NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Budget Estimates, Fiscal Year 2007
Congressional Submission

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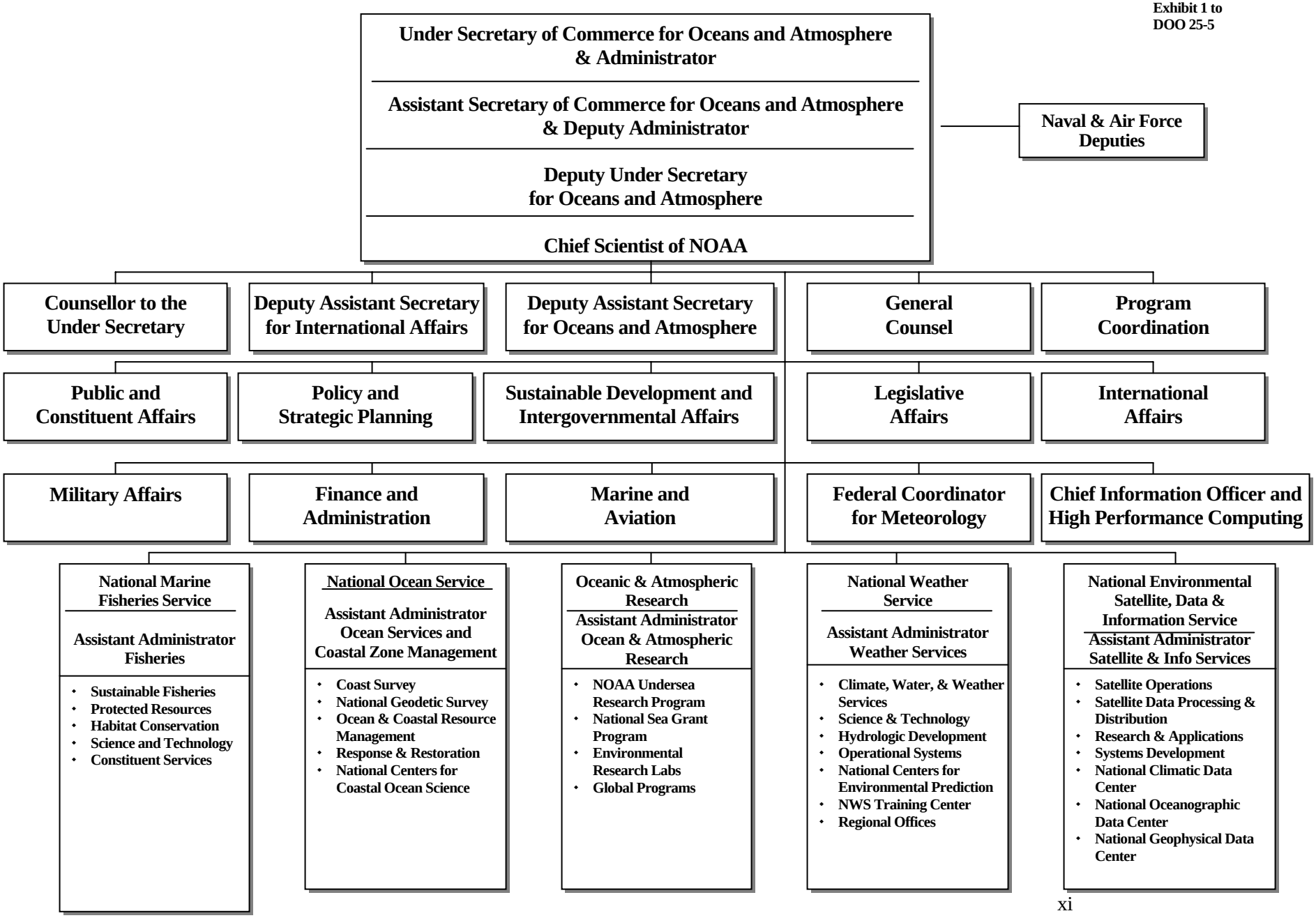

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Department of Commerce
National Oceanic and Atmospheric Administration
Operations Research and Facilities
Line Office Totals *
(Dollar amounts in thousands)

Line Office	FY 2005 Actuals		FY 2006 Currently Available		FY 2007 Base Program		FY 2007 Estimate		Increase/ Decrease	
	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount	FTE	Amount
National Ocean Service	1,152	542,034	1,219	493,151	1,221	358,182	1,227	394,455	6	36,273
National Marine Fisheries Service	2,594	676,515	2,552	667,226	2,552	567,924	2,587	648,988	35	81,064
Oceanic and Atmospheric Research	689	404,106	710	370,241	714	301,027	714	338,273	-	37,246
National Weather Service	4,621	710,989	4,597	746,844	4,597	746,001	4,606	783,446	9	37,445
National Environmental Satellite, Data, and Information Service	598	176,060	717	177,737	717	144,594	717	149,579	-	4,985
Program Planning and Integration	10	2,464	-	-	-	-	-	-	-	-
Program Support	1,945	382,764	1,986	376,783	1,987	347,536	1,996	383,424	9	35,888
Adjustments to Budget Authority	-	(9,730)	-	(11,629)	-	-	-	-	-	-
Total	11,608	2,885,202	11,781	2,820,353	11,788	2,465,264	11,847	2,698,165	59	232,901

The dollars in this table represent budget authority.

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Line Office	FY 2005 Actuals	FY 2006 Currently Available	FY 2007 Base Program	FY 2007 Estimate	Increase/ Decrease
National Ocean Service	-	-	-	-	-
Operations, Research and Facilities	542,034	493,151	358,182	394,455	36,273
Procurement, Acquisition and Construction	126,627	91,311	4,873	12,673	7,800
Other Accounts	16	(1,000)	1,000	(1,000)	(2,000)
Total NOS	668,677	583,462	364,055	406,128	42,073
National Marine Fisheries Service	-	-	-	-	-
Operations, Research and Facilities	676,515	667,226	567,924	648,988	81,064
Procurement, Acquisition and Construction	31,048	30,444	-	-	-
Other Accounts	118,434	103,150	85,272	85,272	-
Total NMFS	825,997	800,820	653,196	734,260	81,064
Oceanic and Atmospheric Research	-	-	-	-	-
Operations, Research and Facilities	404,106	370,241	301,027	338,273	37,246
Procurement, Acquisition and Construction	9,663	9,369	9,395	10,379	984
Total OAR	413,769	379,610	310,422	348,652	38,230
National Weather Service	-	-	-	-	-
Operations, Research and Facilities	710,989	746,844	746,001	783,446	37,445
Procurement, Acquisition and Construction	89,215	101,399	92,355	98,420	6,065
Total NWS	800,204	848,243	838,356	881,866	43,510
National Environmental Satellite, Data, and Information Service	-	-	-	-	-

Line Office	FY 2005 Actuals	FY 2006 Currently Available	FY 2007 Base Program	FY 2007 Estimate	Increase/ Decrease
Operations, Research and Facilities	176,060	177,737	144,594	149,579	4,985
Procurement, Acquisition and Construction	731,388	774,483	771,848	884,304	112,456
Total NESDIS	907,448	952,220	916,442	1,033,883	117,441
Program Planning and Integration	-	-	-	-	-
Operations, Research and Facilities	2,464	-	-	-	-
Total Program Planning and Integration	2,464	-	-	-	-
Program Support	-	-	-	-	-
Operations, Research and Facilities	382,764	376,783	347,536	383,424	35,888
Procurement, Acquisition and Construction	63,918	112,537	35,542	20,691	(14,851)
Other Accounts	-	1,645	2,012	2,012	-
Total Program Support	446,682	490,965	385,090	406,127	21,037
Adjustments to Budget Authority	-	-	-	-	-
Operations, Research and Facilities	(9,730)	(11,629)	-	-	-
Procurement, Acquisition and Construction	-	(13,371)	-	-	-
Total BA Adj	(9,730)	(25,000)	-	-	-
Total NOAA Direct Obligations*	4,055,511	4,030,320	3,467,561	3,810,916	343,355

Department of Commerce
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
EXECUTIVE SUMMARY

1. Introduction

In FY 2007, NOAA is requesting $3,684,147,000 in total appropriations, a net increase of $345,355,000, or 10.3% over the current program level. Included in this request is $29,649,000 for adjustments to the current program (ATB)/inflationary increases. Receipt of this funding is extremely important to NOAA's ability to function. Investing in our workforce and ensuring that we have sufficient funds to support our dedicated women and men is one of NOAA's highest priorities. This increase is spread across NOAA's five strategic goals.

This submission provides NOAA with the resources to fulfill its role to understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs. NOAA is requesting investments in areas that support implementation of the President's agenda including strengthening ecosystem approaches to management, developing an integrated ocean observing system, upgrading platform capabilities (satellites, aircraft, ships), providing adequate compensation and facilities for our people, raising awareness and understanding about oceans and the atmosphere through world class education programs, and implementing the Climate Change Science Plan. This budget ensures that NOAA products and services such as satellite imagery, tornado warnings, navigational charts, fishery stock assessments, hurricane tracking, harmful algal bloom predictions, severe weather forecasts, and coastal zone management that are used every day by millions of Americans throughout the Nation will continue to be provided.

On December 17, 2004, President Bush released the *U.S. Ocean Action Plan*, the administration's response to the September 20, 2004 report from the U.S. Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century* that contained the Commission's final recommendations for a new, comprehensive national ocean policy. NOAA's FY 2007 budget request includes approximately $183 million in ocean- and coastal-related funding increases that support implementation of the plan and commission recommendations.

This budget leverages NOAA's most important asset – its people. It does so by applying their knowledge, experience, ingenuity and dedication to the challenges of the 21st century via the integration that flows from NOAA's FY2005-2010 Strategic Plan. The five goals of the plan – protecting, restoring, and managing the use of coastal and ocean resources through ecosystem-based management; understanding climate variability and change to enhance society's ability to plan and respond; providing critical weather and water information; supporting the Nation's commerce with information for safe, efficient, and environmentally sound transportation; and providing critical support to the mission goals – point NOAA towards serving the Nation's

environmental and economic needs. This submission also supports Goal #3 of the Department of Commerce's strategic plan: Observe, protect and manage the earth's resources to promote environmental stewardship.

NOAA will continue to apply proven management approaches to ensure that its resources are used efficiently and effectively, including integration (at both the organizational and systems levels), partnership, and early identification of the essential support requirements implicit in our long-range plans.

FY 2007 Goals

The FY 2007 NOAA budget submission ties directly to our Strategic Plan. The FY 2007 budget was constructed using a process based on the five strategic goals and the 44 programs that constitute them. The result is a budget that recognizes the inter-relationship of the many programs that cut across our product and service lines and that demonstrates the importance of addressing critical environmental issues in a multi-disciplinary manner. Execution of the strategies that this budget supports will be framed within the five fundamental activities that NOAA uses to ensure quality results: 1) *Monitor and observe* the land, sea, atmosphere, and space to create an observational and data collection network that tracks Earth's changing systems; 2) *Understand and describe* how natural systems work together through investigation and interpretation of information; 3) *Assess and predict* the changes of natural systems and provide information about the future; 4) *Engage, advise, and inform* individuals, partners, communities, and industries to facilitate information flow, assure coordination and cooperation, and provide assistance in the use, evaluation, and application of information; and 5) *Manage* coastal and ocean resources to optimize benefits to the environment, the economy, and public safety. A summary of highlights by NOAA Strategic Goal follows.

