollar amounts in thousands)

<b>National Marine Fisheries Service</b>	FY 2007 Actual	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Current Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Climate</b>					
Climate	1,490	1,463	1,497	2,055	558
Total C	1,490	1,463	1,497	2,055	558
<b>Ecosystems</b>					
Ecosystems	800,090	679,378	628,821	691,611	62,790
Total ECO	800,090	679,378	628,821	691,611	62,790
<b>Mission Support</b>					
MS	27,136	26,867	27,575	30,545	2,970
Total MS	27,136	26,867	27,575	30,545	2,970
<b>Total National Marine Fisheries Service</b>	828,716	707,708	657,893	724,211	66,318

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: National Marine Fisheries Service		FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Inc/Dec from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Protected Species Research and Management											
Protected Species	Pos/BA	659	141,015	690	163,827	696	157,144	706	167,241	10	10,097
	FTE/OBL	628	140,953	657	165,358	663	157,144	670	167,241	7	10,097
Total: Protected Species Research and Management	Pos/BA	659	141,015	690	163,827	696	157,144	706	167,241	10	10,097
	FTE/OBL	628	140,953	657	165,358	663	157,144	670	167,241	7	10,097
Fisheries Research and Management											
Fish	Pos/BA	1,445	301,580	1,516	327,008	1,523	295,937	1,568	344,806	45	48,869
	FTE/OBL	1,376	301,306	1,444	330,783	1,451	295,937	1,485	344,806	34	48,869
Total: Fisheries Research and Management	Pos/BA	1,445	301,580	1,516	327,008	1,523	295,937	1,568	344,806	45	48,869
	FTE/OBL	1,376	301,306	1,444	330,783	1,451	295,937	1,485	344,806	34	48,869
Enforcement and Observers / Training											
Enforcement	Pos/BA	217	51,837	198	53,318	198	53,998	203	56,405	5	2,407
	FTE/OBL	207	51,361	188	53,691	188	53,998	192	56,405	4	2,407
Observers & Training	Pos/BA	74	26,289	66	31,491	66	31,908	66	32,680	-	772
	FTE/OBL	70	26,420	63	31,653	63	31,908	63	32,680	-	772
Total: Enforcement and Observers / Training	Pos/BA	291	78,126	264	84,809	264	85,906	269	89,085	5	3,179
	FTE/OBL	277	77,781	251	85,344	251	85,906	255	89,085	4	3,179

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: National Marine Fisheries Service		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Habitat Conservation & Restoration											
Habitat Conservation	Pos/BA	380	43,544	245	50,195	245	44,554	245	43,405	-	(1,149)
	FTE/OBL	362	43,492	234	50,724	234	44,554	234	43,405	-	(1,149)
Total: Habitat Conservation & Restoration	Pos/BA	380	43,544	245	50,195	245	44,554	245	43,405	-	(1,149)
	FTE/OBL	362	43,492	234	50,724	234	44,554	234	43,405	-	(1,149)
Other Activities Supporting Fisheries											
Other Activities Supporting Fisheries	Pos/BA	-	213,721	-	81,869	8	74,352	8	79,674	-	5,322
	FTE/OBL	-	213,035	-	82,886	7	74,352	7	79,674	-	5,322
Total: Other Activities Supporting Fisheries	Pos/BA	-	213,721	-	81,869	8	74,352	8	79,674	-	5,322
	FTE/OBL	-	213,035	-	82,886	7	74,352	7	79,674	-	5,322
Alaska Composite Research and Development											
AK Composite Research and Development Program	Pos/BA	-	50,730	-	-	-	-	-	-	-	-
	FTE/OBL	-	50,843	-	81	-	-	-	-	-	-
Total: Alaska Composite Research and Development	Pos/BA	-	50,730	-	-	-	-	-	-	-	-
	FTE/OBL	-	50,843	-	81	-	-	-	-	-	-

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

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

Title	Grade	Number	Annual Salary	Total Salaries
		0	-	-
		0	-	-
Fishery Biologist	Honolulu, HI	4	75,884	303,536
Fishery Biologist	Miami, FL	2	79,697	159,394
Fishery Biologist	Miami, FL	1	112,233	112,233
Fishery Biologist	Seattle, WA	2	79,885	159,770
Fishery Biologist	Seattle, WA	1	112,499	112,499
Total		10		847,432
Less Lapse	25%	-3		(211,858)
Total full-time permanent (FTE)		7		635,574
2009 Pay Adjustment (2.9%)				18,432
Total				654,006
<b>Personnel Data</b>		<b>Number</b>		
Full-time permanent		7		
Other than full-time permanent		0		
Total		7		
<b>Authorized Positions</b>				
Full-time permanent		10		
Total		10		

**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		Grade	Number	Annual Salary	Total Salaries
Computer Specialist	Silver Spring, MD	ZP-2	1	63,135	63,135
Computer Specialist	Silver Spring, MD	ZP-3	1	79,892	79,892
Computer Specialist	Silver Spring, MD	ZP-4	1	112,508	112,508
Economist	Honolulu, HI	ZP-3	1	75,884	75,884
Economist	Miami, FL	ZP-3	1	79,697	79,697
Economist	San Diego, CA	ZP-3	1	83,557	83,557
Economist	Seattle, WA	ZP-3	2	79,885	159,770
Economist	Silver Spring, MD	ZP-3	1	81,000	81,000
Economist	Woods Hole, MA	ZP-3	1	81,495	81,495
Fish Management Specialist	Gloucester, MA	ZA-4	1	91,791	91,791
Fish Management Specialist	Honolulu, HI	ZA-4	1	106,864	106,864
Fish Management Specialist	Juneau, AK	ZA-4	1	85,470	85,470
Fish Management Specialist	La Jolla, CA	ZA-4	1	91,313	91,313
Fish Management Specialist	Seattle, WA	ZA-4	1	112,499	112,499
Fish Management Specialist	St. Petersburg, FL	ZA-4	1	89,765	89,765
Fisheries Biologist	Honolulu, HI	ZP-4	1	106,864	106,864
Fishery Management Specialist	Juneau, AK	ZP-4	1	85,470	85,470
Fishery Management Specialist	Seattle, WA	ZP-4	1	112,499	112,499
Fishery Management Specialist	St. Petersburg, FL	ZP-4	2	89,765	179,530
Fishery Research Biologist	Honolulu, HI	ZP-3	2	75,884	151,768
Fishery Research Biologist	Honolulu, HI	ZP-4	1	106,864	106,864
Fishery Research Biologist	Miami, FL	ZP-4	1	112,233	112,233
Fishery Research Biologist	Miami, FL	ZP-3	1	79,697	79,697
Fishery Research Biologist	San Diego, CA	ZP-3	1	83,557	83,557
Fishery Research Biologist	San Diego, CA	ZP-4	1	117,669	117,669
Fishery Research Biologist	Seattle, WA	ZP-4	2	112,499	224,998
Fishery Research Biologist	Seattle, WA	ZP-3	2	79,885	159,770

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

Fishery Research Biologist	Silver Spring, MD	ZP-4	1	112,508	112,508
Fishery Research Biologist	Woods Hole, MA	ZP-3	2	81,495	162,990
Pacific Whiting Coordinator	Seattle, WA	ZA-3	1	79,885	79,885
Program Analyst	Honolulu, HI	ZA-3	2	75,884	151,768
Program Analyst	Honolulu, HI	ZA-4	1	106,864	106,864
Statistician	Juneau, AK	ZP-4	1	85,470	85,470
Statistician	Seattle, WA	ZP-4	1	112,499	112,499
Statistician	St. Petersburg, FL	ZP-4	1	89,765	89,765
Technical Information Speciali	Juneau, AK	ZP-4	1	85,470	85,470
Technical Information Speciali	Seattle, WA	ZP-4	1	112,499	112,499
Technical Information Speciali	St. Petersburg, FL	ZP-4	1	89,765	89,765
Total			45		4,105,042
Less Lapse	25%		-11		(1,026,261)
Total full-time permanent (FTE)			34		3,078,782
2009 Pay Adjustment (2.9%)					89,285
Total					3,168,066

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**Personnel Data**

	<u>Number</u>
Full-time permanent	34
Other than full-time permanent	<u>0</u>
Total	34
Authorized Positions	
Full-time permanent	<u>45</u>
Total	45

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

Activity: National Marine Fisheries Service  
 Subactivity: Enforcement and Observers / Training

Title	Grade	Number	Annual Salary	Total Salaries
Program Analyst	Silver Spring, MD ZA-3	2	79,892	159,784
Special Agent	Silver Spring, MD ZA-4	1	112,508	112,508
Special Agent	Silver Spring, MD ZA-3	2	79,892	159,784
Total		5		432,076
Less Lapse	25%	-1		(108,019)
2009 Pay Adjustment (2.9%)				9,398
Total				333,455

Personnel Data	Number
Full-time permanent	4
Other than full-time permanent	0
Total	4
Authorized Positions	
Full-time permanent	5
Other than full-time permanent	0
Total	5

**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	2009 Increase
11 Personnel compensation	
11.1 Full-time permanent	674
11.9 Total personnel compensation	674
12.1 Civilian personnel benefits	268
21 Travel and transportation of persons	21
25.1 Advisory and assistance services	10
25.2 Other services	8,670
31 Equipment	21
41 Grants, subsidies and contributions	6,488
99 Total Obligations	16,152

**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	2009 Decrease
25.2	Other services	(6,055)
99	Total Obligations	(6,055)



**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	2009 Increase
11 Personnel compensation	
11.1 Full-time permanent	3,263
11.6 Personnel Compensation	180
11.9 Total personnel compensation	3,443
12.1 Civilian personnel benefits	744
12.3 FICA	272
21 Travel and transportation of persons	752
23.3 Communications, utilities and miscellaneous charges	3,416
24 Printing and reproduction	2
25.1 Advisory and assistance services	8,080
25.2 Other services	17,017
25.5 Research and development contracts	7,743
26 Supplies and materials	408
31 Equipment	95
41 Grants, subsidies and contributions	7,097
99 Total Obligations	49,069

**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	2009 Decrease
25.2	Other services	(200)
99	Total Obligations	(200)

**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: Enforcement and Observers / Training

Object Class	2009 Increase
11 Personnel compensation	
11.1 Full-time permanent	343
11.9 Total personnel compensation	343
12.1 Civilian personnel benefits	294
21 Travel and transportation of persons	30
22 Transportation of things	150
23.1 Rental payments to GSA	50
25.2 Other services	1,068
26 Supplies and materials	7
31 Equipment	50
41 Grants, subsidies and contributions	1,187
99 Total Obligations	3,179

**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 & Restoration

	Object Class	2009 Increase
21	Travel and transportation of persons	21
24	Printing and reproduction	21
25.2	Other services	1,330
41	Grants, subsidies and contributions	7,479
99	Total Obligations	8,851

**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 & Restoration

	Object Class	2009 Decrease
25.2	Other services	(2,000)
41	Grants, subsidies, and contributions	(8,000)
99	Total Obligations	(10,000)

**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: Other Activities Supporting Fisheries

	Object Class	2009 Increase
23.3	Communications, utilities and miscellaneous charges	430
25.2	Other services	4,235
25.5	Research and development contracts	47
41	Grants, subsidies and contributions	610
99	Total Obligations	5,322

**OCEANIC AND ATMOSPHERIC RESEARCH  
OPERATIONS RESEARCH AND FACILITIES  
FY 2009 OVERVIEW**

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Operations Research and Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Climate Research	176,296	192,619	190,207	195,477	5,270
Weather and Air Quality Research	58,238	52,018	53,347	57,561	4,214
Ocean, Coastal, and Great Lakes Research	116,029	130,271	106,204	106,204	0
Information Technology R&D	12,975	12,646	12,718	13,028	310
<b>TOTAL</b>	<b>363,538</b>	<b>387,554</b>	<b>362,476</b>	<b>372,270</b>	<b>9,794</b>
<b>FTE</b>	<b>713</b>	<b>714</b>	<b>735</b>	<b>735</b>	<b>0</b>

Note: The dollars in this table represent budget authority.

For FY 2009, NOAA requests a total of \$372,270,000 and 735 FTE for the Office of Oceanic and Atmospheric Research Operations, Research and Facilities (ORF).

The primary center for research and development within NOAA is the Office of Oceanic and Atmospheric Research (OAR), also referred to as NOAA Research. The major research themes are Climate Research; Weather and Air Quality Research; Ocean, Coastal and Great Lakes Research; and Information Technology and Research and Development (R&D). The goal of Climate Research is the greater understanding of the climate system to improve predictions on subseasonal through decadal time scales. The goal of Weather and Air Quality Research is to better understand and forecast atmospheric events that endanger lives and property. The goal of Ocean, Coastal and Great Lakes Research is to develop innovative management tools through a better understanding of our ocean and Great Lakes habitats and resources. The goals of Information Technology and Research and Development are to accelerate the adoption of advanced computing, communications, and information technology throughout NOAA.

NOAA Research operates through a national network of OAR laboratories and other OAR and university-based research programs. The OAR budget activity 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, Office of Weather & Air Quality, and the NOAA High-Performance Computing and Communications Program. The NOAA Undersea Research Program has been combined with Ocean Exploration, and the Arctic Research Office is now part of the Climate Program Office. With this diverse research “tool kit,” OAR provides national and international leadership on critical

environmental issues and addresses environmental R&D needs of internal NOAA customers, states, industry, the Department of Commerce, and other Federal agencies.

### **NOAA Research Laboratories, Cooperative Institutes, and Programs**

OAR's seven laboratories and thirteen cooperative institutes are charged to advance scientific understanding of the Earth. The research conducted at the laboratories is divided into three sub-activities: (1) Climate Research, which has the mission of monitoring and understanding the Earth's climate system to predict both the potential long-term changes in global climate as well as shorter-term climate variations that are of societal and economic importance; (2) Weather and Air Quality Research, where researchers strive to provide the Nation with more accurate and timely warnings and forecasts of various high-impact weather and air quality events, such as storms and elevated levels of ozone and aerosols (particulate matter), all of which may disrupt economic productivity, impact human health, or cause loss of life and property; and (3) Ocean, Coastal, and Great Lakes Research, where the research serves to increase our understanding of coastal and marine processes for the purpose of predicting, monitoring, and mitigating the effects on ecosystems of not only climate change but also other environmental and ecosystem changes (e.g., invasive species).

The NOAA Research Laboratories administer and manage OAR programs, emphasizing theoretical and analytical studies, laboratory experiments, and field observations. The primary purposes of OAR's research are to improve NOAA services and to provide the basis for improved decision making by policymakers and the public. The OAR laboratories collaborate closely with thirteen university-based cooperative institutes and sponsor research through contracts and grants with other universities, state and Federal agencies, and private enterprises. The seven laboratories are:

**Air Resources Laboratory (ARL)** is headquartered in Silver Spring, MD, with divisions in Oak Ridge, TN; Research Triangle Park, NC; Idaho Falls, ID; Las Vegas, NV. ARL carries out research on processes that affect the quality of the atmosphere. These processes include the transport, transformation, and removal of trace substances through wet and dry deposition and the exchange between the atmosphere and biological and non-biological surfaces as field crops and structures. ARL's field and laboratory studies lead to the development of air quality simulation models. The Laboratory 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.

*ARL climate research* studies the biogeochemical cycles of trace substances and their effects and interactions with the radiative balance at the earth's surface. ARL operates research-grade measurement stations where the exchange of carbon dioxide and water vapor between the air and the biosphere is directly measured. ARL focuses not only on the development of deterministic models to describe the relevant processes, and on the often-dominant role of random variability that cannot be explained by current understanding. Research in all of these areas involves physical and numerical studies, leading to the development of specialized models. The laboratory provides scientific advice to elements of NOAA and other government agencies on climate issues, and on the role of natural variability.

*ARL weather and air quality research* conducts physical and numerical studies of the processes affecting the quality of the atmosphere, primarily related to transport, transformation, and removal of trace substances, and uses these results to develop improved air quality forecast and assessment models.



Research and development efforts include physical and numerical studies, leading to the development of air quality simulation models for regulatory and policy purposes, and increasingly for forecasting; improvement of understanding of processes that influence air quality, such as complex terrain, local meteorological conditions, and long-range transport; the Real-time Environmental Applications and Demonstration system (READY) as a mechanism for external users to gain access to ARL's suite of air quality forecast products; and providing relevant scientific advice to elements of NOAA and other government agencies, including those associated with homeland security.

**Atlantic Oceanographic and Meteorological Laboratory (AOML)** in Miami, FL, conducts research in oceanography, tropical meteorology, atmospheric and oceanic chemistry, and acoustics. AOML seeks to understand the physical and biological characteristics and processes of the ocean and the atmosphere, both separately and as a coupled system. AOML scientists study hurricanes, ocean current and temperature structures, ocean/atmosphere chemical exchanges, coral reefs, and the coastal ocean. This is accomplished by using research ships and aircraft, satellite remote sensing techniques, numerical and statistical models, radar, acoustics, and drifting and moored buoys.

The principal focus of AOML is to contribute scientific research that may ultimately lead to improved prediction and forecasting of tropical cyclones and severe weather, better use and management of marine resources, better understanding of the factors affecting both climate and environmental quality, and improved ocean and weather services for the nation.

*AOML climate research* provides and interprets oceanographic data and conducts research relevant to decadal climate change and coastal ecosystems. This research includes the dynamics of the ocean, its interaction with the atmosphere, and its role in climate and climate change. On a global scale, AOML scientists, in conjunction with the PMEL and ESRL/GMD, are studying the exchange of CO<sub>2</sub> between the ocean and the atmosphere and its effects on global warming and climate change. This research is conducted through expeditions aboard the NOAA Ship *Ronald H. Brown* and other research vessels. AOML hosts NOAA's Global Ocean Observing System Center (GOOS Center), which uses expendable probes and other equipment to provide ocean surface and sub-surface data to NOAA's National Centers for Environmental Prediction (NCEP) in support of seasonal to interannual climate forecasts, as well as data for decadal-scale climate research.

*AOML weather and air quality research* is NOAA's primary component for research on hurricanes. The aim of this research is to improve the understanding and prediction of hurricane track and intensity change through directed research and the transfer of research results to the operational hurricane forecast components of NOAA.

Research and transition efforts include:

- The annual hurricane field program, supported by the NOAA Aircraft Operation's Center research/reconnaissance aircraft;
- Analysis of data from field programs;
- Theoretical and numerical modeling studies of hurricanes;
- Preparation of storm surge atlases and wind field diagrams;
- Assessment of interannual and decadal hurricane trends;

- Providing critical assistance to the NWS Tropical Prediction Center's forecast improvement; and
- Active participation in and support of the Joint Hurricane Testbed.

*AOML ocean, coastal, and Great Lakes research* scientists gather, analyze, and report coastal ocean data on land-based sources of pollution and their potential environmental impacts to the coastal environment. Scientists 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 economically and environmentally important projects in the coastal ocean such as the South Florida Ecosystem Restoration Program. AOML conducts 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. Initiation of comprehensive long-term *in situ* coral-reef monitoring stations is intended to provide information essential for sound management decisions, and long-term planning. AOML also generates oceanographic data and conducts research relevant to decadal climate change and coastal ecosystems, such as ocean-atmosphere interactions and its role in climate and climate change. With a diverse scientific staff of physical, chemical, biological, and geological oceanographers, AOML is able to use multi-disciplinary approaches to improve NOAA's management activities.

**Earth System Research Laboratory (ESRL)** in Boulder, CO, represents a combination of climate and weather research capabilities aimed at undertaking the complex, interdisciplinary research increasingly needed to achieve scientific and technological breakthroughs in today's modern world, including understanding the roles of gases and particles that contribute to climate change, providing climate information related to water management decisions, improving weather prediction, understanding the recovery of the stratospheric ozone layer, and developing air quality forecast models.

ESRL has the collective goal of observing and understanding the Earth system and developing products through a commitment to research that will advance the National Oceanic and Atmospheric Administration's (NOAA's) environmental information and services on global-to-local scales. ESRL achieves this goal through its four major divisions:

*Chemical Sciences Division* provides the chemical-process measurements, analyses, and understanding that are needed for the Earth System Research Laboratory to address NOAA's Climate Goal (Climate Forcing) and Weather and Water Goal (Air Quality), with the aim of improving NOAA's abilities in two areas: (1) to predict changes in climate, the stratospheric ozone layer, and air quality, and (2) to 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 to communicate the findings in usable and understandable forms.

*Global Systems Division* incorporates new findings in atmospheric, oceanic, and hydrologic sciences. These systems are 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. The division also conducts the physical process research necessary for ESRL to provide the nation with a seamless suite of information and forecast products, ranging from short-term weather forecasts to longer-term climate forecasts and assessments.

**Geophysical Fluid Dynamics Laboratory (GFDL)** in Princeton, NJ, conducts cutting-edge research on many topics of great practical value, including weather and hurricane forecasts, El Niño prediction, stratospheric ozone depletion, and global warming. GFDL's goal is to understand and predict Earth's climate and weather, including the impact of human activities on climate.

GFDL's *Climate Research* mission is to conduct research to better understand natural climate variability and anthropogenic climate changes via the development and improvement of global Earth System models. GFDL also works cooperatively in NOAA to provide expert assessments of changes on regional, national, and global climate. To achieve its mission, GFDL conducts comprehensive long lead-time climate research fundamental to expanding the scientific understanding of the physical and biogeochemical processes governing the behavior of the atmosphere and oceans and their ecosystems. This research leads to state-of-art global Earth System models which provide a suite of climate products for decision support by policy makers. To ensure the maintenance of its climate modeling capability, GFDL supports a very large, scalable computer system that provides critical computing, storage, and analysis capabilities, as well as model development infrastructure support and data services . This computing program allows NOAA to leverage the world-class research staff at GFDL to advance the Nation's climate program and provide the best possible information and reliable products on climate variability and change to policy-makers and the public.

*Weather and Air Quality Research* at GFDL is engaged in comprehensive long lead-time research fundamental to NOAA's mission. The goal of the Laboratory's atmospheric research is to expand the scientific understanding of the physical and chemical processes governing the behavior of the atmosphere as a complex fluid system. This system can then be modeled mathematically and their phenomenology studied by computer simulation methods. The Nation's need for short-term warning and forecast product covers a broad spectrum of environmental events, which have lifetimes ranging from several minutes to several weeks.

Efforts at GFDL are centered on the development of comprehensive numerical global climate models and the frameworks in which the models are embedded. These numerical models are used in the prediction of "short-term" atmospheric phenomena such as hurricanes and coastal storms, and may also be used to study longer-term events such as the climatology of storm tracks over the oceans. The research conducted at GFDL can be developed and transitioned to NOAA operations for the prediction of short-term atmospheric phenomena, including hurricanes, and coastal storms.

**Great Lakes Environmental Research Laboratory (GLERL)** in Ann Arbor, MI, has a field facility in Muskegon, MI. Under the Ocean, Coastal, and Great Lakes Research line item, GLERL conducts integrated, interdisciplinary environmental research in support of resource management and environmental services in coastal and estuarine waters, with a primary emphasis on the Great Lakes. The laboratory performs field, analytical, and laboratory investigations to improve understanding and prediction of biological and physical processes in estuaries and coastal areas and their interdependencies with the atmosphere and sediments. GLERL emphasizes a systems approach to problem-oriented research to develop environmental service tools.

**National Severe Storms Laboratory** (NSSL) in Norman, OK, conducts *Weather and Air Quality* research to improve the accuracy and timeliness of forecasts and warnings of hazardous weather events such as blizzards, ice storms, flash floods, tornadoes, and lightning. NSSL accomplishes this goal through a balanced program of research to:

- Advance the understanding of weather processes;
- Improve forecasting and warning techniques;
- Development of operational applications;
- Transfer of knowledge, techniques, and applications to the NWS and other agencies;
- Development of the NEXRAD Doppler weather radar, the cornerstone Doppler radar network now operated by NWS offices across the United States, and the development of new radar technologies (e.g., dual-polarization and phased array radar); and
- Conduct field programs that use mobile, *in situ*, and remote observational capabilities to collect data that support theoretical research.

**Pacific Marine Environmental Laboratory** (PMEL) in Seattle, WA, carries out interdisciplinary scientific investigations in oceanography, marine meteorology, and related subjects. PMEL focuses on open-ocean observations and modeling to improve: (1) our understanding of the physical, biological, and geochemical processes operating in the world oceans, and (2) environmental forecasting capabilities and other supporting services for marine commerce and fisheries. PMEL also supports an undersea observation and research program (VENTS) in Newport, OR.

*Climate research* at PMEL focuses on coastal and open ocean observations in support of prediction of the ocean environment on daily through decadal time scales. Studies are conducted to improve our understanding of the complex physical and geochemical processes operating in the world oceans, define the forcing functions and the processes driving ocean circulation and the global climate system, and improve environmental forecasting capabilities and other supporting services for marine commerce and fisheries. The internationally known laboratory conducts El Niño research, which has improved climate forecasts and contributed to leading to reduced loss of life and property.

The focus of PMEL's *weather and air quality* activities is to support the NWS tsunami warning centers by conducting research and development on the improvement of tsunami forecasting. NOAA develops and transfers PMEL's research results to NWS to improve forecast abilities and modeling which provides valued information to decision makers. The Tsunami Project seeks to mitigate tsunami hazards in Hawaii, California, Oregon, Washington, and Alaska through improved tsunami warnings using state-of-the-art instrument systems developed by the Laboratory's Engineering Development Division. The goal of this project is to reduce fatalities, damage, and losses caused by these natural hazards.

*Ocean, Coastal, and Great Lakes Research* at PMEL consists of the following ocean research programs:

- Fisheries Oceanography Coordinated Investigations (FOCI) is a collaborative research effort by scientists at PMEL and the Alaska Fisheries Science Center of the National Marine Fisheries Service (NMFS) to 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. This research activity is a key contributor to integrated ecosystem

assessments and forecasts of ecosystem parameters, which provide North Pacific fisheries managers with the best available information necessary to support sustainable fisheries in Alaska.

- The VENTS Program, established in 1984, conducts research on the oceanic impacts and consequences of submarine volcanoes and hydrothermal venting. The program focuses on understanding the chemical and thermal effects of venting along the northeast Pacific Ocean seafloor spreading centers, which provides the foundation for prediction of the global-scale impact of seafloor hydrothermal systems on the ocean. VENTS scientists collaborate with NOAA's Ocean Exploration and Research (OER) Program to explore and characterize seafloor hydrothermal environments in other parts of the world's oceans and to study their impacts.

**Cooperative Institutes** - OAR has developed cooperative institute partnerships with academic and scientific institutions dedicated to oceanic and atmospheric research. Cooperative Institutes, as described in NOAA's Cooperative Institute policy, foster long-term collaborations that address research topics of importance to NOAA. OAR laboratories rely on the capabilities and expertise at the Cooperative Institutes to conduct long-term research that leads to improvements in NOAA operations. These partnerships are established with a cooperative agreement. By design, most of the Institutes are co-located with one or more NOAA facilities to promote scientific exchange and technology transfer. The primary purpose of each Institute is to bring together the diverse resources of a research university or institution, one or more OAR laboratories, and other branches of NOAA to develop and maintain a center of excellence in research.

The OAR Cooperative Institutes include:

The **Cooperative Institute for Climate Applications and Research (CICAR)** is located at the Lamont-Doherty Earth Observatory Campus of Columbia University in Palisades, NY. CICAR scientists conduct research on earth system modeling, modern and paleoclimate observations, and climate variability and change applications. The strategic vision that undergirds all CICAR science emphasizes that ocean observations and coupled ocean-atmosphere modeling are key to understanding long-term climate variability and change, and that paleoclimate research produces climate scenarios quite distinct from those revealed in the short instrumental record, thereby providing a more complete view of the Earth's climate system. A major portion of CICAR's research agenda is accomplished in collaboration with the Climate Program Office and the Geophysical Fluid Dynamics Laboratory.

The **Cooperative Institute for Climate and Ocean Research (CICOR)** is located at the Woods Hole Oceanographic Institution (WHOI) in Woods Hole, MA. CICOR scientists conduct research on coastal ocean and near-shore processes, oceanic participation in climate and climate variability, and marine ecosystem processes analysis. The CICOR-WHOI partnership provides NOAA research excellence in oceanographic research and marine policy and access to research ships and submersibles, remotely operated and autonomous vehicles, and state-of-the-art ocean observing systems. CICOR conducts its research in close collaboration with the Climate Program Office.

The **Cooperative Institute for Climate Science (CICS)** is located at Princeton University's Forrestal Campus in Princeton, NJ. CICS scientists conduct research on earth system studies, biogeochemistry, coastal processes, and paleoclimate. CICS plays a central role in fulfilling the demand for basic and applied research on climate variability and change, environmental impacts, mitigation options and response strategies, as well as training future scientists in

these areas and disseminating research results to policy makers, public school teachers, business leaders, and the general public. CICS is aided in its mission by strong collaborative partnerships with the Climate Program Office and the Geophysical Fluid Dynamics Laboratory.

The **Cooperative Institute for Arctic Research** (CIFAR) is located at the University of Alaska in Fairbanks, AK. CIFAR scientists conduct research on arctic atmosphere and climate, fisheries oceanography, tsunami research, marine ecosystem studies, contaminant effects, ultraviolet and arctic haze studies, hydrographic and sea ice studies, climate modeling, and data archiving and support. CIFAR is designed to be a focal point for interactions between NOAA and the arctic research community for research that serves the NOAA mission, especially in the Western Arctic/Bering Sea region. CIFAR's key collaborators are the Climate Program Office and the Pacific Marine Environmental Laboratory.

The **Cooperative Institute for Limnology and Ecosystems Research** (CILER) is located at the University of Michigan in Ann Arbor, MI. CILER scientists conduct research on climate and large lake dynamics, coastal and near shore processes, large lake ecosystem structure and function, remote sensing of large lakes and coastal ocean dynamics, and marine environmental engineering. One of the main objectives of CILER is to improve the effectiveness of NOAA sponsored research on freshwater, coastal and estuarine areas, with particular emphasis on Great Lakes issues. This is accomplished, in large part, by fostering collaboration between the Great Lakes Environmental Research Laboratory and other federal, international, state and local agencies, and the Great Lakes academic research community.

The **Cooperative Institute for Marine and Atmospheric Studies** (CIMAS) is located at the University of Miami in Miami, FL. CIMAS scientists conduct research on climate variability, fisheries dynamics, regional coastal ecosystem processes, human interactions with the environment, air-sea interactions and exchanges, and integrated ocean observation. Recent growth in CIMAS has been due to a significant great increase in research activities associated with the South Florida Ecosystem Restoration, whose purpose is to rectify the ecological damage done to South Florida and the Everglades due to water diversion projects carried out to mitigate flood damage from hurricane rains. NOAA's Atlantic Oceanographic and Meteorological Laboratory and the Southeast Fisheries Science Center are key CIMAS collaborators.

The **Cooperative Institute for Mesoscale Meteorological Studies** (CIMMS) is located at the University of Oklahoma (OU) in Norman, OK. CIMMS scientists conduct 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 promotes cooperation and collaboration on problems of mutual interest among OU research scientists and students and the National Severe Storms Laboratory, the National Weather Service (NWS) Radar Operations Center for the WSR-88D (NEXRAD) Program, the NWS National Centers for Environmental Prediction Storm Prediction Center, and the NWS Warning Decision Training Branch.

The **Cooperative Institute for Research in the Atmosphere** (CIRA) is located at the Colorado State University (CSU) in Fort, Collins, CO. CIRA scientists conduct research on global and regional climate, local and mesoscale weather forecasting and evaluation, applied cloud physics, applications of satellite observations, air quality and visibility, societal and economic impacts, and numerical modeling. Current research being performed at CIRA includes that in support of new NESDIS satellite programs – GOES-R (Geostationary Operational Environmental Satellite/R Series) and NPOESS

(National Polar-orbiting Operational Environmental Satellite System). These two weather satellite programs are designed to support weather forecasting for the next two to three decades. NOAA's Earth System Research Laboratory is a key CIRA collaborator.

The **Cooperative Institute for Research in Environmental Sciences (CIRES)** is located at the University of Colorado, in Boulder, CO. CIRES scientists conduct research on advanced modeling and observing systems, climate system variability, geodynamics, integrative activities, planetary metabolism, and regional processes. CIRES research is designed to help decision-makers resolve complex problems by providing sound scientific information to shape informed policy. Examples of such research include assessing the health of Earth's ozone layer, documenting the thinning of polar ice, developing microbial agents for degrading environmental pollutants, and improving earthquake predictions. Collaborative research contributions by CIRES scientists are crucial to research conducted at NOAA's Earth System Research Laboratory.

The **Joint Institute for Marine and Atmospheric Research (JIMAR)** is located at the University of Hawaii in Honolulu, HI. JIMAR scientists conduct research on tsunamis and other long-period ocean waves, equatorial oceanography, climate, fisheries oceanography, and tropical meteorology, and coastal research. Recent growth in the JIMAR research portfolio has been in tsunami research and fisheries and coastal research associated with the creation of the Northwestern Hawaiian Islands Marine National Monument, the single largest conservation area under United States administration and the largest marine conservation area in the world. JIMAR maintains strong collaborative research linkages to NOAA's National Marine Fisheries Service and Pacific Marine Environmental Laboratory.

The **Joint Institute for Marine Observations (JIMO)** is located at Scripps Institution of Oceanography (SIO) at the University of California – San Diego. JIMO scientists conduct research on climate and coastal observations, analysis, and prediction, biological systems, research in extreme environments, and research and development on observations systems. JIMO also oversees NOAA funding for the entire University of California system in a multi-campus effort to promote collaboration and resource pooling. As such, SIO's facilities, including its fleet of four research vessels and one-of-a-kind research platform, are made available to NOAA and other organizations through JIMO collaborations. JIMO conducts its research in close collaboration with the Climate Program Office.

The **Joint Institute for the Study of the Atmosphere and Ocean (JISAO)** is located at the University of Washington in Seattle, WA. JISAO scientists conduct research on climate, environmental chemistry, marine ecosystems, and coastal oceanography. Climate research remains JISAO's dominant research endeavor, a major component of which is devoted to supporting NOAA's ocean monitoring programs. Collaborative research between JISAO and the Pacific Marine Environmental Laboratory, for example, includes the Tropical Atmosphere Ocean project, which supplies real-time data from moored ocean buoys for improved detection, understanding and prediction of El Niño and La Niña. JISAO's collaborative research network also includes the Alaska Fisheries Science Center and the Northwest Fisheries Science Center.

The **Northern Gulf Institute (NGI)** is located at Stennis Space Center, MS and is 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. NGI scientists conduct research on ecosystem management, geospatial data integration and visualization in environmental science, climate change and climate variability effects on regional ecosystems, and coastal hazards. The fundamental philosophy of the NGI is integration – integration of the land-coast-ocean-

atmosphere continuum; integration of research to operations; and integration of individual academic institutional strengths into a holistic research and educational program specifically geared to the needs of Northern Gulf of Mexico users. Research activities at NGI make an important contribution to NOAA's ecosystem, oceanic, and coastal research.

**NOAA's Climate Program Office (CPO)** - NOAA's Climate Program serves as a focal point for climate activities within NOAA and encompasses activities formerly described within the Office of Global Programs and Climate Observations and Services Program, and Arctic Research Office. OAR's activities within the CPO are executed by multiple line offices (OAR, NESDIS, NWS), and through sponsored research conducted by external partners. The goal of NOAA's CPO is to understand climate variability and change to enhance society's ability to plan and respond. This goal is achieved in OAR through the development of integrated ocean and atmospheric observing systems, research into the forcings and feedbacks contributing to changes in the Earth's climate, improved climate predictive capability from weeks to decades, and the development of climate products and services to enhance decision making capabilities across all sectors of society. To further achieve this goal, in 2006, NOAA established the National Integrated Drought Information System (NIDIS) Office in Boulder, CO, to implement NIDIS and coordinate activities within NOAA, across Federal agencies, and with stakeholders. In addition, CPO serves as the focal point for NOAA's research activities in the Arctic, Bering Sea, North Pacific, and North Atlantic regions: represents NOAA on the Interagency Arctic Research Policy Committee; leads U.S. involvement in the international Arctic Monitoring and Assessment Program; participates in multilateral and bilateral policy discussions through interaction with the Global Earth Observing System of Systems (GEOSS), the UN Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC), the WMO, key bilateral partners, and other climate leadership organizations; and promotes climate literacy and outreach activities.

**National Sea Grant College Program** - Congress established the National Sea Grant College Program in 1966 to enhance the development, use, and conservation of the Nation's marine and Great Lakes resources. The legislation establishes a network of Sea Grant Colleges to conduct education, training, and research in all fields of marine study. It also directs that grants and contracts may be awarded to: "any individual; any public or private corporation, partnership, or other association or entity (including any Sea Grant College, Sea Grant Institute or other institution) or any State, political subdivision of a State, or agency or officer thereof" [PL 105-160]. The National Sea Grant College Program Office is located in Silver Spring, MD. Currently, there are 30 State Sea Grant programs located in most coastal and Great Lakes states. Most Sea Grant programs include multiple campuses of different universities across the state.

The **Office of Ocean Exploration and Research (OER)** is comprised of the former NOAA Undersea Research Program (NURP) and the Ocean Exploration (OE) Program. Its two most prominent functions are:

*Research* - Scientists funded by OER conduct wide-ranging research investigations in such areas as the causes behind depletion of fisheries, the impacts of commercial fishing activity on critical habitats, and the role of undersea volcanism in coastal hazards. This program also conducts mandated studies of underwater diving techniques and equipment to advance safety and improve diver performance. In FY 2007, the program provides national support through regional National Undersea Research Centers on both the east and west coasts, including the Aquarius Undersea Laboratory in Florida, and a headquarters office in Silver Spring, MD.



*Exploration* – NOAA is the only Federal agency with a dedicated program of ocean exploration. This program supports exploration in unknown and poorly known ocean areas, and applies 10% of the yearly budget to marine exploration and science-based education. The program works with other NOAA programs and Federal agencies, as well as the academic community, to identify and prioritize areas of the world's oceans that should be explored, and then funds interdisciplinary science-based exploratory missions and education activities through a peer-review process. The program works with the results obtained from these missions to further NOAA's research and marine management objectives as outlined in the NOAA Strategic Plan. The program provides direct support to several multidisciplinary expeditions per year, facilitates across NOAA program offices to develop and apply data management tools and techniques to appropriately organize, archive, and disseminate data and information collected during expeditions. The four key objectives to the program are:

- Explore unknown and poorly known areas of the ocean;
- Map the physical, geological, biological, chemical, and archaeological aspects of the oceans;
- Develop new sensors and systems for ocean exploration to regain U.S. leadership in marine technology; and
- Connect in innovative ways to stakeholders to improve the literacy of learners of all ages with respect to ocean issues.

The new Office of Ocean Exploration and Research (OER) connects and expands on the activities conducted by NURP and OE, building on the strengths of the two programs. The primary objective of the new program will be to increase the pace and efficiency of discovery in unknown and poorly known ocean areas, and to translate and disseminate the results to further NOAA and the Nation's ecosystem management efforts. The program will support interdisciplinary exploration expeditions, conduct research necessary to transition the results of expeditions to applications, and engage in advanced technology development. The program will include activities to facilitate and manage at-sea operations, manage and disseminate data and information obtained during expeditions, and will continue and expand on education and outreach efforts, which represent an investment of 10% of the overall budget on a yearly basis.

In FY 2005, Congress directed the Department of Defense to provide NOAA with a T-AGOS class vessel and funding to convert the ship into a platform dedicated to support NOAA ocean exploration missions. The ship is currently undergoing conversion, and is scheduled to begin operations in the summer of FY 2008. Once tested and ready for operation, the new vessel will support missions that meet the above objectives and will complement ocean exploration missions currently conducted with other vessels.

**Office of Weather & Air Quality** - The goals of Weather and Air Quality Research programs are to: (1) provide the Nation with more accurate and timely warnings and forecasts of: (a) weather events, particularly high-impact weather events, that disrupt economic productivity and cause loss of life and property, (b) air quality, particularly ozone and aerosol (particulate matter) that impact human health, cause crop damage, and affect private sector operational planning for power generation; and (2) to provide the scientific basis that air quality decision-makers require to develop policies and plans that effectively protect public health while also maintaining a vital economy. Key vehicles for accomplishing these goals are the U.S. Weather Research Program (USWRP) and THORPEX, which the Office of Weather & Air Quality has managed for many years. Beginning with the FY 2009 budget, the USWRP is being moved back from the National Weather Service budget to the OAR budget in light of USWRP's and THORPEX's heavy research emphases, leading to research transition to operations.

**High Performance Computing and Communications** - The Office of High Performance Computing and Communications (HPCC) supports a number of objectives in NOAA's Strategic Plan, primarily through support of IT research targeted at improving NOAA's mission and services and science education. The purposes of the HPCC program are to make major improvements in the Nation's ability to forecast the weather and climate, and to disseminate environmental information. The program also seeks to stimulate modernization of NOAA's computationally intensive services through the use of evolving high performance computing and high-speed networking technologies. Through this program, NOAA participates as a "mission" agency in the Interagency Working Group on Information Technology Research and Development. Improvements in the accuracy and timeliness of NOAA's short-term weather warnings, seasonal forecasts, and regional and global climate predictions are heavily dependent on major advances in high-end computing power, advanced information technology, and the widespread availability of environmental data and information. Timely and responsive dissemination of NOAA's services and information requires full use of modern network and communication technologies.

### **Support for the NOAA Strategic Plan**

OAR's activities support three Mission Goals in the NOAA Strategic Plan:

- Protect, Restore, and Manage the Use of Ocean and Coastal Resources Through an Ecosystem Approach to Management;
- Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond; and
- Serve Society's Needs for Weather and Water Information.

Activities also support NOAA's Mission Support Goal to Provide Critical Support for NOAA's Mission.

The NOAA Climate Program was rated "Moderately Effective" under the **Program Assessment Rating Tool (PART)** conducted in FY 2004. The assessment found that the program is relatively strong and has undertaken steps to improve program management and focus on results. Additional findings included: (1) NOAA Climate coordinates with other Federal agencies through the Climate Change Science Program; (2) Deficiencies in the management of NOAA's laboratory activities as identified by the NOAA Research Review Team; (3) Need to better integrate performance into budget decisions; and (4) Program has appropriate long-term goals and annual measures that demonstrate progress. In response to these findings, NOAA consolidated its Boulder laboratories and plans to implement other management changes recommended by the Review Team.

### **Research and Development Investments**

The NOAA FY 2009 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 incorporates the President's Management Agenda including Research and Development Investment Criteria (relevance, quality, and performance) for NOAA's R&D programs, and leads to NOAA budget proposals that reflect the R&D investment criteria.

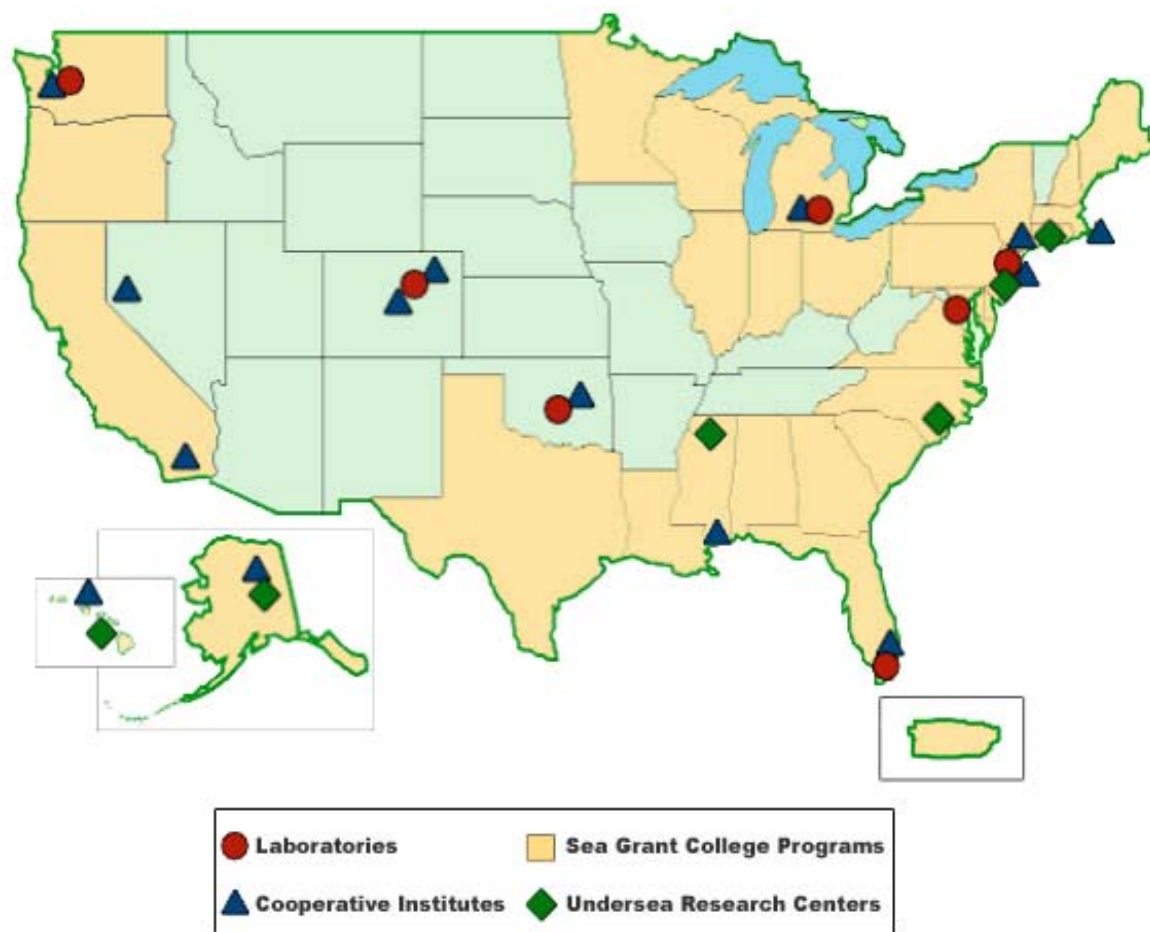
**Significant Adjustments-to-Base (ATBs):** NOAA requests an increase of 21 FTE and \$3,394,000 to fund adjustments to current programs for NOAA Research activities. The increase will fund the estimated FY 2009 Federal pay raise of 2.9% and the annualized the FY 2008 pay raise of 3.5%. The increase will also provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from General Services Administration (GSA).

The Oceanic and Atmospheric Research office also requests the following transfers between line offices for a net change to NOAA of zero.

<b>From Office</b>	<b>Line</b>	<b>To Office</b>	<b>Line</b>	<b>Amount</b>
NWS	U.S. Weather Research Program (THORPEX)	OAR	U.S. Weather Research Program (THORPEX)	+\$5,857,000
OAR	U.S. Weather Research Program (THORPEX)	NWS	Local Warnings & Forecasts (MADIS)	-\$500,000

Since the U.S. Weather Research Program / THORPEX is primarily a research program that has continued to be managed within OAR, NOAA has determined that the most appropriate budget location for these funds is within the base for OAR. The USWRP funding of \$500,000 will be transferred back to the NWS to help fund the transition to operations of the Meteorological Assimilation Data Ingest System (MADIS).

The map below shows the locations of OAR Laboratories, National Undersea Research Centers, Cooperative Institutes, and Sea Grant College States.



**Subactivity: Climate Research**  
**Line Item: Laboratories & Cooperative Institutes**

**GOAL STATEMENT:**

The goal of the Climate Laboratories and Cooperative Institutes is to develop a more comprehensive understanding of atmospheric and oceanic processes that drive and respond to changes in climate over a variety of spatial and temporal scales through sustained monitoring and research. This research will lead to better understanding and prediction of climate variability and change and help the Nation respond to the risks and opportunities associated with global climate change.

**BASE DESCRIPTION:**

The OAR Laboratories and Cooperative Institutes are an integral part of the interagency Climate Change Science Program, which links the U.S. Global Change Research Program (USGCRP) and the Administration's Climate Change Research Initiative (CCRI). OAR Laboratories and Cooperative Institutes conduct a wide range of research into complex climate systems. The research aims to improve NOAA's ability to assess climate variability on seasonal to interannual timescales, as well as interdecadal to centennial timescales and beyond. NOAA researchers strive for consistent and uninterrupted monitoring of the Earth's atmosphere and ocean that provide us clues about long-term changes in the global climate. The data collected worldwide by NOAA researchers aids our understanding of, and ability to forecast changes in, complex climatic systems. Using sophisticated computer systems, NOAA researchers work on the numerical modeling of climate systems, which improves the accuracy of climate forecasts. 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.

These 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."

**PROPOSED LEGISLATION:**

**None.**

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Climate Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Laboratories & Cooperative Institutes					
Laboratories & Cooperative Institutes	51,308	53,446	51,576	51,576	-
<b>TOTAL</b>	51,308	53,446	51,576	51,576	-
FTE	249	249	249	249	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Laboratories & Cooperative Institutes (\$3,109,000).

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**Subactivity: Climate Research**  
**Line Item: Competitive Research Program**

**GOAL STATEMENT:**

NOAA's Competitive Climate Research Program sponsors scientific research aimed at understanding how society can best adapt and respond to climate variability and change. Researchers coordinate activities that jointly contribute to improved predictions and assessments of climate variability over a continuum of timescales ranging from seasonal to decadal and beyond.

**BASE DESCRIPTION:**

NOAA's Competitive Climate Research Program is an integral part of the interagency U.S. Climate Change Science Program (CCSP), which incorporates the U.S. Global Change Research Program (USGCRP) and the Administration's Climate Change Research Initiative (CCRI). The program addresses an important aspect of global change - understanding the global climate system - and advances research and assessment activities designed to address the interface between scientific information and society's various decision-making needs. Current research activities are organized across the following elements within two main components, Research and Major Observing Systems:

**A. Research Programs**

The **Atmospheric Composition and Climate Program (ACCP)** pursues two overall research objectives: (1) to improve the predictive understanding of the radiative forcing of the climate system by aerosols (airborne fine particles) and by chemically-active greenhouse gases, such as tropospheric ozone, and (2) to better characterize the recovery of the stratospheric ozone layer and its role in climate change. The integrated research activities that address these objectives involve instrument development, global observations, laboratory studies, and theoretical modeling by NOAA and extramural partners. Activities in FY 2006 focused on conducting an intensive field study in the Gulf of Mexico region to identify and quantify the sources of climate forcing due to aerosols and to assess the influence of aerosols-cloud interactions. Another significant component of the ACCP is the extramural component of the CCRI ***Aerosol-Climate Interactions***. Details of this research are described below.

The **Climate Change Data and Detection (CCDD)** program element provides data and information management support needed to assure the availability of critical data sets for a variety of international programs and assessments, e.g., the Intergovernmental Panel on Climate Change (IPCC), the U.S. Climate Change Science Program (CCSP) U.S. CLIVAR (Climate Variability and Predictability) Program, the Tri-lateral North American Climate Extremes Assessment, etc. The data and resultant products extend the existing long-term climate record and serve as essential input for predictive models. In addition, CCDD provides support for documenting and analyzing variations in climate on time scales ranging from seasonal to decadal and beyond. The analyses supported include studies aimed at attributing changes to causes that are consistent with Earth's long-term climate history. CCDD had a lead role in the production of the first CCSP Synthesis and Assessment Report (S&A 1.1), titled "Temperature Trends in the Lower Atmosphere: Steps for Understanding and Reconciling Differences" and has a similar role in the production of the CCSP Report (S&A 3.3), titled "Weather and Climate Extremes in a Changing Climate."

The **Climate Dynamics and Experimental Prediction (CDEP)** program element supports NOAA's efforts toward improved global climate predictions on seasonal to interannual timescales through the Applied Research Centers (ARCs), which help develop and support climate services through applied research, development, and experimental applications. The end-result is a coordinated suite of contributions to the predictions and assessments of climate variability and regional assessments and applications produced by NOAA's Climate Prediction Center (CPC) and the International Research Institute for Climate Prediction (IRI). CDEP also supports the development of new climate reanalysis data sets and the capability to deliver explanations of the causes for observed climate variability and change in coordination with Weather-Climate Research described under the Labs & Cooperative Institute line item, above. This effort represents a key NOAA contribution to the CCSP goal to improve knowledge of the Earth's past and present climate and environment, including its natural variability, and improves understanding of the causes of observed variability and change.

The ultimate goal of the **NOAA Climate Variability and Predictability (CVP)** program element is to develop skillful predictions of climate variability and change on seasonal to multi-decadal time scales and regional spatial scales for optimal use in resource planning and policy decision making. The scientific objective of the NOAA CVP program is to understand the mechanisms of major climate variability and change on seasonal to decadal and longer time scales, including the thresholds and non-linearities of abrupt climate change, and to develop the predictive capability for these climate processes. An initial focus of the leading large-scale phenomena includes the El Niño-Southern Oscillation (ENSO), the Pacific Decadal Oscillation (PDO), Tropical Atlantic Variability (TAV), Arctic Oscillation/North Atlantic Oscillation (AO/NAO), the Meridional Overturning Circulation (MOC) and the American Monsoon systems. CVP research approaches include development of observational, theoretical, and computational means to understand and predict climate variability and change and to make enhanced predictions, where feasible.

The **Climate Prediction Program for the Americas (CPPA)** element seeks to improve operational intra-seasonal to interannual climate and hydrologic forecasting. CPPA seeks to: (1) improve the understanding and model simulation of ocean, atmosphere and land-surface processes through observations, data analysis, and modeling studies; (2) determine the predictability of climate variations on intra-seasonal to interannual time scale, including predictability of the continental-scale monsoon systems across the Americas; (3) advance NOAA's operational climate forecasts, monitoring, and analysis systems; and (4) develop climate-based hydrologic forecasting capabilities and decision support tools for water resource applications.

The **Global Carbon Cycle (GCC)** program element seeks to improve NOAA's ability to predict the sources and sinks of anthropogenic CO<sub>2</sub> and future atmospheric CO<sub>2</sub> concentrations using a combination of atmospheric and oceanic global observations, process-oriented field studies, analysis, and modeling. The GCC program is a part of the interagency Carbon Cycle Science initiative of the Climate Change Science Program. GCC research addresses priorities identified in the U.S. Carbon Cycle Science Plan (1999), the North American Carbon Plan (2002), and the Ocean Carbon and Climate Change Plan (2004). The goal of GCC research is to aid in the achievement of NOAA's climate forecasting goals, including the advancement of understanding of the global carbon cycle and its role in regulating climate. The GCC Program currently supports research to identify the impacts of anthropogenic CO<sub>2</sub> on ocean chemistry and biology. NOAA funded investigators found new evidence of ocean acidification in the north Pacific. This acidification could be the result of the ocean's uptake of anthropogenic CO<sub>2</sub> over the past 16 years. (Feely, R.A. et al. *Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms*. *Nature*, 437(7059), 681–686 (2005).

**The Transition of Research Applications to Climate Services (TRACS)** program is a proposal-driven program that supports the transition of well-developed research and prototype decision products, processes and policy tools that will expand regional decision makers' (e.g., private sector, agriculture, state, and local government) use of climate information. These transition products and tools are the result of the research community's investigations, through programs such as Sector Applications Research Program and Regional Integrated Sciences and Assessments, of the climate information needs of decision makers and the development of user-relevant, place based applications. The program requires structured partnerships between operational staff, decision makers, and prototype developers and requires an extension component to ensure effective use of the application by decision makers. The TRACS Program transitions experimentally mature climate tools, methods, and processes from research mode into settings where they may be applied in an operational and sustained manner. TRACS seeks not only to support implementation of these transitions, but also to learn from users how better to accomplish technology transition processes for public goods applications and improved risk management. TRACS works with universities, NOAA labs and operational units, and stakeholder partners.

The **Regional Integrated Sciences and Assessments (RISA)** program supports integrated, place-based research across a range of social, natural, and physical science disciplines to expand decision-makers' (e.g., private sector, agriculture, state, and local government) options in the face of climate change and variability at the regional level. It does this in a manner that is cognizant of the demands and constraints faced by decision-makers regarding their climate sensitive resources. RISA possesses three distinct qualities: (1) it fosters interdisciplinary research and assessment synthesis; (2) it improves understanding of and bridging gaps among climatic, environmental and societal interactions on various temporal and spatial scales; and (3) it contributes to regional decision support and climate information services. A successful RISA program requires innovative and embedded long-term partnerships among a spectrum of interested parties including Federal, State, Native, regional, local and private entities

The **Sector Applications Research Program (SARP)** replaces and refocuses activities formerly supported by Health and Human Dimensions and Environment, Science, and Development. The SARP's main goals are to provide new knowledge to the identification and reduction of vulnerability to climate variability and change through: improved knowledge of the impacts of climate on society specifically in economic, ecologic, and social sectors (e.g., coastal, water resources agriculture, health, etc.); enhanced use of forecast information; increased understanding by scientists and policy makers of the needs of stakeholders impacts of a changing climate; and a better understanding of society's ability to plan for and adapt to future uncertainties. SARP is built upon the evolution and successes of NOAA's Human Dimensions of Global Change; Environment, Science and Development; and Climate Variability and Human Health Programs. SARP is an interdisciplinary program, which promote social science methodologies and scientific findings required to build a knowledge base that addresses climate impact and adaptation uncertainties for stakeholders within sectors most at-risk. Specifically, SARP: (1) funds research projects that provide a better understanding of the impact of climate variability on specific sectors recognizing the role of complex societal and environmental interactions; (2) creates stronger sector communities by operating as a focal point for researchers, policy makers and decision makers to aggregate, evaluate and set evolving requirements for new knowledge critical to decision making; and (3) translates the results of the research and interactions regarding decision making needs and capacities to relevant programs within the NOAA Climate Office including RISA, TRACS and CPPA and to other programs within the Agency that would benefit from this research such as Sea Grant and the National Weather Service.

The role of the **Arctic Research Program (ARP)** is to improve forecasts of temperature, precipitation, and storms across Alaska and the mainland U.S., and support improvements in forecasting and planning for energy needs, growing seasons, hazardous storms, water resources, and provide for better

management of Alaskan and Arctic resources. This will be accomplished by: (1) creating an effective climate observing system focused on the U.S. region of the Arctic to allow for regional-scale climate change detection and development models capable of predicting Arctic climate change; (2) creating and analyzing Arctic physical and biological data sets designed to detect climate change, validate satellite observations, improve and initiate models, and support decision-making; and (3) through partnerships, develop observing and modeling capability to detect and assess Arctic-wide change and impact, and determine how Arctic processes affect North American and global climate systems. In 2006, one of these partnerships between NOAA and two Canadian organizations resulted in the opening of a new Arctic observatory in Eureka, Canada designed to make long-term climate measurements of Arctic clouds and aerosols. The achievement of these tasks will help to assess climate change in the Arctic. The most well known impact of general warming is illustrated by the loss of sea ice and glacier mass, the thawing of permafrost, and other temperature-related phenomena. These changes affect every part of the Arctic environment and have significant impacts on society.

**The Climate Modeling Center** will enable the Geophysical Fluid Dynamics Laboratory to take the national lead in the systematic production of model-based products developed in consultation with stakeholders to document, understand, and assess the impacts of climate variability and change on the U.S. Continued development and refinement of computational models capable of simulating past and future conditions of the Earth system are crucial to develop capabilities to provide more accurate projections of future change.

**Aerosol-Climate Interactions, Clouds & Climate Change** research focuses on attaining a better understanding of the absorption and scattering of radiation by aerosols (fine airborne particles), their physiochemical interactions with clouds and the associated heating and cooling in the climate system. Aerosols and clouds play unique, but poorly quantified roles in the atmospheric radiation budget. The goals of research are to: (1) establish new and augment existing in-situ aerosol monitoring sites, in and down wind of major population areas to determine temporal and spatial distributions, trends, and aerosol chemical and radiative properties; (2) investigate the processes and mechanisms by which aerosols and clouds affect each other's climate-relevant properties; and (3) develop integrated models used to study regional patterns, evaluate our understanding of source and sink processes, and project future trends. In collaboration with NPOESS, the program will evaluate and advance the development of algorithms and establish the appropriate in-situ measurements for the calibration and validation of the NPOESS data. In addition, this research will address the development of better decision-support tools that will improve the linkage between sources of emissions of climate-forcing aerosols or aerosol-forming compounds.

## **B. Observing Systems**

The **Climate Observation Division** of the Climate Program Office is responsible for establishing and maintaining the sustained global ocean observing system necessary for climate research and prediction as well as long-term monitoring for climate change detection and attribution. Through the Climate program, NOAA provides the major U.S. contribution to the Global Component of the Integrated Ocean Observing System (IOOS) – the U.S. contribution to the Global Ocean Observing System (GOOS) and the ocean baseline of the Global Earth Observation System of Systems (GEOSS). All of NOAA's contributions to the global ocean observing system are managed internationally in cooperation with the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (WMO: World Meteorological Organization. IOC: Intergovernmental Oceanographic Commission of the United Nations Educational, Science, and Cultural Organization). This international observation system is based on measuring a set of core variables (for

example: ocean temperature, surface winds, salinity, sea level, carbon dioxide) that have been agreed nationally and internationally as necessary to provide the information needed by the United States and the other nations of the World to effectively plan for and manage their response to climate variability and change.

The major elements of the global ocean observing system are listed below. Satellites are also critical elements of this composite system, but they are listed elsewhere in the NOAA and NASA budgets. It must be emphasized that all of these elements working together provide the needed system. They are interdependent. Each element brings its unique strengths and limitations. Together they build the whole. For example: the Argo Profiling Floats measure the ocean's heat content which is directly related to our changing climate and is reflected in sea level change; global sea level is measured by satellite altimeters which must be continuously calibrated using the Tide Gauge Stations; the ocean's heat is transferred to the atmosphere at the sea surface (it is sea surface temperature that directly influences the Earth's climate and our daily weather); the sea surface temperature is measured by the Surface Drifting Buoys and Moored Buoys; Ships of Opportunity and the Dedicated Ships are necessary to observe the atmosphere over the ocean and it is they that deploy the Buoys and Floats at sea; the Argo Float measurements must be calibrated by systematic deep ocean observations from the Dedicated Ships in conjunction with the Ocean Carbon surveys. The entire system must go forward together; none of the elements can do the job by itself.

This system 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:

- **Argo Profiling Floats:** These floats provide the subsurface measurements of ocean temperature and salinity that are necessary, along with the satellite altimeter measurements, to monitor global sea level change and changes in the ocean's heat storage. This is an international effort with 18 nations plus the European Union currently providing floats.
- **Surface Drifting Buoys:** Sea surface temperature is the single most important ocean variable for the global heat, water, and carbon cycles. A global array of 1,250 surface drifting buoys is maintained by NOAA and 14 international partners to calibrate satellite observations and reduce errors in global measurement of this critical ocean climate variable. The drifters also measure surface currents globally and provide sea surface data under hurricanes to help improve hurricane intensity and landfall predictions.
- **Tide Gauge Stations:** Sea level rise is one of the most immediate impacts of climate change. NOAA in cooperation with 66 nations is implementing the Global Climate Observing System (GCOS) sea level reference network of 180 tide gauge stations. The stations measure sea level change at the coast and are used to calibrate the satellite measurements of the deep ocean. They report in near-real-time and are also used for the tsunami warning system, storm surge, navigation, and other coastal marine services.
- **Tropical Moored Buoys:** The Earth's tropics are the ocean's major capacity for heat exchange with the atmosphere. The Pacific El Niño influences global climate and weather patterns. Together with international partners, NOAA is working to instrument all three tropical oceans - the Pacific, Atlantic, and Indian Ocean - for continuous real-time measurement of ocean-atmosphere exchanges that affect the way our climate varies from year to year.

- ***Ocean Reference Stations:*** NOAA, in cooperation with the National Science Foundation and international partners, is implementing a sparse global network of the highest quality ocean reference station moorings. The surface and subsurface measurements from these Reference Stations have been a cornerstone of the documentation of long term changes in the ocean and provide “ground truth” for improvement of forecast models. This network also monitors major ocean currents (for example, the Gulf Stream) to identify changes in circulation that could provide possible indications of abrupt climate change.
- ***Ships of Opportunity (SOOP):*** The global atmospheric and oceanic data from Ships of Opportunity have been the foundation for understanding long-term changes in marine climate and are essential input to climate and weather forecast models. The Ships of Opportunity are also the system’s workhorse for deployment of the Drifting Buoys and Argo Floats.
- ***Ocean Carbon Networks:*** Projecting decadal to centennial global climate change is closely linked to assumptions about feedback effects between the ocean and atmosphere related to sequestering of carbon in the ocean and additional input of carbon dioxide into the atmosphere. The SOOP fleet and NOAA in cooperation with the National Science Foundation and international partners are implementing an ongoing ocean carbon inventory surveying the globe once every ten years, supplemented by autonomous carbon dioxide sampling instruments on the ships and the moored buoys to measure the air-sea exchange of carbon dioxide seasonally.
- ***Arctic Ocean Observing System:*** Over the past 20 or more years, significant changes have been noted in the Arctic, such as thawing of permafrost, earlier break-up of ice on rivers, and thinning of the ice cover on the Arctic Ocean. NOAA is joining with other Federal agencies and international collaborators to begin a long-term effort to quantify the flux of fresh water from the Arctic to the North Atlantic. The initial steps will be made through deployment of moorings at critical locations in the Arctic.
- ***Dedicated Ships:*** Ocean research vessels from NOAA and university partners are essential elements of the support infrastructure necessary to sustain the ocean observing system. The dedicated ships provide the highest quality reference data sets, the platforms for the ocean carbon surveys, and platforms for deployment of the Moored and Drifting Buoys and the Argo Floats.
- ***Data Management, Data Assimilation, and Analysis:*** A robust and scalable Data Management and Communications (DMAC) infrastructure is essential to the vision of a sustained and integrated ocean observing system. Standards and protocols are essential to enable interoperability across all global and coastal ocean observing systems. Data must be retained and made available for analyses and for assimilation into models to understand and forecast climate change, and for efficiently managing observing system operations and improvements. Thus, the advancement of assimilation techniques and the scientific analysis of ocean data are also important elements of the global ocean observing system.

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.”

**Baseline Observatories.** These funds are used to maintain and expand operations at NOAA's manned Global Atmospheric Baseline Observatories, which 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 (also since 1957), and for operations at NOAA's 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. These data are used for assessments of atmospheric change that are valuable for environmental policy.

**Carbon Cycle Atmospheric Observing System** and other carbon cycle/carbon monitoring activities. The U.S. scientific community coordinates its carbon cycle activities through an integrated interagency effort that aims to quantify, understand, and project the evolution of global carbon sources and sinks in order to better predict future climate. As part of this multi-agency effort, NOAA has launched a network of airborne and tall-tower based sampling sites over North America. This sampling program will complement local-scale process research managed by other agencies and provide an estimate of the magnitude of regional terrestrial sinks on a continental scale. This monitoring program will provide decision-makers, resource managers, and the American public with solid, quantitative information on the role of the U.S. as a source and a sink for carbon. The information gathered will be useful for international negotiations and identifying regions where mitigation activities are most needed or would have the most impact. Similarly, projections of climate change and the scenarios used to inform assessments will be improved; and additional insight into the societal risks of climate change and human efforts to mitigate climate change will be derived. Recent advancements in the program include expansion of a pilot program using small aircraft and tall towers to profile carbon gases. 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.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Climate Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Competitive Research Program					
Competitive Research Program	116,233	129,986	130,516	134,702	4,186
<b>TOTAL</b>	116,233	129,986	130,516	134,702	4,186
FTE	102	102	102	102	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**National Integrated Drought Information System (NIDIS) (+0 FTE and +\$2,000,000):** NOAA requests an increase of 0 FTE and \$2,000,000 for a total of 0 FTE and \$10,365,000 to support the National Integrated Drought Information System (NIDIS). Funding is requested to develop and bring into operation by 2010 the next generation Climate Forecast System (CFS), which will facilitate and enhance the transition of research advances in drought monitoring and prediction and lead to improved NOAA climate forecast products.

**Statement of Need**

Persistent periods of drought have a cumulative effect on humans and society with significant impacts on the economies of the affected regions and the United States. The Federal Emergency Management Agency estimates the annual direct losses to the U.S. due to drought is \$6-8 billion, the highest average annual cost of any natural disaster. This is on par with losses due to shorter-term weather fluctuations, such as tornadoes and hurricanes, which are more apparent. Recent evidence points to the possibility that U.S. droughts may intensify over the next 10 years. During the next 10-25 years scientists believe the U.S. may experience more frequent and prolonged droughts, which may cover a larger portion of the U.S. (Bulletin of the American Meteorological Society (AMS), 1998, Vol. 29, No. 12).

The NIDIS Act of 2006 calls for an interagency approach to improve drought monitoring, forecasting and early warning, led by NOAA, including: consolidation of physical/hydrological and socio-economic impacts data, integrated observing networks, development of a suite of drought decision support and simulation tools, and interactive delivery of standardized products. In response to the NIDIS Act of 2006, NOAA has taken the lead on the development and implementation of NIDIS in partnership with other federal, regional and state organizations. This initiative will allow NOAA to further improve its climate forecasts and increase the scope and applicability of those forecasts by developing new and improved forecast products.

**Proposed Actions****NIDIS: Improving Climate Forecasts**

Specifically NOAA requests funding for:

1. **Competitive Transition Projects** (+\$1,250,000): NOAA will initiate transition projects through competitive grants aimed at:
  - Assessing, testing and transitioning state-of-the-art coupled climate forecast models developed at various U.S. and international institutions as part of the operational Multi-Model Ensemble (MME) Climate Forecast System (CFS);
  - Developing and evaluating an increased number of new drought prediction tools and drought monitoring products for a wide range of national, regional and sector applications in support of drought prediction and NIDIS, water resource management, agriculture applications, wild fire risk outlooks;

- Providing the broader climate research community with user-friendly access to advanced models and increased number of data sets to enable collaborative research for improved understanding and attribution of drought and accelerating future improvements of NOAA operational climate forecast and application products.

2. Visiting Scientist Program (+\$750,000): NOAA will expand the visiting scientist program at NOAA’s National Centers for Environmental Prediction to assist in the:

- Accelerated implementation of the Next Generation CFS;
- Development of new drought monitoring and prediction products.

**Benefits**

This initiative will develop forecast activities that support multiple forecasts improvements. It will strengthen cooperative partnerships between NOAA operational centers and the broader research community by providing an operational testing environment to accelerate the transition of research advances into improved NOAA operational climate forecasts and increase the scope and applicability of operational forecasts for the external user community.

**Outcomes**

- New and improved climate forecast products;
- New and improved data sets and components for operational models;
- New and improved methods to provide more accurate intraseasonal and interannual climate forecasts;
- Improved use of climate observations for enhanced operational climate forecast and application products;
- Greater understanding of operational model strengths/weaknesses via assessment and detailed analyses of model diagnostics;
- Improved use of climate observations for enhanced operational climate forecast and application products; and
- Evaluation and refined requirements for observing systems.

**Performance Goals and Measurement Data**

This increase will support the objective "Advance understanding of climate variability and change" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, the increase supports the NOAA Climate Performance Goal and GPRA measure, "U.S. temperature-skill".

U.S. temperature-skill score, Measure 2a, APP Page 15		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	21	22	23	24	25
	<b>Without Increase</b>	20	21	21	22	23

**Water Vapor Process Research (+0 FTE and +\$880,000):** NOAA is requesting 0 FTE and \$880,000 for a total of 0 FTE and \$880,000 to initiate and enhance measurements of water vapor in the lower-atmosphere (mid and upper troposphere) to elucidate its role in altering forcing by greenhouse gases, aerosols, and clouds. It will also undertake efforts to understand the processes that lead to the current distributions and lay the foundation for future prediction of water vapor distributions.

**Statement of Need:**

Water vapor has the potential to contribute to global climate change because it: (1) accounts for most of the greenhouse effect, (2) amplifies the greenhouse warming capability ascribed to CO<sub>2</sub> and other greenhouse gases, (3) enhances the ability of aerosols to induce climate change, (4) plays a crucial role in aerosol-cloud interactions, (5) alters the concentrations of other greenhouse gases, and (6) is a key component for calculating climate feedbacks. Furthermore, it is becoming increasingly apparent that water vapor is also an anthropogenic climate-forcing agent; implications of this will multiply if hydrogen fuel is used as an energy source, where water vapor is the primary by-product. Yet, the distribution of water vapor in the mid-to-upper troposphere and the lower stratosphere are poorly mapped out for climate purposes. Our ability to model the processes that control water vapor is also poor and, hence, not well-represented in models. The sources of water vapor changes in the lower stratosphere are increases in methane and possible changes in transport. Changes in the upper troposphere are not clear. This is a big issue because small perturbations made locally by emissions, for example from aircraft, can make large changes in cirrus clouds. The changes come about because of land use change and many other factors. The amount of anthropogenic water vapor forcing will be published as part of the Intergovernmental Panel on Climate Change (IPCC) report and is roughly one-tenth that of CO<sub>2</sub>. The "direct forcing" is small, but non-negligible relative to the indirect forcing. The amount of water from hydrogen fuel is unknown until the amount of hydrogen usage is known. This needs to be evaluated before climate gains can be determined.

It is essential to first measure accurately the water vapor abundances and its distribution, understand the processes that control this distribution, and develop the capability to predict the future levels of water vapor. This program change request takes the first step towards rectifying this deficiency.

Water vapor issues cut across goals and organizations within NOAA, and span many other national and international (e.g., World Climate Research Program's (WCRP) Stratospheric Processes and their Role in Climate (SPARC) and Global Energy and Water Experiment (GEWEX) projects) research efforts. NOAA is uniquely placed to address an important sub-set of the many needed efforts because of the technical expertise in measuring water vapor, the ability to deploy instruments on NOAA aircraft, and the scientific expertise to elucidate the processes. Further, we can have large cost reductions because these measurements can be carried out during currently on-going NOAA missions. This effort would be complemented by the work of others in NOAA to acquire long-time series of in-situ data using the Global Hawk, high spatial and temporal data from satellites, and long-time series measurements from reference networks.

**Proposed Actions and Deliverables:**

## Instrument development and deployment (\$500,000)

- Develop some key instrumentation to measure water vapor in-situ and with varying altitude. Specifically, it involves developing a water vapor LIDAR, which is a type of radar known as a laser radar and improving hygrometers, which are instruments used for measuring relative humidity.
- Measure water vapor abundance using sondes (including drop sondes), LIDARs, hygrometers (frost-point and Lyman-alpha), satellite sensors, and other methods. The aim is to (a) measure water at reference radiosonde stations and elsewhere, (b) provide climate quality data (e.g., for long time trends) at select sites, and (c) develop instruments with quantified accuracy to identify what is the best standard for widespread measurements.
- Maintain and operate reference water stations that obtain water vapor vertical profiles using sondes for long-term trends.
- Gather extensive in-situ data in the upper troposphere and lower stratosphere using platforms such as the Global Hawk and WB-57, measure vertical distributions using LIDAR onboard aircraft such as NOAA's G-IV, WP-3 and Twin Otter, and measure from satellite, and compare these observations with radiosondes. Radiosondes have a long history and are archived but only at a few locations. The other platforms provide larger coverage, some with better vertical resolution than others. Together, these observations will provide inter-calibrated data that could be extended in time, if data assimilation is carried out.

## Impact analysis and assessments (\$380,000)

- Develop and improve models designed to provide a predictive understanding of the physical processes affecting water vapor concentration in the mid-to-upper troposphere and lower stratosphere; the end result will be the ability to assess how future changes in water vapor impacts mid-upper tropospheric/lower stratospheric temperature which has major implications for future global climate change.
- Assess the role of water vapor in affecting the potential impacts of greenhouse gases, aerosols, and clouds on global climate.

**Schedule of key milestones:**

## FY 2009:

- Initiate acquisition of components.
- Complete installation of LIDAR and make hygrometers ready.

## FY 2010:

- Initiate intercomparison studies.

## FY 2011:

- Complete analysis of intercomparison studies.

## FY 2012:

- Analyze and develop process understanding of water vapor distributions and incorporation of this data in radiative forcing calculations.

## FY 2013:

- Complete implementation of water vapor distribution in models and calculation of influence of water vapor in future predictions.

**Benefits:**

The NOAA water vapor process research will allow more accurate estimation of the ability for water vapor to affect global climate through changes in water vapor concentrations and its interaction with other greenhouse gases. Specifically, it clarifies how much the surface temperature will change for a given change in a greenhouse gas. This research will allow NOAA to more accurately quantify the influence and better understand the role of water vapor on climate change.

**Outcomes:**

- A data set in the mid- and upper-troposphere for use by Climate and Earth System modelers;
- A better understanding of the processes that control water vapor and hence better representation of these processes in models;
- A better quantification of the forcing by other agents such as aerosols and ozone;
- Improved evaluation of the role of various climate forcing agents and their connection to surface temperature changes;
- Provide some data needed Weather and Water goal.

**Performance Goals & Measurement Data:**

This increase will 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.” Specifically, water vapor process research will allow more accurate estimation of water vapor distributions in the atmosphere for improved models and climate predictions.

<b>Milestone:</b> Better prediction of influence of water vapor on forcing by aerosols and other forcing agents, including water vapor		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	0%	25%	38%	40%	40%
	<b>Without Increase</b>	0%	0%	0%	0%	0%

**Assessing Atlantic Meridional Overturning Circulation Variability - Implications for Rapid Climate Change (+0 FTE and +\$998,000):** NOAA is requesting 0 FTE and \$998,000 for a total of 0 FTE and \$5,000,000 as part of an interagency effort with NASA and NSF to improve understanding of the mechanisms behind fluctuations of the Atlantic Meridional Overturning Circulation (MOC) and the impact of those fluctuations. This request will support an effort focused on one of the four key near-term priorities outlined in the Ocean Research Priorities Plan. This research activity will lead to new capabilities for monitoring and making predictions of MOC changes, assessing the risks of rapid climate changes, and identifying impacts of these changes on the ocean, climate, extreme weather events, regional sea level changes, ecosystems, and carbon budgets.

**Statement of Need:**

In 2000, Congress tasked the U.S. Commission on Ocean Policy to investigate and provide recommendations for a “coordinated and comprehensive national ocean policy,” which led to the development of the U.S. Ocean Action Plan. This funding supports one of the four NOAA lead near-term priorities identified by the Joint Subcommittee on Ocean Science and Technology (JSOST) Ocean Research Priorities Plan.

Decadal variability in the Atlantic has been linked to the recent upswing in Atlantic hurricane seasons, persistent droughts in surrounding continental areas, and enhanced warming in the Arctic. None of these changes was anticipated and, if they persist, would require significant adaptation. A pragmatic definition of abrupt or rapid climate change is changes on decadal or multidecadal timescales to which human or natural systems have difficulty in adapting. Hence rapid climate change could be going on right now, and we might not be aware of it. This decadal variability is partly linked to changes in the Atlantic Meridional Overturning Circulation, an element of the global scale ocean circulation responsible for long-term climate variations. Atlantic Meridional Overturning Circulation refers to the process through which the warm, saline surface water from the North Atlantic Subtropical Gyre flows northward and eventually begins to sink into the deep ocean as its density increases due to cooling. MOC changes are thought to play a key role in the abrupt changes evident in the paleoclimate record.

Given current limited understanding of the MOC, fundamental research to describe the MOC, its variability, and critical process, and the ability to model these will be an early and ongoing emphasis of the proposed program. In an effort to address the impact of MOC fluctuations on regional and global climate and ecosystems, NOAA, NASA, and NSF will develop observing, nowcasting (short-term weather forecasting) and forecasting capabilities for the MOC and improve understanding of the physical mechanisms behind fluctuations in the MOC and the potential for prediction of those fluctuations.

This research effort is founded on federal and international initiatives to understand and forecast this large-scale ocean phenomenon and its potential for global impacts. The coordinated activities will be able to expand upon existing collaboration with international partners, such as the UK RAPID program and the European Union DAMOCLES program. The U.S. has a rare opportunity to leverage UK and EU observing and modeling capabilities in pursuit of answers to critical questions by implementing a complementary, not duplicate, program, as well as to take advantage of an unprecedented suite of ocean remote sensing satellites that can contribute to the focused MOC research program. In addition, activities will be established to engage the end-user communities to assess the impacts of decadal climate variability on their decision-making processes and to identify future product suites that would provide needed information.



NOAA's involvement in research, modeling and forecasting make it an appropriate partner for this interagency research effort. As an operational agency whose strengths are in observing and prediction capabilities after a research phase, NOAA would assume the responsibilities for routine monitoring for decadal and abrupt changes and production of the operational decadal predictions. NSF's primary focus is on research, and NASA on the demonstration of satellite technologies as applied to this problem.

**Proposed Actions and Deliverables: Below lists the actions and deliverables for NOAA by topic.**

*Conduct Fundamental Research:* Current understanding of the MOC is limited; research to describe the MOC, its variability, and critical processes is fundamental.

- Conduct research on the origins, dynamics, and structure of MOC variability and trends.
- Conduct research on the potential for climate and process thresholds and feedbacks, which might accelerate changes.
- Conduct predictability studies utilizing statistical and dynamical approaches.

*Develop Nowcasting Capabilities and Experimental Products:* New nowcasting and forecasting capabilities are dependent on appropriate ocean observing systems, data assimilation systems that combine the observations with model results, ocean models that incorporate both observations and process mechanics. These capabilities are critical to predicting the current MOC state, changes on a decadal scale, and assessing the potential for abrupt changes.

- Develop ocean data assimilation, targeted model parameterization, and capability for observing system design experiments. Develop and implement required high-resolution ocean and ice models. Implement routine ocean data assimilation capability. Establish program of systematic observing system simulation studies to establish future observations required for MOC monitoring and prediction.
- Conduct experimental decadal predictability studies (joint with CCSP). Establish a routine program of decadal predictions of the MOC and related phenomena.

*Assess Potential Impacts of Rapid MOC Changes:* The combined capabilities of observations, modeling, analyses, and nowcasting will enable the assessment and forecasting of potential impacts of decadal and rapid changes on ecosystems, carbon budgets, regional sea level changes, regional climate and socioeconomic systems.

- Conduct simulation studies of impacts of MOC changes on extreme events and global climate together with CCSP.
- Extend research and modeling studies to impacts of MOC variability on ecosystems, fisheries, carbon budgets and suggestions of the required observing systems.

**Schedule of key milestones:**

	<b>Conduct Fundamental Research</b>	<b>Develop Nowcasting Capabilities and Experimental Products</b>	<b>Assess Potential Impacts of Rapid MOC Changes</b>
<b>FY 2009</b>	<ul style="list-style-type: none"> <li>Organize interagency resources for project coordination</li> <li>Establish program of research grants</li> </ul>	<ul style="list-style-type: none"> <li>Implement program of ocean data assimilation development for MOC</li> </ul>	<ul style="list-style-type: none"> <li>Establish project to assess MOC variability and its potential impacts on regional and global climate and ecosystems</li> </ul>
<b>FY 2010</b>		<ul style="list-style-type: none"> <li>Deliver last 15 years of ocean analyses related to the MOC</li> </ul>	
<b>FY 2011</b>	<ul style="list-style-type: none"> <li>Report of interpretation of last 15 years of MOC related analyses</li> </ul>	<ul style="list-style-type: none"> <li>Deliver report on observing system simulation experiments for MOC arrays designs</li> </ul>	<ul style="list-style-type: none"> <li>Report on assessment of MOC changes on regional climate and extremes</li> </ul>
<b>FY 2012</b>	<ul style="list-style-type: none"> <li>Report of methodology for assessing risks of rapid climate change</li> <li>Report of interpretation of last 55 years of MOC related analyses</li> </ul>	<ul style="list-style-type: none"> <li>International workshop to establish design of MOC observing system</li> <li>Deliver last 55 years of ocean analyses related to the MOC</li> </ul>	<ul style="list-style-type: none"> <li>Report on MOC variations and abrupt climate change</li> </ul>
<b>FY 2013</b>		<ul style="list-style-type: none"> <li>Implement routine nowcasting capability for MOC</li> <li>Implement prototype system for decadal outlooks for MOC variations</li> </ul>	<ul style="list-style-type: none"> <li>Report on assessment of MOC impacts on ecosystems and carbon cycle</li> </ul>

**Benefits:**

NOAA's research component is an important aspect of the interagency research effort to increase understanding and prediction of the MOC. Through these efforts a comprehensive observation and monitoring program for the MOC will be designed and implemented as part of the attempt to nowcast and forecast fluctuations in the MOC and their associated impacts.