Ecosystems **$107.6 million increase**

Coastal areas are among the most developed in the Nation. More than half the population lives on less than one-fifth of the land in the contiguous United States. Nationwide, coastal county population is increasing by almost 3,500 people a day. Furthermore, employment in near shore areas is growing three times faster than population. Coastal and marine waters support over 28 million jobs and provide a tourism destination for nearly 90 million Americans a year. The value of the ocean economy to the United States is over $115 billion. The value added annually to the national economy by the commercial and recreational fishing industry alone is over $48 billion. U.S. aquaculture sales total almost $1 billion annually. With its Exclusive Economic Zone of 3.4 million square miles, the United States manages the largest marine territory of any nation in the world.

NOAA has a specific mandate from Congress to be a lead Federal agency in protecting, managing, and restoring coastal and marine resources. To achieve balance among ecological, environmental, and social influences, NOAA has adopted an *ecosystem approach to management*. The approach is collaborative, integrating the concerns, priorities, and expertise of all citizens and sectors in the management of coastal and marine resources. Increased public knowledge of ecosystems and the principles of sustainable development, and the active involvement of the public as stewards for coastal and marine ecosystem issues in their communities, are critical components of this approach. Developed countries such as the United States have a responsibility for stewardship of the marine ecosystem and for setting standards to protect and manage the shared resources and harvests of the oceans.

Believing that it is possible to balance sustainable economic development and healthy functioning marine ecosystems, we seek to provide an example for the rest of the world by comprehensively managing resources of the world's oceans and coasts.

NOAA is requesting an increase of $107.6 million over the current program. This request will enable NOAA to significantly increase our understanding, assessment and prediction of coastal and marine ecosystems, increase the public awareness of scientific and management issues, and implement innovative new management strategies to protect, restore and manage uses of these valuable resources. Some of the specific increases within this goal are 1) $8.0 million for expanded annual stock assessments; 2) $7.0 million for Economics and Social Science Research; 3) $6.0 million for protected species research and management programs.

Climate **$24.1 million increase**

Climate shapes the environment, natural resources, economies, and social systems that people depend upon worldwide. While humanity has learned to contend with some aspects of climate's natural variability, major climatic events, combined with the stresses of population growth, economic growth, public health concerns, and land-use practices, can impose serious consequences on society. The 1997-98 El Nino, for example, had a $25 billion impact on the U.S. economy — property losses were $2.6 billion and crop losses approached $2 billion. Long-term drought leads to increased and competing demands for fresh water with related effects on terrestrial and marine ecosystems, agricultural productivity, and even the spread of infectious diseases. Decisions about mitigating climate change also can alter economic and social structures on a global scale. NOAA delivers reliable climate information in useful ways to help minimize risks and maximize opportunities for decisions in agriculture, public policy, natural resources, water and energy use, and public health. We continue to move toward developing a seamless suite of weather and climate products. Whereas the Weather and Water Goal aims to expand predictive capacity out to two weeks, the Climate Goal addresses predictions on time scales of up to decades or longer.

NOAA is requesting a net increase of $24.1 million over the current program. Some of the specific increases within this goal are 1) $6.0 million for data management and communications for the Integrated Ocean Observing System; 2) $4.0 million for coping with drought - Regional Integrated Sciences and Assessments (RISA) and 3) $2.0 million for developing new climate reanalysis data sets that will improve operational climate prediction.

Weather and Water **$46.1 million increase**

Floods, droughts, hurricanes, tornadoes, tsunamis, wildfires, and other severe weather events cause $11 billion in damages each year in the United States. Weather is directly linked to public health and safety, and nearly one-third of the U.S. economy (about $3 trillion) is sensitive to weather and climate. With so much at stake, NOAA's role in understanding, observing, forecasting, and warning of environmental events is expanding. With our partners, we seek to provide decision makers with key observations, analyses, predictions, and warnings for a range of weather and water conditions, including those related to water supply, air quality, space weather, and wildfires. Businesses, governments, and non-governmental organizations are getting more sophisticated about how to use this weather and water information to improve operational efficiencies, to manage environmental resources, and to create a better quality of life.

NOAA is strategically positioned to conduct sound, scientific research and provide integrated observations, predictions, and advice for decision makers who manage environmental resources, ranging from fresh water supplies to coastal ecosystems to air quality. Realizing that our information and services bridge both weather and climate time scales and local to global spatial scales, we will continue to collect and analyze environmental data and issue forecasts and warnings that help protect health, life and property and enhance the U.S. economy. We recognize that future needs can be met even better by exploring new concepts and applications, and we will invest in robust weather and water research.

NOAA requests an increase of $46.1 million over the current program to serve society's needs for weather and water information. Some of the specific increases within this goal are 1) $12.4 million to strengthen the U.S. Tsunami Warning Network; 2) $3.5 million for frequency conversion for the NOAA Profiler Network; and 3) $2.5 million for the National Weather Service Telecommunication Gateway.

Commerce & Transportation **$19.5 million increase**

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, which is crucial to the U.S. economy. The U.S. marine transportation system ships over 95 percent of the tonnage and more than 20 percent by value of foreign trade through U.S. ports, including 48 percent of the oil needed to meet America's energy demands. At least $4 billion is lost annually due to economic inefficiencies resulting from weather-related air-traffic delays. Improved surface weather forecasts and specific user warnings would reduce the 7,000 weather-related fatalities and 800,000 injuries that occur annually from crashes on roads and highways. The injuries, loss of life, and property damage from weather-related crashes cost an average of $42 billion annually. More accurate and timely warning associated with severe weather threats, marine navigational products and services, and improved positioning data can better support the growing commerce on our roads, rails, and waterways through improvements in transportation safety and just-in-time efficiencies.

NOAA requests $19.5 million over the FY 2007 Base to meet mission and mandates, sustain ongoing operations, and be able to meet the needs of the Nation. Some of the specific increases within this goal are 1) $2.0 million for Tide and Current Database; 2) $1.2 million for aviation weather; and 3) $0.7 million for expanding the capacity of the Physical Oceanographic Real Time Systems (PORTS®) and updating tidal currents in critical areas.

Mission Support **$148.1 million increase**

Strong, effective, and efficient support activities are necessary for us to achieve our four Mission Goals. Our facilities, ships, aircraft, environmental satellites, data-processing systems, computing and communication systems, and our approach to management provide the foundation of support for all of our programs. This critical foundation must adapt to an evolving mission and also must support U.S. homeland security by maintaining continuity of operations and 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, NOAA has requested funding adequate to ensure access to safe and efficient ships and aircraft through the use of both NOAA platforms and those of other agency, academic, and commercial partners.

Leadership development and program support are also essential for achieving our Mission Goals. NOAA is committed to organizational excellence through management and leadership across a "corporate" NOAA. This request supports NOAA's pursuit of state-of-the-art and secure information technology and systems and the availability of right-sized, cost-effective, and safe facilities.

NOAA is requesting an increase of $148.1 million over the FY 2007 Base to fund critical Mission Support programs. Some of the specific increases within this goal are 1) $11.0 million to prepare the NOAA Center for Weather and Climate Prediction (NCWCP); 2) $4.5 million for calibration and temporary berthing for the vessel HENRY B. BIGELOW; 3) $4.1 million for the Hollings and Nancy Foster Scholarships.

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
FY 2007 ANNUAL PERFORMANCE PLAN (APP)

The National Oceanic and Atmospheric Administration (NOAA) is a future-minded 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.

Success in a global economy is linked not only to the ability to respond or react to events but to anticipate and forecast them. Moreover, understanding ocean and atmosphere is essential to sustaining the United States' environmental and economic health. As an agency, NOAA aims to become the global leader for integrated management of the oceans and the atmosphere. Millions of people in the United States depend on NOAA's science, service, and stewardship. NOAA monitoring and prediction products such as satellite imagery, tornado warnings, navigational charts, fishery stock assessments, hurricane tracking, El Niño assessment and forecasts, harmful algal bloom predictions, severe weather forecasts, and coastal zone management are essential to the lives of millions of people in the United States. For example, lives, safety, and businesses depend on reliable weather and climate forecasts to minimize disruption in economic activity and everyday life. Accurate predictions of severe weather safeguard both lives and economic structure of communities. A deeper understanding of long-term climate and environmental trends can impact daily activities from the strategic planting of crops to better management of water and energy resources. Coastal communities, representing over thirty percent of the U.S. gross domestic product, depend heavily on sustaining healthy marine habitats and a robust ocean ecosystem.

NOAA's science-based management approach provides a solid foundation for economic growth and a healthy economy. New priorities for global observation systems, international cooperation, and homeland security will improve NOAA's delivery and effectiveness of services for all of its mission goals. Ultimately, NOAA's success will be measured in the quality of information, service, and benefits provided to customers – the American public.

Priorities/Management Challenges

The 21st century poses complex challenges for NOAA. As the new century unfolds, new priorities for NOAA action are emerging in the areas of climate change, freshwater supply, ecosystem management, and homeland security. Every aspect of NOAA's mission – ranging from managing coastal and marine resources to predicting changes in the Earth's environment – faces a new urgency to address intensifying national needs related to the economy, the environment, and public safety.

NOAA's Strategic Plan addresses global emerging trends and guides NOAA business processes to address those trends. Significant reports such as the Preliminary and Final Reports of the U.S. Commission on Ocean Policy and the Strategic Plan for the U.S. Climate Change Science Program cite growing

needs with respect to the oceans, coasts, and response to climate changes. Recommendations in such reports underlie the Strategic Plan, setting a framework for addressing the needs of the Nation today and for tomorrow. The Strategic Plan responds to the President's Management Agenda for a citizen-centered, results-driven organization that serves all Americans every day.

The NOAA Strategic Plan has five goals: four "mission goals" and one "mission support goal." The Strategic Plan sets an agenda to:

Mission Goals --

- Ecosystems: Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.
- Climate: Understand climate variability and change to enhance society's ability to plan and respond.
- Weather and Water: Serve society's needs for weather and water information.
- Commerce and Transportation: Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation.

Mission Support Goal --

- Mission Support: Provide critical support for NOAA's mission.

NOAA's elevation in FY 2003 of ecosystem-based management and climate science to high-priority goals in the Plan is especially noteworthy to meet the challenges of the 21st century. In recent years, extreme drought and flooding conditions in large regions of the Nation have combined to make improved water resources prediction an urgent requirement for NOAA's future weather and climate mission. The Plan's emphasis on the Nation's needs for expanded commerce and economic development directly relates to the Administration's focus on a healthy and growing economy.

The Strategic Plan guides all NOAA's management decisions and provides a consistent framework for Line Office and cross-organizational plans, initiatives, and performance measures to be implemented. Through the plan, NOAA employees and contractors have a better understanding of their role in meeting NOAA's strategic goal.

Unit Cost Measures

The NOAA performance measures for this report relate to the scientific work conducted within the agency. Because of the technical and complex nature of NOAA activities and the impact of biological and other natural conditions, unit cost measures are currently not used in this report. However, NOAA is continuously reviewing its existing performance measures and developing new and more relevant measures.

Program Assessment Rating Tool (PART)

FY 07 PART Programs

For the FY 2007 President's Budget PART assessments were conducted for the Ecosystem Research and Weather and Related Programs.

Ecosystem Research Program – was rated "Adequate" as a result of the OMB PART for FY07. Findings included: 1) The Ecosystem Research Program is designed to address the need for science in support of wise management of ocean and coastal resources. The President's U.S. Ocean Action Plan expressed support for many of these activities, which were also emphasized by two recent blue-ribbon panels, the U.S. Commission on Ocean Policy and the Pew Oceans Commission; 2) Some redundancies exist within components of the Ecosystem Research Program as well as between this program and other Federal efforts. The program was established to try to begin to align different research efforts within NOAA in order to address these redundancies; and 3) Within some of the components of this program, program managers have had difficulty influencing how resources are targeted to ensure that the highest priority science needs are met. This can be an issue for research efforts that are not funded on a competitive basis, such as earmarks and institutional programs such as Sea Grant. In response to these findings, NOAA is 1) assessing the portfolio of research within NOAA's Ecosystem Research Program in order to clarify the role of each of the Program's components and eliminate redundancies; and 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.