**Outcomes:**

- Documentation and understanding of MOC changes during the last 15 years (a period intensely observed) and the past 55 years based on ocean reanalyses and attribution studies
- A modeling, observing, and data assimilation framework for routine monitoring of the Atlantic, and to a lesser extent, the global ocean for decadal and rapid changes
- An objective design for the ocean observing system required to monitor for MOC changes
- Documentation of the impacts of MOC on ecosystems and the carbon cycle
- Robust and credible assessments of risks of MOC changes to regional climate and extremes and rapid climate changes
- Reduced uncertainty in MOC projects based on prototype decadal forecast systems

**Performance Goals & Measurement Data:**

This increase will support the one of the four near-term priorities outlined in the draft implementation plan developed by the NSTC, one of the immediate and long-term actions specified in the US Ocean Action Plan. It will also support the CCSP objective to assess abrupt changes in a warming world.

<b>Milestone :</b> Major milestones completed toward the goal of prediction of MOC changes and impacts (milestones per year).		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	1	3	5	3	3
	<b>Without Increase</b>	0	0	0	0	0

**Analysis of Unmanned Aircraft Systems (UAS) Data from the Arctic Test Base (+0 FTE, +\$308,000):** NOAA requests 0 FTE and \$308,000 for a total of 0 FTE and \$308,000 to provide focused application of data from Unmanned Aircraft Systems (UAS) to be deployed from the Arctic Test Base. The UAS platforms will be deployed as part of NOAA’s Weather Research, Science and Technology Infusion Acceleration program to address critical weather and climate observation gaps in regions important to the U.S., *e.g.* the Central Pacific Ocean and the Arctic. The funds requested here will provide the ability to analyze UAS data from the Arctic Test Base in an international context, thereby multiplying the value of the UAS data. Also, funds will be used to purchase additional sondes for use in the Arctic to improve density of data collected. This initiative will be closely coordinated with the UAS activities under the Weather Research Program.

**Statement of Need**

The well-documented recent changes in the Arctic climate and the influence of Arctic climate processes on the northern hemisphere make this a pressing issue. This initiative will provide a focused means for analyzing novel UAS-derived Arctic data and blending it with relevant data from international

sources as part of the International Polar Year ending March 2009. The analytical approaches developed in this program will be continued over the longer term to provide climate-relevant analysis and application.

### Proposed Actions

NOAA will plan deployment strategies from the Arctic Test Base, conduct analysis of UAS data, and build integrated data sets for broader, Arctic-wide analysis. Reports from these analyses will be published in scientific literature and made available for future assessments and modeling activities on climate change in the Arctic. After the initial data analysis, consideration will be given to acquiring additional sondes or sensors to complement those provided under Weather Research to improve the ability of the UAS to provide climate-relevant data from the Arctic Test Base.

### Benefits

NOAA believes that deployment of UAS from the Arctic Test Base will provide a significant new type of data to complement that available from satellites and infrequent ship-based observations of the Arctic atmosphere. The analyses to be conducted under this initiative will also demonstrate the utility of UAS in climate observations in the Arctic, and the value of these observations in improving the output from global and regional climate models and forecasts. In addition, these activities will support improvements to other NOAA services, such as weather forecasting performance measures by providing improved observing capabilities, improved scientific understanding, and input for numerical weather models.

### Performance Goals and Measurement Data

<b>Milestone #1:</b> Updates to State of the Arctic Report Based on UAS Data		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	0	1	1	1	1
	<b>Without Increase</b>	0	0	0	0	0

<b>Milestone #2:</b> Updates to NOAA Global Climate Model Based in UAS Data		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	0	1	1	1	1
	<b>Without Increase</b>	0	0	0	0	0

### TERMINATIONS FOR FY 2009:

None.

**Subactivity: Climate Research**  
**Line Item: Climate Operations**

**GOAL STATEMENT:**

The goal of NOAA's Climate Operations is to provide accurate and timely climate information/forecasts to best serve the public and private sector. The goal will be achieved via improved climate forecasts on timescales from subseasonal through interannual and beyond.

**BASE DESCRIPTION:**

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. The establishment of climate/weather links will improve the forecast timing and location of extreme weather events thereby minimizing their impacts on the lives and property of U.S. inhabitants. Activities funded under Climate Operations include Operational Forecasts. This is a primary mission of NOAA to provide improved forecasts on subseasonal through interannual timescales and beyond. This will be achieved by improving model performance, developing new forecast designs, and upgrading existing datasets. The end-result will be the ability to produce and disseminate operational forecast products to private industry and the public resulting in the preservation of life and property.

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."

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Climate Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Climate Operations					
Climate Operations	890	-	514	900	386
TOTAL	890	-	514	900	386
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

NOAA requests a net increase of 0 FTE and \$386,000 above the base for a total of 0 FTE and \$900,000 under the Climate Operations line item. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Climate Research**  
**Line Item: Climate Data & Information**

**GOAL STATEMENT:**

**NOAA's Climate Data and Information Program** manages the Nation's resource of global climatological 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. This effort requires the cooperation of national and international meteorological services for the acquisition, quality control, processing, summarization, dissemination, and preservation of a vast array of climatological data.

**BASE DESCRIPTION:**

The primary goal of climate observing networks is to assemble, develop, and communicate data and information about the trends and predictions of climate and weather events to public and private sector decision makers (e.g., energy, agriculture, state and local officials). To accomplish this goal, NOAA must develop the required infrastructure which addresses: (1) improving access and data management activities 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 consisting of the U.S. Surface Hourly, Upper-Air, and Buoy Networks. The following activities are funded under the Climate Data and Information line item:

- **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. The Climate Reference Network is an integral component of NOAA's plans for the International Earth Observing System (IEOS) and contributes to the integrated Global Earth Observation System of Systems (GEOSS). USCRN observations will provide benchmark measurements for an improved national climate and weather monitoring network. CRN data already serve over 100,000 users each year from government, academia, and the private sector. Full implementation of the network of reference stations will fulfill the ultimate goal of routinely explaining at least 95% of national annual average precipitation variance and 98% of national annual average temperature variance for the contiguous U.S. The network is currently 73% complete (84 commissioned out of 114 planned stations); full implementation of the network is scheduled for 2009.
- **Data and Information Products:** The improvement in the quality and integrity of observed datasets is fundamental to our National and global climate and weather monitoring programs. Early detection and remediation of network problems that can adversely affect the quality of data records and diminish our ability to evaluate climate variability and change will be provided through NOAA's Observing System Monitoring Program. This will alert Observing System Managers in near real time to problems that in the past have been discovered long after the data became part of the historical archive, and thus too late to take immediate corrective action.

- **Global Climate Observing System (GCOS):** U.S. GCOS works with other national, as well as regional and international entities to aid in providing an integrated, comprehensive high-quality global observing and data management system needed to support the observational data requirements for climate assessments and forecasts. The U.S. GCOS Program provides U.S. leadership on, and is a key driver for the overall global effort of implementing a sustained global infrastructure of complementary *in-situ* atmospheric climate observations, such as the GCOS Surface Network (GSN), GCOS Upper Air Network (GUAN), Global Atmosphere Watch (GAW), and Baseline Surface Radiation Network (BSRN). Such critical information is necessary for a wide range of users that use the GCOS data for more reliable climate predictions and projections, and for organizations such as the World Meteorological Organization (WMO), the Intergovernmental Panel on Climate Change (IPCC), and the UN Framework Convention on Climate Change (UNFCCC) that use it as input to various global climate assessments. GCOS, as the formal climate component of the Global Earth Observation System of Systems (GEOSS), provides a key input that contributes to the success of implementing GEOSS stated goals related to support of societal benefit areas.

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Climate Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Climate Data & Information					
Climate Data & Information	4,353	-	7,601	8,299	698
<b>TOTAL</b>	4,353	-	7,601	8,299	698
<b>FTE</b>	6	3	3	3	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

NOAA requests an increase of 0 FTE and \$698,000 above the base for a total of 3 FTE and \$8,299,000 under the Climate Data & Information line item. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Climate Research**  
**Line Item: Other Partnership Programs**

**GOAL STATEMENT:**

The strength of NOAA Research is that it does not operate in isolation but rather in partnership with a multitude of external experts in its fields of research. These partnerships extend to other parts of NOAA; other Federal, state, and local government entities; universities; and industry. The contribution of the unique strengths of each partner greatly enhances the accomplishments of NOAA Research.

**BASE DESCRIPTION:**

Other Partnership Programs contains various programs appropriated by Congress. NOAA Research manages these programs in a manner that leverages their objectives in concert with NOAA's mission responsibilities and requirements.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Climate Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Other Partnership Programs					
Climate Research	3512	-	-	-	-
Abrupt Climate Change Research	-	376	-	-	-
Drought Research Study	-	751	-	-	-
<b>TOTAL</b>	<b>3512</b>	<b>1,127</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>FTE</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs have been terminated in FY 2009: Abrupt Climate Change Research (\$376,000), Drought Research Study (\$751,000).

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**Subactivity: Weather and Air Quality Research**  
**Line Item: Laboratories & Cooperative Institutes**

**GOAL STATEMENT:**

NOAA's Weather and Air Quality Research Programs work towards fulfilling of two goals: (1) to provide the Nation with more accurate and timely warnings and forecasts of: (a) weather events, particularly high-impact weather events that disrupt economic productivity and cause loss of life and property, and (b) air quality, particularly ozone and aerosols (particulate matter) that impact human health, and (2) to provide the scientific basis to develop public policy for air quality.

**BASE DESCRIPTION:**

The Weather and Air Quality Research objectives for the laboratories and cooperative institutes are to provide theoretical frameworks, remote sensing technologies, and scientific understanding to: (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 all types of weather, particularly high-impact events; and (4) transfer research results to both aid the research and policy communities and improve operational warnings and forecasts. Included in the four activities are: daily and extreme weather forecasts; air quality forecasts; and crosscuts of weather, air quality, and climate change.

Improved forecasts and warnings require more frequent and higher-density observations, faster communications, and better local data-handling systems. NOAA has implemented a major capital investment that substantially upgrades its ability to collect weather data. In support of this modernization effort, research is needed 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. The primary research activities currently include:

- Development of dual-polarization, phased-array, and multi-frequency Doppler radars and passive radiometers to study convective storms, in order to improve rainfall estimates, to detect damaging winds and tornadoes;
- Improvement of short-range (1-12 hour) forecasting by the development and evaluation of new local data system technologies and techniques;
- Incorporation of satellite-observed wind profile data into forecast models to determine whether the accuracy of weather forecasts is improved;
- Application of current wind-profiler radar technology to coastal environments, using both land-based and buoy-mounted systems will allow better characterization of coastal weather and improve short-term forecasts of hazardous events;
- Development of airborne radiometric and optical instruments designed to map ocean color and salinity along coastal waterways and in the open ocean. Airborne instruments address this fundamental gap in current observational technology (between in-situ buoy-mounted instruments and the low spatial and temporal resolution of satellite-borne instruments) by virtue of their ability to map relatively broad ocean regions with high

spatial resolution and a temporal resolution governed by the frequency of the flights. Ocean color provides information about the onset and dissipation of harmful algal blooms. Salinity maps can be used to identify and estimate the strength of ocean circulation drivers.

- Transition hurricane model and forecast decision aide improvements to operations;
- Development and transition to operational use air quality forecasting capabilities to include additional key pollutants (e.g., particulate matter) and extend forecast lead times;
- Identification and policy-relevant explanation of key atmospheric causes of serious air pollution problems;
- Accelerate improvements in medium range (3-14 day) numerical weather prediction and;
- Development of improved atmospheric profiling systems to continuously measure vertical profiles of wind speed and direction, temperature, and humidity using ground and satellite-based remote sensing;
- Development of advanced light detecting and ranging systems and infrared Doppler multi-frequency radars as research tools to improve our knowledge of atmospheric winds, turbulence, aerosols, and moisture processes.

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.”

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Weather and Air Quality Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Laboratories & Cooperative Institutes					
Laboratories & Cooperative Institutes	40,978	45,954	45,089	49,089	4,000
<b>TOTAL</b>	40,978	45,954	45,089	49,089	4,000
FTE	182	182	186	186	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:****Improvements to Operational Weather Forecasts (+0 FTE, +1,000,000):**

NOAA requests an increase of 0 FTE and \$1,000,000 for a total of 0 FTE and \$1,000,000 to accelerate the rate at which hurricane forecasts improve through five days. Hurricanes have severe impacts on life and property. The primary focus will be to improve storm track and intensity forecasts accuracy. To ensure that innovative research is utilized in an operational setting as quickly as possible, the Numerical Prediction Developmental Testbed Center (DTC) has been developed to link research and operations. This will allow NOAA to accelerate the transfer of new numerical weather prediction technology to operations. The DTC is a facility where operational numerical weather prediction codes and the latest research codes are maintained and made available to scientific researchers in academic institutions and non-NOAA operational centers. The goal is to enable the research and operational communities working together to accelerate improvements in operational numerical weather forecasting. Eventually, this approach will be applied to other numerical forecasting problems.

**Statement of Need**

The National Weather Service (NWS) Organic Act, 15 U.S.C. § 313 directs NWS to forecast the weather, issue storm warnings, collect and transmit marine intelligence for the benefit of commerce and navigation. To do this, the NWS must continually draw upon new science and technology. A report by the National Research Council entitled *FROM RESEARCH TO OPERATIONS IN WEATHER SATELLITES AND NUMERICAL WEATHER PREDICTION, CROSSING THE VALLEY OF DEATH*, prepared by the Board on Atmospheric Sciences and Climate, Commission on Geosciences, Environment, and Resources addresses the need to accelerate the transition of research results to operational numerical models. In response to these recommendations, NOAA has established with other agencies the DTC discussed above.

**Proposed Actions**

The DTC (+\$1,000,000) will serve as a library and support center for the WRF operational model computer codes for improved forecasting in support of improved hurricane forecasting, short range (24 hour) and medium range (1-5 days) weather forecasting. Specifically, it will:

- Maintain research and Reference Code and make it available to the community including tutorials and documentation. Initial focus will be on the atmospheric models, eventually expanding to include the ocean and wave models to which the hurricane model is coupled. User support will include providing documentation and responding to user questions.
- Acquire model computer code from the research and development communities, test this code, and certify it as Reference code.
- Establish and maintain a test environment complete with test data sets and corresponding model outputs to allow researchers to evaluate and compare their proposed research model improvements.
- Perform formal configuration computer code management to maintain the integrity of code in the Reference Code library.

**Benefits**

Hurricane Katrina was the deadliest hurricane to strike the US since 1928. Approximately 1,300 deaths were documented. Hurricanes Katrina, Rita, and Wilma produced a record 2.773 million insurance claims for insured losses of \$50.8 billion. The DTC is designed to accelerate forecast improvements to mitigate loss of life and property. Further, DTC is designed to ensure that promising research results are translated into forecast improvements by the operational community quickly. NOAA, DOD, and NSF spend large amounts of dollars each year supporting modeling research and development. The

objective of this proposal is to take better advantage of these basic, applied, and operational research model investments. Without the benefits of the DTC, some of the projected gains in hurricane forecast improvements (6% improvement per year out to 5 days) will not be realized. DTC is also critical to overall success in accelerating Hurricane forecast improvements shown in NWS budget request.

**Performance Goals and Measurement Data**

This increase will support the objective "Provide accurate and timely weather and water information" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, the increase supports the NOAA Weather and Water Performance Goal and GPR measure, "Hurricane Intensity Forecast Error (48 Hours)." This increase will also support the following internal NOAA measures:

- "Model packages provided"
- "Model packages received"

Hurricane Intensity Forecast Error (48 Hrs), Measure 3e, APP Page 21		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	13.4 kt/hr 2%	13.1 kt/hr 4%	12.8 kt/hr 6%	12.5 kt/hr 8%	12.2 kt/hr 10%
	<b>Without Increase</b>	1%	2%	3%	4%	5%

**Description:** The anticipated hurricane intensity forecast error is given in knots/hour. The comparison between improvement with and without the increase is then shown as a cumulative percentage reduction in intensity forecast error (from a base of 13.7 knots/hour in FY 2008).

Internal Measure: Model packages provided		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	4	7	8	10	11
	<b>Without Increase</b>	0	0	0	0	0

**Description:** These numbers represent the quantity of computer code and documentation packages provided to the research community.

Internal Measure: Model packages received		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Increase</b>	1	2	3	3	3
	<b>Without Increase</b>	0	0	0	0	0

**Description:** These numbers represent the quantity of computer code and documentation submissions received by the DTC for evaluation and inclusion in the computer model library.

**Unmanned Aircraft Systems (UAS) (+0 FTE and +\$3,000,000):** NOAA is requesting an increase of 0 FTE and \$3,000,000 for a total of 4 FTE and \$6,000,000 in order to implement an end-to-end initiative to accelerate the research, development, and transition of innovative new observational platforms and forecast tools to advance NOAA's Earth-system product, service, and information enterprise. Specifically, NOAA will test and evaluate UAS platforms, payloads, and applications to determine their role in filling critical observational gaps to improve NOAA's environmental monitoring and prediction capabilities. Initial research will focus on applications in the Arctic (e.g., climate change), the Gulf of Mexico (e.g., hurricanes), and the Pacific (e.g., ecosystems). This UAS initiative advances the development of observing systems and 21st century forecast tools and accelerates their infusion into the operational environment. UAS platforms represent a collaborative effort of several organizations within NOAA, including NOAA laboratories, NOAA National Weather Service, NOAA National Ocean Service, NOAA Marine and Aircraft Operations, and NOAA Cooperative Institutes; and partnerships with NASA, DOE, and other agencies. This initiative is linked closely to the needs of multiple federal, state, and local agencies.

### **Statement of Need**

This adjustment implements the next phase of a multi-year plan to test, evaluate and potentially incorporate UAS into NOAA programs where appropriate. GEOSS and the Ocean Action Plan call for new observing systems, such as UAS, to fill critical gaps in existing observing capabilities. NOAA's Strategic Plan and Mission include observing, describing, and predicting changes in the Earth system as a means of informing and protecting the public and managing our Nation's resources.

This effort will focus on the testing of UAS platforms, payloads, and applications to determine their future role in helping achieve NOAA mission objectives by filling current critical observational gaps. These activities support improvements to these and other NOAA National Weather Service hurricane forecasting performance measures, arctic climate research, and ecosystems monitoring by providing improved observing capabilities, greater scientific understanding, and input for numerical weather and climate prediction models, and enhanced monitoring of endangered species. The Arctic is important in that key changes there influence climate and weather; also the Arctic is the focus of the International Polar Year. In the Central Pacific, we face important data gaps that hinder monitoring of ecosystems (e.g., Northwest Hawaiian Islands National Monument), weather (e.g., Pacific winter storms) and climate changes (changes in stratospheric water vapor).

Further, this research will provide the basis for a Cost and Operational Effectiveness Analysis (COEA) that will inform NOAA of the potential value of implementing an operational UAS capability.

### **Proposed Actions**

NOAA will build upon its base program of demonstration missions using currently available UAS platforms by adding a mission using the higher cost but potentially higher payoff class known as High-Altitude Long-Endurance, which has the most potential to improve NOAA's ability to carry out its diverse missions. These platforms must be large enough to carry remote sensors and durable enough to reach remote areas. NOAA will lease existing aircraft suitable for top priority applications and develop associated diagnostic and forecasting tools to use the new UAS-acquired data. The missions will develop and integrate the necessary sensors, plan and conduct field tests, analyze results, and explore the elements required to operate and maintain UAS in the future. A range of operating conditions and applications will be chosen for testing and evaluating diverse applications. The proposed increase of \$3 M in FY 2009 over FY 2008 is required to conduct one HALE-class UAS test in FY 2009; a second would be conducted in FY 2010.

NOAA will conduct field tests for at least 4 applications in FY 2009, including one using a HALE-class UAS. They will focus on data collection over large remote areas, including the Atlantic Ocean/Gulf of Mexico (e.g., for hurricanes), Central Pacific Ocean (e.g., for endangered species) and/or the Arctic (e.g., changes in pack ice), and will document phenomena that connect weather and climate, including hurricanes and the atmospheric water budget. The hurricane tests will address both operational surveillance needs and scientific research requirements.

Specific actions include:

- Conduct overall planning for the expanded effort, including planning workshops and stakeholder meetings for each of the three test bases (Arctic, Pacific, & Gulf of Mexico).
- Lease and prepare UAS platforms for four field tests at the three test bases (one test base will have two field tests). Overall, at least two different UAS platforms will be used in the four field tests, one of which will be in the large HALE class.
- Plan & analyze the four tests. This will involve a project leader (via contract or other mechanism) at each of the three test bases, who will coordinate the experimental design and conduct observing system simulation experiments (OSSEs).
- Develop, integrate, and operate the specialized sensors needed for the field tests. This will include purchase of already existing sensors as well as a limited number of components for customized sensors.
- Develop and test a limited set of new diagnostic and forecasts tools and processes to utilize the test data and analyze the cost and operational effectiveness of these tools and processes.

### **Benefits**

This project, in partnership with NASA, DOE and other agencies, explores key potential civilian applications, providing the critical experience needed to guide NOAA's decisions regarding major future investments in this technology. UAS can revolutionize our ability to monitor the global environment by filling critical information gaps over the expansive and remote reaches of the earth such as the oceans and polar regions. UAS are alternatives to manned missions that are too dangerous or lengthy, and to satellite observations. This project engages (for civilian applications) key technologies and supporting industries that were developed for national defense. This project will also help strengthen U.S. scientific and technical leadership, including potential expansion of markets for UAS, thereby enhancing our global competitiveness.

The UAS tests will aid NOAA in scientific discovery and assessment of data gaps impeding monitoring and prediction, and specific applications that will be explored through this FY 2009 investment include:

*Climate*

The proposed UAS project will test two important climate issues: (1) Climate models show that the upper atmosphere over the Arctic Ocean should have warmed by 3° F by late in the current decade. Existing measurements taken at different spatial locations do not allow comparison of temperatures at the same location over time. By dropping sondes at locations chosen during the International Polar Year, we can address this important question of whether or not the models are right. (2) Similarly, the change of water vapor in the upper and lower atmosphere over the tropics is crucial to evaluating climate models. The proposed Pacific test will measure water vapor with higher accuracy and denser spatial specificity than has been possible in the past and will test the ability of UASs to monitor water vapor transport via atmospheric rivers, which currently are poorly observed but yet are crucial to both the global water budget and weather prediction.

*Weather Research*

The potential for UAS to aid in hurricane reconnaissance and research will be evaluated. This includes monitoring conditions at the interface between the air and sea, which is where hurricanes gain and lose their energy, and yet where flying manned aircraft is too dangerous and other sensors have failed. In addition, their potential to aid research and forecasting on Pacific winter landfall storms that result in severe flooding and landslides will be explored.

*Fisheries Enforcement*

Over parts of both Alaska and Hawaii, NOAA will test new concepts of fisheries enforcement using advanced sensors on UAS platforms. This will include consideration of enhanced monitoring capabilities for the massive and remote Northwest Hawaiian Islands National Monument.

*Coastal Zone Studies*

NOAA will test and evaluate UAS applications in Marine Sanctuaries for monitoring whale migrations and other phenomena occurring over extensive areas that currently cannot be monitored using manned ships or aircraft. Harmful algal bloom monitoring will be explored.

**Performance Goals and Measurement Data**

This increase will support the objective "Provide accurate and timely weather and water information" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, the increase supports the NOAA Weather and Water Performance Goal and the following internal NOAA measures:

- "Unmanned aircraft field tests."
- "Acquire and operate UAS."

<b>Internal Measure: Unmanned aircraft field tests</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	4:1	4:1	4:1	4:1	4:1
	<b>Without Increase</b>	3:0	3:1	3:0	3:0	3:0

**Description:** These numbers represent the number of field tests conducted. The number preceding the colon represents the total number of tests with all unmanned aircraft. The number following the colon represents the number of tests conducted with HALE class aircraft.

#### **TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Laboratories & Cooperative Institutes (\$1,756,000).

**Subactivity: Weather and Air Quality Research**  
**Line Item: Weather & Air Quality Research Programs**

**GOAL STATEMENT:**

The strength of NOAA Research is that it operates in partnership with a multitude of external experts in its fields of research. These partnerships extend to other parts of NOAA; other Federal, state, and local government entities; universities; and industry. The contribution of the unique strengths of each partner greatly enhances the accomplishments of NOAA Research.

**BASE DESCRIPTION:**

**Tornado/Severe Storm Research (Phased-Array Radar):** NOAA is developing new technologies for forecasting and detecting tornadoes and other forms of severe weather and to disseminate this information to emergency managers, the media, and the general public. Phased-Array Radar has the potential to significantly extend lead times for tornadoes and other forms of severe and hazardous weather. Faster scan rates can reduce the time it takes to make a complete Doppler radar observation from six minutes to less than one minute. Coupled with artificial-intelligence-based decision-support systems, tornado lead times could be almost doubled from 12 to 22 minutes.

Major components of this program are continued research support and the construction of and experimentation with a Phased-Array research testbed at the National Severe Storms Laboratory (NSSL) in Norman, OK. Congress established a joint R&D program for NOAA, DOD, and FAA to investigate the feasibility and benefits of using military Phased-Array Radars for improving severe weather forecast and warning systems. U.S. Navy SPY-1 Phased-Array Radar technology holds considerable promise for making significant improvements to the existing WSR-88D system. Using multiple beams and frequencies, The SPY-1 Phased-Array Radar reduces the scan time for severe weather from six minutes to less than one minute, which can lead to increased lead times for warnings of tornadoes and other forms of hazardous weather. NOAA/NSSL is designated to operate and maintain the equipment, provide facilities, approve associated research, and otherwise assist in all related efforts.

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.”

**U.S. Weather Research Program (USWRP):** Forecasting high impact weather events represents one of the great challenges of weather forecasting. For example, hurricane Charlie in 2004 unexpectedly intensified and turned more rapidly towards the Florida coastline than expected. Being able to anticipate changes in the intensity and track of intense storms with sufficient lead time to warn and safeguard the public is a high priority of the USWRP program.

The USWRP is comprised of three components. The first is the Joint-Hurricane Testbed, which is designed to upgrade hurricane forecast models via higher resolution, improved model physics, and better data initialization techniques. A fully operational Joint Hurricane Testbed will minimize the time by

which innovative research is transferred to the operational community; the final result will be more accurate forecasts of hurricane track and intensity with increased lead-time which will reduce loss of life and property from hurricanes. The second is Air quality forecast research, which is dedicated to providing accurate and timely air quality forecast guidance. The impact of poor air quality on the national economy is estimated at \$150 billion annually from health effects alone. Even a 0.5% change due to improved air quality forecasting would have a significant effect, saving \$750M a year nationally. Finally, the current state of weather forecasts shows little scale in the 8-14 day timeframe. Providing reliable forecasts of high-impact weather and water events (e.g. droughts and floods) to the public out to two weeks would allow for early preparation saving many millions of dollars per year and, potentially, saving lives. High impact weather does not only refer to severe or extreme weather. A one degree error in a high or low temperature forecast can cost the utility industry a billion dollars in an average year (<http://www.economics.noaa.gov/>). With water resource management being a major issue for decades to come, forecasting the intensity of drought and its impacts will also become increasingly important. The third component of the USWRP program known as THORPEX addresses these issues via an external competitive grants program which provides support to the best researchers in the community to help NOAA to more effectively accelerate improvements in high impact weather forecasting. Primary goals of THORPEX are to perform operational testing of global observations from the international Global Earth Observing System of Systems (GEOSS) in forecasts and to develop better methods of modeling resulting in the creation of probabilistic forecasts that will extend the forecasts of severe weather, such as heavy, flooding rains, blizzards, heat waves, severe cold, and the onset of droughts, out to 14 days with usable accuracy.

Base activities support the objective, “To understand and predict changes in the Earth’s environment and conserve and manage coastal and marine resources to meet our Nation’s economic, social, and environmental needs”.

**PROPOSED LEGISLATION:**

None.



**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Weather and Air Quality Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Weather & Air Quality Research Programs					
Tornado Severe Storm Research / Phased Array Radar	3,945	2,898	2,901	2,972	71
U.S. Weather Research Program	-	-	5,357	5,500	143
<b>TOTAL</b>	3,945	2,898	8,258	8,472	214
<b>FTE</b>	2	2	19	19	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

NOAA is requesting an increase of 0 FTE and \$214,000 above the base for a total of 19 FTE and \$8,472,000 under the Weather & Air Quality Research Programs line item. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Weather and Air Quality Research**  
**Line Item: Other Partnership Programs**

**GOAL STATEMENT:**

The strength of NOAA Research is that it operates in partnership with a multitude of external experts in its fields of research. These partnerships extend to other parts of NOAA; other Federal, state, and local government entities; universities; and industry. The contribution of the unique strengths of each partner greatly enhances the accomplishments of NOAA Research.

**BASE DESCRIPTION:**

The Other Partnership Programs line item contains various programs initiated by Congress. NOAA Research manages these programs in a manner that leverages their objectives consistent with key NOAA mission responsibilities and requirements.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Weather and Air Quality Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Other Partnership Programs					
Air Quality Research	6,313	-	-	-	-
Weather Research and Observations	5,502	-	-	-	-
Coordinate NASA-NOAA Severe Storm R&D	1,500	-	-	-	-
STORM (U. of N. Iowa)	-	612	-	-	-
Wind Hazards Reduction Program, IA	-	612	-	-	-
San Joaquin Valley Ozone Study, CA	-	134	-	-	-
Advanced Radar Technologies, WY	-	94	-	-	-
Coastal & Inland Hurricane Monitoring & Protection Program, AL	-	611	-	-	-
Tornado & Hurricane Operations & Research, AL	-	845	-	-	-
Coastal Weather for Catastrophic Events, AL	-	258	-	-	-
<b>TOTAL</b>	<b>13,315</b>	<b>3,166</b>	<b>-</b>	<b>-</b>	<b>-</b>
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs have been terminated in FY 2009: Project STORM (\$612,000), Wind Hazards Reduction Program (\$612,000), San Joaquin Valley Ozone Study (\$134,000), Advanced Radar Technologies (\$94,000), Coastal & Inland Hurricane Monitoring & Protection Program (\$611,000), Tornado & Hurricane Operations & Research (\$845,000), Coastal Weather for Catastrophic Events (\$258).

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**Subactivity: Ocean, Coastal, and Great Lakes Research**  
**Line Item: Laboratories & Cooperative Institutes**

**GOAL STATEMENT:**

NOAA's Ocean, Coastal, and Great Lakes Research programs seek to improve the protection, restoration, and management of coastal and ocean resources through research and monitoring activities that support ecosystem-based management. These programs accomplish this goal by providing:

- 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 ecosystems;
- Partnerships for place-based ecosystem approaches to management; and
- International diplomacy, negotiation, and partnerships.

**BASE DESCRIPTION:**

To be an effective steward of the ocean, coastal, and Great Lakes environments, NOAA relies on state-of-the-art research conducted at in-house laboratories and by external partners. The three OAR laboratories supporting the agency under this subactivity provide long-term research and scientific expertise to meet NOAA's stewardship mission. Three partnership programs also support this activity primarily through peer-reviewed proposals to the external research community. These labs and programs are the Atlantic Oceanographic and Meteorological Laboratory (Florida), Great Lakes Environmental Research Laboratory (Michigan), Pacific Marine Environmental Laboratory (Washington), the National Sea Grant College Program, the Ocean Exploration Program, and the National Undersea Research Program. Ocean, Coastal, and Great Lakes Research laboratories and programs are regularly evaluated by outside experts for quality and relevance to NOAA's management mission. High quality, peer-reviewed research is the basis of sound decision-making.

The primary objective for Ocean, Coastal, and Great Lakes Research is to protect and restore ocean, coastal, and Great Lakes resources. In support of this objective, NOAA Research has identified the following priority research areas:

- Ecosystem Observations - monitor coastal and ocean ecosystems.
- Ecosystem Research - activities in support of ecosystem modeling and forecasting, technology transfer, undersea research and exploration.
- Aquaculture - research and outreach efforts focusing on near shore and offshore systems development, genetics, physiology, endocrinology.
- Corals - health and monitoring activities.
- Coastal and Marine Resources - activities that support improved resource management decision-making.
- Habitat - invasive species research and outreach.

Benefits of our approach:

- NOAA is a science-based agency whose scientists have the expertise to conduct the highest quality research, subject to peer-review by outside experts.
- In-house experts provide objective answers and direction to managers and the public.
- Long-term (5-10 year), sustained research investment by NOAA labs and their academic partners lead to agency-specific technology and forecasting models that can not be achieved by either entity separately.

Base activities support NOAA's mission goal to "Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management." In addition, they support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental stewardship."

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Ocean, Coastal, and Great Lakes Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Laboratories & Cooperative Institutes					
Laboratories & Cooperative Institutes	22,582	22,977	20,806	20,806	-
<b>TOTAL</b>	22,582	22,977	20,806	20,806	-
<b>FTE</b>	119	119	119	119	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Laboratories & Cooperative Institutes (\$2,792,000).

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**Subactivity: Ocean, Coastal, and Great Lakes Research**  
**Line Item: National Sea Grant College Program**

**GOAL STATEMENT:**

NOAA's National Sea Grant College Program seeks to:

- Conduct research to enable NOAA to tackle priority problems and opportunities identified by coastal residents and businesses and local, regional, state and Federal agencies;
- Transfer scientific research results to user groups such as natural resource managers and coastal business people;
- Provide training opportunities for K-12 teachers to bring the sciences into the classroom and for undergraduate and graduate students to be mentored by senior researchers; and
- Inform the public about marine and coastal issues through extension and communications projects.

**BASE DESCRIPTION:**

**Sea Grant Network** – NOAA's National Sea Grant College Program enhances the development, use, and conservation of the Nation's marine and Great Lakes resources through a network of Sea Grant Colleges that conduct education, training, and research in all fields of marine and Great Lakes study. The 30 state Sea Grant programs, located in every coastal and Great Lakes state and Puerto Rico, serve as the core of a dynamic national network of more than 300 participating institutions involving more than 3,000 scientists, engineers, outreach experts, educators and students. The Sea Grant network addresses key issues and opportunities in areas such as aquaculture, aquatic invasive species, coastal community development, estuarine research, fisheries management, coastal hazards, marine biotechnology, marine engineering, seafood safety and water quality. As a non-regulatory program, Sea Grant focuses on generating and disseminating science-based information to a wide range of groups. Some of these include: commercial and recreational fishermen, educators, fish farmers, state and local planning officials, port and harbor commissioners, seafood processors and retailers, and natural resource, water and environmental quality managers.

Sea Grant is developing a system of regional networks that allows for organizing multi-state responses to regional/ecosystem-level problems. This effort supports the U.S. Ocean Action Plan and a major Ocean Commission recommendation that NOAA move to a regional ecosystem management approach and develop research and information plans that identify priority actions to coordinate ocean and coastal activities in each region. Sea Grant will play a key role in NOAA's efforts by applying its resources to engage regional and local stakeholders through the 30 state Sea Grant programs. Sea Grant expects these regional plans to be completed by FY 2009. Once the plans are completed, Sea Grant will target research, education, extension, and outreach resources to support the priority actions identified in the plans. This new regional focus will enhance Sea Grant's ability to make a critical contribution to this NOAA effort.

**Research** – Sea Grant funds high-quality research that is responsive to user needs, leveraging university expertise to solve today's marine environmental problems. Each of the Sea Grant colleges conducts research to solve problems and explore new uses for the world's marine, Great Lakes and coastal resources. This work addresses priority problems and opportunities identified by coastal resource managers and users. As a national network of research institutions, Sea Grant leads the Nation's efforts in the emerging field of marine biotechnology, and is addressing critical medical, food and environmental concerns.

**Education** – For three decades, Sea Grant has provided national leadership to enhance marine literacy for grades K-12 and in the development of professionals who understand marine and aquatic science and research. Sea Grant programs offer programs such as summer in-service programs, newsletters, speakers and curriculum materials. By developing innovative science curricula and teacher training programs, and embracing new technologies to enhance learning and pique students' curiosity, Sea Grant helps students understand how relevant science is to their lives. At the university level, Sea Grant recruits and trains undergraduate and graduate students, and employs senior researchers who form a national brain trust for dealing with coastal economic and environmental challenges.

**Outreach and Extension** – One of Sea Grant's greatest strengths is its ability to help clients use knowledge and research results through a broad multidisciplinary approach to outreach. The results of Sea Grant research are communicated to users at all levels in various ways. Outreach education activities for the public and private sectors are conducted through NOAA and: (1) a *communications program* comprised of writers, editors and media specialists who create a variety of printed and electronic information products for many audiences, including the general public; and (2) an *extension program* consisting of an interactive network of about 300 specialists and field agents (mostly university-based), 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 advisory specialists and coastal field agents convey the needs of the marine communities to university scientists, and transfer research results to resource users and managers at the local level. Sea Grant communications specialists package and deliver research, outreach and educational information on a wide range of topics, from fishing vessel safety to coastal erosion, using the full spectrum of modern print, electronic and mass media. Sea Grant organizes and hosts hundreds of scientific and public conferences and workshops each year on topics including: zebra mussels and other invasive species, commercial fishing, seafood processing, aquaculture, autonomous underwater vehicles, and offshore structures.

**Program Evaluation** – Sea Grant has implemented a rigorous four-year external performance review process for its federally sponsored university-based state programs. Performance review teams are comprised of highly experienced, distinguished, and knowledgeable individuals. Performance is judged quantitatively using performance benchmarks, and metrics developed with the help of outside experts. Foremost among these benchmarks is a program's impact on mission and programmatic objectives including its connection with users of science-based information. Individual program performance is used to determine merit-based funding for each state program.

**Benefits:**

- Stable partnerships between NOAA and the Sea Grant institutions allow the Agency to address long-term programmatic goals and develop constituent relationships and local leadership nationwide.
- Local management ensures NOAA's investments flow to the highest local priorities, bringing the most appropriate university resources to bear on these problems.
- Sea Grant's extension and outreach infrastructure enables rapid transfer of objective information to users, timely identification of emerging issues and a forum to engage local constituencies in policy and priority setting.
- Sea Grant reaches millions of people through its communication, education and extension networks. In a world where public awareness and knowledge of the environment will be increasingly critical to public policy, Sea Grant capabilities play an important role to transfer objective information to a diverse, nationwide audience.
- Sea Grant plays a unique and important role advancing our national interest in marine resources. Together with the Office of Naval Research and the National Science Foundation, Sea Grant and other NOAA programs provide the only sustained federal contact and funding source for universities with marine research capabilities. Sea Grant provides a regional and national research focus while supporting marine and coastal resource research of immediate public importance and application. It is virtually the only source of funding in the United States for marine policy studies.
- By employing the expertise and skills of the network's universities, research institutions and programs, Sea Grant activities have spurred economic growth and cost savings, created new products and services, enhanced coastal and marine resource management, reduced the loss of life and property, and educated tens of thousands of K-12 and university students.

Base activities support NOAA's mission goal to "Protect, Restore, and Manage the Use of Coastal and Ocean Resources Through an Ecosystem Approach to Management." In addition, they support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental stewardship."

**PROPOSED LEGISLATION:**

In June 2007, the 110th Congress introduced HR 2836 to authorize appropriations for the National Sea Grant College Program Act for fiscal years 2009 through 2013.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Ocean, Coastal, and Great Lakes Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: National Sea Grant College Program					
National Sea Grant College Program Base	55,469	57,043	54,997	54,997	-
<b>TOTAL</b>	55,469	57,043	54,997	54,997	-
FTE	23	23	23	23	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: National Sea Grant College Program Base (\$2,143,000).

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**Subactivity: Ocean, Coastal, and Great Lakes Research**  
**Line Item: Ocean Exploration and Research**

**GOAL STATEMENT:**

NOAA seeks an investment in undersea exploration, science, and technology in the deep ocean and areas of special concern, such as the U.S. Exclusive Economic Zone (EEZ) and marine protected areas such as National Marine Sanctuaries (NMS). The NOAA Office of Ocean Exploration and Research (OER) will conduct multidisciplinary expeditions, document and disseminate the results, and engage partners in other federal agencies, academia, and industry to develop and apply the "tools of tomorrow" in order to increase the pace and efficiency of exploration. It is envisioned that OER will provide a strong foundation for building strategic connections between "discoveries" and future investments in research and management to increase our knowledge of the ocean realm to support NOAA's goal of Ecosystem Management. The activities undertaken seek to:

- Increase the pace of discovery in unknown and poorly known areas of the world's ocean;
- Provide data and information to promote effective ecosystem management;
- Foster stewardship of the ocean's resources;
- Develop appropriate technologies for undersea exploration and research;
- Develop innovative education & outreach efforts through partners.

**BASE DESCRIPTION:**

Under the direction of the Assistant Administrator for Oceanic and Atmospheric Research, an Office of Ocean Exploration and Research (OER) has been created from the former NOAA Undersea Research Program (NURP) and the Ocean Exploration (OE) Program. The new OER program will support a matrix of exploration, research, and advanced technology development efforts. The synergy of these efforts will expand the efficiency, pace, and scope of discovery and increased understanding through a robust program of advanced ocean technology development and applications. The new program will consist of the following functions:

**Exploration** – The scope of exploration includes visiting unknown areas of the ocean; returning to poorly known areas to refine our understanding of what resources and processes they contain; mapping the bathymetry and the physical, biological, geological, and chemical nature of the ocean habitat; discovery of living and non-living resources, and discovery and preservation of the world's cultural heritage. The outcomes from exploration will provide NOAA programs with information critical for their work and for making decisions, and will provide a framework for NOAA to consider future missions and investments. Exploration will provide the Nation with knowledge of the ocean, its resources, and its inhabitants, and will enhance our ability to describe and predict how the ocean and its interrelated ecosystems function.

**Advanced Technology Development** – The advanced undersea technology development program will identify and anticipate NOAA's priority undersea exploration and research technology needs and support development, testing, and transition of the solutions to these needs. It will address cutting-edge

challenges to include those in the fields of AUV applications, ecosystem modeling, and undersea sampling and monitoring. Solutions may include new or innovative uses of existing hardware, procedures, or techniques. The program will approach this challenge comprehensively, ensuring that new technologies are tested, evaluated, and applied to furthering the Nation's undersea exploration objectives. Furthermore, the program will include activities to transition these technologies to meet other, at now unforeseen, needs.

**Research** – The scope of research supports both of the above functions and includes: (1) research necessary to translate discoveries to applications; and (2) research that is integral to the identification, development, testing, and transition of undersea technologies.

**Undersea Operations** – The merged organization will facilitate the deployment of undersea equipment to further its exploration, undersea technology development, and research missions, as well as supporting NOAA's scientific activities. This facilitation may include owning, leasing, or contracting assets. FY 2008 marks the first field season of the only federal vessel designed specifically for the purposes of ocean exploration. NOAA ship OKEANOS EXPLORER will support three primary missions: (1) deep water mapping to 6,000 meters; (2) exploring, filming, and sampling using a sophisticated dual system remotely operated vehicle (ROV); and (3) providing data and information, including video, real-time to shore-based stations using satellite technology. The ship will also be equipped to collect standard oceanographic observations. As designed, the ship will provide NOAA with the ability to explore little known areas of the oceans in a consistent, systematic manner, complementing – not replacing – the current projects and expeditions that OE supports through the annual proposal process.

**Education and Outreach** – OER's education component will enhance ocean science literacy through NOAA OER for K-16/formal and informal and the general public as it relates to discovery and understanding of new resources and ecosystem processes; mapping and characterizing key features and habitats; and identifying, developing and applying science tools to increase the pace, efficiency and scope of discovery and understanding of the ocean, coastal waters, and Great Lakes. The OER outreach component will communicate the excitement and importance of ocean exploration, research, and associated advanced technology development in ways that inform, educate and motivate individuals and organizations in general and targeted audiences. Ten percent of OER's budget will be dedicated to education and outreach initiatives.

**Data Management** – The OER data function will focus on meeting the data and information management needs of the other NOAA programs, partner agencies and institutions, the education community, and the general public. The scope of the OER data function will include the actions necessary to facilitate/support the following office activities: (1) management of proposal process documentation; (2) science and field operations planning; (3) project management and reporting; (4) product development; and (5) data dissemination.

The merged program will consist of a core headquarters capability, strengthened by extramural partnerships. These partnerships will augment the program through participation in specific functions defined above. These partners will be geographically distributed with a focus on serving NOAA regional needs.

**Benefits:**

NOAA's OER Program is a national and international program, providing the opportunity of discovery to scientists in academia, federal agencies, and commercial sector. No other dedicated source of funding or logistics exists for discovery-based ocean science. While the economic and social benefits of

anticipated discovery are potentially significant, the promise of discovery is clear; wherever the program has looked, new discoveries and information are found. The OER program will combine the best of the two programs to provide capabilities in the mission areas of: ocean exploration and transitional research, undersea technology development, and undersea services. The program will support a variety of NOAA's needs such as:

- Access to tools and technologies currently unavailable through other NOAA programs;
- Greater knowledge of living marine resources, their habitats, and ecosystems enhances fisheries and ocean stewardship;
- Comprehensive site surveys and inventories inform NOAA's National Marine Sanctuaries management;
- Characterization of the EEZ improves habitat and marine resource management;
- Inventories our Nation's and other submerged cultural and historic resources are significantly increased; and
- Governance and scientific investigation in support of the international Census of Marine Life.

Base activities support NOAA's mission goal to "Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management." In addition, they support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental stewardship."

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Ocean, Coastal, and Great Lakes Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Ocean Exploration and Research					
Ocean Exploration and Research	27,212	19,502	27,791	27,791	-
<b>TOTAL</b>	27,212	19,502	27,791	27,791	-
FTE	14	17	17	17	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Ocean Exploration and Research (\$6,424,000).

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**Subactivity: Ocean, Coastal, and Great Lakes Research**  
**Line Item: Other Ecosystems Programs**

**GOAL STATEMENT:**

In addition to supporting its individual Ocean, Coastal, and Great Lakes Research laboratories, NOAA Research also 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.

**BASE DESCRIPTION:**

**NOAA Aquatic Invasive Species (AIS) Program:** Aquatic invasive species disrupt the stability of coastal ecosystems, affecting recreational, economic, and other beneficial uses of coastal resources. They constitute one of the largest present and future threats to coastal ecosystems, coastal economies, protected habitats and species, and human health in coastal regions. Invasive species are one of the two greatest threats to endangered species (second only to habitat loss), and they have been responsible for some of the most dramatic fishery losses in recent times (e.g., Lake trout, turbot, whitefish, and salmon in the Great Lakes). Hundreds of millions of dollars are spent each year to mitigate the effects of non-indigenous aquatic species in our coastal and Great Lakes ecosystems and to prevent new invasions. The AIS program implements a national program to detect, monitor, and control aquatic invasive species. Currently, this program focuses on the prevention and control of invasive species. In the outyears, this item will include research for the development of new control technologies. Activities under the AIS program include, but are not limited to, ballast water research, education and outreach, and control activities, which include eradication, population reduction, preventing further spread, and/or mitigating the impact of invasive species on user groups.

Efforts undertaken by the NOAA AIS Program involve cooperation and coordination between NOAA Research (including the National Sea Grant College Program), National Ocean Service, and National Marine Fisheries Service, eight other federal agencies, and the academic community. 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. The AIS program responds to the mandates identified in the National Aquatic Nuisance Prevention and Control Act, the National Sea Grant College Program Act, and Executive Order 13112. All of these mandates identify the need for early detection, monitoring, and reducing the impact of aquatic invasive species.

**Benefits**

- An AIS program that is responsive to legal mandates and the most urgent national needs related to the growing AIS problem;
- Partially meet legislative prevention mandates;
- Increased number of pathways and high-risk species identified, and effective approaches developed to reduce invasion risk to resources for which NOAA is the Nation's steward;
- One or more ballast water treatment technologies and management approaches verified and available for use;

- Other pathways reduced or interdicted through targeted risk-reduction actions, education, and increased public awareness and participation;
- Increased ability to detect new AIS invasions early enough to allow targeted rapid response;
- Availability of management information to help control invasive species, (e.g., life- history parameters, potential range, and potential pathways identification); and
- Development of new control technologies, which will reduce the economic and environmental costs of highly invasive species.

**NOAA Marine Aquaculture Program:** OAR is responsible for the NOAA Marine Aquaculture Program, which provides the science and technology capability for the larger NOAA Aquaculture Program, a matrix-managed effort led by the National Marine Fisheries Service (NMFS) in collaboration with the National Ocean Service, OAR, and the National Environmental Satellite, Data, and Information Service (NESDIS). OAR is responsible for the program’s science and technology capability, including overseeing the National Marine Aquaculture Initiative, a competitive research grants program. These initiatives fund external partners to: (1) expand regional efforts in developing new species suitable for aquaculture; and (2) promote sustainable aquaculture through support for projects that: (a) field-test new environmentally compatible production systems; (b) develop new technologies, including offshore, near-shore, and re-circulating aquaculture systems; and (c) improve and clarify the regulatory framework and coastal zoning for aquaculture. These projects lead to technical developments in genetics, nutrition, disease, hormone manipulation, biotechnology, and mitigation of environmental impacts. In addition, the Program develops collaborative studies with international partners on ecosystem effects and carrying capacities for coastal ecosystems. NOAA’s aquaculture education and extension network facilitates the transfer of research into business operations as well as informs the public and practitioners about key issues and information related to aquaculture. The program promotes an environmentally friendly and profitable aquaculture industry that will alleviate stress on natural fish stocks, create jobs, provide healthy protein to Americans at a reasonable cost, improve food safety, and help alleviate our Nation’s trade deficit.

**Background:**

The United States faces a “seafood deficit” amounting to \$8 billion annually. We import more than 70 percent of the fish and shellfish we consume. Marine aquaculture in U.S. waters has the potential to provide up to 25 percent of our seafood within the next 20 years and providing the seed to rebuild some fishery stocks. The NOAA Marine Aquaculture Program will be at the forefront of efforts to grow the U.S. marine aquaculture industry through an integrated program of research, education, and technology transfer that is focused on key scientific, engineering, environmental, and socioeconomic issues that currently inhibit this emerging industry.

**Benefits:**

The NOAA Marine Aquaculture Program will work to:

- Offset the current \$8 billion annual U.S. trade deficit in seafood through increased domestic production from marine aquaculture;
- Ensure the sustainability of marine aquaculture; and
- Spur job creation in both the production and processing of fishery products, thereby revitalizing fishing communities devastated by collapsing fisheries industries.

Base activities support NOAA's mission goal to "Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management." In addition, they support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental stewardship."

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Ocean, Coastal, and Great Lakes Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Other Ecosystems Programs					
Aquatic Invasive Species Program	986	4,595	988	988	-
Marine Aquaculture Program	4,552	4,876	1,622	1,622	-
<b>TOTAL</b>	<b>5,538</b>	<b>9,471</b>	<b>2,610</b>	<b>2,610</b>	<b>-</b>
<b>FTE</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>-</b>

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Aquatic Invasive Species Program (\$3,610,000), Marine Aquaculture Program (\$3,262,000).

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**Subactivity: Ocean, Coastal, and Great Lakes Research**  
**Line Item: Other Partnership Programs**

**GOAL STATEMENT:**

NOAA's Ocean, Coastal, and Great Lakes Research Other Partnership Programs seek to improve protection, restoration, and management of coastal and ocean resources through research and monitoring activities that support ecosystem-based management. These programs accomplish this goal by providing:

- 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.

**BASE DESCRIPTION:**

The Other Partnership Programs line item contains various programs initiated by Congress.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Ocean, Coastal, and Great Lakes Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Other Partnership Programs					
Invasive Species and Ocean Partnership Programs	5,228	-	-	-	-
Lake Champlain Research Consortium	-	250	-	-	-
Lake Champlain Emerging Threats	-	400	-	-	-
Shedd Aquarium Invasive Species prog - Illinois	-	939	-	-	-
Advanced Undersea Vehicle, CT	-	402	-	-	-
International Arctic Research Center, AK	-	2,395	-	-	-
Coastal Vulnerability to Climate Change Study, AK	-	939	-	-	-
New Hampshire Lake Host Program, NH	-	188	-	-	-
New Hampshire Volunteer Lake Assessment Prog, NH	-	94	-	-	-
Collaborative R&D Initiative for the Gulf of Mexico, AL	-	751	-	-	-
West Alabama Marine Shrimp & Fish Aquaculture, AL	-	235	-	-	-
<b>TOTAL</b>	<b>5,228</b>	<b>6,593</b>	<b>-</b>	<b>-</b>	<b>-</b>
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

The following programs have been terminated in FY 2009: Lake Champlain Research Consortium (\$250,000), Lake Champlain Emerging Threats (\$400,000), Shedd Aquarium Invasive Species Program (\$939,000), Advanced Undersea Vehicle (\$402,000), International Arctic Research Center (\$2,395,000), Coastal Vulnerability to Climate Change Study (\$939,000), New Hampshire Lake Host Program (\$188,000), New Hampshire Volunteer Lake Assessment Program (\$94,000), Collaborative R&D Initiative for the Gulf of Mexico (\$751,000), West Alabama Marine Shrimp & Fish Aquaculture (\$235,000).

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**Subactivity: Information Technology R&D**  
**Line Item: High Performance Computing & Communications (HPCC)**

**GOAL STATEMENT:**

NOAA's Information Technology and R&D programs seek to make major improvements in NOAA's ability to forecast weather and climate and disseminate environmental information. They also seek to stimulate the modernization of NOAA's computationally intensive services through the use of evolving high-performance computing and communication (HPCC) technologies.

**BASE DESCRIPTION:**

**High-Performance Computing and Communication:** The purpose of the HPCC program is to make major improvements in NOAA's ability to forecast the Nation's weather and climate, to model ecosystems and the ocean, and to disseminate environmental information. Improvements in the accuracy and timeliness of NOAA's short-term weather warnings, seasonal forecasts, and regional and global climate predictions are heavily dependent on major advances in high-end computing power, advanced information technology, and the availability of environmental data and information.

Current funding supports software development for improved weather modeling, including hurricanes, tornadoes, aviation, and other severe weather forecasts. HPCC supports thirteen GPRA performance measures across all four NOAA Mission Goals, including hurricane forecast tracking, winter storm warning accuracy, regional climate forecasts, and the accuracy of wave heights and wind speed forecasts. NOAA is requesting a budget increase in FY 2009 to restore the HPCC funding and provide advanced information technology to support these measures. Improvements to NOAA's services require continually evolving computer technology, high-speed networking, and communications technologies that cannot be met at the base budget level.

The HPCC supports objectives in NOAA's Strategic Plan through IT research. These critical investments allow NOAA to meet its Mission in delivering vital services and science education to the public. The program allows NOAA to participate as a "mission" agency in the Interagency Working Group on Information Technology Research and Development, assuring coordination with Federal initiatives. The HPCC primarily serves the Environmental Modeling objective of the NOAA Strategic Goal to: "Serve Society's Needs for Weather and Water Information."

Base activities support the objectives: "Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs" and "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs."

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**  
(Dollars in thousands)

Subactivity: Information Technology R&D	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: High Performance Computing & Communications (HPCC)					
High Performance Computing & Communications (HPCC)	12,975	12,646	12,718	13,028	310
<b>TOTAL</b>	12,975	12,646	12,718	13,028	310
<b>FTE</b>	12	13	13	13	-

Note: Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

NOAA requests an increase of 0FTE and \$310,000 above the base for a total of 13 FTE and \$13,028,000 under the HPCC line item. This increase will restore funding to complete projects that were anticipated in the FY'08 President's Budget but were not able to be completed under the FY'08 Omnibus Language.

**TERMINATIONS FOR FY 2009:**

None.

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Oceanic and Atmospheric Research  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
(Dollar amounts in thousands)

<b>Oceanic and Atmospheric Research</b>	FY 2007 Actual	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Current Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Climate</b>					
Climate	166,828	189,673	180,957	196,908	15,951
Total C	166,828	189,673	180,957	196,908	15,951
<b>Ecosystems</b>					
Ecosystems	111,761	111,852	102,236	91,136	(11,100)
Total ECO	111,761	111,852	102,236	91,136	(11,100)
<b>Mission Support</b>					
MS	17,502	21,080	13,159	13,902	743
Total MS	17,502	21,080	13,159	13,902	743
<b>Weather and Water</b>					
Weather and Water	67,447	64,949	66,124	70,324	4,200
Total WW	67,447	64,949	66,124	70,324	4,200
Total Oceanic and Atmospheric Research	363,538	387,554	362,476	372,270	9,794

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Oceanic and Atmospheric Research		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
<b>Climate Research</b>											
Laboratories & Cooperative Institutes	Pos/BA	261	51,308	261	53,446	261	51,576	261	51,576	-	-
	FTE/OBL	249	51,182	249	53,792	249	51,576	249	51,576	-	-
Climate Data & Information	Pos/BA	6	4,353	3	-	3	7,601	3	8,299	-	698
	FTE/OBL	6	3,194	3	1	3	7,601	3	8,299	-	698
Competitive Research Program	Pos/BA	107	116,233	107	129,986	107	130,516	107	134,702	-	4,186
	FTE/OBL	102	116,599	102	131,077	102	130,516	102	134,702	-	4,186
Climate Operations	Pos/BA	-	890	-	-	-	514	-	900	-	386
	FTE/OBL	-	890	-	-	-	514	-	900	-	386
Climate Observations & Services	Pos/BA	-	-	-	8,060	-	-	-	-	-	-
	FTE/OBL	-	-	-	8,060	-	-	-	-	-	-
Other Partnership Programs	Pos/BA	-	3,512	-	1,127	-	-	-	-	-	-
	FTE/OBL	-	3,471	-	1,127	-	-	-	-	-	-
Total: Climate Research	Pos/BA	374	176,296	371	192,619	371	190,207	371	195,477	-	5,270
	FTE/OBL	357	175,336	354	194,057	354	190,207	354	195,477	-	5,270

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Oceanic and Atmospheric Research		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Weather & Air Quality Research											
Laboratories & Cooperative Institutes	Pos/BA	191	40,978	191	45,954	195	45,089	195	49,089	-	4,000
	FTE/OBL	182	41,095	182	46,238	186	45,089	186	49,089	-	4,000
Weather & Air Quality Research Programs	Pos/BA	2	3,945	2	2,898	20	8,258	20	8,472	-	214
	FTE/OBL	2	3,654	2	3,130	19	8,258	19	8,472	-	214
Other Partnership Programs	Pos/BA	-	13,315	-	3,166	-	-	-	-	-	-
	FTE/OBL	-	13,555	-	3,170	-	-	-	-	-	-
Total: Weather and Air Quality Research	Pos/BA	193	58,238	193	52,018	215	53,347	215	57,561	-	4,214
	FTE/OBL	184	58,304	184	52,538	205	53,347	205	57,561	-	4,214
Ocean, Coastal, and Great Lakes Research											
Laboratories & Cooperative Institutes	Pos/BA	126	22,582	126	22,977	126	20,806	126	20,806	-	-
	FTE/OBL	119	22,830	119	23,171	119	20,806	119	20,806	-	-
National Sea Grant College Program	Pos/BA	24	55,469	24	57,043	24	54,997	24	54,997	-	-
	FTE/OBL	23	55,456	23	57,117	23	54,997	23	54,997	-	-
National Undersea Research Program	Pos/BA	-	-	-	14,685	-	-	-	-	-	-
	FTE/OBL	-	11,631	-	14,695	-	-	-	-	-	-
Ocean Exploration and Research	Pos/BA	15	27,212	18	19,502	18	27,791	18	27,791	-	-
	FTE/OBL	14	15,772	17	19,573	17	27,791	17	27,791	-	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Oceanic and Atmospheric Research		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Other Ecosystems Programs	Pos/BA	4	5,538	4	9,471	4	2,610	4	2,610	-	-
	FTE/OBL	4	4,690	4	9,473	4	2,610	4	2,610	-	-
Other Partnership Programs	Pos/BA	-	5,228	-	6,593	-	-	-	-	-	-
	FTE/OBL	-	5,849	-	6,595	-	-	-	-	-	-
Total: Ocean, Coastal, and Great Lakes Research	Pos/BA	169	116,029	172	130,271	172	106,204	172	106,204	-	-
	FTE/OBL	160	116,228	163	130,624	163	106,204	163	106,204	-	-
Information Technology R&D High Performance Computing & Communications (HPCC)	Pos/BA	13	12,975	14	12,646	14	12,718	14	13,028	-	310
	FTE/OBL	12	12,303	13	13,209	13	12,718	13	13,028	-	310
Total: Information Technology R&D	Pos/BA	13	12,975	14	12,646	14	12,718	14	13,028	-	310
	FTE/OBL	12	12,303	13	13,209	13	12,718	13	13,028	-	310

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

Activity: Oceanic and Atmospheric Research  
Subactivity: Climate Research

	Object Class	2009 Increase
21	Travel and transportation of persons	20
25.2	Other services	1,164
25.5	Research and development contracts	200
26	Supplies and materials	358
31	Equipment	150
41	Grants, subsidies and contributions	3,378
99	Total Obligations	5,270

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

Activity: Oceanic and Atmospheric Research  
Subactivity: Weather and Air Quality Research

	Object Class	2009 Increase
23.3	Aircraft charter	600
25.2	Other services	1,933
25.5	Research and development contracts	71
26	Supplies and materials	299
31	Equipment	440
41	Grants, subsidies and contributions	871
99	Total Obligations	4,214



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

Activity: Oceanic and Atmospheric Research  
 Subactivity: Information Technology R&D

	Object Class	2009 Increase
25	Other contractual services	310
99	Total Obligations	310

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**NATIONAL WEATHER SERVICE  
OPERATIONS RESEARCH AND FACILITIES  
FY 2009 OVERVIEW**

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Operations Research and Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Operations and Research	684,342	710,541	701,698	720,478	18,780
Systems Operation & Maintenance (O&M)	90,621	93,948	95,552	98,355	2,803
<b>TOTAL</b>	774,963	804,489	797,250	818,833	21,583
<b>FTE</b>	4,624	4,625	4,608	4,608	0

Note: The dollars in this table represent budget authority.

For FY 2009, NOAA requests a total of 4,608 FTEs and \$818,833,000 for the National Weather Service Operations, Research and Facilities (ORF).

Our Mission

The National Weather Service (NWS) 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 other governmental agencies, the private sector, the public, and the global community.

Our Vision

NWS is a world-class team of professionals who are working 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
- Reducing weather- and water-related fatalities
- Working with others to make the weather, water, and climate enterprise more effective

## **Our Goals**

NWS supports several mission goals in the NOAA strategic plan. These include:

### **Mission Goal: Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond**

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. Forecasts will describe their inherent uncertainty more carefully, and will be more closely coupled to effects on society and the economy; aiding, for example, emergency managers, farmers, and energy providers with resource allocation decisions. NWS will continue to expand the coverage and capabilities of the Advanced Hydrologic Prediction Service (AHPS) to translate improved climate predictions into effects on the Nation's fresh water system, hydroelectric power, and flood controls.

NWS recognizes its responsibility to future users of our climatological and oceanographic data we collect. NWS recognizes the importance of gathering quality observations to produce a climate record, and will ensure that climate needs are incorporated into weather and ocean observing systems whenever possible. NWS will invest resources to modernize the Cooperative Observer Program. NWS will do its part to ensure that NOAA customers and partners receive an integrated service that meets their need for information across all time and space scales – whether the information is produced by NWS or another NOAA organization, and whether the initial point of contact is an NWS office or some other NOAA organization.

### **Goals of NWS Climate Activities**

- Increased use and effectiveness of climate observations to improve long-range climate, weather, and water predictions.
- Increased use and effectiveness of climate information for decision makers and managers (e.g., for industry, natural resource and water managers, community planners, and public health professionals).
- Increased use of the knowledge of how climate variability and change affect commerce.

### **Mission Goal: 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 performance. Concern for public safety drives NWS to improve the timeliness and accuracy of warnings for all weather-related hazards. To do so, NWS weather and water predictions need to be at the limits of what science, technology, and a highly trained workforce can provide.

NWS is committed to expand these limits by enhancing observing capabilities and by improving data assimilation to effectively use all the relevant data NWS and others collect; by improving collaboration with the research community through creative approaches such as community modeling; by rapidly

transforming scientific advances in modeling into improved operational products; by improving the techniques used by our expert forecasters; by making NWS information available quickly, efficiently, and in a useful form (e.g., the National Digital Forecast Database); by including information on forecast uncertainty to help customers make fully informed decisions; by taking advantage of emerging technologies to disseminate this information; and by maintaining an up-to-date technology base and a workforce trained to use all of these tools to maximum effect. However, the entire weather and water enterprise is larger than NWS – today and tomorrow the 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 will work even more closely with existing partners, and will 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 and amount of lead time for severe weather (by category of storm type, e.g. hurricanes).
- 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.
- 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.
- Improved effectiveness of NOAA's observing systems.
- Increased number of forecasters trained in the newest techniques.
- Increased volume of forecast and warning information formatted to clarify the uncertainty of an event (e.g., space weather, air quality, water and weather forecasts).
- Improved performance of NOAA's weather and water, air quality, and space weather prediction suite.
- Increased number of favorable scores on public surveys of citizen knowledge about appropriate actions under hazardous weather and water related conditions.
- Increased percentage of the public reporting timely receipt of warnings as measured by public surveys.
- Increased number of communities with plans in place to act on weather warnings and to reduce the impacts of coastal hazards.
- Increased community knowledge of, use of, and satisfaction with NOAA information that supports local air quality monitoring and forecast programs.
- Increased assistance to international partners to improve response capabilities to weather and water predictions.

#### **Mission Goal: 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 almost entirely weather and climate dependent. NWS will work to provide aviation forecast improvements to help mitigate air traffic delays and reduce weather-related aviation accidents; improve snow precipitation and water

forecasting, which affects surface transportation; and improve ocean and wind forecasting, which affects sea-borne transport from the high seas to our coasts and in the Great Lakes. NWS is committed to working with our partners to continue to improve weather information services in support of all modes of transportation.

Goals of NWS Commerce and Transportation Activities

- Increased safety and productivity of transportation systems.
- Increased reliability, frequency, and use of marine, aviation, and surface transportation-related observations.
- Increased accuracy and use of weather and marine forecasts to increase efficiency of all land, water and air transportation systems.

Finally, the NWS supports the NOAA Mission Support Goal to Provide Critical Support for NOAA’s Mission.

**Research and Development Investments**

The NOAA FY 2009 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 incorporates the President’s Management Agenda and the Office of Science and Technology Policy’s Research and Development Investment Criteria (relevance, quality, and performance) for NOAA’s R&D programs, and leads to NOAA budget proposals that reflect the R&D investment criteria.

**Significant Adjustments-to-Base (ATBs):** NOAA requests a net increase of 0 FTE and \$14,536,000 to fund adjustments to current programs for NWS activities. The increase will fund the estimated FY 2009 Federal pay raise of 2.9 percent and annualize the FY 2008 pay raise of 3.5 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).

**Program Transfers:** Below are the recommended transfers for the NOAA National Weather Service (NWS) that result in a net change to NOAA of zero:

From Office	Line	To Office	Line	FTE	Amount
NWS	Cooperative Observer Network Modernization (NERON)	NWS	Local Warnings & Forecasts (MADIS)	0	\$500,000
NWS	Local Warning and Forecasts Base	NWS	Weather Radio Improvement Program	0	\$3,000,000
NWS	U.S. Weather Research Program (USWRP)	OAR	US Weather Research Program (USWRP)	17	\$5,857,000
OAR	US Weather Research Program (USWRP)	NWS	Local Warnings & Forecasts (MADIS)	0	\$500,000
NWS	Local Warnings and Forecasts Base	PS	NOAA Wide Corporate Services	2	\$210,000

**Subactivity: Operations and Research**  
**Line Item: Local Warnings and Forecasts**

**GOAL STATEMENT:**

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

**BASE DESCRIPTION:**

NOAA provides around-the-clock weather and flood warning and forecast services to the general public to protect life and property, and to meet the forecasting needs of all segments of the economy. Weather services are provided primarily by a national network of 122 Weather Forecast Offices (WFOs) and 13 River Forecast Centers (RFCs), assisted by 16 Weather Service Offices (WSOs) and/or Data Collection Offices (DCOs). The provision of services by the National Weather Service (NWS), described in the following pages, depends on the coordination, management, and support provided by NWS' national and regional headquarters. This infrastructure includes such diverse functions as the maintaining and coordinating of the NOAA Weather Radio Network, the logistics of spare parts for all NWS observing systems, testing and evaluation of new observing sensors and systems, and coordinating and funding centralized employee training. Management and support for the NWS is provided by a national headquarters, four regional headquarters offices within the continental United States, plus regional offices for Alaska and the Pacific region, the National Data Buoy Center in Bay St. Louis, MS, and the National Logistics Support Center and National Training Centers, both located in Kansas City, MO.

*Weather Warnings and Forecasts:* NWS forecasters issue local warnings of severe weather such as tornadoes, severe thunderstorms, flash floods, and extreme winter weather at 122 WFOs nationwide. WFOs prepare forecasts for zones, which are comprised of counties or portions of counties that experience similar weather. Each WFO has forecast responsibility for multiple zones. WFOs also provide the main field forecast support for the marine and aviation programs as well as guidance for the fire weather program supporting federal lands management and wildfire control.

Each county in the United States is assigned to a specific WFO for warning purposes. The WFO issues and distributes local warnings of severe weather for its assigned counties. WFOs are the recognized weather, water, and climate experts for their local areas and issue severe weather and flash flood warnings. In preparing local warnings and forecasts, WFOs use forecast guidance prepared by the National Centers for Environmental Prediction (NCEP).

Beginning in FY 2004, NOAA entered the digital forecast arena. This significant step takes NOAA from a product-centered organization to a true environmental information agency. The initial digital capability includes a national digital forecast database that aggregates digital forecasts of temperature, dew point, maximum and minimum temperatures, probability of precipitation, weather type, wind speed and direction, apparent temperature, and relative humidity across the conterminous United States, Puerto Rico/the Virgin Islands, Hawaii, and Guam. The database allows private sector weather providers and weather-sensitive businesses to take the data and create products and services useful to themselves and their customers. In FY 2007 the following forecast elements became operational in the database: sky cover, probabilistic tropical cyclone surface wind speed probabilities, and wind gust. In FY 2008, spatial and temporal resolution in the forecast database will be increased, and new hazardous weather and fire weather forecast elements

will be implemented. In order to provide better and more valuable information to help save lives and property, an additional National Center and derived elements will be introduced to the database in FY 2009.

NWS' Office of Science & Technology (OST) develops techniques for predicting mesoscale phenomena (e.g., heavy precipitation, tornadoes, and severe thunderstorms). These techniques are being developed and improved to use digital data from observing systems, such as NEXRAD (Next Generation Weather Radar), and the latest geostationary satellites. OST develops models to improve hurricane tracking, hurricane probability estimates, and analyses; and storm surge models to assist in developing hurricane evacuation plans for coastal basins. Through these activities, OST works to best exploit and improve the capability of weather data observing and processing systems to meet hydrologic, meteorological, and service requirements.

*Aviation Weather Services:* NWS provides a broad range of services in support of the aviation community. WFOs prepare site-specific airport terminal forecasts four times per day with amendments as needed for over 600 public use airports in the 50 states and U.S. territories around the globe. WFOs also take observations to meet local aviation requirements. The Aviation Weather Center (AWC) and the Alaska Aviation Weather Unit 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. The NWS is currently undertaking a long-term, ten-year initiative to improve its aviation weather services, which began in FY 2003. Since then, the NWS began issuing new turbulence, icing and convective (thunderstorm) forecast products to support commercial and general aviation; acquired aircraft-based water vapor sensors and partnered with airlines to install the sensors and provide the data; developed and fielded new low ceiling and visibility forecast training for NWS meteorologists; and partnered with industry to produce training seminars for pilots. Results have been impressive since 2004, exceeding goal expectations each year through 2006. For example, the False Alarm Rates (FAR) of Low Ceiling and Visibility Forecasts at Airports have improved nationally by 13%.

In FY 2008 through FY 2009, the NWS expects to see continued improvement of aviation forecasts through the implementation of an improved observational sensing strategy where we obtain thousands of daily vertical profiles of moisture from aircraft. In FY 2006 an assessment was performed in Central Region where approximately 50 aircraft provided vertical profiles of moisture data. Where these profiles were available, a significant, 10% improvement in the Probability of Detection of low ceiling and visibility was seen while also improving FAR by 5%. We are continuing in FY 2008 to determine the impact this moisture data has on numerical models.

As in FY 2007, FY 2008 through FY 2009, the NWS will improve the Advanced Weather Interactive Processing System (AWIPS) and the Aviation Forecast Preparatory System (AVNFPS) to enable our meteorologists to begin the development of 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. Key to this effort is working with the FAA's Weather Research and Development program to transition digital forecast products required by aviation users. In addition, higher resolution forecast models and improved guidance tools will be integrated into AVNFPS.



*Marine and Coastal Weather Services:* Management of the Nation's marine, coastal and tropical weather services is led by the Marine and Coastal Weather Services Branch within the Office of Climate, Water, and Weather Services. Products and services such as forecasts, analyses, watches, warnings and advisories of maritime conditions as well as coastal and tropical hazards are provided by forty seven WFOs and three components of the NCEP. Products are issued 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 the NCEP and the Great Lakes Environmental Research Laboratory (GLERL), and analyses of ice from the National Ice Center (NIC), 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.

Efforts in FY 2009 will be 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:* In FY 2009, NOAA's National Weather Service (NWS) will implement and supply digital weather files to complement currently-provided Spot Forecasts. This will enable Fire Behavior Analysts from partnering land management agencies to directly input weather data into their fire weather behavior and fire spread models. NWS will also work toward national implementation of improved gridded fire weather element forecasts to be used as input into more accurate fire danger assessments. NWS will work with NIST, the National Centers for Atmospheric Research, and NOAA's Office of Atmospheric Research to develop a fire spread model which can provide high-resolution forecasts of critical weather-based parameters. These improvements are particularly important near zones where planned communities meet the Wildland forests. In addition, NWS will continue coordination to maintain excellent Interagency relations with the wildland fire community through technology transfer and policy coordination, highlighted by the implementation of a new Interagency Agreement for Meteorological Services. The NWS fire program will also continue to improve software for NOAA Incident Meteorologists, and assure that the proper equipment and personnel are ready to respond to fires and other significant incidents.

*Tsunami Warnings:* Tsunami watches and warnings for all U.S. communities at risk are prepared and issued by the Richard H. Hagemeyer Pacific Tsunami Warning Center (PTWC) at Ewa Beach, Hawaii, and the West Coast/Alaska Tsunami Warning Center (WC/ATWC) at Palmer, Alaska. NWS collects and analyzes observational data from an international network of seismological observatories and sea level observing stations that operate on a cooperative basis. The centers use these data to prepare watches and warnings covering all U.S. territories and states bordering on the Pacific and Atlantic Ocean Basins and disseminate them to WFOs, Federal and state disaster agencies, military organizations, private broadcast media, and other facilities that can furnish warning information to the public.

In FY 2004, NWS assumed operational responsibility for the National Tsunami Hazard Mitigation Program (NTHMP). 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 FY 2005 and FY 2006, in response to the destructive Indian Ocean Tsunami, the U.S. Tsunami Warning Program including the NTHMP was upgraded and expanded (\$17.2M in FY 2005 and \$9.5M in FY 2006) to enhance the monitoring, detection, warning and communications designed to protect lives and property for all U.S. communities at risk. This two-year, \$26.7M investment expanded the existing six Pacific Ocean DART buoy array to a 32 DART buoy array and added a 7-DART Buoy array for the Caribbean/Atlantic Ocean. This new investment also expanded NOAA's National Water Level Observing Network (NWLON) adding 16 new NWLON stations and upgrading 33 existing NWLON sites. Additionally, the PTWC and the WC/ATWC were upgraded to 24/7 operations; and NOAA accelerated required tsunami inundation mapping and modeling for all at-risk U.S. coastal areas and accelerated community-based tsunami hazard mitigation programs and community-based tsunami education and outreach programs (TsunamiReady). In FY 2008 U.S. Tsunami Warning Program will achieve full operating capability and complete deployment of all DART II buoys.

*River & Flood Forecasts and Guidance:* NWS provides river-flow and flood-forecast services using prediction models and databases. Hydrologists and hydrometeorologists develop this forecast information at 13 River Forecast Centers (RFCs); this information is the basis for flash-flood and flood-warning programs implemented at WFOs. These services support emergency management and water resources activities. NWS is improving these services by implementing the Advanced Hydrologic Prediction Service (AHPS). AHPS applies new science, providing more accurate forecasts for river conditions ranging from droughts to floods. AHPS provides more information in a timely and user-friendly manner, which can be posted on the web. AHPS extends existing one- to three-day river forecasts to 14-day and longer outlooks, provides greater information than prior systems and maximizes NOAA resources to deliver more accurate and comprehensive predictions of river height and flood potential. By the end of FY 2007 AHPS will be deployed at 1,993 forecast points in the Midwest, Northeast, Middle Atlantic, Southeast, South, West and Alaska. In FY 2008, the NWS plans, within current funding levels, to continue nationwide implementation of AHPS, with deployment at an additional 308 forecast points in these areas. The FY 2008 budget also supports extramural partnerships to carry out operationally-oriented hydrologic research, deployment of new flash-flood forecasting tools, and introduction of more effective river forecasting models. In FY 2009, these activities will continue, resulting with advanced river-flow and forecast services at 2,617 AHPS forecast locations nationwide, i.e., 65% of the total to be implemented.

*Water Resource Forecasts:* This activity establishes NOAA's capability to provide water resource managers with localized water and soil condition forecasts via a national digital database incorporating assimilation of hydrometeorological data and observations; and a Community Hydrologic Prediction System (CHPS) necessary to advance water prediction science. This will allow NOAA's research and development enterprise and operational service delivery infrastructure to be integrated and leveraged with other federal water agency activities and the private sector to form the backbone of a national water information system. Through this, NOAA will produce a new suite of high-resolution forecasts (including estimates of uncertainty) for streamflow, soil moisture, soil temperature, and many other variables directly related to watershed conditions, via collaboration and sharing of data and algorithms with the university and private sector research groups. Furthermore, these activities enable NOAA to deliver a national database of drought analyses and predictions, and generate user friendly Geographic Information Systems (GIS) products for monitoring drought. This activity contributes to the National Integrated Drought Information System (NIDIS) and NOAA's Coastal Estuary River Information System (CERIS).

The Office of Climate, Weather, & Water Services (OCWWS) provides several centralized guidance and operational support functions to the RFCs. In addition, OCWWS provides hotline support to field users, and provides a focal point for assembling and disseminating real-time hydrologic information.

The Office of Hydrologic Development (OHD) manages the application of hydrological forecasting techniques and provides hydrologic model development for field operations. OHD also develops improved hydrologic and hydrometeorological models and procedures in support of national flood and water resources forecasting programs including: specialized flood and flash flood forecasting procedures using linked hydrological, meteorological, and climatological models/products; improvements to the Ensemble Streamflow Prediction model and its complementary models in the NWS River Forecast System; algorithms to combine NEXRAD precipitation estimates with data from satellites and other ground based observation systems; development of remotely-sensed (airborne and satellite) snow-water equivalent and snow cover data products in near real-time; and integration of hydrologic conditions and forecasts.

*Forecast Coordination:* At each WFO, a Warning and Coordination Meteorologist (WCM) is responsible for the coordination of local forecast and warning information with local emergency management and other state and local officials, both leading up to and during severe weather events. This ensures the most effective dissemination of NWS forecasts and warnings, and adequate public response to weather warnings. The WCMs serve as NOAA's service representatives and work with local partners to ensure they know how best to use NOAA services, and to assess requirements for improved services.

*Dissemination/Communication:* In order to disseminate data, forecasts, watches, and warnings, NWS relies on the following systems: NOAA Weather Wire Service, NOAA Weather Radio network, central radar data collection and distribution, Emergency Management Weather Information Network, NOAA/Geostationary Operational Environmental Satellite (GOES) communications, and Family of Services. The AWIPS Local Data Access and Dissemination (LDAD) capability allows two-way information exchange between WFOs and local users, including emergency management, leading up to and during severe weather events.

*Space Weather Prediction Center:* The Space Weather Prediction (SWPC) 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's 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.

*NOAA Profiler Network (NPN):* The NPN was established as a demonstration network in 1992 containing 35 stations within the Central U.S., Alaska, and New York. The NPN provides high quality wind profiles at 72 vertical levels through 53,000 feet above ground level and low level temperature profiles every 6 minutes. Wind measurements from the demonstration NPN have improved the skill and accuracy of NOAA's weather forecasts and warnings in network areas. The current NPN radars use an experimental transmitter frequency of 404 mega hertz (MHz) issued by the National Telecommunications and Information Administration (NTIA). NTIA has since given the 404 MHz frequency to search and rescue satellites (SARSAT) and granted the NPN permanent use of 449 MHz. To be used operationally, 30 wind profiler transmitters (currently operating at 404 MHz) need to be converted to 449 MHz by the end of the FY 2010 when a new series of European Space Agency GPS satellites (Galileo) will require shut-down of NPN 404 MHz frequency use.

In FY 2004, Congress directed NOAA to perform a Cost and Operational Effectiveness Analysis (COEA) for the NPN. The COEA clearly demonstrated the NPN's benefits to several important NWS missions: severe weather warnings (for tornadoes, flash floods, and winter storms), watches, and short-term forecasts. Based on these findings, NOAA has initiated actions to transition the NPN to operational status in FY 2005 and integrate it into its upper air observing system. In FY 2007, NOAA continued to operate and maintain the current network of wind profilers and is converting the profilers to a different frequency to prevent interference with new GPS satellites. In FY2009 NOAA will continue the frequency conversion effort.

*Air Quality Forecasts:* In FY 2004, NOAA began operational production of air quality forecast guidance with the implementation of NOAA's Air Quality Forecast capability over the northeastern U.S. This capability is an integrated, end-to-end forecast system that provides timely, reliable forecast guidance to accurately predict the onset, severity and duration of poor air quality. Forecast guidance consists of next-day ground-level ozone and smoke predictions, at hourly intervals and 12km grid resolution. Forecast products are available via the NWS Telecommunications Gateway, and NOAA's partner agency, the Environmental Protection Agency (EPA), who provides health-based interpretations of the forecast guidance. NOAA's products meet customer requirements from federal, state and 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. In FY 2010, plans call for developing, testing and operational implementation of ozone forecast guidance nationwide. Development and testing of additional components needed for particulate matter (PM) forecasts is also in progress, aimed at extending the operational capability to include in an initial PM forecast capability in FY 2014. Real-time air chemistry observations will be incorporated into forecast models as needed for extended forecasting improvements.

*The Climate Services Division* at NWS headquarters provides the strategic vision for climate services at NWS and oversees the NWS climate services program. It develops policy and requirements for climate prediction products and other services related to the period of week two out to one year, including seasonal forecasts and threat assessments. The division also sets NWS field policies and procedures for climate prediction products, defines service and mission needs, solicits user feedback to evaluate new products and services, and approves final product design. The Climate Services program maintains strong ties with other countries; across NOAA lines, specifically through the NOAA Climate Office; with federal agencies; the university community; and the private sector, and encourages collaborative arrangements among the Regional Climate Centers, NOAA Regional Integrated Science and Assessments (RISAs), State Climatologists, NWS WFOs, and Regional headquarters to tailor climate forecasts for local users.

**PROPOSED LEGISLATION:**

None.

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## SUMMARIZED FINANCIAL DATA

(Dollars in thousands)

Subactivity: Operations and Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Local Warnings and Forecasts					
Local Warnings and Forecasts Base	564,729	578,421	588,811	601,876	13,065
Coastal Weather Observations	1,451	-	-	-	-
Strengthen US Tsunami Warning Network	18,734	23,173	23,196	23,196	-
Air Quality Forecasting	4,116	5,310	5,315	5,445	130
Alaska Data Buoys	-	1,641	1,643	1,683	40
HI Data Buoys	-	1,249	-	-	-
Sustain Cooperative Observer Network	1,985	1,824	1,826	1,871	45
Susquehanna River Basin Flood System	-	1,784	-	-	-
Urbanet III, MD	-	5,352	-	-	-
New England Weather Technology Initiative	-	188	-	-	-
NOAA Profiler Network	6,357	4,618	4,623	4,736	113
Pacific Island Compact	3,452	3,427	3,431	3,515	84
Space Environment Center	7,142	-	-	-	-
US Weather Research Program	4,931	5,851	-	-	-
Vermont Northeast Weather With Data Integration	-	200	-	-	-
Western Kentucky Environmental Monitoring Network	-	704	-	-	-
Hawaii Rain Gages for NWS Pacific Region HQ, HI	-	322	-	-	-
Hurricane Migration Alliance, FL	-	447	-	-	-
Perdido Pass Navigation Assistance, AL	-	282	-	-	-
Eye-on-the-Sky, VT	-	229	-	-	-
Subtotal: Local Warnings and Forecasts	612,897	635,022	628,845	642,322	13,477
Advanced Hydrological Prediction Services	6,253	5,887	5,893	6,037	144
Aviation Weather	4,653	4,537	4,542	5,253	711
Subtotal: Aviation Weather	4,653	4,537	4,542	5,253	711
WFO Maintenance	7,288	7,134	7,141	7,316	175
Improved Hydro Modeling of Water Resources, ID	-	94	-	-	-

Subactivity: Operations and Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Remote Infrasonic Monitoring of Natural Hazards, MS	-	1,643	-	-	-
Regional Ensembling Sys for Atmospheric Dispersion, MS	-	1,409	-	-	-
Weather Radio Transmitters Base	2,455	2,295	2,297	2,297	-
Vanderburgh County Outdoor Warning Siren System	-	127	-	-	-
Weather Bouy for Nantucket Sound	-	235	-	-	-
Delaware River Enhanced Flood Warning System	-	235	-	-	-
Subtotal: Weather Radio Transmitters	2,455	2,892	2,297	2,297	-
<b>TOTAL</b>	<b>633,546</b>	<b>658,618</b>	<b>648,718</b>	<b>663,225</b>	<b>14,507</b>
FTE	4,130	4,131	4,114	4,114	-

Note: The dollars in this table represent budget authority.



**PROGRAM CHANGES FOR FY 2009:**

**Local Warnings and Forecast (LWF) Base (+0 FTE and +\$13,065,000):** NOAA requests an increase of 0 FTE and \$13,065,000 for a total of \$601,876,000 for LWF.

**Fire Weather Modeling Support: (+0 FTE and +\$600,000):** NOAA requests an increase of 0 FTE and \$600,000 to begin development in concert with NIST, of an advanced fire weather modeling capability. This enhanced fire weather modeling capability will provide high resolution, real-time predictions in the field from an atmospheric prediction model coupled with fire spread model. NOAA will work closely with NIST on the wildland-urban interface fire spread problem, with the US Forest Service, and others to begin development of this capability. Wildland fires are increasing over the US particularly in the western US. At one point in the summer of 2006 there were 53 fires burning simultaneously. To properly support and serve fire fighting, weather prediction needs to be at very fine scale and allow coupling to fire behavior models. Current national scale models, while covering all areas of the US are not at sufficient resolution to provide the high resolution winds, temperature, and humidity forecasts needed.

**Statement of Need**

In their June 2005 Policy Resolution, the Western Governors Association (WGA) cited the increased need for the effective transfer of applied research into operations to address increasing risks associated with Wildland Fire. The resolution also cites that it is critical for fire managers to have timely, accurate and detailed information regarding current and predicted fire weather services. Our heightened vulnerability to extensive, damaging wildfires is due to both the increased biomass available for combustion as a result of effective fire suppression efforts, and to increased community development at the borders of Wildland Forests (called the Wildland-Urban Interface). Catastrophic wildfire is a growing national issue, causing severe economic impacts to communities and state economies each year. Since 2000, the economic damage of wildfires has averaged over \$1B each year, with significant associated human impact due to lost property.

The nation needs to provide better support to fire fighting interests across the US. Centralized and reliable fire weather support is required to provide high resolution fire weather forecasts for tactical and strategic fire fighting efforts including allocation of ground and aviation units on wildfires, and planning information for fire mitigation efforts. This requires forecasts from 0-3 days at resolutions from 4 to 1 km. Supplemental efforts must utilize the national resource to locally downscale these weather forecasts to the scale of the fire (10s of meters). Such downscaling will allow the running of fire behavior models that will predict fire propagation and intensity, allowing fire managers to make the necessary tactical decisions to protect lives and property. Further into the future, researchers and community planners would benefit from fire behavior model output at the scale of physical structures at the wildland-urban interface (model results on scales less than 1km).

With future funding, the results and necessary steps of the proposed effort would be a critical component of a comprehensive fire prediction system, that will enhance observations in and around fires including enhanced ground observations and aviation observations including UAS (unmanned aviation systems), with the communication infrastructure to provide these observations in real time. UAS will provide unprecedented opportunity for fire mapping, sampling the atmosphere in and around the fire. Improved data assimilation systems can enhance both the initialization of fire behavior models and local

scale models and analyses. Also needed are improvements to communications systems to get these observations to the operational modeling center and provide them with computational infrastructure to provide the enhanced and specialized fire weather modeling support.

#### **Proposed Actions – FY 2009**

- Begin development of a downscaled high resolution fire weather model (\$100,000) – NWS/NCEP
- Begin development of a high resolution fire weather data assimilation and analysis system that utilizes RAWS ( \$100,000) – NWS/NCEP and OAR/ESRL/GSD
- Begin development of downscaling algorithms/models to bring forecasts down to scale of the fire (\$150,000) – OAR/ESRL/GSD
- Explore utility of advanced observing systems like UAS (\$50,000) – OAR/ESRL-OD/CU
- With NIST and NCAR, research fire behavior models which can provide experimental information to fire interests (\$150,000) – OAR/ESRL/GSD
- Begin development of display systems to ensure that this information gets to the field (\$50,000) – OAR/ESRL/GSD

#### **FY 2009 Deliverables**

- Establish initial operations capability for 3-km fire weather nest at NWS/NCEP
- Begin development of a high resolution fire weather data assimilation and analysis system that utilizes specialized fire weather measurements
- Begin testing system consisting of downscaled analyses and forecasts based on 3-km weather nest

#### **Benefits**

The nation is facing a crisis with fires increasing in numbers and intensity in areas with rapid growth of habitation. The wildland and wildland-urban interface (WUI) will increasingly be the operative areas for fighting fires. It is clear that enhanced weather prediction, fire behavior prediction, and modeling of fires in the zones of habitation are critical to reduce the danger to human life and property. Such a system will address safety of fire crews, optimal use of resources, fire mitigation efforts, and identification areas of high threat. We estimate that a 60:1 benefit on a \$1M investment by applying fire fighting resources just in time to save a sub-division of 60 homes along the WUI. Even a fraction of an hour savings in lead time can realize this benefit. This system can serve as an information source to current proposals for massive night-time aerial bombardment of fire hotspots by cargo aircraft.

#### **Performance Goal and Measurement Data**

This increase will support the objective: “Advance understanding of climate variability and change ” under the DOC Strategic Goal of ‘Promote environmental stewardship ’. Specifically, this increase supports NOAA’s Weather and Water strategic goal and the performance measure “Local Red Flag Warning POD and Lead Time.”

By FY2012, prepare a coupled fire/weather model for experimental testing that projects the spread of WUI fires. The testing includes practical assessment of implementing a model with:

- Hourly updates
- 1 km spatial resolution
- High-res. vegetative and structural databases
- Impact of fire on weather accounted for, as well as impact of weather on fire

If operationally implemented by FY2013, increased accuracy in fire weather parameter forecasts will include a 7% increase in forecast accuracy of critical fire weather-related parameters (e.g., moisture and winds):

Local Red Flag Warning POD		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	With Increase	91%	91%	91%	91%	93%
	Without Increase	91%	91%	91%	91%	91%
Description: Local Red Flag Warning Probability of Detection (POD) is the percentage of times a local fire event warning was issued but no fire event was reported.						

Local Red Flag Warning Lead Time (in hours)		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	With Increase	9.3	9.3	9.3	9.3	9.6
	Without Increase	9.3	9.3	9.3	9.3	9.3
Description: Local Red Flag Warning Lead Time is the difference between the time the warning is issued and the time of the first report of a fire event in a given local area.						

TAO Tropical Moored Buoy Technology Refresh (+0 FTE and +\$1,100,000): NOAA requests an increase of 0 FTE and \$1,100,000 to replace obsolete components of the Nation’s foremost climate observing system. Total funding required to replace obsolete components for the 55 buoys in this array is \$6.6M. This effort will be accomplished over a six year period beginning in FY 2009.

**Statement of Need**

Many components of TAO are no longer supported by their manufacturers and alternate components must be purchased to continue operation of this array of buoys designed to detect the onset of, and assess the intensity of, El Nino and La Nina. Early detection has substantial positive economic benefits for the global economy because it allows decision-makers to more effectively manage agricultural and water resources, fisheries, and grain and fuel reserves. The U.S. Climate Change Science Program also relies on TAO data to further improve climate models for improved understanding and predictions of global climate. Funds are requested to replace obsolete components of the array with new components commercially available and to upgrade communications to

provide reporting necessary to calibrate and validate the coupled ocean-atmosphere Climate Forecast System. Subsurface sensor arrays used to measure temperature and salinity at up to 11 depths, the topside CPU/data logger and modem, and the compass used to provide earth-referenced coordinates for wind velocity measurements are obsolete and no longer supportable. Continued reliance on these components will result in loss of buoys and data critical to our ability to detect and assess the strength of El Nino and La Nina and to plan for the impacts they create.

The Tropical Moored Buoy network is being extended to all oceans by NOAA's Office of Oceanic and Atmospheric Research in cooperation with international partners. The technology refreshed TAO buoys will eventually be used for the Atlantic and Indian Oceans as well as the Pacific. Without this investment, sustained operations of the arrays will deteriorate and atmosphere and ocean models will be unable to adequately initialize to take into account the global components of ocean temperature and density and atmospheric forcing. Without measurements from these arrays, true understanding of the global heat engine, necessary to begin to understand the actual impacts of human activities on climate change, will be impossible.

### **Proposed Actions**

This funding will enable NWS to replace obsolete components of the TAO array for 9 buoys and 8 spares. (Note: Buoys must be serviced every 6-9 months due to bio-fouling of subsurface sensors. In addition, several are in transit at any given moment hence the high proportionate number of spares.)

- \$578K Subsurface sensor arrays for temperature and salinity observations at up to 11 depths
- \$255K CPU/data logger and modem for more reliable real-time data access
- \$34K Compass to provide earth-referenced coordinates for wind velocity measurements
- \$51K Iridium Communications to provide improved real-time reporting necessary to calibrate the Climate Forecast System
- \$63K Sensor interfaces
- \$119K Enclosures/connectors

### **Benefits**

Without funding for replacement and refresh of obsolete components, the Nation and the world will lose the ability for early detection of El Nino and La Nina events so that it can take action to mitigate the economic, ecological, and human impact of these events. Better predictions of the potential for extreme climate episodes like floods and droughts could save the United States billions of dollars in damage costs. Predicting the life cycle and strength of a Pacific warm or cold episode is critical in helping water, energy and transportation managers, and farmers plan for, avoid, or mitigate potential losses. Advances in improved climate predictions will also result in significantly enhanced economic opportunities, particularly for the national agriculture, fishing, forestry and energy sectors, as well as social benefits. Without this adjustment, the capability to detect La Nina and El Nino will rapidly decline as buoys become unrepairable due to unavailability of replacements for failed components. By FY 2009, data will become too sparse to reliably predict the onset of these events.

### **Performance Goals & Measurement Data:**

- Array has 55 sites with 16 sensors at each site reporting daily; obsolescence will cause loss of 10% of the buoys a year.
- Adjustment has 55 Refreshed sites with 16 sensors at each site reporting hourly.

Performance Goal: <i>Weather and Water</i>	FY05	FY06	FY07	FY08 Refresh	FY09 Refresh	FY10 Refresh	FY11 Refresh	FY12 Refresh	FY13 Refresh	FY14 Refresh
Observational Availability <i>with</i> adjustment	90%	88%	84%	86%	87%	88%	89%	90%	91%	91%
Observational Availability <i>without</i> adjustment	90%	89%	84%	77%	69%	62%	55%	48%	35%	35%
Number of Sites Operating Performance Measure <i>with</i> adjustment	55	55	55	55	55	55	55	55	55	55
Number of Sites Operating Performance Measure <i>without</i> adjustment	55	55	55	45	40	35	30	25	20	20
Observations per day from Array Performance Measure <i>with</i> Adjustment	880	880	880	880	7,504*	10,816*	14,128*	17,440*	21,120*	21,120*
Observations per day from array Performance Measure <i>without</i> Adjustment	880	880	880	880	720	640	560	480	400	400

\* Increased observations necessary to calibrate and validate the coupled ocean-atmosphere Climate Forecast system will become available as buoys are deployed with improved communications capability.

Florida/Caribbean Hurricane Data Buoy (Operation and Maintenance) (+0 FTE and +\$3,000,000): NOAA requests an increase of 0 FTE and \$3,000,000 for a total of \$4,400,000 to operate and maintain 15 weather data buoys (eight buoys funded under the FY 2006 Hurricane Supplemental Appropriation and seven funded in by the FY 2005 Hurricane Supplemental Appropriation) for enhanced real time hurricane data observations and storm monitoring in the Caribbean, Gulf of Mexico, and the Atlantic Ocean to support the NOAA hurricane warning and forecast mission.

#### **Statement of Need**

The eight newly installed Hurricane Supplemental data buoys require annual maintenance and shore-side operating/infrastructure support to maintain reliable data output. Without funding for continued operation and maintenance, the National Data Buoy Center (NDBC) will be unable to maintain this supplemental Hurricane Observational data buoy network. Real time data from these stations will assist the Tropical Prediction Center /National Hurricane Center (TPC/NHC) to more accurately determine hurricane formation or dissipation; the extent of tropical hurricane wind circulation; the location and center of hurricanes; direction, height, and distribution of ocean waves generated by hurricanes; the maximum hurricane intensity; and the quality of measurements and estimates obtained from remote-sensing reconnaissance aircraft and satellites.

The eight new Hurricane Supplemental data buoys consist of four 6-meter, and four 12-meter buoys. The seven FY 2005 Hurricane Supplemental data buoys consist of one 3-meter, two 6-meter, two 10-meter, and two 12-meter buoys. These buoys require increased ship-time for scheduled service due to their large distance from the U.S., are an average of four days of ship time apart, and require a ship with substantial lift capability (especially for the 12-meter buoys). The hired buoy tender vessel will provide scheduled maintenance to all buoys in one continuous trip to minimize ship cost (\$25K per day). In addition, failures during hurricane season must be repaired as soon as possible, requiring a dedicated service trip to the failed buoy.

### Proposed Actions

FY2009 (For all 15 Buoys):

- \$1,100K Provide field service and maintenance
- \$2,110K Ship Cost
- \$540K Provide shore-side operation/infrastructure support
- \$650K Provide and maintain spare equipment/buoy to support field maintenance strategy

### Benefits

Real time data from these strategically sited data buoy stations will assist the Tropical Prediction Center / National Hurricane Center (TPC/NHC) to more accurately determine hurricane formation or dissipation; the extent of hurricane wind circulation; the location and center of hurricanes; direction, height, and distribution of ocean waves generated by hurricanes; the maximum hurricane intensity; and the quality of measurements and estimates obtained from remote-sensing reconnaissance aircraft and satellites. Proper maintenance and continued operation of the supplemental buoy network, the resulting data, and its contribution to the forecast and warning process are key components helping NOAA meet its national and international analysis and forecast responsibilities aiding the public and government in making preparation and evacuation decisions regarding tropical hurricanes.

### Performance Goals & Measurement Data

O&M funding for the buoys will continue the real time data stream. The Hurricane Buoys will produce over 120K observations per year. Without the maintenance funding the data stream will decay.

Performance Goal: <i>Weather and Water</i>	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Number of Observations/year <i>with</i> Adjustment	>55K	>55K	>121K	>121K	>121K	>121K	>121K	>121K
Number of Observations/year <i>without</i> Adjustment	>55K	>55K	>55K	>55K	>55K	>55K	>55K	>55K

- Currently it is not possible to quantify the incremental improvement for the hurricane program that can be credited to the supplemental buoys. The new buoys are expected to allow the TPC/NHC to determine more accurately hurricane formation and dissipation, extent of wind field (radii of 34, 50 and 64 knot winds), center location, maximum intensity and ocean wave characteristics. Such improvements to analyses should translate into more accurate short-term forecasts of these quantities in TPC/NHC products. To establish metrics for the buoys, TPC/NHC will review its Tropical Cyclone Discussion, Tropical Weather Outlook, and other products (as necessary) to document the frequency and magnitude (where known) of changes to TPC/NHC analyses and/or forecasts of the above meteorological and oceanographic measures.
- Because tropical hurricanes are relatively rare events at any single location, TPC/NHC anticipates that a period of two or three years of storms and storm observations will be necessary to generate information about the contribution of the buoys.

Ocean Sensor Operation and Maintenance (+0 FTE and +\$1,350,000): NOAA requests an increase of 0 FTE and \$1,350,000 for ongoing operation and maintenance of the Congressionally mandated ocean instrumentation which was funded and installed by National Ocean Service “Convert Weather Buoys Initiative.” These sensors augment fixed and buoy observational sites. In keeping with NOAA's commitment of increased interoperability and cost effective approach to oceanographic observing, the NOS Convert Weather Buoy project augments existing National Weather Service buoys with oceanographic sensors. This national network of weather observing buoys has been augmented with oceans sensors to measure directional waves and wave heights, and ocean current, temperature, and salinity profiles.

### **Statement of Need**

Congress has provided NOS over \$12,000,000 to add oceanographic sensors to the existing NWS marine observational backbone. However, ongoing operations and maintenance funding has not been provided for long-term support of the systems. In FY 2009, 98 sites along the U.S. coastline will be outfitted with oceanographic sensors. Without operations and maintenance funding, this equipment will be unsupportable and the \$12,000,000 investment will become inoperable. Buoys require annual maintenance and shore-side operating/infrastructure support to maintain reliable data output. Buoys outfitted with weather sensors generally only require an at-sea replacement once every three years. However, subsurface oceanographic sensors require an at-sea maintenance visit every nine months. Thus the cost of ship time alone is four times greater.

### **Proposed Actions**

FY2009:

- \$1,000K Provide field service and maintenance (includes ship support)
- \$50K Provide shore-side operation/infrastructure support
- \$300K Provide and maintain spare equipment/buoy to support field maintenance strategy

### Benefits

By converting weather buoys to dual purpose buoys, NOAA obtains oceanographic data in an exceptionally cost effective manner. These real time ocean observations are used by weather forecaster in both the government and private sector, coastal managers, recreation and commercial fishing industry, search and rescue, and hazard spill mitigation just to mention a few. These data are also re-used by Industry to generate value-added products for the private sector. Continued operation of these sensors meets the international priorities of the Integrated Ocean Observing System (IOOS) and the recommendations of the U.S. Commission on Ocean Policy.

### Performance Goals & Measurement Data

O&M funding for the buoys will continue the real time data stream.

Performance Goal: <i>Weather and Water</i>	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Number of Ocean Observations/year <i>with</i> Adjustment	>300K	>300K	>900K	>900K	>900K	>900K	>900K	>900K
Number of Ocean Observations/year <i>without</i> Adjustment	0	0	>300K	0	0	0	0	0

### Ongoing Operations and Maintenance for Systems/Equipment Purchased to Meet Requirements of Hurricane Supplemental (0 FTE and + \$1,230,000):

NOAA requests an increase of 0 FTE and \$1,230,000 to pay ongoing operations and maintenance costs for Incident Meteorologist equipment, software support, and communications, ASOS and NWR backup power units, and backup communications for coastal Weather Forecast Offices and Next Generation Weather Radars.

### Statement of Need

The FY 2006 Hurricane Supplemental provided funding to: (1) equip five coastal Weather Forecast Offices (WFOs) with all-hazards support capability for incident meteorologists deployed to provide on-site tactical forecasting in times of disaster; (2) equip 150 hurricane-prone Automated Surface Observing System (ASOS) sites and (3) 126 NOAA Weather Radio (NWR) All Hazards transmitters located in hurricane-prone areas with backup power capability so that they can continue to provide critical weather observations and life-saving emergency broadcasts during times of disaster when commercial power is disrupted; and (4) backup satellite communications at 25 coastal WFOs and 10 NEXRAD sites to provide transmission of forecasts, watches, warnings, and radar products during times of disaster when land-line communications have been disrupted. All of these systems and capabilities require ongoing funding to continue to be operated and maintained. Ongoing operations and maintenance funding is necessary to ensure the capital investments made as a result of the Hurricane Supplemental continue to provide the live-saving services they were intended to support.



**Proposed Actions**

All systems, equipment, and communications provided by the Hurricane Supplemental will be deployed by FY 2008. FY 2008 operations and maintenance activities include:

- Maintaining and keeping the portable systems and communications used by incident meteorologists secure and up-to-date.
- Maintaining 150 emergency backup systems for ASOS, including providing fuel for diesel generators used for back up power.
- Maintaining 126 emergency backup systems for NWR All-Hazards, including providing fuel for diesel generators used for back up power.
- Continuing lease and maintenance of on-site satellite communications equipment at 25 coastal WFOs and 10 Next Generation Weather Radar sites as well as lease of satellite bandwidth.

**FY 2009 Deliverables**

- Lease IMET communications, maintain IMET equipment, provide tech refresh of IMET equipment (\$250,000)
- Maintenance/diesel fuel for 150 ASOS emergency backup power systems (\$230,000)
- Maintenance/diesel fuel for 126 NWR emergency backup power systems (\$150,000)
- Lease of satellite communications for 25 coastal WFOs and 10 coastal NEXRADs (\$600,000)

**Benefits**

Equipment for Incident Meteorologists facilitates rapid deployment of tactical meteorology capabilities to sites of hurricanes as well as to other disaster sites. Uninterrupted data from coastal ASOS's will provide forecasters with reliable real-time observations during any type of severe weather event, including hurricanes. These observations will prevent degradation of short-term forecast quality during times when accuracy counts most. In addition, uninterrupted ASOS observations will maintain the quality of surface analyses at the National Centers for Environmental Prediction, improve the integrity of the climate record, particularly in recording extreme events, and aid research and understanding of tropical cyclone events. Sustained recording of high winds during severe weather events will provide information to improve building codes, thereby mitigating loss of life and property. Emergency backup power for NWR all hazards will increase reliability of broadcasts of severe weather information, leading to lives and property saved. It will also ensure broadcast of critical information during homeland security events.

**Performance Goals & Measurement Data**

This increase will 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." It links directly to the Weather and Water Mission Goal Outcome: "better, quicker, and more valuable weather and water information to support improved decisions" and to the Weather and Water Performance Objective "improve predictability of the onset, duration, and impact of hazardous and severe weather and water events."

Providing on-site meteorological support at disaster sites assures decision makers have direct access to critical information on a continuous basis.

Reducing ASOS data loss during and after land falling tropical cyclones supports the following Government Performance Results Act (GPRA) measures:

- Aviation Forecasting: Probability of Detection (POD) and False Alarm Rate (FAR) of Instrument Flight Rule conditions. ASOS data are the cornerstone of NOAA's aviation verification program. Forecasters can obtain individual scores and assess their strengths and weaknesses during and after extreme events-overall improving aviation POD and FARs. Software that helps create first-guess TAFs and uses conditional climatology relies on ASOS observations. The ASOS observations remain the key driver in formulating these outputs.
- Hurricane Forecasting: Hurricane Track Forecast. NOAA is working to improve the prediction of tropical cyclone forecast tracks and intensity. This depends on an optimal analysis of all field observations, to include those from ASOS, to enhance the understanding of the interactions between a tropical cyclone and its environment.
- Marine Forecasting: Wind Speed and Wave Height for Coastal Waters. ASOS wind speed observations at coastal sites are used to develop wind speed and wave height forecasts for the coastal waters, and storm surge information for all coastal interests from tropical and extra tropical cyclones.
- Flash Flood Warnings. ASOS precipitation data are key input/criteria for issuing flash flood warnings.

The impact of reducing NWR All Hazards transmitter loss on property and lives saved during severe weather events such as Katrina and Rita is difficult to measure. However, five transmitters went down during Katrina and Rita, leaving tens of thousands of people without NWR All Hazards broadcast of information regarding the hurricanes and without warnings of the tornados and floods that followed landfall. One site could not be restored until March when NWS installed an emergency power generator because commercial power still was not available at that site.

During Katrina four Weather Forecast Offices/River Forecast Centers were left without AWIPS landline communications to disseminate forecasts and warnings. The satellite communications backup for 25 coastal WFOs and 10 Next Generation Weather Radar sites has an availability of .9996 over a 12-month period.

In summary, funds to pay ongoing operations and maintenance costs for backup power and communications at NWS sites will mitigate the following losses experienced during Rita and Katrina: Loss of landline communications at four field offices and loss of five Automated Surface Observing sites and five NWR All Hazards transmitters.

Local Warnings and Forecast (LWF) Base (+0 FTE and +\$5,785,000): NOAA requests an increase of 0 FTE and \$5,785,000 to restore projects requested in the FY2008 President's Budget but were not funded by the FY 2008 Omnibus appropriations bill. LWF is the backbone of the NWS service delivery and funds the majority of the NWS FTE compliment (4,088 funded via LWF). Specifically, LWF funds 122 Weather Forecast Offices (WFOs) which operate 24/7, 13 River Forecast Centers (RFCs), 19 Weather Service Offices (WSOs), 9 National Centers, two Data Collection Offices (DCOs), 2 Tsunami Warning Centers. Restoration of this \$5,785,000 will allow the NWS to operate and maintain the above field structure with no degradation to operational services. In FY2008, NWS mitigated this funding shortfall via a limited one-time increase in NWS labor lapse rates. This increased lapse rate cannot be sustained into FY2009 without impacting service delivery.

**Aviation Weather (+0 FTE and +\$711,000):** NOAA requests an increase of 0 FTE of \$711,000 for a total of \$5,253,000 to expand this multi-year effort to improve aviation weather services. Of this request \$111,000 restores funding to complete projects in the FY 2008 Presidents Budget but was not able to be completed in the FY 2008 Omnibus language. The remaining balance of this requested increase (\$600,000) supports the procurement and fielding of 30 additional water vapor sensors as part of an Integrated Upper Air Observing system.

### **Statement of Need**

Today, the Air Transportation industry generates 5.4 percent of America's Gross Domestic Product, \$640 billion in revenues and over 11 million jobs. Yet this economic engine feels significant impacts from severe weather events every day. Weather accounts for 70% of all air traffic delays within the U.S. National Airspace System (NAS), resulting in an annual \$10B loss to the U.S. economy. The Federal Aviation Administration (FAA) has determined \$4B of this is preventable with better weather information. The NAS currently handles 750 million passengers per year, with that number expected to grow to 1 billion by 2015. Within the next 20 years, the Joint Planning and Development Office (JPDO) estimates the demand for air traffic will nearly triple, but without systematic improvements, including increases in the consistency, timeliness, and accuracy of weather information, the NAS will be stuck at a fixed capacity by 2015. In order to facilitate the increase in capacity required to support this level of demand, the Next Generation Air Transportation System (NextGen) was created by the 2003 Vision 100 legislation. Improvements to weather information are a critical part of this initiative. NOAA supports NextGen through both the development of improved observation and forecast information and through advanced data management techniques to house and disseminate this information. The Aviation Weather Program has begun the initial planning for the development of an authoritative, digital 4-Dimensional (4D) database of aviation weather information, termed NexGen Network-Enabled Weather (NNEW), to support the integration of weather information into Air Traffic Management (ATM) decisions. This 4D Database will be the source of NextGen weather information formed with a human-in-loop from the merger of model gridded products, climatology, and observations which currently does not exist. To ensure consistency and continuity, weather information is collected, fused, managed as a single authoritative source, and distributed via NNEW.

Accurate and frequent measurements of atmospheric moisture distribution, both vertically and horizontally, are critical for improved short-term forecasts of thunderstorms, icing, fog and low clouds that are essential to the NextGen initiative. Currently water vapor measurements are primarily taken by weather balloon mounted sensors, launched twice daily from approximately 100 sites nationwide. In 2006, NOAA began the process to acquire a network of aircraft based water vapor sensors that will allow observations from aircraft to serve as complete atmospheric profiles. The potential exists to replace many of the rawinsonde soundings with aircraft based water vapor soundings conducted as aircraft arrive and depart into nearby airports. These soundings have been shown to have error rates comparable to those of rawinsondes, but have the advantage of significantly higher frequency and lower cost than the twice daily balloon launches. The requested increase represents the planned growth of this acquisition, allowing for an additional 30 sensors to be purchased over FY 2008.

**FY 2009 Deliverables (shown here in terms of total program funding)**

- **New Observations (Data) (\$3.2M)**
  - Aircraft-based Water Vapor Sensors (\$3.2M) - Procure, install and operate 160 aircraft based water vapor data systems. This capability will provide Numerical Weather Prediction Models and forecasters with approximately 850 additional vertical moisture soundings per day. These soundings will allow for the reduction of rawinsonde launches at an additional 8 sites with an annual savings of at least \$500K in expendable costs alone.
- **Conduct the Aviation Weather Program in a Digital Environment (\$0.5M)**
  - Meteorologist In The Loop (MITL) with FAA AWRP Automated Products (\$0.5M) - NWS will expand the Interactive Calibration in 4 Dimensions Project from the test bed in Alaska Region to the CONUS and begin expansion to include Pacific Region. This software is an extension of the Graphical Forecast Editor that allows Meteorologists to manipulate the gridded output of Aviation Weather Research Program (AWRP) products as part of the forecast process. Project will also be enhanced and expanded to encompass model derived wind fields and convective activity grids.
- **Products (\$0.9M)**
  - Aviation Digital Data Service (ADDS) Transition (\$0.2M) - NWS provides funding to transition aviation products developed by the FAA's Aviation Weather Research Program (AWRP) to operational status at the Aviation Weather Center.
  - Improved Terminal Area Forecast (TAF) Preparation and Forecast Tools (\$0.3M) - NWS will continue development and improvement of TAF monitoring system(s), automated TAF forecast products, and improve TAF specific forecast model guidance. This will improve terminal-specific forecasts of winds, convection, weather and low ceiling and visibilities.
  - Volcanic Ash Collaboration Tool (VACT) (\$0.2M) - NWS and NOAA Research will implement VACT software at Volcanic Ash Advisory Centers (VAAC). This product will provide common situation awareness and real-time collaboration with other VAACs, customers, and partners for consistent advisories and forecasts for volcanic ash.
  - Graphical Aviation Forecast (\$0.2M) - Legacy aviation forecast products are largely text based with poor spatial and temporal resolution inadequate for the needs of aviation customers. NWS is developing the capability to electronically prepare and disseminate higher frequency, higher resolution graphical forecasts of aviation weather parameters.

- **Training (\$0.3M)**
  - Distance Learning Aviation Training (\$0.3M) - NWS develops and fields online courses to enhance the training of NWS aviation forecasters. Planned efforts in the FY09 timeframe will focus on the forecasting of convective activity hazardous to aviation
- **Verify Aviation Products (\$0.3M)**
  - Domestic TAF Verification (\$0.3M) - NWS and NOAA Research will partner to enhance the Real-Time Verification System (RTVS) for aviation products and will work with the FAA to develop new relevant metrics to determine weather effectiveness of the NAS.

### **Benefits**

The purchase of water vapor sensors will result in improved forecast accuracy of moisture, convection, icing, low ceiling and visibility, all of which could show increases of accuracy on the order of 10%. This improvement has wide reaching impacts on many of NOAA's forecast capabilities inside and outside of aviation. These soundings are 100 times more cost effective than today's balloon technology. Not procuring and installing these 30 sensors will have a cascading impact to the modernization of the nation's Integrated Earth Observing System (IEOS) impacting NOAA's ability to improve hydrologic, climate, and severe weather forecast accuracy. Assured deployment of these sensors is necessary to control the cost of operations for observing atmospheric moisture distribution as delaying acquisition will increase the cost of operations by up to \$5.6M annually through continued reliance on 1950's era technology

### **Performance Goals & Measurement Data**

The FAA requirement for aviation forecasts is to have an 80% probability of detection (POD) and a 20% false alarm rate (FAR). The goal is to improve the 0-6 hour forecast accuracy by 50% in the next 10 years. This goal will be nearly impossible without more accurate and frequent measurements of atmospheric moisture. This observational information and the increased accuracy of NWS Numerical Weather Prediction are requirements of the NextGen Weather Vision. Offset savings from realized efficiencies in rawinsonde launches are planned to be applied to the 4D Database development.

There is significant development underway to create more relevant aviation weather metrics. A joint FAA/NWS development effort to produce a Weather Impacted Traffic Index became operational in FY07.

This increase will support the objective "Support safe, efficient, and environmentally sound commercial navigation" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, the increase supports the NOAA Commerce and Transportation Performance Goal and GPRA measure, "Total Ceiling and Visibility."

Total Ceiling and Visibility; POD (Accuracy)		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	With Increase	64%	66%	67%	68%	69%
	Without Increase	64%	65%	66%	67%	68%

Total Ceiling and Visibility; False Alarm Ratio (FAR)		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	With Increase	43%	41%	40%	39%	38%
	Without Increase	43%	42%	41%	40%	39%

Total Ceiling and Visibility; Lead Time (Minutes)**		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	With Increase	120	120	140	140	150
	Without Increase	90	90	100	100	110

\* Post implementation of developments and improvement projects some lag time is anticipated to prior to realization of quantified benefits in following fiscal years.

\*\* Lead time performance measure is slated to begin reporting in FY09. This measure is intended to replace the current GPRA measures of ceiling and visibility POD and FAR.

**Advanced Hydrological Prediction Services (+0 FTE and +\$144,000):** NOAA requests an increase of 0 FTE and \$144,000 for a total of \$6,037,000 for AHPS. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Weather Forecast Office (WFO) Maintenance (+0 FTE and +\$175,000):** NOAA requests an increase of 0 FTE and \$175,000 for a total of \$7,316,000 for WFO Maintenance. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Air Quality Forecasting (+0 FTE and \$130,000):** NOAA requests an increase of 0 FTE and \$130,000 for a total of \$5,445,000 for Air Quality Forecasting. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Alaska Data Buoys (+0 FTE and \$40,000):** NOAA requests an increase of 0 FTE and \$40,000 for a total of \$1,683,000 for Alaska Data Buoys. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Sustain Cooperative Observer Network (+0 FTE and \$45,000):** NOAA requests an increase of 0 FTE and \$45,000 for a total of \$1,871,000 for Sustain Cooperative Observer Network. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**NOAA Profiler (+0 FTE and \$113,000):** NOAA requests an increase of 0 FTE and \$113,000 for a total of \$4,736,000 for NOAA Profiler. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Pacific Island Compact (+0 FTE and \$84,000):** NOAA requests an increase of 0 FTE and \$84,000 for a total of \$3,515,000 for and Pacific Island Compact. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Hawaii Data Buoys (\$1,249,000); Sesquehanna River Basin Flood System (\$1,784,000); Urbanet III, MD (\$5,352,000); New England Weather Technology Initiative (\$188,000); Vermont NE Weather & Wind Data Integration (\$200,000); Western Kentucky Environmental Monitoring Network (\$704,000); Hawaii Rain Gages for NWS Pacific Region HG, HI (\$322,000); Hurricane Mitigation Alliance, FL (\$447,000); Perdido Pass Navigation Assistance, AL (\$282,000); Eye-on-The-Sky, VT (\$229,000); Improved Hydro Modeling of Water Resources, ID (\$94,000); Remote Infrasonic Monitoring of Natural Hazards, MS (\$1,643,000); Regional Ensembling System for Atmospheric Dispersion, MS (\$1,409,000); Vanderburgh County Outdoor Warning Siren System (\$127,000); Weather Buoy for Nantucket Sound (\$235,000); Delaware River Enhanced Flood Warning System (\$235,000).

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**Subactivity: Operations and Research**  
**Line Item: Central Forecast Guidance**

**GOAL STATEMENT:**

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

**BASE DESCRIPTION:**

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 National Centers for Environmental Prediction (NCEP) forecasters. The results are forwarded to local Weather Forecast Office (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 they be generated centrally.

The NCEP consists of seven 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 service center depends on the observational infrastructure, the data assimilation systems, the numeric modeling function, and the application of model output statistics to produce value-added forecast guidance products for NWS field offices and direct users.

*Storm Prediction Center:* The Storm Prediction Center (SPC), 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.

*Hydrometeorological Prediction Center:* The Hydrometeorological Prediction Center (HPC), 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.

*Ocean Prediction Center:* The Ocean Prediction Center (OPC), located in Camp Springs, Maryland, discharges U.S. international meteorological obligations to marine interests under the International Convention for Safety of Life at Sea, to which the U.S. is a signatory. It provides one-stop-shopping for marine interests operating outside the domain of coastal WFOs. The OPC provides weather and sea state warnings and forecasts for the high seas of the Northern Hemisphere for planning and operational purposes. Its warnings and products go directly to ships at sea, and are vital for the protection of life and property. The OPC also provides guidance forecasts for WFOs with coastal responsibilities, which extend out to about 100 nautical miles. Coastal WFOs have responsibility for local forecasts and warnings out to that limit; for the high seas beyond, the responsibility has been centralized in the HPC.

*Tropical Prediction Center/National Hurricane Center:* The NCEP experts in the area of tropical meteorology are concentrated at the Tropical Prediction Center (TPC)/National Hurricane Center (NHC) in Miami, Florida. 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.

*Aviation Weather Center:* The Aviation Weather Center (AWC), 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.

*Climate Prediction Center:* The Climate Prediction Center (CPC), 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 two critical support organizations to facilitate the central forecast guidance process:

*NCEP Central Operations:* The Central Operations (NCO) of NCEP 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. The NCO is the technical transition point between the development of numerical weather and climate prediction models and their operational use by forecasters at the NCEP and WFOs. The NCO staff also provides central support for software development for data processing, display, interaction, and product generation. The NCO consists of computing, communications, and software specialists, as well as meteorologists with special knowledge of numerical modeling operations.

*Environmental Modeling Center:* NCEP's Environmental Modeling Center (EMC) 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 the NCEP and 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. Model impact studies are conducted by the EMC to validate data sets that lead to new data requirements from observing technologies (satellites, radar, etc.).

Base activities support the objective, "Provide accurate and timely weather and water information " under the Department of Commerce strategic goal of "Promote environmental stewardship ."

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Operations and Research	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Central Forecast Guidance					
Central Forecast Guidance	45,075	51,923	52,980	57,253	4,273
National Hurricane Center	5,721	-	-	-	-
<b>TOTAL</b>	<b>50,796</b>	<b>51,923</b>	<b>52,980</b>	<b>57,253</b>	<b>4,273</b>
FTE	306	306	306	306	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Accelerate Hurricane Forecasting System Improvements (+0 FTE and +\$4,273,000):** NOAA requests an increase of 0 FTE and \$4,273,000 for a total of \$57,253,000 to sustain the Administration's commitment to significantly accelerate the improvement in hurricane track and intensity forecasts. This increase funding at \$1,040,000 for recurring Hurricane WRF operations and maintenance; \$233,000 to increase support to applied research and development, and \$3,000,000 to increase the research and development necessary to accelerate the improvement in the NOAA Hurricane Forecast System (NHFS), transition and test new capabilities in operations, and operate and maintain the expanded NHFS (including coupled global, hurricane, ocean, wave, and storm surge models). NOAA's overall strategy to improve hurricane forecasts and warnings includes improving the observations, accelerating and transitioning the necessary research and development into operations, and improving the models based upon that research to provide operational model guidance to the National Hurricane Center for their use in providing operational forecasts and warnings. This initiative addresses the model development and transition necessary for accelerating improvement in hurricane intensity and track forecasts.

**Statement of Need**

The active 2004/2005 hurricane seasons, projected future increased hurricane activity and a continuing growing population along our Nation's coastline (50% of the U.S. population lives within fifty miles of the coast) have created an urgency and national focus to improve hurricane forecasts and warnings. In 2005 Hurricane Katrina was the costliest and one of the deadliest hurricanes in the history of the U.S. with over 1,800 deaths and \$80 billion in damages (insured losses placed at \$40.6 billion). Only a couple of weeks later, the Gulf of Mexico area was impacted by another storm, Hurricane Rita, which resulted in the largest two day evacuation in U.S. history. A significant amount of the Texas coastline and the city of Houston was evacuated unnecessarily as the storm track changed 24 – 36 hours prior to landfall. The estimated impact of the evacuation was \$2.3 billion. Improving the accuracy of these warnings will save millions of dollars to the U.S. economy and significant disruption in the lives of Americans affected while still ensuring evacuation are issued when required in a timely way (up to 5 days in advance). For example an improvement of 10% or approximately 12 nm would have reduced the number of people evacuated by nearly 160,000 and saved the economy close to \$70 million dollars. The scientific community is reaching a consensus that our understanding of the hurricane and the oceanic and atmospheric environment reached through basic research has reached a level that a concerted applied research and development technology program, along with the necessary computing, will allow us to meet the needs of the NHC and emergency management community decades sooner than would be otherwise possible.

Recent scientific reports, including NOAA's Science Advisory Board Hurricane Intensity Research Working Group Report and the public are demanding large performance leaps in hurricane prediction efforts. Forecasts and warnings issued by the National Hurricane Center in large part are based upon the outputs of the numerical forecast models of the environment and hurricane itself. Recent scientific evidence supports the need to run very high resolution models (down to 1km) of the hurricane within a larger modeling system for the environment for the hurricane (atmosphere, ocean, waves, and air-sea boundary) to adequately model the intensification lifecycle, and the uncertainty, of a hurricane approaching landfall along the US coastline. Current computing resources only allow the running of the hurricane model at 9km with no ensembles. The development and use of an ensemble forecast system is required to bound and quantify the estimate of the uncertainty in the forecast. At current levels of investment, it will take three decades or more before sufficient computing is available to run operationally the higher resolution models while still meeting all other high priority model guidance products.

Combined with other investments in the research community (hurricane research and WRF Development Test Center), we can reduce the time in half to run models at the scientifically required resolution.

At present, the NHC issues forecasts and warning based upon best available information – primarily model and observationally based. The current state of the science allows the research and development of the technology, and along with it implementation and application through additional high performance computing to accelerate by a decade or more the provision of model-based guidance to the NHC and emergency management community to provide adequate warnings up to 5 days in advance.

### **Proposed Actions**

In FY 2009, the total funding of \$4,273,000 will be used to:

- Provide continued operations and maintenance support for the NOAA Hurricane Forecast System (\$1,040K)
- Increase the research and development necessary to accelerate the improvement in the NOAA Hurricane Forecast System (NHFS), transition and test new capabilities in operations, and operate and maintain the expanded NHFS (\$3,233K)

### **FY 2009 Deliverables**

- Q1 FY2009 – Provide Operations and Maintenance for Hurricane Forecast System (on-going)
- Q4 FY2009 – Accelerate Research to Operations at Joint Hurricane Test bed
- Q2 FY2010 – Implement Revised Computing Strategy and NOAA Hurricane Forecast System (NHFS) Upgrade
- Q2 Annually – Implement Hurricane Forecast System Upgrades

### **Benefits**

Unnecessary evacuations of the US coast line causes significant disruption to the economy and the potential loss of direct loss of billions of dollars in unnecessary costs incurred for a single storm. The lack of an inadequate warning could lead to significant loss of life and preventable economic loss. Significantly improved forecasts of hurricane track and intensity out to 5 days and beyond would greatly improve the risk-based decision making necessary for the protection of life and property along the US coast line from severe hurricanes and tropical storms. Significantly improving the accuracy and *reliability* of the forecast will greatly reduce the costs and disruptions of due to emergency response while preserving and enhancing the ability to respond with precision and focus when necessary for an approaching storm.

A case study of Hurricane Rita demonstrates the economic benefits derived from improved forecasting. Typically, a household decision to evacuate is based on the issuance of a hurricane warning and the anticipated storm strength. On early morning of September 22, 2005, a hurricane warning was issued from Port Mansfield, Texas to Cameron, Louisiana. At that time, Hurricane Rita was a Category 4 storm having just been downgraded from a Category 5. Under this scenario, the estimated economic impact of the evacuation was \$2.344 billion. Without the initiative, NWS expects a reduction of forecast track and wind speed errors by 10% resulting in 159,000 people remaining home and saving the economy \$68.9 million dollars. With the initiative however,



NWS could improve forecast track and wind speed errors by 50% and 30% respectively, resulting in 4 million remaining home and saving the economy \$1.99 billion dollars. This includes 100 that would have been saved during the evacuation of Houston.

1. “Cost of Hurricane Evacuation” by Kevin Smith, University of Eastern Carolina, 1999; “Opportunity Costs of Hurricane Evacuation” by John Whitehead, University of Eastern Carolina, 1999; and “Structure of a Hurricane Evacuation” by Mike Lindell, Texas A&M University, 2005.
2. Based on 2002 Current Population Estimate and 2002 County Business Patterns from the Bureau of the Census. Probability of Evacuation and average cost from “Cost of Hurricane Evacuation” by Kevin Smith, University of Eastern Carolina, 1999. The average household will spend \$149 during an evacuation and the average business will lose \$20,599 in 2006 dollars.

**Performance Goal & Measurement Data**

This increase will support the objective “Provide accurate and timely weather and water information” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, the increase supports the NOAA Weather and Water Performance Goal and the performance measures below:

Corporate Measure: Model-based forecast accuracy for hurricane track; Reduce error by 50% in 10 years

Corporate Measure: Model-based forecast accuracy for hurricane intensity (with HWRF DTC Initiative); Reduce error by 30% in 10 year.

<b>Performance Measures</b>	<b>FY06 Baseline Value</b>	<b>FY07</b>	<b>FY08</b>	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>FY16</b>
Model Based Hurricane Track Forecast Error <i>with</i> Increase		<b>Cum % (2)</b>	<b>Cum % (4)</b>	<b>Cum % (6)</b>	<b>Cum % (9)</b>	<b>Cum % (12)</b>	<b>Cum % (15)</b>	<b>Cum % (18)</b>	<b>Cum % (27)</b>
<b>48 hours</b>	100 nm	98 nm	96 nm	94 nm	91 nm	88 nm	85 nm	82 nm	73 nm
<b>72 hours</b>	150 nm	147 nm	144 nm	141 nm	136 nm	132 nm	128 nm	123 nm	110 nm
<b>96 hours</b>	200 nm	196 nm	192 nm	188 nm	182 nm	176 nm	170 nm	164 nm	146 nm
<b>120 hours</b>	300 nm	294 nm	288 nm	282 nm	272 nm	264 nm	256 nm	246nm	219 nm
Model Based Hurricane Track Forecast Error <i>without</i> Increase		<b>Cum % (2)</b>	<b>Cum % (4)</b>	<b>Cum % (6)</b>	<b>Cum % (8)</b>	<b>Cum % (10)</b>	<b>Cum % (12)</b>	<b>Cum % (14)</b>	<b>Cum % (20)</b>
<b>48 hours</b>	100 nm	98 nm	96 nm	94 nm	92 nm	90 nm	88 nm	86 nm	80 nm
<b>72 hours</b>	150 nm	147 nm	144 nm	141 nm	139 nm	136 nm	133 nm	132 nm	110 nm
<b>96 hours</b>	200 nm	196 nm	192 nm	188 nm	184 nm	180 nm	176 nm	172 nm	160 nm
<b>120 hours</b>	300 nm	294 nm	288 nm	282 nm	278 nm	272 nm	266 nm	264 nm	240 nm

EXHIBIT 13

<b>Performance Measures</b>	<b>FY06 Baseline Value</b>	<b>FY07</b>	<b>FY08</b>	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>FY16</b>
Model Based Hurricane Intensity Error <i>with Increase</i>		<b>Cum % (1)</b>	<b>Cum % (2)</b>	<b>Cum % (4)</b>	<b>Cum % (6)</b>	<b>Cum % (8)</b>	<b>Cum % (10)</b>	<b>Cum % (12)</b>	<b>Cum % (18)</b>
<b>48 hours</b>	14.7 kt	14.55kt	14.40kt	14.10kt	13.80kt	13.50kt	13.20kt	12.90kt	12.00 kt
<b>72 hours</b>	18.6 kt	18.41kt	18.23kt	17.86kt	17.48kt	17.10kt	16.74kt	16.38kt	15.30kt
<b>96 hours</b>	19.8 kt	19.60kt	19.40kt	19.01kt	18.61kt	18.21kt	17.82kt	18.42kt	17.23kt
<b>120 hours</b>	21.8 kt	21.58kt	21.36kt	20.93kt	20.49kt	20.04kt	19.62kt	19.84kt	18.53kt
Model Based Hurricane Intensity Error <i>without Increase</i>		<b>Cum % (1)</b>	<b>Cum % (2)</b>	<b>Cum % (3)</b>	<b>Cum % (4)</b>	<b>Cum % (5)</b>	<b>Cum % (6)</b>	<b>Cum % (7)</b>	<b>Cum % (10)</b>
<b>48 hours</b>	14.7 kt	14.55kt	14.40kt	14.25kt	14.10kt	13.95kt	13.80kt	13.65kt	13.20kt
<b>72 hours</b>	18.6 kt	18.41kt	18.23kt	18.04kt	17.86kt	17.67kt	17.48kt	17.30kt	16.74kt
<b>96 hours</b>	19.8 kt	19.60kt	19.40kt	19.21kt	19.01kt	18.81kt	18.61kt	18.41kt	17.82kt
<b>120 hours</b>	21.8 kt	21.58kt	21.36kt	21.15kt	20.93kt	20.71kt	20.49kt	20.27kt	19.62kt

**Subactivity: Systems Operation & Maintenance (O&M)**  
**Line Item: Systems Operation & Maintenance**

**GOAL STATEMENT:**

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

**BASE DESCRIPTION:**

This subactivity reflects the costs of on-going operations and maintenance of major NWS observing and processing systems.

*Next Generation Weather Radar (NEXRAD):* NEXRAD is the joint NWS/FAA/DOD weather radar system consisting of 158 operational radars. NEXRAD utilizes Doppler technology and hydrometeorological processing to provide significant improvements over the previous generation of weather radars for tornado and thunderstorm warnings, air safety, flash flood warnings, and water resources management. The system is modular in design, upgradeable, has long life-cycle expectancy, and provides its principal users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. In FY 2008, the NWS will continue to operate and maintain its network of 123 NEXRAD systems.

*Automated Surface Observing System (ASOS):* ASOS is the joint NWS/FAA/DOD automated surface observation system consisting of 887 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 315 NWS ASOS units, and under a reimbursable funding arrangement, operates and maintains 572 FAA ASOS units. In FY 2008 the NWS will continue operations and maintenance of its 315 ASOS systems.

*Advanced Weather Interactive Processing System (AWIPS)/NOAAPort:* AWIPS 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 NOAAPort satellite broadcast offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

Base activities support the objective, "Provide accurate and timely weather and water information" under the Department of Commerce strategic goal of "Promote environmental stewardship."

In FY 2008 NWS will:

- Continue operations and maintenance of 169 fielded systems under a new, performance based O&M contract;
- Continue in-service engineering to ensure the system is available 24 hours per day, 365 days per year, to support the Weather Service mission of providing climate, water, and weather forecasts and warnings to protect life and property and enhance the national economy, and to prevent system obsolescence.

*NWS Telecommunications Gateway Backup:* The NWS is establishing the National Weather Service Telecommunication Gateway (NWSTG) backup facility, which will provide backup operations for the primary NWSTG within 12 hours of a failure.

The NWSTG is the Nation's hub for the collection and distribution of weather data and products. The 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 the NWSTG, and these data affect a wide-range of economic and emergency management decisions. Without this backup capability, the NWSTG is a single point of failure, vulnerable to natural disasters, human error, computer viruses, hacker attacks, and terrorism. If the NWSTG failed, more than 90% of the in-situ weather observations necessary for numerical weather prediction models would be lost and forecast accuracy would be degraded. The NWSTG ensures that the delivery of critical meteorological data necessary for the protection of life and property and the economic well being of the Nation continues uninterrupted, providing increased operational availability and reducing risk vulnerability in the event of lost access to the NWSTG for whatever reason.

In conjunction with the NWSTG Backup, the Legacy Replacement Project will replace the legacy NWSTG core mainframe based message switching system with current server based technology, upgrade the facility support infrastructure, and establish a technology refresh program to ensure the IT keeps up with the demand and avoids another full system replacement. The Legacy Replacement will utilize the same IT software and hardware technology demonstrated and currently being implemented in the NWSTG Backup Project. In April 2004, the NWSTG Backup and Legacy Replacement were established as a joint project to more efficiently manage the two integrated efforts and achieve economies of scale where possible. In FY 2005 and FY 2006 NWS will complete and test integration of the message switching software and associated hardware and telecommunications components. Full operational capability of the Legacy Replacement was achieved on June 19, 2006. Full operational capability of the NWSTG backup was achieved on May 31, 2007.

#### **PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Systems Operation & Maintenance (O&M)	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Operation & Maintenance					
NEXRAD	42,436	43,077	44,065	45,121	1,056
ASOS	8,685	8,670	8,945	9,657	712
AWIPS	33,994	36,826	37,162	38,065	903
NWSTG Backup - CIP	5,506	5,375	5,380	5,512	132
TOTAL	90,621	93,948	95,552	98,355	2,803
FTE	188	188	188	188	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**ASOS Operations and Maintenance (O&M) (+0 FTE and +\$712,000):** NOAA requests an increase of 0 FTE and \$712,000 for a total of \$9,657,000. Of this increase \$212,000 restores funding to complete projects in FY 2008 Presidents Budget but were not able to be completed with the FY 2008 Omnibus language. The remaining balance (\$500,000) will fund sustaining engineering/technology refresh to avoid obsolescence and provide information technology (IT) security for the Automated Surface Observing System (ASOS) to ensure the ability to maintain critical surface observations used for aviation operations, local forecasting and climate monitoring.

**Statement of Need**

Though the ASOS Product Improvement program funded sensor improvements to the baseline ASOS system in order to meet evolving user requirements and decrease maintenance demands, it did not address obsolescence issues with the operating system or the Data Collection Package and Acquisition Control Unit. The Data Collection Package and the Acquisition Control Unit form the IT backbone for the ASOS. The weather data are collected by the ASOS sensors and sent through the Data Collection Package to the Acquisition Control Unit. The Acquisition Control Unit software processes the weather data, generates reports, archives data, and establishes the communications required to transfer data to external devices. The operating system for these units is obsolete and no longer supported by the manufacturer and therefore security updates are no longer available. This funding will be used to port the software to an operating system such as Linux that will continue to be supported by the manufacturer. This will be done in preparation for replacing the Data Collection Package and Acquisition Control Unit hardware ASOS software runs on. These units were designed using 1980s technology concepts, are becoming increasingly obsolete, logistically unsupportable, and cannot support new or changing system and service requirements.

**Proposed Actions**

For many years, the NEXRAD O&M program has included a very successful sustaining engineering/technology obsolescence support budget that has allowed NEXRAD to meet and exceed its operational availability of 96%. This proposal seeks to establish a similar budget in the ASOS O&M program to include funding for technology obsolescence. An example of an issue that needs to be addressed immediately is the obsolescence of the ASOS operating system and the impact this is having on IT security compliance. The present ASOS configuration does not fully comply with NOAA and DOC security safeguards, policies, and procedures. The current operating system has not been supported since 2002 and a new operating system is required to fully meet current security requirements. System events need to be tracked to detect and diagnose intrusion attempts. Users accessing the system need to be fully authenticated. The current residual risk is within acceptable limits due to the limited connectivity of ASOS to other systems (no network connection). However, consumers demand for remote access to data already existing in the system is a driver for network connectivity, further exposing ASOS security vulnerabilities. Failure to address these system limitations threatens the continued operation of ASOS in supporting its service requirements.

**FY 2009 Deliverables:** Current ASOS software ported to an operating system with ongoing support and security updates.

### Benefits

Porting ASOS software to a supportable operating system and replacing Data Collection Package and Acquisition Control Unit hardware will yield the following benefits:

- Achieves compliance with DOC IT Security policies (limitations on passwords, user account management, and access monitoring; require new operating system to resolve)
- Protects the \$200M investment already made in ASOS and will prevent the compatibility issues that arise when components no longer manufactured must be replaced. Such issues could force the need for broader redesign
- Replaces the antiquated Operating System (pSOS which has been unsupported since 2002), allowing ASOS regular access to security updates and device drivers for new peripherals.
- Provides computing capacity for improved sensor data.
- Provides NOAA customers who are demanding access to high-resolution data the one minute observations recorded by ASOS that now are not available in real-time.
- Allows remote download of software loads.
- Provides the computing power necessary to provide Air Traffic Controllers and other users with improved, intuitive, graphic-based display of data.

### Performance Goals & Measurement Data

This increase will support the objective: “Provide accurate and timely weather and water information” under the Department of Commerce Strategic Goal to ‘Promote environmental stewardship’ Specifically, the increase supports the NOAA Weather and Water Performance Goal: “better, quicker, and more valuable weather and water information to support improved decisions” and to the Weather and Water Performance Objective “improve predictability of the onset, duration, and impact of hazardous and severe weather and water events.”

Porting the software to a supported operating system and replacing Data Collection Package and Acquisition Control Unit hardware will:

- Decrease the average number of Data Collection Package to the Acquisition Control Unit trouble tickets per month by 30%.
- Improve quality control by 10 percent.
- Allow access monitoring so effectiveness of system security can be measured.

**NEXRAD O&M (+0 FTE and +1,056,000):** NOAA requests an increase of 0 FTE and \$1,056,000 for a total of \$45,121,000 for NEXRAD O&M.

This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**AWIPS O&M (+0 FTE and +\$903,000):** NOAA requests an increase of 0 FTE and \$903,000 for a total of \$38,065,000 for AWIPS O&M. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.



**NWS Telecommunications Gateway Backup O&M (+0 FTE and +\$132,000)**: NOAA requests an increase of 0 FTE and \$132,000 for a total of \$5,512,000 for the NWS Telecommunications Gateway Backup O&M. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
National Weather Service  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
(Dollar amounts in thousands)

<b>National Weather Service</b>	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Current Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Climate</b>					
Climate	12,771	13,544	13,771	14,443	672
Total C	12,771	13,544	13,771	14,443	672
<b>Commerce and Transportation</b>					
Commerce and Transportation	19,605	21,689	20,188	21,274	1,086
Total CT	19,605	21,689	20,188	21,274	1,086
<b>Mission Support</b>					
MS	29,307	32,832	30,099	30,783	684
Total MS	29,307	32,832	30,099	30,783	684
<b>Weather and Water</b>					
Weather and Water	713,280	736,424	733,192	752,333	19,141
Total WW	713,280	736,424	733,192	752,333	19,141
Total National Weather Service	774,963	804,489	797,250	818,833	21,583

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: National Weather Service		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Operations and Research											
Local Warnings and Forecasts	Pos/BA	4,337	633,546	4,338	658,618	4,320	648,718	4,320	663,225	-	14,507
	FTE/OBL	4,130	631,474	4,131	662,211	4,114	648,718	4,114	663,225	-	14,507
Central Forecast Guidance	Pos/BA	321	50,796	321	51,923	321	52,980	321	57,253	-	4,273
	FTE/OBL	306	50,800	306	51,923	306	52,980	306	57,253	-	4,273
Total: Operations and Research	Pos/BA	4,658	684,342	4,659	710,541	4,641	701,698	4,641	720,478	-	18,780
	FTE/OBL	4,436	682,274	4,437	714,134	4,420	701,698	4,420	720,478	-	18,780
Systems Operation & Maintenance (O&M)											
Systems Operation & Maintenance	Pos/BA	197	90,621	197	93,948	197	95,552	197	98,355	-	2,803
	FTE/OBL	188	91,684	188	94,166	188	95,552	188	98,355	-	2,803
Total: Systems Operation & Maintenance (O&M)	Pos/BA	197	90,621	197	93,948	197	95,552	197	98,355	-	2,803
	FTE/OBL	188	91,684	188	94,166	188	95,552	188	98,355	-	2,803

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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	2009 Increase
25.1	Advisory and assistance services	1,000
25.2	Other services	16,264
26	Supplies and materials	1,516
99	Total Obligations	18,780

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

Activity: National Weather Service  
 Subactivity: Systems Operation & Maintenance (O&M)

	Object Class	2009 Increase
25.2	Other services	2,091
31	Equipment	712
99	Total Obligations	2,803



**NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE  
OPERATIONS RESEARCH AND FACILITIES  
FY 2009 OVERVIEW**

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Operations Research and Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Environmental Satellite Observing Systems	105,141	101,817	104,400	111,633	7,233
NOAA's Data Centers & Information Services	72,050	77,158	52,497	53,659	1,162
<b>TOTAL</b>	177,191	178,975	156,897	165,292	8,395
<b>FTE</b>	597	678	678	678	0

Note: The dollars in this table represent budget authority.

For FY 2009, NOAA is requesting a total of \$165,292,000 and 678 FTE for National Environmental Satellite, Data, and Information Service (NESDIS) Operations, Research, and Facilities. As the NOAA satellite and information service, NESDIS is responsible for managing all aspects of remotely gathered environmental data. This includes procurement, launch, operation, product development, and product distribution for the nation's civil operational environmental satellites. Additionally, NESDIS manages the NOAA environmental data collections, provides assessments that describe the climate, and disseminates data and information to meet the needs of users in commerce, industry, agriculture, science and engineering, as well as federal, state, and local government.

NESDIS has two sub-activities in the Operations, Research and Facilities appropriation: 1) Environmental Satellite Observing Systems; and 2) NOAA Data Centers and Information Services.

The goals of the Environmental Satellite Observing Systems include: (1) maintaining a system of polar-orbiting satellites to obtain global environmental data; (2) maintaining a system of geostationary satellites to provide near-continuous environmental observations of the Earth's western hemisphere; (3) acquiring, processing, and analyzing data from NOAA, the Department of Defense (DoD), and other earth-observing satellites; (4) supplying data, interpretations, and consulting services to users; (5) introducing new technology and processes to improve environmental satellite system capabilities; (6) determining requirements for future satellite systems, (7) operating, maintaining, and serving as the lead US agency for the Search and Rescue mission control center; (8) monitoring global sea ice conditions to support safe and effective marine transportation, (9) and demonstrating better ways to use and distribute 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 2009:

- 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)
- Ocean Surface Vector Winds Studies

The goal of the NOAA Data Centers & Information Services sub-activity is 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 2009, 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.

### **Research and Development Investments:**

The NOAA FY 2009 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 incorporates the President's Management Agenda and the Office of Science and Technology Policy's Research and Development Investment Criteria (relevance, quality, and performance) for NOAA's R&D programs, and leads to NOAA budget proposals that reflect the R&D investment criteria.

**Significant Adjustments-to-Base (ATBs):**

NOAA requests a net increase of 0 FTE and \$2,990,000 to fund adjustments to current programs for NESDIS activities. The increase will fund the estimated FY 2009 Federal pay raise of 2.9 percent and annualize the FY 2008 pay raise of 3.5 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).

**Program Transfers**

Below are recommended transfers for the National Environmental Satellite, Data, and Information Service (NESDIS) that result in a net change to the NESDIS of zero:

<b>From Office</b>	<b>Line</b>	<b>To Office</b>	<b>Line</b>	<b>FTE</b>	<b>Amount</b>
NESDIS	POES Ground System (PAC)	NESDIS	Satellite Command and Control	0	\$500,000

This transfers GEONETCast Americas operations from the POES activity within the Procurement, Acquisition and Construction account to the Environmental Satellite Observing System subactivity within the Operations, Research and Facilities account. GEONETCast Americas has been operating since FY 2007. GEONETCast Americas is a new real-time environmental data dissemination system in support of GEOSS. It is the Americas component of the global GEONETCast system operated by NOAA serving North, Central, and South Americas and is integrated with similar GEONETCast systems operating in Europe/Africa by EUMETSAT and the Asia-Pacific region by the China Meteorological Administration. It uses commercial communication satellite capabilities to broadcast environmental data that can be received by users who purchase inexpensive receive stations. The objective is to improve the exchange of diverse environmental data for global decision makers.

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**Subactivity: Environmental Satellite Observing Systems**  
**Line Item: Satellite Command and Control**

**GOAL STATEMENT:**

The goal of the Satellite Command and Control program is to provide efficient and secure command and control of NOAA and Department of Defense (DoD) operational environmental satellites to ensure timely and uninterrupted delivery of data to users.

**BASE DESCRIPTION:**

The Nation requires 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.

The NOAA Satellite Command and Control program forms the backbone of the ground systems that command, control, and acquire data from on-orbit satellites with an estimated value of \$4.5 billion on 24 hours per day, 365 days per year basis. The Satellite Command and Control program monitors satellite health and safety; schedules satellite operations and data acquisition to meet user needs; evaluates satellite systems performance; commands spacecraft; supports the National Aeronautics and Space Administration (NASA) during launch, activation, and evaluation of new satellites; and assesses satellite and ground station anomalies.

The Satellite Command and Control program provides the day-to-day operations of the NOAA Satellite Operations Control Center in Suitland, Maryland, and satellite command and data acquisition stations in Wallops, Virginia, and Fairbanks, Alaska. From these ground stations, NOAA operates and acquires data from Polar-orbiting Operational Environmental Satellites (POES), Geostationary Operational Environmental Satellites (GOES), and DoD Meteorological Satellite Program (DMSP). Data from other non-NOAA operational and research satellites are also received to support specific NOAA missions. The NOAA Satellite Command and Control program ensures acquisition and near real-time delivery of satellite data to product processing centers that, in turn, support NOAA's National Weather Service mission to protect lives and property during severe weather events.

Base activities support Objective 3.5 "Provide Critical Support for NOAA's Mission" under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship".

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Environmental Satellite Observing Systems	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Satellite Command and Control					
Satellite Command and Control	36,988	36,048	37,345	38,729	1,384
NSOF Operations	7,477	7,344	7,472	7,652	180
TOTAL	44,465	43,392	44,817	46,381	1,564
FTE	169	179	179	179	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Satellite Command and Control (0 FTE and +\$1,564,000):** NESDIS requests 0 FTE and an increase of \$1,564,000 for a total of \$46,381,000. There are two components in this request which includes \$500,000 to provide communications link to retrieve POES data from satellites passing over CNES ground stations and also to deliver POES primary mission data from NOAA or CNES for their daily use per the agreement between our countries.

The second component of \$1,064,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Statement of Need:**

The Office of Satellite Operations (OSO) command and control ground system provides uninterrupted availability of critical information and supports NOAA's critical National support functions that are not available commercially, such as real-time hurricane support. The function of OSO is to command and control NOAA, as well as non-NOAA, environmental satellites, track the health and safety of the satellites; acquire and process all data delivered from the satellites; and pass these data to other Offices within NESDIS, primarily OSDPD. OSO provides the vital link between the satellites and every data user and is dependent upon its skilled federal and contract workforce to maintain this linkage.

**Proposed Actions:**

This increase will provide for a dedicated communications link between the NOAA Satellite Operations Facility and Centre National d'Etudes Spatiales (CNES), the French Space Agency in order to receive data from the MetOp satellite which is the primary mid-morning satellite. NOAA also use this communications link to retrieve POES data from satellites passing over CNES ground stations and also to deliver POES primary mission data from NOAA or CNES for their daily use per the agreement between our countries.

The data retrieved from the polar and geostationary satellites are critical in issuing warnings and forecasts of hurricanes and severe weather critical to savings lives and property. Having insufficient resources for contractor and communications support for GOES, POES, and MetOp would introduce greater risk to satellite data retrieval, backup capability, and overall operational continuity.

The \$1,064,000 will restore funding for engineering and software support components which were deferred with the FY 2008 Omnibus Appropriation Act. By deferring this function, the risk of not having satellite data available in the event of satellite or ground system anomaly increased resulting in data coverage gaps that may negatively impact critical weather forecasts models for the National Weather Service.

**Benefits:**

The data gathered from the polar and geostationary satellites are critical to achieving all of NOAA's mission goals in the observation and monitoring of severe weather events and long term environmental conditions. In addition these missions support the receipt, processing, and transmission of data from Search and Rescue beacons, the support and dissemination of space environment data and the collection and dissemination of data from a global network of free-floating balloons, buoys and remote automatic observation stations. These efforts result in issuing warnings and forecasts of severe storms, hurricanes, tsunamis, and cyclones and are credited with savings lives.

NOAA and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) have agreed to share their satellite data via a NOAA MetOp communications architecture. The MetOp communications line is a global meteorological communications line that gathers and transmit polar satellite data from the satellite constellation. The satellite constellation comprises a morning MetOp and an afternoon NOAA satellite, both in polar orbits. NOAA, in collaboration with EUMETSAT, will utilize this data to meet NOAA's mission goals in the observation and monitoring of severe weather events and long term environmental conditions.

**Performance Goals and Measurement Data:**

This increase will 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 to “Promote Environmental Stewardship.” Specifically, the increase supports the following milestone:

<b>Milestone:</b> Number of data supports per operations personnel		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	1250	1250	1250	1250	1250
	<b>Without Increase</b>	1200	1200	1200	1200	1200
<b>Description: Provides a measure of efficiency of satellite operations. With the increase, we will handle additional satellite data with the same level of personnel.</b>						

**TERMINATIONS FOR FY 2009:**

None.

**Subactivity: Environmental Satellite Observing Systems**  
**Line Item: Product Processing and Distribution**

**GOAL STATEMENT:**

The Product Processing and Distribution (PP&D) program provides the Nation with specialized expertise and computing systems that ingest, 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 ingests data from Earth-observing satellites to provide the highest quality products and services to its users.

**BASE DESCRIPTION:**

PP&D provides satellite-derived products and services using data from NOAA, the Department of Defense, and NASA environmental satellites, as well as foreign and commercial spacecraft, to national and international customers and users on a 24 hours-per-day, 7 days-per-week basis. PP&D products enable NOAA to accurately track the location, extent and duration of severe weather such as hurricanes, tornadoes, and winter storms; support development of flash flood warnings; track volcanic ash clouds and severe winds that threaten aviation safety; detect remote wild land fires; monitor coastal ecosystem health; identify and monitor maritime hazards from sea ice; and assist in search and rescue activities. PP&D is the operational interface with NOAA's National Weather Service and supplies the satellite data that makes up more than 99 percent of the information used in numerical weather prediction models. PP&D provides approximately 450 operational products organized into three categories: Atmospheric, Oceanographic, and Terrestrial.

The PP&D program is constantly assessing and using data from advanced satellite sensors to improve operational support to its customers. It also supports activities to improve the effectiveness and interoperability of national systems for sharing natural disaster information. By using maps and data generated by remote- and land-based sensors, this information is made widely accessible to all government agencies and other entities involved in managing and mitigating the impacts of disasters. PP&D products are widely used by all branches of the U.S. Armed Services and the Department of Homeland Security.

Included in the PP&D operations is NOAA's contribution to the joint National Ice Center, which monitors global sea ice conditions to support safe and effective maritime transportation in the Polar Regions, Great Lakes, and Arctic and North Atlantic waters. This service is critical to National Weather Service warnings in ice-prone sea lanes, U.S. Coast Guard rescue attempts, and civilian and military shipping communities.

PP&D provides NOAA's contribution to the operations of the U.S. mission control center for satellite-assisted search and rescue program (SARSAT). Since SARSAT's inception, more than 18,500 people have been saved worldwide. In 2003, NOAA expanded the SARSAT program to include the use of Global Positioning System (GPS) Personal Locator Beacons. This has greatly improved the SARSAT program's ability to save lives faster than before.

NOAA, the U.S. Navy and the U.S. Coast Guard jointly operate the U.S. National Ice Center (NIC). The NIC supports civil and military maritime communities by monitoring global sea ice conditions to support safe and effective marine transportation.

Satellites provide the basic capability to rapidly and accurately observe these events; however, unprocessed satellite data cannot be used directly by these or other critical applications without the around-the-clock PP&D operations.

Base activities support Objectives 3.4 “Support the Nation’s Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation” and 3.5 “Provide Critical Support for NOAA’s Mission” under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship".

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Environmental Satellite Observing Systems	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Product Processing and Distribution					
Product Processing and Distribution	27,617	29,651	30,230	31,457	1,227
<b>TOTAL</b>	27,617	29,651	30,230	31,457	1,227
FTE	103	123	123	123	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Ice Satellite Imagery Procurement for Navigation Safety (0 FTE and \$1,227,000):** NOAA requests an increase of \$1,227,000 for a total of \$31,457,000. There are two components in this request which include \$500,000 to procure a site license and Synthetic Aperture Radar (SAR) imagery scenes from ENVISAT, the European Space Agency's SAR satellite. The proposed increase will mitigate the significant impact that will occur when RADARSAT-1 goes offline in the near future, which is well past its planned mission life. The Ice Center's sea ice nowcasts and forecasts are critical information products used by commercial and government vessels to avoid ice and identify safe routes through ice-covered waters, as well as to plan efficient transits. This information contributes to the Nation's national defense, safe commercial shipping in the U.S. Marine Transportation System, and the smooth flow of energy resources such as oil shipments to and from Alaska, the Great Lakes and the Northeast. The NIC also contributes to NOAA's efforts to: build an Integrated Ocean Observing System (IOOS); respond to the U.S. Ocean Commission's recommendations on sustaining IOOS, modernizing ocean data and information systems, and supporting marine commerce and transportation; and buttress the Administration's Ocean Action Plan with respect to IOOS, Integrated Ocean and Coastal Mapping, and the cabinet-level Committee on the Marine Transportation System.

The second component of \$727,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Statement of Need**

The NIC operates under a Memorandum of Agreement, most recently updated in July 2005, between the U.S. Coast Guard, U.S. Navy, and NOAA. Commercial and government vessels use NIC ice products to avoid ice, plan efficient transits, and to identify safe routes through ice-covered waters. To accomplish this mission, the NIC integrates a large number of data sets from Government and commercial satellite sources to create ice products. Synthetic Aperture Radar data are critical for this purpose because of its all-weather, cloud-discerning capability (Arctic & cold regions are cloud covered 75-80% of a typical winter season), especially over icy waters, and because the 100-meter resolution required over large areas cannot be met with any other data sets available. In order to fully meet NOAA's operational requirements, the NIC currently uses in excess of 3800 SAR images per year to complete the NOAA areas of responsibility, most of which come from Canada's RADARSAT-1 satellite.

Although the NIC has long benefited from a U.S./Canada agreement to provide RADARSAT-1 imagery at no cost in exchange for U.S. launch considerations, that agreement is now at an end with the planned termination of RADARSAT-1 and December 2007 launch of RADARSAT-2. The NIC will be expected to pay commercial rates of more than \$3,000 per image for RADARSAT-2 data. With the loss of the current no-cost supply of SAR data, the NIC will have to procure all future SAR data to continue delivering useful quality ice nowcasts/forecasts in support of safe navigation. If NOAA does not procure the data, the NIC's ability to deliver usable quality ice nowcast and forecast products to commercial users for safe navigation will be severely compromised. The NIC will still produce ice information products without adequate SAR data, but the products will be deemed substandard because cloud cover will prevent clear views of the ice extents, and thereby, a good analysis of the ice conditions. Products such as these are not of value to users

and would not be advisable for use towards assuring safe, secure, efficient, and seamless movement of goods and people through hazardous ice-covered waters.

### **Proposed Actions**

The \$500,000 increase will procure a site license in FY 2009 and 1,200 ENVISAT Advanced Synthetic Aperture Radar (ASAR) images from the European Space Agency (ESA) in FY 2010. This procurement will meet one third of the total NIC SAR data requirement. NIC partners have also negotiated with Japan's Advanced Land Observation Satellite (ALOS) to help offset the loss of RADARSAT-1 data with another 1,800 scenes a year. Neither ENVISAT nor ALOS provides adequate coverage alone; the NIC must blend the data from multiple sources to obtain replacement coverage for what RADARSAT-1 used to supply. But while these initiatives help to offset some of the RADARSAT-1 data loss, it will not provide timely coverage for many NOAA priority areas (i.e. Alaska, Great Lakes and the U.S. East Coast). The combined initiatives only cover sixty percent of our total NOAA SAR requirement. NESDIS/NIC is continuing to work on other agreements that offer possibilities of meeting the remainder of the need.

### **Benefits**

NIC nowcast and forecast products are used by government and commercial vessels to avoid ice and identify safe, efficient routes through ice-covered waters in the Northeast, Great Lakes, Arctic and Antarctic. U.S. Coast Guard Icebreaking services use ice forecasts to plan for the deployment of icebreakers to assist in the movement of large commercial vessels through ice choked channels, harbors and ports particularly in the Great Lakes. This information is critical to ensuring the Nation's energy resources continue to flow smoothly, such as oil shipments from Valdez, Alaska or the import of home heating oil and liquid natural gas to the Northeast. Ensuring that the ice forecasts generated by the NIC are available for use contributes to the continued safe movement of ships in and around icy waters in the U.S. Marine Transportation System. Without the additional SAR data from commercial sources, NOAA will be severely limited in its ability to provide all weather analysis support to the user community. With this data, NOAA will continue to provide global all-weather analysis support to its customers and maintain the ability to respond to safety of navigation in the Arctic and Great Lakes regions.

### **Performance Goals and Measurement Data**

This increase will support the objectives, "Support safe, efficient, and environmentally sound commercial navigation" and "Protect, restore, and manage the use of coastal and ocean resources" under the Department of Commerce Strategic Goal of "Promote environmental stewardship." Specifically, the increase supports the following NOAA Performance Goals:

- "Support the Nation's Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation"
- "Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management".



<b>Performance Goal:</b> Commerce and Transportation Performance Measure: Percent of quality assured ice products delivered at frequency needed by customers for safe navigation.		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	25%	60%	60%	60%	60%
	<b>Without Increase</b>	25%	25%	25%	25%	25%
<b>Description</b> With Increase – 1200 SAR scenes procured/analyzed per year						

The NIC uses in excess of 3,800 SAR images per year to fulfill NOAA mission requirements. With the increase, ENVISAT ASAR data secures 1,200 SAR images. JAXA's ALOS will provide 1,800 SAR scenes per year. Combined, slightly more than one-half of total NOAA SAR requirements for the NIC will be acquired through the ENVISAT purchase and the already secured ALOS data. Without adjustment, only 25% of requirements will be met through ALOS data.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Environmental Satellite Observing Systems**  
**Line Item: Product Development, Readiness & Application**

**GOAL STATEMENT:**

The goal of the NOAA's Product Development, Readiness, and Applications program (PDR&A) is to provide applications-focused research that will develop and evaluate prototype products, algorithms, and pre-operational products to improve existing operational satellite products and services using data from current and next generation environmental satellites.

**BASE DESCRIPTION:**

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. The program supports pre-operational development of products for weather, atmospheric, climate, land, wild land fire, and oceans and coastal applications. NOAA's Ocean Remote Sensing Program supports sea surface temperature, ocean color, satellite altimetry, oceanic rainfall measurements, and coastal monitoring tools for the CoastWatch program.

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 forecast and other environmental models. The JCSDA was established to speed the development of new satellite data assimilation science. NOAA (NWS, OAR, and NESDIS), NASA and DoD are partners in this coordinated national effort to more fully realize the potential of the vast quantities of new satellite data that are becoming available. The JCSDA is also a risk reduction measure designed to accelerate NPOESS and GOES-R data utilization for the development of numerical weather prediction models, and forecast models that will lead to increased accuracy and longer-range forecasts. In the next few years, the number and quality of satellite instruments will grow significantly, providing an exponential increase in higher quality data capable of allowing major improvements in the accuracy of weather prediction. PDR&A also incorporates the latest academic findings into its work through competitively awarded Cooperative Institutes with academic institutions (Universities of Wisconsin, Maryland, Colorado State, and Oregon State, City College of New York). The academic expertise and the results of investigations are infused into product development, readiness, and applications that either led to improvements in existing products or to the development of new products or sensors.

Base activities support Objectives 3.1 "Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management", 3.3 "Serve Society's Need for Weather and Water Information", and 3.5 "Provide Critical Support for NOAA's Mission" under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship".

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Environmental Satellite Observing Systems	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Product Development, Readiness & Application					
Product Development, Readiness & Application	18,301	19,517	19,937	20,415	478
Product Development, Readiness & Application (Ocean Remote Sensing)	3,857	3,765	3,838	3,930	92
Coral Reef Monitoring	736	-	-	737	737
Research to Ops / NOAA-NASA partnerships	3,713	-	-	-	-
Joint Center/Accelerate Use of Satellites	3,247	3,177	3,216	3,294	78
<b>TOTAL</b>	<b>29,854</b>	<b>26,459</b>	<b>26,991</b>	<b>28,376</b>	<b>1,385</b>
<b>FTE</b>	<b>84</b>	<b>101</b>	<b>101</b>	<b>101</b>	<b>-</b>

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Product Development, Readiness & Application (0 FTE and \$1,385,000):** NOAA requests an increase of 0 FTE and \$1,385,000 for a total of \$28,376,000 and 101 FTE. A total of \$648,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Coral Reef Monitoring: (0 FTE and \$737,000):** NOAA requests an increase of 0 FTE and \$737,000 to carry out the coral reef monitoring activities. PDR&A supports the development and maintenance of operational satellite products aimed at near real-time observation, monitoring and forecasting of environmental conditions conducive to deterioration of coral reef health, often resulting from coral reef bleaching events. These products are necessary to comply with Executive Order 13089, the Coral Reef Conservation Act of 2000, and the U.S. Ocean Action plan, which all direct Federal agencies to use programs and authorities to protect and enhance coral reef ecosystems. This funding enables production of models to integrate satellite / in situ measurements with the efforts of the Coral Reef Ecosystem Integrated Observing System within other NOAA line offices. The Coral Reef Watch Program is collaborative effort under the auspices of NOAA's Coral Reef Matrix Team.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Environmental Satellite Observing Systems**  
**Line Item: Office of Space Commercialization**

**GOAL STATEMENT:**

NOAA manages the Office of Space Commercialization (OSC) for the Department of Commerce. The Department of Commerce plays a key role in the development of U.S. Government policies that foster the growth and competitiveness of the U.S. commercial space industry. It serves as an advocate for the industry within interagency deliberations affecting the future of space, encouraging the promotion of commercial interests as well as national security, foreign policy, and other interests. NOAA supports the Department's efforts to advance the development and implementation of the Administration's new space sector policies for: commercial remote-sensing; Positioning, Navigation, and Timing (PNT); and space transportation.