Weather and Related Programs – includes the Local Forecast and Warnings, Space Weather, Hydrology, Geostationary Satellite Acquisition, Polar Satellite Acquisition, and Satellite Services. The Weather and Water Related Programs received a rating of Moderately Effective, and included two major findings: 1) The program has made progress in achieving its long-term goals, particularly in improving accuracy and timeliness of forecasts and warnings. For example, lead times for tornado warnings have increased from 5 minutes in the early 1990s to 13 minutes in 2004; and, 2) One of the satellite programs has experienced significant cost and schedule overruns which were caused by management and technical problems. This program is at least 25% over budget and the satellite launches are delayed by two years. In response to these findings, NOAA is taking the following actions to improve the performance of the program: 1) Investing in technology to improve severe weather warning lead times; and, 2) Instituting quarterly reporting on progress of satellite programs.

Status on implementation of recommendations of previous PART Programs

NOAA is on track to meet the recommendations made on previous PART reviewed programs. Status on implementation of PARTs by year of President Budget Request:

FY 2004

NMFS regulatory programs – NOAA implemented management and organizational changes including: replacement of the performance measures for the Fishery Management and Protected Species Programs; improvement of the efficiency and effectiveness of regulatory operations; decreased policy vulnerability to legal challenges; and reduced regulatory burden on the affected public.

Pacific Coastal Salmon Recovery Fund (PCSRF) – NOAA developed performance measures for the PCSRF which were published in the 2005 Pacific Coastal Salmon Recovery Fund Report to Congress. Performance data will be reported annually in the Report to Congress beginning with 2005 data in the 2006 Report.

National Weather Service – NOAA continues to invest in activities and technology such as various training courses, the NEXRAD Open Radar Data Acquisition, continued implementation of the Advanced Hydrologic Prediction Service, AWIPS Software upgrades, aviation improvements, and climate forecast model upgrades that will help improve outyear performance measure scores. NOAA will continue to put a great emphasis on performance and performance improvement, and continue to establish and review performance measures and milestone objectives through the development of strategic plans and annual operating plans.

FY 2005

Coastal Zone Management Act Programs – NOAA developed a suite of proposed performance measures in response to recommendations regarding the Coastal Zone Management Program and National Estuarine Research Reserve System (NERRS). In addition, eight states participated in a pilot effort to assess data sources and refine the proposed coastal management measures for implementation. In March 2005, NOAA launched implementation of coastal management performance measures among all 34 state coastal management programs. NOAA has developed or is refining a proposed suite of NERRS measures to be finalized this winter.

Nautical Mapping and Charting Program – NOAA is evaluating the viability of research by the United States Merchant Marine Academy to support clear and meaningful linkages between long-term performance measures and annual goals. NOAA is also developing additional metrics to better capture the outcomes and benefits of the program.

FY 2006

Climate Program – NOAA developed an action plan for implementation of PART recommendations that includes consolidating research laboratories and other management changes recommended by the NOAA Research Review Team, as well as developing an internal database for tracking performance and linking it to the budget.

Protected Areas – In response to the PART recommendations, NOAA has revised existing or created new performance measure targets and timeframes that are ambitious, strategic and realistic. NOAA is implementing processes, including bi-annual meetings of Program leadership, to monitor and report on these measures that will ensure that these targets remain ambitious and that performance data is used to improve on the ground management and better address priority management issues.

FY 2007 Program Increases

Program increases are listed under each Performance Goal (see relevant section).

Targets and Performance Summary

Performance Goal for Ecosystems: Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management

Measure	FY 2002 Actual	FY 2003 Actual	FY 2004 Actual	FY 2005 Actual	FY 2006 Target	FY 2007 Target	Comment
Fish Stock Sustainability Index (FSSI)	N/A	N/A	477.5	500.5	510.5	512.5	This is a new measure for FY 2007 and replaces the overfished major stocks measure. NOAA did not report on this measure during FY 2004-2006 and data for those years is provided for context.
Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts	N/A	N/A	37.2	40.2	41.3	40.4	This is a new measure for FY 2007 and replaces the unknown stocks measure and the protected species assessment measure. NOAA did not report on this measure during FY 2004-2006 and data for those years are provided for context. Note that the 2004 number is for the calendar year; the FY 2005 actual transitions to the fiscal year.
Number of Protected Species Designated as Threatened, Endangered or Depleted with Stable or Increasing Population Levels	17	18	24	24	24	26	This is a new measure for use in FY 2006. NOAA did not report on this measure during FY 2002 – 2005 and the data for those years is provided for context. The 2005 actual is an estimate. The change to the FY 2006 target, as reported in the FY 2006 APP, is due to an improvement in the stocks in prior years.

Number of Habitat Acres Restored (Annual/Cumulative)	4,300/ 5,820	5,200/ 11,020	5,563/ 16,583	8,333/ 24,916	4,500/ 29,416	4,575/ 33,991	The target for FY 2006, as reported in the FY 2006 APP, was reduced from 4,575 to 4,500 because requested funds for habitat restoration were reduced.
Annual number of coastal, marine, and Great Lakes ecological characterizations that meet management needs.	New	New	New	New	53	54	This is a new measure for use in FY 2006. FY 2004 and 2005 data are provided for informational purposes. Measure has been reworded and targets have been changed from percentages to annual numbers.
Cumulative Number of Coastal, Marine, and Great Lakes Issue-Based Forecasting Capabilities Developed and Used for Management.	New	New	16	25	31	38	This is a new measure for use in FY 2006. FY 2004 and 2005 data are provided for informational purposes. Measure has been reworded and targets have been changed from percentages to cumulative numbers.
Percentage of Tools, Technologies, and Information Services that are used by NOAA Partners/Customers to Improve Ecosystem-Based Management.	New	New	New	New	New	TBD	Measure will be ready for use in FY 2007.
Number of Coastal, Marine, and Great Lakes Habitat Acres Acquired or Designated for Long-term Protection (Annual)	New	New	New	1,705	200,137	86,046,286	The FY 2007 target includes 84,365,000 acres to be designated as the NW Hawaiian Islands National Marine Sanctuary.

Performance Goal for Climate: Understand climate variability and change to enhance society's ability to plan and respond

Measure	FY 2002 Actual	FY 2003 Actual	FY 2004 Actual	FY 2005 Actual	FY 2006 Target	FY 2007 Target	Comment
U.S. Temperature Forecasts (Cumulative Skill Score Computed Over the Regions Where Predictions are Made)	18	17	17	19	18	19	
Reduce the Uncertainty in the Magnitude of the North American (NA) Carbon Uptake	New	Identified Five Pilot Carbon Profiling Sites and four New Oceanic Carbon Tracks	Established five pilot atmospheric profiling sites. Established one oceanic carbon track; identified two additional oceanic carbon tracks	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 +/- 0.40 Gt. Carbon per Year	Reduce Uncertainty of Atmospheric Estimates of NA Carbon Uptake to +/- 0.38 Gt. Carbon per Year	The FY2005 target of 0.48 Gt Carbon per Year was exceeded due to implementation of new aircraft sites in the Midwest.
Reduce the Uncertainty in Model Simulations of the Influence of Aerosols on Climate	New	New	New	New	Establish 10% improvement in uncertainty in model simulations of how North American aerosols influence climate	Establish 15% improvement in uncertainty in model simulations of how North American aerosols influence climate	The 2006 and 2007 targets have been scaled back, to reflect reduced availability of funding and scope of field studies

Determine the National Explained Variance (%) for Temperature and Precipitation for the Contiguous United States using USCRN Stations	Captured more than 85% of the Annual National Temperature Trend and more than 55% of the Annual National Precipitation Trend for the Contiguous U.S.	Captured more than 95% of the Annual National Temperature Trend and captured 84% of the Annual National Precipitation Trend for the Contiguous U.S.	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.	Capture 96.9% of the Annual National Temperature Trend and 91.4% of the Annual National Precipitation Trend for the Contiguous U.S	Capture 96.9% of the Annual National Temperature Trend and 91.4% of the Annual National Precipitation Trend for the Contiguous U.S	Capture 97.2% of the Annual National Temperature Trend and 92.3% of the Annual National Precipitation Trend for the Contiguous U.S	Expansion of the climate reference network is delayed, due to lack of funding beyond current O&M costs. Long-term targets will be delayed until 2010.
Reduce the Error in Global Measurement of Sea Surface Temperature	New	New	New	New	0.5 C	0.4 C	Insufficient funding in FY 2006 for optimal deployment of buoys in data-poor parts of the ocean have delayed the target uncertainty reduction.
Improve Society's Ability to Plan and Respond to Climate Variability and Change Using NOAA Climate Products and Information	New	New	New	New	32 risk assessments / evaluations communicated to decision makers	35 risk assessments/ evaluations communicated to decision makers	

Performance Goal for Weather and Water: Serve society's needs for weather and water information

Measure		FY 2002 Actual	FY 2003 Actual	FY 2004 Actual	FY 2005 Actual	FY 2006 Target	FY 2007 Target	Comment
Lead Time (Minutes), Accuracy (%), and False Alarm Rate (FAR, %) for Severe Weather Warnings for Tornadoes	Lead Time	12	13	13	13	13	14	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
	Accuracy	76	79	75	75	76	76	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
	FAR	73	76	74	77	75	74	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
Lead Time (Min) and Accuracy (%) for Severe Weather Warnings for Flash Floods	Lead Time	52	41	47	54	48	49	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
	Accuracy	89	89	89	88	89	90	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
Hurricane Forecast Track Error (48 Hour)	Nautical Miles	122	107	94	TBD	111	110	FY 2005 Actual will be available January 2006.
Accuracy (%) (Threat Score) of Day 1 Precipitation Forecasts		30	29	29	29	28	29	

Lead Time (Hours) and Accuracy (%) for Winter Storm Warnings	Lead Time	13	14	15	17	15	15	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
	Accuracy	89	90	91	91	90	90	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts		8%	17%	17%	28%	32%	39%	NOAA is in the process of developing a more useful measure.

Performance Goal for Commerce and Transportation: Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation

Measure	FY 2002 Actual	FY 2003 Actual	FY 2004 Actual	FY 2005 Actual	FY 2006 Target	FY 2007 Target	Comment
Reduce the Hydrographic Survey Backlog Within Navigationally Significant Areas (square nautical miles surveyed per year)	1,514	1,762	2,070	3,079	2,500	3,000	FY2006 target was reduced to 2500 based on FY2006 final appropriations.
Percentage of U.S. counties rated as fully enabled or substantially enabled with accurate positioning capacity	New	New	New	28	39	49	FY2006 and FY2007 targets have been revised upward to reflect both increased user demand for the relatively new OPUS tool and the availability of more data for trend analysis. This is a new measure for use in FY 2006. FY 2005 target is provided for informational purposes.
Accuracy (%) and False Alarm Rate (FAR) (%) of Forecasts of Ceiling and Visibility (3miles/1000 ft.) (Aviation Forecasts): Accuracy (%) FAR (%)	 45 71	 48 64	 45 65	 46 63	 47 65	 48 64	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.
Accuracy (%) of Forecast for Winds and Waves (Marine Forecasts) Wind Speed Wave Height	 52 68	 57 71	 57 67	 57 67	 58 68	 58 68	The FY 2005 actual was not final in the FY 2005 PAR. The final data is now available and reflected here.

Performance Goal for Mission Support: Provide critical support for NOAA's mission

There are no GPRA measures for the Mission Support goal since the activities of this goal support the outcomes of the Mission goals. NOAA is developing new and improving existing internal management performance measures for the Mission Support Goal.