The National Space-Based PNT Executive Committee is a senior-level policy making body chaired jointly by the Departments of Defense and Transportation. Its membership includes the Departments of State, Commerce, Homeland Security, as well as NASA. The Department of Commerce committed to hosting the NPCO and through NOAA's Office of Space Commercialization (OSC) and providing staff support to interagency PNT activities.

**BASE DESCRIPTION:**

Office of Space Commercialization

The Office of Space Commercialization (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 markets. OSC acts as an industry advocate within the executive branch of the Federal Government 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 (NPCO)

The Office of Space Commercialization, on behalf of the Department of Commerce, also provides support to the National Space-Based Positioning, Navigation, and Timing (PNT) Executive Committee. The 2004 U.S. Space-Based PNT Policy established, through Presidential Directive, a permanent National PNT Executive Committee to manage the Global Positioning System (GPS) and its U.S. Government augmentations as a national asset. 2004 U.S. Space-Based Positioning, Navigation, and Timing (PNT) National Policy established, through Presidential Directive, a permanent National Space-Based PNT Executive Committee to manage the Global Positioning System (GPS) and its U.S. Government augmentations as a national asset. The policy further directed the Executive Committee to establish the National Space-Based PNT Coordination Office (NPCO) to serve as the Secretariat and perform

those functions delegated by the Executive Committee. This same policy dissolved the Interagency GPS Executive Board that was established in 1996 to perform these functions. The Deputy Secretary of Commerce is a member of the Executive Committee and OSC provides personnel and facility support in addition to performing studies and related activities in response to NPCO tasking and Executive Committee responsibilities.

Base activities support Objective 3.4 “Support the Nation’s Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation” under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship". Base activities also support NOAA’s FY 2006-FY 2011 Strategic Plan Goals through the Commerce & Transportation Goal by advocating the use of cost-effective remote-sensing, PNT, and other commercial space capabilities to further NOAA’s mission.

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Environmental Satellite Observing Systems	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Office of Space Commercialization					
TOTAL	600	596	619	634	15
FTE	4	4	4	4	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Office of Space Commercialization (0 FTE and \$15,000)**: NOAA requests an increase of 0 FTE and \$15,000 for a total of \$634,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Environmental Satellite Observing Systems**  
**Line Item: Group on Earth Observations (GEO)**

**GOAL STATEMENT:**

The intergovernmental *Group on Earth Observations* (GEO) is leading a worldwide effort to build a Global Earth Observation System of Systems (GEOSS) over the next 10 years. GEOSS will work with and build upon existing national, regional, and international systems to provide comprehensive, coordinated Earth observations from thousands of instruments world wide, transforming the data they collect into vital information for society.

**BASE DESCRIPTION:**

GEO comprises 64 member countries, the European Commission and 43 participating international organizations. GEO is established on a voluntary and legally non-binding basis, with voluntary contributions to support activities. GEO consists of a Plenary, an Executive Committee, a Secretariat, and committees and working groups. GEO meets in plenary at least annually at the senior-official level, and periodically at the Ministerial level. GEO takes decisions by consensus of its Members. The GEO Secretariat was established in Geneva in May 2005, serves as the center of international coordination for the worldwide GEOSS effort.

Base activities support the objective, “Advance understanding of climate variability and change” under the Department of Commerce strategic goal of “Promote environmental Stewardship.”

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Environmental Satellite Observing Systems	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Group on Earth Observations (GEO)					
TOTAL	-	488	488	500	12
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Group on Earth Observations-GEO (0 FTE and \$12,000)**: NOAA requests an increase of 0 FTE and \$12,000 for a total of \$500,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Environmental Satellite Observing Systems**  
**Line Item: Commercial Remote Sensing Licensing & Enforcement**

**GOAL STATEMENT:**

The Commercial Remote Sensing Licensing and Enforcement (CRSL&E) program works with its interagency and international partners to facilitate timely and well-informed regulatory decisions, which advance U.S. economic, foreign policy, and national security interests. The program licenses remote sensing space systems; performs associated research, monitoring and compliance activities; and ensures that the operation of these systems is consistent with the terms and conditions of their operating licenses.

**BASE DESCRIPTION:**

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. The CRSL&E program supports these requirements while furthering the Nation's homeland security and national security missions.

The CRSL&E 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 Bureau of Industry and Security is responsible for enforcement and ensuring compliance with the terms of the license agreements.

The current estimated global market for remote sensing imagery and services is approximately \$2.9 billion, and is forecast to grow to \$6.0 billion by 2010. Dramatic future growth is expected due to growing civil and military user requirements, improvements in aerospace and information technologies, and e-commerce.

U.S. companies will provide exciting new sources of environmental products and services, which will strengthen our military capabilities, safeguard our economic infrastructure, and protect our natural resources. The regulatory framework, pursuant to the 2003 U.S. Commercial Remote Sensing Policy, recognizes the support that is required for growth of this industry. The CRSL&E program ensures a vigorous U.S. commercial remote sensing industry to support critical U.S. national security, foreign policy, and homeland security requirements, and advance our economic and technological interests worldwide.

Base activities support Objective 3.4 “Support the Nation’s Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation” under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship".

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Environmental Satellite Observing Systems	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Commercial Remote Sensing Licensing & Enforcement					
Commercial Remote Sensing Licensing & Enforcement	2,605	1,231	1,255	1,285	30
<b>TOTAL</b>	<b>2,605</b>	<b>1,231</b>	<b>1,255</b>	<b>1,285</b>	<b>30</b>
FTE	2	2	2	2	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Commercial Remote Sensing Licensing & Enforcement (0 FTE and \$30,000):** NOAA requests an increase of 0 FTE and \$30,000 for a total of \$1,285,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Environmental Satellite Observing Systems**  
**Line Item: Ocean Surface Vector Winds Studies**

**GOAL STATEMENT:**

The goals of the Ocean Surface Vector Winds (OSVM) program are to study options including potential designs for instruments to obtain the ocean surface vector winds data currently being provided by NASA's QuickScat satellite.

The OSVM program falls 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).

**BASE DESCRIPTION:**

New Initiative.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Environmental Satellite Observing Systems	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Ocean Surface Vector Winds Studies					
TOTAL	-	-	-	3,000	3,000
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Ocean Surface Vector Winds (0 FTE and +\$3,000,000):** NESDIS requests 0 FTE and an increase of \$3,000,000 for a total of \$3,000,000 to develop alternatives for collecting ocean surface vector wind observations following NASA's QuikSCAT mission. These observations benefit weather forecasts, including hurricanes and other severe weather events, and climate monitoring.

**STATEMENT OF NEED:**

**Non-Tropical Hurricane Force Winter Storms:** More than 95% of the U.S. international trade by volume is transported by ships through the world ocean. Weather hazard, particularly those winter ocean storms that often reaches Hurricane-Forced (HF, >63 knots) wind strength that produces near 100 feet waves over the open ocean is a major threat to the safety and efficiency of marine transportation. Over the past three years HF storms have impacted New England, Oregon, Washington and Alaska. Before QuikSCAT (launched in June 1999), no warning category existed for hurricane-force winter storms at sea; they were rarely forecast due to scarcity of observations. Our limited observations come from the occasional ship that wandered unknowingly into HF winds and associated heavy seas. In 2000 operational use of QuikSCAT's data enabled the National Weather Service (NWS) to introduce a new warning category – HF wind warnings; and from 2001 through spring 2007, it has been able to classify 194 Atlantic and 177 Pacific HF winter storms. (From the fall of 2003 to spring 2006, QuikSCAT enabled Ocean Prediction Center (OPC) to produce successful 48-hour forecasts of HF conditions with an Atlantic success rate of 58% and Pacific of 44 %.) These warnings and forecasts out to 4-5 days in advance have significantly enhanced the safety and economic benefit of the marine transportation operations through reduced potential losses of cargo, transit time, and even life.

**Hurricane Forecasting:** QuikSCAT has given the National Hurricane Center of TPC the capability of early detection, to determine the extent of winds of tropical storm force around a tropical cyclone (which affects watches and warnings), to identify and track storm centers, and help estimate the intensity of a tropical storm or marginal hurricane. Between 2003 and 2006 QuikSCAT was used 17% of the time to determine the wind radii, 21% of the time for center fixing, and 62% of the time for storm intensity estimates.

**Coastal Weather Forecasting:** Over 50% of the United States population lives near the coast. Ocean borne weather impacts the U.S. daily. Ocean winds derived from QuikSCAT are used by forecasters to estimate the strength and location of weather features such as: frontal systems, low pressure centers, high pressure systems, and ocean and near-shore wind maxima. QuikSCAT winds are also used by forecasters to assess the accuracy of numerical weather prediction model estimates of conditions and the resulting predictions. The onset and intensity of conditions associated with land-falling frontal systems and storms are often adjusted by forecasters based on QuikSCAT wind fields. As an example, since 2001, the Alaska Region has shown a steady improvement in its wind speed and wave height forecast verification by 25 and 32 percent respectively. This improvement is the result of a combination of observing systems such as new ocean buoys and satellite sensors (such as QuikSCAT), and better numerical model prediction.

Although QuikSCAT wind data are extremely useful as indicated above, QuikSCAT is incapable of measuring the maximum intensity and complete wind field distribution in Tropical Cyclones (TC), has only 12-hourly temporal resolution (only one satellite), and lacks the ability to retrieve winds closer than

30 km of the coastline. Moreover, QuikSCAT's OSVW data suffer from significant rain contamination, have relatively coarse spatial sampling (nominally 25 km and 12.5 km) In order to meet these important operational missions, NOAA needs to evaluate alternatives to collecting ocean surface wind vector data with a goal of providing ocean surface wind vector observations at better temporal and wind vector resolutions, for wind from 0-165 knots.

**PROPOSED ACTION:**

NOAA will complete design trade studies to determine the best alternative to meeting the ocean surface vector winds requirements, including non-space based alternatives.

**BENEFITS:**

Completing these trade studies will allow NOAA to fully assess the best alternatives for collecting this critical data.

With oceans comprising over 70% of the Earth's surface, the impacts of QuikSCAT OSVW data have been significant in meeting societal needs for weather and water information and in supporting the Nation's commerce with information for safe, efficient and environmentally sound transportation and coastal preparedness.

**PERFORMANCE GOALS AND MEASUREMENT DATA:**

This increase will 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 to “Promote Environmental Stewardship.”

<b>Design Trade Studies</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	<b>NOAA will be able to determine the best alternative to meet requirements for OSVW data.</b>	-	-	-	-
	<b>Without Increase</b>	<b>NOAA will be unable to determine the best alternative to meet requirements for OSVW data.</b>	-	-	-	-

**TERMINATIONS FOR FY 2009:**

None.



**Subactivity: NOAA's Data Centers & Information Services**  
**Line Item: Archive, Access & Assessment**

**GOAL STATEMENT:**

The goal of Archive, Access, and Assessment (AAA) is to provide long-term archive, access (customer service), stewardship, and assessments of observation data to a wide range of worldwide users. Through NOAA's three National Data Centers (NNDCs), environmental data, information, products, and services support atmospheric, oceanographic, and the solid earth and solar-terrestrial physical sciences to facilitate sustained economic growth, scientifically sound environmental management, and public safety to the Nation and the international community.

**BASE DESCRIPTION:**

The AAA line item provides the core funding for the three NNDCs: the National Climatic Data Center, the National Oceanographic Data Center, and the National Geophysical Data Center. This line item also supports the nation-wide NOAA library system, and data rescue activities through the Climate Database Modernization Program (CDMP).

The NNDCs provide the Nation with the long-term stewardship archive of past, present, and future environmental observations and associated data recorded across the United States and globally. Access to long time series of environmental data is critical to satisfying the Nation's wide range of needs related to the national security, the economy, the environment, and public safety. Approximately one-third of U. S. economic activity is weather 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 acquire 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 seven petabytes per year and the cumulative archive volume managed and accessible to customers will exceed 40 petabytes.

**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. The NCDC receives, processes, archives, provides access, disseminates, and conducts objective assessments of remote (satellite) and in-situ (land, ocean, and atmosphere) observations. National and international observing systems provide both a national and a global perspective 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 also manages the conversion of historical data records to electronic format and accessibility via the Internet through the Climate Database Modernization Program. Over the past three years, the NCDC, in cooperation with scientists and other NOAA activities and federal agencies, has designed

and is deploying the Nation's first climate quality observing network, the U. S. Climate Reference Network (USCRN). The NCDC is a designated World Data Center (WDC) for Meteorology and WDC for Paleoclimatology.

The NCDC provides data, information, products and services to all sectors of the economy, delivering weather and climate data and information to nearly two million customers each year for planning, operations, and minimizing the risk of weather and climate extremes. The NCDC provides access and data retrieval via the worldwide web/Internet, and also responds to thousands of requests received via e-mail, phone, fax, and the mail. The NCDC routinely produces operational products for climate monitoring, such as the weekly and monthly State of the Climate reports, including the U.S. and the North American Drought Monitoring Reports. These and other assessments support business and government policy and decision makers and implementers. The NCDC works very closely with the Regional Climate Centers and state climatologists to provide support and services at regional and local levels.

**Ocean Archive, Access, and Assessment:** The National Oceanographic Data Center (NODC) (MD, MS), located in Silver Spring Maryland, is the nation's permanent archive for oceanographic data, ensuring the public's access to and the scientific stewardship of the long-term observational record of the global ocean, U.S. coastal waters and their ecosystems. These holdings document the physical and chemical properties of the oceans, currents, weather and biota as observed from ships, buoys, satellites and other ocean and coastal platforms extending back nearly 150 years. The NODC serves more than 800,000 users annually through the Internet and a variety of publications including atlases and technical reports published on digital media and paper. Examples of the most requested products include the World Ocean Database and Atlas, the International Atlas of the Ocean series, sea surface temperature climatology derived from satellites, and data sets gathered from operational ocean observing systems worldwide. The user community includes resource managers, researchers, educators, and maritime industry professionals from federal, state and local agencies as well as academia and the public. NODC is a designated World Data Center for Oceanography and provides leadership for international data exchange programs through the Intergovernmental Oceanographic Commission and provides national leadership in data management for the U.S. Integrated Ocean Observing System.

The NOAA library, located within the 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 Maryland, and regional libraries in Seattle Washington, and Miami Florida. The central library also organizes agency-wide information services such as journal 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 1.7 million 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) (CO), 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 Environment Center to provide archive and access of space-based and terrestrial space weather observations; works with contributors of scientific

data to prepare documented, reliable data sets, currently maintaining more than 850 digital and analog data sets; and continually develops data management programs that reflect the changing world of geophysics in an era of electronic data access.

The NGDC 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.

Base activities at NOAA's Data Centers support all five objectives under the Department of Commerce Strategic goal of "Promote Environmental Stewardship."

**PROPOSED LEGISLATION:**

None

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: NOAA's Data Centers & Information Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Archive, Access & Assessment					
Archive, Access & Assessment	33,893	33,814	34,697	35,526	829
Data Recovery	16,526	-	-	-	-
Climate Database Modernization KY	-	6,910	1,361	1,361	-
Climate Database Modernization MD	-	5,236	993	993	-
Quality Assurance/Quality Control (NC)	-	1,466	275	275	-
Climate Database Modernization WV	-	7,330	1,434	1,434	-
GOES Data Archive Project	1,044	-	-	-	-
Integrated Environmental Applications & Information Center	-	2,453	-	-	-
Coop Institute for Remote Sensing Applications, AL	-	1,033	-	-	-
<b>TOTAL</b>	<b>51,463</b>	<b>58,242</b>	<b>38,760</b>	<b>39,589</b>	<b>829</b>
FTE	222	256	256	256	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Archive, Access & Assessment (0 FTE and \$829,000)**: NOAA requests an increase of 0 FTE and \$829,000 for a total of \$35,526,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR 2009:**

The following programs or portions thereof have been terminated in FY 2009: Climate Database Modernization - KY (\$5,549,000); Climate Data Modernization - MD \$(4,243,000); Quality Assurance/Quality Control - NC (\$1,191,000); Climate Database Modernization - WV (\$5,896,000), Integrated Environmental Applications and Information Center (\$2,453,000) and Cooperative Institute for Remote Sensing Applications - AL (\$1,033,000).

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**Subactivity: NOAA's Data Centers & Information Services**  
**Line Item: Coastal Data Development**

**GOAL STATEMENT:**

The goal of the Coastal Data Development (CDD) program is to provide increased utilization of coastal and oceanographic data using web-based search and access and geographic information systems (GIS) techniques, which will improve understanding, management and use of coastal areas.

**BASE DESCRIPTION:**

The CDD program is located at and managed by the National Coastal Data Development Center (NCDDC) at the Stennis Space Center, Mississippi. The focus of NCDDC is to improve the quality of web-based search and access tools and implement web-based access to priority data sets from federal, state, and local repositories. Geospatial display capabilities have been added that allow the user to link the data to coastal imagery, charts, 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 gateways to these sources, ensures the equality of the metadata, populates and updates the databases, and provides on-line search and access and geospatial display for the coastal user community.

The CDD program supports NOAA’s Ecosystem strategic goal which aims to build the capacity of federal, state, local, and international managers to make decisions that protect, restore, and use coastal ecosystem services. The Earth’s coastal ecosystems are home to a wealth of natural resources, and the lives and livelihoods of people are linked to these national treasures. Sustainable growth of our coastal regions is critical to our economy by supporting commercial and recreational fishing, waterborne commerce, home construction, and tourism.

Base activities support Objective 3.1 “Protect, Restore, and Manage the Use of Coastal and Ocean Resources Through an Ecosystem Approach to Management” under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship".

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: NOAA's Data Centers & Information Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Coastal Data Development					
Coastal Data Development	4,554	4,394	4,451	4,559	108
TOTAL	4,554	4,394	4,451	4,559	108
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Coastal Data Development (0 FTE and \$108,000):** NOAA requests an increase of 0 FTE and \$108,000 for a total of \$4,559,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: NOAA's Data Centers & Information Services**  
**Line Item: Regional Climate Centers**

**GOAL STATEMENT:**

The National Climatic Data Center's Regional Climate Centers (RCC) Program was developed to meet local and regional needs for climate data, research-based information, and expertise.

**BASE DESCRIPTION:**

NOAA will contract with the six regional climate centers to improve access to accurate and reliable climate information. The centers also monitor and report current climate conditions in the regions they serve. The expertise and data resources of the RCC are available to assist in interpreting present conditions, quantifying climate variability, and assessing the likelihood of extreme weather events that often produce major social, economic and environmental impacts in a region.

RCC activities support Objective 3.2 "Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond" under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship".

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: NOAA's Data Centers & Information Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Regional Climate Centers					
Regional Climate Centers	-	3,568	-	-	-
International Pacific Research Ctr (U of H)	-	1,784	-	-	-
TOTAL	-	5,352	-	-	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR 2009:**

The following programs or portions thereof have been terminated in FY 2009: Regional Climate Centers (\$3,568,000) and International Pacific Research Center (U of H) (\$1,784,000).

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**Subactivity: NOAA's Data Centers & Information Services**  
**Line Item: Environmental Data Systems Modernization**

**GOAL STATEMENT:**

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.

**BASE DESCRIPTION:**

Environmental data and information under the stewardship of NOAA are vital to a wide range of weather sensitive sectors of the economy such as, energy and water resources management, aviation, construction, engineering, utilities, food production (agriculture and aquaculture businesses), multi-modal commerce, tourism, manufacturing, and the insurance industry. Business and government leaders and researchers have critical needs for quality long time-series of historical and recent national and global data to evaluate the current status of the environment, to assess long-term environmental trends, and to predict future environmental conditions and events.

Environmental Data Systems Modernization (EDSM) consists of two components: Satellite Active Archive (SAA), and Scientific Data Stewardship / Integrated Observations System (SDS/IOS). The SAA provides immediate web-based digital access to satellite data and is an important part of the Comprehensive Large Array Data Stewardship System (CLASS). SDS/IOS (i.e., collecting, processing, product development, access, distribution, archiving) consists of an integrated suite of functions to preserve and exploit the full scientific value of NOAA's environmental data. Successful implementation of stewardship will maximize the value and utility of NOAA's environmental data, now and in the future.

NOAA is developing an integrated, national and global observing system that will bring together all aspects of environmental monitoring on common platforms to ensure data quality, to manage data efficiently for the long-term, and to make these data easily and readily accessible. NOAA plans to accomplish these goals through a program of Scientific Data Stewardship and the Integrated Observations System..

Base activities support Objective 3.2 "Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond" under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship".

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: NOAA's Data Centers & Information Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Environmental Data Systems Modernization					
TOTAL	9,296	9,170	9,286	9,511	225
FTE	13	13	13	13	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Environmental Data Systems Modernization (0 FTE and \$225,000)**: NOAA requests an increase of 0 FTE and \$225,000 for a total of \$9,511,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
National Environmental Satellite, Data, and Information Service  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
(Dollar amounts in thousands)

<b>National Environmental Satellite, Data, and Information Service</b>	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Current Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Climate</b>					
Climate	33,032	54,870	29,689	30,303	614
Total C	33,032	54,870	29,689	30,303	614
<b>Commerce and Transportation</b>					
Commerce and Transportation	10,067	8,970	9,181	9,459	278
Total CT	10,067	8,970	9,181	9,459	278
<b>Ecosystems</b>					
Ecosystems	12,684	11,774	12,026	13,052	1,026
Total ECO	12,684	11,774	12,026	13,052	1,026
<b>Mission Support</b>					
MS	92,521	94,878	97,366	103,635	6,269
Total MS	92,521	94,878	97,366	103,635	6,269
<b>Weather and Water</b>					
Weather and Water	28,887	8,483	8,635	8,843	208
Total WW	28,887	8,483	8,635	8,843	208
Total National Environmental Satellite, Data, and Information Service	177,191	178,975	156,897	165,292	8,395

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: National Environmental Satellite, Data, and Information Service		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Environmental Satellite Observing Systems											
Satellite Command and Control	Pos/BA	177	44,465	188	43,392	188	44,817	188	46,381	-	1,564
	FTE/OBL	169	44,692	179	43,433	179	44,817	179	46,381	-	1,564
Product Processing and Distribution	Pos/BA	108	27,617	129	29,651	129	30,230	129	31,457	-	1,227
	FTE/OBL	103	27,771	123	29,651	123	30,230	123	31,457	-	1,227
Product Development, Readiness & Application	Pos/BA	88	29,854	106	26,459	106	26,991	106	28,376	-	1,385
	FTE/OBL	84	28,923	101	27,212	101	26,991	101	28,376	-	1,385
Office of Space Commercialization	Pos/BA	4	600	4	596	4	619	4	634	-	15
	FTE/OBL	4	634	4	596	4	619	4	634	-	15
Group on Earth Observations (GEO)	Pos/BA	-	-	-	488	-	488	-	500	-	12
	FTE/OBL	-	-	-	488	-	488	-	500	-	12
Commercial Remote Sensing Licensing & Enforcement	Pos/BA	2	2,605	2	1,231	2	1,255	2	1,285	-	30
	FTE/OBL	2	1,237	2	1,245	2	1,255	2	1,285	-	30
Remote Sensing Center	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	1,362	-	-	-	-	-	-	-	-
Ocean Surface Vector Winds Studies	Pos/BA	-	-	-	-	-	-	-	3,000	-	3,000
	FTE/OBL	-	-	-	-	-	-	-	3,000	-	3,000

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: National Environmental Satellite, Data, and Information Service		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Total: Environmental Satellite Observing Systems	Pos/BA	379	105,141	429	101,817	429	104,400	429	111,633	-	7,233
	FTE/OBL	362	104,619	409	102,625	409	104,400	409	111,633	-	7,233
NOAA's Data Centers & Information Services											
Archive, Access & Assessment	Pos/BA	234	51,463	269	54,756	269	38,760	269	39,589	-	829
	FTE/OBL	222	51,609	256	54,880	256	38,760	256	39,589	-	829
Coastal Data Development	Pos/BA	-	4,554	-	4,394	-	4,451	-	4,559	-	108
	FTE/OBL	-	4,574	-	4,394	-	4,451	-	4,559	-	108
Regional Climate Centers	Pos/BA	-	-	-	3,568	-	-	-	-	-	-
	FTE/OBL	-	2,563	-	3,568	-	-	-	-	-	-
Environmental Data Systems Modernization	Pos/BA	14	9,296	14	9,170	14	9,286	14	9,511	-	225
	FTE/OBL	13	9,297	13	9,170	13	9,286	13	9,511	-	225
Other Data and Information Services	Pos/BA	-	6,737	-	5,270	-	-	-	-	-	-
	FTE/OBL	-	3,884	-	5,270	-	-	-	-	-	-
Total: NOAA's Data Centers & Information Services	Pos/BA	248	72,050	283	77,158	283	52,497	283	53,659	-	1,162
	FTE/OBL	235	71,927	269	77,282	269	52,497	269	53,659	-	1,162

**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	2009 Increase
23.3	Communications, utilities and miscellaneous charges	933
25.2	Other services	2,250
25.3	Other purchases of goods and services from Govt accounts	3,000
26	Supplies and materials	1,050
99	Total Obligations	7,233

**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's Data Centers & Information Services

	Object Class	2009 Increase
25.2	Other services	1,162
99	Total Obligations	1,162

**PROGRAM SUPPORT  
OPERATIONS RESEARCH AND FACILITIES  
FY 2009 OVERVIEW**

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Operations Research and Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Corporate Services	180,916	187,795	183,896	193,041	9,145
NOAA Education Program	30,446	37,934	16,192	16,528	336
Facilities	21,767	18,482	25,453	24,297	(1,156)
Marine Operations & Maintenance and Aviation Operations	129,113	151,689	153,535	160,529	6,994
<b>TOTAL</b>	362,242	395,900	379,076	394,395	15,319
<b>FTE</b>	1,913	1,907	1,976	2,014	38

Note: The dollars in this table represent budget authority.

For FY 2009 NOAA requests a total of \$394,395,000 and 2,014 FTE for Program Support Operations, Research and Facilities.

Program Support is comprised of four distinct subactivities: 1) Corporate Services, 2) the NOAA Education Program 3) Facilities and 4) the Office of Marine and Aviation Operations (OMAO).

Within Corporate Services there are two line items: 1) NOAA's Under Secretary and Associate Offices; 2) NOAA Wide Corporate Services and Agency Management. The Under Secretary and Associate Offices budget line item funds centralized executive-management policy, formulation and direction. In addition, there are various staff offices, to include the offices of the Deputy Under Secretary; Legislative Affairs; Public, Constituent, and Intergovernmental Affairs; International Affairs; Education and Sustainable Development; the Federal Coordinator for Meteorology; and the General Counsel. The NOAA Wide Corporate Services and Agency Management line item funds such activities as financial, procurement, and human resource services.

The second sub-activity in Program Support is the NOAA Education Program, which provides expert support on education activities to NOAA Line, Program, and Staff Offices, while promoting NOAA services and products, and their benefits to the public. The Office of Education (OEd) consults within NOAA and with the Department of Commerce, and identifies opportunities for the deployment of coordinated interagency/intergovernmental policy strategies that recognize the importance of linking economic and environmental goals.

The third subactivity in Program Support is Facilities, which provides funds to address facilities management; repair, restoration and other construction, and environmental compliance and safety issues NOAA-wide. NOAA is continuing efforts to comply with E.O. 13327 (Federal Real Property Asset Management) and to effectively manage its facilities portfolio through investments in strategic long-range facility planning and modernization; annual facility condition assessments; and repair and restoration projects to address facility maintenance, repair, safety, and compliance issues. Our goal is conduct required maintenance and periodic life-cycle replacement of major building systems and components to maintain NOAA's owned facilities at a safe and effective operational state. Funds for new construction and selected major facility projects are requested separately in the Procurement, Acquisition and Construction account.

The fourth subactivity, the Office of Marine and Aviation Operations (OMAO), is headquartered in Silver Spring, Maryland. It provides support to NOAA programs through the operation of NOAA ships and aircraft as well as by outsourcing these activities. This subactivity also funds fleet (ship and aircraft) maintenance and repair, NOAA's operational diving program, Teacher at Sea Program, 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; conducts fleet-safety inspections; and provides medical guidance and support for NOAA ship, aircraft, and scientific personnel.

OMAO's Commissioned Personnel Center (CPC) in Silver Spring, Maryland, provides centralized management for 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 and NOAA Line Offices as well. The Marine Operations and Maintenance line item funds the majority of the NOAA Corps payroll, except for contributions to an accrual fund for future health care benefits for Medicare-eligible retired officers, dependents, which are provided by permanent, indefinite appropriation per the FY 2005 Defense Appropriation Act, P.L. 108-375 and cited in 10 USC 1115.

**Significant Adjustments-to-Base (ATBs):** NOAA requests a net increase of 69 FTE and \$5,380,000 to fund adjustments to current programs for Program Support. The increase will fund the estimated FY 2009 Federal pay raise of 2.9 percent and annualize the FY 2008 pay raise of 3.5 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 requests the following transfers for a net change to NOAA of \$0:



<b>From Office</b>	<b>Line</b>	<b>To Office</b>	<b>Line</b>	<b>Amount</b>
NOS	Pribilof Island Cleanup	PS	NOAA Facilities Management, Construction and Maintenance	\$727,000
NWS	Local Warnings and Forecasts Base	PS	NOAA Wide Corporate Services	\$210,000

Program Support request technical adjustments to enable NOAA to better reflect activities within the programs:

- \$6,300,000 from NOAA Wide Corporate Services to NOAA Facilities Management, Construction and Maintenance for guard service.
- \$1,227,500 from the Under Secretary and Associate Office Base and \$40,000 from NOAA Wide Corporate Services to the NOAA Education Program.
- \$727,000 from National Ocean Services, Pribilof Island Cleanup to NOAA Facilities Management, Construction and Maintenance to recognize the completion of the cleanup effort and transition to long term monitoring.
- \$210,000 and 2 FTE from National Weather Service, Local Warnings and Forecasts Base to NOAA Wide Corporate Services, Acquisition and Grants Office for acquisitions functions being performed at the National Buoy Center.

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**Subactivity: Corporate Services**  
**Line Item: Under Secretary and Associate Offices**

**GOAL STATEMENT:**

To provide executive direction for the implementation of agency policies to all NOAA and DOC programs and missions. Programs in this sub-activity support the Mission Support goal in NOAA's Strategic Plan.

**BASE DESCRIPTION:**

**The Under Secretary and Associate Offices (USAO)**

The Under Secretary and Associate Offices (USAO) primary mission is to support senior policy level official in managing NOAA resources and developing policies for achieving NOAA's objectives. The USAO develops policies regarding the administration of NOAA programs with other federal agencies, the Congress, and private industry. USAO have significant oversight responsibilities that shape NOAA policy and influence the way NOAA works toward meeting each of its strategic goals. The Under Secretary, Assistant Secretary, and the Deputy Under Secretary comprise the top of NOAA's leadership. The Associate Offices, more commonly known as NOAA's Staff Offices, are:

- Office of General Counsel (OGC) Serves as the chief legal office for all legal matters arising in connection with the functions of NOAA, except for legal issues common to all Department bureaus, which are handled by the Department of Commerce General Counsel.
- Office of Communications (OC) Serves as the principal point of contact for NOAA programs with the public and the news media. Its staff advises NOAA and other Departmental officials on all aspects of media relations and communication issues. OC ensures that information provided to the news media by NOAA is current, complete, and accurate. It also ensures that all applicable laws, regulations and policies involving the release of information to the public are followed so that the maximum disclosure is made without jeopardizing investigations and prosecutions, violating rights of individuals, or compromising national security interest.
- Office of Legislative Affairs (OLA) Responsible for devising and implementing the legislative strategy to carry out NOAA's initiatives requiring Congressional action. OLA articulates the views of NOAA, including its components on Congressional legislative initiatives. OLA responds to requests and inquiries from Congressional committees, individual congressional members, and their staff. It coordinates Congressional oversight activities involving NOAA, as well as the appearances of NOAA's witnesses and the interagency clearance of all Congressional testimony. Serves as the primary liaison for NOAA with the member and staff of Congress. The office is also responsible for the planning, direction, and coordination of legislative programs that are of immediate concern to the Office of the Under Secretary.

- Office of International Affairs (OIA) Coordinates NOAA and other leadership official's relationship with international programs, as directed by the Office of the Under Secretary. Provides advice on strategic planning of NOAA's public appearances; performs speech writing duties; and provides event planning and consulting services to the Office of the Under Secretary. The Deputy Assistant Secretary for International Affairs exercises a leadership role in establishing policies, guidelines, and procedures for NOAA's international programs
- Office of the Federal Coordinator for Meteorology (OFCM) Establishes procedures for systematic and continuing review of national basic specialized meteorological and oceanographic requirements for services and supporting research; and brings federal agencies concerned with international activities and programs in meteorological and oceanographic programs into close consultation and coordination.

**PROPOSED LEGISLATION:**

**None.**

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Corporate Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE/ DECREASE
Line Item: Under Secretary and Associate Offices					
Under Secretary and Associate Offices Base	26,285	28,814	28,643	28,676	33
<b>TOTAL</b>	26,285	28,814	28,643	28,676	33
FTE	228	229	219	219	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Under Secretary and Associate Offices (0 FTE and +\$33,000):** NOAA request an increase of 0 FTE and \$33,000, for a total of \$28,676,000. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Corporate Services**  
**Line Item: NOAA Wide Corporate Services & Agency Management**

**GOAL STATEMENT:**

To support all NOAA and Department of Commerce (DOC) programs and missions by developing and acquiring major support systems and providing administrative, budgetary, information technology, and finance services. Programs and services in this sub-activity support the Mission Support goal in NOAA's Strategic Plan. In addition to these mission goals, NOAA has established five crosscutting priorities, one of which is developing, valuing, and sustaining a world-class workforce. NOAA's stakeholders and employees strongly agree that NOAA needs to make this a priority to improve NOAA's core capabilities. This cross-cutting goal is supported by Corporate Services and Agency Management.

**BASE DESCRIPTION:**

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. These activities specifically support the *people* and programs of NOAA, ensuring that they have the proper work environment, the necessary tools and equipment, and the vital personnel and finance services which, in turn, allow them to provide the finest possible service to the American people, our economy and our environment.

The objectives of this line item are to develop and implement policy, planning and program oversight, and evaluation of the following: program operations and service delivery; financial, information technology, and administrative management that ensures timely, high-quality, cost-effective support to NOAA and DOC programs; and compliance with applicable laws, regulations, and guidelines. In addition to funding NOAA-Wide Corporate Services and Agency Management, this line item funds the policy formulation and management direction of the following offices: Civil Rights, Audits, Internal Controls, and Information Management.

Under the broad umbrella of NOAA Wide Corporate Services and Agency Management, NOAA's major Program Support activities are as follows:

- Office of Acquisition and Grants
- Office of the Chief Administrative Officer
- Office of the Chief Financial Officer
- Office of Human Resources
- Office of Program Analysis and Evaluation
- Office of the Chief Information Officer and High Performance Computing and Communications
- Office of Program Planning and Integration

## **Office of Acquisition and Grants**

To a significant degree, NOAA relies upon its partners in the commercial, state and local government, non-profit and academic communities to accomplish its mission. The NOAA Office of Acquisition and Grants (AGO) provides support to NOAA line and staff offices, and a number of other Department of Commerce bureaus, with the planning, solicitation, award, administration and close-out of acquisitions and financial assistance funding mechanisms. The Acquisition Division acquires everything from day-to-day operating supplies to services supporting NOAA's mission to ships and super computers. Financial assistance awards (grants and cooperative agreements) are utilized to transfer funds to a variety of partners (state, tribal and local governments, universities, individuals, non-profit and for-profit organizations) to assist the agency in achieving our mission. Through its services, AGO helps NOAA execute its day-to-day responsibilities and assists the agency in providing critical services to the Nation.

Grants are awarded and administered through an electronic process using Grants Online. NOAA fully utilizes the Grants.gov portal for posting grant announcements and Grants Online picks up applications from Grants.gov, thus enabling an all-electronic process. The NOAA Acquisition Offices continue working with DOC to resolve problems with the interface between the core financial system and the acquisition automation tool, C-Stars. NOAA has implemented, in FY 2007, improved oversight of its delegated procurement authority and purchase card programs including adherence to acquisition regulation and policy, timely reconciliation and approval of purchase card statements, and compliance with mandatory training requirements by those with delegated acquisition authority.

## **Office of the Chief Administrative Officer**

The NOAA Office of the Chief Administrative Officer (OCAO) provides planning management and support services essential to NOAA's program mission success. The OCAO is responsible for NOAA's facility management program, including capital investment planning and management for NOAA's substantial facility portfolio totaling over \$4 billion in owned and leased facilities; facility construction and modernization; and, real and personal property management. The OCAO manages NOAA's technology and deemed export control program to ensure continued NOAA-wide compliance with Export Administration Regulations, and oversees NOAA's Office of Inspector General and Government Accountability Office audit coordination and resolution program. The OCAO also manages NOAA's Freedom of Information Act compliance, competitive sourcing program, executive correspondence and document management program, and NOAA's civil rights program. These programs provide basic services essential for NOAA to achieve its mission.

The OCAO has responsibility under E.O. 13327 (Federal Real Property Asset Management) to effectively plan, acquire, dispose and manage NOAA's real property portfolio, including integrated, long-range capital investment and planning; planning, programming, management and execution of construction projects; facility inspection and maintenance programs; and real property acquisition, lease, and disposal. Major

efforts continue to ensure NOAA's real and personal property tracking and management systems support effective management and planning for NOAA's real and personal property assets. These efforts have enabled NOAA to address the property-related findings in previous agency financial statement audits.

### **Office of the Chief Financial Officer**

The Chief Financial Officer (CFO) serves as the principal financial manager for an organization whose appropriated resources approach nearly \$4 billion and whose recorded capital asset value exceeds \$8 billion. The CFO's Office has the responsibility under the CFO Act to provide the leadership necessary for NOAA to obtain a yearly unqualified opinion in the audit of its consolidated financial statements. The CFO directs the activities of the Budget and Finance Offices. Both the Budget and Finance Offices perform studies using methods and procedures analysis, and systems and organizational analysis to provide support to senior management in making executive decisions to ensure operational efficiencies within NOAA.

- **Budget Office** – The Budget Office is responsible for the oversight and management of NOAA's budget process. The Budget Office assists senior management, line, program, and staff offices in the formulation of NOAA's budget. It develops overall guidance, reviews proposals, and prepares supporting justification and documentation. This includes coordinating the preparation of NOAA budget submissions to the Department, the Office of Management and Budget (OMB), and the Congress, including data on budget authority, obligations, outlays, permanent positions, and full-time equivalent employment. The Office provides for the proper allocation and control of the execution of all budgetary resources as required under the Congressional Budget and Impoundment Act of 1974 (31 U.S.C. 11) and related statutes, and as specified by the Office of Management and Budget (OMB). The Office provides NOAA with improved financial management for agency-wide administrative and financial support services, including the implementation of the End-to-End Resource Management System (E2E). E2E provides a single integrated system for NOAA's planning, programming, and budget data. The Budget Office also maintains a staff that focuses on outreach and communication, particularly with the staff of Congressional Appropriations committees, as well as other Executive Branch agencies.
- **Finance Office** – The Finance Office performs the full spectrum of accounting services and financial reporting NOAA-wide and works to ensure that NOAA's consolidated financial statements and reports accurately reflect NOAA's fiduciary status at the end of the fiscal year, as required of all government agencies under the CFO Act of 1990. It operates NOAA's financial management system to ensure that NOAA's managers have access to timely financial data necessary to make informed programmatic decisions. The Finance Office is also responsible for ensuring that NOAA's bills are paid in a timely manner and that receivables are billed promptly. Under the direction of the Finance Officer, the Commerce Business System (CBS) is the official accounting system of record for NOAA. CBS produces NOAA Annual Financial Statements, and will contribute to NOAA's ongoing priority of achieving and maintaining an unqualified opinion on its financial controls and statements. The current program resources are used to fund on-going operational activities, including help desk

support and outreach to clients; conducting functional requirements analysis to support user change requests and regulatory changes; preparing design documents, coding and testing for new requirements; preparing operating procedures, manuals and training materials and conducting training sessions; supporting audit requirements; performing IT Security functions and disaster recovery of CBS; and performing data base administrator functions. NOAA's goal is to employ modern technology to provide managers with standardized, accurate and timely information to manage their resources, while reducing administrative costs.

### **Office of Human Resources**

NOAA's employees are its most important asset. Their competence, creativity, commitment, diversity, and innovation are vital to accomplishment of the NOAA mission and the Nation's interests. The NOAA Office of Human Resources (HRO) 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.

The HRO provides NOAA-wide leadership to workforce management functions including strategic human capital planning, labor-management and employee relations, performance management and incentive awards, executive resources, distance learning, leadership development, training and career development and human resources data management and automation initiatives. Policy functions include family-friendly workplace practices such as telework, staffing and Demonstration Project guidance. The HRO also serves as the operating human resources office for NOAA providing the full range of recruitment, staffing, pay administration, classification, and management advisory services, retirement and benefits counseling, personnel and payroll processing and partnership with management to carry out NOAA's mission.

### **Office of Program Analysis and Evaluation**

The Office of Program Analysis and Evaluation (PA&E) contributes to the NOAA corporate level management and decision-making process through independent and objective analysis. PA&E evaluates programs relative to NOAA's mission and capabilities and identifies the linkage between program requirements and available resources. PA&E provides a strong analytical foundation for programmatic decisions by evaluating opportunities, establishing priorities, and evaluating process, policy and program alternatives to ensure NOAA's programs are the most efficient and effective. This analysis forms the basis for an integrated NOAA five-year program recommendation, which provides a strong, programmatic baseline for the NOAA budget.

In addition, PA&E prepares independent, unbiased, comprehensive reports and position papers for the Under Secretary, Deputy Under Secretary, and other key leaders, using operational research analysis to present options for implementation of recommendations to ensure programs and policies are compatible with NOAA's organizational structure, functions, and goals. An integrated, requirements-based, fiscally and strategically balanced NOAA Program and credible and relevant analysis that supports sound leadership decisions are PA&E's contribution to a strong corporate NOAA.

### **Office of the Chief Information Officer and High Performance Computing and Communications**

The NOAA Office of the Chief Information Officer and High Performance Computing and Communications (OCIO/HPCC) supports all NOAA and DOC programs and missions by providing information technology (IT) planning, investment, implementation and operational oversight and service. The OCIO/HPCC provides program oversight through corporate level management of NOAA-wide information resources. The OCIO/HPCC operates the Messaging Operations, Network Operations and Web Operations Centers to supply essential support that assists NOAA with providing information to the Nation. The Office directs the improvement of NOAA's IT systems operations and service delivery and promotes the effective use of IT to facilitate the accomplishment of NOAA's mission. The OCIO/HPCC leads the development and implementation of the NOAA IT Enterprise Architecture (EA), ensuring integration into both the Department of Commerce's EA and OMB's Federal Enterprise Architecture. Through the NOAA High Performance Computing and Communications program, the Office coordinates NOAA's principal IT research and development effort.

The OCIO/HPCC provides NOAA agency-level coordination on information resources and information systems management; promotes and shapes an effective strategic and operational IT planning process; and coordinates the preparation of NOAA's IT budget. The OCIO/HPCC provides information assurance and IT security incident response, and operates NOAA's administrative computing center, providing oversight, systems analysis, design, and programming support for NOAA's financial and administrative applications. The OCIO/HPCC is responsible for oversight and implementation of provisions in the Clinger-Cohen Act; Federal Information Management Security Act (FISMA); E-Government Act; High Performance Computing and Communications Act; Paperwork Reduction Act; Information Quality Act; and other directives regarding the acquisition, management, security and use of information and IT resources. Additionally, the Office manages NOAA's Homeland Security Program Office, coordinating all plans, programs and policies to promote the safety and security of NOAA's people and facilities and ensure continuity of operations and service delivery.

## **Office of Program Planning and Integration**

- The Office of Program Planning and Integration (PPI) provides corporate management to coordinate NOAA's many lines of service with the Nation's many needs for environmental information and stewardship. It ensures that agency investments and actions are guided by a strategic plan, are based on sound social and economic analysis, adhere to executive and legislative science, technology and environmental policy, and integrate the full breadth of NOAA's resources, knowledge and talent to meet its stated mission goal. PPI provides NOAA four distinct capabilities: 1) Strategic Planning, 2) Performance Evaluation, 3) Program Integration, and 4) Policy Integration.
- **Strategic Planning** -PPI is responsible for managing the NOAA's strategic planning process by assuming responsibility for managing the NOAA-wide planning cycle and for producing its outputs. These include the updates to the NOAA Strategic Plan and release of the Annual Guidance Memorandum (AGM), which articulates investment priorities over a five-year period. PPI designs planning guidance for NOAA programs, oversees their planning processes and monitors and evaluates program implementation. PPI also interacts with NOAA stakeholders and acquires, synthesizes and responds to their inputs. The strategic planning function employs PPI's expertise in social, economic and policy analysis to understand and evaluate the societal impact of NOAA programs.
- **Performance Evaluation** -PPI leads NOAA's development of performance measurements, both at the program and the corporate level. It refines their content over time and ensures their consistent and appropriate use across diverse management and reporting processes. PPI is the interface to NOAA's Budget Office regarding performance evaluation methods, performance metrics, and performance-based management practices.
- **Program Integration** - PPI provides oversight of the direction, integrity and performance of NOAA programs and program structure. NOAA has adopted a matrix organizational structure to ensure that its programs meet its mission goals. PPI develops the capacity and integrity of programs within the matrix, including the integration of social science research and analysis capabilities. PPI also works closely with NOAA's programs, Goal Teams and Councils to strengthen the Planning, Programming, Budgeting and Execution System process and strategic decision-making in general.
- **Policy Integration** – PPI represents NOAA in interagency functions including those associated with the National Environmental Policy Act, the U.S. Climate Change Science Program, and the U. S. Ocean Action Plan. PPI catalyzes, launches and monitors the implementation of new internal policies that are needed to advance program integration and improve program performance. The office guides and monitors the progress of policies on such issues as the transition of research to applications, partnerships with the private and academic sectors, and NOAA's use of social science to measure performance and prioritize activities.

Base activities support both objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

### **PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Corporate Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: NOAA Wide Corporate Services & Agency Management					
NOAA Wide Corporate Services & Agency Management Base	108,537	113,788	109,326	115,561	6,235
Commerce Business System (CBS) formerly CAMS	10,006	10,088	10,171	10,171	-
Program Planning and Integration	1,952	-	-	-	-
Payment to the DOC Working Capital Fund	34,136	34,130	34,780	36,583	1,803
<b>TOTAL</b>	<b>154,631</b>	<b>158,006</b>	<b>154,277</b>	<b>162,315</b>	<b>8,038</b>
FTE	776	773	776	785	9

Note: The dollars in this table represents budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**NOAA Wide Corporate Services and Agency Management (+9 FTE and +\$1,200,000):** NOAA requests a total of 9 FTE and \$1,200,000 for a total of 113 FTE and \$13,861,100 to provide management and oversight for the NOAA Acquisition and Grants Office (AGO). NOAA has a wide variety of responsibilities related to providing acquisition and grants support to the Department of Commerce (DOC) and NOAA. This increase will support the capacity of the acquisition and grants workforce sufficient to provide dedicated personnel and funding sufficient to implement an effective procurement oversight program.

**Statement of Need**

NOAA's AGO provides annual acquisition and grants support to DOC and NOAA valued at approximately \$2 billion (\$1 billion in grants awards, and \$1 billion in contract awards). These services equates to roughly a third of DOC's annual appropriation. The success of DOC and NOAA in accomplishment of missions and goals is largely dependent on the ability of the NOAA AGO to successfully obligate these funds in accordance with statutory and regulatory requirements. This request responds to GAO recommendations contained in its June 2006 Report on the NOAA Acquisition Function (GA)-06-594). Requested funding and FTE are critical to ensuring the operational success of DOC and NOAA.

**Increased Workload**

The number of acquisitions awarded by the NOAA Acquisition workforce has increased by almost 300% in just 5 years. The chart provided below depicts the total number of acquisitions processed and dollars obligated by all acquisition personnel in NOAA, including those conducted by NOAA's Administrative Support Centers (ASCs), prior to NOAA's internal reorganization in FY 2005.

<b>Acquisition and Grants workload growth in NOAA from FY 2002 through FY 2007</b>				
<b>Acquisition and Grants</b>	<b>FY</b>	<b>Staffing</b>	<b># of Awards</b>	<b>Dollars Obligated (\$ millions)</b>
Grants Management Division	2002	26	1,498	\$906
	2003	18	1,506	\$854
	2004	19	1,501	\$972
	2005	19	1,911	\$956
	2006	22	1,931	\$1,037
	2007	22	1,955	\$924
Combined Acquisition	2002	61	3,688	\$558

Divisions				
	2003	62	4,429	\$558
	2004	60	16,868	\$772
	2005	115	13,506	\$609
	2006	117	14,634	\$1,195
	2007	103	15,543	\$1,306

*Notes: The staffing totals depicted above represent the number of individuals on-board as of the end of each fiscal year. The increase between 2004 and 2005 is attributable to AGO's absorption of the acquisition personnel in the former Department of Commerce Administrative Support Centers hosted by NOAA (ASCs).*

The above chart does not reflect the number of previously awarded contracts and grants that AGO personnel have administered while conducting the new procurement and grant actions reflected in the data below. Contract and Grant administration workload data is elusive because of the nature of the work. Conflicts arising between government and contractor/grantee personnel are typically resolved through discussions between the Contract/Grants Specialist, NOAA Program Office staff and the Contractor/Grantee. There are no metrics available to quantify the amount of time required each day to perform contract/grants administration duties. However, experience has demonstrated that contract/grants administration activities typically average a third man-year for each contract/grants specialist.

The Contract/Grants Specialist cannot predict the frequency or duration of contract/grant administration matters that they must resolve. However, active contracts/grants often require immediate resolution by the AGO staff to preclude incurrence of additional costs, acceptance of unallowable costs, failure to meet established programmatic milestones, or Congressional complaints. To meet this increased demand for contract and grants administration, the AGO workforce must delay work on new procurement and grant actions. As the number of new contracts awarded has increased during FY 2002 through FY 2006, so has the number of active contracts requiring administration. This personnel shortfall jeopardizes successful obligation of DOC/NOAA funds for new acquisitions and grants.

#### Increased Complexity of Work

As the NOAA acquisition workload has increased, the complexity of the acquisitions conducted and the level of contract administration oversight required have similarly increased. Major system acquisitions for equipment and services involving state-of-the-art technology are now common throughout NOAA. AGO is currently providing acquisition support for multi-billion dollar satellite programs (including NPOESS, GOES-R and POES). Increased complexity is also evident in the acquisition support provided to numerous multi-million dollar programs such as: NOAA's High Performance Computing Capability, Advanced Interactive Weather Processing System (AWIPS), Fisheries Survey Vessels (FSVs), NOAA Aircraft, Facilities Construction and a wide variety of Research and Development initiatives.

#### Increased Need for Contract/Grant Surveillance

As contractual and financial assistance obligations have increased, so has NOAA's reliance on the private sector. The area demonstrating the greatest degree of reliance upon the commercial sector is the acquisition of services. Government-wide, service contracts continue to grow disproportionately to contracts for equipment and supplies. Service contracts require additional surveillance effort by the acquisition workforce to ensure proper oversight. In its report on DOD Acquisitions (GAO-06-800T) GAO stated that "*Government monitoring and inspection of contractor activity, if not done well, can contribute to a lack of accountability and poor acquisition outcomes*". Given NOAA's increasing reliance on the private sector to provide the services essential for mission success, additional resources are required to monitor the performance of these contracts. Failure to provide an acquisition and grants workforce, sufficiently robust to maintain adequate oversight, places DOC/NOAA at increased risk of cost overruns, substandard contractor/grantee performance and agency embarrassment. The DOC/NOAA operational programs supported by AGO must be successfully managed and monitored if NOAA is to fulfill its missions to the American public. However, as important as our acquisition and grants programs are, they are being conducted by an AGO workforce, thinly spread, lacking the depth required to ensure proper oversight and success. The success of DOC/NOAA's acquisition and grants programs is best described as our ability to obtain the necessary research, equipment and services needed, on time, and at the best value to the taxpayer. AGO's current workforce struggles to succeed, but is limited in its ability to do so by diminishing resources. Without additional staff to conduct the increasing acquisition and grants workload of NOAA, it is only a matter of time before workload overcomes capacity, and critical acquisition and grants programs fail.

#### Increased Time to Complete Acquisition Workload

The time required to conduct acquisitions in NOAA has increased with the deployment of new IT Systems throughout the DOC. Although these systems will eventually enable NOAA to increase acquisition efficiency, a myriad of challenges currently exist. Overcoming these challenges requires additional time to conduct planned procurements. C.Request was deployed DOC-wide on October 16, 2006, as part of an interfaced network called CSTARS ORSI. CSTARS stands for Commerce Standard Acquisition and Reporting Systems; ORSI stands for Obligation Requisition System Interface. ORSI interfaces the NOAA C.Request system and C.Buy system to the NOAA Core Financial System (CFS) and also to the NIST CFS, since NOAA provides acquisition support to DOC bureaus who obtain their finance support from NIST. C.Request is used to electronically submit requisitions over the NOAA intranet to C.Buy, the acquisition production system. At deployment, the system was deemed operational, but, as in the fielding of any new system, it was understood that improvements would be needed before the system would be accepted as fully functional. Since then system improvements have been made and extensive user training has been conducted. However, the need for additional system improvements, user training and help desk support for a user community in excess of 2,300 DOC employees will continue for the foreseeable future. NOAA AGO has been performing these functions without additional resources. The continued employment of the AGO acquisition workforce to conduct these functions will continue to divert scarce acquisition talent and diminish greatly the capacity of AGO to conduct acquisition actions. The proposed request of additional acquisition staff are essential to the successful fielding of C.Request/ORSI. These additional personnel will afford us the ability to conduct user training while simultaneously conducting ongoing procurement actions.

### Increased Risk Posed by Interagency Acquisitions

To meet the increasing need for acquisition services with diminishing resources, NOAA is evaluating obtaining acquisition support services from other government agencies through Interagency Acquisitions. Interagency Acquisitions offer the ability for agencies to acquire additional acquisition support by off-loading procurement actions to other agencies on a fee-for-service basis. However, as the GAO noted in their September 2006 report on DOD Acquisitions (GAO-06-800T), some (DOD) agency IGs have uncovered instances of improper use of interagency contracts, including issuing orders that were “*outside the scope of the underlying contract, failing to follow procedures intended to ensure the best pricing, and failing to establish clear lines of accountability and responsibility.*” Their report further states that, in some instances, fee-for-service arrangements may have lead to “*an inordinate focus on meeting customer demands at the expense of complying with sound contracting policy and required ordering procedures.*” As a result of these and similar issues, GAO designated interagency contracting as a government-wide high-risk issue in January 2005. It is important to note that the interagency acquisition services acquired by DOD were provided by non-DOD agencies, including some of those under consideration for use by DOC/NOAA. It is also important to note that DOD was held accountable for the improprieties committed by the servicing agencies. DOC/NOAA should carefully weigh the potential risks inherent to acquiring additional acquisition support via Interagency Acquisitions in comparison to increasing the acquisition capability within DOC/NOAA.

### Increased Scrutiny of Acquisition and Grants Function

DOC/NOAA will continue to receive increased scrutiny of its acquisition and grants function. The DOC Inspector General listed Effective Management of Departmental and Bureau Acquisition Processes as DOC’s Number 2 Challenge, in his September 2006 report entitled *Top 10 Management Challenges*. In this report, the DOC IG has stated that “*adequate oversight of acquisition planning and execution is essential to ensuring that taxpayer dollars are spent effectively and efficiently and procurement laws and regulations are followed*”. It is probable that NOAA AGO will receive additional scrutiny from the GAO in FY 2008.

It is anticipated that GAO will assess the implementation of the Corrective Action Plans submitted by DOC/NOAA in response to their June 2006 Report on the NOAA Acquisition Function (GAO-06-594). Again, it is expected that adequacy of procurement oversight conducted by AGO will be the focus of their review. The amount of procurement oversight that can be applied is directly related to the resources available to provide that oversight. In FY 2007, funding was not available to NOAA for personnel and travel costs necessary for the conduct of an adequate oversight program. The funding requested within this request includes resources for travel and personnel costs required to provide adequate procurement oversight. NOAA processes nearly 2,000 grants every year, and like acquisition, represents an annual investment of approximately \$1 Billion. End-to-end improvements in NOAA grants processes were developed in FY 2005. One such initiative, NOAA’s Grants Online, has been lauded as an E-Gov best practice, and will likely be adopted DOC-wide in the near future. In FY 2008, AGO intends to continue improving the capabilities of the Grants Online System and utilize it as an administration and assessment tool. These improvements will improve the efficiency of our Grants process, and will directly benefit potential grantees and NOAA. It is expected that non-NOAA (DOC) users will rely upon NOAA’s expertise to provide training and assistance to other Bureaus within the Department when Grants Online is adopted as the DOC-wide Grants management system. However, completion of audits and grant closeout actions remain manual processes. The timely completion of these tasks by NOAA AGO was identified as a deficiency during the KPMG audit of the NOAA Financial function. Although NOAA AGO has made great progress in reducing the number of delinquent grant closeouts, there is a

recurring need for AGO Grants personnel to perform these tasks. The additional resources requested to fill vacant positions within AGO's Grants Management Division will address this need, without degradation of grants award processes, and help preclude a repeat finding on the next financial audit.

### **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.

AGO Policy and Oversight Division – NOAA's request will serve in functions associated with implementing recommendations made by the Government Accountability Office (GAO) in their June 2006 report to Congress (GAO-06-594, NOAA Acquisition Function). Among the recommendations included in this report is one for DOC/NOAA to regularly monitor the acquisition of goods and services acquired by collateral duty contracting officers in field offices. To meet this need, the Director, NOAA Acquisition and Grants Office promulgated policy for increased oversight of these collateral duty contracting officers (Field Delegates) performing acquisition functions under Delegations of Procurement Authority (DPA). To obtain the recommended oversight, NOAA AGO intends to conduct regular reviews of procurement actions conducted by collateral duty contracting officers and Government Purchase Cardholders, who similarly exercise delegated procurement authority. Previous attempts to provide oversight of individuals exercising Delegated Procurement Authority within NOAA have been limited by resources insufficient to conduct the reviews required. This funding will provide dedicated personnel and funding sufficient to implement an effective procurement oversight program.

Oversight of the field delegates will involve on-site reviews of 80% of awards made by the audited delegate for the preceding 12 months. A formal entrance conference, execution of a standardized audit checklist, and an exit conference will be conducted. Appropriate corrective action plans will be received and monitored by AGO. The same is true for purchase cardholders, with the exception that where necessary, cardholders will submit their records to the auditor for a desk review at the auditor's location. To minimize costs, consolidated reviews will be conducted. This means that if AGO is auditing a field delegate in a specific location, they will also conduct an audit of cardholders at the same location and/or bring in cardholders from other offices within commuting distance of the field delegate location. This action will specifically address the required action under the GAO Corrective Action Plan and will address one of the primary concerns government-wide regarding management of purchase card use. Effective oversight is essential to ensure adherence to Federal Acquisition Regulation, Departmental and NOAA policy. The failure to adequately oversee the work performed by individuals with this delegated acquisition authority puts the agency at risk for improper acquisition practices and open to both legal and monetary damages. Without proper oversight, the delegated procurement authority will need to be withdrawn and that workload brought into the NOAA acquisition offices for processing. This would result in an even greater resource need.

### **Benefits**

This request will enable NOAA's ability to deliver reliable and robust information flows within NOAA and out to the public through the development of a dynamic workforce with competencies that support NOAA's mission today and in the future. The proposed funding increase will:

- Substantially reduce risk to the agency by ensuring both the proper number and use of the purchase card. Risk to the agency in terms of monetary risks can be estimated at in excess of \$29 million based on an assessment of infrequently used purchase cards and establishing appropriate single purchase and monthly limits on cardholder use. Ensuring that field delegates are adhering to regulation and policy reduces risk to the agency for improper awards, protests sustained against the agency and resultant monetary damages for improper awards (e.g., termination costs, bid and proposal costs).
- Improve the proper and complete obligation of DOC/NOAA appropriated funds by NOAA employees.
- Reduce the risks inherent in the use of Interagency Acquisitions. DOC/NOAA oversight and management of the AGO workforce increases visibility of award processes and retains control of acquisition and grants processes.

#### Performance Goals & Measurement Data

This requested increase supports the NOAA Mission Goal: “Increased use of information technology to improve internal and external services” and “Improved performance and accountability in management of administrative services, including budgeting and performance integration.”

<b>Performance Goal:</b> Timeliness of contract and grant actions	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
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	90% for contracts 85% for grants
With Increase	90%+ for contracts 85%+ for grants	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

**NOAA Wide Corporate Services and Agency Management (0 FTE and +\$6,833,000):** NOAA request a net increase of 0 FTE and \$6,833,000 to support NOAA Wide Corporate Services and Agency Management. This increase maintains current service levels of direct administrative, technical, human resources and financial support to NOAA staff and line offices. Additionally, this increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President’s Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Proposed Actions**

Support current levels of direct administrative, technical, human resources and financial support to NOAA staff and line offices. This request will contribute to NOAA's ongoing priority of achieving and maintaining an unqualified audit opinion on its financial controls and statements.

**Benefits**

In compliance with the CFO Act, this request ensures NOAA's ability to obtain yearly unqualified opinions in the audit of its consolidated financial statements. Additionally, this initiative directly supports the President's Management Agenda item of tying budget decisions to program performance by promoting efficient utilization of resources that support NOAA's mission today and in the future. The proposed funding increase will:

- Improve timeliness of delivery of technical information to DOC, OMB and Congress
- Promote efficient utilization of resources
- Maintain current level of administrative services that directly support NOAA line offices

**Performance Goals and Measurement Data**

This program change supports the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs." This increase will support the NOAA Mission Support Goal in NOAA's Strategic Plan.

<b>Performance Goal:</b> To support NOAA-wide administrative activities	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Without Increase:	reduced levels of support to NOAA Line Offices	reduced levels of support to NOAA Line Offices	reduced levels of support to NOAA Line Offices	reduced levels of support to NOAA Line Offices	reduced levels of support to NOAA Line Offices	reduced levels of support to NOAA Line Offices	reduced levels of support to NOAA Line Offices
With Increase:	Fully fund current levels of support to Line Offices	Fully fund current levels of support to Line Offices	Fully fund current levels of support to Line Offices	Fully fund current levels of support to Line Offices	Fully fund current levels of support to Line Offices	Fully fund current levels of support to Line Offices	Fully fund current levels of support to Line Offices

**NOAA Wide Corporate Services and Agency Management – Office of the Chief Financial Officer (0 FTE and -\$1,798,000):**

NOAA requests a decrease of 0 FTE and \$1,798,000 for the Office of the Chief Financial Officer. In order to fund higher priority activities, NOAA is requesting a reduced level of funding for the End-to-End Resource Management System.

**NOAA Wide Corporate Services and Agency Management – Payment to the DOC Working Capital Fund (0 FTE and +\$1,803,000):** NOAA requests an increase of 0 FTE and \$1,803,000, for a total of \$36,583,000, for payment to the DOC Working Capital Fund.

**TERMINATIONS FOR FY 2009:**

None.



**Subactivity: Corporate Services**  
**Line Item: Office of Chief Information Officer (CIO)**

**GOAL STATEMENT:**

To support all NOAA and DOC programs and missions by providing information technology (IT) policy, planning, management, security, enterprise network services, High Performance Computing, and Homeland Security functions. Programs in this subactivity support the Mission Support goal in NOAA's Strategic Plan.

**BASE DESCRIPTION:**

The objectives of this line item are to develop policies and to provide oversight of the implementation of information technology policies as required under the Clinger-Cohen Act of 1996, the Federal Information Management Security Act (FISMA), and the Paperwork Reduction Act within NOAA, statutory and other legal requirements; and Department of Commerce Policies. The line also provides management of NOAA's Homeland Security Activities; enterprise network services; administration of the IT Capital Planning and Investment Control process; oversight and funding of High Performance Computing and Communications activities; and Information Technology Security for NOAA's systems.

The Office of the CIO (OCIO) consists of: 1) Planning, Policy, and Analysis Office, 2) Information Technology Operations Office, 3) High Performance Computing and Communications Office, 4) Information Systems Management Office, 5) IT Security Office, and 6) Homeland Security Program Office.

The OCIO is responsible for:

- Developing and overseeing policies on the acquisition of information technology resources, management of IT projects, information technology security, and the use of IT resources to meet NOAA mission requirements;
- Implementing the High Performance Computing and Communications Act of 1991 through the NOAA High Performance Computing and Communications (HPCC) Program; and coordinating NOAA IT research within the program;
- Coordinating the preparation of NOAA's IT budget;
- Leading the development and implementation of the NOAA IT EA, integrating NOAA's IT Enterprise Architecture into the Department of Commerce's IT EA and OMB's Federal Enterprise Architecture;
- Developing policies for and overseeing implementation of FISMA, DOC security policies, and the NOAA IT Security Architecture, and operation of the enterprise Computer Incident Response Team (CIRT).
- Overseeing NOAA-wide operational IT systems, networks, and services;

- Coordinating all plans, programs and policies regarding homeland security and plans for continuity of operations and evacuations; ensuring development and execution of plans for continued delivery of services; and developing plans and procedures to promote the safety and security of NOAA's people and facilities.

Base activities support both objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Corporate Services	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Office of Chief Information Officer (CIO)					
IT Security	-	975	976	2,050	1,074
<b>TOTAL</b>	-	975	976	2,050	1,074
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Office of the Chief Information Officer (0 FTE and +\$1,074,000):** NOAA request an increase of 0 FTE and \$1,074,000, for a total \$2,050,000. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008. This increase will be used to implement, operate and maintain the NOAA enterprise level IT security architecture. These funds will provide the enterprise level structure needed to efficiently respond the new IT security architecture requirements. The goal is to improve the management of information resources and to protect the confidentiality, integrity and availability of information in NOAA's network systems.

**Statement of Need**

This increase will allow NOAA to meet the requirements of the Federal Information Security Management Act (FISMA), OMB Circular A-130 Appendix III, P.L. 100-235 (Computer Security Act), and other Federal mandates. As envisioned by the Clinger-Cohen Act and required by OMB policy, this increase enables NOAA to address the security of its information systems from an enterprise perspective.

**Proposed Action**

This investment will support incident response teams at NOAA's three major campuses, firewalls and intrusion detection at each internet access point (consistent with NOAA's enterprise security and network architectures); proactive patch management, security education and training, and aggressive penetration testing of National Critical systems.

**Benefits**

NOAA's networks deliver vital weather, climate and water information and services. Improving the security of these networks will enable NOAA to better protect the public's health, safety and property. Specifically, NOAA's networked information systems will benefit from:

- greater flexibility and adaptability in responding to ever changing and increasing IT security threats;
- improvement in the security and reliability of enterprise level information resources;
- an enterprise level structure to efficiently respond to the new IT security architecture requirements;
- a reduction in successful intrusions; and
- increased network and application availability.

**Performance Goals and Measurement Data:**

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, particularly as it applies to Information Technology and Administrative Programs and Services.

<b>Performance Goal:</b> Decrease ratio of successful to attempted intrusions	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Without Increase	No reduction to intrusions	No reduction to intrusions	No reduction to intrusions	No reduction to intrusions	No reduction to intrusions	No reduction to intrusions	No reduction to intrusions
With Increase	10% reduction to intrusions; Network architecture eliminating single points of failure	10% reduction to intrusions; Network architecture eliminating single points of failure	10% reduction to intrusions; Network architecture eliminating single points of failure	10% reduction to intrusions; Network architecture eliminating single points of failure	10% reduction to intrusions; Network architecture eliminating single points of failure	10% reduction to intrusions; Network architecture eliminating single points of failure	10% reduction to intrusions; Network architecture eliminating single points of failure

**TERMINATIONS FOR FY 2009:**

None.

**Subactivity: NOAA Education Program**  
**Line Item: NOAA Education Program**

**GOAL STATEMENT:**

To provide executive direction for the implementation of agency policies to all NOAA and DOC programs and missions. Programs in this sub-activity support the Mission Support goal in NOAA's Strategic Plan. This line item also contains various NOAA educational programs including the Educational Partnership Program with Minority Serving Institutions, the JASON Program, the Ernest F. Hollings Undergraduate Scholarship and the Nancy Foster Scholarship Programs.

**BASE DESCRIPTION:**

The Office of Education (OEd) activities are dedicated to achieving success on NOAA's strategic cross-cutting priorities of promoting environmental literacy and developing, valuing, and sustaining a World-class workforce. OEd consults within NOAA to improve coordination across Line, Program and Staff Offices, while promoting NOAA services and products, and their benefits to the public. OEd also implements targeted education programs on behalf of the Agency. Such activities include administration of the Ernest F. Hollings Undergraduate Scholarship Program and development of Education Partnership Program with Minority Serving Institution (EPP/MSI). These programs 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 atmospheric and oceanic sciences, and science education. The EPP program funding directly supports the development of NOAA-related research capability in MSIs.

Base activities support both objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: NOAA Education Program	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: NOAA Education Program					
NOAA Education Program / Education Initiative	11,156	-	1,267	1,267	-
Hollings Scholarship	4,063	3,909	-	-	-
Educational Partnership Program/Minority Serving Institutions	14,227	13,906	13,920	14,261	341
JASON Education and Outreach	1,000	2,207	1,000	-	(1,000)
BWET California	-	2,348	-	-	-
BWET Regional Programs	-	7,316	-	-	-
Narragansett Bay Marine Education (Save the Bay)	-	892	-	-	-
Mt. Washington Observatory Edu Outreach Exp Initiative	-	423	-	-	-
Training Next Generation Weather Forecasters - San Jose State Univ	-	212	-	-	-
Meteorological Equip - Valpariso Univ Indiana	-	817	-	-	-
Educ Simulations Extreme Weather Events - Wheeling Jesuit Univ WVA	-	188	-	-	-
Competitive Educational Grants	-	4,876	5	1,000	995
John Smith Water Trail, Chesapeake Bay	-	446	-	-	-
Center for the Great Lakes, IL	-	260	-	-	-
Anacostia Watershed Education, MD	-	134	-	-	-
<b>TOTAL</b>	<b>30,446</b>	<b>37,934</b>	<b>16,192</b>	<b>16,528</b>	<b>336</b>
FTE	-	-	10	10	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**NOAA Education Competitive Grants (0 FTE and +\$995,000):** NOAA requests an increase of 0 FTE and \$995,000 to provide competitive educational grants and continue implementation of the NOAA Educational Plan.

**Background**

Since NOAA was established as a science Agency in 1970, its scope of responsibility has included education through the mandates of individual NOAA programs (e.g., National Estuarine Reserves System, National Marine Sanctuary Program, National Sea Grant College Program). With the development of NOAA's new strategic plan *New Priorities for the 21<sup>st</sup> Century*, the Agency embraced broad responsibility to improve public environmental literacy related to NOAA's mission areas and instituted a corporate infrastructure (i.e., NOAA Education Council and the Office of Education and Sustainable Development – OESD) to direct development of an Agency-wide education program. The foundation for this Agency-wide program was established with the development of a NOAA Education Plan and a corporate education policy. These documents define education and outline priority strategies for action, provide a basis for consistent tracking, coordination, and strategic planning to leverage existing resources and build a comprehensive NOAA education program addressing all mission goal areas. At NOAA, education is defined as a process of engaging audiences to build knowledge on topics relevant to the world's atmosphere, climate, oceans and coastal ecosystems in order to achieve greater environmental literacy, personal safety, and an improved economy. This definition includes activities conducted through a variety of venues and targeting a wide range of audiences. Major categories of NOAA education efforts include formal, informal, and higher education.

The US Ocean Action Plan, released in early FY 2005 introduced new expectations for NOAA education. The challenges outlined in this document specifically address ocean literacy but relate to NOAA's broad responsibility for environmental literacy to build understanding of our global system and the interconnectivity of oceanic and atmospheric processes. In recognition of this new directive for NOAA, FY 2005 appropriations included a broad 1-year mandate for NOAA education, additional funding to support development and expansion of education activities, and the establishment of the Ernest F. Hollings scholarship program to promote environmental literacy and build a future workforce of individuals prepared for NOAA related careers. These new funds have been directed with the advice of the NOAA Education Council toward priority areas to implement a coordinated Agency-wide education program that addresses these new responsibilities. Priority areas for NOAA education include building an education component for NOAA's Earth observing systems; developing a future scientific/technical workforce reflective of our society's composition; and expanding partnerships to leverage investments in formal and informal education. These priorities provide NOAA with a strategic framework to promote coordination and realignment of existing activities and focus development of new programs. This coordinated approach provides NOAA the means to meet and exceed the new expectations for NOAA leadership on environmental literacy.

**Statement of Need**

Requested funding will allow NOAA to focus on a targeted implementation of the US Ocean Action Plan and US Commission on Ocean Policy education recommendations, primarily within the agency, utilizing its current workforce. The selected recommendations also support implementation of the NOAA Education Plan and policy, providing the agency with a strategic framework for promoting coordination and realignment of existing activities as well as

focused development of new programs. Such a coordinated approach provides the means to meet and exceed the new expectations for NOAA leadership on environmental literacy.

### Proposed Actions

Provide program support for NOAA's formal and informal education efforts through competitive grants. This action is critical to implement the NOAA Education Plan and policy and is consistent with the intent of the US Ocean Action Plan, which require a foundation of robust Agency education programs in earth systems science. Evaluation of selected education activities will facilitate the successful evolution of the NOAA Education Program by identifying areas that require improvement as well as by highlighting innovative and effective practices that will become widely adopted.

### Benefits

- Enhanced ability for the Nation to have a scientifically literate, environmentally responsible population that will have the ability to make responsible decisions and a highly trained, technologically capable workforce.
- Supports implementation of the US Ocean Action Plan.
- Positions NOAA as a leader in ocean science education efforts.
- Allows NOAA to assess effectiveness and efficiency of existing education activities so that improvements can be made and best practices can be identified and build on for new activities.
- Improved community and public awareness of NOAA's mission goals and accomplishments, as well as basic knowledge of the environment and human interactions with it.

### Performance Goals and Measurement Data

This program change supports Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs." This increase also implementation of the US Ocean Action Plan and the NOAA Education Plan and directly supports all NOAA Goals and the following performance measure.

<b>Performance Goal:</b> Percentage of (target audience) demonstrating 70% or greater level of knowledge across (select) NOAA environmental literacy benchmarks.	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Without Increase	Unable to provide scholarships and program administration;	Unable to provide scholarships and program administration;	Unable to provide scholarships and program	Unable to provide scholarship s and	Unable to provide scholarships and program	Unable to provide scholarships and program	Unable to provide scholarships and program

	Inability to coordinate NOAA's higher education activities to strengthen future	Inability to coordinate NOAA's higher education activities to strengthen future	administration; Inability to coordinate NOAA's higher education activities to strengthen future	program administration; Inability to coordinate NOAA's higher education activities to strengthen future	administration; Inability to coordinate NOAA's higher education activities to strengthen future	administration; Inability to coordinate NOAA's higher education activities to strengthen future	administration; Inability to coordinate NOAA's higher education activities to strengthen future
With Increase	Ensure program support for scholarships and program administration; Promote development of highly trained workforce	Ensure program support for scholarships and program administration; Promote development of highly trained workforce	Ensure program support for scholarships and program administration; Promote development of highly trained workforce	Ensure program support for scholarships and program administration; Promote development of highly trained workforce	Ensure program support for scholarships and program administration; Promote development of highly trained workforce	Ensure program support for scholarships and program administration; Promote development of highly trained workforce	Ensure program support for scholarships and program administration; Promote development of highly trained workforce

**NOAA Education Program – Jason Education and Outreach (0 FTE and -\$1,000,000):** NOAA requests a decrease of 0 FTE and \$1,000,000 due to a reassessment of the level of funding needed to support JASON.

**NOAA Education Program – Education Partnership Program/Minority Serving Institutions (0 FTE and +\$341,000):** NOAA requests an increase of \$341,000 to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: JASON Education and Outreach (\$1,207,000); BWET California (\$2,348,000); BWET Regional Programs (\$7,316,000); Narragansett Bay Marine Education (\$892,000); Mt Washington Observatory Education Outreach Exp Initiative (\$423,000); Training Next Generation Weather Forecasters (\$212,000); Meteorological Equipment (\$817,000); Education Simulations Extreme Weather Events (\$188,000); Competitive Education Grants (\$4,876,000); John Smith Water Trail (\$446,000); Center for the Great Lakes (\$260,000); Anacostia Watershed Education (\$134,000).

**Subactivity: Facilities**

**Line Item: NOAA Facilities Management, Construction and Maintenance**

**GOAL STATEMENT:**

To support NOAA's mission by providing effective long-range facility planning and capital investment planning, facility condition assessment, and management and execution of NOAA facility repair and construction projects. The Facilities Management program is designed to keep facilities in well-maintained condition, return substandard facilities to their full potential, construct and renovate facilities to meet mission needs, and, dispose of facilities not required by mission need.

**BASE DESCRIPTION:**

**NOAA Facilities Management, Construction and Maintenance**

The Facilities Management and Modernization Program provides program direction and oversight to NOAA's major construction program and has been the focal point for facility master planning, project planning formulation and development, and project management oversight to support critical NOAA mission requirements. Funds in this line item support an integrated capital investment planning process; an integrated facility condition inspection program; systems and technology tools to enable maximum efficiency in project and facility management planning; and investments required to support repair and modernization of NOAA's facilities.

As NOAA-owned facilities age, investments in maintenance, repairs and modernization increase in priority. NOAA's owned capital assets total more than 400 owned building valued at nearly \$2 billion. Many facilities are well past their life expectancy and are in need of major repair or replacement to ensure that the facilities remain safe, effective, and efficient in support of NOAA's programs. This program provides funding to conduct facility condition inspections, and supports investments in necessary facility repairs and modernization. This line item also includes funds needed to support operations at NOAA's state-of-the-art laboratory building in Boulder, Colorado. This facility houses staff and programs from three NOAA line organizations (OAR, NESDIS, and NWS) as well as NOAA's program support units for the region. The work conducted in Boulder is necessary for NOAA's climate, weather research and support services. The line item also includes funding (\$6,300,000) 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 CAO has responsibility for policy development and guidance, long-term facility master planning, and construction program planning and execution (for new facilities, as well as repair and modernization projects). The CAO organization is responsible for managing the total project life-cycle for facility construction and modernization projects, including environmental and safety projects.

The facilities program supports achieving the Strategic Plan goal of improved safety and facility conditions. The program also supports a sustainable and strategic facilities master planning process with a 5 to 10-year planning horizon, and specifically promotes progress toward meeting the objective of increasing the number of facilities with improved co-location of NOAA services and partners. A robust facilities capability should lead to lower life-cycle cost of occupancy and facilities that better meet requirements in support of the NOAA mission goals.

Base activities support both objectives under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental stewardship.”

**PROPOSED LEGISLATION:**

None.



**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: NOAA Facilities Management, Construction and Maintenance					
NOAA Facilities Mgmt & Construction (previously Maintenance, Repairs & Safety)	14,899	18,482	25,453	24,297	(1,156)
Boulder Facilities Operations	4,501	-	-	-	-
<b>TOTAL</b>	<b>19,400</b>	<b>18,482</b>	<b>25,453</b>	<b>24,297</b>	<b>(1,156)</b>
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**NOAA Facilities Management, Construction and Maintenance (0 FTE and -\$1,156,000):** A decrease of 0 FTE and \$1,156,000 is requested for the Facilities Program. In order to fund higher priority activities, NOAA is requesting a reduced level of funding for the Facilities Management & Construction and Safety.

**TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: NOAA Facilities Management & Construction (\$472,000).

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**Subactivity: Facilities**  
**Line Item: Environmental Compliance & Safety**

**GOAL STATEMENT:**

To provide NOAA programs with a safe and environmentally-compliant working environment in the most economical, efficient and effective manner.

**BASE DESCRIPTION:**

The NOAA Environmental Compliance and Safety Program provides the resources necessary to comply with all existing federal, state, and local laws, regulations and safety requirements; and identify environmental compliance and safety issues requiring remediation. NOAA is responsible for ensuring continued compliance with applicable environmental and safety laws. NOAA continues to implement a management system to increase awareness, oversight and assessment; and ensure compliance with applicable laws and regulations.

Base activities support both objectives under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental stewardship.”

**PROPOSED LEGISLATION:**

**None.**

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Facilities	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Environmental Compliance & Safety					
Environmental Compliance	2,367	-	-	-	-
<b>TOTAL</b>	2,367	-	-	-	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

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**Subactivity: Marine Operations & Maintenance and Aviation Operations**  
**Line Item: Marine Operations & Maintenance**

**GOAL STATEMENT:**

To operate and maintain a fleet of vessels that are appropriately configured, equipped, and outfitted to safely collect hydrographic and coastal-assessment data; conduct fisheries scientific and survey operations; conduct sustained oceanographic and atmospheric data collection in a range of weather conditions and a variety of marine environments; and to collect data through outsourced ship support. These vessels have unique operating capabilities to: 1) provide the measurements and observations needed to protect, restore, and manage the ecosystem; 2) understand climate variability and change; 3) provide weather and water information; and 4) support the Nation's commerce by providing information for safe and efficient transportation. Marine Services' goals also seek to: 1) design, develop, and engineer ship systems in order to ensure cost-effective operations and to meet user requirements and safety/legal regulations; 2) maintain and repair existing ships to ensure their reliable operations; 3) provide centralized management of the NOAA Commissioned Corps; 4) provide centralized management of NOAA's operational diving program; 5) manage NOAA's Teacher at Sea program; 6) provide centralized guidance for ship and aircraft outsourcing; and 7) provide centralized guidance for NOAA's small-boat safety program.

**BASE DESCRIPTION:**

**Marine Services**

The objectives of this line item are to:

- Ensure the operational readiness and maximum capability of the NOAA ships to support present and future data-collection requirements for NOAA programs.
- Provide adequate maintenance and repairs to allow NOAA ships to meet the rigorous demands of NOAA's data-collection requirements.
- 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 some outsourcing support and provides centralized management for NOAA's 20 active ships. NOAA vessels, ranging in length from 90 to 274 feet, conduct operations that support NOAA's programs in nautical charting, bathymetric mapping, fisheries research, resource assessment, marine environmental baseline assessment, coastal-ocean circulation, and oceanographic and atmospheric research. Using Marine Services' funds in FY 2009, operation of NOAA's vessels will provide approximately 3,390 operating days and outsourcing will provide 500 operating days to support NOAA's highest priority programs.

The Marine Operations Center (MOC), with the Atlantic and Pacific regional offices located in Norfolk, Virginia, and Seattle, Washington, respectively, and with a small support staff at the home port of most ships, provides regional fleet management, maintenance, stores, supplies, repair facilities, data-processing facilities, operational support, and administrative support for NOAA's ten East and Gulf Coast vessels and nine West Coast vessels. NOAA vessels are staffed by NOAA Commissioned Corps officers, Wage Marine employees, and General Schedule technicians. The vessels are deployed for multi-program or specialized use depending 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. The 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), with occasional support to other NOAA components.

The NOAA Commissioned Corps supports the fleet of ships and aircraft as well as NOAA Line Offices. Marine Services funds the majority of the NOAA Commissioned Corps payroll 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 called Medicare Eligible Retiree Health Fund Contribution - NOAA Corps.

Marine Services' funds also provide diver training, safety standards, certification, technical advice, a standardized equipment program, and the NOAA Diving Manual for NOAA's 400 divers who perform over 15,000 dives annually in support of NOAA's programs.

In compliance with domestic and international maritime codes, Marine Services 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 Safety Program within Marine Services reduces risk to and enhances safety of NOAA employees that operate or work in NOAA's small boats, which number over 400. The program monitors or conducts small-boat inspections, facilitates small-boat activities by hosting workshops and sharing related information, and provides technical and engineering assistance to NOAA Line Offices concerning small boats.

Marine Services' funds also support the management of and participation of up to 30 teachers per year in the NOAA Teacher at Sea Program. As of FY 2006, close to 500 teachers have participated in the program. Teachers at the kindergarten through college level are able to work with NOAA scientists on NOAA ships in support of NOAA programs. The teachers provide a valuable connection between NOAA and their students. Additionally, NOAA's Teacher in the Air (TIA) program started in April 2004 as a spin-off to the now 19-year-old NOAA Teacher at Sea program. Two alumni of the at-sea program pioneered the airborne offshoot. The TIA pilot program now flies between 2-5 teachers on NOAA aircraft each year.

NOAA Ship RONALD H. BROWN is the largest vessel in the NOAA fleet. With its highly advanced instruments and sensors, RONALD H. BROWN travels worldwide supporting oceanographic and atmospheric scientific studies to increase our understanding of the world's oceans and climate. Commissioned on July 19, 1997 in its home port of Charleston, South Carolina, RONALD H. BROWN has sailed in the Pacific, Atlantic, and Indian Oceans. The ship was named for a former Secretary of the Department of Commerce, Ronald H. Brown.

NOAA Ship RAINIER, homeported in Seattle, Washington, conducts coastal hydrographic survey operations in Alaskan coastal waters. It is equipped with an intermediate depth multi-beam swath survey system. RAINIER carries six aluminum survey launches equipped with multi-beam swath, single-beam echo sounders, and a hydrographic data acquisition system. The vessel also has three small boats providing support to shore stations and dive operations. The launches act as a force multiplier when it comes to collecting hydrographic data.

NOAA Ship FAIRWEATHER conducts hydrographic surveys in Alaskan coastal waters. The ship was originally commissioned by NOAA in 1968 and conducted hydrographic surveys until it was deactivated in 1989. It was refurbished, then reactivated in 2004 and is homeported in Ketchikan, AK. The ship is equipped with the latest in hydrographic survey technology: multi-beam survey systems; high-speed, high-resolution side-scan sonar; and on-board data-processing. Like RAINIER, FAIRWEATHER is equipped with survey launches and small boats.

NOAA Ship KA'IMIMOANA supports the research programs of NOAA's Tropical Atmosphere-Ocean (TAO) Project. The TAO program is designed to improve our understanding of the role of the tropical ocean in modifying the world's climate. The ship deploys, recovers, and services deep sea surface and subsurface moorings that measure ocean currents, ocean temperatures, and atmospheric variables, throughout the equatorial Pacific Ocean. KA'IMIMOANA also deploys, recovers, and services Tsunami DART (Deep-ocean Assessment and Reporting of Tsunamis) moorings in the south Pacific. In addition to buoy measurements, the ship measures upper ocean currents, surface salinity, carbon dioxide content, and takes upper air atmospheric soundings while underway. A census of barnacles and marine life that inhabit the recovered moorings and the periodic replacement of undersea hydrophone moorings used to locate undersea spreading centers and hydrothermal vents on the East Pacific Rise are also conducted on an ongoing basis.

NOAA Ship MILLER FREEMAN is a stern trawler capable of a wide range of biological and oceanographic operations. The vessel's research and biological studies provide fisheries stock assessments, marine mammal population densities and ocean dynamics as related to biological production. The wide variety of acoustical instrumentation on MILLER FREEMAN is mounted such that the sensors lie beneath vessel-generated acoustic interference layers. MILLER FREEMAN has a unique electronics laboratory dedicated to operation and analysis of the acoustical instrumentation. The ship is homeported in Seattle, Washington, and the primary operating areas are the West Coast of the United States and Alaskan waters.

NOAA Ship McARTHUR II, which is homeported in Seattle, Washington, is a multiple-disciplinary platform capable of a broad range of missions. The ship conducts oceanographic research and marine- mammal assessments throughout the eastern Pacific waters of North, Central, and South America, including the U.S. West Coast and Central and South America. McARTHUR II is involved in studies in several of the National Marine Sanctuaries and Reserves along the West Coast of the United States. McARTHUR II engages in measurements of chemical, meteorological, and biological sampling for several large-scale programs within NOAA.

NOAA Ship OREGON II, homeported in Pascagoula, Mississippi, conducts fishery and living marine resource studies in support of the research for NOAA Fisheries' Southeast Fisheries Science Center. The ship collects fish and crustacean specimens using trawls and benthic longlines, fish larvae and eggs, and plankton using plankton nets and surface and midwater larval nets. The OREGON II operates in the Gulf of Mexico, the Atlantic Ocean, and the Caribbean Sea.

NOAA Ship THOMAS JEFFERSON, homeported in Norfolk, Virginia, conducts hydrographic surveys along the Atlantic and Gulf coasts' waters of the United States, Puerto Rico, and the U.S. Virgin Islands. The data is acquired by THOMAS JEFFERSON and its two survey launches equipped with specialized echo sounders, multibeam sonars, and side-scan sonars.

NOAA Ship DAVID STARR JORDAN is homeported in San Diego, California, and conducts physical oceanography and biological studies which provide fisheries stock assessments, marine mammal population densities and ocean dynamics related to biological production for the NOAA Fisheries' Southwest Fisheries Science Center. The ship is an integral part of the marine mammal surveys conducted by the Southwest Fisheries Science Center. These surveys include the Stenella Abundance Research Project (STAR), a study designed to assess the status of dolphin stocks that have been taken as incidental catch by the yellowfin tuna purse-seine fishery in the eastern tropical Pacific. The ship operates on the West Coast of the United States and eastern tropical Pacific.

NOAA Ship GORDON GUNTER, homeported in Pascagoula, Mississippi, conducts fishery and marine resource research supporting NOAA Fisheries' Southeast Fisheries Science Center. The ship collects fish and crustacean specimens using trawls, benthic longlines, fish larvae and eggs, and plankton using plankton nets and surface and midwater larval nets. The ship operates in the Gulf of Mexico and Caribbean Sea.

NOAA Ship OSCAR ELTON SETTE, homeported in Honolulu, Hawaii, is a multiple-disciplinary platform capable of a broad range of missions. The ship conducts fishery and marine resource research supporting NOAA Fisheries' Pacific Islands Fisheries Science Center. The ship conducts fisheries assessment surveys, physical and chemical oceanography, marine mammal projects, and coral reef research. She collects fish and crustacean specimens using bottom trawls, longlines and fish traps. Plankton, fish larvae and eggs are also collected with plankton nets and surface and mid-water larval nets. The ship operates in the Northwestern Hawaiian Islands and throughout the central and western Pacific.

NOAA Ship DELAWARE II, homeported in Woods Hole, Massachusetts, conducts fishery and living marine resource research in support of NOAA Fisheries' Northeast Fisheries Science Center. The ship operates in the Gulf of Maine, Georges Bank, and the continental shelf and slope from Southern

New England to Cape Hatteras, NC. Typical work includes groundfish assessment surveys and Marine Resources Monitoring, Assessment and Prediction surveys. Research conducted from the ship provides an understanding of the physical and biological processes that control year-class strength of key economical fish species.

NOAA Ship RUDE, currently homeported in Norfolk, Virginia, will be replaced by the SWATH in FY 2009. RUDE performs inshore hydrographic surveys along the United States' Northeast coast in support of NOAA's nautical charting mission, specializing in the location and accurate positioning of submerged hazards to navigation. The ship is equipped with some of the most technically advanced hydrographic and navigation equipment available, including differential global positioning systems, a multibeam bathymetric sonar system, and side-scan sonar.

NOAA Ship FERDINAND R. HASSLER, a new Small Waterplane Area Twin Hull (SWATH) vessel, will replace NOAA ship RUDE in FY 2009. HASSLER will be homeported at the University of New Hampshire (UNH) pier at New Castle, NH. HASSLER is a twin-hull form with small waterplane area that provides significant improvement (~70%) in a ship's ability to operate in a seaway over conventional monohull design. It will perform hydrographic survey work using three state of the art multibeam sonar systems installed on the bow(s) and one towed side-scan sonar. Performance improvements relative to RUDE come from higher survey speeds, wide spacing of the shallow-water, multibeam sonars, and the more stable platform for both crew and sonar operations. In addition to NOAA hydrographic survey mission work, the vessel will support research for state-of-the-art, ocean -mapping technologies at the NOAA/UNH Joint Hydrographic Center.

NOAA Ship NANCY FOSTER, homeported in Charleston, South Carolina, conducts coastal research along the U.S. Atlantic and Gulf coasts. The ship supports NOAA's Office of Ocean and Coastal Resource Management and the National Sea Grant College Program. Operations include the characterization of various habitats in NOAA's National Marine Sanctuaries, pollution assessment, and studies to improve understanding of the connection between marine habitats and estuaries.

NOAA Ship HI'IALAKAI, homeported in Honolulu, Hawaii, conducts coral reef ecosystem mapping, bio-analysis assessments, and coral reef health and fish stock studies. Scuba diving operations play a major role in scientific operations, and the ship is well suited to support both shallow and deep-water dive projects. The ship is equipped to carry two to five small work boats to transport divers to and from working areas, an extensive dive locker to store scientific gear and equipment, and air compressors to fill scuba cylinders. The ship is also outfitted with a three-person, double-lock recompression chamber to support remote and advanced diving missions.

NOAA Ship OSCAR DYSON, homeported in Kodiak, Alaska, is the first of four new acoustically quiet fisheries survey vessels built by NOAA. The ship is a stern trawler designed with state-of-the-art research ship capabilities. The ship conducts a wide variety of fisheries and oceanographic research. Foremost among the vessel's capabilities is acoustic quieting technology that allows sampling of fish populations without altering their behavior. The ship's primary objective is to study and monitor fisheries in the Bering Sea and Gulf of Alaska. The ship also conducts habitat assessments and surveys marine mammal and marine bird populations.

NOAA Ship HENRY B. BIGELOW is the second of four new acoustically quiet fisheries survey vessels built by NOAA. The ship will conduct fishery and living marine resource surveys like its predecessor, ALBATROSS IV. The ship is a stern trawler designed with state-of-the-art research ship capabilities. The ship conducts a wide variety of fisheries and oceanographic research. Foremost among the vessel's capabilities is acoustic quieting technology that allows sampling of fish populations without altering their behavior.

NOAA Ship PISCES is the third of four new acoustically quiet fisheries survey vessels built by NOAA and will provide high-quality series surveys and data collection for NOAA Fisheries' Southeast Fisheries Science Center. Foremost among the vessel's capabilities is acoustic quieting technology that allows sampling of fish populations without altering their behavior. PISCES will be homeported in Pascagoula, Mississippi.

NOAA Ship BELL M. SHIMADA is the fourth of four new acoustically quiet fisheries survey vessels built by NOAA, and its delivery is planned for early FY 2009. The vessel will collect data to manage fish stocks, such as Pacific Whiting, and to protect mammals in the Pacific Northwest. The vessel will operate and be homeported on the West Coast.

NOAA Ship OKEANOS EXPLORER will support NOAA's Ocean Exploration program. The ship will support a dedicated science-class, deep-ocean robot (ROV). The ship will carry 10,000 meters of umbilical cable, weighing more than 22,000 pounds. Up to 6,000 meters will be used to lower a tow sled close to the ocean floor. Another 30 meters of separate cable will connect the tow sled with a mobile ROV equipped with a robust sampling capability. The long umbilical cable from the ship to tow sled will funnel commands to and collect data and images from the ROV. NOAA's ship for ocean exploration will also be equipped with a hull-mounted, state-of-the-art multibeam mapping sonar system as well as other sampling and surveying instrument systems. The ship will offer scientists an ROV control center, a mapping lab, a technology center to process scientific data, and standard wet and dry labs. The ship's advanced data-transmission and processing capability will provide shore-based scientists with telepresence (ability of land-based scientists to operate at-sea equipment remotely).

NOAA's fleet includes the ships listed below:

<b>Vessel</b>	<b>Length-Class</b>	<b>Mission</b>	<b>Home Port</b>	<b>Status</b>
RONALD H. BROWN	274 ft. - I	1,4	Charleston, SC	Active
RAINIER	231 ft.- II	3	Seattle, WA	Active
FAIRWEATHER	231 ft.- II	3	Ketchikan, AK	Active
KA'IMIMOANA	224 ft.- III	1	Honolulu, HI	Active
MILLER FREEMAN	215 ft.-II	1,25	Seattle, WA	Active
MCARTHUR II	224 ft.- III	1,2,4	Seattle, WA	Active
OREGON II	175 ft.- III	2	Pascagoula, MS	Active
THOMAS JEFFERSON	208 ft.- II	3	Norfolk, VA	Active
DAVID STARR JORDAN	171 ft.-IV	2	San Diego, CA	Active
GORDON GUNTER	224 ft.- III	2	Pascagoula, MS	Active
OSCAR ELTON SETTE	224 ft.- III	2	Honolulu, HI	Active
DELAWARE II	155 ft.- IV	2	Woods Hole, MA	Active
RUDE	90 ft.- V	3	Norfolk, VA	Active - part of year
FERDINAND R. HASSLER (SWATH)	124 ft. - II	3	New Castle, NH	Active - part of year
NANCY FOSTER	187 ft.- III	1,4	Charleston, SC	Active
HI'IALAKAI	224 ft.- III	1,4	Honolulu, HI	Active
OSCAR DYSON	208 ft. - II	2	Kodiak, AK	Active
HENRY B. BIGELOW	208 ft. - II	2	TBD	Active
PISCES	208 ft. - II	2	Pascagoula, MS	Active
BELL M. SHIMADA	208 ft. - II	2	West Coast	Active
OKEANOS EXPLORER	224 ft.- III	1	TBD	Active

Mission:

- 1= Oceanographic Research
- 2 = Fisheries Research
- 3 = Hydrographic Surveys
- 4 = Environmental Assessment

Base activities support both objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

**PROPOSED LEGISLATION:**

None.



**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Marine Operations & Maintenance and Aviation Operations	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Marine Operations & Maintenance					
Data Acquisition Base	91,916	109,781	111,334	113,451	2,117
OE and NOAA Corps Pay Differential	1,480	-	-	-	-
Subtotal: Marine Services	93,396	109,781	111,334	113,451	2,117
<b>TOTAL</b>	<b>93,396</b>	<b>109,781</b>	<b>111,334</b>	<b>113,451</b>	<b>2,117</b>
FTE	821	813	864	893	29

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Maritime Crew Safety and Rotation (29 FTE and \$1,700,000):** NOAA requests an increase of 29 FTE and \$1,700,000 for a total of 29 FTEs and \$2,500,000 for maritime crew rotation and Standards of Training, Certification and Watchkeeping (STCW) safety training. This request is the second phase of an initiative to enhance safety aboard all NOAA vessels. The principal intent of crew rotation and safety training is to provide sufficient manpower in order to safely navigate; to conduct safe operations; to respond to potential emergencies (fire, accidents, etc.); and to provide adequate maintenance services on the NOAA Fleet. The FY 2008 request will address safety training and crew attrition on an additional seven ships.

NOAA has an attrition rate of 23 percent for NOAA wage mariners. This rate does not account for absences due to leave taking or for medical reasons; personnel may return to the ship in only a few days, or in the case of medical illness or injury up to a year may elapse before they return to the ship or are found permanently not fit for duty (PNFFD) and retired. Attrition rates are higher on ships that have more arduous schedules (i.e., more days at sea or longer cruises).

Due to the high attrition rate and maritime safety standards, NOAA has had to delay sailing various ships until enough crewmembers could be redeployed to those particular vessels. This detracts from the number of ship operating days available to the programs. Because of increasing numbers of days at sea and inadequate crew rotation, crew members must stay at sea longer than other maritime organizations such as Military Sealift Command and University National Oceanographic Laboratory Systems (UNOLS). This increased sea time for the wage mariners works them at their maximum physical potential, increasing the chance of safety-related accidents. Furthermore, longer schedules at sea have hurt NOAA's ability to recruit and retain maritime workers, because they can work fewer days at sea elsewhere for more money. Inadequate crew rotation has led to inadequate staffing of NOAA ships.

Understaffing on a NOAA vessel means that only a few of the shipboard departments can afford to lose more than one employee. Any loss of personnel, whether through attrition, medical emergency, or leave, requires that an alternate be provided to the ship to meet the safe manning level. A safe manning level is the term used by the U.S Coast Guard for the number of personnel authorized in each of the complements for the NOAA ships.

By FY 2008, the NOAA fleet will have expanded to 21 active ships. Seagoing wage mariner positions will increase from 364 at the start of FY 2007 to 421 by FY 2008, a 16 percent increase. With attrition rates of 23 percent for wage mariners, initial minimum training needs are significantly increased. In addition, most training and certifications are for a fixed time period and must be renewed from every year to every five years, depending on training type. The high attrition rate leads to higher ongoing training and certification requirements and costs.

OMAO currently uses a personnel contract to acquire temporary personnel to fill vacant positions to meet safe manning requirements. However, the contractors, in particular unlicensed personnel, cost twice as much as OMAO pays permanent wage mariner employees to do the same job. In addition, the contract is not used to provide personnel above the ships' authorized complements and thus can not provide a means for personnel to take leave, as is the intent of the Crew Rotation request. This request will provide additional wage mariner personnel over and above current approved complements with the intent to backfill employees while they take leave. By providing more opportunity to take leave, it is expected the attrition rate will decrease. A lower attrition rate will reduce OMAO's requirements for contract personnel to meet ships' minimum safe manning levels.

To adequately staff a ship, a ship that has four departments (engineering, deck, steward, and survey) would need four additional staff members with different skill sets. Thus, to address the staffing needs on seven additional ships, a total of an additional 28 crew members are required. The FY 2008 increase will provide the funds needed for the additional wage mariners, and safety training.

### **Statement of Need**

In accordance with STCW standards, all persons who are assigned duty as officer in charge of a watch or as a rating forming part of a watch must receive a minimum of 10 hours of rest in any 24-hour period. With the crew working at this pace over a period of several weeks at a time at sea leads to fatigue and safety concerns. Attrition rates currently average 23% for wage marine personnel that serve aboard NOAA ships. For ships that have a more arduous (more days at sea or longer cruises), the rates are even higher.

A recent survey of wage marine personnel clearly indicates that the major concerns among wage marine personnel are pay scales and the limited amount of time to be with their families. Management's plan would introduce additional rotational personnel into the staffing structure to provide increased opportunities for leave taking aboard all NOAA ships along with initiating a prototype "blue/gold" crew rotation for each of NOAA's three primary, seagoing acquisition of data programs (hydrographic surveys, fisheries, and ocean and coastal research programs).

This proposal represents a minimum requirement and will provide an effective rotation for seven ships. Because NOAA's fleet is experiencing a high turnover rate, the plan is to use these positions throughout the fleet to improve time-off availability to as many personnel as possible, with the goal of stemming the departure of well-trained personnel.

Additionally, some operating days have been lost due to not being able to fill key positions on NOAA vessels. According to OMAO's ship logging system, 24 ship days were lost in FY 2005 due to inadequate staffing. These lost days are directly attributable to inadequate staffing where the ships could not meet their safe manning requirements. Aside from the direct losses, not having adequate staff indirectly results in additional lost sea days. Lack of adequate crew such as engineers causes some maintenance to be deferred on ships that already are aging platforms. It is estimated that OMAO lost 175 days during FY 2005 due to system failures, maintenance, and unscheduled repair issues. Some portion of these lost days are attributable to insufficient and/or untrained shipboard personnel.

### **Proposed Action**

A crew rotation will be established for NOAA's three primary, seagoing acquisition of data programs (hydrographic surveys, fisheries, and ocean and coastal research). This initiative would also cover rotational requirements as a result of medical absences and other unexpected personal situations for the existing NOAA fleet. The goal of the program is to improve crew recruitment, retention, morale, training, professional skills, and safety throughout the NOAA fleet by limiting crew deployments to a target range of 200 - 210 days at sea per year. This initiative will decrease the existing 23% attrition rate among wage marine personnel by providing opportunities to take leave, providing relief from arduous ship operations schedules. The request will help absorb the increase in additional leave days that wage mariners are expected to request while the ships are deployed.

### Benefits

The requested increase in wage mariner personnel and 7,000 hours of additional training will permit NOAA to comply with SOLAS requirements and to reduce fatigue and lessen risk among the existing personnel. Compliance with SOLAS will prevent NOAA ships from being potentially detained in foreign ports because of lack of complete certifications and will enable NOAA vessels to meet the intent of industry standards and regulations. The crew rotation personnel will allow the NOAA Fleet to better meet planned missions and to meet annual data-collection requirements.

### Performance Goals and Measurement Data

This increase will 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 stewardship.” Specifically, this increase supports all five NOAA Mission Goals and the following performance measure.

<b>Performance Goal: Mission Support</b> Maritime Crew Safety and Rotation	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
STCW Training Without Increase	11,500 hours	11,500 hours	11,500 hours	11,500 hours	11,500 hours	11,500 hours
STCW Training With Increase	11,500 hours	18,500 hours	18,500 hours	18,500 hours	18,500 hours	18,500 hours
Crew Attrition Without Increase	23%	23%	23%	23%	23%	23%
Crew Attrition With Increase	23%	19%	19%	19%	19%	19%

**Data Acquisition (0 FTE and +\$1,001,000):** An increase of \$1,001,000 is requested to restore funding to complete projects that were anticipated in the FY 2008 President's Budget but were not able to be completed with the FY 2008 Omnibus levels.

**JOHN N. COBB Operations and Maintenance (0 FTEs and -\$584,000):** NOAA requests a reduction of 0 FTE and \$584,000 from Marine Services’ base to reflect the retirement of NOAA Ship, JOHN N. COBB from the NOAA fleet. The 59 year-old JOHN N. COBB will be taken off-line in FY 2008.

**Note:** An additional \$150,000 is requested to be reduced from the Fleet Planning and Maintenance base budget, for a total base reduction of \$734,000 in OMAO’s ORF budget.

**TERMINATIONS FOR FY 2009:**

None.

**Subactivity: Marine Operations & Maintenance and Aviation Operations**  
**Line Item: Fleet Planning and Maintenance**

**GOAL STATEMENT:**

This line item has been combined with Marine Services to reflect the general practice of funding both operations and maintenance together. This will provide greater flexibility in managing NOAA vessels.

**BASE DESCRIPTION:**

This line item has been combined with Marine Services to reflect the general practice of funding both operations and maintenance together. This will provide greater flexibility in managing NOAA vessels.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Marine Operations & Maintenance and Aviation Operations	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Fleet Planning and Maintenance					
Fleet Planning and Maintenance	16,989	16,756	16,773	17,034	261
<b>TOTAL</b>	16,989	16,756	16,773	17,034	261
FTE	3	3	3	3	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**JOHN N.COBB Operations and Maintenance (0 FTE and -\$150,000):** NOAA requests a reduction of 0 FTE and \$150,000 from Fleet Planning and Maintenance to reflect the retirement of JOHN N. COBB from the NOAA fleet. The 59 year-old JOHN N. COBB will be taken off-line in FY 2008.

Note: An additional -\$584,000 is requested to be reduced from the Marine Services for a total base reduction of \$734,000 in OMAO's ORF budget.

**Fleet Planning and Maintenance (0 FTE and +\$411,000):** An increase of \$411,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: Marine Operations & Maintenance and Aviation Operations**  
**Line Item: Aviation Operations**

**GOAL STATEMENT:**

To provide NOAA with a range of airborne data collection systems necessary to support NOAA's requirements for in-situ and remotely sensed airborne data. This data describes and predicts changes in the Earth's environment, conserve and manage the Nation's coastal and marine resources, and collect and process quality research and severe-weather data. The current fleet of aircraft has unique operating capabilities to: 1) provide the measurements and observations needed to protect, restore, and manage the ecosystem; 2) understand climate variability and change; 3) provide weather and water information; and 4) support the Nation's commerce by providing information for safe and efficient transportation. Aviation Services' goals are also: 1) to design, develop, and engineer aircraft systems in order to ensure cost-effective operations and to meet user requirements and safety/legal regulations; 2) maintain and repair existing aircraft to ensure their reliable operations; 3) support NOAA's Teacher in the Air program and; 4) provide centralized guidance aircraft outsourcing.

**BASE DESCRIPTION:**

**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. Operate the aircraft worldwide, over water, mountains, and coastal wetlands 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.
- Provide aviation life support equipment to NOAA Programs that utilize commercial aviation services.

**Aircraft Services:** The Aircraft Operations Center (AOC), located at MacDill Air Force Base in Tampa, Florida, ensures the availability and readiness of NOAA's uniquely configured aircraft with enhanced capabilities for research and data collection and required data processing. These platforms support the scientific community in research and data collection used to support of NOAA's Strategic Goals.

OMAO also ensures that outsourced aviation operations are conducted safely by providing technical support, services and equipment to NOAA programs for commercial aviation services.

The Aircraft Services base will provide 1,365 flight hours in FY 2009 using 12 NOAA aircrafts. NOAA's two WP-3D hurricane hunters and G-IV high-altitude jet will be mission-ready with instruments and personnel for hurricane research, reconnaissance and surveillance during the hurricane season. In the FY 2006 Hurricane Supplemental, NOAA received funds to purchase and modify a third P-3, that is scheduled to become operational in the summer of 2008. The third P-3 will be available during hurricane season to ensure that NOAA has at least two P-3 hurricane hunters available for tasking for hurricane reconnaissance and hurricane research missions. The G-IV will also be mission-ready with instruments and personnel to collect data for West Coast winter-storm predictions. The Turbo Commander and Shrike will be mission-ready with equipment and personnel for snow surveys needed for flood forecasts and water management from October 1 to May 1. Once the Damage Assessment aircraft replaces the Citation II aircraft, disposal of Citation II will occur in accordance with U.S. General Services Administration's regulations and after notification of Congress.

NOAA's fleet includes the following NOAA aircraft:

- Lockheed WP-3D Orion - N42RF and N43RF - Workhorses of the NOAA aircraft fleet, the P-3's are among the most advanced atmospheric and environmental research platforms flying today. Their research and navigation systems provide detailed spatial and temporal sampling of a wide range of atmospheric and oceanic parameters in support of observations of climate and global changes, severe-weather research, air-quality studies, air-sea interactions, and ocean dynamics. Instrumentation on the WP-3D's includes: C-Band, lower-fuselage radar; X-Band Doppler radar; dropwindsonde atmospheric profiling system; cloud-particle probes; satellite-data-transmission link; cloud physics system; and an aerosol-sampling system.
- Lockheed WP-3C Orion – N44RF - This P-3 is scheduled to be operational in 2008. The aircraft was transferred from the Navy to NOAA in November of 2006. After being transferred to NOAA, the aircraft was inducted into a facility to undergo an extensive conversion/maintenance period. Upon completion of the conversion/maintenance the aircraft will be outfitted with a suite of scientific and communications systems. This aircraft will be available to conduct non-hurricane and hurricane missions in the summer of 2008 so that NOAA's two primary P-3s will be available throughout the hurricane season.
- Gulfstream G-IV SP - N49RF - NOAA's uniquely configured G-IV jet supports high-altitude research requirements, both for air-quality sampling and investigations of mesoscale features to improve severe-weather predictions in the upper troposphere. The primary mission for this aircraft has been to provide NOAA with hurricane-surveillance data from atmospheric soundings in the environment surrounding the storm. These data increase the accuracy of computer models used to predict storm tracks. Collection of data over the Pacific has allowed NOAA to better forecast storms for the U.S. west coast. To improve NOAA's ability to forecast hurricane intensity forecast, a new tail Doppler radar is scheduled for installation from November 2007 – May 2008. This new capability will enhance severe weather prediction capabilities thus increasing the need for flight hours. Other missions include data collection for winter-storm research and prediction and clear-air-turbulence research. Instrumentation includes: pressure, temperature, humidity, and navigation sensors; downward-looking radiometer; Global Positioning System (GPS) dropwindsonde; and data-collection systems.

- Dehavilland DHC-6 Twin Otters – N46RF, N48RF, N56RF and N57RF - The Twin Otters are used to support the Northeast Right Whale Early Warning System and population surveys along the East Coast. They are also used for air-chemistry research, coastal mapping, remote sensing, hurricane-damage assessment, ozone research, Alaska cetacean population studies and other marine mammal surveys, and logistic support. Modifications and instrumentation include: observation bubble ports; nose mount for video camera; belly-camera observation port; multiple instrument ports; and satellite communication.
- Damage Assessment Aircraft - NXXRF (registration number not defined yet) – This aircraft is expected to be fully operational in FY09. Resources for acquiring this aircraft were provided in the FY2006 Hurricane Supplemental. This new aircraft will perform many of the missions that were previously conducted by NOAA’s Citation II aircraft. It will be used primarily for instrumentation research and development and to obtain precision aerial, multi-spectral imagery, photography, and survey data in support of NOAA’s Nautical Charting, Coastal Mapping, Airport Obstruction, Tsunami inundation modeling, and Ecosystem Mapping programs. Airport obstruction surveys are necessary for flight safety and result in changes to the digital displays of the Federal Aviation Administration (FAA) used by pilots in the cockpit and by Air Traffic Controllers to maintain safety of flight in the airport terminal environment. Planned Instrumentation includes: digital large format photogrammetry camera, bathymetric and topographic LIDAR, and multi-spectral systems. A high-precision GPS receiver will allow centimeter accuracy with the use of a differential GPS site.
- AC-500S Shrike Commander - N51RF, N47RF - The Shrike Commander is a light, twin-engine aircraft. It is used to conduct snow-water-equivalent surveys throughout the northern U.S. and southern Canada. Sensors aboard the aircraft measure the amount of gamma radiation attenuated by water molecules contained in snow cover. The aircraft is also utilized for marine mammal observations and fisheries observations. Instrumentation includes: modern navigation equipment; high-capacity, electrical output-capability, bubble windows and a gamma ray spectrometer.
- AC-695A Jet Prop Commander - N45RF – Like the Shrike, the Jet Prop Commander also supports the Snow Survey program. In addition the Jet Prop supports the Ecosystems Observation and the Protected Species programs.

The following table provides information on the aircraft fleet for the current program (missions and support fluctuate based on program priorities):

<b>Aircraft</b>	<b>Type</b>	<b>Mission</b>	<b>Location</b>
<b>HEAVY:</b>			
(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
<b>MID:</b>			
(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
<b>LIGHT:</b>			
(4) Dehavilland Twin Otter DHC-6	2-engine turbo prop	Aerial surveys (NMFS) Atmospheric research (OAR) Coastal ecology remote sensing (NOS)	MacDill AFB, FL
(1) Damage Assessment Aircraft	2-engine turbo prop	Photogrammetry (NOS) Multi-spectral scanner (NOS) Airborne bathymetric LIDAR (NOS, NWS) Airborne topographic LIDAR (NOS, NWS)	Dulles, VA
(2) Rockwell Shrike Commander/AC500S	2-engine reciprocating	Snow survey (NWS) Fisheries observations (NMFS)	Minneapolis, MN MacDill AFB, FL



(1) Jet Prop Commander AC/695	2-engine turbo prop	Marine mammal observations (NMFS) Snow surveys (NWS) Fisheries observations (NMFS) Marine mammal observations (NMFS)	Minneapolis, MN
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Base activities support both objectives under the Department of Commerce Strategic Goal of “Promote environmental needs.”

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: Marine Operations & Maintenance and Aviation Operations	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Aviation Operations					
Aircraft Services	18,728	25,152	25,428	30,044	4,616
<b>TOTAL</b>	18,728	25,152	25,428	30,044	4,616
FTE	85	89	104	104	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Additional Operations and Maintenance for Aircraft (0 FTE and +\$4,000,000)**: NOAA requests 0 FTE and \$4,000,000 for additional operational and maintenance funding to ensure NOAA's aircraft sustain current flight hour capacity and also meet the additional requirements to address NOAA mission needs, legislative mandates, and Executive Orders. The requested funds will enable NOAA to continue to warn the nation about natural environmental forces and to observe, protect, and manage the Earth's resources to promote environmental stewardship.

As aircraft age, routine maintenance costs increase. Spare parts become more expensive because the availability of parts for older aircraft decreases. The breadth of routine inspections increase as more is learned about the aging aircraft, thus increasing costs for inspections and repairs. This request provides additional funds to maintain NOAA's aircraft consistent with the manufacturers' and FAA standards. This will ensure that Aircraft Services can sustain a fleet of safe and reliable aircraft. This request also provides additional maintenance funding to meet the increased flight hour requirements. As the aircraft fly more hours they require additional maintenance cycles.

This request also provides additional maintenance funding to meet the increased flight hour requirements. As the aircraft fly more hours they require additional maintenance cycles.

This request will enable NOAA aircraft to provide 1,295 additional base-funded flight hours as listed below:

Increase Hurricane Research hours (OAR)	140 Hours
Increase Winter Storms and Hurricane Surveillance hours (track) (NWS)	300 Hours
Increase Hurricane Reconnaissance & Intensity hours (NWS)	195 Hours
Increase Snow Melt Flood forecasting hours (NWS)	330 Hours
Increase Coastal Mapping and Geoidic Modeling hours (NOS)	<u>330 Hours</u>
	1,295 Hours

**Statement of Need**

Increased costs for maintenance (separate from SDLM/PDM) and other program cost eroded funds available for Aircraft Services. Without this funding increase, the number of base-funded flight hours will be 1,365 in FY 2009. As aircraft age, the routine maintenance/inspection procedures on the aircraft take longer. With age, the number of items that require repair during an inspection has increased, and the maintenance/inspection takes longer and costs more. In addition, many of the parts for NOAA aircraft are more difficult to find and, therefore, cost more. Therefore, funding for 185 flights hours is required to sustain current flight operations. This request begins to close the gap between the current capability of the NOAA's aircraft and the hours needed by the NOAA Line Offices and Programs to meet their airborne observational needs.

To mitigate the impacts of environmental hazards to the Nation and the economy, NOAA requires in-situ and remotely sensed data from NOAA aircraft. NOAA has identified requirements for additional flight hours that exceed the 100 % capacity of 3,400 flight hours on NOAA's uniquely configured fleet of aircraft. This request also will enable NOAA aircraft to provide 1,295 additional base-funded flight hours for:

Improving knowledge and understanding of hurricane genesis and the life cycle of tropical systems	140 hours
Hurricane reconnaissance to provide sufficient data to support hurricane track and hurricane intensity forecast models	195 hours
Hurricane surveillance that provide data critical to 5-day hurricane track forecasts	175 hours
Winter storms surveillance	125 hours
Airborne snow survey observations to improve water resource forecasts and improve snow melt flood forecasts	330 hours
Coastal mapping to improve and maintain nautical charts and to improve tsunami inundation modeling	330 hours
	1,295 hours

Without this funding increase, the number of base flight hours will be 1,365 in FY 2009. The reason for the reduction in hours without the increase is due to the increased costs of maintenance on the aircraft. As aircraft age the routine maintenance/inspection procedures on the aircraft take longer. With age, the number of items that require repair during an inspection has increased, and the maintenance/inspection takes longer and costs more. In addition, many of the parts for NOAA aircraft are more difficult to find and, therefore, cost more. This request begins to close the gap between the current capability of the NOAA's aircraft and the hours needed by the NOAA Line Offices and Programs to meet their airborne observational needs.

### **Proposed Action**

NOAA proposes increasing operational flight hours to 2,845 base-funded hours to meet NOAA's requirements for additional airborne data observations. These flight hours are in direct response to each NOAA Program's need for additional airborne observations that will improve: hurricane intensity and track forecasts, winter storm track and landfall forecasts, water information and flood forecast through increased snow survey observations, tsunami inundation maps and updated nautical charts through increased mapping efforts.

### **Benefits**

Whether the hazards are coastal or inland, or the losses felt immediately or gradually over time, NOAA's primary responsibility is to mitigate the escalating economic, societal, and environmental costs associated with environmental hazards. To help mitigate these impacts NOAA Programs have indicated the need to increase airborne observations.

The increased hours will provide more accurate hurricane intensity and track forecasts to help state and federal planners mitigate losses of property and life from these devastating storms. The increased hours for winter storms reconnaissance will improve forecast of winter storms that affect the whole country.

Improved forecasts help state and local communities prepare for major wind, rain, and snow events allowing equipment to be pre-positioned and supplies moved into communities before they are needed. Increased NWS snow survey observations provide critical data to improve water resource information and flood forecast models. Additional coastal mapping hours will provide additional data for nautical charts that are important to the Nation's commerce as well as provide additional mapping data to improve tsunami inundation models for emergency evacuation planning.

#### **Performance Goals and Measurement Data**

This increase will support the objective, "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs" under the Department of Commerce strategic goal of "Promote environmental needs." Specifically, this increase supports the NOAA Mission Support objective, "Increase number of ship operating days and aircraft flight hours that meet NOAA's data collection requirements with high customer satisfaction" and the following performance measure.

<b>Performance Goal: Mission Support Flight Hours</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase (base-funded flight hours)	1,975	1,975	1,365	1,365	1,365	1,365
With Increase (base-funded flight hours)	1,975	1,975	2,845	2,845	2,845	2,845

**Aircraft Services (0 FTE and +\$616,000):** An increase of \$616,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

#### **TERMINATIONS FOR FY 2009:**

None.

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**Subactivity: NOAA Corps Retirement Pay (Mandatory)**  
**Line Item: NOAA Corps Retirement Pay (Mandatory)**

**GOAL STATEMENT:**

The objective of this line item is to provide payment of benefits to retired NOAA Commissioned Corps officers and their families.

**BASE DESCRIPTION:**

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, 10 USC. Retired pay is an entitlement to NOAA Commissioned Corps officers under 33 USCA 3044, 33 USCA 3045, and 33 USCA 3046. Retired pay funds are transferred to the U.S. Coast Guard, which handles the payments each year as adjusted pursuant to the Department of Defense Authorization legislation. Healthcare funds for non-Medicare-eligible retirees, dependents, and annuitants are transferred to the U.S. Public Health Service, which administers the healthcare program.

Legal authority for retirement of NOAA Commissioned Corps officers is contained in 33 USCA 3044. Retired officers of the NOAA Commissioned Corps receive retirement benefits that are administered by the Commissioned Personnel Center within the Office of Marine and Aviation Operations.

**Significant Adjustments to Base (ATBs):** NOAA requests an increase of \$1,153,000 for a total of \$24,272,000 to fund an expected increase in retired pay due to inflation and additional officers retiring. It will also be used to fund an expected increase in the cost of health benefits for non-Medicare eligible retirees, dependants, and annuitants.

Base activities support both objectives under the Department of Commerce Strategic Goal of “Promote environmental stewardship.”

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Subactivity: NOAA Corps Retirement Pay (Mandatory)	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: NOAA Corps Retirement Pay (Mandatory)					
<b>TOTAL</b>	20541	23,119	24,272	24,272	-
<b>FTE</b>	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

None.

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Program Support  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
(Dollar amounts in thousands)

<b>Program Support - Discretionary</b>	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Current Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Climate</b>					
Climate	0	0	0	0	0
Total C	0	0	0	0	0
<b>Commerce and Transportation</b>					
Commerce and Transportation	0	0	0	0	0
Total CT	0	0	0	0	0
<b>Mission Support</b>					
MS	362,242	395,900	379,076	394,395	15,319
Total MS	362,242	395,900	379,076	394,395	15,319
<b>Weather and Water</b>					
Weather and Water	0	0	0	0	0
Total WW	0	0	0	0	0
<b>Total Program Support</b>	<b>362,242</b>	<b>395,900</b>	<b>379,076</b>	<b>394,395</b>	<b>15,319</b>

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Program Support		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount	
<b>Corporate Services</b>											
Under Secretary and Associate Offices	Pos/BA	239	26,285	240	28,814	229	28,643	229	28,676	-	33
	FTE/OBL	228	26,248	229	28,814	219	28,643	219	28,676	-	33
NOAA Wide Corporate Services & Agency Management	Pos/BA	815	154,631	812	158,006	815	154,277	827	162,315	12	8,038
	FTE/OBL	776	154,857	773	159,090	776	154,277	785	162,315	9	8,038
Office of Chief Information Officer (CIO)	Pos/BA	-	-	-	975	-	976	-	2,050	-	1,074
	FTE/OBL	-	-	-	975	-	976	-	2,050	-	1,074
Total: Corporate Services	Pos/BA	1,054	180,916	1,052	187,795	1,044	183,896	1,056	193,041	12	9,145
	FTE/OBL	1,004	181,105	1,002	188,879	995	183,896	1,004	193,041	9	9,145
<b>NOAA Education Program</b>											
NOAA Education Program	Pos/BA	-	30,446	-	37,934	11	16,192	11	16,528	-	336
	FTE/OBL	-	30,978	-	37,998	10	16,192	10	16,528	-	336
Total: NOAA Education Program	Pos/BA	-	30,446	-	37,934	11	16,192	11	16,528	-	336
	FTE/OBL	-	30,978	-	37,998	10	16,192	10	16,528	-	336
<b>Facilities</b>											
NOAA Facilities Management, Construction and Maintenance	Pos/BA	-	19,400	-	18,482	-	25,453	-	24,297	-	(1,156)
	FTE/OBL	-	21,620	-	18,482	-	25,453	-	24,297	-	(1,156)
Environmental Compliance & Safety	Pos/BA	-	2,367	-	-	-	-	-	-	-	-
	FTE/OBL	-	2,372	-	-	-	-	-	-	-	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Operations Research and Facilities  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Program Support		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount	
Total: Facilities	Pos/BA	-	21,767	-	18,482	-	25,453	-	24,297	-	(1,156)
	FTE/OBL	-	23,992	-	18,482	-	25,453	-	24,297	-	(1,156)
Marine Operations & Maintenance and Aviation Operations											
Marine Operations & Maintenance	Pos/BA	862	93,396	854	109,781	898	111,334	926	113,451	28	2,117
	FTE/OBL	821	94,431	813	110,435	864	111,334	893	113,451	29	2,117
Fleet Planning and Maintenance	Pos/BA	3	16,989	3	16,756	3	16,773	3	17,034	-	261
	FTE/OBL	3	17,043	3	16,771	3	16,773	3	17,034	-	261
Aviation Operations	Pos/BA	89	18,728	93	25,152	109	25,428	109	30,044	-	4,616
	FTE/OBL	85	18,235	89	25,409	104	25,428	104	30,044	-	4,616
Total: Marine Operations & Maintenance and Aviation Operations	Pos/BA	954	129,113	950	151,689	1,010	153,535	1,038	160,529	28	6,994
	FTE/OBL	909	129,709	905	152,615	971	153,535	1,000	160,529	29	6,994



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

Activity: Program Support  
 Subactivity: Corporate Services

Title	Grade	Number	Annual Salary	Total Salaries	
Acquisition Management Spec	AGO - Silver Spring, MD	GS-12/1	1	66,767	66,767
Chief Procurement Analyst	AGO - Silver Spring, MD	GS-15/1	1	93,822	93,822
Contract Specialist	AGO - Silver Spring, MD	GS-14/1	1	93,822	93,822
Contracts Specialist	AGO - Silver Spring, MD	GS-12/1	1	66,767	66,767
Contracts Specialist	AGO - Silver Spring, MD	GS-11/1	1	55,706	55,706
Contracts Specialist Rotation	AGO - Silver Spring, MD	GS-7/1	1	66,767	66,767
Government Purch Card Ana	AGO - Silver Spring, MD	GS-13/1	1	79,397	79,397
Grants Management Officer	AGO - Silver Spring, MD	GS-15/1	1	93,822	93,822
Grants Specialist	AGO - Silver Spring, MD	GS-14/1	1	93,822	93,822
Interagency Agreement Mgmt Spe	AGO - Silver Spring, MD	GS-12/1	1	66,767	66,767
Procurement Analyst	AGO - Silver Spring, MD	GS-14/1	1	93,822	93,822
Procurement Analyst	AGO - Silver Spring, MD	GS-13/1	1	79,397	79,397
Total			12		950,678
Less Lapse	25%		-3		(237,670)
Total full-time permanent (FTE)			9		713,009
2009 Pay Adjustment (2.9%)					20,677
Total					733,686
<b>Personnel Data</b>			<b>Number</b>		
Full-time permanent			9		
Other than full-time permanent			0		
Total			9		
<b>Authorized Positions</b>					
Full-time permanent			12		
Other than full-time permanent			0		
Total			12		

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

<b>Activity:</b>	Program Support					
<b>Subactivity:</b>	Marine Operations & Maintenance and Aviation Operations					
<b>Title:</b>	<b>Location</b>	<b>Grade</b>	<b>Number of Positions</b>	<b>Number of FTE</b>	<b>Annual Salary</b>	<b>Total Salaries</b>
3rd Asst Engineer (Watch)	Various	WM	7	10	61,138	427,968
Able Bodied Seaman	Various	WM	7	10	30,535	213,745
General Vessel Assistant	Various	WM	7	10	28,111	196,777
Second Cook	Various	WM	7	10	30,997	216,979
<b>Total</b>			<u>28</u>	<u>40</u>		<u>1,055,469</u>
less Lapse		27.5%		<u>11</u>		<u>290,254</u>
Total full-time permanent (FTE)				<u>29</u>		<u>765,215</u>
2008 Pay Adjustment (3.5%)						26,783
2009 Pay Adjustment (2.9%)						<u>22,968</u>
<b>TOTAL</b>						<u>814,966</u>

<b>Personnel Data</b>	<b>Number</b>
Full-Time Equivalent Employment	
Full-time permanent	28
Other than full-time permanent	0
Total	<u>28</u>
Authorized Positions:	
Full-time permanent	29
Other than full-time permanent	0
Total	<u>29</u>

**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	2009 Increase
11 Personnel compensation	
11.1 Senior Executive Service	755
11.9 Total personnel compensation	755
12.1 Civilian personnel benefits	95
12.3 FICA	66
21 Travel and transportation of persons	81
22 Transportation of things	1
23.1 Rental payments to GSA	86
23.3 Communications, utilities and miscellaneous charges	5
25.1 Advisory and assistance services	8,333
25.2 Other services	1,214
25.3 Office of Personnel Management Training	261
26 Supplies and materials	16
31 Equipment	30
99 Total Obligations	10,943

**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	2009 Decrease
25.1	Advisory and assistance services	(1,798)
99	Total Obligations	(1,798)

**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: NOAA Education Program

	Object Class	2009 Increase
25.1	Consulting services	1,336
99	Total Obligations	1,336

**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: NOAA Education Program

	Object Class	2009 Decrease
25.1	Consulting services	(1,000)
99	Total Obligations	(1,000)

**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	2009 Decrease
25.3	Other purchases of goods and services from Govt accounts	(1,156)
99	Total Obligations	(1,156)

**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: Marine Operations & Maintenance and Aviation Operations

	Object Class	2009 Increase
11	Personnel compensation	
11	Personnel compensation	814
11.9	Total personnel compensation	814
12	Civilian personnel benefits	302
21	Travel and transportation of persons	995
25.2	Other services	3,001
26	Supplies and materials	2,615
99	Total Obligations	7,727



**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: Marine Operations & Maintenance and Aviation Operations

	Object Class	2009 Decrease
22	Transportation of things	(2)
23	Rent, Communications, and Utilities	(9)
25.2	Other services	(514)
26	Supplies and materials	(208)
31	Equipment	(1)
99	Total Obligations	(734)

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**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Operations Research and Facilities**  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**

Object Class	FY 2007 Actual	FY 2008 Currently Available	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	893,220	957,537	961,266	967,297	6,031
11.3 Other than full-time permanent	8,714	7,995	8,887	8,887	0
11.5 Other personnel compensation	55,049	55,751	66,021	66,024	3
11.6 Leave Surcharge	0	199	0	180	180
11.7 Military personnel	25,256	28,127	29,542	29,542	0
11.8 Special personnel services payments	0	36	0	0	0
11.9 Total Personnel Compensation	982,239	1,049,645	1,065,716	1,071,930	6,214
12.1 Civilian personnel benefits	269,139	278,237	290,318	292,412	2,094
13 Benefits for former personnel	18,227	20,895	20,609	20,609	0
21 Travel and transportation of persons	43,045	41,615	51,024	52,986	1,962
22 Transportation of things	14,735	15,452	16,678	16,697	19
23.1 Rental payments to GSA	68,701	63,438	72,964	73,100	136
23.2 Rental payments to others	16,334	13,316	20,435	20,435	0
23.3 Communications, utilities and miscellaneous charges	63,717	61,109	95,586	101,011	5,425
24 Printing and reproduction	4,205	5,128	8,437	8,460	23
25.1 Advisory and assistance services	131,348	151,266	132,283	159,554	27,271
25.2 Other services	420,387	433,581	485,569	549,921	64,352
25.3 Purchases of goods and services from Govt accounts	109,527	92,278	116,180	121,562	5,382

**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Operations Research and Facilities**  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**

Object Class	FY 2007 Actual	FY 2008 Currently Available	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
25.4 Operation and maintenance of facilities	50	945	0	0	0
25.5 Research and development contracts	6,961	14,821	12,036	20,097	8,061
26 Supplies and materials	81,506	96,312	90,848	97,196	6,348
31 Equipment	34,532	43,506	46,334	49,570	3,236
32 Lands and structures	2,259	2,672	8,853	8,853	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	732,526	624,509	250,657	283,890	33,233
42 Insurance claims and indemnities	21	0	115	115	0
43 Interest and dividends	264	10	127	127	0
44 Refunds	0	0	0	0	0
99 Total Obligations	2,999,723	3,008,735	2,784,769	2,948,525	163,756
Unobligated Balance Lapse	712				
Cash Refund	(1,577)	0	0		
Prior Year Recoveries	(8,974)	(5,000)	(11,000)	(11,000)	0
Unobligated Balance, Start of Year	(27,151)	(48,636)	0	0	0
Unobligated Balance, End of Year	48,636	0	0	0	0
Subtotal Budget Authority	3,011,369	2,955,099	2,773,769	2,937,525	163,756

**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Operations Research and Facilities**  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**

Object Class	FY 2007 Actual	FY 2008 Currently Available	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
Less: NOAA Corps	(20,541)	(23,119)	(24,272)	(24,272)	0
Total Discretionary ORF Budget Authority	2,990,828	2,931,980	2,749,497	2,913,253	163,756
Positions	11,711	12,306	12,405	12,508	103
FTE	11,720	11,720	11,823	11,909	86

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

		FY 2009			
		Total	Base	FY 2009	Increases/
		ATBs	Program	Estimate	Decreases
11	Personnel compensation				
11.1	Full-time permanent				
	Executive level		304	304	0
	Senior Executive Service		18,285	18,285	0
	General schedule	31,908	917,732	922,954	5,222
	Commissioned officers	659	659	659	0
	Wage board/wage marine	126	14,773	15,582	809
	Scientific & professional (P.L. 80-313)		0	0	0
	Law Enforcement		9,513	9,513	0
	Students		0	0	0
	Subtotal	32,693	961,266	967,297	6,031
11.3	Other than full-time permanent				
	General schedule		7,391	7,391	0
	Wage board/wage marine		1,496	1,496	0
	Experts & consultants		0	0	0
	Hourly		0	0	0
	Subtotal	0	8,887	8,887	0
11.5	Other personnel compensation				
	Overtime		24,200	24,203	3

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

	Cash awards		22,665	22,665	0
	Other		19,156	19,156	0
	Subtotal	0	66,021	66,024	3
11.6	Leave Surcharge				
	Full-Time Permanent		0	180	180
	Other		0	0	0
	Subtotal	0	0	180	180
11.7	Military Personnel				
	Military Personnel		20,716	20,716	0
	Other		8,826	8,826	0
	Subtotal	0	29,542	29,542	0
11.8	Special personnel services payments				
	Foreign service officers (State)				
	Other		0	0	0
	Subtotal	0	0	0	0
11.9	Total personnel compensation	32,693	1,065,716	1,071,930	6,214
12.1	Civilian personnel benefits				
	Civil service retirement	(1,708)	20,372	20,390	18
	Federal Employee Retirement	2,726	75,157	75,436	279



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

	Medicare		14,861	14,883	22
	Thrift savings plan	488	36,906	37,108	202
	Federal insurance contribution act	1,591	43,850	43,957	107
	Health insurance	1,139	66,872	66,978	106
	Life insurance		1,606	1,609	3
	Overseas allowance (COLA)		13,523	13,523	0
	Employees comp fund (bec)	551	5,345	5,345	0
	Other		11,826	13,183	1,357
	Subtotal	4,787	290,318	292,412	2,094
13.0	Benefits for former personnel				
	Retired Pay		20,335	20,335	0
	Health benefits		0	0	0
	Other		274	274	0
	Subtotal	0	20,609	20,609	0
21	Travel and transportation of persons		49,082	49,082	0
	Aircraft rental		222	222	0
	GSA vehicles		542	542	0
	Program travel	2,165	1,178	3,140	1,962
	Subtotal	2,165	51,024	52,986	1,962
22	Transportation of things				
	Trans of household goods		4,659	4,659	0

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

	GSA trucks		5,811	5,811	0
	Other		6,208	6,227	19
	Subtotal	0	16,678	16,697	19
23.1	Rental payments to GSA	1,509	72,964	73,100	136
23.2	Rental payments to others	0	20,435	20,435	0
23.3	Communications, utilities and miscellaneous charges				
	Utility services		35,991	35,991	0
	Aircraft charter		(28)	572	600
	Vessel charter		4,230	8,070	3,840
	Rental of office copying equipment		1,427	1,427	0
	Rental of ADP equipment		2,760	3,693	933
	Federal telecommunications system		12,543	12,546	3
	Other telecommunications services		36,295	36,344	49
	Postal services by USPS		2,368	2,368	0
	Other		0	0	0
	Subtotal	0	95,586	101,011	5,425
24	Printing and reproduction				
	Publications	32	7,121	7,144	23
	Public use forms		0	0	0
	Other	6	1,316	1,316	0

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

	Subtotal	38	8,437	8,460	23
25.1	Consulting services	0	132,283	159,554	27,271
25.2	Other services				
	Aircraft repair		2,569	4,409	1,840
	Vessel repair		28,068	28,190	122
	Contracts for research		(90)	1,214	1,304
	Maintenance of equipment		15,173	15,173	0
	Other	(1,712)	430,201	490,836	60,635
	Training		9,648	10,099	451
	Subtotal	(1,712)	485,569	549,921	64,352
25.3	Other purchases of goods & services from Gov't accounts				
	Purchases of goods & services from Gov't accounts	840	65,842	70,963	5,121
	Office of Personnel Management Training		15,558	15,558	0
	GSA reimbursable services		0	0	0
	Payments to DM, WCF		34,780	35,041	261
	Subtotal	840	116,180	121,562	5,382
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**  
**DETAILED REQUIREMENTS BY OBJECT CLASS**  
**(Dollars in thousands)**

25.5	Research and development contracts	0	12,036	20,097	8,061
<hr/>					
26	Supplies and materials				
	Chart paper		1	1	0
	Met. upper air		11,828	11,828	0
	Maintenance of vessel		2,536	2,521	(15)
	Gases		1,527	1,527	0
	Fuel		13,950	16,319	2,369
	ADP supplies		13,900	15,141	1,241
	Other		47,106	49,859	2,753
	Subtotal		<hr/> 0	<hr/> 90,848	<hr/> 97,196
<hr/>					
31	Equipment				
	Office machines and equipment		0	3	3
	ADP hardware		168	382	214
	Other capitalized		7,395	8,107	712
	Depreciation on capitalized equipment		0	0	0
	Non-capitalized		38,555	40,862	2,307
	Capital Lease		216	216	0
	Subtotal		<hr/> 0	<hr/> 46,334	<hr/> 49,570
<hr/>					
32	Lands and structures				
	Land		620	620	0
	Building and Other Structures		8,233	8,233	0

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

	Depreciation of Building		0	0	0
	Subtotal lands and structures	0	8,853	8,853	0
33	Investments and loans		0	0	0
41	Grants, subsidies and contributions	0	250,657	283,890	33,233
42	Insurance claims and indemnities		115	115	0
43	Interest/dividends..		127	127	0
44	Refunds		0	0	0
99	Total Direct Obligations	40,320	2,784,769	2,948,525	163,756
	Unobligated Balance Lapse				
	Cash Refund				
	Prior Year Recoveries		(11,000)	(11,000)	
	Unobligated Balance, Start of Year				
	Unobligated Balance, End of Year				
	Total ORF Budget Authority	40,320	2,773,769	2,937,525	163,756
	Less NOAA Corps	0	(24,272)	(24,272)	0
	Total Discretionary ORF Budget Authority	40,320	2,749,497	2,913,253	163,756

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

## Personnel Data

## Full-Time Equivalent Employment:

Full-time permanent	103	11,823	11,909	86
Other than full-time permanent				
Total	103	11,823	11,909	86

## Authorized Positions:

Full-time permanent	99	12,405	12,508	103
Other than full-time permanent				
Total	99	12,405	12,508	103

**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Operations Research and Facilities**  
**SUMMARY OF INFORMATION TECHNOLOGY RESOURCES**  
(Dollar amounts in thousands)

<b>IT Resources by activity/subactivity:</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>
	<b>Enacted</b>	<b>Enacted</b>	<b>President's</b>
			<b>Budget</b>
Navigation Services	17,979	17,290	20,565
Ocean Resources Conservation	9,265	8,560	9,504
Ocean and Coastal Management	<u>9,265</u>	<u>8,560</u>	<u>9,504</u>
<b>Total National Ocean Service</b>	<b>36,509</b>	<b>34,410</b>	<b>39,573</b>
Protected Species Research and Management	6,193	6,193	6,193
Fisheries Research and Management	8,878	9,223	9,798
Enforcement and Observers/Training	15,391	15,452	15,452
Habitat Conservation and Restoration	6,193	6,193	6,193
Other Activities Supporting Fisheries	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total: National Marine Fisheries Service</b>	<b>36,655</b>	<b>37,061</b>	<b>37,636</b>

**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Operations Research and Facilities**  
**SUMMARY OF INFORMATION TECHNOLOGY RESOURCES**  
**(Dollar amounts in thousands)**

Climate Research	13,482	17,195	18,367
Weather and Air Quality	16,049	16,719	17,869
Ocean, Coastal, and Great Lakes Research	5,719	5,955	6,299
Information Technology, R&D, and Science Education	4,340	4,340	4,340
<b>Total Oceanic and Atmospheric Research</b>	<b>39,590</b>	<b>44,209</b>	<b>46,875</b>
Operations and Research	88,514	93,851	96,633
System Operation & Maintenance (O&M)	<u>76,945</u>	<u>77,133</u>	<u>77,932</u>
<b>Total: National Weather Service</b>	<b>165,459</b>	<b>170,984</b>	<b>174,565</b>
Environmental Satellite Observing Systems	53,065	61,155	64,667
NOAA's Data Centers & Information Services	<u>52,142</u>	<u>57,728</u>	<u>61,158</u>
<b>Total: National Environmental Satellite, Data and Information Service</b>	<b>105,207</b>	<b>118,883</b>	<b>125,825</b>



**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Operations Research and Facilities**  
**SUMMARY OF INFORMATION TECHNOLOGY RESOURCES**  
**(Dollar amounts in thousands)**

Corporate Services	30,951	29,342	31,915
NOAA Education Program	0	0	0
Facilities	0	0	0
Marine Operations & Maintenance and Aviation Operations	<u>4,730</u>	<u>4,858</u>	<u>4,858</u>
<b>Total Program Support</b>	<b>35,681</b>	<b>34,200</b>	<b>36,773</b>
<b>Total NOAA ORF</b>	<b>419,101</b>	<b>439,747</b>	<b>461,247</b>

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**DEPARTMENT OF COMMERCE**  
**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**  
Operations, Research, and Facilities  
**APPROPRIATION SUMMARY STATEMENT**

For necessary expenses of activities authorized by law for the National Oceanic and Atmospheric Administration, including maintenance, operation, and hire of aircraft and vessels; grants, contracts, or other payments to nonprofit organizations for the purposes of conducting activities pursuant to cooperative agreements; and relocation of facilities, \$2,831,253, to remain available until September 30, 2009, except for funds provided for cooperative enforcement which shall remain available until September 30, 2010: Provided, That fees and donations received by the National Ocean Service for the management of national marine sanctuaries may be retained and used for the salaries and expenses associated with those activities, notwithstanding 31 U.S.C. 3302: Provided further, That in addition, \$3,000,000 shall be derived by transfer from the fund entitled 'Coastal Zone Management' and in addition \$77,000,000 shall be derived by transfer from the fund entitled 'Promote and Develop Fishery Products and Research Pertaining to American Fisheries': Provided further, That of the \$2,924,253 provided for in direct obligations under this heading \$2,831,253 is appropriated from the General Fund and \$80,000,000 is provided by transfer, and \$11,000,000 is derived from deobligations from prior years.

In addition, for necessary retired pay expenses under the Retired Serviceman's Family Protection and Survivor Benefits Plan, and for payments for the medical care of retired personnel and their dependents under the Dependents Medical Care Act (10 U.S.C. ch. 55), such sums as may be necessary. (15 U.S.C. ch. 9, 9A, 40, 56; 16 U.S.C. ch. 32, 32A, 33; 33 U.S.C. ch. 17, 22, 26; 42 U.S.C. ch. 97, 103; 43 U.S.C. ch. 29.

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**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.
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
12 USC 1715m	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	
15 USC 313nt	16 USC 1451 et seq.	33 USC 1251	
15 USC 325	16 USC 1456a	33 USC 1321	
15 USC 330b	16 USC 1464	33 USC 1441-44	
15 USC 330e	16 USC 1531 et seq.	33 USC 2706	

**Organizations and Employees**

5 USC 5348 - Crews of Vessels.

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

5 USC 4703- Demonstration Projects

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

Agriculture7 USC 1622 - Distribution and Marketing of Agricultural Products

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

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

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

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

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

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

10 USC 1111-1115 Determinations of Contributions to the Fund

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

10 USC 2311 Assignment and Delegation of Procurement Functions and Responsibilities

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

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

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

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

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

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

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

## Commerce and Trade

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

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

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

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

### 15 USC 313b - Institute for Aviation Weather Prediction

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

### 15 USC 313 note - Weather Service Modernization Act

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

### 15 USC 325 - Spending Authority for the National Weather Service

“...Appropriations now or hereafter provided for the National Weather Service shall be available for: (a) furnishing food and shelter...to employees of the Government assigned to Arctic stations; (b) equipment and maintenance of meteorological offices and stations, and



maintenance and operation of meteorological facilities outside the United States... (c) repairing, altering, and improving of buildings occupied by the National Weather Service, and care and preservation of grounds...(d) arranging for communication services... and (e) purchasing tabulating cards and continuous form tabulating paper .

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

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

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

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

15 USC 1511b - United States Fishery Trade Officers

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

15 USC 1511c - NOAA Estuarine Programs Office.

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

15 USC 1511d - Chesapeake Bay Office

The Secretary of Commerce shall establish, within the National Oceanic and Atmospheric Administration, an office to be known as the Chesapeake Bay Office...which shall provide technical assistance on processes impacting the Chesapeake Bay system, its restoration and

habitat protection; develop a strategy to meet the commitments of the Chesapeake Bay Agreement; and coordinate programs and activities impacting the Chesapeake Bay, including research and grants.

15 USC 1511e - Office of Space Commercialization

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

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

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

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

15 USC 1517 - Transfer of Statistical or Scientific Work.

“The President is authorized, by order in writing, to transfer at any time the whole or any part of any office, bureau, division, or other branch of the public service engaged in statistical or scientific work, from the Department of State, the Department of the Treasury, the

Department of Defense, the Department of Justice, the United States Postal Service, or the Department of the Interior, to the Department of Commerce; and in every such case the duties and authority performed by and conferred by law upon such office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall be thereby transferred with such office, bureau, division, or other branch of the public service, or the part thereof which is so transferred. All power and authority conferred by law, both supervisory and appellate, upon the department from which such transfer is made, or the Secretary thereof, in relation to the said office, bureau, division, or other branch of the public service, or the part thereof so transferred, shall immediately, when such transfer is so ordered by the President, be fully conferred upon and vested in the Department of Commerce, or the Secretary thereof, as the case may be, as to the whole or part of such office, bureau, division, or other branch of the public service so transferred.”

15 USC 1537 - 1539 Needs Assessment for Data Management.

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

15 USC 1540 – Cooperative Agreements

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

**Conservation**

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

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

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

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

16 USC 1361 - Congressional Findings.

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

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

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

“The purposes and policies of this title are -

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

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

16 USC 1444 - Authorization of Appropriations.

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

(1) to carry out this chapter

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

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

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

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

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

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

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

16 USC 1456a – Coastal Zone Management Fund

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

16 USC 1464 - Authorization of Appropriations.

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

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

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

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

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

16 USC 3645 - Pacific Coastal Salmon Recovery

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

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

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

16 USC 4101 et seq. – Interjurisdictional Fisheries

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

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

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

16 USC 5001 et seq. - Purpose of Convention

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

**Money and Finance**31 USC 1105 - Budget Contents and Submission to Congress

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

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

**Navigation and Navigable Waters**

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

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

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

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

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

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

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

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

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

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



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

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

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

“(1) The Secretary of Commerce is authorized to enter into cooperative agreements with, and to receive and expend 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. The authorization for appropriation expired at the end of FY 1995.

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 Welfare**42 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 Lands**43 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 Documents**44 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.”

**Transportation**49 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 Act**97 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.

**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Operations, Research, and Facilities**  
**CONSULTING AND RELATED SERVICES**  
**(Obligations in thousands of dollars)**

	<b><u>2007</u></b> <b><u>Actual</u></b>	<b><u>2008</u></b> <b><u>Estimate</u></b>	<b><u>2009</u></b> <b><u>Request</u></b>
Management and Professional Support Services	51,077	59,286	62,534
Studies, Analysis and Evaluations	20,667	23,988	25,303
Engineering and Technical Services	<u>58,578</u>	<u>67,992</u>	<u>71,717</u>
Total	130,322	151,266	159,554

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 of dollars)**

	<b><u>2007</u></b>	<b><u>2008</u></b>	<b><u>2009</u></b>
	<b><u>Actual</u></b>	<b><u>Estimate</u></b>	<b><u>Request</u></b>
Periodicals.....	943	959	976
Pamphlets.....	679	691	703
Audiovisuals .....	<u>322</u>	<u>327</u>	<u>333</u>
Total.....	1,944	1,977	2,012

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**Department of Commerce  
National Oceanic and Atmospheric Administration  
AVERAGE GRADE AND SALARY**

	2007 <u>Actual</u>	2008 <u>Estimate</u>	2009 <u>Estimate</u>
Average executive and SES level pay plans	\$151,161	\$155,696	\$160,211
Average GS/GM grade	11	11	11
Average GS/GM salary	\$80,512	\$82,928	\$85,332
Average Pay Band salary	\$83,873	\$86,389	\$88,894
Average Commissioned Officers salary	\$95,849	\$98,725	\$101,587
Average salary for other positions (FWS/Wage Marine)	\$49,636	\$51,125	\$52,607

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement Acquisition and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Enacted	200	190	971,964	1,009,551
less: Carryover	-	-	-	(37,587)
less: 2008 Unrequested projects			(51,520)	(51,520)
plus: 2009 Other Adjustments to Base			6,356	8,356
FY 2009 Base	200	190	926,800	928,800
plus: 2009 Program Changes	-	-	311,860	311,860
FY 2009 Estimate	200	190	1,238,660	1,240,660

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Systems Acquisition	Pos/BA	218	927,076	194	850,458	194	852,756	194	1,085,993	-	233,237
	FTE/OBL	208	931,359	184	852,644	184	852,756	184	1,085,993	-	233,237
Construction	Pos/BA	6	120,673	-	122,516	1	71,725	1	143,167	-	71,442
	FTE/OBL	6	146,152	-	134,580	1	71,725	1	143,167	-	71,442
Fleet Replacement	Pos/BA	11	32,588	6	5,254	5	4,319	5	11,500	-	7,181
	FTE/OBL	10	24,387	6	21,560	5	4,319	5	11,500	-	7,181
Aircraft Replacement	Pos/BA	-	4,695	-	-	-	-	-	-	-	-
	FTE/OBL	-	16,387	-	767	-	-	-	-	-	-
Unobligated Balance Rescission	Pos/BA	-	-	-	(6,264)	-	-	-	-	-	-
	FTE/OBL	-	-	-	-	-	-	-	-	-	-
Less Deobligations	Pos/BA	-	-	-	-	-	(2,000)	-	(2,000)	-	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement Acquisition and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

Comparison by activity/subactivity	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
FTE/OBL	-	-	-	-	-	-	-	-	-	-
Total	235	1,085,032	200	971,964	200	926,800	200	1,238,660	-	311,860
FTE/OBL	224	1,118,285	190	1,009,551	190	928,800	190	1,240,660	-	311,860

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement Acquisition and Construction  
**SUMMARY OF RESOURCE REQUIREMENTS**  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	224	1,118,285	190	1,009,551	190	928,800	190	1,240,660	-	311,860
<b>Total Obligations</b>	<b>224</b>	<b>1,118,285</b>	<b>190</b>	<b>1,009,551</b>	<b>190</b>	<b>928,800</b>	<b>190</b>	<b>1,240,660</b>	<b>-</b>	<b>311,860</b>
<b>Adjustments to Obligations:</b>										
Refunds	-	(1,217)	-	-	-	-	-	-	-	-
Recoveries	-	-	-	-	-	-	-	-	-	-
Deobligations	-	(4,242)	-	-	-	(2,000)	-	(2,000)	-	-
Unobligated balance, adj. SOY	-	(65,430)	-	(37,587)	-	-	-	-	-	-
Unobligated balance, EOY	-	37,587	-	-	-	-	-	-	-	-
Unobligated balance, expiring	-	49	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	<b>224</b>	<b>1,085,032</b>	<b>190</b>	<b>971,964</b>	<b>190</b>	<b>926,800</b>	<b>190</b>	<b>1,238,660</b>	<b>-</b>	<b>311,860</b>
<b>Financing from Transfers and Other:</b>										
Transfer to ORF	-	1,086	-	-	-	-	-	-	-	-
<b>Net Appropriation</b>	<b>224</b>	<b>1,086,118</b>	<b>190</b>	<b>971,964</b>	<b>190</b>	<b>926,800</b>	<b>190</b>	<b>1,238,660</b>	<b>-</b>	<b>311,860</b>

Note: FTE for FY 2007 and 2008 in this document include adjustments not included in the FY 2008 President's budget submission.

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement Acquisition and Construction  
**CHANGES TO BASE**  
 (Dollar amounts in thousands)

	FTE	Amount
<b>Adjustments</b>		
Restoration of FY 2008 deobligations	-	2,000
Subtotal, Adjustments	-	2,000
<b>Financing</b>		
Deobligations	-	(2,000)
Subtotal, Financing	-	(2,000)
<b>Transfer</b>		
Transfer of NERRS from NOS PAC to NOS ORF	-	(288)
Transfer of NWS PAC Cooperative Observer Network Modernization to NWS ORF for MADIS	-	(500)
Transfer of NWS ORF Local Warnings and Forecast ORF to NWS PAC for Weather Radio Improvement	-	3,000
Transfer of NESDIS POES to ORF Satellite Command and Control (GEONETCast)	-	(500)
Subtotal, Transfer	-	1,712
Total, Changes to Base	-	1,712

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement Acquisition and Construction  
**JUSTIFICATION OF CHANGES TO BASE**

	FTE	Amount
<b>Adjustments</b>		
Restoration of FY 2008 deobligations	-	2,000,000
Subtotal, Adjustments	-	2,000,000
<b>Financing</b>		
Deobligations	-	(2,000,000)
Subtotal, Financing	-	(2,000,000)
<b>Transfer</b>		
Transfer of NERRS from NOS PAC to NOS ORF	-	(288,000)
Transfer of NWS PAC Cooperative Observer Network Modernization to NWS ORF for MADIS	-	(500,000)
Transfer of NWS ORF Local Warnings and Forecast ORF to NWS PAC for Weather Radio Improvement	-	3,000,000
Transfer of NESDIS POES to ORF Satellite Command and Control (GEONETCast)	-	(500,000)
Subtotal, Transfer	-	1,712,000
Total, Changes to Base	-	1,712,000

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 PROCUREMENT, ACQUISITION AND CONSTRUCTION  
 SYSTEMS ACQUISITION FY 2009 OVERVIEW

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
<b><u>OAR</u></b>					
Research Supercomputing / CCRI	10,368	10,121	10,131	10,379	248
Climate Sensors (IOOS)	3,853	0	0	0	0
Climate Satellite Sensor (OMPS - Limb - NPP)	3,996	0	0	0	0
Climate Sensors	14,985	0	0	0	0
Subtotal, OAR	33,202	10,121	10,131	10,379	248
<b><u>NWS</u></b>					
ASOS	4,610	1,594	1,596	1,635	39
AWIPS	16,553	12,447	12,459	19,064	6,605
NEXRAD	9,542	8,168	8,176	8,376	200
NWSTG Legacy Replacement	494	1,165	1,166	1,195	29
Radiosonde Network Replacement	5,525	3,914	3,918	4,014	96
Weather and Climate Supercomputing	19,020	25,518	25,518	19,092	(6,426)
Weather and Climate Supercomputing Backup	7,050	0	0	7,077	7,077
Cooperative Observer Network Modernization	4,218	4,129	3,633	3,734	101
Complete and Sustain NOAA Weather Radio	5,572	5,455	8,460	11,337	2,877
NOAA Profiler Conversion	0	4,973	4,978	9,730	4,752
Strengthen US Tsunami Warning Network	4,030	0	0	0	0
Subtotal, NWS	76,614	67,363	69,904	85,254	15,350
<b><u>NESDIS</u></b>					
GOES					

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Geostationary Systems - N	107,052	80,299	80,299	73,263	(7,036)
Geostationary Systems - R	253,040	234,538	234,773	477,000	242,227
Subtotal, GOES	360,092	314,837	315,072	550,263	235,191
<b>POES</b>					
Polar Orbiting Systems - POES	89,816	114,791	114,291	65,419	(48,872)
Subtotal, POES	89,816	114,791	114,291	65,419	(48,872)
<b>NPOESS</b>					
Polar Orbiting Systems - NPOESS	337,532	330,969	330,969	287,985	(42,984)
Subtotal, NPOESS	337,532	330,969	330,969	287,985	(42,984)
<b>EOS</b>					
EOS & Adv. Polar Data Processing, Dist. & Archiving Systems	2,138	965	966	990	24
Subtotal, EOS	2,138	965	966	990	24
<b>CIP</b>					
CIP - Single Point of Failure	2,798	2,703	2,706	2,772	66
Subtotal, CIP	2,798	2,703	2,706	2,772	66
Comprehensive Large Array Data Stewardship Sys (CLASS)	7,011	6,315	6,321	6,476	155
NPOESS Preparatory Data Exploitation	4,438	2,394	2,396	2,455	59
Restoration of Climate Sensors - Data Records	0	0	0	74,000	74,000
Subtotal, NESDIS	803,825	772,974	772,721	990,360	217,639
<b>PS</b>					
NOAA IOOS Observing Systems (NOS)	9,019	0	0	0	0
Convert NOAA Weather Buoys with NDBC (NOS)	2,939	0	0	0	0

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Coastal Global Ocean Observing System (NWS)	1,477	0	0	0	0
Subtotal, PS	13,435	0	0	0	0
<b>TOTAL</b>	927,076	850,458	852,756	1,085,993	233,237

Note: The dollars in this table represent budget authority.

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**Office Of Oceanic and Atmospheric Research**  
**Activity: Systems Acquisition**

**GOAL STATEMENT:**

The goal of the Office of Oceanic and Atmospheric Research's (OAR) Climate Observations and Analysis program is to understand the state of the climate system through integrated observations, data management, and analysis. OAR's Research Supercomputing goal is to provide a state-of-the-art scalable supercomputer and supporting infrastructure to advance modeling programs that are critical to NOAA's and the Nation's climate research.

**BASE DESCRIPTION:**

**Research Supercomputing/CCRI:** This program supports a very large, scalable computer system that provides critical computing, storage, and analysis capabilities, as well as model development and infrastructure support, to NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) to advance the Nation's climate research. This computing program allows NOAA to leverage the world-class research staff and modeling capabilities now in place at GFDL to address important research problems in climate and weather research. The laboratory's on-going model development effort is positioning GFDL to take full advantage of the scalable architectures and to advance the Nation's climate research program through NOAA computational research and collaboration with the inter-agency and academic climate research community.

Base activities support the objectives, "Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental needs" as well as the Environmental Modeling objective under NOAA's Weather and Water goal.

**Climate Sensors (IOOS):** A sustained global observing system is the foundation of all climate research and services. This program supported both ocean and atmospheric observations. Specifically funding was for the procurement, set-up, deployment, and quality-control, of observing platforms for carbon, the Global Ocean Observing System (GOOS) and the U.S. Climate Reference Network. One of the primary objectives of the U.S. Integrated Ocean Observing System (IOOS), which is the U.S. contribution to the international Global Ocean Observing System (GOOS), is to continue implementing the global ocean-climate component of the IOOS. NOAA's contributions to GOOS supports climate research and prediction as well as the long-term monitoring system necessary for climate change detection and attribution. The U.S. Climate Reference Network provides baseline, high-quality surface observations of air temperature and precipitation to detect long-term changes in climate through a robust climate record. It is an integral part of NOAA's plans for the International Earth Observing System and contributes to the integrated Global Earth Observation System of Systems (GEOSS).

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
Climate Sensors (IOOS)								
Change from FY 2009 Base							-	
Total Request	3,853	0	0	0	0	0	-	3,853

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

**Climate Satellite Sensor (Ozone Mapping and Profiler Suite Limb):** Ozone Mapping and Profiler Suite Limb, (OMPS-Limb) will give NOAA the ability to restore a key climate sensor, designed to give climate researchers a more precise depiction of the structure of the Earth's ozone layer, and distribution of gases in the atmosphere. The OMPS-Limb will be flown on the National Polar-orbiting Operational Environmental Satellite System Preparatory Project, (NPP) set to launch in 2009. The OMPS Limb sensor will improve our ability to understand the structure of the stratospheric ozone layer in finer detail in parts of the atmosphere where chlorofluorocarbons destroy the protective ozone layer that shields the earth against harmful ultraviolet radiation from the Sun, and addresses one of the recommendations of the recently released National Research Council's "Earth Science Applications from Space: National Imperative for the Next Decade and Beyond."

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
Climate Satellite Sensor (Ozone Mapping and Profiler Suite Limb)								
Change from FY 2009 Base							-	
Total Request	4,396	0	0	0	0	0	-	3,996

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

**Climate Sensors:** Following the Nunn-McCurdy Certification of NPOESS in June 2006, the Office of Science and Technology Policy (OSTP) tasked NOAA and NASA to assess the impacts of the Certification on the Nation's climate goals. In January 2007, NOAA and NASA provided the climate assessment to OSTP along with mitigation recommendations and prioritization of de-manifested sensors. The assessment concluded that the Nunn-McCurdy Certification results in the termination of critical data records and causes a number of climate data gaps. These data gaps will significantly decrease our ability to detect the difference between climate variability and climate change as well as our ability to understand the causes of climate change.

<b>OUTYEAR FUNDING ESTIMATES</b>								
<b>(BA in thousands)</b>								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
Climate Sensors								
Change from FY 2009 Base							-	
<b>Total Request</b>	14,985	0	0	0	0	0	-	14,985

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

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition					
Research Supercomputing / CCRI	10,368	10,121	10,131	10,379	248
Climate Sensors (IOOS)	3,853	-	-	-	-
Climate Satellite Sensor (OMPS - Limb - NPP)	3,996	-	-	-	-
Climate Sensors	14,985	-	-	-	-
TOTAL	33,202	10,121	10,131	10,379	248
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Research Supercomputing/CCRI:** NOAA requests an increase of \$248,000 and 0 FTE above the base for a total of \$10,379,000 and 0 FTE under the HPCC line item. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

<b>OUTYEAR FUNDING ESTIMATES</b>								
<b>(BA in thousands)</b>								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
Research Supercomputing/ CCRI								
Change from FY 2009 Base		248	248	248	248	248	-	
Total Request	73,265	10,379	10,379	10,379	10,379	10,379	-	Recurring

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

**TERMINATIONS FOR FY 2009:**

None.

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**National Weather Service  
Activity: Systems Acquisition**

**GOAL STATEMENT:**

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

**BASE DESCRIPTION:**

**Automated Surface Observing System (ASOS):** This acquisition is a tri-agency program involving NOAA, the Department of Defense, and the Federal Aviation Administration. ASOS provides reliable, 24-hour, continuous surface weather observations. Under the product improvement portion of this acquisition program, NOAA is developing new ASOS sensor capabilities in order to meet changing user requirements and decrease maintenance demands.

The ASOS Product Improvement Sensors are crucial for aviation safety for multiple agencies (NOAA/NWS, FAA and DOD) and the public. The Full Scale Production and Deployment of Ceilometer replacement and of Enhanced Precipitation Identifier (EPI) is crucial for aviation safety considerations. The Automated Surface Observing System (ASOS) serves as the nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. With the largest complement of weather sensors, ASOS significantly expands the information available to forecasters and the aviation community. ASOS works non-stop, updating observations every minute, 24 hours a day, every day of the year. Getting more information on the atmosphere, more frequently and from more locations, is the key to improving forecasts and warnings. ASOS information helps NWS increase the accuracy and timeliness of its forecasts and warnings - the overriding goal of the NWS modernization. The ASOS Product Improvement Program contains seven prioritized sensor/processor improvements. These improvements will implement new beneficial technologies, replace sensors no longer in production and reduce maintenance costs. Improved performance in solid and liquid/solid mixes of precipitation and in icing conditions are objectives leading to increased aviation safety, and better weather forecasting and climatology. Higher reliability designs will decrease maintenance and logistics costs, while improving system availability.