Resource Requirements Summary
($ in Millions)

Performance Goal for Ecosystems: Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management	**FY 2005 Actual**	**FY 2006 Enacted**	**FY 2007 Base**	**Increase/Decrease**	**FY 2007 Request**
Operations, Research, Facilities					
National Ocean Service	340.4	295.8	217.6	14.4	232.0
National Marine Fisheries Service	675.0	665.7	566.4	80.6	647.0
Oceanic and Atmospheric Research	147.8	126.2	94.3	8.6	103.0
National Weather Service	-	-	-	-	-
NESDIS	9.2	16.7	16.0	1.7	17.7
Program Planning and Integration	-	-	-	-	-
Program Support	-	-	-	-	-
Procurement, Acquisition, and Construction	85.5	62.7	4.9	2.3	7.2
Other-Discretionary and Mandatory	127.3	118.5	93.7	0	93.7
Total, Direct Obligations	1,385.2	1,285.6	993.0	107.6	1,100.6
IT Funding	4.7	8.1	8.1	0.4	8.5
FTE	3,426	3,442	3,445	36	3,481

Resource Requirements Summary
($ in Millions)

Performance Goal for Climate: Understand climate variability and change to enhance society's ability to plan and respond	**FY 2005 Actual**	**FY 2006 Enacted**	**FY 2007 Base**	**Increase/Decrease**	**FY 2007 Request**
Operations, Research, and Facilities					
National Ocean Service	-	-	-	-	-
National Marine Fisheries Service	1.4	1.5	1.5	.5	2.0
Oceanic and Atmospheric Research	176.6	166.1	160.2	17.6	177.8
National Weather Service	56.9	19.7	8.2	0.9	9.1
NESDIS	70.2	51.0	25.6	5.1	30.7
Program Planning and Integration	-	-	-	-	-
Program Support	4.5	3.5	3.5	-	3.5
Procurement, Acquisition, and Construction	6.4	8.9	7.0	-	7.0
Other-Discretionary and Mandatory	-	-	-	-	-
Total, Direct Obligations	316.1	250.6	205.9	24.1	230.1
IT Funding	83.2	78.8	78.8	(12.9)	65.9
FTE	902	611	541	-	541

Resource Requirements Summary
($ in Millions)

Performance Goal for Weather and Water: Serve society's needs for weather and water information	**FY 2005 Actual**	**FY 2006 Enacted**	**FY 2007 Base**	**Increase/Decrease**	**FY 2007 Request**
Operations, Research, and Facilities					
National Ocean Service	40.3	34.6	8.3	3.7	11.9
National Marine Fisheries Service	-	-	-	-	-
Oceanic and Atmospheric Research	62.7	76.2	44.7	10.9	55.6
National Weather Service	642.5	703.4	713.8	35.3	749.1
NESDIS	6.1	8.6	4.7	0.2	4.9
Program Planning and Integration	2.1	-	-	-	-
Program Support	-	0.6	0.6	-	0.6
Procurement, Acquisition, and Construction	98.1	109.2	85.9	(4.0)	81.9
Other-Discretionary and Mandatory	-	-	-	-	-
Total, Direct Obligations	849.7	932.6	858.0	46.1	904.1
IT Funding	176.6	179.3	179.3	47.1	226.5
FTE	4535	4,652	4,727	9	4,736

Resource Requirements Summary
($ in Millions)

Performance Goal for Commerce and Transportation: Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation	**FY 2005 Actual**	**FY 2006 Enacted**	**FY 2007 Base**	**Increase/Decrease**	**FY 2007 Request**
Operations, Research, Facilities					
National Ocean Service	149.0	155.9	125.4	17.9	143.3
National Marine Fisheries Service	-	-	-	-	-
Oceanic and Atmospheric Research	-	-	-	-	-
National Weather Service	10.0	15.4	16.7	1.2	17.9
NESDIS	28.6	10.9	9.1	.4	9.5
Program Planning and Integration	-	-	-	-	-
Program Support	-	-	-	-	-
Procurement, Acquisition, and Construction	-	-	-	-	-
Other-Discretionary and Mandatory	-	-	-	-	-
Total, Direct Obligations	187.6	182.2	151.2	19.5	170.7
IT Funding	8.9	9.6	9.6	.3	9.9
FTE	615	755	753	5	758

Resource Requirements Summary
($ in Millions)

Performance Goal for Mission Support: Provide critical support for NOAA's mission	**FY 2005 Actual**	**FY 2006 Enacted**	**FY 2007 Base**	**Increase/Decrease**	**FY 2007 Request**
Operations, Research, Facilities					
National Ocean Service	2.4	6.9	6.9	.3	7.2
National Marine Fisheries Service	-	-	-	-	-
Oceanic and Atmospheric Research	16.7	1.8	1.8	-	1.8
National Weather Service	-	8.3	7.3	-	7.3
NESDIS	61.8	90.5	89.1	(2.3)	86.8
Program Planning and Integration	-	-	-	-	-
Program Support	366.6	354.2	324.1	35.9	360.0
Procurement, Acquisition, and Construction	895.3	938.8	816.2	114.1	930.4
Other-Discretionary and Mandatory	17.6	18.5	19.3	-	19.3
Total, Direct Obligations	1,362.3	1,418.9	1,264.9	148.1	1,412.9
IT Funding	250.8	264.3	264.3	(1.2)	263.1
FTE	2,368	2,516	2,517	16	2,533

Resource Requirement Summary
($ in Millions)

	FY 2005	FY 2006	FY 2007
Grand Total	Actual	Enacted	Request
Operations, Research, and Facilities			
National Ocean Service	532.1	493.2	394.4
National Marine Fisheries Service	676.4	667.2	649.0
Oceanic and Atmospheric Research	403.8	370.3	338.2
National Weather Service	709.4	746.8	783.4
NESDIS	175.9	177.7	149.6
Program Planning and Integration	2.1	-	~
Program Support	373.2	358.3	364.1
Procurement, Acquisition, and Construction			
National Ocean Service	129.4	91.3	12.7
National Marine Fisheries Service	88.4	30.4	-
NOAA Research	20.6	9.4	10.4
National Weather Service	84.0	101.4	98.4
NESDIS	711.7	774.5	884.3
Program Planning and Integration	-	-	~
Program Support	51.3	112.5	20.7
Other Accounts			
Discretionary			
National Ocean Service	-	-	-
National Marine Fisheries Service	89.3	68.8	67.5
Office of Marine and Aviation Operations	0	1.6	2.0

Resource Requirement Summary
($ in Millions)
(Continued)

	FY 2005	FY 2006	FY 2007
	Actual	Enacted	Request
Mandatory			
National Ocean Service	9.4	1.0	1.0
National Marine Fisheries Service	28.6	37.3	21.4
Program Support	17.6	18.5	19.3
Direct	4,050.7	4,069.9	3,821.2
Reimbursable	242.4	287.4	242.4
Total Funding	4,259.9	4,357.3	4,063.6
IT Funding	524.2	540.1	573.9
FTE			
Direct	11,846	11,976	12,049
Reimbursable	754	815	815
Total	12,600	12,791	12,864

Note:
Other Accounts/Mandatory is a breakout of the NOAA Commissioned Officers Retirement Account.

Performance Goal for Ecosystems: Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management

DOC Strategic Goal 3: Observe, protect, and manage the earth's resources to promote environmental stewardship

General Goal/Objective 3.2: Enhance the conservation and management of coastal and marine resources to meet America's economic, social and environmental needs

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. That 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. The amount added annually to the national economy by the commercial and recreational fishing industry alone is over $43 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 a unique mandate from Congress to protect, manage, and restore the nation's coastal and resources. To fulfill this mandate, NOAA and our partners contribute world-class information and expertise in oceanography, marine ecology, urban and regional planning, marine archeology, fisheries management, conservation biology, natural resource management, and risk assessment. We have embraced an ecosystem approach to management as the path to ensure balance among ecological and social influences. Our 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 resources.

Until we attain regional ecosystem approaches to management, NOAA will continue to manage on a smaller, more focused basis (e.g., state, watershed, and species or site-specific.) In the meantime, NOAA will be improving the science, management, and regulatory processes currently available to implement a more comprehensive ecosystem approach to improve management of the Nation's ocean, coastal, and Great Lakes resources. This incremental and collaborative approach also applies to the development of NOAA's ecosystem-based performance measures.

Development of Crosscutting Ecosystem Performance Goal Measures

Over the last year, NOAA identified new performance measures for its ecosystem goal. These measures are being designed to systematically track the effectiveness of NOAA's research and management programs in improving ecosystem health and productivity. They will improve NOAA's ability to: decide whether programs should be continued, improved, expanded, or curtailed; assess the utility of new programs and initiatives; increase and

communicate the effectiveness of program management; and to satisfy NOAA's accountability requirements. Specifically, these new performance measures will inform NOAA's assessment of its efforts to expand ecosystem-based principles and practices that affect the management of large and nested ecosystems. These measures were presented in the FY 2006 APP as under development and four of the five will be ready for use, three in FY 2006 and one in FY 2007, as follows:

- Two of the five measures in FY 2006 APP were" proxy" measures that capture the outcomes of NOAA's work, but fall short of measuring at the ecosystem level. As NOAA develops the science and organizational structure to track performance at the ecosystem level, NOAA will adopt the "ideal" measures, planning and reporting on them in future APPs. In the interim:
    - The proxy measure for ecosystems characterized i.e., *number of ecological characterizations that meet management needs*, has been reworded and is ready for use in FY 2006.
    - The *ecosystem health* measure is not expected to be ready for use in FY 2007 and its proposed proxy measure, *coral reef health*, will not be used; it is a long-term measure and is not a useful GPRA measure. (For an update on the progress to date in developing the ecosystem health measure, see the explanation section of the ecosystem measures.)
- The *tools and technologies* measure has been reworded and its data collection is still under development. Although data is not available at this time, it is planned to be completed in time for use in FY 2007.
- The *forecasting* measure has been reworded and will be ready for use in FY 2006.
- The new habitat measure was proposed in the FY 2006 APP to combine the existing habitat measure i.e., *habitat acres restored*, with *habitat acres acquired or designated for long term protection*; NOAA is continuing to work on how to combine these activities into one measure. Currently, that has not been accomplished, and the concepts will remain as separate measures.

Although the ecosystem health measure is not ready for use, the other new measures are designed to assess progress toward achieving this strategic outcome of the Ecosystem Goal and will be implemented by FY 2007. These new performance measures and others that will be developed over time will give NOAA and its stakeholders an end-to-end analysis of performance for the Ecosystem Goal. Finally, the new measures are interconnected and designed to track NOAA's performance for achieving the greatest impacts.