**FY 2007 Accomplishments:**

- Completed ice free wind sensor deployment of 311 units
- Complete development of pre-production replacement ceilometer (25,000 ft.) ceilometers

**FY 2008 Plans:**

- Complete development of limited production ceilometer sensors and begin procurement of production sensors

**FY 2009 Plans:**

- Begin Production and Deployment of 120 Ceilometers

- Determine ASOS “Future Needs” : Infrastructure Update to ensure long-term ASOS operational capability

FY 2010 Plans:

- Continue Production and Deployment of additional 30 Ceilometers

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
ASOS Product Improvement								
Change from FY 2009 Base		39	39	39	39	39		
Total Request	41,666	1,635	1,635	1,635	1,635	1,635	1,311	51,152

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**Advanced Weather Interactive Processing System (AWIPS)/NOAAPort:** AWIPS is the cornerstone of the modernized NWS. This system integrates and displays all hydrometeorological data at NWS field offices. AWIPS acquires and processes data from modernized sensors and local sources, provides computational and display functions at operational sites, provides a robust communications system to interconnect NWS operational sites, and disseminates warnings and forecasts in a rapid, highly reliable manner. This system integrates satellite, NEXRAD Doppler weather radar data, and Numerical Weather Prediction (NWP) data enabling field forecasters to better visualize environmental processes to enable the creation of timely and accurate forecasts and warnings. AWIPS provides the only display for NEXRAD Doppler weather radar data at NWS Weather Forecast Offices (WFOs) and River Forecast Centers (RFCs). The AWIPS NOAAPort satellite broadcast network offers the communications capability to provide internal and external users with open access to much of NOAA's real-time environmental data.

Pre-planned and ongoing NOAA investments in modeling, satellite instruments, and radar improvements (NEXRAD Product Improvement) represent NOAA’s commitment to bring forecasters the data and information required to improve forecast accuracy and warning lead times. NWS Government Performance and Results Act goals are based on the effective use of these technology investments along with advanced decision assistance tools, forecast preparation and advanced database capabilities. Sustained investments in the AWIPS hardware, communications, and software infrastructure, are necessary for capitalization of these investments into improved performance.

System-wide information technology (IT) investments are necessary to equip NWS forecast offices with the necessary computer performance and capacity to achieve planned and evolving operational and strategic requirements. Planned improvements in the NWS Tornado Warning Lead Time, Flash Flood Warning Lead Time and Winter Storm Warning Lead Time goals can only be realized through the following actions: improve AWIPS system throughput; add new and improved science; and exploit more accurate and higher resolution data and weather forecast model information. To accomplish this, we must improve AWIPS system’s performance and capacity. Current choke points in system performance and capacity have been identified and are being addressed in the following areas: server performance, network throughput, and software architecture.

Improvements in system throughput can be realized by increasing processing and network capacity. Exploitation of new science requires radar, satellite and model data in addition to processing capacity and the ability to quickly and cost-effectively integrate improved decision assistance tools into the AWIPS software. High-resolution data and model information requires additional communications bandwidth, processing and mass storage capacity.

To measure current and projected AWIPS system performance the Workstation Performance Rating (WPR) has been developed. The 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 has shown that, without planned hardware improvements supported within this funding level, AWIPS performance will continue to decrease, resulting in an estimated 4-minute degradation in Tornado Lead Time by FY 2009.

In FY 2002, the NWS began a migration of the AWIPS IT infrastructure to a LINUX-based architecture. Phase I of this migration was completed in FY 2003. LINUX Phase II began in FY 2003 with workstation replacements and was completed in FY 2006. In FY 2006 LINUX Phase III was completed with server replacements, software re-architecture, and IT security enhancements.

AWIPS has been designated an NWS “National Critical” IT system. As such it was required to be certified and accredited using the National Information Assurance Certification and Accreditation Process (NIACAP) in FY 2005. System acquisition funds provided in this PAC program are critical to providing adequate security for this National Critical system.

**Outcomes:**

The following table provides a summary of current hardware and communications performance measures and increases due to the investments described here. As noted previously, an increase in processing and communications capacity is essential in meeting the continuing, more stringent GPRA measures.

<b>Performance Measure</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>
Processing Capacity (MFLOP)	7,500	7,500	7,500	7,500	16,000
Benchmark Processing Speed (WPR-sec)	163	155	147	140	133
Effective Bandwidth Capacity (Mbps)	6.9	9.2	9.2	9.2	45

FY 2007 Accomplishments:

- Replaced aging Communications Processors
- Completed Continuous Technology Refresh (CTR) for 800 AWIPS workstations
- Decommissioned older HP Data Servers (DSs)
- Continued AWIPS software re-architecture efforts with delivery of AWIPS-II Development Environment (ADE) version 1.0
- Began Continuous Technology Refresh (CTR) project to replace Pre-Processor server clusters at 167 sites

FY 2008 Plans:

- Complete deployment of Linux based Local Data Acquisition and Dissemination (LDAD) subsystem at 135 sites
- Begin replacement of approximately 2260 dial, dedicated, and fax modems and enclosures at 165 sites
- Replace approximately 336 Pre-Processor servers at 168 sites.
- Replace approximately 810 text workstations at 168 sites
- Complete migration of most D2D functionality to the AWIPS-II Service Oriented Architecture (SOA) infrastructure
- Completion of AWIPS “Katrina” WAN Backup pilot test

FY 2009 Plans:

- Complete development of AWIPS –II, migrating all AWIPS software to a Service Oriented Architecture (SOA)
- Complete deployment of AWIPS Network Attached Storage (NAS) unit replacement at 167 sites
- Complete Remedy Hardware upgrade
- Decommission PowerVault disk storage units at 167 sites
- Start migration of NAWIPS
- Start exploratory development of:
  - Data delivery
  - Collaboration

FY 2010 Plans:

- Deploy AWIPS-II to all sites

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
AWIPS Tech Infusion								
Change from FY 2009 Base		6,605	305	305	305	305		
Total Request	129,809	19,064	12,764	12,764	12,764	12,764	N/A	N/A

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**Next Generation Weather Radar (NEXRAD):** NEXRAD is a Doppler weather radar system that provides automated signal processing, computerized data processing by sophisticated meteorological software algorithms, and a high-capacity, processor-driven communications capability. The system is modular in design, upgradeable, has a long life-cycle expectancy, and provides both governmental and commercial sector weather users with a wide array of automated weather information that will increase their capability to meet their respective operational requirements. For the NWS, the system uses Doppler technology and hydrometeorological processing to provide significant increases, both in the functional capability and in performance, compared with previous radars, including improved tornado and thunderstorm warnings, increased air safety, improved flash flood warnings, and improved water resources management.

NEXRAD, initially developed as a tri-agency Program (NWS, FAA, and the Air Force Weather Agency) has evolved into NEXRAD Product Improvement (NPI) Program, focusing on shared agency requirements to effect synergistic solutions. For example, external FAA radar data are provided to NWS forecast offices to address coverage issues and provide backup data sources.

Near-term plans include the completion of ORDA deployment, and the development and implementation of Super-Resolution.

- The Open RDA (ORDA) subsystem replaces the current WSR-88D Radar Data Acquisition subsystem with COTS equipment in an Open Systems architecture. ORDA is a critical first step in meeting strategic goals for severe weather by providing the foundation for future planned improvements. ORDA also provides initial improvements in data quality with improved clutter processing and calibration techniques. Deployment of ORDA sub-systems to all WSR-88Ds is scheduled to complete in FY06.
- A National Severe Storms Laboratory (NSSL) study has shown that tornado storm parent circulation estimates were 15-20% higher with Super-Resolution, with circulation detected at greater ranges. NPI is sponsoring continued research and development at NSSL to ready an operational version of Super-Resolution.

NPI will continue to explore opportunities for improved data dissemination and provide more radar data to NWS partners. The NWS Office of Science and Technology (OS&T) has implemented weather data ingest capability at ten FAA Terminal Doppler Weather Radars (TDWR) for use by contiguous NWS forecast offices. Evaluation of the utility of this data is ongoing, with initial reaction by forecasters being very positive. In addition OS&T continues to investigate the utility of weather data from other FAA (ASR-4) radars, implementing a data ingest capability of weather radar data from FAA radars in Erie, PA and Williston, ND for evaluation.

The Dual Polarization modification to NEXRAD transmits and receives signals in two dimensions, resulting in a significant improvement in precipitation estimation, improved ability to discriminate rain, snow, and hail, and a general improvement in data quality. Precipitation estimates, currently within 30% of ground-truth estimates, will improve to 12.5% as demonstrated in a study conducted by NSSL in 2003. Economic analysis shows that this improvement alone will have a national economic benefit of \$690M/year as a result of improvements in flash flood warnings. The improved precipitation estimates from the national network of radars will be used as input to weather models with a concomitant improvement in model outputs. The Dual Polarization capability will allow other improvements in severe weather detection, including improvements in snow storm detection and warnings, icing conditions for air and ground transportation, and continued support for improved modeling data input.

#### FY 2007 Accomplishments:

- Completed development of software to implement collection and display of Super-Resolution data on NEXRAD.
- Awarded the 5-year contract for the Dual Polarization NEXRAD modification to L3-Communications.
- Initiated the implementation of FAA Terminal Doppler Weather Radar (TDWR) Data ingest systems to accept data from 35 FAA TDWR systems, in response to a NOAA mandate.

#### FY 2008 Plans:

- Super-Resolution deployed to 158 Operational NEXRADs
- Complete Deployment of 45 TDWR Data Ingest Systems
- Installation of Dual Polarization Prototype
- 

#### FY 2009 Plans:

- Complete Dual Polarization Testing Program, Procure System Hardware
- Transition support of TDWR Data Ingest System to Office of Operational Systems

#### FY 2010 Plans:

- Initiate deployment of the Dual Polarization Modification to Operational Systems
- Initiate maintenance and operation training program in support of the Dual Polarization modification

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
NEXRAD								
Change from FY 2009 Base		200	200	(6,550)	(8,176)	-	-	
Total Request	80,906	8,376	8,376	1,626	-	-	N/A	N/A

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**Radiosonde Replacement Program:** The NWS radiosonde network provides upper-air weather observations; the primary source of data required by NWS numerical weather prediction models, which form the basis of all NWS forecasts for day 2 and beyond. Observations of temperature, pressure, humidity, and wind speed/direction are taken twice a day at 102 locations nationwide and in the Caribbean using a balloon-borne instrument (radiosonde) which transmits the data via radio signal to a ground receiving station usually located at a Weather Forecast Office (WFO), where it is processed.

The current ground receiving system is obsolete and not maintainable due to the scarcity of replacement parts, unavailability of certain components, and escalating fabrication cost. Repairs have more than doubled over the past 5 years. Only two of the sites have fully functioning transponder decks, used for tracking a radiosonde after the radiosonde is carried over the horizon. Wind observations lost by this deficiency have resulted in model analyses misplacing the jet stream on certain occasions. New frequency allocations require reduction in bandwidth on the frequencies used to transmit data from the radiosonde to the ground receiving station and prevent interference to the ground station receiver. Reallocation of frequency spectrum in 1999 has placed the radiosondes at risk of losing data, due to interference from new band users, and may force radiosondes to use frequencies that will increase interference with meteorological satellite operations. Both the radiosondes and the ground receiving equipment must be replaced by the NWS in order to comply with the new spectrum allocation. In addition, the ground receiving station processors are IBM XTs and cannot support the Windows-based software required to manage the Global Positioning System (GPS) radiosonde data. Finally, new surface observing instrumentation is necessary to comply with surface launch accuracy reporting requirement. Beginning in FY 2007, the base program will fund 78 of the 102 sites and reduce the number of radiosondes and sites installed.

FY 2007 Accomplishments:

- Deployed 18 Radiosonde Replacement System (RRS) systems for a total of 46 Award of first full-rate (28,000) radiosonde production contract
- Two new radiosonde suppliers completed factory qualification

FY 2008 Plans:

- Deploy 12 RRS systems for a total of 58
- Stage and deploy first Radiosonde Replacement System to Alaska Region
- Qualify at least two of three radiosonde suppliers for full rate production

FY 2009 Plans:

- Deploy 12 RRS systems for a total of 70
- Award production contracts for two radiosonde suppliersDeploy RRS Build 2 systems

FY 2010 Plans

- Deploy 12 RRS systems for a total of 82
- Award production contracts to at least two radiosonde suppliers

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
Radiosonde Replacement System								
Change from FY 2009 Base		96	96	96	96	96		
Total Request	51,320	4,014	4,014	4,014	4,014	4,014	12,142	83,532

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**Historical Climate Network – Modernization (HCN-M) (Formerly known as Cooperative Observer Network Modernization (COOP-M) and NOAA’s Environmental Real Time Observation Network (NERON)):** HCN-M is a project to integrate a network of observing systems to sustain the Nation’s climate record of land surface measurements essential to monitor and assess the surface climate. The project will modernize 1,000 of the approximately 1,200 Historical Climate Network (HCN) sites to automatically collect temperature and precipitation data. The HCN is a subset of the approximately 11,000 Cooperative Observer Program (COOP) sites. HCN-M will also provide expansion capability to allow the collection of other data sets in the future (such as soil temperature and soil moisture to support the National Integrated Drought Information System, NIDIS). As part of the HCN-M project, the Meteorological Assimilation Data Ingest System (MADIS), a research project run by OAR/GSD in Boulder, CO, will be transitioned into operations at NWS Headquarters in Silver Spring, MD. This central data collection and processing system will provide quality control of the HCN-M data and other mesonet data sets, and provide distribution of data to NWS offices, NOAA’s National Climate Data Center (NCDC), other federal and state agencies, and the public. MADIS currently collects, processes and distributes data from over 20,000 mesonet stations.



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.

There is a critical need to continue the Nation’s historical climate record of land surface measurements necessary for monitoring and assessing the regional climate of the United States. NOAA's Climate Prediction Center (CPC) monitors, analyzes and predicts climate events ranging from weeks to seasons for the nation. CPC requires summary data from HCN sites and other COOP and ASOS sites on a daily basis to support their climate monitoring and outlook products and services. NWS Weather Forecast Offices (WFO) and River Forecast Centers (RFC) require quality HCN data, including, but not limited to, temperature extremes and precipitation, in support of its primary mission to issue accurate, timely, temperature and precipitation forecasts, to calibrate radar precipitation estimates, and to support river and flood operations. Forecast verification requires daily observations to compare against and make improvements. Model Output Statistics (MOS) require daily data to develop statistical relationships from model input to derive location-specific forecasts of temperature and precipitation. The climate record requires consistent, reliable, daily temperature and precipitation observations to ensure compliance with national standards.

- FY 2002: 118 temperature demonstration sites were deployed. This project was funded by a Congressional earmark and was implemented by OAR.
- FY 2003/5: 100 COOP sites in the Northeast were modernized as a risk reduction exercise. The project was funded by a Congressional earmark sponsored by Senator Gregg of New Hampshire.
- FY 2006: Planned for HCN Modernization. Continued to maintain Northeast sites.
- FY 2007: Continue planning for HCN Modernization including development of Requirements Document, Acquisition Plan, Maintenance Plan, Communications Plan, and MADIS Transition Plan. Continue to maintain Northeast sites.
- FY 2008: Award contract for HCN Modernization and begin deployment of 75 sites.
- FY 2009: Continue production, logistics, and deployment of 65 modernized HCN sites.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete *	Total
COOP Modernization/ NERON/HCN/Surface Wx								
Change from FY2009 base		101	101	101	101	101		
Total Request	13,445	3,734	3,734	3,734	3,734	3,734	15,307	47,422

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**NWS Telecommunications Gateway Legacy Replacement:** The NWSTG is the NWS communications hub for collecting and distributing weather information to its field units and external users. Replacing the NWSTG system with up-to-date technology will reduce the current delays in collecting and disseminating data by reducing transit time through the NWSTG. The replacement will ensure reliable delivery of NWS products to users and will fully capitalize on better observation data and prediction models to improve services. In FY 2006, NWS will conclude a three-year effort to replace the National Weather Service Telecommunications Gateway (NWSTG) switching system and repair and upgrade NWSTG facilities.

FY 2007 Accomplishments:

- Execute limited technical refresh in 2nd Quarter – acquired SAN upgrade in 2nd Quarter and completed implementation in 4th Quarter FY2007
- Implement NWS BTG infrastructure – completed build out of BTG infrastructure in 4th Quarter FY2007

FY 2008 Plans:

- Add 8 CPUs and 16GB memory to RTG p60 Message Switching Center Servers – superseded by migration of core message switching system to p595 servers scheduled to be implemented in 4th quarter FY2008
- Complete Contingency Plan Testing in accordance with the RTG Authority Operate leveraging the Backup Telecommunications Gateway and NOAAnet Infrastructures by the end of the 2nd quarter FY2008. Expand cooling tower capacity to meet increased requirements since tower was installed in 1991 (est. \$500K) – delayed to FY 2009 due to shift in budget priorities to support NOAAnet High Availability Implementation
- Replace 17 year-old smoke detector and fire control panel system – on schedule for implementation in FY2008
- Add blast protection for UPS room windows – advanced from FY2009 schedule

FY 2009 Plans :

- Perform facility enhancements and infrastructure life cycle upgrades:
- Expand cooling tower capacity to meet increased requirements since tower was installed in 1991 (est. \$500K)
- Acquire engineering design & consultant services to provide designs for facility upgrades
- Expand the Emergency Power System – Generator connectivity to main building cooling tower
- Dual UPS Battery Monitoring System & Control work
- Add auxiliary emergency generator connection
- Perform periodic tech refresh for
  - Four (4) core message switching servers
  - One (1) network switch
  - Two (2) enterprise storage systems and three (3) network file servers
  - 75 Intel architecture servers
  - Replace 21 servers with 36 CPUs
- Expand one (1) enterprise storage system to support a fully capable test/quality assurance environment

FY 2010 Plans

- Perform periodic technical refresh for applications servers and network switches Perform facility enhancements and infrastructure life cycle upgrades:
  - Engineering evaluation of TG facility infrastructure to determine any aspects where significant failure vulnerability still exists
  - On-going structural engineering support to evaluate floor loading in connection with new equipment additions
- Security enhancements to further restrict 6<sup>TH</sup> floor access. Install card keys on outside of stairwell doors and elevator corridor doors.
  - Enhanced TG Shelter-in-Place capability
  - Design and construction of redundant vertical circulating water line and pumps
  - TG Facility maintenance on the following single points of failure:
    - Replace and rewire transient voltage surge suppressor
    - Replace automatic transfer switch

<b>OUTYEAR FUNDING ESTIMATES</b>								
<b>(BA in Thousands)</b>								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete *	Total
NWSTG Legacy Replacement								
Change from FY2009 Base		29	29	29	29	29		
<b>Total Request</b>	<b>7,469</b>	<b>1,195</b>	<b>1,195</b>	<b>1,195</b>	<b>1,195</b>	<b>1,195</b>	<b>3,615</b>	<b>17,059</b>

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**Weather and Climate Supercomputing:** The cyclical upgrade of the 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 the 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), plus 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.

FY 2007 Accomplishments:

- 9 Km WRF capability in Hurricane model
- Upgrade to Real-Time Mesoscale Analysis for North America, including expansion to OCONUS Sites
- Upgrade to the HYCOM-Based Real-time Ocean Forecast System Data Assimilation
- Enhanced the Global Ensemble System by Adding Six Additional Members

FY 2008 Plans:

- Upgraded North American Model (NAM) physics
- Upgraded Short-Range Ensemble Forecast System with expanded domain
- Real-time Global Ocean Data Assimilation System (GODAS) upgrade (increased depth and daily analysis)
- Global Forecast System data assimilation upgrade to include First-Order Time-extrapolation to Observations (FOTO)

FY 2009 Plans:

- Implement CONUS high resolution nests for Aviation and Severe Weather forecast guidance
- Increase horizontal and vertical resolution of Short Range Ensemble Forecast System
- Increase horizontal resolution of Global Ensemble Forecast system
- Increase resolution of Wave Model

FY 2009 Plans:

- Implement 4-D Variational Global Data Assimilation System
- Upgrade the Global Forecast System resolution to 25 km
- Implement global ocean real-time forecast system based on HYCOM model
- Increase resolution of Climate Forecast System to 100 km with initial states from new Climate Forecast System Reanalysis

To Base activities support the objective, “Advance understanding of climate variability and change” under the Department of Commerce strategic goal of “Promote environmental stewardship .”

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete*	Total
Weather & Climate Supercomputing								
Change from FY 2009 Base		(6,426)	(6,426)	(6,426)	(6,426)	(6,426)	-	
Total Request	153,108	19,092	19,092	19,092	19,092	19,092	50,850	299,418

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**Weather Supercomputing Backup:** The backup supercomputer system is a clone of the primary supercomputer system and located in an offsite facility. The backup system is used to thoroughly test pre-Production weather and climate forecasting applications when it is not being used to run the Production Suite during a backup system test or actual emergency. The backup supercomputer system is capable of handling 100% of the operational workload should the primary supercomputer system be disrupted. Implementation and maintenance of a redundant *Weather and Climate Operational Supercomputer Systems* architecture will ensure uninterrupted flow of essential weather and climate data and products, continuity of storm watch and warning services to the public, and compliance with NOAA Critical Infrastructure Protection (CIP) plans.

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete*	Total
Weather & Climate Supercomputing Backup								
Change from FY 2009 Base		7,077	7,077	7,077	7,077	7,077	-	
Total Request	28,245	7,077	7,077	7,077	7,077	7,077	28,308	91,938

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

**Complete and Sustain NOAA Weather Radio (NWR):** Continue refurbishment of four hundred (400) stations established in the 1970s, eliminating single points of failure and improving network reliability.

NWR was designed to be and is used as a reliable, inexpensive means of communicating weather related warnings to the public. The existing infrastructure of NWR has tremendous potential for use communicating warnings and information about non-weather related hazards and emergencies. NOAA has had extensive meetings with the Department of Homeland Security, discussing the use of NWR as an all hazards warning system. National Weather Service received an appropriation of \$5.4M in FY 2004 to make NWR an all hazard warning network. 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 since NWR signal enters the Emergency Alert System, which is monitored by television and radio license holders.

NOAA categorizes 248 areas in the United States as being at high risk of experiencing severe weather. Severe weather includes tornados, hurricanes, flash floods, flooding, severe winter weather and severe marine weather. NOAA defines high-risk areas as areas that score above 225 points using NOAA Weather Radio Priority Weighted Value (PWV) system as defined in the NOAA Weather Radio Prioritized Plan for Areas Lacking Coverage dated February 2001. Points are accumulated based on the number of severe weather events, as documented in the NWS Weather Incident Report, and weather related fatalities over the past ten years. Additionally, population statistics for the areas are identified. The NWR Program Office reassesses the identification of high-risk areas annually. The seventeen (17) stations added in FY06/07 completes 100% coverage of high-risk areas rated at a PWV of 225.

In its efforts to sustain a high level of reliability and maintainability of NOAA Weather Radio, National Weather Service faces challenges due to equipment obsolescence and due to degraded reliability relative to that possible with newer technology equipment. Four hundred (400) NWR station transmitters are of 1970's vintage, 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, stations have single points of failure due to configurations that include single, instead of dual, transmitters and lack of backup power generators to ensure continued service in the event of primary electrical service failure. Combined, these factors significantly decrease reliability and availability and increase logistics and maintenance costs. Refurbishing these older stations and adequately funding operations and maintenance costs will allow NWR to meet expectations of availability as the nation's weather and all hazard warning system. By FY2009, approximately 219 stations will have been refurbished.

#### FY 2007 Accomplishments:

- Established 8 new sites to complete the network coverage in high risk areas
- Initiated refurbishment of an additional 74 of the 400 older sites
- Provided operations and maintenance for gifted and other transmitters including the 17 new sites and 62 refurbished sites

#### FY 2008 Plans:

- Initiate refurbishment of an additional 75 of the 400 older sites
- Provide operations and maintenance for gifted and other transmitters including the 17 new sites and 107 refurbished sites

FY 2009 Plans:

- Initiate refurbishment of 81 of the 400 older sites
- Provide operations and maintenance for gifted and other transmitters including the 17 new sites and 167 refurbished sites
- Deploy BMS hardware
- Develop NWS system
- Install communications equipment for BMS and NWS between WFO's and the proposed BMS site/s.
- Begin effort to install satellite hardware at 1000 transmitter sites.
- Begin effort to install bandwidth, hub, and dialup communications at the WFO's and the proposed BMS site/s.

FY 2010 Plans:

- Initiate refurbishment of 83 of the 400 older sites
- Provide operations and maintenance for gifted and other transmitters including the 17 new sites and 242 refurbished sites
- Deploy BMS/NWS system
- Install/deploy remote BMS hardware at 1000 transmitter sites
- Continue to install/deploy satellite/communication equipment at 1000 transmitter sites
- Provide O&M support for deployed BMS/NWS system and satellite/communication network

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior**	FY 2009***	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete *	Total
Complete & Sustain NWR								
Change from FY 2009 Base		2,877	3,024	3,544	744	744		
Total Request	16,621	11,337	11,484	12,004	9,204	9,204	24,141	93,995

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

\*\*\*Total Request includes a \$3 million Technical Adjustment-to-Base from Local Warning & Forecasts Base. This project is captured in the Complete and Sustain NOAA Weather Radio Line item.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition					
ASOS	4,610	1,594	1,596	1,635	39
AWIPS	16,553	12,447	12,459	19,064	6,605
NEXRAD	9,542	8,168	8,176	8,376	200
NWSTG Legacy Replacement	494	1,165	1,166	1,195	29
Radiosonde Network Replacement	5,525	3,914	3,918	4,014	96
Weather and Climate Supercomputing	19,020	25,518	25,518	19,092	(6,426)
Weather and Climate Supercomputing Backup	7,050	-	-	7,077	7,077
Cooperative Observer Network Modernization	4,218	4,129	3,633	3,734	101
Complete and Sustain NOAA Weather Radio	5,572	5,455	8,460	11,337	2,877
NOAA Profiler Conversion	-	4,973	4,978	9,730	4,752
Strengthen US Tsunami Warning Network	4,030	-	-	-	-
<b>TOTAL</b>	<b>76,614</b>	<b>67,363</b>	<b>69,904</b>	<b>85,254</b>	<b>15,350</b>
FTE	32	31	31	31	-

Note: The dollars in this table represent budget authority.

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## **PROGRAM CHANGES FOR FY 2009:**

**AWIPS Tech Infusion (+0 FTE and +\$6,605,000):** NOAA requests an increase of \$6,605,000 for a total of \$19,064,000 to transform NWS service delivery through the tech infusion of AWIPS, the technology backbone of NWS warning and forecast operations.

### **Statement of Need**

The Advanced Weather Information Processing System (AWIPS) is America's weather and flood warning system. NWS must upgrade AWIPS to transform its service delivery to DHS, FAA, emergency managers, decision makers, the American public and industry. Emergency managers, DHS, and industry are demanding increased lead time and more precision in weather, flood, and hurricane forecasts to improve their decisions for resource planning, evacuation planning, and business operations. These decisions are potentially life saving and have multi-million dollar impacts on the economy and livelihoods. Customers and users of NWS products and services will fully exploit NOAA investments through this transformation.

Originally built in the 1990s, AWIPS is unable to meet the demands for increased accuracy, precision, and timeliness of warnings nor the demands of 21<sup>st</sup> Century Science. Although patched numerous times, AWIPS has reached the point where further patches only deliver small incremental improvements. These improvements are increasingly insufficient to meet the service demands of DHS, FAA, emergency managers, and the American public. NOAA/NWS must undertake this critical investment to ensure overall NWS forecast, warning, and service improvements by providing the capacity to exploit NOAA's planned investments such as advanced weather satellites (GOES-R, NPOESS), Advanced Numerical Weather Prediction, and NEXRAD Super Resolution and Dual Polarization.

AWIPS is also the primary source of weather information to America's Aviation infrastructure. NWS forecasters at critical aviation weather centers and weather forecast offices depend on AWIPS to prepare aviation forecasts that enable FAA decision makers to minimize weather-related delays. Additionally, the Next Generation Air Traffic Control System will require the future AWIPS infrastructure provided by this initiative.

While NWS is currently executing a re-architecture of AWIPS (AWIPS II) within the existing budget, there are still specific shortcomings:

- Inability to make all forecast information available to WFOs.
- Lack of an integrated remote service delivery capability to Emergency Managers and Fire Weather Managers.
- Current AWIPS system architecture is too complex and inflexible for current and future mission needs.
- Inability to quickly adapt to latest industry standards (xml, CAP) thus burdening customers.
- No graphical collaboration capability among WFOs, RFCs, NCEP Centers, Emergency Managers, NOAA components, and partners.
- 7 different AWIPS subsystems creates inefficiencies and increased operating and maintenance costs.

NWS must transform its service delivery to our customers via the following technology initiatives that address these shortcomings:

- Ensure capability to deliver all available forecast information to WFOs.
- Update the infrastructure to incorporate modern architecture to meet mission needs.
- Improve data and service delivery with smart push-smart pull methods.

- Develop an integrated remote service delivery capability (thin client) to support Emergency Managers and Fire Weather
- Tailor delivery to customer-centric formats and standards and create the flexibility to change with their changes.
- Deliver graphical collaboration tools for WFOs, RFCs, NCEP Centers, Emergency Managers, NOAA Components, and partners for improved accuracy and consistency of products and service.
- Integrate 7 AWIPS subsystems into one integrated system increasing effectiveness and efficiency while greatly reducing operating and maintenance costs.
- Update data visualization (3D) to improve detection of severe weather events.

The deliverables are highlighted in the table below. Highlighted areas define the deliverables and outputs associated with the budget increase.

100% Schedule	FY09
Hardware Product Improvement	Workstation Tech refresh, DX1/DX2 Server cluster refresh
System Infrastructure software	AWIPS II OT&E
System Infrastructure software	AWIPS II completes deployment 4QFY10
Data delivery	Production development for smart push smart pull
Collaboration	Production development for NWS enterprise collaboration
Information generation	Exploratory development for Information re-architecture
Information generation	
Weather Event Simulator (subsystem) integration	WES functionality migration & integration to AWIPS II
Archiver (subsystems) integration	Archiver conversion deployed
Data Visualization	

**FY 2009 Deliverables**

In 2009, NWS will:

- Conduct Operational Test and Evaluation of AWIPS II
- Initiate deployment of re-architected AWIPS to 122 Weather Forecast Offices, 13 River Forecast Centers, 6 National Centers and NWS test facilities
- Initiate production development of an integrated collaborative capability within the new architecture
- Initiate migration of the N-AWIPS software into the new architecture
- Initiate development of an enterprise wide thin client capability to support the fire weather mission, Weather Service Offices and Center Weather Support Units
- Initiate development of the new data delivery method.
- Start concept definition and exploratory development of the new information generation capability
- Integrate orphaned systems into the new architecture

<b>Program Cost</b>	<b>2009</b>
Labor	\$2,556
Hardware	\$6,697
IT security	\$125
Common User Services	\$588
Telecommunications	\$345
IT Training	\$345
Software development (see detail below)	\$8,408
<b>100% program</b>	<b>\$19,064</b>

<b>Software Development</b>	<b>2009</b>
Raytheon SW CTR	\$2,383
AWIPS Infrastructure re-architecture	\$2,910
Data delivery	\$1,152
Collaboration	\$1,550
Information Generation	\$0
Visualization	\$0
"Orphaned systems" (WES and archivers)	\$413
Open source expansion	\$0
<b>Total: Software Development</b>	<b>\$8,408</b>

### **Benefits**

AWIPS improvements funded by this budget initiative will significantly advance preparation and delivery of weather and flood warnings and forecasts needed by the American Public, DHS, emergency managers, aviation, and industry.

In short, AWIPS tech infusion will:

- Accelerate and streamline support to key decision makers
- Enable emergency managers to make faster and better decisions from products in formats they can fully exploit;
- Fully engage NWS expertise through integrated visual collaboration
- Streamline operations
- Improve forecasts through advanced integrated graphical collaboration at all levels of NWS Operations

- Deliver a 50% reduction in development time for new products; more responsive to the American Public and Partners;
- Improve warnings and forecasts by reducing transition of research to operations by 50%
- Improve continuity of operations
- Reduce system downtime due to software upgrades by >50%
- Ensure no impact from component failure due to enhanced failover – uninterrupted local operations
- Control spiraling software maintenance and development costs
- Decrease lines of code by >50%
- Reduce system complexity by at least 25%
- Optimize Utilization of NOAA Investments
- Improve tornado (50% increase on range of small tornado detection) and hail warnings, along with 25% more accurate precipitation amount forecasts and reduce false alarms for flood forecasts through full exploitation of NEXRAD Dual Polarization and Super Resolution improvements
- Improve forecasts through exploitation of advanced data to be provided by GOES-R

### **Background**

- The activities funded by this budget initiative extend the new, more robust AWIPS infrastructure to the National Centers for Environmental Prediction (NCEP) and to River Forecast Centers (RFCs) and Weather Service Offices (WSOs) and Center Weather Support Units (CWSUs). This unifies NWS operations by removing the technological constraints that prevent critical weather and flood warning and forecasting applications from being seamlessly available throughout the breadth of NWS. Incident Meteorologists who provide on site support to the Department of Homeland Security, Emergency, and Fire Managers will be able to deliver the full breadth of NWS capabilities quickly to these key decision makers. The common infrastructure and development environment will streamline software development and enable faster research to operation transition.
- Once this seamless weather enterprise is established, AWIPS Tech Infusion will deliver enterprise level enhancements for data delivery, service backup, collaboration, and visualization. These critical enhancements will provide more flexible access to the ever growing volume of hydro-meteorological data, more flexibility in working together at all levels of the organization and with outside trusted partners, stream-lined generation and delivery of NWS products and services as well new visualization techniques that will enable faster identification and interpretation of severe weather. Without these enhancements, NWS forecasts will be unable to fully exploit planned NOAA investments in new technologies such as NPOES, GOES-R and radar upgrades.

The AWIPS Development Environment, the toolkit that supports development, will enable collaborative development amongst the scientific community. Partnerships are being explored within NOAA and NASA to provide access to new datasets and environmental research which can be implemented within NWS operations in a more effective and timely manner

### Performance Goal and Measurement Data

Some of the proposed measures and goals for the AWIPS Tech Infusion are defined in the table below:

Area	Metric	2009	2010	2011	2012	2013	2014
Hardware Product Improvement	Improve Workstation Performance Rating (WPR) <sup>1</sup>		10%	5%			10%
Data delivery	Increase data efficiency <sup>2</sup>		5-7%	15%	20%		
Software re-architecture	Reduce installation time <sup>3</sup>	<4 hours	<4 hours	<3 hours	<3 hours	<3 hours	
	Reduce Source Lines of Code		50%	5%			
	Reduce system complexity <sup>4</sup>	25%	25%	25%	25%	25%	
Collaboration	Improve NDFD border consistency			+10%			
Information Generation	Reduce product unique templates <sup>5</sup>				25%		

Measures are defined as follows:

1. Workstation Performance Rating is a timing test that simulates displaying data in a severe weather event.
2. Data efficiency: Ratio of volume of data used by forecaster to data delivered over the Satellite Broadcast Network. Currently, our push only, point to multi-point data delivery paradigm results in data sets being delivered to sites that have no need for that data. Implementation of a more flexible data delivery paradigm will allow us to optimize the data delivered to all sites. This will drive down the need for frequent bandwidth increases as we allow sites to request non-critical data on an as needed basis.
3. Reduce installation times: Every software release requires a site to invoke service back up and often takes as much as two weeks after the initial installation before a site is restored to the same operating condition as before the software installation. The objective is to reduce the installation time by 50% and eliminate the post install recovery period.
4. Software O&M costs are driven by system complexity. Industry studies have shown the more complex a system is, the more costly it is to maintain. The objective of the migration to the new architecture is to reduce the AWIPS system complexity, as measured by the cyclomatic complexity, by a minimum of 25%.
5. The number of unique product templates for official NWS products is a measure of the overall complexity of the software necessary to generate and deliver official NWS products and the O&M costs associated with their development and maintenance. The objective is to streamline the architecture for generating and delivering NWS products and the measure is a minimum of a 25% reduction in product templates.

<b>OUTYEAR FUNDING ESTIMATES</b>									
(BA in thousands)									
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total	
AWIPS Tech Infusion									
Change from FY 2009 Base	-	6,605	305	305	305	305			
Total Request	129,809	19,064	12,764	12,764	12,764	12,764	N/A	N/A	

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**Complete and Sustain NOAA Weather Radio (+0 FTE and +\$2,877,000):** NOAA requests an increase of \$2,877,000 and (0) FTE's for a total of \$11,337,000 to complete, sustain and modernize the NOAA Weather Radio network. Of this \$2,877,000, \$134,000 is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008. The remaining balance of \$2,743,000 is to fund NWR modernization via the Weather Radio Improvement Project (WRIP) by replacing obsolete unsupportable broadcast equipment and taking advantage of satellite technology to allow for point to multi-point communications capability and network redundancy and meet DHS/FEMA needs. This \$2,743,000 increase will allow the NWS to deploy the NOAA Weather Radio Broadcast Management System (NWR BMS). The BMS is a replacement for the Console Replacement System (CRS). Also included is the development of a system that will integrate the NOAA Weather Wire Service (NWWS) into a consolidated network with the BMS. Currently, the contract to maintain the NWWS expires in FY 2009.

The current CRS is at its end of life and cannot be supported at the current level beyond July of 2007 due to parts obsolescence. The CRS is a main component of NOAA Weather Radio that converts text warning messages into digital voice. This conversion provides the voice warning messages that are broadcast over NOAA Weather Radio to alert the public. It is critical that these issues are addressed now in order to avert potential outages that might affect our ability to disseminate warnings to the public.

Note: \$3,000,000 from the Local Warning and Forecast Base that was used to initiate this project in FY 2008 is being transferred to this activity to more accurately reflect the usage of the funds (see NWS description of ATB adjustments in the ORF section of the Budget).

#### **Statement of Need**

The NOAA National Weather Service (NWS) needs to continue providing weather watches and warnings and other emergency messages to the public and emergency managers through the NOAA Weather Radio (NWR) and Weather Wire Service (NWWS) networks. As part of the over arching National Dissemination Network (NDN) program, the Weather Radio Improvement Project (WRIP) has been initiated to evaluate, update and modernize NWR and



NWWS. This will help to achieve NDN's goal of bringing the current NWS dissemination systems into a consolidated, cost effective dissemination network which meets current and future stakeholder missions, requirements and needs.

Specific needs that must be addressed by WRIP to sustain and improve the NWR and NWWS services include:

- Extension of NWR infrastructure operational life – (Priority 1) - The NWR infrastructure has a major subsystem, the Console Replacement System (CRS), which will have reached the end of life and cannot be supported due to parts obsolescence beyond July of 2007. The CRS needs to be replaced in order to sustain NWR service operation.
- Interface to NWR for DHS and FEMA – (Priority 2) - 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 type of control requires unique NWR transmitter addressing and direct interface into the NWR system by DHS and FEMA, neither of which exist today. In order to meet DHS requirements, a redesign of the CRS system is necessary.
- NWR cost reduction and reliability improvement – (Priority 3) - The telecommunication systems used to convey watches and warnings to NOAA Weather Radio (NWR) transmitters have become less reliable and more costly than current alternatives. Replacing the leased telecommunication circuits connecting WFOs to the NWR transmitters would significantly increase network reliability, performance and versatility, while significantly reducing operational and maintenance costs. Alternative telecommunication systems, such as integrated satellite communications, offer newer technologies with increased capacities and capabilities, which may provide higher reliability at a significantly reduced cost.
- NWWS cost reduction and service expansion – (Priority 4) - The NOAA Weather Wire Service (NWWS) is costly to operate. The service is based on a proprietary dissemination protocol which requires users to purchase expensive receivers, the price of which are above the threshold that the public is willing to pay. The expensive proprietary equipment prevents widespread use of this service by the public and prevents a more widespread deployment to all Weather Forecast Offices.
- Infrastructure consolidation – (Priority 5) - 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.

#### **Proposed Actions**

In FY 2009, the \$5,743,000 will be used to:

- Deploy BMS hardware
- Develop NWWS system

- Install communications equipment for BMS and NWWS between WFO's and the proposed BMS site/s.
- Begin effort to install satellite hardware at 1000 transmitter sites.
- Begin effort to install bandwidth, hub, and dialup communications at the WFO's and the proposed BMS site/s.

#### FY 2009 Deliverables

- Full Scale Development of the BMS/NWWS system \$1.0M
- Initial Production and Operational Assessment Test for BMS/NWWS \$2.3M
- Development of the communications network \$1.2M
- Recurring Communications costs \$0.7M
- Project Management \$0.5M

#### FY 2010 Deliverables

- Deploy BMS/NWWS system
- Install/deploy remote BMS hardware at 1000 transmitter sites
- Continue to install/deploy satellite/communication equipment at 1000 transmitter sites
- Provide O&M support for deployed BMS/NWWS system and satellite/communication network

#### **Benefits**

This funding will allow us to develop and deploy a system to replace the obsolete CRS. This addresses a critical need, and without funding, the potential for a catastrophic outage exists under the current CRS. To not fund this project could potentially affect our ability to disseminate vital warning information to the public. We cannot afford to delay this project. In FY 2007 and FY 2008 NWS began concept and design work for this project using both Local Warnings and Forecast funding and a grant funding from the Department of Homeland Security.

#### **Performance Goal and Measurement Data**

This increase will support the objective "Provide accurate and timely weather and water information" under the Department of Commerce strategic goal to "Promote environmental stewardship." Specifically, the increase supports the NOAA Weather and Water Performance Goals:

- Reduced loss of life, injury, and damage to the economy
- Better, quicker, and more valuable weather and water information to support improved decisions
- Increased customer satisfaction with weather and water information and services

Measure	Current Baseline	Target Goal
Recurring O&M and Communications Cost	\$6.6M	\$3.6M (starting FY 12)
High priority message transport delay	< 90 sec	< 45 sec
NWR - Real-time Voice Message transport delay	N/A	< 30 sec
NWWS - of Priority 1 weather warnings & watches	< 10 sec	< 10 sec

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior**	FY 2009***	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete *	Total
Complete & Sustain NWR								
Change from FY 2009 Base		2,877	3,024	3,544	744	744		
Total Request	16,621	11,337	11,484	12,004	9,204	9,204	24,141	93,995

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

\*\*\*Total Request includes a \$3 million Technical Adjustment-to-Base from Local Warning & Forecasts Base. This project is captured in the Complete and Sustain NOAA Weather Radio Line item.

**NOAA Profiler Conversion (0 FTE and +\$4,752,000):** NOAA requests an increase of 0 FTE and \$4,752,000 for a total of \$9,730,000 to replace transmitters that interfere with Search and Rescue Satellites and to conduct tech refresh of the 20 year-old network. This increase continues the approved multi-year investment. 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 provide important indicators of where severe weather such as tornadoes and winter storms may form and is used for issuing aviation advisories and wildfire predictions. Research has shown Wind Profiler data improves accuracy and lead times for tornado, severe thunderstorm, flash flood, and winter storm warnings

Thirty-two of the 37 wind profiles are using an experimental transmitter frequency of 404 mega hertz (MHz) issued by the National Telecommunications and Information Administration (NTIA). NTIA has given the 404 MHz frequency to search and rescue satellites (SARSAT) and granted the NPN permanent use of 449 MHz. Thirty operational 404 MHz wind profilers require their transmitters to be converted from 404 to 449 MHz by the end of the FY08 when the new SARSATS are launched.

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.

### Statement of Need

Because the 32 of the 37 wind profilers and search and rescue (SAR) satellites both operate at 404 MHz, whenever an SAR satellite is overhead, the profilers are turned off to prevent any interference. Right now, this only occurs about 90 minutes per day. The European Space Agency began launching a constellation of 30 satellites called *Galileo* in FY 2006. These satellites will have a SAR capability with an operating frequency of 404 MHz. These SRSATS will be overhead for hours instead of minutes. Under these conditions, NPN profilers operating at 404MHz will have to shut down more than 23:30 hours per day by the start of FY 2010, rendering the network useless. The solution is to change the operating frequency to the non-interfering 449 MHz, a primary shared frequency for wind profilers and DOD testing.

The 30 operational wind profilers operating at 404MHz are located in the central U.S. along “tornado alley.” Studies have shown the following improvements in tornado detection as a result of wind profiler data:

	WFOs within NPN*	WFO Nat'l. Ave.	WFOs Outside NPN*
Probability of Detection	0.79	0.72	0.62
False Alarm Rate	0.68	0.74	0.85
Critical Success Index	0.29	0.24	0.14
Lead Time (minutes)	12.9	11.5	9.5

### Accuracy Performance Measures for WFOs, 1999 through 2003 (Wolf, 2004)

#### \*Selected Weather Forecast Offices in areas where tornadoes occur often.

In 2009, the NPN will have been installed for 20 years without any technology refresh during its life cycle. Therefore a second priority is tech refresh for the entire 37 wind profiler network. This tech refresh includes replacing the 5 existing 449 MHz profilers, replacing the network's VAX system computers and re-hosting the software on a LINUX platform; improving the telecommunications network, replacing site modems, data collection modems and uninterruptible power systems, and providing a major overhaul of site shelters, facility electric distribution, replacement of RASS components and upgraded satellite communications equipment.

By coupling the frequency replacement with the tech refresh, the Government avoids risking significant problems with technology integration and achieves a more cost-efficient solution to supporting the life-cycle of these operationally critical systems.

The Senate Appropriations Committee requested, as part of a Cost and Operational Effective Analysis (COEA), “the cost to upgrade the NOAA Profiler Network (NPN) over the next decade versus the short, medium, and long-term costs of ending the NPN program.” The results of the COEA demonstrate that high-frequency wind data benefit several important NWS missions: severe weather warnings (for tornadoes, flash floods, and winter storms), watches, and short-term forecasts. These products are important for public safety, aviation, and wildfire-suppression support.

### **Proposed Actions**

The proposed adjustment is to convert Wind Profilers from operating at 404MHz to 449MHz and to provide technology refresh to 20 year old equipment:

- Three (3) operational sites will have been converted from 404MHz to 449MHz in FY 08
- Convert 12 operational sites from 404MHz to 449MHz and provide tech refresh for 12 systems in FY 2009
- Convert 15 operational sites from 404MHz to 449MHz; convert the 404MHz system at the National Reconditioning Center (used to quality control repaired components) and the 404 MHz system operating at the NWS Training Center (used to train maintenance technicians) from 404MHz to 449MHz ; and provide technology refresh for 12 systems in FY 10
- Provide technology refresh for 6 operational profilers now operating at 404MHz, the National Reconditioning Center and NWS Training Center Systems, and the 5 operational profilers at 449 MHz (three sites in Alaska, one in Platteville, CO, and one in Syracuse, NY) in FY 11

Wind Profiler performance requirements are being coordinated with the NOAA National Ocean Service (NOS) and others in support of the Integrated Ocean Observation System (IOOS). As part of the frequency conversion and technology refresh, Wind Profilers are also being engineered to meet requirements for coastal wind information. NOS has funded some of the non-recurring engineering activities through the FY05 IOOS earmark. The early funding will ensure NWS is able to meet the frequency conversion implementation date and provide an NWS supportable equipment infrastructure and enable deployment of 3 operational Wind Profiler systems for west coast applications as part of IOOS.

#### FY 2009 Deliverables

- Remaining antenna and transmitter components for frequency conversion of 12 Profilers- \$.53M
- Hardware and software for tech refresh of 12 Profilers - \$4.10M

### **Benefits**

As part of the COEA (May 2004), a cost-effectiveness analysis shows that sustaining the NPN, including upgrading the frequency, is the most cost-efficient method of obtaining high-frequency wind profiles. Six independent attributes were used to judge wind-profiling system performance: 1) frequency of observation, 2) geographic coverage, 3) vertical reach, 4) horizontal spacing, 5) number of vertical levels, and 6) measurement accuracy. Frequency of observation is the number of profile reports per day.

The best combination of performance and cost is to maintain the NPN system and modify its frequency so as not to interfere with reception by SARSAT satellites of signals from Search and Rescue beacons.

#### Alternatives considered:

- 1) Changing the NPN operating frequency and maintaining the current network
- 2) Terminating the NPN network
- 3) Replacing the network with either existing or new technologies potentially capable of providing data that would provide a similar improvement in forecasting performance. The alternate technologies considered: Existing and additional use of radiosondes (weather balloons), automated aircraft reporting

(Meteorological Data Collection and Reporting System (MDCRS)), WSR-88D Doppler radar, and object tracking by Geostationary Operational Environmental Satellite (GOES).

Conclusions: COEA results indicate the best solution for both performance and cost is to maintain the NPN network and modify its frequency so as not to interfere with reception with SARSAT satellites.

**Performance Goals & Measurement Data**

This increase will support the objective “Provide accurate and timely weather and water information” under the Department of Commerce strategic goal to “Promote environmental stewardship.” Specifically, the increase supports the NOAA Weather and Water Performance Goals “Tornado Warning: Critical Success Index” and “Wind Profiler Product Availability” and supports GPRA measures “Tornado Warning Probability of detection”, “Tornado Warning False Alarm Ratio” and “Tornado Warning Lead Time (min.)” The table below reflects measures for those WFOs within the National Wind Profiler Network:

Performance Goal: <i>Weather and Water</i>	FY04 Baseline	FY05	FY06	FY07	FY08	FY09	FY10	FY11
GPRA Performance Measure Tornado Warning Probability of detection <i>with</i> Increase *	.79	.79	.79	.79	.63	.71	.78	.79
GPRA Performance Measure Tornado Warning Probability of detection <i>without</i> Increase *	.79	.79	.79	.79	.62	.62	.62	.62
GPRA Performance Measure Tornado Warning False Alarm Ratio <i>with</i> Increase *	.68	.68	.68	.68	.84	.77	.69	.68
GPRA Performance Measure Tornado Warning False Alarm Ratio <i>without</i> Increase *	.68	.68	.68	.68	.85	.85	.85	.85
GPRA Performance Measure Tornado Warning Lead Time (min.) <i>with</i> Increase *	12.9	12.9	12.9	12.9	9.6	11.1	12.6	12.9
GPRA Performance Measure Tornado Warning Lead Time (min.) <i>without</i> Increase *	12.9	12.9	12.9	12.9	9.5	9.5	9.5	9.5
Tornado Warning: Critical Success Index <i>with</i> Increase	.29	.29	.29	.29	.15	.21	.28	.29
Tornado Warning: Critical Success Index <i>without</i> Increase	.29	.29	.29	.29	.14	.14	.14	.14
Wind Profiler Product Availability <i>with</i> Increase	80 %	80 %	80 %	80 %	72 %	55%	78%	85%
Wind Profiler Product Availability <i>without</i> Increase	80 %	80 %	80 %	80 %	71%	29%	0 %	0%

*Accuracy Performance Measures for Weather Forecast Offices, 1999 through 2003* (Wolf 2004). GPRA measure targets reflect Wind Profiler Impact only; do not reflect other improvements that impact the national GPRA targets, which are more accelerated. The drop in performance during FY09 reflects the shut down of the Profiler network due to SARSAT interference. Performance goes up in FY10 after completion of the frequency upgrade and the return of the network to operations.

### **Costs for NOAA Profiler Network (NPN) Frequency Change and Tech Refresh**

#### **Frequency Change: \$13.2M**

- Antennas –\$5.97M
- Transmitters – \$5.87M
- Parts – \$0.79M
- Project expenses (frequency change coordination) – \$0.57M

#### **Technical Refresh: \$14.01M. The technical refresh effort is completed concurrent with the frequency conversion.**

##### Hardware (Subtotal \$10.81M)

- LINUX computer platform with backup and fail over circuitry - \$11K per site x 35 sites = \$0.4M. Technology refresh includes replacing the VAX system computers and re-hosting the software on a LINUX platform
- One support system for the NWS Training Center - \$0.5M
- Refurbish one support system for National Reconditioning Center - \$0.3
- Software re-host development system = \$0.2M
- Upgrade telecommunications equipment at each site (including modems) - \$41K per site x 35 sites = \$1.44M
- Data Collection facility modems - \$0.16M
- Site uninterruptible power supplies - \$92K per site x 30 sites = \$2.76M
- Quality Assurance and receiving test system - \$0.2M
- Site uninterruptible power supplies - \$92K per site x 8 sites - \$0.74M
- Shelter replacement – 36K per site x 35 sites - \$1.26M
- Site electric distribution – 9K per site x 35 sites - \$0.32M
- Antenna array support structure replacement - \$29K per site x 35 sites - \$1.02M
- RASS component replacement - \$13K per site x 35 sites - \$0.46M
- Satellite communication equipment - \$30K per site x 35 sites - \$1.05M

Software (Subtotal \$3.2M)

- Software re-host engineering to comply with NWS Enterprise Architecture - \$1.8M Technology refresh includes replacing the VAX system computers and re-hosting the software on a LINUX platform.
- Wind profiler site product formatter - \$0.7M
- Site data compression software- \$0.2M
- Data collection facility data decompression software - \$0.2M
- National Reconditioning Center and Quality assurance test software - \$0.3M

<b>OUTYEAR FUNDING ESTIMATES</b>								
(BA in thousands)								
	FY 2008 & Prior**	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete*	Total
NPN								
Change from FY 2009 Base	-	4,752	(108)	(108)	(4,752)	-	-	
Total Request	8,243	9,730	4,870	4,870	-	-	N/A	27,713

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

\*\*Funding for FY 2008 and prior reflects funding beginning from FY 2000.

**ASOS Product Improvement (0 FTE and +\$39,000):** NOAA requests an increase of 0 FTE and \$39,000 for a total of \$1,635,000 for ASOS PI.

This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**NEXRAD Product Improvement (0 FTE and +\$200,000):** NOAA requests an increase of 0 FTE and \$200,000 for a total of \$8,376,000 for NEXRAD PI. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**NWS Telecommunications Gateway Legacy Replacement (0 FTE and +\$29,000):** NOAA requests an increase of 0 FTE and \$29,000 for a total of \$1,195,000 for the NWS Telecommunications Gateway Legacy Replacement program. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.



**Radiosonde Network Replacement (0 FTE and +\$96,000):** NOAA requests an increase of 0 FTE and \$96,000 for a total of \$4,014,000 for the Radiosonde Network Replacement Program. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Weather and Climate Supercomputing Backup (0 FTE and +\$7,077,000):** NOAA requests an increase of 0 FTE and \$7,077,000 for the Weather and Climate Supercomputing Backup program. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

**Cooperative Observer Network Modernization (0 FTE and +\$101,000):** NOAA requests an increase of 0 FTE and \$101,000 for a total of \$3,734,000 for the Cooperative Observer Network Modernization program. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

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**National Environmental Satellite, Data, and Information Service**  
**Activity: Systems Acquisition**

**GOAL STATEMENT:**

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 to users.

The GOES series of satellites fall under NOAA's Mission Support goal, and support NOAA's other strategic goals to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management approaches; to understand climate variability and change to enhance society's ability to plan and respond; to serve society's needs for weather and water information; and to support the Nation's commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

GOES data provide:

- Cloud images and precipitation estimates for hurricanes and other coastal storms;
- NOAA Coast Watch sea surface temperature (SST) products for locating commercial and sport fish as well as protected marine species;
- New research products, such as ocean surface currents, that support both ecosystems management and safety of marine navigation;
- Primary information in the Nation's Climate Reference Network, providing reference quality data for surface temperature and precipitation monitoring;
- Images of the United States and adjacent ocean areas to enable the detection of hurricanes and other major weather events;
- Data collection from remote fixed observing platforms such as buoys and rain gauges for use in numerical weather prediction models and flood/drought assessments;
- Weather information to emergency managers for use in times of severe weather and during other disasters;
- A means to obtain quantitative environmental data such as temperature, moisture, wind, radiation and solar energy particle flux for use in weather predictions, hydrometrological flux, climate long term trending, ecosystems management, commercial economic gain, and transportation safety; and
- Unique monitoring capabilities that support air, land, and marine transportation.

Polar-orbiting Operational Environmental Satellites Programs

The NOAA family of polar satellites (i.e., Polar-orbiting Operational Environmental Satellites (POES), and 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 provides support for all of the other strategic plan goals, and NOAA's cross-cutting priorities.

Polar satellites provide a continuous flow of global environmental observations in support of operational requirements for:

- Environmental monitoring, and weather and marine forecasting;
- Climate assessment and change prediction;
- Detecting weather systems and significant environmental events such as volcanic eruptions, oil spills, and wildfires;
- Measuring atmospheric ozone and the space environment;
- Collecting environmental data from other surface platforms such as buoys; and
- Performing search and rescue functions.

#### **BASE DESCRIPTION:**

**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. For the GOES-R series the roles and the responsibilities of NOAA and NASA are being re-examined and possibly realigned to better meet each agency's charter and strategic goals.

NOAA GOES satellite systems are designed, developed, acquired and operated as a single end-to-end system. The system includes the observing platform (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 deltas, mesoscale scanning, currents flow dynamics, and atmospheric chemical (particle) that cannot be achieved from a non-stationary orbit without increased error rates and lost data segments. NOAA maintains an on-orbit spare to complement the two operational GOES satellites. This on-orbit spare philosophy allows NOAA to quickly replace a failed satellite by re-positioning an on-orbit satellite. To facilitate this strategy, NOAA plans the launch of the next satellite to coincide with the planned switchover of the on-orbit spare to operational status.

**GOES-N SERIES:** The NOAA GOES program includes the development, procurement, and launch of the GOES-N series of satellites. The spacecraft contract for the GOES-N series is a firm fixed price contract with delivery on-orbit. The GOES-N series program also includes separate contracts for the instruments, one for the Imager and Sounder, and one for the Solar X-ray Imager.

**GOES-R SERIES:** The GOES-R program will complete architecture studies, technology development, design, fabrication, integration and testing, and end-to-end system integration to maintain GOES continuity. End-to-end system integration refers to the acquisition of an on-orbit satellite including the spacecraft, instruments, GOES unique communications services, and launch services; the command, control, and communications and product generation and distribution functions currently performed by Satellite Services; the archive and access of all data and products; and the user interface function providing data to critical users and forecasters. The GOES-R budget requested for FY 2009 is a \$7.6B two satellite GOES-R (GOES-R and GOES-S) program. The procurement will include options for acquiring additional satellites in the future to realize potential savings from economies of scale. The archive and access function will be provided by NOAA's CLASS system. This end-to-end integration requires the acquisition, deployment, maintenance, and operations of the space, ground and launch segments.

**Polar-orbiting Operational Environmental Satellite System:** Currently, the polar satellite program consists of NOAA's Polar-orbiting Operational Environmental Satellites (POES), the provision of U.S. instruments for flight on the European Polar System (EPS) satellites known as MetOp, , and the National Polar-orbiting Operational Environmental Satellite System (NPOESS). POES is NOAA's current operational polar system, with one more satellite left in the series (NOAA N prime). As part of a cooperative agreement with NOAA, the MetOp series of satellites within EPS will carry U.S. instruments and provide data services coverage from a mid-morning polar-orbit through 2020. NPOESS is a future satellite system and an acquisition program that is the follow-on program mandated by Presidential directive to replace POES and the Department of Defense's (DOD) Defense Meteorological Satellite Program (DMSP). NPOESS Data Exploitation (NDE) is a polar-related project that is designed to improve utilization of NPOESS data.

**National Polar-orbiting Operational Environmental Satellite System (NPOESS):** Presidential Decision Directive (PDD/NSTC-2, Convergence of US Polar-Orbiting Operational Environmental Satellite Systems, May 5, 1994) directed the Department of Commerce (DOC), Department of Defense (DoD), and National Aeronautics and Space Administration (NASA) to establish the NPOESS program. This decision made way to integrate the Nation's civil and military 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. These systems include NOAA's POES and DoD's DMSP. As a result, NOAA, DoD, and NASA formed a tri-agency Integrated Program Office (IPO) to develop, manage, acquire, and operate the new polar satellite system called NPOESS.

Through NPOESS, which is funded jointly by NOAA and the U.S. Air Force, the U.S. government is substantially reducing duplication of efforts by satisfying the requirements of the civil and national security communities with one system. The first result of the NPOESS program was the transfer of DMSP satellite control from the U.S. Air Force Space Command to the IPO. The command, control, and communications functions for the DMSP satellites and the POES satellites are now combined at the NOAA Satellite Operations Control Center (SOCC) in Suitland, Maryland. The launch of the DMSP F-15 satellite in December 1999 resulted in the first DMSP satellite launched and controlled by the NOAA SOCC.

In 2005, the NPOESS Program Director, in accordance with DoD regulations, notified the program's Executive Committee (EXCOM) that the program costs would likely exceed the plan by more than 25 percent regardless of which option is chosen to move the program forward. This notification initiated a series of events which are required under the DoD Nunn-McCurdy process: In June 2006, the Office of the Secretary of Defense certified that:

- The program is essential to National Security;
- No alternatives with equal capability exist at equal or lesser cost;
- The cost estimate is reasonable; and
- The management structure is adequate for program success.

**NPOESS 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 both operations and research. The NDE project will develop and implement capabilities to process and distribute NPOESS products and services, starting with the NPOESS Preparatory Project (NPP) satellite, once the data have been delivered to NOAA. NPOESS and NPP are part of a new environmental satellite program that promises to improve our observations of the earth, atmosphere, oceans and space environment. In order to realize the benefits of NPOESS data, NOAA must implement capabilities to process NPOESS data records into useful products that meet the requirements of NOAA's operational centers and other civilian users. For example, NDE will be able to derive carbon-based products such as Methane, Carbon Dioxide and Carbon Monoxide from NPOESS observations. These gases tend to mask the atmospheric temperature and humidity observations sensed by NPOESS. By producing a better estimate of these gases, NDE will help NOAA's National Weather Service to remove biases and improve weather forecasts. NDE will also assist NOAA's Climate Prediction Center by providing global estimates of these gases.

**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 is responsible for the stewardship of over one petabyte of environmental data and information, which is expected to grow to well over 18 petabytes by 2011. NOAA spends more than one billion dollars each year collecting environmental data in support of its mission. In the near future, NOAA will launch the first NPOESS, which will provide a forty times increase in data volume per satellite. By providing efficient, secure, cost-effective access to NOAA's environmental data via CLASS, NOAA is supporting key research challenges identified by the U.S. Global Change Research Program, such as natural climate patterns, global monsoon, and land-atmosphere and ocean-atmosphere exchanges.

NOAA is enhancing its multiple current stovepipe archiving capabilities into a CLASS System that will be fully operational and managed at the enterprise level. This system will allow efficient management of high volumes of data critical to NOAA and the users in the scientific community. The target data originates from GOES, POES, NPP/NPOESS, DMSP, 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.

**Earth Observing System Data Archive & Access System Enhancement:** NASA's Earth Observing System (EOS) data will be integrated into CLASS for archive and access. The expected large increases in data rates and volumes over the next several years from EOS data alone will far exceed the capacity and capabilities of the NOAA National Data Centers.

**Critical Single Points of Failure:** This effort supports the continuity of critical operational satellite products and services in the event of a catastrophic outage at the NOAA Satellite Operations Facility (NSOF) and the World Weather Building in Camp Springs by providing backup capability for primary satellite products and services.

The NOAA Product Processing and Distribution Office is a critical single point of failure for every operational NOAA satellite product and service that NWS and other users rely on for weather information. Satellite data represents more than 99 percent of the input to numerical weather prediction models. Satellite products and services include: POES products such as ozone, temperature and moisture sounder products; GOES Advanced Weather Interactive Processing System (AWIPS) remapped imagery, high density winds, precipitation estimates, sounder products; and non-NOAA satellite products from NASA, the DOD, Europe, Japan and India.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition					
Geostationary Systems - N	107,052	80,299	80,299	73,263	(7,036)
Geostationary Systems - R	253,040	234,538	234,773	477,000	242,227
Subtotal: GOES	360,092	314,837	315,072	550,263	235,191
Polar Orbiting Systems - POES	89,816	114,791	114,291	65,419	(48,872)
Subtotal: POES	89,816	114,791	114,291	65,419	(48,872)
Polar Orbiting Systems - NPOESS	337,532	330,969	330,969	287,985	(42,984)
Subtotal: NPOESS	337,532	330,969	330,969	287,985	(42,984)
EOS & Adv. Polar Data Processing, Dist. & Archiving Systems	2,138	965	966	990	24
Subtotal: EOS	2,138	965	966	990	24
CIP - Single Point of Failure	2,798	2,703	2,706	2,772	66
Subtotal: CIP	2,798	2,703	2,706	2,772	66
Comprehensive Large Array Data Stewardship Sys (CLASS)	7,011	6,315	6,321	6,476	155
NPOESS Preparatory Data Exploitation	4,438	2,394	2,396	2,455	59
Restoration of Climate Sensors - Data Records	-	-	-	74,000	74,000
TOTAL	803,825	772,974	772,721	990,360	217,639
FTE	176	153	153	153	-

Note: The dollars in this table represent budget authority.

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## **PROGRAM CHANGES FOR FY 2009:**

**Climate Sensors (CERES, TSIS, and Climate Data Record Support) (0 FTE, and \$74,000,000)**: NOAA requests an increase of 0 FTE and \$74,000,000, for a total of \$74,000,000 to begin the development of the Clouds and the Earth's Radiant Energy System (CERES) and Total Solar Irradiance Sensor (TSIS) climate sensors, which were previously de-manifested from National Polar-orbiting Operational Environmental Satellite System (NPOESS). This funding will support initial work on Climate Data Records. The joint assessment conducted with the Office of Science and Technology Policy, NOAA, and NASA has emphasized the importance of sustaining the CERES and TSIS climate data series without gaps. NOAA and NASA will work together to explore the most cost-effective options for launching these climate sensors to fill the near-term data gap.

### **Statement of Need**

An integral part of NOAA's mission is to understand climate variability and change to enhance society's ability to plan and respond. This involves creating a scientific data stewardship plan to generate, analyze, and archive long-term Climate Data Records for assessing the state of the environment. A Climate Data Record is a time series of measurements of sufficient length, consistency, and continuity to determine climate variability and change. These data are critically needed for:

- Seasonal and inter-annual climate forecasts;
- Decadal-scale monitoring of climate variability;
- Assessment of long-term global environmental change.

The National Research Council (NRC), as part of The National Academies, completed a decadal survey of earth science in 2007. Their findings are documented in the report, "Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond." Among their near-term recommendations, the NRC committee stressed that NOAA "ensure the continuity of measurements of Earth's radiation budget (ERB) and total solar irradiance (TSI) through the period when the NPOESS spacecraft will be in orbit..." These two measurements provide critical information in monitoring and understanding long-term climate change. This initiative responds to the National interest and need for continuity of these measurements by restoring the CERES and TSIS instruments to satellite missions.

CERES measures the Earth radiation budget. Accurate observations of the Earth's radiation are essential to determine the causes of climate variability and change. Accurate Earth radiation budget observations can only be made from space. They represent the first scientific observations of the Earth ever made from space (1960) and ongoing observations have continued for well over 20 years. Overlap between space-based sensors is critical to confidently detect and monitor the small changes in the Earth's radiation balance capable of affecting climate change.

TSIS measures the total energy of the sun incident on Earth. This crucial measurement can be accurately determined only above the atmosphere. Precise, long-term observations of the total energy output of the sun are required to identify and isolate natural solar variations that impact climate in contrast to

other factors, such as human influences on climate. Without TSIS, we cannot definitively discriminate and quantify natural versus anthropogenic drivers of climate change. Any interruption of the 28-year data record of Total Solar Irradiance jeopardizes our ability to confidently resolve small changes in this most fundamental variable and adds uncertainty to climate change attribution.

**Proposed Actions**

The FY 2009 request will provide \$74,000,000 for NOAA to work together with NASA to develop the most cost-effective options for launching CERES and TSIS climate sensors, including exploring all reasonable options in terms of cost, schedule, and mission continuity. Near-term options focus on filling the likely gap in earth radiation and total solar irradiance observations between NASA’s Earth Observing Satellites (EOS) and the NPOESS mission. These sensors will be flown on the best available satellite of opportunity. FY 2009 funds will be used on CERES and TSIS instrument development by NASA and satellite contractors, including work on flight models 5 and 6 for CERES. A portion of this funding will be used to support initial work on Climate Data Records Science Support.

**Performance Goals and Measurement Data**

<b>Milestone:</b> Complete CERES and TSIS instrument to fill potential gap in climate measurements. Develop climate data records.		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	Continue climate sensor development; initiate Climate Data Records	Continue /complete climate sensor development; initiate and implement Climate Data Records	Continue/ complete climate sensor development; initiate and implement Climate Data Records	Continue /complete climate sensor development; initiate and implement Climate Data Records	Continue /complete climate sensor development; initiate and implement Climate Data Records
	<b>Without Increase</b>	NOAA and the Nation will be unable to address the eventual gap in climate	NOAA and the Nation will be unable to address the eventual gap in climate	NOAA and the Nation will be unable to address the eventual gap in climate	NOAA and the Nation will be unable to address the eventual gap in climate	NOAA and the Nation will be unable to address the eventual gap in climate

		observations, leading to degraded understanding of climate change	observations, leading to degraded understanding of climate change	observations, leading to degraded understanding of climate change	observations, leading to degraded understanding of climate change	observations, leading to degraded understanding of climate change
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OUTYEAR FUNDING ESTIMATES								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
Climate Sensors		74,000	74,000	74,000	74,000	74,000	TBD	370,000

\* Preliminary estimates only for FY 2010 and beyond. Costs will be updated in future budget submissions depending on options proposed by NOAA and NASA for climate sensors and climate science support in future missions.

**Geostationary Operational Environmental Satellite (GOES):**

**GOES-N Series (0 FTE and -\$7,036,000):** NOAA requests a decrease of 0 FTE and \$7,036,000 for a total of \$73,263,000 in FY 2009. The GOES-N Series is nearing the end of its production, with two remaining satellites to be launched; GOES-O is being prepared for launch in 2008 and GOES-P is currently in storage. The NOAA GOES program continues 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. The GOES-N series program also includes separate contracts for the instruments, one for the imager and sounder and one for the Solar X-ray Imager. The instrument contractors have completed delivery of all flight model instruments.

**Statement of Need:** The GOES series of satellites fall under NOAA’s Mission Support goal, and support NOAA’s other strategic goals to protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management approaches; to understand climate variability and change to enhance society’s ability to plan and respond; to serve society’s needs for weather and water information; and to support the Nation’s commerce with information for safe and efficient transportation (e.g., commercial aviation, utilities, commercial shipping, etc).

**Proposed Actions:**

FY 2009 GOES-N Series funding will be used for:

- Spacecraft/launching (GOES-P);
- NASA technical management;
- The government program office and GOES-N contribution to NESDIS leadership;
- Product development; and
- Ground systems and backup.

Considering the continued success of the GOES-I series, the current GOES-N series planning launch schedule is provided as Figure 1.

**Figure 1 – GOES N Launch Schedule\***

<b>Spacecraft</b>	<b>Availability Date</b>	<b>Planned Launch Date</b>	<b>Operational Date</b>
GOES-O	Dec 2007	April 2008	Jan 2012
GOES-P	April 2009	April 2009	Sep 2014

\* **Launch schedule currently under review.**

**Performance Goals and Measurement Data**

This planned decrease will support Objective 3.5 “Provide Critical Support for NOAA’s Mission” under the Department of Commerce Strategic Goal of "Promote Environmental Stewardship". Specifically, this planned decrease supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

<b>OUTYEAR FUNDING ESTIMATES</b>								
<b>(BA in thousands)</b>								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
<b>GOES-N</b>								
Change from FY 2009 Base	---	(7,036)	(22,778)	(30,879)	(34,485)	(41,178)		
Total Request	1,884,903	73,263	57,601	49,500	45,894	39,201	196,005	2,346,367

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

**GOES-R Series (0 FTE, and +\$242,227,000):** NOAA requests an increase of 0 FTE and \$ 242,227,000 for a total request of \$ 477,000,000. The FY2009 request continues the amount requested for FY2009 in the FY2008 President's Budget. Additional resources are requested in FY 2010 and beyond to mitigate program risks identified by an independent review team and by an independent cost estimate of the program. The GOES-R budget continues to include funding for Technical Requirements, Planning, and Integration activities.

The launch date for GOES-R will be delayed up to four months from December 2014 to April 2015 as a result of the \$44 million reduction in FY 2008 below the President's request level provided in the FY 2008 Omnibus Appropriation Act. This delay to the launch of GOES-R will increase the potential risk to the overall continuity of GOES data coverage in the event of a failure of one either GOES-O or GOES-P. The reduction also impacted the total life cycle cost of the program due to inefficiencies created in the schedule.

Weather and Climate-sensitive industries, both directly and indirectly, account for approximately \$3.0 trillion of the United States gross domestic product (about one-third). Seasonal and inter-annual variations in climate, e.g. El Niño, led to economic impacts on the order of \$25 billion for 1997-1998. Average annual damage from tornadoes, hurricanes, and floods is \$11.4 billion with about 100 deaths annually. Approximately \$4 billion per year is lost in economic efficiencies as a result of weather-related air traffic delays. Lightning causes between \$4 and \$5 billion in losses each year in the civilian sector with about 47 deaths and 303 injuries per year. The GOES-R series will minimize these losses.

### **Statement of Need**

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).

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). 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 (satellites); command and control of the platform; product generation and distribution; archive and access; and user interface. GOES contributes to an Integrated Global Earth Observation System (GEOSS); 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 deltas, mesoscale scanning, currents flow dynamics, and atmospheric chemical (particle) that cannot be achieved from a non-stationary orbit without increased error rates and lost data segments. NOAA maintains an on-orbit spare to complement the two operational GOES satellites. This on-orbit spare philosophy allows NOAA to quickly replace a failed satellite by re-positioning an on-orbit satellite. To 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.

### Proposed Actions

Prior year funding for the GOES-R Series provided for critical design and development activities. The FY 2009 funding request provides for continued engineering development and production activities for:

- System Acquisition & Operations including award of the spacecraft and ground systems contracts
- Instruments Already under Contract: Advanced Baseline Imager (ABI) continuation of the acquisition and operation phase to meet delivery of the Prototype test Model (PTM) in FY 2010 - Derived Sounding Products from the ABI Instrument for GOES-R and GOES-S satellites; Continuation of the acquisition and operation phase and working towards Critical Design Review (CDR) for the Solar Imaging Suite (SIS) comprised of the Solar Ultra Violet Imager (SUVI) and Extreme Ultra-Violet Sensor (EUVS)/X-Ray Sensor (XRS) Irradiance Sensor (EXIS) and the Space Environmental In-Situ Suite (SEISS) and continuation of the acquisition and operation phase for the Geostationary Lightning Mapper (GLM) in order to achieve CDR in FY 2010
- Government Program Office

	\$ in Millions
Acquisition & Operations	225
Instruments	177
Flight Project Acquisition	33
Ground Segment	22
Systems Engineering Integration	10
Government Program Office	10
Total FY 2009 Request	477



The requested funding will initiate the development and production activities for the Acquisition and Operations (A&O) phase. These activities include end-to-end system development and integration; instrument development and production, and the development and production of the spacecraft and ground system.

The following five critical elements were the principal factors assessed during the review of GOES R-Series delivery schedule.

- Satellite Continuity. A critical requirement for the GOES program is to provide constant coverage over the continental United States. That need drives a two-satellite constellation – GOES East and GOES West. A key factor in determining when to deliver satellites is the need to ensure continuity of this service based on the projected operational lifetimes of the satellites currently in operation, in storage (ground and/or on-orbit), or already procured, or planned to be procured. The projected operational lifetime of a satellite is based on its design life and predicted reliability
- Launch/Early Orbit (L/EO) Failure Mitigation. A satellite is subject to failure to attain orbit or to achieve initial operating condition on-orbit. Satellite procurement schedules must include consideration of these types of failures. Although the risk of these types of failures remains relatively constant from satellite to satellite (i.e., the individual probability of failure for each satellite is essentially constant), as time passes the cumulative risk of future failures increases.
- Unpredicted, Premature Failure Mitigation. In addition to predictable failures associated with the satellite design and the possibility of L/EO complications, unpredicted and premature failures to achieve design lifetime must also be taken into account. Some examples of these types of failures include previously undetected design/build/test flaws, unpredicted wear-out failures, commanding errors, and collision/debris damage. These types of failures can be mitigated by either rapid launch on failure response or on-orbit storage. On-orbit storage has been adopted for the GOES program because these satellites are launched via scheduled commercial vehicles.
- Production/Launch/On-Orbiting Testing Constraints. The cost of integrating and testing satellites, caused by the high cost of engineering teams and facilities, limit the ability to deliver more than one satellite at a time and must be considered. For example, if two satellites are needed within three months of each other to maintain continuity of service, production of the first must be accelerated to meet realistic production and launch schedules. In addition, the time to check-out a satellite and declare it operational must also be considered. This check-out period usually takes three months. However, for new satellites, this takes much longer – six months for certain individual capabilities and a year or more for the complete set of products and services.
- Fuel Reserves/On-orbit Storage Issues. While the storage mode for GOES is fairly benign and has a limited negative impact on satellite life, fuel reserves must be considered. Even during storage, a satellite's on-orbit fuel reserve is consumed to maintain station keeping. Launching a satellite too early can cause fuel limitations to be a significant service life-limiting factor.

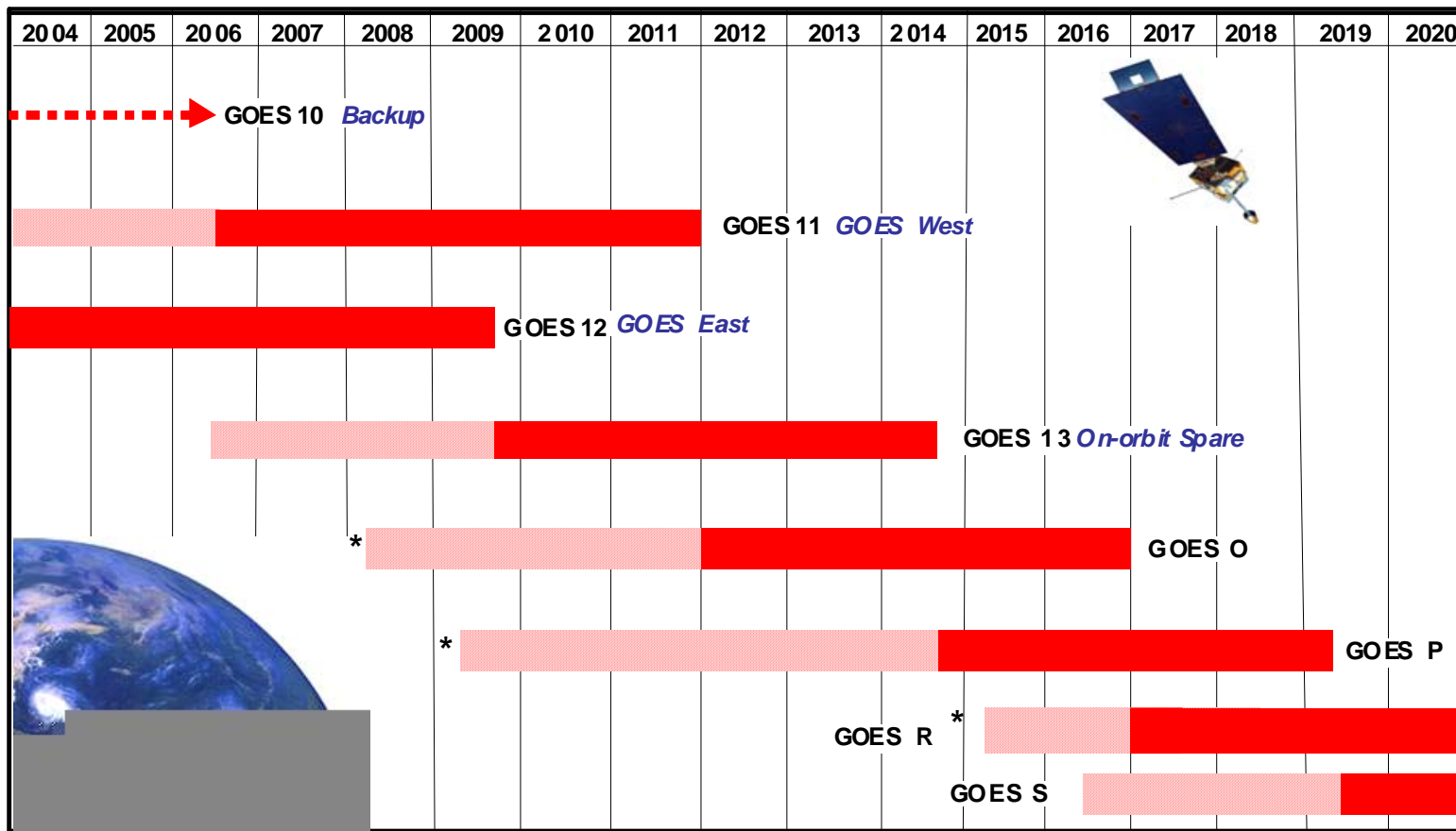
Consideration of all of these factors led to the nominal projection of when to launch, store and operate the satellites. Once this nominal projection was derived, a statistical analysis was performed to assess the risk of providing continuity of service to the GOES national customers. As shown, GOES-R is planned to be available for launch by April 2015 and to be the on-orbit spare for GOES O & P.



# Continuity of GOES Operational Satellite Program



CY



\* Launch date currently under review for GOES-O, P and GOES-R

- Satellite is operational beyond design life
- On-orbit GOES storage
- Operational

The planned launch dates are as follows:

**Figure 1 – GOES R Launch Schedule**

<b>Spacecraft</b>	<b>Availability Date*</b>	<b>Planned Launch Date</b>	<b>Planned Operational Date</b>
GOES-R	TBD	April 2015	Dec 2016
GOES-S	TBD	Aug 2016	Sep 2019

\* Availability date determined after contract award.