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Protected Resources Research and Management Programs	7	$5,825	$2.828 million of this request will allow the Protected Species program to continue court ordered take reduction planning, complete ESA consultation on Federal actions, develop programmatic NEPA documents for permits and Incidental Harassment Authorizations, revise recovery plans for sea turtles and complete ESA five-year status reviews for marine mammals and sea turtles. This effort will also improve customer service by reducing the time required to complete permit actions. Additionally, specific research will be directed at determining the characteristics of noise experienced by marine animals underwater, measuring the behavioral and auditory effects of exposure to ocean noise, and developing cost effective mitigation measures for ocean noise effects. The remaining $3 million of this request will be used for protected species stock assessments and mortality estimation and for reducing bycatch of protected species in fisheries. Funds will allow NMFS to increase the quantity and improve the quality of stock surveys and assessments that inform regulatory decisions. Imprecise estimates increase the probability that species will be misclassified under the ESA or Marine Mammal Protection Act (MMPA), resulting in increased risk to species, delay of recovery, and additional mitigation measures that pose significant economic losses to the regulated community. Assessments also are critical to implementing the U.S. Ocean Action Plan because they will be used to establish acceptable levels of bycatch of marine mammals and turtles in the Atlantic Ocean and Gulf of Mexico. Currently, the quality of stock assessments for over 200 protected and at-risk marine species is inadequate for management purposes. NMFS will invest additional resources to make assessment information available to managers in order to minimize bycatch of protected species in fisheries and to increase transparency of the decision-making process.	118
Marine Mammals	-	$1,759	This request has two components: 1) *Dolphin Encirclement - $1.259 million.* Increased funds are necessary to fully fund continued long-term monitoring of the Eastern Tropical Pacific dolphins stocks, called for in	125

			MMPA section 304(b). This research includes Population Abundance Monitoring, Long-Term Stress Monitoring, Implementation of the System for Tracking and Verification of Dolphin-Safe Tuna, and Implementation of MMPA Import Requirements for Tuna Harvested in the Eastern Tropical Pacific. 2) *Recovery of Endangered Large Whales - $500,000.* The information collected and techniques implemented will improve stock assessments and our understanding of population recovery needs for endangered large whales. This information will enable NOAA to detect changes in the status of large whales in order to prevent long-term and irreversible damage to these populations. The problems or information gaps to be addressed include: population structure, abundance, migratory patterns, and habitat needs.	
Marine Turtles	-	$650	These funds are necessary to continue research to recover highly endangered sea turtles within the U.S. and internationally. Funds will allow for the protection of the globally imperiled populations of green, hawksbill, olive ridley, loggerhead, and leatherback sea turtles. These funds will support the collection of information on biology and habitats.	128
Other Protected Species	4	$3,153	These funds are critical to recovering those NMFS ESA listed species that do not have a separate program, as well as those species nearing the need for ESA listing (species of concern). Activities supported by this funding include completion of ESA section 7 consultations and implementing recovery programs for hard corals, shortnose sturgeon, Gulf sturgeon, white abalone, Johnson's seagrass, and smalltooth sawfish. These funds will be used to initiate pilot proactive conservation efforts for species nearing the need for listing under the ESA. This pilot program will focus on reducing threats to the species through on-the-ground conservation actions or development of management agreements. This measure will result in cost savings by preventing an ESA listing and thus not having to complete the ESA consultation and permitting requirements for species.	130
Atlantic Salmon	-	$1,445	This request will be used for implementation of the Atlantic salmon recovery plan including research and management activities within NMFS, and to fund recovery activities of the state of Maine. NMFS proposes to use its Atlantic salmon funds to support ongoing research and	133

			recovery efforts geared toward implementing the recovery plan. Examples of NMFS actions include: development of a proposed rule addressing the boundaries of the DPS, based on a stock status review published in FY 2006; convene and serve as a co-chair (with USFWS) of an interagency Recovery Implementation Team with representatives from Federal, State, and local agencies, Tribes, NGO's and the Canadian Government to implement the final recovery plan; an evaluation of the effects of hatchery stocking by the USFWS on Atlantic salmon recovery; evaluations of the interaction of water chemistry, habitat and the transition process for juvenile salmon migrating from rivers to the sea through estuaries. Funds requested will also be provided to the Maine Atlantic Salmon Commission, to facilitate their continued research and management activities in support of the recovery plan. Examples of work accomplished with these funds include: assessments of adult and juvenile salmon populations, evaluations of various stocking practices, studies of adult and juvenile migration, and monitoring water quality in Maine salmon rivers. Funds from the NMFS grant provide up to 64% of Commission monies, and allow the Commission to complete critical recovery work which is not done by any other agency or group.	
Pacific Salmon	-	$9,664	This request includes three components: recovery implementation and management actions; improved scientific advice for Pacific salmon recovery; and response to EPA consultation workload. 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. Without the proposed increase, the program will revert to a program without the resources to provide customer service and the species will suffer from a lack of coordinated local action on recovery.	134
Regulatory Streamlining	7	$2,829	Funds will support the fishery plan development and regulatory analysis, evaluation, and implementation capabilities of the Fisheries Management Program, which encompasses the process of developing fishery management recommendations through their analysis, approval, and implementation. With the implementation of the Regulatory Streamlining Program (RSP), NOAA will improve the quality and	146

			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. 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.	
Highly Migratory Species Research in the Gulf of Mexico	-	$3,000	These funds will support Highly Migratory Species Research in the Gulf of Mexico in order to address the research needs for Gulf and Atlantic billfish, tunas, swordfish, and sharks as well as fund the review of the status of the Atlantic white marlin for listing as threatened or endangered under the Endangered Species Act (ESA). In 2001, NOAA Fisheries received a petition to list the severely overfished Atlantic white marlin as threatened or endangered under the ESA. 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.	148
Catch and Release Mortality Research	-	$1,000	This increase will address priority research needs for estimating discard mortality for both the recreational and commercial sectors. This funding will support needed research for: enhanced onboard monitoring of commercial fishing vessels to obtain accurate information on discarded species including the following: identification of species, total number, survival by depth, and size; 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; 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	149

			discard mortality; collaborative field research with states, stakeholders, recreational and commercial fishing industries, and universities to test new techniques to monitor survival rates; laboratory experimental studies to test new methods; tagging studies to provide estimates of long-term survival; and improved outreach and education to all fishery sectors on reducing mortality of released bycatch.	
Expand Annual Stock Assessments - Improve Data Collection	8	$7,550	This request will strengthen stock assessment efforts (fishery resource surveys and assessment analyses) and initiate new ecosystem-based fish stock assessments and fishery-dependent sampling programs in the Gulf of Mexico. NMFS will improve fishery stock assessments by integrating more ecosystem information into mathematical models to reveal trends in biomass, recruitment levels (e.g., the number of young fish entering the stock each year), and exploitation rates. NMFS would initiate new fishery monitoring programs that collect data on landings, discarded bycatch, and life history data (growth, longevity, and mortality) in 2007 and integrate these data streams into scientifically reviewed stock assessment updates to constituents beginning in 2009. Expanding stock assessment capabilities will help address long-standing shortfalls in fisheries management, including: fishery monitoring, fish stock surveys, data management, and more comprehensive assessment models.	151
Economics & Social Sciences Research	-	$6,518	Funds will be used to conduct mandated economic and sociocultural surveys and assessments. Establishment of economic and social monitoring programs in all federally-managed commercial fisheries will enhance NMFS' ability to conduct integrated assessments of these fisheries, resulting in more timely and accurate advice to fishery managers. In addition, it will enable NMFS to assess the economic impacts (e.g., sales, income and jobs) of both fishery management actions and environmental events such as hurricanes, tsunamis, and red tide on fishing communities for all coastal states. These activities also directly support efforts to identify market-based solutions to fishery management issues, an approach that is advocated in both the President's U.S. Ocean Action Plan and the 2005 Economic Report of the President. Overall, these funds will enable NMFS to meet 100% of the economic and sociocultural monitoring goals for all commercial fishery management	154

			plans (32 FMPs), including the commercially important Gulf shrimp and reef fish fisheries; the Pacific Coast, Alaska and Northeast groundfish fisheries; Atlantic sea scallops fishery; and the Atlantic, Gulf of Mexico, Pacific and Western Pacific Highly Migratory Species fisheries.	
Regional Councils and Fisheries Commissions	-	$3,047	These funds will enhance the capacity of the eight Regional Fishery Management Councils (RFMCs) to participate fully in the Regulatory Streamlining Program. This funding will allow the RFMCs to analyze a greater range of alternatives as they develop new Fishery Management Plans (FMPs) or amendments to current plans to reduce levels of overfishing and overcapacity while taking into consideration the impacts of their proposed actions on other components of the marine ecosystem. Extensive analyses and documentation are required to comply with the Magnuson-Stevens Fishery Conservation and Management Act and other mandates. The requested funding will allow the Councils to conduct the environmental, economic, and other impact analyses required. These analyses will occur sufficiently early in the regulatory process to allow a range of reasonable alternatives to be considered; this "no-surprises" approach will ensure compliance with the procedural requirements of the various mandates. $1,000,000 will be used for RFMCs to develop DAP programs, such as individual fishing quotas (IFQs).	159
Fish Information Networks	-	$2,109	This request funds three state-federal cooperative programs that collect, manage, and disseminate statistical data and information on marine commercial and recreational fisheries off the coasts of Alabama, Florida, Georgia, Louisiana, Mississippi, and Texas. With this request, NMFS will have the capability to increase the quantity of data and improve the quality of statistics that are used to inform regulatory decisions for fisheries management.	161
Survey and Monitoring Projects	-	$1,168	Funds will enable NOAA to administer 3 research and monitoring programs in the Atlantic and Pacific Oceans. This will improve NMFS' ability to: 1) manage West Coast groundfish stocks; 2) estimate the distribution and abundance of bluefin tuna stocks; and 3) continue research on the apparent decline of bluefish stocks in the Atlantic Ocean.	164
Fisheries Oceanography	-	$500	These funds will improve fish stock assessments by investigating the	166

			effects of ocean environmental variability on marine ecosystems and fish populations. The request will enable NMFS to develop new ecological indicators of the effects of environmental variability on living marine resources in the California Current, North Pacific, Gulf of Alaska, Bering Sea, Gulf of Mexico and Northeast U.S. Shelf large marine ecosystems. The Fisheries Oceanography program advances the current state of knowledge of ocean processes by forecasting potential impacts on production, growth, and/or distribution of marine fish, and these forecasts are incorporated into stock assessment and commercial harvest analyses.	
Anadromous Grants	-	$100	Projects funded under the Anadromous Fish Conservation Act of 1965 (AFC) are conducted for the conservation, development, and enhancement of Anadromous fishery resources (those that migrate from salt to fresh water for spawning) including similar species in the Great Lakes and Lake Champlain. This information is used to support management decisions at the state level and under the Magnuson-Stevens Fishery Conservation and Management Act, the Atlantic Coastal Fisheries Cooperative Management Act, and the Striped Bass Act.	168
Enforcement	-	$3,979	The increase in Enforcement and Surveillance will support the need of NOAA's increased Management and Stewardship role addressing investigations and monitoring capabilities within the Northeast Shelf and Gulf of Mexico large marine ecosystems (LMEs). The additional funds for the 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. Approximately ten (10) currently authorized investigative and enforcement support positions will be filled to partially assume the increased workload created by anticipated regulations for General Access Scallop, Recreational Fisheries, Red Snapper IFQ, South Atlantic Snapper/Grouper, Gulf Shrimp, and HMS Species.	172
Observers/Training	2	$3,494	These funds will expand observer coverage in the Gulf of Mexico; initiate observer coverage in priority fisheries nationwide; and support 35,000 observer collection days in the North Pacific. Without observers and observer programs, NMFS would have insufficient data to effectively manage many of the Nation's	178