**Performance Goals and Measurement Data**

This increase will 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 to “Promote environmental stewardship.” Specifically, the increase supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

<b>Milestone #1: GOES-R Acquisitions Milestones</b>		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Increase</b>	Award Spacecraft and Ground System A&O contracts. Achieve SDR of Spacecraft and Ground System. Achieve CDR of EXIS, SUVI and SEISS instrument.	Achieve PDR of Spacecraft and Ground System. Construction of flight model instruments. Continue development of software and acquisition of hardware for Ground Systems.	Achieve CDR of Spacecraft and Ground System. Instruments begin to deliver for ABI and SEISS instruments. Fabrication, assembly and test of spacecraft on-going. Continue development of software and acquisition of hardware for Ground Systems.	Delivery of 2 <sup>nd</sup> flight model instruments for ABI and SEISS Instruments. Delivery of Flight model -1 for GLM , SUVI and EXIS instruments. Continue development of software and acquisition of hardware for Ground Systems.	Delivery of 2 <sup>nd</sup> flight units for GLM, SUVI and EXIS instruments. Continue fabrication, assembly, integration of instruments and test of the spacecraft. Continue development of software and acquisition of hardware for Ground Systems.
	<b>Without Increase</b>	Instrument development,	Continued delays in hardware and software	Continued delays in hardware and	Continued delays in hardware and software	Continued delays in hardware and

		software code, spacecraft development and hardware acquisition would be curtailed and significantly delay launch of the first satellite. Spacecraft and Ground System SDR would be delayed until FY 2010.	acquisition. Ground System and Spacecraft PDR would be delayed no less than one year with a resulting impact on launch date of the first satellite.	software acquisition. Ground System and Spacecraft fabrication, assembly and test efforts would be delayed resulting in a delay in the launch date of the first satellite in excess of one year.	acquisition. Delays in flight model instrument deliveries. Delays in integrating instruments into Spacecraft resulting in a delay of launch date of first satellite.	software acquisition. Delays in flight model instrument deliveries. Delays in integrating instruments into Spacecraft resulting in a delay to launch date of first satellite.
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OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
<b>GOES-R</b>								
Change from FY 2009 Base	---	242,227	502,227	613,227	591,227	581,227		
Total Request	1,024,044	477,000	737,000	848,000	826,000	816,000	2,943,962	7,672,006

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

**Polar-Operational Environmental Satellite Systems (POES) NOAA Polar K-N' (0 FTE, and -\$48,872,000):** NOAA requests a decrease of 0 FTE and a net decrease of \$48,872,000, for a total of \$65,419,000 for the continuation of the POES program. POES is nearing the end of its production, with one remaining satellite to be launched, along with supporting maintenance and testing of U.S. instruments on the Metop satellites in FY 2009. On September 6, 2003, NOAA-N prime was involved in a serious accident at the contractor's facility. The damage to NOAA-N Prime was assessed, estimated rebuild costs were developed, and agreements negotiated. With NOAA's approval, a contract modification between NASA and Lockheed Martin to rebuild NOAA-N Prime was signed on September 29, 2004. In June 2006, DOD, DOC and NASA certified a restructured NPOESS program under the Nunn-McCurdy process. Direction was given to NASA to launch NOAA-N Prime February 2009. This action will minimize the potential gap in polar-orbiting data and services until the first NPOESS satellite is fully operational in 2014.

FY 2009 POES funding will be used for:

- Spacecraft & Metop (NOAA-N Prime rebuild; testing and integration and maintenance of US instruments on Metop-B and -C)
- Launching services (NOAA-N Prime with Planning launch Date moved to second quarter FY 2009)
- NASA technical management (Oversight of spacecraft, instrument and launch services contractors)
- The government program office (Overall program management)
- Product development (Development and/or enhancement of products from POES, Metop and non-NOAA satellites)
- Ground systems and backup (Maintenance and upgrades of primary and back-up command and control, data acquisition capabilities and facilities).

### **Statement of Need**

NOAA has the responsibility to provide forecasts and warnings for the United States, its territories, adjacent waters and ocean area, for the protection of life and property and the enhancement of the national economy. This mission requires an enduring capability to acquire global data, and the capability to process and disseminate to central processing centers and distributed direct users, environmental data on an extensive spatial range (global, regional and local) within a variety of time scales (minutes to days). These data include, but are not limited to: global imagery; cloud and precipitation parameters; atmospheric profiles of temperature, moisture, wind, aerosols and ozone; surface conditions concerning ice, snow and vegetation; ocean parameters of sea temperature, color and state; solar and in-situ space environment conditions. These data are critically needed for:

- Severe storm and flood warnings;
- Tropical cyclone (hurricane reconnaissance and warnings);
- Hydrologic forecasts and forecasts of the ocean surface and internal structures;
- Medium range forecast outlook (out to fifteen days);
- Solar and space environmental forecasts;
- Aviation forecasts (domestic, military, and international);
- Forecasts of ice conditions;
- Seasonal and inter-annual climate forecasts;
- Decadal-scale monitoring of climate variability;
- Assessment of long-term global environmental change;
- Environmental air quality monitoring and emergency response;
- Detection and analysis of fires and volcanic eruptions; and
- Short-term and mesoscale forecasts.

**Proposed Actions**

The FY 2009 requests includes \$4,000,000 to ensure a cost efficient production schedule for the NOAA-N Prime rebuild and delay its Planning Launch Date until February 2009. Satellite continuity is the Department’s highest priority. NOAA N-prime is the last operational NOAA polar satellite, and needs to operate at least one year beyond the first launch of NPOESS; i.e. until 2014. We have had only four polar satellites last five years or longer. Even with a 2009 launch for NOAA-N Prime, the chances of making 2014 are 30%. See the milestones chart below for the assumed launch schedule.

**POES Milestones**

Satellite	Likely Orbit	Availability Date	Planning Launch Date
NOAA-N’	PM	September 2008	February 2009
METOP B	AM	In Storage	April 2011

**Performance Goals**

This decrease will support the Objective 3.5 “Provide Critical Support for NOAA’s Mission” under the Department of Commerce Strategic Goal of "Promote environmental stewardship ". Specifically, this increase supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

Polar Satellite Continuity		FY 2009 Target	FY 2010 Target	FY 2011 Target	FY 2012 Target	FY 2013 Target
	<b>With Decrease</b>	Delay launch of NOAA N’ until needed (estimated February 2009). Minimizes risk of polar satellite gap between POES Series and NPOESS	Delay launch of NOAA N’ until needed (estimated February 2009). Minimizes risk of polar satellite gap between POES Series and NPOESS	Delay launch of NOAA N’ until needed (estimated February 2009). Minimizes risk of polar satellite gap between POES Series and NPOESS	Delay launch of NOAA N’ until needed (estimated February 2009). Minimizes risk of polar satellite gap between POES Series and NPOESS	Delay launch of NOAA N’ until needed (estimated February 2009). Minimizes risk of polar satellite gap between POES Series and NPOESS
	<b>Without Decrease</b>	Launch NOAA N’ when available in 2008, increasing risk of polar satellite gap between POES Series and NPOESS.	Launch NOAA N’ when available in 2008, increasing risk of polar satellite gap between POES Series and NPOESS.	Launch NOAA N’ when available in 2008, increasing risk of polar satellite gap between POES Series and NPOESS.	Launch NOAA N’ when available in 2008, increasing risk of polar satellite gap between POES Series and NPOESS.	Launch NOAA N’ when available in 2008, increasing risk of polar satellite gap between POES Series and NPOESS.

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
POES								
Change from FY 2009 Base	---	(48,872)	(71,156)	(73,417)	(73,417)	(73,417)		
Total Request	2,259,975	65,419	43,135	40,874	40,874	40,874	107,694	2,598,845

\*Outyear costs are estimates and are subject to change. Future requests will be determined through the annual budget process. Recurring program costs are estimated through 2017.

**National Polar-orbiting Operational Environmental Satellite System (NPOESS) (0 FTE, and -\$42,984,000)**: NOAA requests a planned decrease of 0 FTE and \$42,984,000 for a total request of \$287,985,000 for the continuation of the tri-agency NPOESS program that will replace the NOAA POES program after completion of the current NOAA K-N Prime series of satellites. Program adjustment allows the DOC budget for the NPOESS to come into alignment with the DoD's Cost Analysis Improvement Group's certified Nunn-McCurdy program estimate. This request represents NOAA's share of the converged NOAA/DoD/NASA program.

In FY 2009, funds are required to continue the development and production of the NPOESS spacecraft and instruments. Sensors that will fly on the NPOESS Preparatory Project (NPP) will be integrated onto the NPP spacecraft. Continued development of these instruments is critical for their timely and cost effective delivery.

In June 2006, under the Nunn-McCurdy Process, the Office of the Secretary of Defense certified to Congress that:

- The program is essential to National Security;
- No alternatives with equal capability exist at equal or lesser cost;
- The cost estimate is reasonable; and
- The management structure is adequate for program success.

The restructured program includes the two Engineering and Manufacturing Development (EMD) satellites, with an option to procure an additional two NPOESS satellites under the existing contract. Instrumentation under the restructured program includes: the Visible/Infrared Imager/Radiometer Suite (VIIRS); a Microwave Imager/Sounder; Search and Rescue Satellite Aided Tracking (SARSAT), the Cross-track Infrared Sounder (CrIS); the Advanced Technology Microwave Sounder (ATMS); the Advanced Data Collection System (ADCX); the Cloud's and Earth's Radiant Energy System (CERES); the Ozone Mapping and Profile Suite (OMPS) Nadir; and the Space Environment Monitor (SEM).



The restructured program does not provide funding for: the Aerosol Polarimetry Sensor (APS); the Total Solar Irradiance Sensor (TSIS); the OMPS-Limb; the Earth Radiation Budget Suite (ERBS), the Altimeter, the Survivability Sensor (SuS) and the Full Space Environment Sensors (SESS). However, the program will plan and fund the integration of these sensors onto the satellite buses if they are provided from outside the program. In FY 2007, the OMIPS-Limb Sensor was restored in this way. The program terminates the Conical Scanning Microwave Imager/Sounder (CMIS) and will develop a competition for a new Microwave Imager/Sounder to fly on the second EMD Satellite.

The restructured program is reduced to a two-orbit rather than a three-orbit program and relies on data provided from the European Meteorological Operational (MetOp) satellites for the mid-morning orbit requirements.

#### **Statement of Need**

This adjustment reflects the changes resulting from the restructured NPOESS program agreed to by NOAA, the U.S. Air Force, and NASA in the June 2006 Acquisition Decision Memorandum.

The National Polar-orbiting Operational Environmental Satellite System (NPOESS) is a program established to develop, acquire and operate the next generation of polar-orbiting environmental satellites. It is designed to meet or improve the capabilities of NOAA's POES and DoD's DMSP systems. NPOESS was developed as a system consisting of six satellites in three orbits with associated operations. In August 2002, NOAA selected Northrop Grumman Space Technology as the prime contractor responsible for building and deploying the total NPOESS program. The NPOESS program is essential to maintaining continuity of the Nation's polar satellite observations, which are critical for NOAA's weather forecasting and other civilian and military mission applications. Continuous global temperature and humidity values from the polar satellites provide critical inputs for quality three to five day and long-range temperature, precipitation, and snow forecasts. Polar satellites also monitor the global sea surface temperature, indicating the location, onset, and severity of such events as El Nino and La Nina as early as possible. Longer lead times of these impending events allow emergency and agricultural managers to activate plans to reduce the impacts of floods, landslides, fires, oil spills, volcanic eruptions, and droughts.

#### **Proposed Actions**

FY 2009 funds are required to:

- Continue the development and acquisition phase of the program, including total system architecture trades and design of the five major NPOESS segments:
- Space
- Interface data processing segment
- Command, control, and communications
- Launch support
- Government program office

- Support mission readiness of antenna systems at high latitude mission recovery sites to support data acquisition functions for the NPOESS Preparatory Project (NPP). The NPP ground system must be in place to provide satellite command and control and data downlink for the NPP spacecraft. The NPP is a major element of the risk reduction program for NPOESS.
- Integrate and test instruments planned to be flown on NPP spacecraft.
- Complete the ground systems and algorithms necessary to acquire, process, and distribute NPP data. These data are necessary for continuity of NASA’s long-term climate data records and for early risk reduction and calibration and validation essential to the first NPOESS satellite.
- Provide ground station services to receive and process data from European Space Agency SWARM satellite.

**Benefits**

The NPOESS goal is to accomplish all functional efforts via the tri-agency program reducing duplication of effort and costs for both civil and military environmental data. NPOESS is a complex combination of equipment (hardware/software), data services, and facilities required to obtain environmental data and maintain continuity of timely data to civilian and military data users. Approximately 90 percent of the NPOESS FY 2009 budget is required to fund the prime contract that was awarded to Northrop Grumman Corporation.

**Performance Goals and Measurement Data for NPOESS:**

This decrease will support the Objective 3.5, “Provide Critical Support for NOAA’s Mission” under the Department of Commerce Strategic Goal of "Promote environmental stewardship". Specifically, this decrease supports NOAA’s four strategic mission goals by providing the satellite infrastructure to provide the necessary observations for global environmental monitoring.

<b>Milestone #1:</b> Support NOAA’s goals by acquiring NPOESS satellite on schedule with proposed capabilities		<b>FY 2009 Target</b>	<b>FY 2010 Target</b>	<b>FY 2011 Target</b>	<b>FY 2012 Target</b>	<b>FY 2013 Target</b>
	<b>With Decrease</b>	Milestones and Critical Path Elements Completed on revised Schedule	Milestones and Critical Path Elements Completed on revised Schedule	Milestones and Critical Path Elements Completed on revised Schedule	Milestones and Critical Path Elements Completed on revised Schedule	Milestones and Critical Path Elements Completed on revised Schedule
	<b>Without Decrease</b>	Decreased delay in the NPOESS program milestones	Decreased delay in the NPOESS program milestones	Decreased delay in the NPOESS program milestones	Decreased delay in the NPOESS program milestones	Decreased delay in the NPOESS program milestones

As discussed above, the NPOESS Program underwent a major restructure due to cost overruns on several instruments and the spacecraft development. As part of implementing the restructured program, all major program milestones are under review and will be reflected in an updated program plan. At the time of this writing, the NPOESS program is still undergoing restructure. The funding profile provided is based on the certified cost estimate developed during the Nunn-McCurdy process. Any changes due to cost or schedule issues will be reflected in future budget submissions.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete	Total
<b>Polar Orbiting Systems NPOESS</b>								
Change from FY 2009 Base		(42,984)	50,825	89,363	84,860	105,301		
Total Request	2,212,309	287,985	381,794	420,332	415,829	436,270	2,096,129	6,250,648

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

**EOS & Advanced Polar Data Processing, Distribution & Archiving Systems (0 FTE and \$24,000):** NOAA requests an increase of 0 FTE and \$24,000 for a total of \$990,000. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

NASA's Earth Observing System (EOS) data will be integrated into CLASS for archive and access. The expected large increases in data rates and volumes over the next several years from EOS data alone will far exceed the capacity and capabilities of the NOAA National Data Centers.

Base activities support Objective 3.3 "Serve Society's need for weather and water information" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the Earth's resources to promote environmental stewardship".

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete *	Total
Earth Observing System Data Archive & Access System Enhancement								
Change from FY 2009 Base		24	24	24	24	24		
Total Request	10,372	990	990	990	990	990	4,950	20,272

\* Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process. Recurring costs are estimated through 2018.

**Critical Single Points of Failure (0FTE and \$66,000):** NOAA requests an increase of 0 FTE and \$66,000 for a total of \$2,772,000. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

This effort supports the continuity of critical operational satellite products and services in the event of a catastrophic outage at the NOAA Satellite Operations Facility (NSOF) and the World Weather Building in Camp Springs by providing backup capability for primary satellite products and services.

The NOAA Product Processing and Distribution Office is a critical single point of failure for every operational NOAA satellite product and service that NWS and other users rely on for weather information. Satellite data represents more than 99 percent of the input to numerical weather prediction models. Satellite products and services include: POES products such as ozone, temperature and moisture sounder products; GOES Advanced Weather Interactive Processing System (AWIPS) remapped imagery, high density winds, precipitation estimates, sounder products; and non-NOAA satellite products from NASA, the DOD, Europe, Japan and India.

Base activities support Objective 3.5 "Provide critical support for NOAA's mission" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the earth's resources to promote environmental stewardship".

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete *	Total
Critical Single Points of Failure								
Change from FY 2009 Base		66	66	66	66	66		
Total Request	16,575	2,772	2,772	2,772	2,772	2,772	13,929	44,364

\* Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process. Recurring costs are estimated through 2018.

**Comprehensive Large Array Data Stewardship System – CLASS (0 FTE and \$155,000):** NOAA requests an increase of 0 FTE and \$155,000 for a total of \$6,476,000. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

CLASS is a data archiving and access system that will improve the quality and stewardship of NOAA's environmental data and information. NOAA is responsible for the stewardship of over one petabyte of environmental data and information, which is expected to grow to well over 18 petabytes by 2011. NOAA spends more than one billion dollars each year collecting environmental data in support of its mission. In the near future, NOAA will launch the

first NPOESS, which will provide a forty times increase in data volume per satellite. By providing efficient, secure, cost-effective access to NOAA's environmental data via CLASS, NOAA is supporting key research challenges identified by the U.S. Global Change Research Program, such as natural climate patterns, global monsoon, and land-atmosphere and ocean-atmosphere exchanges.

NOAA is enhancing its multiple current stovepipe archiving capabilities into a CLASS System that will be fully operational and managed at the enterprise level. This system will allow efficient management of high volumes of data critical to NOAA and the users in the scientific community. The target data originates from GOES, POES, NPP/NPOESS, 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.

Base activities support Objective 3.2 "Understand climate variability and change to enhance society's ability to plan and respond" under the Department of Commerce Strategic Goal of "Observe, protect, and manage the earth's resources to promote environmental stewardship".

OUTYEAR FUNDING ESTIMATES								
(BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete *	Total
CLASS								
Change from FY 2009 Base		155	155	155	155	155		
Total Request	27,876	6,476	6,476	6,476	6,476	6,476	26,304	86,560

\* Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process. Recurring costs are estimated through 2018.

**NPOESS Data Exploitation – NDE (0 FTE and \$59,000):** NOAA requests an increase of 0 FTE and \$59,000 for a total of \$2,455,000. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

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 both operations and research. The NDE project will develop and implement capabilities to process and distribute NPOESS products and services, starting with the NPOESS Preparatory Project (NPP) satellite, once the data have been delivered to NOAA. NPOESS and NPP are part of a new environmental satellite program that promises to improve our observations of the earth, atmosphere, oceans and space environment. In order to realize the benefits of NPOESS data, NOAA must implement capabilities to process NPOESS data records into useful products that meet the requirements of NOAA's operational centers and other civilian users. For example, NDE will be able to derive carbon-based products such as Methane,

Carbon Dioxide and Carbon Monoxide from NPOESS observations. These gases tend to mask the atmospheric temperature and humidity observations sensed by NPOESS. By producing a better estimate of these gases, NDE will help NOAA’s National Weather Service to remove biases and improve weather forecasts. NDE will also assist NOAA’s Climate Prediction Center by providing global estimates of these gases.

The FY 2009 funding will continue algorithm development begun in FY 2006 through 2008, and will procure additional equipment to enhance the testing environment for these products. Testing of IT equipment will be conducted to prepare for the NPP mission, scheduled to launch in 2009. Funding will be used to develop storage capabilities for the NDE products.

<b>OUTYEAR FUNDING ESTIMATES</b>								
<b>(BA in thousands)</b>								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete *	Total
NPOESS Data Exploitation								
Change from FY 2009 Base		59	2,059	2,059	2,059	2,059		
<b>Total Request</b>	<b>11,286</b>	<b>2,455</b>	<b>4,455</b>	<b>4,455</b>	<b>4,455</b>	<b>4,455</b>	<b>22,336</b>	<b>53,897</b>

\* Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process. Recurring costs are estimated through 2018.

**Program Support**  
**Activity: Corporate Services**

**GOAL STATEMENT:**

Continue the acquisition and improvement of major systems associated with financial management, facilities, and other functions of NOAA's overall corporate management.

**BASE DESCRIPTION:**

The objectives of this subactivity are to:

- Invest in the phased-in implementation of the Commerce Business System (CBS)/NOAA financial-management system.
- Capture the costs of acquiring and/or improving capital assets used by NOAA in carrying out its varied missions.
- Realize procurement efficiencies, management accountability, and reflect full cost of acquisition and/or improvement of an asset.

CBS became the official accounting system of record effective October 1, 2002, moving the CBS program into the operations and maintenance mode of this NOAA-wide, high-technology, integrated financial system. Therefore, the CBS base was transferred from the Procurement, Acquisition and Construction (PAC) account to the Business Management Fund (BMF). CBS includes 11 distinct but integrated modules, 19 interfaces, and over 240 maintenance tables that require on-going support, thus necessitating the transfer of funds to Operations, Research and Facilities (ORF) account.

Base activities support both objectives under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental stewardship.”

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Corporate Services					
NOAA IOOS Observing Systems (NOS)	9,019	-	-	-	-
Convert NOAA Weather Buoys with NDBC (NOS)	2,939	-	-	-	-
Coastal Global Ocean Observing System (NWS)	1,477	-	-	-	-
<b>TOTAL</b>	<b>13,435</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 PROCUREMENT, ACQUISITION AND CONSTRUCTION  
 CONSTRUCTION FY 2009 OVERVIEW

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
<b>NOS</b>					
Coastal and Estuarine Land Conservation Program					
Coastal and Estuarine Land Conservation Program	27,472	7,992	8,000	15,000	7,000
Subtotal, Coastal and Estuarine Land Conservation Program	27,472	7,992	8,000	15,000	7,000
NERRS Acquisition/Construction					
National Estuarine Research Reserve Construction and Land Acquisition	9,296	7,036	6,755	6,890	135
Great Bay Partnership	0	3,521	0	0	0
Lake Superior Natl Estuarine Rsch Reserve	0	94	0	0	0
Mill Creek/Wickford Cove Conservation, RI	0	892	0	0	0
Subtotal, NERRS Acquisition/Construction	9,296	11,543	6,755	6,890	135
Marine Sanctuaries Construction/Acquisition					
Marine Sanctuaries Construction Base	9,851	9,512	5,495	5,495	0
Thunder Bay NMS Exhibit	0	1,784	0	0	0
Gulf of Farallones	0	669	0	0	0
Natl Marine Sanctuary Learning Center, HI	0	1,784	0	0	0
Subtotal, Marine Sanctuaries Construction/Acquisition	9,851	13,749	5,495	5,495	0
Other NOS Construction/Acquisition					
Beaufort Lab Repairs	3,996	0	0	0	0

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Oxford Cooperative Lab	1,180	0	0	0	0
Gulf Coast Marine Aquaculture Laboratory	0	7,512	0	0	0
NOS Infrastructure Improvements	5,150	0	0	0	0
Gulf of Mexico Disaster Response Center	0	11,049	0	0	0
NGI Science Center Bldg - Stennis, MS	0	4,695	0	0	0
Subtotal, NOS	56,945	56,540	20,250	27,385	7,135
<b><u>NMFS</u></b>					
Systems Acq. Computer Hardware & Software	1,498	0	0	0	0
Aquatic Resources	0	470	0	0	0
Pascagoula Laboratory	1,972	0	0	0	0
Center for Aquatic Resources Management - AL	0	1,549	0	0	0
Other NMFS Facilities - Infrastructure	7,720	0	0	0	0
Subtotal, NMFS	11,190	2,019	0	0	0
<b><u>OAR</u></b>					
Geophysical Fluid Dynamics Laboratory (GFDL)	1,698	0	0	0	0
Subtotal, OAR	1,698	0	0	0	0
<b><u>NWS</u></b>					
WFO Construction	13,413	12,260	12,272	12,504	232
NOAA Center for Weather & Climate Prediction	19,402	26,384	14,100	14,100	0
Subtotal, NWS	32,815	38,644	26,372	26,604	232
<b><u>NESDIS</u></b>					
Satellite CDA Facility	2,249	2,173	2,175	2,228	53
Subtotal, NESDIS	2,249	2,173	2,175	2,228	53
<b><u>PS</u></b>					
Southwest Science Center	0	2,925	2,928	15,000	12,072

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Pacific Regional Center	15,776	19,980	20,000	60,250	40,250
Fairbanks, AK CDA	0	0	0	11,700	11,700
Construction Projects	0	235	0	0	0
Subtotal, PS	15,776	23,140	22,928	86,950	64,022
<b>TOTAL</b>	120,673	122,516	71,725	143,167	71,442

Note: The dollars in this table represent budget authority.

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**National Ocean Service**  
**Activity: Construction/Acquisition**

**GOAL STATEMENT:**

Improve capital assets used by the National Ocean Service in carrying out its mission.

**BASE DESCRIPTION:**

Coastal and Estuarine Land Conservation Program

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

National Estuarine Research Reserve System Construction/Acquisition

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

National Marine Sanctuary Program Construction/Acquisition

NOAA administers the National Marine Sanctuary System under authority of the National Marine Sanctuaries Act. There are 13 designated national marine sanctuaries and a National Monument in the Northwestern Hawaiian Islands (NWHI). The 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 (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, the 13 sanctuaries encompass over 18,000 square miles of waters and marine habitats.

The National Marine Sanctuary Program (NMSP) operates and manages the nation’s system of marine sanctuaries and the Papahānaumokuākea Marine National Monument in the NWHI. Individual sanctuary offices are responsible for the daily operation of a wide variety of education, research, monitoring and management programs. The program is implementing a comprehensive facilities plan that prioritizes needs and opportunities at individual sites for constructing exhibits, collaborative education and visibility projects and operational needs. In order to help establish understanding and appreciation for sanctuary resources by the public, the program is constructing a network of exhibits, signage and kiosks. Whenever possible, sanctuaries will utilize existing aquaria, museums and other appropriate facilities to develop cooperative centers, where the public and environmental decision makers can gain direct, objective and focused information on conservation issues. These facilities serve as important windows into the resources of the sanctuaries. The goal of these exhibits is to share with the public these ocean treasures. In addition to these outreach (i.e., exhibit) 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 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimate to Complete*	Total Program Estimate
National Marine Sanctuaries Construction Base								
Change from FY 2009 Base		0	0	0	0	0	0	
Total Request	70,361	5,495	5,495	5,495	5,495	5,495	N/A	N/A

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

\*Costs for this program are recurring.

**PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize National Marine Sanctuaries Act.



**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Construction/Acquisition					
Coastal and Estuarine Land Conservation Program	27,472	7,992	8,000	15,000	7,000
Subtotal: Coastal and Estuarine Land Conservation Program	27,472	7,992	8,000	15,000	7,000
National Estuarine Research Reserve Construction and Land Acquisition	9,296	7,036	6,755	6,890	135
Great Bay Partnership	-	3,521	-	-	-
Lake Superior Natl Estuarine Rsch Reserve	-	94	-	-	-
Mill Creek/Wickford Cove Conservation, RI	-	892	-	-	-
Subtotal: NERRS Acquisition/Construction	9,296	11,543	6,755	6,890	135
Marine Sanctuaries Construction Base	9,851	9,512	5,495	5,495	-
Thunder Bay NMS Exhibit	-	1,784	-	-	-
Gulf of Farallones	-	669	-	-	-
Natl Marine Sanctuary Learning Center, HI	-	1,784	-	-	-
Subtotal: Marine Sanctuaries Construction/Acquisition	9,851	13,749	5,495	5,495	-
Beaufort Lab Repairs	3,996	-	-	-	-
Oxford Cooperative Lab	1,180	-	-	-	-
Gulf Coast Marine Aquaculture Laboratory	-	7,512	-	-	-
NOS Infrastructure Improvements	5,150	-	-	-	-
Gulf of Mexico Disaster Response Center	-	11,049	-	-	-
NGI Science Center Bldg - Stennis, MS	-	4,695	-	-	-
Subtotal: Other NOS Construction/Acquisition	10,326	23,256	-	-	-
<b>TOTAL</b>	<b>56,945</b>	<b>56,540</b>	<b>20,250</b>	<b>27,385</b>	<b>7,135</b>
FTE	5	-	1	1	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Coastal and Estuarine Land Conservation Program (0 FTE and +\$ 7,000,000):** NOAA's National Ocean Service requests an increase of \$7,000,000 to conserve high priority coastal and estuarine lands that have significant ecological value and support NOAA's stewardship requirements. The Coastal and Estuarine Land Conservation Program (CELCP) was established "for the purpose of protecting important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses." The program gives priority to lands which can be effectively managed and protected and which have significant ecological value. NOAA developed and issued guidelines delineating criteria for grant awards and a process for conducting a national competitive grants process under the CELCP.

**Statement of Need**

Coastal counties are home to almost 153 million people, about 53 percent of the total U.S. population. On average, about 3,600 people relocate to coastal areas each day, and by 2015 the coastal population is estimated to reach 165 million. 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 two-thirds of 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. The U.S. Ocean Action Plan states: "the continued health and biodiversity of marine and estuarine systems depends on the maintenance of high quality habitat" and that "habitat loss and degradation are key issues facing coasts and estuaries around the country." Program authority for the CELCP is codified at 16 U.S.C. 1456d.

**Proposed Actions**

With this increase, NOAA will provide funding for 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. Federal funding requires matching funds, which would leverage additional state, local or private contributions. As part of this voluntary program, coastal states assess their priority needs for land conservation and provide a clear process for identifying and nominating projects to a national selection process. The program's focus on "project areas" encourages public/private partnerships to protect priority areas. State or local governments would own the land or interests in land, which may be acquired from willing sellers only. They would ensure long-term protection and provide public access for passive recreational opportunities or other public benefit. An increase of \$7,000,000 for land conservation grants would support approximately 4-5 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.

**Benefits**

This request would formally establish the program within the President's Budget and support the Administration's commitment to cooperative conservation of coastal wetlands and habitat. In particular, it would support efforts to protect important stream corridors and habitats important to anadromous fish, 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. It would also enable NOAA to support strategic program planning and management of the CELCP as a competitive program.

**Performance Goals and Measurement Data**

This increase will support NOAA’s strategic goal to "Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management."

<b>Performance Goal: Ecosystem</b> <b>Performance Measure:</b> Habitat acres acquired or designated for long-term protection (annual)	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
Without Increase	0	0	~1,000 acres	~1,000 acres	~1,000 acres	~1,000 acres
With Increase	0	0	0*	~ 2,000 acres	~ 2,000 acres	~ 2,000 acres

\*Note: Project grants would be awarded in FY 2009 with performance results beginning in FY 2010.

OUTYEAR FUNDING ESTIMATES (BA in thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimate to complete*	Total Program Estimate
CELCP								
Change from FY 2009 Base		7,000	7,000	7,000	7,000	7,000	-	
Total Request	216,424	15,000	15,000	15,000	15,000	15,000	N/A	N/A

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

**National Estuarine Research Reserve Construction (0 FTE and +\$135,000):** NOAA requests 0 FTE and \$135,000 for a total of \$6,890,000 to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimate to Complete*	Total Program Estimate
National Estuarine Research Reserve Construction and Land Acquisition								
Change from FY 2009 Base		135	135	135	135	135		
Total Request	80,756	6,890	6,890	6,890	6,890	6,890	N/A	N/A

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

**TERMINATIONS FOR 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Lake Superior National Estuarine Research Reserve Construction and Acquisition (\$94,000); Marine Sanctuaries Construction Base (\$4,017,000); NGI Science Center Building, Stennis (\$4,695,000); Gulf of Mexico Disaster Response Center (\$11,049,000); Center for Marine Aquaculture, MS (\$7,512,000); National Marine Sanctuary Learning Center, HI (\$1,784,000); Gulf of the Farallones NMS Exhibit, CA (\$669,000); Thunder Bay NMS Exhibit, MI (\$1,784,000); Mill Creek/Wickford Cove Conservation, RI (\$892,000); Great Bay Partnership, NH (\$3,521,000).

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**National Marine Fisheries Service**  
**Activity: Systems Acquisition / Construction**

**GOAL STATEMENT:**

Provide the non-recurring costs of acquiring or improving capital assets used by NOAA's National Marine Fisheries Service (NMFS) in carrying out its mission.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Systems Acquisition / Construction					
Systems Acq. Computer Hardware & Software	1,498	-	-	-	-
Aquatic Resources	-	470	-	-	-
Pascagoula Laboratory	1,972	-	-	-	-
Center for Aquatic Resources Management - AL	-	1,549	-	-	-
Other NMFS Facilities - Infrastructure	7,720	-	-	-	-
<b>TOTAL</b>	<b>11,190</b>	<b>2,019</b>	<b>-</b>	<b>-</b>	<b>-</b>
FTE	1	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR 2009:**

The following programs, have been terminated in FY 2009: Aquatic Resources (\$470,000) and Center for Aquatic Resources Management (\$1,549,000).

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**Office of Oceanic and Atmospheric Research  
Activity: Construction**

**GOAL STATEMENT:**

The goal of the Office of Oceanic and Atmospheric Research's (OAR) Geophysical Fluid Dynamics Laboratory (GFDL) in Princeton, NJ, is to conduct cutting-edge research on many topics of great practical value, including weather and hurricane forecasts, El Niño prediction, stratospheric ozone depletion, and global warming. GFDL's goal is to understand and predict Earth's climate and weather, including the impact of human activities on climate.

**BASE DESCRIPTION:**

**Geophysical Fluid Dynamics Laboratory:** The work of GFDL is critical to achieving NOAA's programmatic goals in both the Climate Predictions and Projections area and in Weather and Water Environmental Modeling. GFDL is NOAA's sole resource for meeting its long-term climate goal to provide a predictive understanding of the global climate system. GFDL develops and releases publicly one of the world's best models of the Earth System (and its atmospheric and oceanic components) on a periodic basis, providing seasonal-to-interannual forecasts to our research partners at the International Resource Institute at Columbia University, producing Earth System model integrations using scenarios developed under the administration's Climate Change Science Program (CCSP) and the Intergovernmental Panel on Climate Change (IPCC), and by publishing cutting-edge peer-reviewed scientific research, including CCSP Synthesis and Assessment Products (SAPs). Model development and execution resides primarily within the Environmental Modeling Program in the Weather and Water Goal, while interpretation, assessment, analysis, and the production of SAPs reside primarily within the Climate Predictions and Projections Program in the Climate Goal.

This program supports the initial phase of asbestos abatement at GFDL. A catastrophic release of asbestos could render the building uninhabitable, and GFDL's research program could be substantially disrupted because building access would be restricted and research documents and library holdings could be contaminated. Any disruptions to the work of the lab as a result of a potential asbestos release will significantly impact NOAA's ability to advance its critical mission goals and deliver timely products to decision makers and NOAA stakeholders. A significant return on this investment will be achieved through risk and cost avoidance.

<b>OUTYEAR FUNDING ESTIMATES</b>								
<b>(BA in thousands)</b>								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
Geophysical Fluid Dynamics Laboratory (GFDL)								
Change from FY 2009 Base							-	
<b>Total Request</b>	1,698	0	0	0	0	0	-	1,698

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

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Construction					
Geophysical Fluid Dynamics Laboratory (GFDL)	1,698	-	-	-	-
TOTAL	1,698	-	-	-	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

**TERMINATIONS FOR FY 2009:**

None.

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**National Weather Service  
Activity: Construction**

**GOAL STATEMENT:**

See the Overview for the National Weather Service Operations, Research, and Facilities for a discussion of our goals.

**BASE DESCRIPTION:**

**Weather Forecast Office (WFO) Construction:** As part of the National Weather Service (NWS) modernization and associated restructuring, the Weather Forecast Office (WFO) Construction program was 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 \$250M. Since this time, the NWS has 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 the NWS into full compliance with federal law and national and local building codes.

**FY 2007 Accomplishments**

Pacific Region:

- Koror / Palau WSO – Award arch/eng design contract
- Majuro WSO – Completed construction and moved in
- Hilo WSO – Completed construction and moved in

WFOs:

- Key West - Complete LEED Silver certification process
- Safety/Code - Safety compliance and code upgrades made
- Upgraded HVAC systems at 6 WFOs
- UPS - Upgraded/replaced systems
- Completed architectural/engineering design for Glasgow WFO expansion
- Relocate Norman, OK WFO and SPC to the new National Weather Center
- Start renovation of Adair and NSSL Buildings (for the ROC) in Norman, OK.

Alaska Region:

- St. Paul Housing – Completed construction
- McGrath Housing – Launched U.S. Army Corps of Engineers (COE) real estate acquisition and completed National Environmental Policy Act (NEPA) study
- Annette WSO - Awarded construction contract
- Nome WSO – Completed construction contract in collaboration with FAA
- Barrow WSO – Complete programming study and environmental assessment
- Yakutat UA Construction contract awarded

**FY 2008 Plans**

Pacific Region:

- Koror WSO – Secure State Dept approval and award construction contract through the Naval Facilities Engineering Command
- Pohnpei WSO - Identify new site (existing WSO location) and conduct environmental (NEPA) study.
- Pohnpei WSO - Award arch/eng design contract
- Chuuk WSO – Scope project and define options

WFOs:

- Safety/Code – Inspect and repair towers / antennas
- Upgrade / repair HVAC systems at 6 WFOs
- Complete renovations on NSSL Bldg (by Univ of OK) in Norman, OK and move in.
- Award NLSC + NRC operational analysis
- Award programming study for NLSC + NRC, thru GSA of Kansas City, MO

Alaska Region:

- Annette WSO/Upper Air Inflation Building (UAIB) – post award modifications/GFE acquisition and installation
- McGrath – Award construction contract for 4 housing units and award UA arch/eng design
- Nome WSO - Post award modifications / GFE acquisition and installation (thru FAA)
- Nome housing – award planning & programming contract
- Barrow WSO - Award a design-build contract
- Barrow Housing – Award architectural/engineering design contract
- Yakutat UAIB – Complete construction and conduct post award equip installation
- Kotzebue WSO – complete construction / move in (thru FAA)



## **FY 2009 Plans**

### Pacific Region:

- Pohnpei WSO - Award construction contract through the Naval Facilities Engineering Command
- Koror WSO – Post award modifications/GFE acquisition
- Chuuk WSO – award design contract for project

### WFOs:

- Safety/Code - Safety compliance and code upgrades
- Upgrade HVAC systems at 6 WFOs
- UPS - Upgrade/replace systems

### Alaska Region:

- Barrow Housing – Award construction contract (phase I)
- McGrath Housing – Post award modifications and GFE / furniture
- McGrath UA – award construction contract
- Nome housing – award design contract
- Kotzebue UA – award design contract

## **FY 2010 Plans**

### Pacific Region:

- Pohnpei WSO – Complete construction
- Chuuk WSO – award construction contract
- PTWC – consider options depending on progress of PRC
- Upgrade / repair Guam WFO

### WFOs:

- Upgrade HVAC systems at 6 WFOs
- Replace UA domes
- Replace deteriorated towers with tilt down types
- Issue SFO for NLSC + NRC thru GSA of Kansas City, MO

Alaska Region:

- Cold Bay Housing – start planning and programming process
- Barrow Housing – Award construction contract (phase II)
- Kotzebue UA – award construction contract
- Bethel UA – award design contract
- Award programming contract for Yakutat housing
- Nome housing – award construction contract

**NOAA Center for Weather and Climate Prediction (NCWCP):** This new facility will replace the current World Weather Building (WWB) with a new state-of-the-art facility to meet the operational requirements of the National Centers for Environmental Prediction (NCEP), the National Environmental Satellite, Data, and Information Service (NESDIS) Office of Research and Applications and Satellite Services Division, and the Office of Oceanic and Atmospheric Research (OAR) Air Resources Laboratory.

FY 2004 funding for the NCWCP enabled NOAA to support the General Services Administration (GSA) to award a build-to-suit lease for the NOAA NCWCP during FY 2004 and includes necessary above standard construction costs. The FY 2004 lease award for NCWCP will ensure occupancy of the new facility in 2008 when the current WWB lease expires. In FY 2005 GSA awarded a build-to-suit lease for NOAA NCWCP to OPUS East, LLC.

FY 2005 funding for the NCWCP enabled NOAA to develop detailed plans to move/transition critical IT infrastructure to the new facility. Once NOAA moves to the new facility, this infrastructure will allow NOAA to continue to provide weather and climate data that serve as foundation for nearly all of the weather forecasts prepared and disseminated in the United States each day. In addition, funds were used to hire contractors to support NCWCP project management.

In FY 2007 and 2008, construction of the NCWCP will be implemented and the following is planned:

- Implement procurements to complete all tenant improvements and outfitting such as but not limited to: information technology cabling; LAN, phone, and security systems acquisition and installation.
- Provide interior design support for systems furniture and free standing furniture acquisition and installation.
- Support the one-time relocation of mission critical operational systems from the WWB to the NCWCP. This critical system relocation funding will ensure that NOAA will be able to operate its “mission critical” programs by providing an overlap in system functionality during the physical relocation from the WWB to the NCWCP. Also provide support for general move functions.
- Supply project management and technical support to provide continued coordination and oversight among all involved parties including GSA, users, contractors, and consultants.

In FY 2009, construction of the NCWCP and NOAA occupancy will be completed. NOAA will complete all tenant improvements and outfitting; provide services, and support operational costs such as but not limited to:

Critical IT system infrastructure, needed to complete the mission critical transition and other move costs;  
Systems and free standing furniture and other outfitting;  
Project management support to provide project oversight; and  
Supplemental rent, utility, security, and operation & maintenance required for the new facility.

### **Implementation**

Project construction began on May 9, 2007. Completion of all work and move-in activities is scheduled for July 2009.

### **Outcomes**

The NWS has demonstrated the positive results of co-locating its facilities with academic institutions or laboratories to accelerate transitioning research into operations and to improve operational performance. Whenever possible, the NWS Modernization co-located NWS forecast offices with research laboratories or universities (22 forecast offices collocated with laboratories or universities). Synergistic interactions between NOAA and the academic community will lead to improved model performance and produce the following outcomes:

- Improved model forecasts and all aspects of the NWS forecast goals for climate and weather
- Accelerated use of global satellite data through state-of-the-art data assimilation systems
- Accelerated infusion of new science into operations. Experience with synergistic relationships shows a reduction from 7-10 years to 1-3 years (NWS WFOs co-located with academic institutions have shown accelerated performance improvement).
- Enhanced ability to recruit and retain key personnel, with the average number of applicants for key leadership and scientific positions at NCEP increasing from 2 to 3 to greater than 10

NOAA demonstrated improvement of weather forecast performance scores following the co-location of NWS Forecast Offices with research laboratories and universities. By following this model, NOAA intends 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.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2008 & Prior	FY 2009	FY 2010*	FY 2011*	FY 2012*	FY 2013*	Cost to Complete**	Total Program Estimate
NCWCP								
Change from FY 2009 Base			(7,400)	(7,400)	(7,400)	(7,400)		
Total Request	66,662	14,100	6,700	6,700	6,700	6,700	N/A	N/A

\*The costs cited for FY2010 onward represent increased lease payments for this facility and will be moved to the Operations, Research, and Facilities appropriation in FY 2010.

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

**PROPOSED LEGISLATION:**

None.

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Construction					
WFO Construction	13,413	12,260	12,272	12,504	232
NOAA Center for Weather & Climate Prediction	19,402	26,384	14,100	14,100	-
TOTAL	32,815	38,644	26,372	26,604	232
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**WFO Construction (+0 FTE and +\$232,000):** NOAA requests an increase of 0 FTE and \$232,000 for a total of \$12,504,000 for WFO Construction. This increase is requested to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

OUTYEAR FUNDING ESTIMATES								
(BA in Thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to Complete*	Total
WFO Construction								
Change from FY 2009 Base		232	232	232	232	232	-	
Total Request	101,814	12,504	12,504	12,504	12,504	12,504	N/A	N/A

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

**TERMINATIONS FOR 2009:**

The following program, or portions thereof, has been terminated in FY 2009: NOAA Center for Weather & Climate Prediction (\$12,310,000).

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**National Environmental Satellite, Data, and Information Service**  
**Activity: Construction**

**GOAL STATEMENT:**

The Nation requires sound and secure facilities and infrastructure to house the equipment and workforce needed to ensure uninterrupted acquisition of data from its environmental satellites.

**BASE DESCRIPTION:**

**Satellite Command and Data Acquisition (CDA) Infrastructure – Protecting Critical Operational Capabilities:** NOAA's CDA Infrastructure program at the Wallops and Fairbanks CDAs is to ensure 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. Elsewhere in the FY 2009 NOAA budget is a request for funding for replacement of the Fairbanks facility. The requested funding will enable NOAA to proceed with replacement of the currently at-risk Fairbanks Operations Building Complex with a new, short-term replacement building. Full funding to complete this project and to occupy the new building will be requested in a subsequent fiscal year. NOAA will continue to implement the facilities master plan for Wallops to support a phased, multi-year program to comprehensively renovate and modernize the facility, infrastructure, and equipment to minimize or eliminate safety, hazardous materials, waste water treatment, and other deficiencies that could lead to outages and service disruptions caused by failure of supporting infrastructure at the station.

Base activities support Objective 3.5 "Provide critical support for NOAA's mission" under the Department of Commerce Strategic Goal of "Promote environmental stewardship".

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Construction					
Satellite CDA Facility	2,249	2,173	2,175	2,228	53
TOTAL	2,249	2,173	2,175	2,228	53
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Satellite CDA Facility (0 FTE and \$53,000):** NOAA requests an increase of 0 FTE and \$53,000 for a total of \$2,228,000 to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Cost to complete*	Total
<b>Continuity of Critical Facilities</b>								
Change from FY 2009 Base		53	53	53	53	53		
Total Request	8,868	2,228	2,228	2,228	2,228	2,228	11,195	31,203

\* Outyear costs are estimates and subject to change. Future requests will be determined through the annual budget process. Recurring costs are estimated through 2018.

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**Program Support**  
**Activity: Construction**

**GOAL STATEMENT:**

NOAA's facilities constitute a significant and important capital investment, and are integral to NOAA's mission accomplishment. NOAA's Facility Modernization program is designed to ensure that NOAA has safe, sound and secure facilities and infrastructure to house our workforce and the technology and equipment needed to ensure the uninterrupted accomplishment of its critical scientific and operational mission and programs. The Facility Modernization program will ensure excellence in NOAA's facilities, consistent with NOAA's Strategic Plan, Executive Order 13327 (*Federal Real Property Asset Management*) and Federal Real Property Council guidance. Improving the conditions of NOAA's facilities allows NOAA to accomplish our mission safely and successfully; it also promotes our attracting and retaining a high-performing workforce.

**BASE DESCRIPTION:**

NOAA uses over 800 different "facilities" (i.e., both owned and leased buildings), and owns more than 400. NOAA's owned and leased buildings have a current replacement value (CRV) of over \$4 billion. Of that, more than 50 percent (442) are owned and operated by NOAA with a CRV over \$2 billion. These buildings are aging, with more than 32 exceeding the target life expectancy of 50 years old. NOAA's facilities are often subject to extremes of climate and weather, and therefore require higher levels of maintenance and are more prone to unplanned repairs and investments needed to keep them safe, secure and environmentally sound. NOAA has historically undercapitalized repair and replacement investment, resulting in continued deterioration of the NOAA facility portfolio and increased safety and operational risks, overall risk of operational failure, and increased costs downstream. The clear lesson is that greater attention to facilities issues is needed, and additional investments in facilities is required to sustain mission readiness in the future.

The major components of NOAA's Facility Modernization Program supported under PAC are construction projects to repair and renovate facilities damaged by inadequate sustainment, excessive age, natural disasters, fires, accidents, or other causes; and recapitalization and modernization projects to keep the NOAA inventory of facilities modern and relevant in an environment of changing standards and missions.

The Office of the NOAA Chief Administrative Officer (CAO) has overall responsibility for the NOAA Facilities Program and specifically is responsible for the following:

- Provides planning guidance.
- Establishes priorities with Line Offices/Goals/Programs' input for restoration and recapitalization investments.
- Executes restoration and recapitalization projects as "Provider of Choice"—optimizing investments in strengthening NOAA's facility program.
- Oversight and corporate reporting on execution.
- Sustainment of corporate owned complexes.

In supporting NOAA's mission and program accomplishment, the Facility Modernization Program has established the following Program objectives:

- Integrate facility requirements as part of NOAA's planning, programming, budgeting and execution system;
- Sustain, restore and modernize NOAA's facilities to optimize NOAA program and mission accomplishment;
- Maximize opportunities for collocation within NOAA, and with NOAA and its partners to promote programmatic synergy and effective use of real property assets.

**PROPOSED LEGISLATION:**

None.



**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Construction					
Southwest Science Center	-	2,925	2,928	15,000	12,072
Pacific Regional Center	15,776	19,980	20,000	60,250	40,250
Fairbanks, AK CDA	-	-	-	11,700	11,700
Construction Projects	-	235	-	-	-
TOTAL	15,776	23,140	22,928	86,950	64,022
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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## **PROGRAM CHANGES FOR FY 2009:**

**Pacific Regional Center (+0 FTE and +\$40,250,000):** NOAA requests 0 FTE and an increase of \$40,250,000, for a total of \$60,250,000, to continue construction of the new Pacific Regional Center on Ford Island in Honolulu, HI. This requested increase will enable NOAA to continue consolidation of its current locations on the island of O'ahu.

### **Statement of Need**

NOAA's programs and staff on the Island of O'ahu serve national and international science, research and operational interests in the Pacific region. The current facilities (12 separate locations) occupied by NOAA are overcrowded and inadequate to support NOAA programs/operations in the Pacific Region. In addition, due to a continued tightening of the commercial real estate market in Honolulu accompanied by generally higher Hawai'i costs, NOAA faces increasingly costly annual leased costs (with lease costs increasing from \$2.1 million in FY 2005 to \$4.1 million in FY 2007). NOAA's economic analysis indicates the Pacific Regional Center will result in NOAA realizing \$112 million in cost avoidance savings over a 30-year life-cycle—relative to other facility alternatives. The existing NMFS Dole Street Lab facility at the University of Hawai'i, Manoa is overcrowded and has out-lived its useful life; its continued occupancy requires employees to work in facilities that are substandard and barely up to occupancy codes. NOAA has made such emergency repairs as are necessary to continue the service life of the Dole Street Lab through 2011, with the intended plan to abandon these facilities by this date and allow the property to revert to the University of Hawai'i. If the construction is delayed, science programs at the Dole Street Lab will continue to suffer because it is not possible to hire the staff necessary to conduct these programs and provide them with a place to work. In addition, the seawater laboratory facility at Kewalo Basin is overcrowded, and NOAA has been notified we are subject to cancellation of our current month-to-month agreement due to a larger development plan for this location by the State.

In addressing these required facility issues, NOAA determined that additional program, operational, and cost efficiencies could be realized by consolidating its programs and staff on the Island of O'ahu in a new facility in Honolulu and eliminating increasingly costly commercial leases. In July 2004, the Navy offered Ford Island as a possible site for a consolidated facility. The Ford Island site consists of a 30-acre parcel on Ford Island, a federally owned (Navy) property. The site includes two piers (Piers F-9 and F-10), small-boat piers, and a number of buildings available for adaptive re-use under historic preservation guidelines. Following completion of the required National Environmental Policy Act (NEPA) analyses, NOAA selected Ford Island as the site for the new Pacific Regional Center. Funding to date has enabled the completion of the ship operations facility (building #184) and pier renovations for NOAA ships, as well as initiation of construction for building #130—which supports small-boat storage, marine mammal care, and a central utility plant for the main facility. Funding requested in FY 2009 will enable continuation of the incremental funding of the main facility: a series of two buildings (buildings #176 and #175) designed to house some 600 employees and contractors in state-of-the-art offices, operations, and laboratory space.

NOAA has already moved its ship operations (pierside support for 3 ships—HI'IALAKAI, KA'IMIMOANA, and OSCAR SETTE—and shoreside facility support) to the Pacific Regional Center site on Ford Island.

**Proposed Actions**

The requested funding and proposed program adjustment will enable NOAA to continue construction of the Pacific Regional Center main facility.

**Benefits**

- Full consolidation solution: ship operations, seawater operations, laboratory and office space.
- No-cost federal land for development.
- Substantial NOAA cost avoidance, given major (\$80-100 million) in new water and sewer infrastructure investments on Ford Island as part of unique Federal legislation.
- Expedited NEPA process (requires only an Environmental Assessment (EA); the result is a projected 12-15 month abbreviated process).
- Workable balance between public accessibility and a secure facility.
- Collocation with Naval UnderSea Warfare Command—which does extensive research on sonar and its impact on marine mammals—will promote improved partnership and collaboration on such issues as reducing Right Whale ship strikes.
- Unique opportunity for NOAA to be part of a major redevelopment of Federal (historic landmark) property.

**Performance Goals and Measurement Data**

This increase will support the Department of Commerce Strategic Goal of “Promote environmental stewardship.” Specifically, this increase supports the NOAA cross-cutting priority of Organizational Excellence, especially as it pertains to Facilities.

<b>Performance Goal:</b> : Improved safety and condition indices at NOAA’s facilities	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Without Increase: Deferment of construction will result in continued accrued rent and increased maintenance/repair costs, as well as increasingly the overall project cost.	NA	NA	NA	Annual Rent Payments: \$4.2M; Increased Project Cost: \$10M	Annual Rent Payments: \$4.2M; Increased Project Cost: \$10M	Annual Rent Payments: \$4.2M	Annual Rent Payments: \$4.2M
With Increase: NOAA will be able to continue construction to deliver a quality facility that is both functional and cost effective to the government	NA	NA	NA	NA	NA	NA	NA

**Milestones:**

The schedule of milestones below reflects the full consolidation, incrementally-funded solution:

<b>Multi-Year Project Schedule</b>	
<b>Program Phase</b>	<b>Schedule (Start - Complete)</b>
Business Case/Site Analyses/Programming	Completed--2005
Design	12/04 - 12/06
Construction/Occupancy--Phase 1: Ship Operations Facility	2/06 - 9/07
Construction/Occupancy--Phase 2: Bldg 130	10/06 - 2/09
Construction/Occupancy--Phase 3: Bldg 176	8/08 - 6/11
Construction/Occupancy--Phase 3: Bldg 175	8/08 - 6/13

<b>OUTYEAR FUNDING ESTIMATES – Full Consolidation Solution</b>								
<b>(BA in Thousands)</b>								
	<b>FY 2008 &amp; Prior</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>Estimate to Complete</b>	<b>Total Program Estimate</b>
Pacific Regional Center								
Change from FY 2009 Base		40,250	41,610	43,046	(19,250)	(19,250)		
Total Request	\$99,354	60,250	61,610	63,046	750	750		285,760

**Southwest Fisheries Science Center (0 FTE and +\$12,072,000):** NOAA requests 0 FTE and an increase of \$12,072,000, for a total of \$15,000,100, to provide a replacement laboratory facility for the Southwest Fisheries Science Center in La Jolla, California. This requested

increase will be used to fund the initial segment of the replacement facility following an analysis of alternatives to determine the most appropriate site.

**Statement of Need**

NOAA’s National Marine Fisheries Service (NMFS) Southwest Fisheries Science Center (SWFSC) headquarters in La Jolla, California, is at-risk due to continuing cliff erosion. Numerous geotechnical studies of the current site have identified natural cliff erosion as inevitable, and have stated that failure of the cliff (and facilities located on the cliff) is inevitable. The cliff erosion has forced NOAA to implement plans to abandon two of the four buildings at this facility and to move into temporary offsite leased space. This temporary housing arrangement adversely affects ongoing operations and science at the facility, and is not a long-term solution. NOAA has examined alternatives to the current situation, including dispersing operations to other NOAA locations (none of which are in the La Jolla area) and reported these alternatives as part of a 2004 report to Congress on site alternatives. In FY 2008 NOAA will be updating the 2004 report to validate a site selection.

**Proposed Actions**

The funding requested in FY 2009 will support completion of the design of the replacement facility and initiation of site preparation and Phase 1 construction, which may include: site stabilization, finished grading, site utilities, storm drainage, retaining walls, building footing, etc.

**Benefits**

Support for this replacement facility would enable NOAA to address the ongoing natural bluff erosion threatening the current site, and provide a safe working environment for the NOAA staff supporting NOAA programs at this site. NOAA’s SWFSC conducts scientific research necessary for effective fisheries management issues that have extended social and economic impacts in the Pacific, including the U.S. tuna and California salmon fishing industry.

**Performance Goals & Measurement Data**

Base activities support the cross-cutting objective, “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce Strategic Goal of “Promote environmental stewardship.”

<b>Performance Goal:</b> Improved safety and condition indices at NOAA’s facilities	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Without Increase: Deferment of construction will result in continued unsafe operating conditions, dispersed facilities impacting program impact, accrued rent for temporary leased facilities, as well as increasingly the overall project cost. Numbers indicate increase	NA	NA	NA	\$1.4M increase	\$6.4M increase	NA	NA

cost of the project if deferred by one year:							
With Increase: NOAA will initiate construction to deliver a quality facility that is both functional and cost effective to the government. No additional costs to complete the project or safely house personnel would be incurred:	NA	NA	NA	\$0 increase	\$0 increase	NA	NA

NOTE: Numbers represent impact to construction costs if assume a one year deferral of the project. The purpose of the project is to address safety of personnel, equipment, and facilities. Without the increase, the current facility remains at risk.

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimate to Complete	Total Program Estimate
<b>SWFSC Lab Replacement</b>								
Change from FY 2009 Base		\$12,072	(\$15,000)	(\$15,000)	(\$15,000)	(\$15,000)		
Total Request	\$2,925	\$15,000	\$0	0	0	0		NA

**Fairbanks Command and Data Acquisition Station (CDAS) (0 FTE and +\$11,700,000):** NOAA requests 0 FTE and an increase of \$11,700,000 to avoid the catastrophic failure of the NESDIS Operations Building Complex, a component of the NESDIS Command and Data Acquisition Station (CDAS) in Fairbanks, Alaska with a Short Term Operations Facility. The requested funding would support a temporary replacement structure for the at-risk Operations Complex.

**Statement of Need**

NESDIS manages and directs the operation of NOAA’s geostationary and polar orbiting environmental satellites and the acquisition of remotely sensed data. NESDIS has operational responsibility for the Satellite Operations Control Center at Suitland, MD, Command and Data Acquisition facilities at Wallops, VA and Fairbanks, AK, and Wallops Backup facility, located at NASA Goddard Space Flight Center in Greenbelt, MD, to command and control the satellites, to track the satellites, and to acquire their data. Operations are maintained 24 hours per day, 7 days per week. The NOAA/NESDIS Fairbanks Satellite Operations Facility (FSOF) building in Fairbanks, AK was built by NASA in the late 1960s. Consistent with a plan for the Bureau of Land Management to turn over the Facilities Command Data and Acquisition Site land to the state of Alaska, it was originally presumed that the government use of the Fairbanks location would expire. Therefore, the structures built were only semi-permanent, with a life expectancy of just 20 years. In 1985, NOAA took over operations of the Fairbanks facility. 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 Army Corps of Engineers (COE) conducted an assessment of the Operations Building Complex and identified existing structural deficiencies, building code violations, potential hazards, and other weaknesses (including electrical, mechanical, and life safety systems). The Army Corps of Engineers' study of the facility completed in 2006 projected a major structural failure in the next five years. The current Operations Building Complex is no longer capable of safely and reliably supporting operations. While NOAA's mission operations at Fairbanks are not expected to go beyond 2022, a new temporary Facility is required to address these documented structural and safety problems, and to support operations through 2022. Failure to replace the current Operations Building Complex ignores the assessment by the COE that the current structure will fail by 2011, increase the risk to employee safety, and threaten critical polar-orbiting satellite mission operations due to increased risk of catastrophic failure of the facility.

Construction of the new Fairbanks Short Term Operations Facility (FSTOF) is required to support the NOAA polar-orbiting satellites program through de-orbit of the last POES satellite or N' in 2022 (estimated based on a launch in FY 2009 and the average useful life of the current NOAA satellites and instruments), and other missions identified below.

- Primary Backup Site for European METOP. (through 2026) With the launch of the first European METOP satellite into the mid-morning orbit in July 2006, the U.S. and Europe began implementation of the Initial Joint Polar Satellite (IJPS) agreement. The U.S. will cease to fly weather satellites in the mid-morning orbit. METOP will fly U.S. provided instruments and our weather models will be dependent on METOP data for the morning orbit. The Fairbanks CDAS will provide primary real-time data recovery of the METOP High Resolution Picture Transmission for distribution to U.S. users. The Fairbanks CDAS will also be activated to provide telemetry, command, and stored mission data recovery in the event of failure of the METOP antennas at Svalbard, Norway. Under the IJPS agreement, NOAA is obligated to provide this backup support through 2019. Significant investment has already been made in the equipment, etc. to ready CDAS Fairbanks to fulfill this role. As backup support for METOP must be provided, it would be more costly to move the equipment elsewhere.
- GOES-West Backup. (2019 and beyond) The Fairbanks CDAS serves as the backup to the western geostationary spacecraft. In the event of a failure at the Wallops, Virginia CDAS due to hurricane conditions or other emergency, Fairbanks is called immediately into operation and provides uninterrupted operations support. This function is vital to maintaining continuous geostationary coverage over the Pacific, including Alaska and Hawaii. The GOES-N Series is currently planned to carry out its mission through 2019.
- DMSP Operations. (2020 and beyond) Through an agreement with the Air Force, NOAA provides command and control, and data acquisition for the Defense Meteorological Satellite Program (DMSP) through Fairbanks CDAS.



**Proposed Actions**

The requested funding in FY 2009 will enable NOAA to proceed with replacement of the currently at-risk Fairbanks Operations Building Complex with a new, short-term replacement building. Funding to complete construction and occupancy of the new building will be requested in a subsequent fiscal year.

**Benefits**

Support for this replacement facility would enable NOAA to address the ongoing building failure identified by the Corps of Engineers; replace a building that has outlived its useful and planned life, and provide a safe working environment for the NOAA staff supporting NOAA programs at this site. The Fairbanks facility supports NOAA’s mission by providing timely access to global environmental data from satellites and other sources to promote, protect and enhance the Nation's economy, security, environment, and quality of life. In support of scientific and national-security activities, environmental satellites orbit the globe collecting information on the conditions of the world's atmosphere, land, and water, and support NOAA’s forecast models.

The Fairbanks CDA station is a critical link in the flow of data from NOAA’s environmental satellites to applications that support all four of NOAA’s mission goals.

Ongoing Satellite operations would continue to be supported and benefit from continued Fairbanks operations through at least 2026.

- The Polar-orbiting Environmental Satellite Program (2020 and beyond)
- European METOP; primary backup site (through 2026)
- Geostationary Operations Environmental Satellite (GOES) -West Backup (2019 and beyond)
- Defense Meteorological Satellite Program (DMSP)

**Performance Goals & Measurement Data:** This increase will support the Department of Commerce Strategic Goal of “Promote environmental stewardship.” This increase will support the Mission Support Goal in NOAA’s Strategic Plan: Improved safety and condition indices at NOAA’s facilities.

<b>Performance Goal:</b> Improved safety and condition indices at NOAA’s facilities.	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Without Increase: Deferment of funding for this replacement facility will increase project cost, the risk of facility failure, and employee safety, and	NA	NA	NA	Annual Trailer cost: \$1.7M	Annual Trailer cost: \$1.7M	Annual Trailer cost:	Annual Trailer cost:

threaten support of polar-orbiting satellite operations.				Project Cost: \$1.4M	Project Cost: \$2.8M	\$1.7M Project Cost: \$4.4M	\$1.7M Project Cost: \$6.1M
With Increase: NOAA will be able to begin development of a replacement facility needed to support polar-orbiting satellite operations through 2022.	NA	NA	NA	NA	NA	NA	NA

<b>Multi-Year Project Schedule</b>	
<b>Program Phase</b>	<b>Schedule (Start - Complete)</b>
Business Case/Site Analysis / Programming	12/06 – 03/07
Design	04/07 – 12/08
Construction/Demolition	12/08 – 10/11
Operations Relocation/Occupancy	12/09 – 06/10

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	<b>FY 2008 &amp; Prior</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>Estimate to Complete</b>	<b>Total Program Estimate</b>
<b>Fairbanks, AK Short Term Operations Facility</b>								
Change from FY 2009 Base	0	\$11,700	\$5,266	0	0	0	0	
Total Request	0	\$11,700	\$5,266	0	0	0	0	\$16,966

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 PROCUREMENT, ACQUISITION AND CONSTRUCTION  
 FLEET REPLACEMENT FY 2009 OVERVIEW

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
<b>PS</b>					
Upgrades to NOAA Vessels	12,687	0	0	0	0
Vessel Equipment and Technology Refreshment	0	999	1,000	1,000	0
Fisheries Survey Vessels	13,007	939	0	0	0
FSV Calibration	3,497	0	0	1,000	1,000
Hydro Survey Launch Construction	2,398	2,341	2,343	2,400	57
Ship Acquisition, Conversion & Maintenance	0	0	0	6,100	6,100
Temporary Berthing	999	975	976	1,000	24
Subtotal, PS	32,588	5,254	4,319	11,500	7,181
<b>Total</b>	32,588	5,254	4,319	11,500	7,181

Note: The dollars in this table represent budget authority.

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**Program Support**  
**Activity: Fleet Replacement**

**GOAL STATEMENT:**

To modernize NOAA’s ship support for oceanographic research, fisheries research, hydrographic surveys, and environmental assessment to allow critical data collection requirements to be met effectively.

**BASE DESCRIPTION:**

The objectives of this subactivity are to:

- Capture the non-recurring costs of acquiring or improving vessels 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 and upgrade of ships, ship systems, subsystems, and equipment.

Base activities support the objective, “Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs” under the Department of Commerce Strategic Goal of “Observe, protect, and manage the Earth's resources to promote environmental needs.”

**Vessel Equipment and Technology Refreshment:** To replace mission equipment on NOAA vessels to avoid obsolescence and maintain expertise in vital missions, funding will be provided to acquire a multibeam sonar and to replace the IT system and science electronics on several NOAA vessels.

Technology Refreshment and Vessel Equipment	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimate to Complete	Total Program Estimate
Change from FY 2009 Base		\$0	\$1,000	\$1,000	\$1,000	\$0		
Total Request	\$999	\$1,000	\$2,000	\$2,000	\$2,000	\$0		\$7,999

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Fleet Replacement					
Upgrades to NOAA Vessels	12,687	-	-	-	-
Vessel Equipment and Technology Refreshment	-	999	1,000	1,000	-
Fisheries Survey Vessels	13,007	939	-	-	-
FSV Calibration	3,497	-	-	1,000	1,000
Hydro Survey Launch Construction	2,398	2,341	2,343	2,400	57
Ship Acquisition, Conversion & Maintenance	-	-	-	6,100	6,100
Temporary Berthing	999	975	976	1,000	24
<b>TOTAL</b>	<b>32,588</b>	<b>5,254</b>	<b>4,319</b>	<b>11,500</b>	<b>7,181</b>
FTE	10	6	5	5	-

Note: This table reflects the budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

NOAA requests an increase in this subactivity of 0 FTE and \$7,181,000 for a total of 5 FTE and \$11,500,000. This request will enable NOAA to perform a major overhaul of one of NOAA's older ships to extend its life and to calibrate NOAA ship BELL M. SHIMADA (FSV 4).

**RAINIER Major Repair Period (0 FTE and +\$6,100,000):** NOAA requests 0 FTE and \$6,100,000 to conduct a major overhaul of the 39-year old NOAA Ship RAINIER. With 6 hydrographic survey launches, RAINIER is the most productive coastal hydrographic survey ship in NOAA, and possibly the most productive coastal survey ship in the world. RAINIER needs to undergo a Major Repair Period (MRP), which is an effective tool for extending a ship's service life until a replacement is funded, constructed, and becomes operational.

The RAINIER provides a vital hydrographic data acquisition capacity which results in the "safe, secure, efficient, and seamless movement of goods and people in the U.S. transportation system" and is a significant percentage of the total Commerce & Transportation data acquisition capability. Performance objectives include "Enhance navigational safety and efficiency by improving information products and services" and "Realize national economic, safety, and environmental benefits of improved, accurate positioning capabilities".

This program adjustment supports NOAA's Mission Support Goal by renovating one of NOAA's major data acquisition platforms, and the Cross Cutting Priorities: Homeland Security, and Integrated Ocean Mapping.

The spending profile is as follows:

\$4,375,000	Vessel Repairs
1,025,000	Vessel Maintenance
<u>700,000</u>	Engineering and Technical Services
\$6,100,000	

The request will be used to fund the items below:

\$1,300,000	Deck Machinery
700,000	Electrical/Electronics
1,100,000	Piping Systems
1,225,000	Asbestos Abatement
900,000	Main Propulsion
400,000	Steering System
250,000	Boilers
<u>225,000</u>	Bow Thruster Repairs

\$6,100,000

**Statement of Need**

NOAA Ship RAINIER is 39 years old and will not be able to safely and reliably support NOAA requirements without a major capital investment in mechanical and electronic systems. Current Fleet Maintenance funding is not sufficient to maintain the vessel at current operational tempo until a replacement vessel can be obtained. Renovating the RAINIER will simplify the maintenance while supporting the mission at current levels, thus reducing long-term costs as well as risk to personnel, property, and mission capability.

One area of concern is the Asbestos Hazmat aboard RAINIER. The ship was constructed during a period when use of asbestos materials was standard practice in the shipbuilding industry. Thus RAINIER has asbestos throughout. In performing the MRPs on other NOAA ships it was found that over the years asbestos material collects as dust in the overheads due to the operational vibration of the ship. Asbestos lining of pipe hangars, cable transits, gaskets, hot piping insulation and the overhead panels themselves can be hazards to our crews. As ships get older this hazard becomes more difficult to manage and contain. The potential asbestos exposure to crew and scientists is a risk. With its MRPs on other NOAA ships, NOAA has mitigated the risks of asbestos exposure by remediation/removal through the repair process. The RAINIER MRP provides the funding to upgrade the ships vital systems as well as to mitigate the risk from exposure to asbestos.

This initiative will not only enable NOAA to address issues of obsolescence and risk, but also to implement improvements and enhancements to mission capabilities. Delay in this investment will cause an increase in the risk to personnel and property aboard the vessel as well as increase the cost of future renovations.

RAINIER is NOAA's most capable coastal survey vessel, and a critical platform for maintaining hydrographic expertise within NOAA (production and expertise are both Congressional mandates for NOAA). It is the only ship in the NOAA fleet that carries 6 hydrographic survey launches, each with a full suite of survey equipment, and also has ship mounted sensors capable of 3,000 meter depths. The unique capacity to have 7 platforms collecting data in a project area is unprecedented in the world wide hydrographic fleet, and is particularly advantageous for working in remote areas such as the Alaska Peninsula or offshore Southeast Alaska that have a limited safe weather window for surveying a few months a year. This force multiplier capability makes RAINIER hydrographic surveying extremely efficient at maintaining expertise as well as contributing 500-1000 square nautical miles (snm) per year to the reduction of the survey backlog. The area varies annually primarily due to depth of water and difficulty of project areas, but is also significantly affected by the risks associated with weather and mechanical conditions of the ship and launches.

Over the last ten operating years of RAINIER, several mission equipment systems have been upgraded. These systems include the survey equipment and technology that outfits the ship (multibeam sonar, computers, software, and launches). The structural systems of RAINIER built in the 1960's were not built to support the technology used today. The mission equipment has begun to task the support or core systems beyond capacity. As such, the core systems such as the ventilation, main engines, electricity generators and switchboards, boilers, steering gear, propulsion system, sewage piping systems, and monitoring and alarm systems are in need of overhaul or renewal.

### Proposed Actions

In FY 2008, work packages for RAINIER's MRP will be developed. In FY 2009, the contract to perform the MRP will be competitively awarded for execution during the winter in-port period (approximately December 2009 – March 2010).

### Benefits

RAINIER must continue to operate until a suitable replacement is provided. This MRP will address the most critical maintenance issues to ensure this hydrographic survey ship continues to efficiently meet mission requirements, providing a safe and reliable platform. RAINIER has years of quality research ahead but requires an investment similar to other NOAA ships to assure it is a safe, reliable platform for NOAA's programs. RAINIER has benefited from proper long-term maintenance and the time it spends each year in its fresh-water Lake Union homeport. Thus, the hull plate is in good condition for a vessel of its vintage, and would be impossible to duplicate in modern modularized construction techniques. The vessel will be receiving two new survey launches in FY 2007. Funding infrastructure renovation will extend the RAINIER service life by at least 7 years, and possibly up to 15 years, thus allowing NOAA to meet mission requirements until the vessel can be replaced by a new mapping vessel. This new vessel will build on the expertise developed by RAINIER, and allow for deployment of multiple advanced platforms and sensors such as Autonomous Underwater Vehicles (AUV), and potentially Unmanned Aerial Vehicles (UAV) for remote sensing with Light Detection and Ranging (LIDAR), cameras, and other sensors. This capability will help NOAA maintain a world leadership role in coastal ocean mapping while integrating other scientific disciplines into the vessel's mission.

### Performance Goals and Measurement Data

This increase will support the objective, "Advance understanding of climate variability and change" under the Department of Commerce strategic goal of "Promote environmental stewardship." Specifically, this increase supports the NOAA Mission Support objective, "Increase number of ship operating days and aircraft flight hours that meet NOAA's data collection requirements with high customer satisfaction".

<b>Performance Goal:</b> RAINIER Major Repair Period	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Operating Days Without Increase	191	190	210	205	200	195	190
Operating Days With Increase	191	190	210	90	230	230	230

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	<b>FY 2008 &amp; Prior</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>Estimate to Complete</b>	<b>Total Program Estimate</b>
<b>RAINIER Major Repair Period</b>								
Change from FY 2008 Base		6,100	0	0	0	0	0	6,100
Total Request	0	6,100	0	0	0	0	0	6,100

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

**BELL M. SHIMADA Calibration (0 FTE and +\$1,000,000):** NOAA requests 0 FTE and \$1,000,000 for operational and maintenance costs to calibrate BELL M. SHIMADA (FSV 4) with ground fish, marine mammal, and ecosystem monitoring surveys currently conducted by DAVID STARR JORDAN. Inter-vessel calibrations will occur over an 18-month period to ensure that decades-long West Coast and Eastern Tropical Pacific (ETP) survey time series are not compromised when SHIMADA becomes the primary NOAA ship in the region. Thus, BELL M. SHIMADA will incur additional operating costs including augmenting crew staffing during FY 2009 and FY 2010.

BELL M. SHIMADA is designed and constructed to have an extremely low acoustic signature to meet the data collection requirements of the National Marine Fisheries Service (NMFS). The vessel will perform hydroacoustic, ichthyoplankton, bottom and mid-water trawl surveys of fishery resources and marine mammal sighting surveys, while collecting physical and biological oceanographic data simultaneously during a single deployment—a combined capability unavailable in the academic fleet and private sector.

BELL M. SHIMADA will significantly improve the precision and accuracy of scientific assessments and will provide data to manage West Coast fish stocks, including Pacific whiting and rockfish, and to monitor marine mammals in the Equatorial Tropical Pacific (ETP). The vessel will deploy state-of-the-art acoustic technologies, combined with very quiet radiated noise signatures, to enhance the effectiveness and efficiency of at-sea surveys. The ship will be homeported on the West Coast.

#### **Statement of Need**

As the replacement vessel, BELL M. SHIMADA will need to conduct a series of survey calibrations to avoid introducing errors into fisheries stock assessments and marine mammal population estimates, and the 50-year time series of Pacific Coast Ocean Observing System (PaCOOS) observations in the California Current Large Marine Ecosystem. SHIMADA is the fourth ship in an existing four-ship contract and is scheduled for delivery in FY 2009.

To ensure the consistency and continuity of West Coast and ETP surveys, it is imperative to replace existing capabilities with new technologies that are calibrated with older vessels. Time-series data that are standardized across vessels, sampling gear, and survey design are the very foundation of NMFS' stock assessments and scientific advice that inform the fisheries management process. Failure to calibrate between old and new vessels will result in the disruption of survey-specific time series and compromise the integrity of collected data. The uncertainty resulting from no or poorly calibrated data streams will force fishery managers to implement more precautionary approaches in setting harvest quotas, perhaps foregoing (potentially) higher allowable commercial and recreational catches.

The Northwest Fisheries Science Center (NWFSC) has conducted a combination hydroacoustic/mid-water trawl surveys of Pacific whiting, the largest West Coast groundfish fishery, since 1977. A bilateral U.S.-Canada survey effort supports the Joint Pacific Hake Agreement signed in November 2003.

West Coast Pacific whiting hydroacoustic/mid-water trawl survey	1977-2007 (31-year time series)
U.S.-Canada Pacific whiting hydroacoustic/mid-water trawl survey	1995-2007 (13-year time series)

NWFSC also contributes to the Pacific Coast Ocean Observing System (PaCOOS), which provides ocean information for the sustained human use of the living marine resources of the California Current Large Marine Ecosystem (CCLME). PaCOOS is an academic/state/federal partnership for ecosystem observations that seeks to improve the accuracy of fishery stock assessments and protected species biological opinions, provide key information for ecosystem-based management decisions, and improve the understanding of the roles played by climate and fisheries in the CCLME.

Juvenile Pacific salmon recruitment survey	1996-2007 (10-year time series)
PaCOOS zooplankton/krill survey	1992-2007 (16-year time series)
Northern coastal pelagics survey	1999-2007 (12-year time series)

The Southwest Fisheries Science Center (SWFSC) conducts living marine resource and ecosystem assessment surveys off the West Coast and into the Eastern Tropical Pacific (ETP). SWFSC surveys support California Cooperative Oceanic Fisheries Investigations (CalCOFI), the 59-year time series of observations on the environment and oceanography of the California Current and its associated marine life (plankton, fish, marine mammals and seabirds). CalCOFI continues under the PaCOOS umbrella of regional programs. Candidate inter-calibration trials include:

CalCOFI coastwide pelagics/ichthyoplankton surveys	1949-2007 (59-year time series)
Pelagic juvenile rockfish survey	1983-2007 (25-year time series)
ETP Dolphin assessment surveys	1970-2007 (triennial year time series)
Pacific salmon ocean ecology survey	1998-2005 (8-year time series)
Juvenile shark survey	1994-2007 (13-year time series)
Deepwater habitats survey	1992-2004 (13-year time series)

### **Proposed Action**

BELL M. SHIMADA will operate side-by-side in a series of stock-assessment and ecosystem monitoring cruises to calibrate against older fisheries vessels that will be retired from the NOAA fleet.

### **Benefits**

Implementing advanced technologies incorporated in the new FSVs will enable NOAA to collect the best, scientifically valid assessment data. The vessel will employ state-of-the-art acoustic technologies, combined with a very quiet radiated-noise signature, to enhance the effectiveness and efficiency of at-sea resource surveys. These capabilities will enable SHIMADA to monitor up to nine times more volume of water during the same period of time and distance traveled by current ships. Enhanced data streams will allow assessment scientists to improve survey designs and ground-truth acoustic surveys using modern trawl gear.

### **Performance Goals and Measurement Data**

This increase will 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 “Promote environmental stewardship.” Specifically, this increase supports the

NOAA Mission Support objective, “Increase number of ship operating days and aircraft flight hours that meet NOAA’s data collection requirements with high customer satisfaction”.

<b>Performance Goal:</b> Operating Days for BELL M. SHIMADA	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
DAVID STARR JORDAN Operating Days with calibration funding	228	250	250	210	0	0	0
DAVID STARR JORDAN Operating Days without calibration funding	228	250	125 begin phase out without calibration	0 off line without calibration	0 off line	0 off line	0 off line
BELL M. SHIMADA operating days with calibration funding	0	30	80 begin calibration	210 complete calibration	255	255	255
BELL M. SHIMADA operating days without calibration funding	0	30	80 possible inaccurate surveys if no FY09/10 calibration	185 possible inaccurate surveys if no FY09/10 calibration	255 possible inaccurate surveys if no FY09/10 calibration	255 possible inaccurate surveys if no FY09/10 calibration	255 possible inaccurate surveys if no FY09/10 calibration

OUTYEAR FUNDING ESTIMATES (BA in Thousands)								
	<b>FY 2008 &amp; Prior</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>Estimate to Complete</b>	<b>Total Program Estimate</b>
<b>BELL M. SHIMADA Calibration</b>								
Change from FY 2008 Base		1,000	3,000	0	0	0		4,000
Total Request	0	1,000	3,000	0	0	0		4,000

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

**Hydro Survey Launch Construction (0 FTE and +\$57, 000):** NOAA request an increase of 0 FTE and \$57,000, for a total of \$2,400,000 to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimate to Complete	Total Program Estimate
Hydro Survey Launch Construction								
Change from FY 2009 Base		\$57	\$57	\$57	\$57	\$0		
Total Request	\$4,665	\$2,400	\$2,400	\$2,400	\$2,400	\$0		\$14,265

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

**Temporary Berthing for the HENRY B. BIGELOW (0 FTE and +\$24, 000):** NOAA request an increase of 0 FTE and \$24,000, for a total of \$1,000,000 to increase the base level of funding for various on-going programs within this subactivity to that recommended in the FY 2008 President's Budget but not provided for in the Consolidated Appropriations Act, 2008.

	FY 2008 & Prior	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Estimate to Complete	Total Program Estimate
Temporary Berthing								
Change from FY 2009 Base	\$0	\$24	\$24	\$24	\$24	\$24		
Total Request	\$1,974	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000		\$7,000

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

#### **TERMINATIONS FOR FY 2009:**

The following programs, or portions thereof, have been terminated in FY 2009: Fisheries Survey Vessels (\$939,000).

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 PROCUREMENT, ACQUISITION AND CONSTRUCTION  
 AIRCRAFT REPLACEMENT FY 2009 OVERVIEW

**SUMMARIZED FINANCIAL DATA**

(\$ in thousands)

Procurement, Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
<b>PS</b>					
WP-3D	4,695	0	0	0	0
Subtotal, PS	4,695	0	0	0	0
<b>Total</b>	4,695	0	0	0	0

Note: The dollars in this table represent budget authority.

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**Program Support**  
**Activity: Aircraft Replacement**

**GOAL STATEMENT:**

To modernize NOAA's aircraft support to allow NOAA data-collection requirements to be met effectively.

**BASE DESCRIPTION:**

The objectives of this subactivity are to:

- Capture the non-recurring costs of acquiring or improving aircraft used by NOAA in carrying out its varied missions.
- Allow NOAA to realize procurement efficiencies, management accountability and to reflect the full cost of acquisition and/or improvement of and upgrades of aircraft, aircraft systems, subsystems, and equipment.

Base activities support the Department of Commerce objective, "Provide Critical Support for NOAA's Mission."

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Procurement Acquisition and Construction	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Line Item: Aircraft Replacement					
WP-3D	4,695	-	-	-	-
TOTAL	4,695	-	-	-	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

None.