			economically valuable fisheries. Additional research is needed to better quantify bycatch of red snapper and other species with respect to season, depth, and location. To achieve this goal, an expansion of the observer program coupled with an improved logbook program is needed. NMFS' improvement and expansion of observer programs for many of the fisheries with significant bycatch supports one of the priorities set forth in the President's U.S. Ocean Action Plan - the implementation of a new national bycatch strategy. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Endangered Species Act (ESA) require NMFS to standardize reporting methodologies that minimize bycatch in federally managed fisheries and to protect specific endangered or threatened marine plants and animals, respectively.	
Sustainable Habitat Management	-	$3,698	NOAA Fisheries Service requests 1) $2,800,000 for Habitat Conservation and 2) $899,000 for Refine EFH Designations. 1) NOAA Fisheries estimates that it will cost approximately $2,800,000 per year to implement the new requirements of the hydropower provisions of the Energy Policy Act. These funds are needed to pay the U.S. Coast Guard for use of its Administrative Law Judges, and to augment technical and legal capabilities (attorneys) in NMFS Headquarters and Regional Offices to address the workload generated by the new processes. 2) Incorporating new species/habitat use information and analyses will refine EFH by clarifying the scope and extent of the existing EFH designations. This refined EFH will make EFH designations more accessible to the public and other federal agencies that must consult on impacts to EFH. More refined EFH designations will enable NOAA Fisheries to more effectively target conservation activities. The requested funds will support improved interpretations and analyses of existing habitat information, thereby ensuring that the agency maximizes use of the best available scientific data, complies more rigorously with the Data Quality Act, and generally is less susceptible to litigation risk.	186
Great Lakes Habitat Restoration	-	$1500	These funds will establish a Great Lakes Habitat Restoration Program, emphasizing restoration of NOAA trust resources at the watershed scale within the Great Lakes Areas of Concern. The two primary components	188

			of the Great Lakes Restoration Program will be: 1) the establishment of a cross-NOAA Great Lakes Habitat Restoration Program Office 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.	
Open Rivers Initiative	-	$6,000	Funds will establish an initiative to enhance the repair of vital riverine ecosystems, to benefit communities, and to enhance populations of key NOAA trust species in support of Executive Order 13352 which directs federal agencies to promote cooperative conservation in full partnership with state, local governments, tribes and individuals. The program builds on NOAA's capabilities and utilizes a community-based model to remove small dam and river barriers in coastal states. The community-based model catalyzes partnerships at the national and local levels by providing funding, technical assistance, and encouraging volunteer stewardship support to enable citizens to restore lost fish habitat. A significant portion of the $6,000,000 increase will address on-the-ground community-based river enhancements and approximately $1,500,000 will be utilized to support (i.e., assessment and characterization of priority sites, engineering and design, permitting, NEPA, technical assistance and administration) the initiative. Additional support from ORI partners (e.g., industry, non-profit organizations, state and local governments) regularly leverage non-federal to federal funds by a factor of approximately 3:1 to 5:1.	190
Climate Regimes & Ecosystem Productivity	-	$501	This increase will enhance NMFS' ability to monitor changes in these ecosystems through a network of in situ and remote observing systems. By the end of FY 2007, NMFS plans to develop 4 new biophysical indicators linking changes in marine ecosystems to climate variability/change. The development of new climatic-forced biological models will provide accurate predictions on the status of living marine resources in future climates—providing resource managers the knowledge and predictive tools to adapt to the consequences of climate variability and change on marine ecosystems.	195
Computer Hardware and Software	-	$1,383	These funds will cover critical IT infrastructure and connectivity costs for transmitting commercial and recreational fisheries data. Restoring these	198

			funds will allow for the essential maintenance of crucial security hardware and software used for preventing and monitoring security risks and vulnerabilities to NMFS' network. These funds will restore NMFS' ability to fund required maintenance contracts on software and to legally maintain software products currently used to support critical mission requirements. In addition, funding will provide support for essential contract staff in Headquarters and Regional sites involved in processing NOAA's scientific and law enforcement data for enterprise applications. These data are central to the stewardship of commercial and recreational fishing and of protected species and their habitats. Restoring these funds will allow for the essential maintenance of crucial security hardware and software used for preventing and monitoring security risks and vulnerabilities to NMFS' network.	
Cooperative Research	-	$994	This increase will fund research on Bycatch Reduction Devices (BRDs) and other fishing gear in the Gulf of Mexico. A number of economically important recreational and commercial species of finfish are caught as bycatch in the shrimp fishery. With the use of BRDs, fishermen are able to retain the shrimp catch while allowing the finfish to escape the trawl net. Increased funding will enable NMFS to address the issue of lowering bycatch levels of a number of economically important recreational and commercial species of finfish including red snapper. NMFS' request directly supports efforts to support regional partnership opportunities in the Gulf of Mexico, a strategy that is advocated in the President's U.S. Ocean Action Plan.	198
Information Analyses & Dissemination	-	$626	Requested funds provide the capacity to produce efficient tools for accurate data analyses and timely information dissemination to enable effective decision making. Funds within this line provide the necessary support for NMFS staff to analyze, produce, and disseminate population assessments and other biological, ecological, and oceanographic analyses. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) mandates requirements for data collection, analyses, and dissemination. NMFS has specific roles and responsibilities under MSA that require staff expertise in model development for population dynamics and economic trends, statistical data analyses for stock	200

			assessments, database development and data warehousing, and computer programming. Additional funds enable NMFS to make new investments that improve information technology (IT) information sharing and storing capabilities within six Fisheries Science Centers and six Regional Offices. Additionally, these funds enable NMFS to maintain Data Management systems and policies that are critically needed to support IOOS (Integrated Ocean Observing System); DMAC (Data Management and Communications); and NOAA DMC (Data Management Committee) requirements for data collection, processing, dissemination, archiving, and data sharing.	
Southeast Area Monitoring and Assessment Program (SEAMAP)	-	$3,753	These funds will support SEAMAP's plankton and environmental surveys and will enable NMFS to increase sampling intensity for the Gulf of Mexico. This will improve current estimates of larval mortality as well as analyses of potential economic impacts to commercial and recreational fisheries. NMFS will warehouse all of the biological and environmental data from each SEAMAP survey into the SEAMAP Information System, a distributed data management system administered in conjunction with NMFS' Southeast Fisheries Science Center. NMFS' SEAMAP initiative reflects the Office of Management and Budget and Office of Science and Technology Policy's FY 2007 Research and Development Budget Priorities by placing a high priority on data sharing across platforms and disciplines.	202
Alaska Composite R & D	-	$6,724	These funds support science, research, and management of Alaskan living marine resources by better understanding living marine resources and providing for sustainable and abundance-based harvests. NMFS' support of the Alaska Composite Research and Development line will lead to a better understanding of living marine resources and will provide for sustainable and abundance-based harvests. The interactions of fisheries and marine mammals are the subject of intensive research in many parts of the world, and will be a major focus of research in the North Pacific for many years to come.	206
Aquatic Invasive Species Program	-	$1,506	NOAA will enhance its capability to identify and assess species and pathways that pose the highest invasion danger to our Nation's resources for which NOAA is steward and will develop tools to prevent invasion	311

			by these species and along these pathways.	
Coral Reef Monitoring	-	$737	This increase will restore funds requested in FY 2006 to support 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.	392
Archive, Access, and Assessment	-	$912	This increase is necessary to carry out key data archive, access, and assessment activities, and sustain operations at NOAA's National Data Centers. This funding is necessary to ensure timely and quality service delivery for more than 50,000 users per year from the private sector, academia, and government.	402
Coral Reef Program	-	$962	This increase will be used to augment state and territory grants for implementation of Local Action Strategy (LAS) priority projects. States and territories will use this grant funding to implement LAS strategies that they are unable to fund with existing resources. Specific projects to be implemented by each jurisdiction will depend on the highest priority actions at the time that grant applications are submitted. Match requirements of the grant will ensure that the increase will leverage non-NOAA funds to increase on-the-ground action. The increase will also allow for targeted training and technical assistance to meet LAS-associated needs.	65
Response and Restoration	-	$2,794	This increase will strengthen NOAA's ability to respond to oil and chemical spills and terror incidents; determine damage to natural resources from contaminant releases; protect and restore marine and coastal ecosystems at hazardous waste sites; and work with communities to address critical local and regional coastal challenges.	71
Extramural Research	-	$5,960	This request will allow NOAA to maintain its efforts to fulfill requirements of the recently reauthorized Harmful Algal Bloom Research and Control Act (HABHRCA). Implementation of the Act, which is specified in the President's Ocean Action Plan, authorizes appropriations	83

			to the Secretary of Commerce for research, education, and monitoring activities related to the prevention, reduction, and control of harmful algal blooms (HABs) and hypoxia, of $25,000,000 for fiscal year 2007. Additional funds would help support NOAA's large and longstanding regional research investments to develop harmful algal bloom and hypoxia forecasting and response capabilities. These efforts are largely supported through NOAA's competitive and extramural HAB and hypoxia research programs which have a proven track record of developing the understanding and tools necessary for managers to respond and predict HAB and hypoxia events such as those affecting the New England and Florida coasts this year.	
Coastal Zone Management Grants	-	$2,849	This increase will help to address increasing pressures on coastal areas and resources within these areas, including the need to enhance state and local capacity to address these pressures. The additional funds will support state participation in implementing key actions of the U.S. Ocean Action Plan. In particular, the increase will enable states to improve regional collaboration and planning, and address such critical coastal issues as ensuring that coastal communities reduce vulnerability to the impacts of coastal hazards and improving management of coastal watersheds. Finally, the funds will assist states in implementing the new coastal management performance measurement system developed in response to Congressional direction, the Administration's Performance Management Agenda, and findings of OMB's Program Assessment and Rating Tool review. In FY 2005, state coastal management programs began implementing performance measures under this system, which is designed to measure progress in achieving the objectives of the Coastal Zone Management Act.	90
Coastal Zone Management Act Program Administration	1	$628	This increase will assist with the administration of the Coastal Zone Management Act and support an expanded National Estuarine Research Reserve System that includes a new reserve in Texas. The increase will support NOAA staff working with the new reserve and the associated travel, equipment, training, rent and supplies costs, as well as with state coastal management programs. In addition, the increase will cover printing of revised reserve system information to include the Texas	91

			reserve, and contractual funds to update reserve system plans and performance measures for facilities, land acquisition, research and education to cover the addition of a new reserve.	
National Estuarine Research Reserve System	-	$575	This increase will support an expanded National Estuarine Research Reserve System. The increase will allow NOAA to improve monitoring through a new Texas NERR in the western Gulf of Mexico, which is scheduled for designation in late 2006. This new reserve is located in a biogeographic region that is not currently represented within the System.	92
Marine Protected Areas	-	$650	This increase will support key science and analysis efforts fundamental to meeting NOAA's mandate under Executive Order 13158 to develop an effective national system of marine protected areas built through integrating the sites and capabilities of existing federal, state, and tribal programs. With the requested increase, the Marine Protected Areas (MPA) Center will be able to advance several critical components of the National System of MPAs, including the completion of methodologies and tools to complete a natural and cultural resource characterization and analysis of human uses and impacts on the marine environment for the West Coast as a pilot study; beginning a process to work with stakeholders to use this information to identify priority areas for conservation of significant natural and cultural resources; and partially restore support for public outreach and the MPA Federal Advisory Committee, a diverse group of stakeholders and scientific experts providing advice to the Departments of Commerce and the Interior on National System development.	93

Measure 1a: The Fish Stock Sustainability Index (FSSI)

Explanation of Measure

The Fish Stock Sustainability Index replaces the measure "Number of Overfished Major Stocks of Fish." The index tracks the outcome of building and maintaining fish stocks at productive levels while also capturing the critical components of NOAA's efforts to get to that outcome, i.e., managing fish harvest rates and increasing knowledge about the status of fish stocks. The measure provides a much more complete picture than the old measure of

NOAA's success at fisheries management. The FSSI is calculated by assigning a total score between 0 and 4 to each of 230 priority fish stocks (see below). Each stock receives one point if:

- NOAA has determined whether or not (1) the stock is overfished (one half point) and (2) the stock is subject to overfishing (one half point); i.e., scientific knowledge is available about the stock;
- NOAA's management measures are succeeding at ensuring that fishing does not remove too many fish (i.e., level of fishing mortality does not exceed the threshold for overfishing);
- The stock is managed at an acceptable level (i.e., biomass is above the level defined as overfished for the stock); and
- The stock is rebuilt or is at its "optimal" level, the ultimate long term end state for a stock (i.e., biomass is within 80% of that required to achieve maximum sustainable yield).

The FSSI is computed by summing the scores of the individual stocks. Thus, the highest possible score for each stock is four and for the index it is 920. The long term goal is to achieve a perfect FSSI score, which would mean that all 230 stocks would be known to have near-optimal biomass levels and to be free from overfishing. However, this will likely take up to several decades, in part because of the biological characteristics of certain stocks.

A shorter-term goal, over the next 5 to 10 years, would be to end overfishing on all stocks known to be subject to overfishing. There are currently 43 of these stocks. Ending overfishing yields one FSSI point for each stock, so based on the October 1, 2005 baseline value of 500.5, ending overfishing for all currently overfished stocks would result in a value of 543.5 (assuming everything else remains constant).

The FSSI is based on a set of 230 priority fish stocks selected for their importance to commercial and recreational fisheries. Criteria for selection of stocks include whether they are major stocks (landings greater than 200,000 pounds), whether they are overfished or subject to overfishing, whether they have assessments scheduled, whether they have previously been identified as important, or other factors as appropriate. These stocks represent about 90% of all commercial landings in the U.S. NOAA plans for this set of stocks to be tracked over a 5-year period.

The advantages of the FSSI compared to the "Number of Overfished Major Stocks of Fish" are:
The FSSI measures aspects of both fishing mortality and biomass within a single measure, as opposed to measuring biomass only. Looking at both aspects provides a much more complete picture of the success of NOAA's fishery management program. It will also cause the measure to show more year-to-year movement and to be much more sensitive to changes in funding.

- Stocks included in the FSSI were selected according to their relative importance, whereas previously only major stocks determined to be overfished in 2000 were included. With five times the number of stocks, the new measure includes large portions of the program that were excluded under the old measure.
- The new measure accounts for progress made relative to stocks that are rebuilding or are currently being managed at a sustainable level. As a result, it is a more accurate portrayal of the status of fisheries.

FY 2007 Target

Since the FSSI is a new measure for FY 2007, the target for FY 2006 is provided for informational purposes only.

One of the major thrusts during FY 2006 and 2007 will be implementing the Regulatory Streamlining Project (RSP). The RSP is a fundamental reconsideration and redesign of the regulatory process within NMFS. Pursuant to direction from Congress, the stated goal of RSP is to improve performance, efficiency and accountability. The RSPs will improve the quality and timeliness of plans and regulations, increasing the effectiveness of management measures to end overfishing and rebuild stocks, two key components of the FSSI.

In response to the Bush Administration's Ocean Action Plan, NMFS will work with Regional Fishery Management Councils to promote greater use of market-based systems for fisheries management through programs such as dedicated access privilege (DAP) programs during FY 2006 and 2007. Dedicated Access Privilege programs (DAPs) allocate a share of the resource to individuals, cooperatives, or communities. DAP programs are effective at ending overfishing, a key component of the FSSI, where the overfishing results from "derby fishing" as a result of open access.

Other priorities during FY 2006 and 2007 will include bycatch reduction in all major commercial fisheries, monitoring of the crab rationalization program in Alaska, reauthorization of the Magnuson Stevens Fishery Conservation and Management Act, rebuilding strategies in Georges Bank, cooperation with international fish commissions, and management of highly migratory species such as sharks, white marlin and bluefin tuna.

Program Increase

The following program increases are directly related to this performance measure (Dollars in Thousands):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Regulatory Streamlining	7	$2,829	Funds will support the fishery plan development and regulatory analysis, evaluation, and implementation capabilities of the Fisheries Management Program, which encompasses the process of developing fishery management recommendations through their analysis, approval, and implementation. 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	146

			address policy issues early in the regulatory process, rather than later when it becomes difficult to comprehensively address a new and possibly contentious issue. 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.	
Highly Migratory Species Research in the Gulf of Mexico	-	$3,000	These funds will support Highly Migratory Species Research in the Gulf of Mexico in order to address the research needs for Gulf and Atlantic billfish, tunas, swordfish, and sharks as well as fund the review of the status of the Atlantic white marlin for listing as threatened or endangered under the Endangered Species Act (ESA). In 2001, NOAA Fisheries received a petition to list the severely overfished Atlantic white marlin as threatened or endangered under the ESA. 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.	148
Catch and Release Mortality Research	-	$1,000	This increase will address priority research needs for estimating discard mortality for both the recreational and commercial sectors. This funding will support needed research for: enhanced onboard monitoring of commercial fishing vessels to obtain accurate information on discarded species including the following: identification of species, total number, survival by depth, and size; 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; 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; collaborative field research with states, stakeholders, recreational and commercial fishing industries, and universities to test new techniques to monitor survival rates; laboratory experimental studies to test new methods; tagging studies to provide estimates of long-term	149

			survival; and improved outreach and education to all fishery sectors on reducing mortality of released bycatch.	
Expand Annual Stock Assessments - Improve Data Collection	8	$7,550	This request will strengthen stock assessment efforts (fishery resource surveys and assessment analyses) and initiate new ecosystem-based fish stock assessments and fishery-dependent sampling programs in the Gulf of Mexico. NMFS will improve fishery stock assessments by integrating more ecosystem information into mathematical models to reveal trends in biomass, recruitment levels (e.g., the number of young fish entering the stock each year), and exploitation rates. NMFS would initiate new fishery monitoring programs that collect data on landings, discarded bycatch, and life history data (growth, longevity, and mortality) in 2007 and integrate these data streams into scientifically reviewed stock assessment updates to constituents beginning in 2009. Expanding stock assessment capabilities will help address long-standing shortfalls in fisheries management, including: fishery monitoring, fish stock surveys, data management, and more comprehensive assessment models.	151
Regional Councils and Fisheries Commissions	-	$3,047	These funds will enhance the capacity of the eight Regional Fishery Management Councils (RFMCs) to participate fully in the Regulatory Streamlining Program. This funding will allow the RFMCs to analyze a greater range of alternatives as they develop new Fishery Management Plans (FMPs) or amendments to current plans to reduce levels of overfishing and overcapacity while taking into consideration the impacts of their proposed actions on other components of the marine ecosystem. Extensive analyses and documentation are required to comply with the Magnuson-Stevens Fishery Conservation and Management Act and other mandates. The requested funding will allow the Councils to conduct the environmental, economic, and other impact analyses required. These analyses will occur sufficiently early in the regulatory process to allow a range of reasonable alternatives to be considered; this “no-surprises” approach will ensure compliance with the procedural requirements of the various mandates. $1,000,000 will be used for RFMCs to develop DAP programs, such as individual fishing quotas (IFQs).	159
Survey and Monitoring Projects	-	$1,168	Funds will enable NOAA to administer 3 research and monitoring programs in the Atlantic and Pacific Oceans. This will improve NMFS’	164

			ability to: 1) manage West Coast groundfish stocks; 2) estimate the distribution and abundance of bluefin tuna stocks; and 3) continue research on the apparent decline of bluefish stocks in the Atlantic Ocean.	
Enforcement	-	$3,979	The increase in Enforcement and Surveillance will support the need of NOAA's increased Management and Stewardship role addressing investigations and monitoring capabilities within the Northeast Shelf and Gulf of Mexico large marine ecosystems (LMEs). The additional funds for the 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. Approximately ten (10) currently authorized investigative and enforcement support positions will be filled to partially assume the increased workload created by anticipated regulations for General Access Scallop, Recreational Fisheries, Red Snapper IFQ, South Atlantic Snapper/Grouper, Gulf Shrimp, and HMS Species.	172
Cooperative Research	-	$994	This increase will fund research on Bycatch Reduction Devices (BRDs) and other fishing gear in the Gulf of Mexico. A number of economically important recreational and commercial species of finfish are caught as bycatch in the shrimp fishery. With the use of BRDs, fishermen are able to retain the shrimp catch while allowing the finfish to escape the trawl net. Increased funding will enable NMFS to address the issue of lowering bycatch levels of a number of economically important recreational and commercial species of finfish including red snapper. NMFS' request directly supports efforts to support regional partnership opportunities in the Gulf of Mexico, a strategy that is advocated in the President's U.S. Ocean Action Plan.	198
Alaska Composite R & D	-	$6,724	These funds support science, research, and management of Alaskan living marine resources by better understanding living marine resources and providing for sustainable and abundance-based harvests. NMFS' support of the Alaska Composite Research and Development line will lead to a better understanding of living marine resources and will provide for sustainable and abundance-based harvests. The interactions of fisheries and marine mammals are the subject of intensive research in many parts of the world, and will be a major focus of research in the	206

			North Pacific for many years to come.	

Measure 1b: Percentage of Living Marine Resources (LMRs) With Adequate Population Assessments and Forecasts.

Explanation of Measure

This measure replaces the measures "Number of Major Stocks with an Unknown Stock Status" and "Number of Stocks of Protected Species with Adequate Population Assessments." The latter has been incorporated into this new measure as a protected species component. This measure tracks the percent of priority fish stocks and protected species stocks that have adequate population assessments and forecasts available and useful to resource managers. The priority fish stocks consist of 230 stocks selected for their importance to commercial and recreational fisheries. They are the same stocks tracked under the FSSI. Protected species stocks tracked for this measure are those listed under the MMPA and/or ESA, which happen also by coincidence to total 230. There are thus 460 stocks tracked under this measure.

This measure combines the number of stock assessments for priority fish stocks and the number of stock assessments and forecasts for protected species to produce a percentage of LMRs that tracks the scientific basis for supporting and for evaluating the impact of living marine resource management actions. The standard of "adequate" is in reference to improving the level of scientific information on a LMR stock to Tier II as described in the Fisheries and Protected Species Stock Assessment Improvement Plans (SAIPs) developed by the National Marine Fisheries Service. To reach this standard, assessments would have to 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.

FY 2006 and 2007 Targets

Since this is a new measure for FY 2007, the target for FY 2006 is provided for informational purposes only. The FY 2007 target is based on information regarding the level and timeliness of each fish and protected species stock assessment. In FY 2007, we are aiming for 38.5% of a combination of selected fish stocks and protected species stocks to have Tier II stock assessments updated with sufficient timeliness to provide scientifically reliable determinations. To reach the FY 2007 target, six additional stocks of living marine resources (3 fish and 3 protected species) representing an increase of 3.5 percentage points will be raised to a Tier II assessment level, while maintaining the Tier II status of the previously assessed species. Existing assessments must be continually updated to remain current and thus retain their Tier II status. These assessments include monitoring the abundance and biological characteristics of managed fish stocks and protected species, as well as providing required status information and forecasts for each stock.