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Department of Commerce  
National Oceanic and Atmospheric Administration  
Procurement Acquisition and Construction  
Contribution to the NOAA Strategic Planning Goals and Objectives  
(Dollar amounts in thousands)

<b>Procurement Acquisition and Construction</b>	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Climate</b>					
Climate	30,338	6,798	6,746	6,913	167
Total C	30,338	6,798	6,746	6,913	167
<b>Ecosystems</b>					
Ecosystems	36,768	19,535	14,755	21,890	7,135
Total ECO	36,768	19,535	14,755	21,890	7,135
<b>Mission Support</b>					
MS	916,733	873,929	826,723	1,041,671	214,948
Total MS	916,733	873,929	826,723	1,041,671	214,948
<b>Weather and Water</b>					
Weather and Water	101,193	77,966	80,576	170,186	89,610
Total WW	101,193	77,966	80,576	170,186	89,610
Total Procurement Acquisition and Construction	1,085,032	978,228	928,800	1,240,660	311,860

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement,  
Acquisition, and Construction  
Subactivity: Systems Acquisition

		FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Inc/Dec from Base	
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount	
<b>OAR</b>											
Research Supercomputing / CCRI	Pos/BA	-	10,368	-	10,121	-	10,131	-	10,379	-	248
	FTE/OBL	-	10,366	-	10,122	-	10,131	-	10,379	-	248
Climate Sensors (IOOS)	Pos/BA	-	3,853	-	-	-	-	-	-	-	-
	FTE/OBL	-	3,853	-	-	-	-	-	-	-	-
Climate Satellite Sensor (OMPS - Limb - NPP)	Pos/BA	-	3,996	-	-	-	-	-	-	-	-
	FTE/OBL	-	4,396	-	-	-	-	-	-	-	-
Climate Sensors	Pos/BA	-	14,985	-	-	-	-	-	-	-	-
	FTE/OBL	-	14,985	-	-	-	-	-	-	-	-
<b>Total OAR</b>	Pos/BA	-	33,202	-	10,121	-	10,131	-	10,379	-	248
	FTE/OBL	-	33,600	-	10,122	-	10,131	-	10,379	-	248
<b>NWS</b>											
ASOS	Pos/BA	9	4,610	9	1,594	9	1,596	9	1,635	-	39
	FTE/OBL	9	4,610	9	1,594	9	1,596	9	1,635	-	39
AWIPS	Pos/BA	17	16,553	16	12,447	16	12,459	16	19,064	-	6,605
	FTE/OBL	16	19,935	15	12,447	15	12,459	15	19,064	-	6,605
NEXRAD	Pos/BA	5	9,542	5	8,168	5	8,176	5	8,376	-	200
	FTE/OBL	5	9,542	5	8,168	5	8,176	5	8,376	-	200

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement, Acquisition, and Construction Subactivity: Systems Acquisition		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel Amount	
NWSTG Legacy Replacement	Pos/BA	-	494	-	1,165	-	1,166	-	1,195	-	29
	FTE/OBL	-	149	-	1,468	-	1,166	-	1,195	-	29
Radiosonde Network Replacement	Pos/BA	-	5,525	-	3,914	-	3,918	-	4,014	-	96
	FTE/OBL	-	5,525	-	3,914	-	3,918	-	4,014	-	96
Weather and Climate Supercomputing	Pos/BA	-	19,020	-	25,518	-	25,518	-	19,092	-	(6,426)
	FTE/OBL	-	19,020	-	25,518	-	25,518	-	19,092	-	(6,426)
Weather and Climate Supercomputing Backup	Pos/BA	-	7,050	-	-	-	-	-	7,077	-	7,077
	FTE/OBL	-	7,050	-	-	-	-	-	7,077	-	7,077
Cooperative Observer Network Modernization	Pos/BA	2	4,218	2	4,129	2	3,633	2	3,734	-	101
	FTE/OBL	2	4,218	2	4,129	2	3,633	2	3,734	-	101
Complete and Sustain NOAA Weather Radio	Pos/BA	-	5,572	-	5,455	-	8,460	-	11,337	-	2,877
	FTE/OBL	-	5,572	-	5,455	-	8,460	-	11,337	-	2,877
NOAA Profiler Conversion	Pos/BA	-	-	-	4,973	-	4,978	-	9,730	-	4,752
	FTE/OBL	-	-	-	4,973	-	4,978	-	9,730	-	4,752
Strengthen US Tsunami Warning Network	Pos/BA	-	4,030	-	-	-	-	-	-	-	-
	FTE/OBL	-	4,030	-	-	-	-	-	-	-	-
All Hazard National Warning	Pos/BA	-	-	-	-	-	-	-	-	-	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement,  
Acquisition, and Construction  
Subactivity: Systems Acquisition

		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Network: NOAA Weather Radio	FTE/OBL	-	1,057	-	0	-	-	-	-	-	-
Total NWS	Pos/BA	34	76,614	32	67,363	32	69,904	32	85,254	-	15,350
	FTE/OBL	32	80,708	31	67,674	31	69,904	31	85,254	-	15,350
NESDIS											
GOES	Pos/BA	70	360,092	65	314,837	65	315,072	65	550,263	-	235,191
	FTE/OBL	67	360,236	61	315,341	61	315,072	61	550,263	-	235,191
POES	Pos/BA	38	89,816	33	114,791	33	114,291	33	65,419	-	(48,872)
	FTE/OBL	36	90,261	31	115,007	31	114,291	31	65,419	-	(48,872)
NPOESS	Pos/BA	77	337,532	64	330,969	64	330,969	64	287,985	-	(42,984)
	FTE/OBL	73	338,289	61	331,300	61	330,969	61	287,985	-	(42,984)
EOS	Pos/BA	-	2,138	-	965	-	966	-	990	-	24
	FTE/OBL	-	2,144	-	965	-	966	-	990	-	24
CIP	Pos/BA	-	2,798	-	2,703	-	2,706	-	2,772	-	66
	FTE/OBL	-	2,798	-	2,703	-	2,706	-	2,772	-	66
Comprehensive Large Array Data Stewardship Sys (CLASS)	Pos/BA	-	7,011	-	6,315	-	6,321	-	6,476	-	155
	FTE/OBL	-	5,419	-	7,055	-	6,321	-	6,476	-	155
NPOESS Preparatory Data	Pos/BA	-	4,438	-	2,394	-	2,396	-	2,455	-	59

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement, Acquisition, and Construction Subactivity: Systems Acquisition		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Exploitation	FTE/OBL	-	4,437	-	2,394	-	2,396	-	2,455	-	59
Restoration of Climate Sensors - Data Records	Pos/BA	-	-	-	-	-	-	-	74,000	-	74,000
	FTE/OBL	-	-	-	-	-	-	-	74,000	-	74,000
Total NESDIS	Pos/BA	185	803,825	162	772,974	162	772,721	162	990,360	-	217,639
	FTE/OBL	176	803,584	153	774,765	153	772,721	153	990,360	-	217,639
Program Support											
NOAA IOOS Observing Systems (NOS)	Pos/BA	-	9,019	-	-	-	-	-	-	-	-
	FTE/OBL	-	9,048	-	12	-	-	-	-	-	-
Convert NOAA Weather Buoys with NDBC (NOS)	Pos/BA	-	2,939	-	-	-	-	-	-	-	-
	FTE/OBL	-	2,939	-	1	-	-	-	-	-	-
Coastal Global Ocean Observing System (NWS)	Pos/BA	-	1,477	-	-	-	-	-	-	-	-
	FTE/OBL	-	1,480	-	1	-	-	-	-	-	-
Total Program Support	Pos/BA	-	13,435	-	-	-	-	-	-	-	-
	FTE/OBL	-	13,467	-	14	-	-	-	-	-	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement,  
Acquisition, and Construction  
Subactivity: Construction

		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	
<b>NOS</b>											
Coastal and Estuarine Land Conservation Program	Pos/BA	-	27,472	-	7,992	1	8,000	1	15,000	-	7,000
	FTE/OBL	-	30,373	-	8,531	1	8,000	1	15,000	-	7,000
NERRS Acquisition/Construction	Pos/BA	-	9,296	-	11,543	-	6,755	-	6,890	-	135
	FTE/OBL	-	9,072	-	11,875	-	6,755	-	6,890	-	135
Marine Sanctuaries Construction/Acquisition	Pos/BA	5	9,851	-	13,749	-	5,495	-	5,495	-	-
	FTE/OBL	5	9,238	-	14,283	-	5,495	-	5,495	-	-
Other NOS Construction/Acquisition	Pos/BA	-	10,326	-	23,256	-	-	-	-	-	-
	FTE/OBL	-	12,480	-	23,328	-	-	-	-	-	-
Total NOS	Pos/BA	5	56,945	-	56,540	1	20,250	1	27,385	-	7,135
	FTE/OBL	5	61,163	-	58,017	1	20,250	1	27,385	-	7,135
<b>NMFS</b>											
Systems Acq. Computer Hardware & Software	Pos/BA	-	1,498	-	-	-	-	-	-	-	-
	FTE/OBL	-	1,466	-	71	-	-	-	-	-	-
Aquatic Resources	Pos/BA	-	-	-	470	-	-	-	-	-	-
	FTE/OBL	-	-	-	470	-	-	-	-	-	-
Pacific Regional Center (Honolulu Fisheries Lab)	Pos/BA	1	-	-	-	-	-	-	-	-	-
	FTE/OBL	1	8	-	-	-	-	-	-	-	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement, Acquisition, and Construction Subactivity: Construction		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel Amount	
Barrow Arctic Research Center	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	21,854	-	903	-	-	-	-	-	-
Phase III - Galveston Laboratory Renovation - NMFS	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	439	-	-	-	-	-	-	-	-
Center for Ecosystem-Based Fisheries Management	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	7,709	-	9	-	-	-	-	-	-
Pascagoula Laboratory	Pos/BA	-	1,972	-	-	-	-	-	-	-	-
	FTE/OBL	-	270	-	7,285	-	-	-	-	-	-
Center for Aquatic Resources Management - AL	Pos/BA	-	-	-	1,549	-	-	-	-	-	-
	FTE/OBL	-	5	-	1,549	-	-	-	-	-	-
Alaska Facilities Fisheries Center Juneau	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	3	-	-	-	-	-	-	-	-
Other NMFS Facilities - Infrastructure	Pos/BA	-	7,720	-	-	-	-	-	-	-	-
	FTE/OBL	-	2	-	31	-	-	-	-	-	-
Fleet Replacement	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	816	-	604	-	-	-	-	-	-
Total NMFS	Pos/BA	1	11,190	-	2,019	-	-	-	-	-	-
	FTE/OBL	1	32,572	-	10,922	-	-	-	-	-	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement,  
Acquisition, and Construction  
Subactivity: Construction

		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel Amount	
<b>OAD</b>											
Geophysical Fluid Dynamics	Pos/BA	-	1,698	-	-	-	-	-	-	-	
Laboratory (GFDL)	FTE/OBL	-	1,708	-	-	-	-	-	-	-	
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Total OAD	Pos/BA	-	1,698	-	-	-	-	-	-	-	
	FTE/OBL	-	1,708	-	-	-	-	-	-	-	
<hr/>											
<b>NWS</b>											
WFO Construction	Pos/BA	-	13,413	-	12,260	-	12,272	-	12,504	-	232
	FTE/OBL	-	13,420	-	12,857	-	12,272	-	12,504	-	232
NOAA Center for Weather & Climate Prediction	Pos/BA	-	19,402	-	26,384	-	14,100	-	14,100	-	-
	FTE/OBL	-	19,392	-	26,392	-	14,100	-	14,100	-	-
<hr/>											
Total NWS	Pos/BA	-	32,815	-	38,644	-	26,372	-	26,604	-	232
	FTE/OBL	-	32,812	-	39,249	-	26,372	-	26,604	-	232
<hr/>											
<b>NESDIS</b>											
Satellite CDA Facility	Pos/BA	-	2,249	-	2,173	-	2,175	-	2,228	-	53
	FTE/OBL	-	2,250	-	2,173	-	2,175	-	2,228	-	53
Suitland Facility / NSOF	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	59	-	-	-	-	-	-	-	-
<hr/>											
Total NESDIS	Pos/BA	-	2,249	-	2,173	-	2,175	-	2,228	-	53
	FTE/OBL	-	2,309	-	2,173	-	2,175	-	2,228	-	53

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

Activity: Procurement,  
 Acquisition, and Construction  
 Subactivity: Construction

		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec from Base Personnel Amount	
		Actuals		Currently Available		Base Program		Estimate			
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount			
<b>Program Support</b>											
Southwest Science Center	Pos/BA	-	-	-	2,925	-	2,928	-	15,000	-	12,072
	FTE/OBL	-	-	-	2,925	-	2,928	-	15,000	-	12,072
Pacific Regional Center	Pos/BA	-	15,776	-	19,980	-	20,000	-	60,250	-	40,250
	FTE/OBL	-	15,588	-	21,128	-	20,000	-	60,250	-	40,250
Fairbanks, AK CDA	Pos/BA	-	-	-	-	-	-	-	11,700	-	11,700
	FTE/OBL	-	-	-	-	-	-	-	11,700	-	11,700
Construction Projects	Pos/BA	-	-	-	235	-	-	-	11,700	-	11,700
	FTE/OBL	-	-	-	235	-	-	-	11,700	-	11,700
Total Program Support	Pos/BA	-	15,776	-	23,140	-	22,928	-	86,950	-	64,022
	FTE/OBL	-	15,588	-	24,288	-	22,928	-	86,950	-	64,022



**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
(Dollar amounts in thousands)

Activity: Procurement,  
Acquisition, and Construction  
Subactivity: Fleet Replacement

		FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
		Actuals		Currently Available		Base Program		Estimate		from Base	
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount	
<b>Program Support</b>											
Small Waterplane Area Twin	Pos/BA	-	-	-	-	-	-	-	-	-	-
Hull (SWATH) Vessel	FTE/OBL	-	1,021	-	-	-	-	-	-	-	-
Upgrades to NOAA Vessels	Pos/BA	-	12,687	-	-	-	-	-	-	-	-
	FTE/OBL	-	7,410	-	4,186	-	-	-	-	-	-
Vessel Equipment and	Pos/BA	-	-	-	999	-	1,000	-	1,000	-	-
Technology Refreshment	FTE/OBL	-	-	-	999	-	1,000	-	1,000	-	-
Fisheries Survey Vessels	Pos/BA	-	13,007	-	939	-	-	-	-	-	-
	FTE/OBL	-	9,139	-	12,861	-	-	-	-	-	-
FSV Calibration	Pos/BA	-	3,497	-	-	-	-	-	1,000	-	1,000
	FTE/OBL	-	3,482	-	12	-	-	-	1,000	-	1,000
Autonomous Underwater	Pos/BA	-	-	-	-	-	-	-	-	-	-
Vehicles Sensors	FTE/OBL	-	12	-	127	-	-	-	-	-	-
Hydro Survey Launch	Pos/BA	11	2,398	6	2,341	5	2,343	5	2,400	-	57
Construction	FTE/OBL	10	2,324	6	2,400	5	2,343	5	2,400	-	57
Ship Acquisition, Conversion &	Pos/BA	-	-	-	-	-	-	-	6,100	-	6,100
Maintenance	FTE/OBL	-	-	-	-	-	-	-	6,100	-	6,100
Temporary Berthing	Pos/BA	-	999	-	975	-	976	-	1,000	-	24

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

Activity: Procurement,  
 Acquisition, and Construction  
 Subactivity: Fleet Replacement

	FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Inc/Dec from Base	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
FTE/OBL	-	999	-	975	-	976	-	1,000	-	24
Total Program Support	11	32,588	6	5,254	5	4,319	5	11,500	-	7,181
	10	24,387	6	21,560	5	4,319	5	11,500	-	7,181

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Procurement, Acquisition, and Construction  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

Activity: Procurement, Acquisition, and Construction Subactivity: Aircraft Replacement		FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Inc/Dec from Base	
		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount		Personnel Amount	
<b>Program Support</b>											
G-IV Instrumentation Upgrades	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	228	-	-	-	-	-	-	-	-
WP-3D	Pos/BA	-	4,695	-	-	-	-	-	-	-	-
	FTE/OBL	-	4,871	-	212	-	-	-	-	-	-
Aircraft Equipment and Technology Refreshment	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	-	-	555	-	-	-	-	-	-
Aircraft Acquisiton and Replacement	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	11,288	-	-	-	-	-	-	-	-
Total Program Support	Pos/BA	-	4,695	-	-	-	-	-	-	-	-
	FTE/OBL	-	16,387	-	767	-	-	-	-	-	-

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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: Procurement Acquisition and Construction  
 Subactivity: Systems Acquisition

Object Class	2009 Increase
23.3 Communications, utilities and miscellaneous charges	898
25.1 Advisory and assistance services	490
25.2 Other services	10,892
25.3 Other purchases of goods and services from Govt accounts	316,251
31 Equipment	10,024
99 Total Obligations	338,555

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

Activity: Procurement Acquisition and Construction  
 Subactivity: Systems Acquisition

	Object Class	2009 Decrease
25.3	Other purchases of goods and services from Govt accounts	(98,892)
31	Equipment	(6,426)
99	Total Obligations	(105,318)

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

Activity: Procurement Acquisition and Construction  
Subactivity: Construction

	Object Class	2009 Increase
21	Travel and transportation of persons	127
25.1	Consulting services	63,895
25.2	Other services	367
25.3	Other purchases of goods and services from Govt accounts	53
41	Grants, subsidies and contributions	7,000
99	Total Obligations	71,442

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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: Procurement Acquisition and Construction  
 Subactivity: Fleet Replacement

	Object Class	2009 Increase
25.1	Advisory and assistance services	700
25.2	Other services	5,056
26	Supplies and materials	1,425
99	Total Obligations	7,181

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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 2007 Actuals	FY 2008 Currently Available	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
11 Personnel compensation					
11.1 Full-time permanent	18,371	20,149	18,163	18,163	0
11.3 Other than full-time permanent	242	2	2	2	0
11.5 Other personnel compensation	1,798	268	256	256	0
11.6 Leave Surcharge	0	2,266	1,155	1,155	0
11.7 Military personnel	0	0	0	0	0
11.8 Special personnel services payments	0	79	75	75	0
11.9 Total Personnel Compensation	20,411	22,764	19,651	19,651	0
12.1 Civilian personnel benefits	7,765	7,327	4,969	4,969	0
13 Benefits for former personnel	4	0	0	0	0
21 Travel and transportation of persons	4,133	3,417	2,250	2,377	127
22 Transportation of things	612	344	328	328	0
23.1 Rental payments to GSA	7,558	7,314	2,956	2,956	0
23.2 Rental payments to others	2,521	2,007	2,909	2,909	0
23.3 Communications, utilities and miscellaneous charges	6,029	5,074	11,827	12,725	898
24 Printing and reproduction	357	148	141	141	0
25.1 Advisory and assistance services	65,611	51,471	59,950	125,035	65,085
25.2 Other services	149,952	122,299	122,257	138,572	16,315

**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 2007 Actuals	FY 2008 Currently Available	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
25.3 Purchases of goods and services from Govt accounts	662,170	611,811	444,173	661,585	217,412
25.4 Operation and maintenance of facilities	0	0	0	0	0
25.5 Research and development contracts	31,308	31,769	18,214	18,214	0
26 Supplies and materials	14,752	13,599	21,933	23,358	1,425
31 Equipment	57,471	52,704	95,980	99,578	3,598
32 Lands and structures	28,794	22,442	16,404	16,404	0
33 Investments and loans	0	0	0	0	0
41 Grants, subsidies and contributions	58,767	55,042	104,841	111,841	7,000
42 Insurance claims and indemnities	0	0	0	0	0
43 Interest and dividends	71	17	16	16	0
44 Refunds	0	0	0	0	0
99 Total Obligations	1,118,285	1,009,551	928,800	1,240,660	311,860
Cash Refunds	(1,217)	0	0	0	0
Prior Year Recoveries	(4,242)	0	0	0	0
Deobligations	0	0	(2,000)	(2,000)	0
Unobligated balance, Expired	49	0	0	0	0

**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 2007 Actuals	FY 2008 Currently Available	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
Unobligated Balance cancellations EOY 07	0	0	0		
Unobligated Balance, Start of Year	(65,430)	(37,587)	0	0	0
Unobligated Balance, End of Year	37,587	0	0	0	0
Enacted Rescissions	0	0	0		
Subtotal Budget Authority	1,085,032	971,964	926,800	1,238,660	311,860
Total Discretionary ORF Budget Authority	1,085,032	971,964	926,800	1,238,660	311,860
Positions	235	200	200	200	0
FTE	224	190	190	190	0

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

	FY 09 ATBs	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
11	Personnel compensation			
11.1	Full-time permanent			
	1	501	501	
	Executive level			
	0	0	0	0
	Senior Executive Service			
	0	0	0	0
	General schedule			
	40	17,467	17,467	0
	Commissioned officers			
	0	195	195	0
	Wage board/wage marine			
	0	0	0	0
	Scientific & professional (P.L. 80-313)			
	0	0	0	0
	Law Enforcement			
	0	0	0	0
	Students			
	0	0	0	0
	Subtotal			
	<u>42</u>	<u>18,163</u>	<u>18,163</u>	<u>0</u>
11.3	Other than full-time permanent			
	General schedule			
	0	2	2	0
	Wage board/wage marine			
	0	0	0	0
	Experts & consultants			
	0	0	0	0
	Hourly			
	0	0	0	0
	Subtotal			
	<u>0</u>	<u>2</u>	<u>2</u>	<u>0</u>
11.5	Other personnel compensation			
	Overtime			
	0	10	10	0
	Cash awards			
	1	244	244	0
	Other			
	0	2	2	0

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

	FY 09 ATBs	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
Subtotal	1	255	255	0
11.6 Leave Surcharge				
Full-Time Permanent	4	1,061	1,061	0
Other	0	94	94	0
Subtotal	5	1,155	1,155	0
11.7 Military Personnel				
Military Personnel	0	0	0	0
Other	0	0	0	0
Subtotal	0	0	0	0
11.8 Special personnel services payments				
Foreign service officers (State)				0
Other	0	75	75	0
Subtotal	0	75	75	0
11.9 Total personnel compensation	47	19,651	19,651	0
12.1 Civilian personnel benefits				
Civil service retirement	1	676	676	0
Federal Employee Retirement	0	7	7	0
Medicare	0	18	18	0



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

	FY 09 ATBs	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
Thrift savings plan	0	25	25	0
Federal insurance contribution act	2	701	701	0
Health insurance	1	584	584	0
Life insurance	1	598	598	0
Overseas allowance (COLA)	0	0	0	0
Employees comp fund (bec)	0	0	0	0
Other	1	543	543	0
Subtotal	<u>15</u>	<u>4,969</u>	<u>4,969</u>	<u>0</u>
13.0 Benefits for former personnel				
Retired Pay	0	0	0	0
Health benefits	0	0	0	0
Other	0	0	0	0
Subtotal	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
21 Travel and transportation of persons				
Aircraft rental	0	0	0	0
GSA vehicles	0	0	0	0
Program travel	7	2,250	2,377	127
Subtotal	<u>7</u>	<u>2,250</u>	<u>2,377</u>	<u>127</u>
22 Transportation of things				0
Trans of household goods	0	0	0	0

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

	FY 09 ATBs	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
GSA trucks	0	10	10	0
Other	1	318	318	0
Subtotal	<u>1</u>	<u>327</u>	<u>327</u>	<u>0</u>
23.1 Rental payments to GSA	<u>15</u>	<u>2,956</u>	<u>2,956</u>	<u>0</u>
23.2 Rental payments to others	<u>4</u>	<u>2,909</u>	<u>2,909</u>	<u>0</u>
23.3 Communications, utilities and miscellaneous charges				
Utility services	2	691	691	0
Aircraft charter	0	0	0	0
Vessel charter	0	0	0	0
Rental of office copying equipment	0	0	0	0
Rental of ADP equipment	1	666	914	248
Federal telecommunications system	2	870	870	0
Other telecommunications services	6	9,574	10,224	650
Postal services by USPS	0	2	2	0
Other	0	24	24	0
Subtotal	<u>11</u>	<u>11,827</u>	<u>12,725</u>	<u>898</u>
24 Printing and reproduction				
Publications	0	42	42	0
Public use forms	0	0	0	0

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

	FY 09 ATBs	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
Other	0	99	99	0
Subtotal	<u>0</u>	<u>141</u>	<u>141</u>	<u>0</u>
25.1 Consulting services	<u>107</u>	<u>59,950</u>	<u>124,035</u>	<u>65,085</u>
25.2 Other services				
Aircraft repair	0	0	0	0
Vessel repair	0	0	4,375	0
Contracts for research	110	50,400	50,400	0
Maintenance of equipment	4	1,655	1,655	0
Other	140	70,001	86,316	16,315
Training	0	201	201	0
Subtotal	<u>253</u>	<u>122,257</u>	<u>138,572</u>	<u>16,315</u>
25.3 Other purchases of goods & services from Gov't accounts				
Purchases of goods & services from Gov't accounts	1,268	444,130	661,542	217,412
Office of Personnel Management Training	0	43	43	0
GSA reimbursable services	0	0	0	0
Payments to DM, WCF	0	0	0	0
Subtotal	<u>1,268</u>	<u>444,173</u>	<u>661,585</u>	<u>217,412</u>
25.4 Operation and maintenance of facilities				

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

Operation of GOCOs	0	0	0	0
		FY 2009	FY 2009	Increase /
	FY 09 ATBs	Base	Estimate	(Decrease)
Subtotal	0	0	0	0
25.5 Research and development contracts	66	18,214	18,214	0
26 Supplies and materials				
Chart paper	0	0	0	0
Met. upper air	7	3,021	3,021	0
Maintenance of vessel	1	445	1,470	1,025
Gases	0	0	0	0
Fuel	2	953	1,353	400
ADP supplies	8	3,579	3,579	0
Other	11	13,935	13,935	0
Subtotal	28	21,934	23,358	1,425
31 Equipment				
Office machines and equipment	0	30	30	0
ADP hardware	0	27	27	0
Other capitalized	5	483	4,081	3,598
Depreciation on capitalized equipment	44	44,360	44,360	0
Non-capitalized	46	44,094	44,094	0
Capital Lease	14	6,634	6,634	0
Subtotal	109	95,980	99,578	3,598

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

	FY 09 ATBs	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
32	Lands and structures			
	Land	0	143	143
	Building and Other Structures	43	14,848	14,848
	Depreciation of Building	3	1,413	1,413
	Subtotal lands and structures	<u>47</u>	<u>16,404</u>	<u>16,404</u>
33	Investments and loans	<u>0</u>	<u>0</u>	<u>0</u>
41	Grants, subsidies and contributions	<u>114</u>	<u>104,841</u>	<u>111,841</u>
42	Insurance claims and indemnities	<u>0</u>	<u>0</u>	<u>0</u>
43	Interest/dividends..	<u>0</u>	<u>16</u>	<u>16</u>
44	Refunds	<u>0</u>	<u>0</u>	<u>0</u>
99	Total Direct Obligations	<u>2,092</u>	<u>928,800</u>	<u>1,240,660</u>
	Cash Refund	0	0	0
	Federal Funds			0
	Non-Federal Funds			0
	Proceeds from Sales			0
	Prior Year Recoveries		0	0
	Deobligations	(2,000)	(2,000)	(2,000)

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

Unobligated Balance cancellations EOY 07	0			
	FY 09 ATBs	FY 2009 Base	FY 2009 Estimate	Increase / (Decrease)
Unobligated Balance, Start of Year			0	
Unobligated Balance, End of Year				
Enacted Rescissions		0	0	
Subtotal PAC Budget Authority	92	926,800	1,238,660	311,860
Total PAC Budget Authority	92	926,800	1,238,660	311,860
Positions	0	200	200	
FTE	0	190	190	

Note: Does not agree with MAX. Reflects updated FY 2007 & 2008 levels based on revised data.

**Department of Commerce**  
**National Oceanic and Atmospheric Administration**  
**Procurement Acquisition and Construction**  
**SUMMARY OF INFORMATION TECHNOLOGY RESOURCES**

(Dollar amounts in thousands)

IT Projects by activity/subactivity:	FY 2007		FY 2008		FY 2009
	Enacted		Enacted		President's Budget
<b>Systems Acquisition</b>	<b>171,311</b>		<b>167,948</b>		<b>254,030</b>
Construction	0		0		0
Fleet Replacement	0		0		0
Aircraft Replacement	0		0		0
<b>Total Procurement Acquisition and Construction</b>	<b>171,311</b>		<b>167,948</b>		<b>254,030</b>

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**DEPARTMENT OF COMMERCE**  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
Procurement, Acquisition and Construction  
**APPROPRIATION SUMMARY STATEMENT**

For procurement, acquisition and construction of capital assets, including alteration and modification costs, of the National Oceanic and Atmospheric Administration, \$1,238,660, to remain available until September 30, 2011, except funds provided for construction of facilities which shall remain available until expended: Provided, That of the amounts provided for the National Polar-orbiting Operational Environmental Satellite System, funds shall only be made available on a dollar for dollar matching basis with funds provided for the same purpose by the Department of Defense: Provided further, That except to the extent expressly prohibited by any other law, the Department of Defense may delegate procurement functions related to the National Polar-orbiting Operational Environmental Satellite System to officials of the Department of Commerce pursuant to section 2311 of title 10, United States Code.

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Department of Commerce  
National Oceanic and Atmospheric Administration  
Procurement, Acquisition and Construction  
CONSULTING AND RELATED SERVICES  
(Obligations in thousands of dollars)

	<b><u>2007</u></b> <b><u>Actual</u></b>	<b><u>2008</u></b> <b><u>Estimate</u></b>	<b><u>2009</u></b> <b><u>Estimate</u></b>
Management and Professional Support Services	4,675	3,857	4,840
Studies, Analysis and Evaluations	13,267	10,950	13,735
Engineering and Technical Services	<u>44,425</u>	<u>36,664</u>	<u>45,993</u>
Total	62,367	51,471	64,569

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  
 Pacific Coastal Salmon Recovery Account  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Pacific Coastal Salmon Recovery Account</b>	FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<b>Ecosystems</b>										
Ecosystems	-	66,571	-	66,933	-	67,000	-	35,000	-	(32,000)
Total ECO	-	66,571	-	66,933	-	67,000	-	35,000	-	(32,000)
Total Pacific Coastal Salmon Recovery Account	-	66,571	-	66,933	-	67,000	-	35,000	-	(32,000)

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Pacific Coastal Salmon Recovery Account  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	66,933	66,933
plus: 2009 Other Adjustments to Base	-	-	67	67
FY 2009 Base	-	-	67,000	67,000
plus: 2009 Program Changes	-	-	(32,000)	(32,000)
FY 2009 Estimate	-	-	35,000	35,000

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Pacific Coastal Salmon Recovery	Pos/BA	-	66,571	-	66,933	-	67,000	-	35,000	-	(32,000)
	FTE/OBL	-	66,549	-	66,933	-	67,000	-	35,000	-	(32,000)
Total: Pacific Coastal Salmon Recovery Account	Pos/BA	-	66,571	-	66,933	-	67,000	-	35,000	-	(32,000)
	FTE/OBL	-	66,549	-	66,933	-	67,000	-	35,000	-	(32,000)

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Pacific Coastal Salmon Recovery Account  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	-	66,549	-	66,933	-	67,000	-	35,000	-	(32,000)
<b>Total Obligations</b>	-	<b>66,549</b>	-	<b>66,933</b>	-	<b>67,000</b>	-	<b>35,000</b>	-	<b>(32,000)</b>
<b>Adjustments to Obligations:</b>										
Unobligated balance, expiring	-	22	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	-	<b>66,571</b>	-	<b>66,933</b>	-	<b>67,000</b>	-	<b>35,000</b>	-	<b>(32,000)</b>
<b>Financing from Transfers and Other:</b>										
Transfer to ORF	-	67	-	-	-	-	-	-	-	-
<b>Net Appropriation</b>	-	<b>66,638</b>	-	<b>66,933</b>	-	<b>67,000</b>	-	<b>35,000</b>	-	<b>(32,000)</b>



**Appropriation: Pacific Coastal Salmon Recovery Account**  
**Activity: Pacific Coastal Salmon Recovery**

**GOAL STATEMENT:**

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 (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 Pacific Coastal Salmon Recovery Fund account was established to augment State, Tribal, and local programs to conserve and restore sustainable Pacific salmon populations and their habitats. Funds are to be used by the states of California, Oregon, Washington, Alaska, and Idaho and the Pacific Coastal and Columbia River Tribes to supplement State and Federal programs and promote the development of federal-state-tribal-local partnerships in salmon conservation efforts. The States and Tribes will use these funds for restoration 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 restoration and conservation of Pacific coastal salmon and steelhead habitat. Funds provided to the states will have at least a 33 percent matching requirement and up to three percent limitation on use of the fund for administrative expenses. Funds provided to Pacific Coastal and Columbia River Tribes do not require matching dollars, nor is there a limitation on use of the fund for tribal administration costs. Performance goals and indicators to measure improvements in habitat and recovery processes were established for the program in FY 2005 in response to the Program Assessment Rating Tool for this program in FY 2003. This budget responds to current listings of coastal salmon and steelhead runs under the Endangered Species Act by forming lasting partnerships with States and Local and Tribal governments and the public for saving Pacific salmon and their important habitats.

Base activities support the objective, “Protect, restore, and manage the use of coastal and ocean resources” under the Department of Commerce Strategic Goal to “Promote environmental stewardship.”

**PROPOSED LEGISLATION:**

*For necessary expenses associated with the restoration of Pacific salmon populations, \$35,000,000 to remain available until September 30, 2009: [That section 628(2)(A) of the Department of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 2001 (16 U.S.C. is amended-(1) by inserting “2009”, and (2) by inserting “Idaho,” after “Oregon,”.] Provided That of the funds provided herein the Secretary of Commerce may issue grants to the States of Washington, Oregon, Idaho, California, and Alaska, and the Columbia River and Pacific Coastal Tribes for projects necessary for restoration 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 funds disbursed to States shall be subject to a matching requirement of funds or documented in-kind contributions at least thirty-three percent of the federal funds.*

**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Pacific Coastal Salmon Recovery Account	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Pacific Coastal Salmon Recovery	66,571	66,933	67,000	35,000	(32,000)
<b>TOTAL</b>	66,571	66,933	67,000	35,000	(32,000)
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Pacific Coastal Salmon Recovery Fund (0 FTE and -\$32,000,000)** -- NOAA requests a decrease of \$32,000,000 and 0 FTE from the Pacific Coastal Salmon Recovery Fund line item. The remaining funds will provide resources for recovery of Endangered Species Act listed Pacific salmon.

**Statement of Need**

This line item funds NOAA's investment in cooperative salmon recovery efforts in Washington, Oregon, California, Idaho, and Alaska. Since 2000, PCSRF has funded the protection, creation, or restoration of over 500,000 acres of habitat and restored access to over 5,000 miles of streams.

**Proposed Actions**

Recognizing the results that have been achieved in salmon recovery, and in order to fund higher priority activities, NOAA proposes to reduce funding for this item from \$67,000,000 to \$35,000,000. As proposed in the FY 2008 budget, NOAA would require that funds disbursed to States be subject to a matching requirement of funds or documented in-kind contributions of at least thirty-three percent of the federal funds. At the reduced level, NOAA will continue the recovery of ESA-listed salmon and stocks important for Tribal treaty rights and habitat restoration for non-listed salmonids through a combination of related programs, the strengthening of local and regional partnerships, and closer collaboration with other federal agencies.

**Benefits**

This requested decrease will allow NOAA to fund higher priority activities.

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Pacific Coastal Salmon Recovery Account  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
(Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	61	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total personnel compensation	-	-	-	-	-
11.9 Total Personnel Compensation	61	-	-	-	-
12.1 Civilian personnel benefits	16	-	-	-	-
13.1 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	3	-	-	-	-
25.2 Other services	216	-	-	-	-
25.3 Other purchases of goods and services from Govt accounts	287	-	-	-	-
26.1 Supplies and materials	76	-	-	-	-
31.1 Equipment	3	-	-	-	-
32.1 Lands and structures	-	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41 Grants, subsidies and contributions	65,887	66,933	67,000	35,000	(32,000)
42.1 Insurance claims and indemnities	-	-	-	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	66,549	66,933	67,000	35,000	(32,000)
Less Prior year recoveries	-	-	-	-	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Pacific Coastal Salmon Recovery Account  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
(Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Less Unobligated Balance, Start of Year	-	-	-	-	-
Plus Unobligated Balance, End Of Year	-	-	-	-	-
Expired unobligated balances	22	-	-	-	-
Offsetting collections (Mandatory)	-	-	-	-	-
<b>Total Budget Authority</b>	<b>66,571</b>	<b>66,933</b>	<b>67,000</b>	<b>35,000</b>	<b>(32,000)</b>



**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Pacific Coastal Salmon Recovery Account  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
 (Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
Full-Time equivalent Employment:					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-
<b>Authorized Positions:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Fishermen's Contingency Fund  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Fishermen's Contingency Fund</b>	FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
	Actuals		Currently Available		Base Program		Estimate		from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<b>Ecosystems</b>										
Ecosystems	1	-	1	-	1	-	1	-	-	-
Total ECO	1	-	1	-	1	-	1	-	-	-
Total Fishermen's Contingency Fund	1	-	1	-	1	-	1	-	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Fishermen's Contingency Fund  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	1	1	-	256
less: obligations from prior year balances	-	-	-	(99)
FY 2009 Base	1	1	-	157
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	1	1	-	157

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/	
		Actuals		Currently Available		Base Program		Estimate		Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fishermen's Contingency Fund	Pos/BA	1	-	1	-	1	-	1	-	-	-
	FTE/OBL	-	223	1	256	1	157	1	157	-	-
Total: Fishermen's Contingency Fund	Pos/BA	1	-	1	-	1	-	1	-	-	-
	FTE/OBL	-	223	1	256	1	157	1	157	-	-

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

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	1	223	1	256	1	157	1	157	-	-
<b>Total Obligations</b>	<b>1</b>	<b>223</b>	<b>1</b>	<b>256</b>	<b>1</b>	<b>157</b>	<b>1</b>	<b>157</b>	<b>-</b>	<b>-</b>
<b>Adjustments to Obligations:</b>										
Unobligated balance, adj. SOY	-	(636)	-	(413)	-	(157)	-	(157)	-	-
Unobligated balance, EOY	-	413	-	(157)	-	-	-	-	-	-
<b>Total Budget Authority</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Financing from Transfers and Other:</b>										
Net Appropriation	1	-	1	-	1	-	1	-	-	-

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### **Appropriation: Fishermen's Contingency Fund**

#### **GOAL STATEMENT:**

This fund compensates domestic fishermen for damage or loss of fishing gear or vessels due to obstructions related to oil or gas exploration, development, and production on the Outer Continental Shelf (OCS). It minimizes financial instability of the fishing industry caused by competing uses of the OCS, and provides for timely resolution of claims by vessel owners.

#### **BASE DESCRIPTION:**

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:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Fishermen's Contingency Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Fishermen's Contingency Fund	-	-	-	-	-
<b>TOTAL</b>	-	-	-	-	-
<b>FTE</b>	1	1	1	1	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

No program change is requested in this activity.

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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 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	23	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total Personnel Compensation	23	-	-	-	-
12.1 Civilian personnel benefits	6	-	-	-	-
13.1 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	-	-	-	-	-
25.2 Other services	-	-	-	-	-
26.1 Supplies and materials	-	-	-	-	-
31.1 Equipment	-	-	-	-	-
32.1 Lands and structures	-	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41.1 Grants, subsidies and contributions	-	-	-	-	-
42 Insurance claims and indemnities	194	256	157	157	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	223	256	157	157	-
Less Prior year recoveries	-	-	-	-	-
Less Unobligated Balance, Start of Year	(636)	(413)	(157)	(157)	-
Plus Unobligated Balance, End Of Year	413	157	-	-	-
Less Unobligated Balance, Rescission	-	-	-	-	-
Total Budget Authority	-	-	-	-	-

**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 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	1	1	1	1	-
Other than full-time permanent	-	-	-	-	-
Total	1	1	1	1	-
Authorized Positions:					
Full-time permanent	1	1	1	1	-
Other than full-time permanent	-	-	-	-	-
Total	1	1	1	1	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Foreign Fishing Observer Fund  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	-	261
plus: 2009 Obligations from prior year balances	-	-	-	-
FY 2009 Base	-	-	-	261
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	-	-	-	261

Comparison by activity/subactivity	FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Increase/ Decrease	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
FTE/OBL	-	-	-	261	-	261	-	261	-	-
Total: Foreign Fishing Observer Fund	Pos/BA	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	-	-	261	-	261	-	261	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Foreign Fishing Observer Fund  
**SUMMARY OF FINANCING**  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	-	-	-	261	-	261	-	261	-	-
<b>Total Obligations</b>	-	-	-	<b>261</b>	-	<b>261</b>	-	<b>261</b>	-	-
<b>Adjustments to Obligations:</b>										
Unobligated balance, adj. SOY	-	(522)	-	(522)	-	(261)	-	(261)	-	-
Unobligated balance, EOY	-	522	-	261	-	-	-	-	-	-
<b>Total Budget Authority</b>	-	<b>0</b>	-	<b>0</b>	-	<b>0</b>	-	<b>0</b>	-	-
<b>Financing from Transfers and Other:</b>										
Net Appropriation	-	-	-	-	-	-	-	-	-	-

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### **Appropriation: Foreign Fishing Observer Fund**

#### **GOAL STATEMENT:**

The goals of this fund are to provide 100 percent observer coverage aboard foreign vessels fishing within the United States' Exclusive Economic Zone (EEZ); to increase compliance with fishery regulations and requirements; to support balanced conservation and management measures to achieve and maintain the optimum use of our living marine resources; to collect data to determine foreign compliance with fishery regulations and the status of fish stocks within the EEZ of the United States; and to administer the base and supplemental observer programs in a cost-effective manner.

#### **BASE DESCRIPTION:**

The Foreign Fishing Observer Fund is financed through fees collected from owners and operators of foreign fishing vessels fishing within the Exclusive Economic Zone (EEZ) of the United States (such fishing requires a permit issued under the Magnuson-Stevens Fishery Conservation and Management Act). 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:**

No legislation is proposed.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Foreign Fishing Observer Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
<b>TOTAL</b>	-	-	-	-	-
<b>FTE</b>	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

No program changes are requested for this activity.

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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)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	-	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total Personnel Compensation	-	-	-	-	-
12.1 Civilian personnel benefits	-	-	-	-	-
13.1 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	-	-	-	-	-
25.2 Other services	-	-	-	-	-
26.1 Supplies and materials	-	-	-	-	-
31.1 Equipment	-	-	-	-	-
32.1 Lands and structures	-	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41.1 Grants, subsidies and contributions	-	-	-	-	-
42.1 Insurance claims and indemnities	-	261	261	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	-	261	261	-	-
Less Prior year recoveries	-	-	-	-	-
Less Unobligated Balance, Start of Year	(522)	(522)	(261)	-	-
Plus Unobligated Balance, End Of Year	522	261	-	-	-
Total Budget Authority	-	-	-	-	-

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
<b>Full-Time equivalent Employment:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-
<b>Authorized Positions:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-



**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Fisheries Finance Program Account  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Fisheries Finance Program Account</b>	FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
	Actuals		Currently Available		Base Program		Estimate		from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<hr/>										
<b>Ecosystems</b>										
Ecosystems	-	4,656	-	27,624	-	-	-	-	-	-
Total ECO	-	4,656	-	27,624	-	-	-	-	-	-
<hr/>										
Total Fisheries Finance Program Account	-	4,656	-	27,624	-	-	-	-	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Fisheries Finance Program Account  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Approp.	Budget Authority	Direct Obligations
FY 2008 Enacted	-	-	-	235	27,624
less: Adjustments to Base	-	-	-	(235)	(27,624)
FY 2009 Base	-	-	-	-	-
plus: 2009 Program Changes	-	-	-	-	-
FY 2009 Estimate	-	-	-	-	-

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Fisheries Financing Program	Pos/BA	-	4,656	-	27,624	-	-	-	-	-	-
	FTE/OBL	-	4,656	-	27,624	-	-	-	-	-	-
Total: Fisheries Finance Program Account	Pos/BA	-	4,656	-	27,624	-	-	-	-	-	-
	FTE/OBL	-	4,656	-	27,624	-	-	-	-	-	-

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Fisheries Finance Program Account  
**SUMMARY OF FINANCING**  
(Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Cost Loan Subsidy	-	-	-	235	-	-	-	-	-	-
Credit Reestimates	-	4,656	-	27,389	-	-	-	-	-	-
<b>Total Obligations</b>	-	<b>4,656</b>	-	<b>27,624</b>	-	-	-	-	-	-
<b>Adjustments to Obligations:</b>										
Unobligated balance, adj. SOY	-	(3,928)	-	(2,928)	-	(2,928)	-	(2,928)	-	-
Unobligated balance, EOY	-	2,928	-	2,928	-	2,928	-	2,928	-	-
Unobligated balance, expiring	-	283	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	-	<b>3,939</b>	-	<b>27,624</b>	-	-	-	-	-	-
<b>Financing from Transfers and Other:</b>										
Less: Permanent Indefinite Authority (Mandatory)	-	(4,656)	-	(27,389)	-	-	-	-	-	-
Transfer from ORF	-	-	-	(235)	-	-	-	-	-	-
Transfer from Pacific Salmon	-	-	-	-	-	-	-	-	-	-
<b>Net Appropriation</b>	-	<b>(717)</b>	-	-	-	-	-	-	-	-

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## **Appropriation: Fisheries Financing Program**

### **GOAL STATEMENT:**

Utilize cost-effective financing mechanisms to promote market-based approaches to sustainable fisheries management.

### **BASE DESCRIPTION:**

The Fisheries Finance Program (FFP) is a national loan program that makes long term fixed rate financing available to U.S. citizens who otherwise qualify for financing or refinancing the construction, reconstruction, reconditioning, and in some cases, the purchasing of fishing vessels, shoreside processing, aquaculture, and mariculture facilities. The purpose of these loans is to provide stability to at least one aspect of an otherwise volatile industry. The FFP also provides fishery wide financing to ease the transition to sustainable fisheries through its fishing capacity reduction programs and provides financial assistance in the form of loans to fishermen who fish from small vessels and entry level fishermen to promote stability and reduce consolidation in already rationalized fisheries. Additionally, FFP can provide loans for Native American Community Development Quota groups fisheries investments.

The FFP operates under the authority of Title XI of the Merchant Marine Act of 1936, as amended as well as 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 by the practical considerations of a program that has been self sustaining throughout its credit history. The over riding guideline for all FFP financings is that they cannot contribute or be construed to contribute to the increase of existing fishing capacity. FFP rules prohibit financing the construction of new vessel and vessel refurbishing that materially increase an existing vessel's harvesting 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. These proposed loan authorities do not require FCRA subsidy appropriations.

### **PROPOSED LEGISLATION:**

*Subject to section 502 of the Congressional Budget Act of 1974, during fiscal year 2009, gross obligations for the principal amount of direct loans not to exceed \$8,000,000 for Individual Fishing Quota Loans: Provided, That none of the funds made available under this heading may be used for direct loans for any fishing vessel that will increase the harvesting capacity in any United States Fishery.*

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Fisheries Finance Program Account	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
NMFS	4,656	27,624	-	-	
Fisheries Financing Program	4,656	27,624	-	-	-
<b>TOTAL</b>	4,656	27,624	-	-	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

NOAA proposes no funds for the Fisheries Finance Program (FFP) account. The FY 2009 budget proposal includes one loan cohort that has an estimated negative subsidy rate.

**Statement of Need**

The proposed loan program is for \$8,000,000 in for Individual Fishing Quota (IFQ) Loans. The Sustainable Fisheries Act (SFA), Public Law 104-297, Section 108, October 11, 1996, authorized the North Pacific Loan Program under the FFP to finance and refinance IFQ in the Northwest Halibut and Sablefish Fisheries. The Fisheries of the Exclusive Economic Zone Off Alaska; Allocating Bering Sea and Aleutian Islands King and Tanner Crab Fishery Resources; Final Rule, 15 CFR Part 90 and CFR 679 and 6805 authorized financing and refinancing of the purchase cost of IFQ in Bering Sea and Aleutian Islands crab fisheries, under the provision of the SFA, Section 108. Financing under this program is available to entry level fishermen and fishermen who fish from small vessels. The loan program is part of the limited entry fisheries management program that stabilized these fisheries.

**Benefits**

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.

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Fisheries Finance Program Account  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
(Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	-	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total personnel compensation	-	-	-	-	-
11.9 Total Personnel Compensation	-	-	-	-	-
12.1 Civilian personnel benefits	-	-	-	-	-
13.1 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	-	-	-	-	-
25.2 Other services	-	-	-	-	-
26.1 Supplies and materials	-	-	-	-	-
31.1 Equipment	-	-	-	-	-
32.1 Lands and structures	-	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41.1 Grants, subsidies and contributions	4,656	27,624	-	-	-
42.1 Insurance claims and indemnities	-	-	-	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	4,656	27,624	-	-	-
Less Prior year recoveries	-	-	-	-	-
Less Unobligated Balance, Start of Year	(3,928)	(2,928)	(2,928)	(2,928)	-
Plus Unobligated Balance, End Of Year	2,928	2,928	2,928	2,928	-
Expired unobligated balances	283	-	-	-	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Fisheries Finance Program Account  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
 (Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Mandatory Appropriation	(4,656)	-	-	-	-
Total Budget Authority	(717)	-	-	-	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Fisheries Finance Program Account  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
 (Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
Full-Time equivalent Employment:					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-
<b>Authorized Positions:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Promote and Develop Fisheries Products  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Promote and Develop Fisheries Products</b>	FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
	Actuals		Currently Available		Base Program		Estimate		from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<b>Ecosystems</b>										
Ecosystems	4	3,816	4	7,594	4	5,594	4	5,594	-	-
Total ECO	4	3,816	4	7,594	4	5,594	4	5,594	-	-
Total Promote and Develop Fisheries Products	4	3,816	4	7,594	4	5,594	4	5,594	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Promote and Develop Fisheries Products  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Mandatory Authority	4	4	7,594	8,260
less: Obligations from prior year balances	-	-	-	(666)
plus: 2009 Adjustments to base	-	-	(2,000)	(2,000)
FY 2009 Base	4	4	5,594	5,594
FY 2009 Estimate	4	4	5,594	5,594

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Promote and Develop Fisheries Products	Pos/BA	4	3,816	4	7,594	4	5,594	4	5,594	-	-
	FTE/OBL	4	3,665	4	8,260	4	5,594	4	5,594	-	-
Total: Promote and Develop Fisheries Products	Pos/BA	4	3,816	4	7,594	4	5,594	4	5,594	-	-
	FTE/OBL	4	3,665	4	8,260	4	5,594	4	5,594	-	-

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Promote and Develop Fisheries Products

**SUMMARY OF FINANCING**

(Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	4	3,665	4	8,260	4	5,594	4	5,594	-	-
<b>Total Obligations</b>	<b>4</b>	<b>3,665</b>	<b>4</b>	<b>8,260</b>	<b>4</b>	<b>5,594</b>	<b>4</b>	<b>5,594</b>	<b>-</b>	<b>-</b>
<b>Adjustments to Obligations:</b>										
Unobligated balance, adj. SOY Recoveries	-	(187)	-	(666)	-	-	-	-	-	-
Unobligated balance, adj. EOY		666								
<b>Total Budget Authority</b>	<b>4</b>	<b>3,817</b>	<b>4</b>	<b>7,594</b>	<b>4</b>	<b>5,594</b>	<b>4</b>	<b>5,594</b>	<b>-</b>	<b>-</b>
<b>Financing from Transfers and Other:</b>										
Transfer from Other Accounts	-	(82,817)	-	(84,594)	-	(84,594)	-	(84,594)	-	-
Transfer to ORF	-	79,000	-	77,000	-	79,000	-	79,000	-	-
<b>Net Appropriation</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>-</b>

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**Appropriation: Promote and Develop Fisheries Products**

**GOAL STATEMENT:**

To promote and develop fishery-based industries in the United States.

**BASE DESCRIPTION:**

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 in 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 fisheries socioeconomics, and conservation engineering. The remainder of the S-K funds transferred are used to offset the appropriation requirements of the Operations, Research and Facilities (ORF) account.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Promote and Develop Fisheries Products	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Promote and Develop Fisheries Products	3,816	7,594	5,594	5,594	-
<b>TOTAL</b>	3,816	7,594	5,594	5,594	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

**Promote and Develop** - The FY 2009 President's Request proposes to transfer an additional \$2,000,000 to the ORF account. NOAA estimates that there will be \$5,594,000 remaining to support the Saltonstall-Kennedy Grants Program.

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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)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	-	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total Personnel Compensation	-	-	-	-	-
12.1 Civilian personnel benefits	-	-	-	-	-
13.1 Benefits for former personnel	-	-	-	-	-
21 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	-	-	-	-	-
25.1 Advisory and assistance services	-	-	-	-	-
25.2 Other services	-	-	-	-	-
26 Supplies and materials	-	-	-	-	-
31 Equipment	-	-	-	-	-
32.1 Lands and structures	-	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41 Grants, subsidies and contributions	3,665	8,260	5,594	5,594	-
42.1 Insurance claims and indemnities	-	-	-	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	3,665	8,260	5,594	5,594	-
Less Prior year recoveries	(327)	-	-	-	-
Less Unobligated Balance, Start of Year	(187)	(666)	-	-	-
Plus Unobligated Balance, End Of Year	666	-	-	-	-
Offsetting collections (Mandatory)	-	-	-	-	-

**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 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Total Budget Authority	3,817	7,594	5,594	5,594	-

**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 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Personnel Data					
Full-Time equivalent Employment:					
Full-time permanent	4	4	4	4	-
Other than full-time permanent	-	-	-	-	-
Total	4	4	4	4	-
Authorized Positions:					
Full-time permanent	4	4	4	4	-
Other than full-time permanent	-	-	-	-	-
Total	4	4	4	4	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Damage Assessment and Restoration Revolving Fund  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Damage Assessment and Restoration Revolving Fund</b>	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Current Estimate	Inc/Dec from Base
	Amount	Amount	Amount	Amount	Amount
<b>Ecosystem</b>					
Ecosystem	3,788	1,000	1,000	1,000	
Total Ecosystem	3,788	1,000	1,000	1,000	
Damage Assessment and Restoration Revolving Fund	3,788	1,000	1,000	1,000	

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 President's Request	16	16	1,000	36,586
less: Other Financing	-	-	-	-
less: Unobligated balance transferred, Dept. of Interior	-	-	-	-
less: Obligations from prior year balances	-	-	-	(24,986)
FY 2009 Base	16	16	1,000	11,600
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	16	16	1,000	11,600

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/	
		Actuals		Currently Available		Base Program		Estimate		Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Damage Assessment and Restoration Revolving Fund	Pos/BA	16	3,788	16	1,000	16	1,000	16	1,000	-	-
	FTE/OBL	12	20,969	16	36,586	16	11,600	16	11,600	-	-
Total: Damage Assessment and Restoration Revolving Fund	Pos/BA	16	3,788	16	1,000	16	1,000	16	1,000	-	-
	FTE/OBL	12	20,969	16	36,586	16	11,600	16	11,600	-	-

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

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	12	20,969	16	36,586	16	11,600	16	11,600	-	-
<b>Total Obligations</b>	<b>12</b>	<b>20,969</b>	<b>16</b>	<b>36,586</b>	<b>16</b>	<b>11,600</b>	<b>16</b>	<b>11,600</b>	<b>-</b>	<b>-</b>
<b>Adjustments to Obligations:</b>										
Federal funds	-	-	-	-	-	-	-	-	-	-
New offsetting collections	-	(7,132)	-	(7,600)	-	(7,600)	-	(7,600)	-	-
Recoveries	-	(64)	-	-	-	-	-	-	-	-
Unobligated balance, adj. SOY	-	(20,732)	-	(24,986)	-	-	-	-	-	-
Unobligated balance, transferred (From DOI)	-	(14,239)	-	(3,000)	-	(3,000)	-	(3,000)	-	-
Unobligated balance, EOY	-	24,986	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	<b>12</b>	<b>3,788</b>	<b>16</b>	<b>1,000</b>	<b>16</b>	<b>1,000</b>	<b>16</b>	<b>1,000</b>	<b>-</b>	<b>-</b>
<b>Financing from Transfers and Other:</b>										
Transfer to/from Dept of Interior	-	(3,788)	-	(1,000)	-	(1,000)	-	(1,000)	-	-
<b>Net Appropriation</b>	<b>12</b>	<b>-</b>	<b>16</b>	<b>1,000</b>	<b>16</b>	<b>1,000</b>	<b>16</b>	<b>1,000</b>	<b>-</b>	<b>-</b>

## **Appropriation: Damage Assessment and Restoration Revolving Fund**

### **GOAL STATEMENT:**

Facilitate the spill response, damage assessment, and natural resource restoration activities of the National Oceanic and Atmospheric Administration.

### **BASE DESCRIPTION:**

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

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

The NOAA Damage Assessment and Restoration Revolving Fund facilitates and sustains: (1) natural resource damage assessment while the Departments of Commerce and Justice seek full reimbursement from potentially responsible parties; and (2) restoration, replacement or acquisition of the equivalent of injured or lost natural resources, including resources of National Marine Sanctuaries and National Estuarine Research Reserves, tidal wetlands and other habitats, for which NOAA is trustee. These program functions are conducted jointly within NOAA by the Office of General Counsel, the National Ocean Service, and the National Marine Fisheries Service.

### **PROPOSED LEGISLATION:**

No legislation is proposed.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Damage Assessment and Restoration Revolving Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Damage Assessment and Restoration Revolving Fund	3,788	1,000	1,000	1,000	
<b>TOTAL</b>	3,788	1,000	1,000	1,000	-
<b>FTE</b>	12	16	16	16	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

No changes are requested for FY 2009.

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	1,297	1,297	1,335	1,335	-
11.3 Other than full-time permanent	17	17	18	18	-
11.5 Other personnel compensation	3	3	3	3	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total personnel compensation	-	-	-	-	-
11.9 Total Personnel Compensation	1,317	1,317	1,356	1,356	-
12.1 Civilian personnel benefits	442	442	455	455	-
13.1 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	257	257	257	257	-
22.1 Transportation of things	75	75	75	75	-
23.1 Rental payments to GSA	11	11	11	11	-
23.2 Rental payments to others	14	14	14	14	-
23.3 Communications, utilities and miscellaneous charges	84	84	84	84	-
24 Printing and reproduction	9	9	9	9	-
25.1 Advisory and assistance services	202	202	202	202	-
25.2 Other services	3,621	12,313	3,569	3,569	-
25.3 Other purchases of goods and services from Govt accounts	2,167	2,167	2,167	2,167	-
26.1 Supplies and materials	114	114	114	114	-
31.1 Equipment	8	8	8	8	-
32.1 Lands and structures	119	119	119	119	-
33.1 Investments and loans	-	-	-	-	-
41.1 Grants, subsidies and contributions	-	-	-	-	-
42.1 Insurance claims and indemnities	12,529	19,454	3,160	3,160	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	20,969	36,586	11,600	11,600	-

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Less collections	(7,132)	(7,600)	(7,600)	(7,600)	-
Less Prior year recoveries	(64)	-	-	-	-
Less Unobligated Balance, Start of Year	(20,732)	(24,986)	-	-	-
Plus Unobligated Balance, End Of Year	24,986	-	-	-	-
Plus Unobligated Balance Transfer	(14,239)	(3,000)	(3,000)	(3,000)	-
Total Budget Authority	3,788	1,000	1,000	1,000	-
Non-Federal Sources	-	-	-	-	-
Transfers:	-	-	-	-	-
From DOI	(3,788)	(1,000)	(1,000)	(1,000)	-
Discretionary Budget Authority	-	-	-	-	-

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
Full-Time equivalent Employment:					
Full-time permanent	12	16	16	16	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	<b>12</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>-</b>
<b>Authorized Positions:</b>					
Full-time permanent	16	16	16	16	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>-</b>

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

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	(1,500)	-
plus: 2009 Other Adjustments to Base	-	-	-	-
FY 2009 Base	-	-	(1,500)	-
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	-	-	(1,500)	-

Comparison by activity/subactivity	FY 2007		FY 2008		FY 2009		FY 2009		Increase/	
	Actuals		Currently Available		Base Program		Estimate		Decrease	
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Total	Pos/BA	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	-	-	-	-	-	-	-	-

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

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<b>Adjustments to Obligations:</b>										
New offsetting collections	-	(1,659)	-	(1,500)	-	(1,500)	-	(1,500)	-	-
Unobligated balance, adj. SOY	-	-	-	-	-	-	-	-	-	-
Unobligated balance, EOY	-	-	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	<b>-</b>	<b>(1,659)</b>	<b>-</b>	<b>(1,500)</b>	<b>-</b>	<b>(1,500)</b>	<b>-</b>	<b>(1,500)</b>	<b>-</b>	<b>-</b>
<b>Financing from Transfers and Other:</b>										
Previously unavailable unobligated balances	-	(1,341)	-	(1,500)	-	(1,500)	-	(1,500)	-	-
Transfer to ORF	-	3,000	-	3,000	-	3,000	-	3,000	-	-
<b>Net Appropriation</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

## **Appropriation: Coastal Zone Management Fund**

### **GOAL STATEMENT:**

The Coastal Zone Management Fund (CZMF) was created by the 1990 amendments to the Coastal Zone Management Act (CZMA). The purposes for which the funds can be used are set forth in Sec. 308 of that Act. In summary, Sec. 308 authorizes the use of the loan repayments from the former Coastal Energy Impact Program (CEIP) for the administrative costs of the Coastal Zone Management Program and if any funds remain, for other purposes as set forth below.

### **BASE DESCRIPTION:**

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

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

As a part of the FY 2009 appropriations process, NOAA proposes to transfer funding from the CZMF for obligation in the ORF account.

### **PROPOSED LEGISLATION:**

NOAA will continue to work with Congress to reauthorize the Coastal Zone Management Act.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Coastal Zone Management Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
TOTAL	-	-	-	-	-
FTE	-	-	-	-	-

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**PROGRAM CHANGES FOR FY 2009:**

No changes are requested for FY 2009.

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	-	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total personnel compensation	-	-	-	-	-
11.9 Total Personnel Compensation	-	-	-	-	-
12.1 Civilian personnel benefits	-	-	-	-	-
13.1 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	-	-	-	-	-
25.2 Other services	-	-	-	-	-
26.1 Supplies and materials	-	-	-	-	-
31.1 Equipment	-	-	-	-	-
32.1 Lands and structures	-	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41.1 Grants, subsidies and contributions	-	-	-	-	-
42.1 Insurance claims and indemnities	-	-	-	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	-	-	-	-	-
Less Prior year recoveries	-	-	-	-	-
Less Unobligated Balance, Start of Year	-	-	-	-	-
Plus Unobligated Balance, End Of Year	-	-	-	-	-
Offsetting collections (Mandatory)	(1,659)	(1,500)	(1,500)	(1,500)	-

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Less: Previously Unavail. Unoblig. Bal.	(1,341)	(1,500)	(1,500)	(1,500)	-
Total Budget Authority	(3,000)	(3,000)	(3,000)	(3,000)	-

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
Full-Time equivalent Employment:					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-
<b>Authorized Positions:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-

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**DEPARTMENT OF COMMERCE**  
**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**  
Coastal Zone Management Fund  
**APPROPRIATION SUMMARY STATEMENT**

Of amounts collected pursuant to section 308 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1456a), not to exceed \$3,000,000 shall be transferred to the “Operations, Research, and Facilities” account to offset the costs of implementing such Act.

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Federal Ship Financing Fund  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	(1,000)	1,000
plus: 2009 Adjustments to base	-	-	-	-
FY 2009 Base	-	-	(1,000)	1,000
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	-	-	(1,000)	1,000

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Federal Ship Financing Fund	Pos/BA	-	(200)	-	(1,000)	-	(1,000)	-	(1,000)	-	-
	FTE/OBL	-	200	-	1,000	-	1,000	-	1,000	-	-
Total: Federal Ship Financing Fund	Pos/BA	-	(200)	-	(1,000)	-	(1,000)	-	(1,000)	-	-
	FTE/OBL	-	200	-	1,000	-	1,000	-	1,000	-	-

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

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	-	200	-	1,000	-	1,000	-	1,000	-	-
Offsetting collections, mandatory	-	(200)	-	-	-	-	-	-	-	-
<b>Total Obligations</b>	-	-	-	<b>1,000</b>	-	<b>1,000</b>	-	<b>1,000</b>	-	-
<b>Adjustments to Obligations:</b>										
Offsetting Collections	-	(200)	-	(2,000)	-	(2,000)	-	(2,000)	-	-
<b>Total Budget Authority</b>	-	<b>(200)</b>	-	<b>(1,000)</b>	-	<b>(1,000)</b>	-	<b>(1,000)</b>	-	-

### **Appropriation: Federal Ship Financing Fund**

#### **GOAL STATEMENT:**

To provide for a liquidating account necessary for the collection of premiums and fees under the Fishing Vessel Obligations Guarantee program for loan commitments made prior to October 1, 1991. These collections are for operations of this program, loans, and for use in case of default.

#### **BASE DESCRIPTION:**

The Federal Ship Financing Fund manages the loan guarantee portfolio that existed prior to FY 1992. Administrative expenses for management of the loan guarantee portfolio were charged to the Federal Ship Financing Fund prior to the enactment of the Federal Credit Reform Act of 1990. Currently administrative expenses are charged to the Operations, Research, and Facilities (ORF) account.

#### **PROPOSED LEGISLATION:**

No legislation is proposed.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Federal Ship Financing Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Federal Ship Financing Fund	(200)	(1,000)	(1,000)	(1,000)	-
<b>TOTAL</b>	(200)	(1,000)	(1,000)	(1,000)	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

No changes are requested for this activity.

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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)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	-	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total Personnel Compensation	-	-	-	-	-
12.1 Civilian personnel benefits	-	-	-	-	-
13 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	-	-	-	-	-
26.1 Supplies and materials	-	-	-	-	-
31.1 Equipment	-	-	-	-	-
33 Investments and loans	200	1,000	1,000	1,000	-
41.1 Grants, subsidies and contributions	-	-	-	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	200	1,000	1,000	1,000	-

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
Full-Time equivalent Employment:					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-
<b>Authorized Positions:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Environmental Improvement and Restoration Fund  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Environmental Improvement and Restoration Fund</b>	FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
	Actuals		Currently Available		Base Program		Estimate		from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<b>Ecosystems</b>										
Ecosystems	-	8,650	-	8,060	-	8,656	-	8,656	-	-
Total ECO	-	8,650	-	8,060	-	8,656	-	8,656	-	-
Total Environmental Improvement and Restoration Fund	-	8,650	-	8,060	-	8,656	-	8,656	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Environmental Improvement and Restoration Fund  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	8,060	16,710
less: obligations from prior year balances			-	(8,650)
plus: 2009 Adjustments to Base	-	-	596	596
FY 2009 Base	-	-	8,656	8,656
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	-	-	8,656	8,656

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Environmental Improvement & Restoration Fund	Pos/BA	-	8,650	-	8,060	-	8,656	-	8,656	-	-
	FTE/OBL	-	7,840	-	16,710	-	8,656	-	8,656	-	-
Total: Environmental Improvement and Restoration Fund	Pos/BA	-	8,650	-	8,060	-	8,656	-	8,656	-	-
	FTE/OBL	-	7,840	-	16,710	-	8,656	-	8,656	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Environmental Improvement and Restoration Fund  
**SUMMARY OF FINANCING**  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	-	7,840	-	16,710	-	8,656	-	8,656	-	-
<b>Total Obligations</b>	-	<b>7,840</b>	-	<b>16,710</b>	-	<b>8,656</b>	-	<b>8,656</b>	-	-
<b>Adjustments to Obligations:</b>										
Unobligated balance, adj. SOY	-	(7,840)	-	(8,650)	-	-	-	-	-	-
Unobligated balance, EOY	-	8,650	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	-	<b>8,650</b>	-	<b>8,060</b>	-	<b>8,656</b>	-	<b>8,656</b>	-	-
<b>Financing from Transfers and Other:</b>										
Net Appropriation	-	8,650	-	8,060	-	8,656	-	8,656	-	-

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**Appropriation: Environmental Improvement & Restoration Fund**

**GOAL STATEMENT:**

The Environmental Improvement & Restoration Fund (EIRF) was created by the Department of Interior and Related Agencies Appropriations Act of 1998 for the purpose of carrying out marine research activities in the North Pacific. These funds will provide grants to Federal, State, private or foreign organizations or individuals to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean.

**BASE DESCRIPTION:**

The EIRF provides funds for the purpose of carrying out marine research activities in the North Pacific. These funds will provide grants to Federal, State, private or foreign organizations or individuals to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean.

**PROPOSED LEGISLATION:**

None

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Environmental Improvement and Restoration Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Environmental Improvement & Restoration Fund	8,650	8,060	8,656	8,656	-
<b>TOTAL</b>	8,650	8,060	8,656	8,656	-
FTE	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

No changes are requested.

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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)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	-	-	-	-	-
11.3 Other than full-time permanent	-	-	-	-	-
11.5 Other personnel compensation	-	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total personnel compensation	-	-	-	-	-
11.9 Total Personnel Compensation	-	-	-	-	-
12.1 Civilian personnel benefits	-	-	-	-	-
13.1 Benefits for former personnel	-	-	-	-	-
21.1 Travel and transportation of persons	-	-	-	-	-
22.1 Transportation of things	-	-	-	-	-
23.1 Rental payments to GSA	-	-	-	-	-
23.2 Rental payments to others	-	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	-	-	-	-	-
25.2 Other services	-	-	-	-	-
26.1 Supplies and materials	-	-	-	-	-
31.1 Equipment	-	-	-	-	-
32.1 Lands and structures	-	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41 Grants, subsidies and contributions	7,840	16,710	8,656	8,656	-
42.1 Insurance claims and indemnities	-	-	-	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	7,840	16,710	8,656	8,656	-
Less Prior year recoveries	-	-	-	-	-
Less Unobligated Balance, Start of Year	(7,840)	(8,650)	-	-	-
Plus Unobligated Balance, End Of Year	8,650	-	-	-	-
Total Budget Authority	8,650	8,060	8,656	8,656	-

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

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
Full-Time equivalent Employment:					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-
<b>Authorized Positions:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Limited Access System Administration Fund  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Limited Access System Administration Fund</b>	FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Inc/Dec from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<b>Ecosystems</b>										
Ecosystems	-	6,911	-	7,444	-	7,444	-	7,444	-	-
Total ECO	-	6,911	-	7,444	-	7,444	-	7,444	-	-
<b>Total Limited Access System Administration Fund</b>	-	6,911	-	7,444	-	7,444	-	7,444	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Limited Access System Administration Fund  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	7,444	18,334
less: 2009 Obligations from prior year balances	-	-	-	(10,890)
FY 2009 Base	-	-	7,444	7,444
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	-	-	7,444	7,444

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Limited Access System Administration Fund	Pos/BA	40	6,911	-	7,444	-	7,444	-	7,444	-	-
	FTE/OBL	40	5,316	-	18,334	-	7,444	-	7,444	-	-
Total: Limited Access System Administration Fund	Pos/BA	40	6,911	-	7,444	-	7,444	-	7,444	-	-
	FTE/OBL	40	5,316	-	18,334	-	7,444	-	7,444	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Limited Access System Administration Fund  
**SUMMARY OF FINANCING**  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	-	5,316	-	18,334	-	7,444	-	7,444	-	-
<b>Total Obligations</b>	-	<b>5,316</b>	-	<b>18,334</b>	-	<b>7,444</b>	-	<b>7,444</b>	-	-
<b>Adjustments to Obligations:</b>										
Unobligated balance, adj. SOY	-	(9,295)	-	(10,890)	-	-	-	-	-	-
Unobligated balance, EOY	-	10,890	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	-	<b>6,911</b>	-	<b>7,444</b>	-	<b>7,444</b>	-	<b>7,444</b>	-	-
<b>Financing from Transfers and Other:</b>										
Net Appropriation	-	<b>6,911</b>	-	<b>7,444</b>	-	<b>7,444</b>	-	<b>7,444</b>	-	-

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## **Appropriation: Limited Access System Administration**

### **GOAL STATEMENT:**

To provide for a Limited Access Fund necessary for fee collections equaling no more than three percent of the proceeds from the sale or transfer of limited access system permits are deposited into the Fund. These deposits to the Fund are used to administer an exclusive central registry system for the limited access system permits.

### **BASE DESCRIPTION:**

Under the authority of the Magnuson-Stevens Act Section 304(d)(2)(A), NMFS must collect a fee to recover the costs of managing and enforcing the Individual Fishing Quota Halibut/Sablefish program. Funds collected under this authority are deposited into the “Limited Access System Administrative Fund.” Of the funds collected, seventy-five percent of fee payments are to be made available to the Secretary to offset costs of management and enforcement of the halibut and sablefish IFQ program and 25 percent of fees collected are to be made available for appropriation to support the North Pacific IFQ loan program.

Section 304(d)(2)(B) specifies an upper limit on the fees, when the fees must be collected, where the fees must be deposited, and for what purposes they may be used. Under the regulations, an IFQ permit holder incurs a cost recovery fee liability for each pound of fish landed on his/her permit(s). The permit holder is responsible for collecting the fee and for submitting a payment to NMFS by the 31st of January of the year following the year in which landings were made. Three percent of total ex-vessel value of IFQ halibut and sablefish harvested is the maximum annual fee amount authorized by section 304(d)(2)(B) of MSA. NOAA Fisheries may reduce the annual IFQ fee percentage if costs can be recovered using a lower percentage. The annual default percentage is three percent. If other than three percent, NOAA Fisheries publishes notification of adjustment of the annual IFQ fee percentage in the Federal Register.

### **PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Limited Access System Administration Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Limited Access System Administration Fund	6,911	7,444	7,444	7,444	-
<b>TOTAL</b>	6,911	7,444	7,444	7,444	-
<b>FTE</b>	40	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

No program changes are requested for this activity.

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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)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
11 Personnel compensation					
11.1 Full-time permanent	2,109	-	-	-	-
11.3 Other than full-time permanent	22	-	-	-	-
11.5 Other personnel compensation	243	-	-	-	-
11.8 Special personnel services payments	-	-	-	-	-
11.9 Total Personnel Compensation	2,374	-	-	-	-
12.1 Civilian personnel benefits	1,041	-	-	-	-
13 Benefits for former personnel	-	-	-	-	-
21 Travel and transportation of persons	148	-	-	-	-
22.1 Transportation of things	1	-	-	-	-
23.1 Rental payments to GSA	94	-	-	-	-
23.2 Rental payments to others	11	-	-	-	-
23.3 Communications, utilities and miscellaneous charges	16	-	-	-	-
24 Printing and reproduction	10	-	-	-	-
25.2 Other services	159	-	-	-	-
25.3 Other purchases of goods and services from Govt accounts	377	-	-	-	-
26 Supplies and materials	47	-	-	-	-
31.1 Equipment	25	-	-	-	-
33.1 Investments and loans	-	-	-	-	-
41.1 Grants, subsidies and contributions	1,011	18,334	7,444	7,444	-
42.1 Insurance claims and indemnities	2	-	-	-	-
43.1 Interest and dividends	-	-	-	-	-
44.1 Refunds	-	-	-	-	-
99 Total Obligations	5,316	18,334	7,444	7,444	-
Less Prior year recoveries	-	-	-	-	-
Less Unobligated Balance, Start of Year	(9,295)	(10,890)	-	-	-
Plus Unobligated Balance, End Of Year	10,890	-	-	-	-

**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Limited Access System Administration Fund  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
 (Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
Total Budget Authority	6,911	7,444	7,444	7,444	-

**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Limited Access System Administration Fund  
**SUMMARY OF REQUIREMENTS BY OBJECT CLASS**  
(Dollar amounts in thousands)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
<b>Personnel Data</b>					
Full-Time equivalent Employment:					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-
<b>Authorized Positions:</b>					
Full-time permanent	-	-	-	-	-
Other than full-time permanent	-	-	-	-	-
<b>Total</b>	-	-	-	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Marine Mammal Unusual Mortality Event Fund  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
 (Dollar amounts in thousands)

<b>Marine Mammal Unusual Mortality Event Fund</b>	FY 2007		FY 2008		FY 2009		FY 2009		Inc/Dec	
	Actuals		Currently Available		Base Program		Estimate		from Base	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
<b>Ecosystems</b>										
Ecosystems	-	-	-	-	-	-	-	-	-	-
Total ECO	-	-	-	-	-	-	-	-	-	-
<b>Total Marine Mammal Unusual Mortality Event Fund</b>	-	-	-	-	-	-	-	-	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Marine Mammal Unusual Mortality Event Fund  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	-	735
plus: 2009 Other Adjustments to Base	-	-	-	-
FY 2009 Base	-	-	-	-
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	-	-	-	-

Comparison by activity/subactivity	FY 2007 Actuals		FY 2008 Currently Available		FY 2009 Base Program		FY 2009 Estimate		Increase/ Decrease		
	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	
	FTE/OBL	-	65	-	735	-	-	-	-	-	-
Total: Marine Mammal Unusual Mortality Event Fund	Pos/BA	-	-	-	-	-	-	-	-	-	-
	FTE/OBL	-	65	-	735	-	-	-	-	-	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Marine Mammal Unusual Mortality Event Fund  
**SUMMARY OF FINANCING**  
 (Dollar amounts in thousands)

	FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	-	65	-	735	-	-	-	-	-	-
<b>Total Obligations</b>	-	<b>65</b>	-	<b>735</b>	-	-	-	-	-	-
<b>Adjustments to Obligations:</b>										
Unobligated balance, adj. SOY	-	(800)	-	(735)	-	-	-	-	-	-
Unobligated balance, EOY	-	735	-	-	-	-	-	-	-	-
<b>Total Budget Authority</b>	-	-	-	-	-	-	-	-	-	-
<b>Financing from Transfers and Other:</b>										
Net Appropriation	-	-	-	-	-	-	-	-	-	-

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## **Appropriation: Marine Mammal Unusual Mortality Event Fund**

### **GOAL STATEMENT:**

Provide funds to support investigations and responses to unusual marine mammal mortality events.

### **BASE DESCRIPTION:**

An unusual mortality event (UME) is defined under the Marine Mammal Protection Act as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." In recent years, increased efforts to examine carcasses and live stranded animals have improved the knowledge of mortality rates and causes, allowing a better understanding of population threats and stressors and the ability to determine when a situation is "unusual." Understanding and investigating marine mammal UMEs is important because they can serve as indicators of ocean health, giving insight into larger environmental issues which may also have implications for human health and welfare.

The Marine Mammal Protection Act Section 405 (16 USC 1421d) establishes the Marine Mammal Unusual Mortality Event Fund and describes its purposes and how donations can be made to the Fund. The fund: "shall be available only for use by the Secretary of Commerce, in consultation with the Secretary of the Interior –

- to compensate persons for special costs incurred in acting in accordance with the contingency plan issued under section 1421c(b) of this title or under the direction of an Onsite Coordinator for an unusual mortality event;
- for reimbursing any stranding network participant for costs incurred in preparing and transporting tissues collected with respect to an unusual mortality event for the Tissue Bank; and
- for care and maintenance of marine mammal seized under section 1374(c)(2)(D) of this title"

According to the MMPA, deposits can be made into Fund by the following:

1. "amounts appropriated to the Fund;
2. other amounts appropriated to the Secretary for use with respect to unusual mortality events; and
3. amounts received by the United States in the form of gifts, devises, and bequests under subsection (d) of this section."

### **PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Marine Mammal Unusual Mortality Event Fund	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
<b>TOTAL</b>	-	-	-	-	-
<b>FTE</b>	-	-	-	-	-

Note: The dollars in this table represent budget authority.

**PROGRAM CHANGES FOR FY 2009:**

No program changes are requested for this activity.

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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)

Object Class		FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
25.2	Other services	65	735	-	-	-
99	Total Obligations	65	735	-	-	-
	Less Unobligated Balance, Start of Year	(800)	(735)	-	-	-
	Plus Unobligated Balance, End Of Year	735	-	-	-	-
	Total Budget Authority	-	-	-	-	-

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**Department of Commerce**  
National Oceanic and Atmospheric Administration  
Medicare Eligible Retiree Health Fund Contribution - NOAA Corps  
**Contribution to the NOAA Strategic Planning Goals and Objectives**  
(Dollar amounts in thousands)

<b>Medicare Eligible Retiree Health Fund Contribution - NOAA Corps</b>	FY 2007 Actuals  Amount	FY 2008 Currently Available  Amount	FY 2009 Base Program  Amount	FY 2009 Estimate  Amount	Inc/Dec from Base  Amount
<b>Mission Support</b>					
Mission Support	1,820	1,802	1,934	1,934	-
Total MS	1,820	1,802	1,934	1,934	-
Total Medicare Eligible Retiree Health Fund Contribution - NOAA Corps	1,820	1,802	1,934	1,934	-

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**Department of Commerce**  
 National Oceanic and Atmospheric Administration  
 Medicare Eligible Retiree Health Fund Contribution - NOAA Corps  
**PROGRAM AND PERFORMANCE: DIRECT OBLIGATIONS**  
 (Dollar amounts in thousands)

	Positions	FTE	Budget Authority	Direct Obligations
FY 2008 Estimate	-	-	1,802	1,802
plus: 2009 Other Adjustments to Base	-	-	132	132
FY 2009 Base	-	-	1,934	1,934
plus: 2009 Program Changes	-	-	-	-
FY 2009 Estimate	-	-	1,934	1,934

Comparison by activity/subactivity		FY 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
		Actuals		Currently Available		Base Program		Estimate		Personnel Amount	
		Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount	Personnel	Amount
Medicare Eligible Retiree Health	Pos/BA	-	1,820	-	1,802	-	1,934	-	1,934	-	-
Fund Contribution - NOAA	FTE/OBL	-	1,820	-	1,802	-	1,934	-	1,934	-	-
Corps MS											
Total: Medicare Eligible Retiree	Pos/BA	-	1,820	-	1,802	-	1,934	-	1,934	-	-
Health Fund Contribution -	FTE/OBL	-	1,820	-	1,802	-	1,934	-	1,934	-	-
NOAA Corps											

**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 2007		FY 2008		FY 2009		FY 2009		Increase/ Decrease	
	Actuals		Currently Available		Base Program		Estimate			
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
Direct Discretionary Obligation	-	1,820	-	1,802	-	1,934	-	1,934	-	-
<b>Total Obligations</b>	<b>-</b>	<b>1,820</b>	<b>-</b>	<b>1,802</b>	<b>-</b>	<b>1,934</b>	<b>-</b>	<b>1,934</b>	<b>-</b>	<b>-</b>
<b>Adjustments to Obligations:</b>										
<b>Total Budget Authority</b>	<b>-</b>	<b>1,820</b>	<b>-</b>	<b>1,802</b>	<b>-</b>	<b>1,934</b>	<b>-</b>	<b>1,934</b>	<b>-</b>	<b>-</b>
<b>Financing from Transfers and Other:</b>										
<b>Net Appropriation</b>	<b>-</b>	<b>1,820</b>	<b>-</b>	<b>1,802</b>	<b>-</b>	<b>1,934</b>	<b>-</b>	<b>1,934</b>	<b>-</b>	<b>-</b>

**Appropriation: Medicare Eligible Retiree Health Fund Contribution - NOAA Corps**

**GOAL STATEMENT:**

The objective of this line item is to fund NOAA's contribution to a health care accrual fund for NOAA Commissioned Corps officers. The accrual fund pays for the future health care benefits for current officers once they retire and become Medicare-eligible, as well as for their dependents and annuitants. Programs in this sub-activity support the Mission Support goal in NOAA's Strategic Plan.

**BASE DESCRIPTION:**

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.

Based activities support both objectives under the Department of Commerce Strategic Goal of "Promote environmental stewardship."

**Significant Adjustments-to-Base (ATBs):**

NOAA requests an increase of \$114,000 for a total of \$1,934,226 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, and an increase in the rate charged per officer will be implemented by accrual fund managers in FY 2009.

**PROPOSED LEGISLATION:**

None.

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**SUMMARIZED FINANCIAL DATA**

(Dollars in thousands)

Medicare Eligible Retiree Health Fund Contribution - NOAA Corps	FY 2007 ACTUALS	FY 2008 CURRENTLY AVAILABLE	FY 2009 BASE PROGRAM	FY 2009 ESTIMATE	INCREASE / DECREASE
Medicare Eligible Retiree Health Fund Contribution - NOAA Corps MS	1,820	1,802	1,934	1,934	-
<b>TOTAL</b>	1,820	1,802	1,934	1,934	-
<b>FTE</b>	-	-	-	-	-

Note: The dollars in this table represent budget authority.

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**PROGRAM CHANGES FOR FY 2009:**

None.

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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)

Object Class	FY 2007 Actuals	FY 2008 Currently Available	FY 2009 Base Program	FY 2009 Estimate	Increase/(Decrease) over FY 2009 Base
25.3 Other purchases of goods and services from Govt accounts	1,820	1,802	1,934	1,934	-
99 Total Obligations	1,820	1,802	1,934	1,934	-
Less Unobligated Balance, Start of Year	-	-	-	-	-
Plus Unobligated Balance, End Of Year	-	-	-	-	-
Total Budget Authority	1,820	1,802	1,934	1,934	-

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