Program Increase

The following program increase is directly related to this performance measure (Dollars in Thousands):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Protected Resources Research and Management Programs	7	$5,825	$2.828 million of this request will allow the Protected Species program to continue court ordered take reduction planning, complete ESA consultation on Federal actions, develop programmatic NEPA documents for permits and Incidental Harassment Authorizations, revise recovery plans for sea turtles and complete ESA five-year status reviews for marine mammals and sea turtles. This effort will also improve customer service by reducing the time required to complete permit actions. Additionally, specific research will be directed at determining the characteristics of noise experienced by marine animals underwater, measuring the behavioral and auditory effects of exposure to ocean noise, and developing cost effective mitigation measures for ocean noise effects. The remaining $3 million of this request will be used for protected species stock assessments and mortality estimation and for reducing bycatch of protected species in fisheries. Funds will allow NMFS to increase the quantity and improve the quality of stock surveys and assessments that inform regulatory decisions. Imprecise estimates increase the probability that species will be misclassified under the ESA or Marine Mammal Protection Act (MMPA), resulting in increased risk to species, delay of recovery, and additional mitigation measures that pose significant economic losses to the regulated community. Assessments also are critical to implementing the U.S. Ocean Action Plan because they will be used to establish acceptable levels of bycatch of marine mammals and turtles in the Atlantic Ocean and Gulf of Mexico. Currently, the quality of stock assessments for over 200 protected and at-risk marine species is inadequate for management purposes. NMFS will invest additional resources to make assessment information available to managers in order to minimize bycatch of protected species in fisheries and to increase transparency of the decision-making process.	118
Marine Mammals	-	$1,759	This request has two components: 1) *Dolphin Encirclement - $1.259 million.* Increased funds are necessary to fully fund continued long-term monitoring of the Eastern Tropical Pacific dolphins stocks, called for in MMPA section 304(b). This research includes Population Abundance	125

			Monitoring, Long-Term Stress Monitoring, Implementation of the System for Tracking and Verification of Dolphin-Safe Tuna, and Implementation of MMPA Import Requirements for Tuna Harvested in the Eastern Tropical Pacific. 2) *Recovery of Endangered Large Whales - $500,000.* The information collected and techniques implemented will improve stock assessments and our understanding of population recovery needs for endangered large whales. This information will enable NOAA to detect changes in the status of large whales in order to prevent long-term and irreversible damage to these populations. The problems or information gaps to be addressed include: population structure, abundance, migratory patterns, and habitat needs.	
Expand Annual Stock Assessments - Improve Data Collection	8	$7,550	This request will strengthen stock assessment efforts (fishery resource surveys and assessment analyses) and initiate new ecosystem-based fish stock assessments and fishery-dependent sampling programs in the Gulf of Mexico. NMFS will improve fishery stock assessments by integrating more ecosystem information into mathematical models to reveal trends in biomass, recruitment levels (e.g., the number of young fish entering the stock each year), and exploitation rates. NMFS would initiate new fishery monitoring programs that collect data on landings, discarded bycatch, and life history data (growth, longevity, and mortality) in 2007 and integrate these data streams into scientifically reviewed stock assessment updates to constituents beginning in 2009. Expanding stock assessment capabilities will help address long-standing shortfalls in fisheries management, including: fishery monitoring, fish stock surveys, data management, and more comprehensive assessment models.	151
Fish Information Networks	-	$2,109	This request funds three state-federal cooperative programs that collect, manage, and disseminate statistical data and information on marine commercial and recreational fisheries off the coasts of Alabama, Florida, Georgia, Louisiana, Mississippi, and Texas. With this request, NMFS will have the capability to increase the quantity of data and improve the quality of statistics that are used to inform regulatory decisions for fisheries management.	161
Survey and Monitoring Projects	-	$1,168	Funds will enable NOAA to administer 3 research and monitoring programs in the Atlantic and Pacific Oceans. This will improve NMFS'	164

			ability to: 1) manage West Coast groundfish stocks; 2) estimate the distribution and abundance of bluefin tuna stocks; and 3) continue research on the apparent decline of bluefish stocks in the Atlantic Ocean.	
Fisheries Oceanography	-	$500	These funds will improve fish stock assessments by investigating the effects of ocean environmental variability on marine ecosystems and fish populations. The request will enable NMFS to develop new ecological indicators of the effects of environmental variability on living marine resources in the California Current, North Pacific, Gulf of Alaska, Bering Sea, Gulf of Mexico and Northeast U.S. Shelf large marine ecosystems. The Fisheries Oceanography program advances the current state of knowledge of ocean processes by forecasting potential impacts on production, growth, and/or distribution of marine fish, and these forecasts are incorporated into stock assessment and commercial harvest analyses.	166
Observers/Training	2	$3,494	These funds will expand observer coverage in the Gulf of Mexico; initiate observer coverage in priority fisheries nationwide; and support 35,000 observer collection days in the North Pacific. Without observers and observer programs, NMFS would have insufficient data to effectively manage many of the Nation's economically valuable fisheries. Additional research is needed to better quantify bycatch of red snapper and other species with respect to season, depth, and location. To achieve this goal, an expansion of the observer program coupled with an improved logbook program is needed. NMFS' improvement and expansion of observer programs for many of the fisheries with significant bycatch supports one of the priorities set forth in the President's U.S. Ocean Action Plan - the implementation of a new national bycatch strategy. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Endangered Species Act (ESA) require NMFS to standardize reporting methodologies that minimize bycatch in federally managed fisheries and to protect specific endangered or threatened marine plants and animals, respectively.	178
Southeast Area Monitoring and Assessment Program (SEAMAP)	-	$3,753	These funds will support SEAMAP's plankton and environmental surveys and will enable NMFS to increase sampling intensity for the Gulf of Mexico. This will improve current estimates of larval mortality as well as analyses of potential economic impacts to commercial and	202

			recreational fisheries. NMFS will warehouse all of the biological and environmental data from each SEAMAP survey into the SEAMAP Information System, a distributed data management system administered in conjunction with NMFS' Southeast Fisheries Science Center. NMFS' SEAMAP initiative reflects the Office of Management and Budget and Office of Science and Technology Policy's FY 2007 Research and Development Budget Priorities by placing a high priority on data sharing across platforms and disciplines.	
Alaska Composite R & D	-	$6,724	These funds support science, research, and management of Alaskan living marine resources by better understanding living marine resources and providing for sustainable and abundance-based harvests. NMFS' support of the Alaska Composite Research and Development line will lead to a better understanding of living marine resources and will provide for sustainable and abundance-based harvests. The interactions of fisheries and marine mammals are the subject of intensive research in many parts of the world, and will be a major focus of research in the North Pacific for many years to come.	206

Measure 1c: Number of Protected Species Designated as Threatened or Endangered under the Endangered Species Act, or as Depleted under the Marine Mammal Protection Act, with Stable or Increasing Population Levels

Explanation of Measure

This measure tracks progress at achieving partial recovery of endangered, threatened or depleted protected species under the jurisdiction of the National Marine Fisheries Service from a baseline of 65 species established as of January 1, 2004. Protected species are defined as 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. 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.

FY 2006 and FY 2007 Targets

The FY 2007 target of 26 consists of 11 endangered species and 15 threatened species, up from 10 and 14 respectively in FY 2004, the most recent year for which actual data are available. Of the 65 stocks to which this measure applies, 34 are endangered, 27 are threatened, and 4 are depleted. The two targeted species for 2007 are Ozette Lake sockeye salmon and shortnose sturgeon, which are threatened and endangered, respectively.

Performance towards the FY 2006 and FY 2007 targets is based upon actions that have been taken over the last 5-10 years for Protected Species. Efforts include completion of recovery plans for Pacific salmon in the NMFS Northwest Region, continued impletmation of recovery actions for Pacific salmon through both ESA Pacific salmon recovery funds and grants provided through the Pacific Coastal Salmon Recovery Fund, and improved information gained through updated stock assessments and implementation of monitoring programs.

In FY 2007, NOAA will continue to make specific investments to improve the status of all protected species in order to meet out year performance targets. These specific actions include: Implementing ESA recovery plans, completing ESA consultations on the registration of pesticides by the Environmental Protection Agency, reducing bycatch of marine mammals and sea turtles in fisheries by completing take reduction planning efforts, and implementing ship strike reduction strategies for Right Whales. Improved protected species stock assessments and improved understanding of the effects of ocean noise will help us to make informed management decisions, leading to increased protection for species, while allowing human activities to continue.

Program Increase

The following program increase is directly related to this performance measure (Dollars in Thousands):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Protected Resources Research and Management Programs	7	$5,825	$2.828 million of this request will allow the Protected Species program to continue court ordered take reduction planning, complete ESA consultation on Federal actions, develop programmatic NEPA documents for permits and Incidental Harassment Authorizations, revise recovery plans for sea turtles and complete ESA five-year status reviews for marine mammals and sea turtles. This effort will also improve customer service by reducing the time required to complete permit actions. Additionally, specific research will be directed at determining the characteristics of noise experienced by marine animals underwater,	118

			measuring the behavioral and auditory effects of exposure to ocean noise, and developing cost effective mitigation measures for ocean noise effects. The remaining $3 million of this request will be used for protected species stock assessments and mortality estimation and for reducing bycatch of protected species in fisheries. Funds will allow NMFS to increase the quantity and improve the quality of stock surveys and assessments that inform regulatory decisions. Imprecise estimates increase the probability that species will be misclassified under the ESA or Marine Mammal Protection Act (MMPA), resulting in increased risk to species, delay of recovery, and additional mitigation measures that pose significant economic losses to the regulated community. Assessments also are critical to implementing the U.S. Ocean Action Plan because they will be used to establish acceptable levels of bycatch of marine mammals and turtles in the Atlantic Ocean and Gulf of Mexico. Currently, the quality of stock assessments for over 200 protected and at-risk marine species is inadequate for management purposes. NMFS will invest additional resources to make assessment information available to managers in order to minimize bycatch of protected species in fisheries and to increase transparency of the decision-making process.	
Marine Mammals	-	$1,759	This request has two components: 1) *Dolphin Encirclement - $1.259 million.* Increased funds are necessary to fully fund continued long-term monitoring of the Eastern Tropical Pacific dolphins stocks, called for in MMPA section 304(b). This research includes Population Abundance Monitoring, Long-Term Stress Monitoring, Implementation of the System for Tracking and Verification of Dolphin-Safe Tuna, and Implementation of MMPA Import Requirements for Tuna Harvested in the Eastern Tropical Pacific. 2) *Recovery of Endangered Large Whales - $500,000.* The information collected and techniques implemented will improve stock assessments and our understanding of population recovery needs for endangered large whales. This information will enable NOAA to detect changes in the status of large whales in order to prevent long-term and irreversible damage to these populations. The problems or information gaps to be addressed include: population structure, abundance, migratory patterns, and habitat needs.	125

Marine Turtles	-	$650	These funds are necessary to continue research to recover highly endangered sea turtles within the U.S. and internationally. Funds will allow for the protection of the globally imperiled populations of green, hawksbill, olive ridley, loggerhead, and leatherback sea turtles. These funds will support the collection of information on biology and habitats.	128
Other Protected Species	4	$3,153	These funds are critical to recovering those NMFS ESA listed species that do not have a separate program, as well as those species nearing the need for ESA listing (species of concern). Activities supported by this funding include completion of ESA section 7 consultations and implementing recovery programs for hard corals, shortnose sturgeon, Gulf sturgeon, white abalone, Johnson's seagrass, and smalltooth sawfish. These funds will be used to initiate pilot proactive conservation efforts for species nearing the need for listing under the ESA. This pilot program will focus on reducing threats to the species through on-the-ground conservation actions or development of management agreements. This measure will result in cost savings by preventing an ESA listing and thus not having to complete the ESA consultation and permitting requirements for species.	130
Atlantic Salmon	-	$1,445	This request will be used for implementation of the Atlantic salmon recovery plan including research and management activities within NMFS, and to fund recovery activities of the state of Maine. NMFS proposes to use its Atlantic salmon funds to support ongoing research and recovery efforts geared toward implementing the recovery plan. Examples of NMFS actions include: development of a proposed rule addressing the boundaries of the DPS, based on a stock status review published in FY 2006; convene and serve as a co-chair (with USFWS) of an interagency Recovery Implementation Team with representatives from Federal, State, and local agencies, Tribes, NGO's and the Canadian Government to implement the final recovery plan; an evaluation of the effects of hatchery stocking by the USFWS on Atlantic salmon recovery; evaluations of the interaction of water chemistry, habitat and the transition process for juvenile salmon migrating from rivers to the sea through estuaries. Funds requested will also be provided to the Maine Atlantic Salmon Commission, to facilitate their continued research and	133

			management activities in support of the recovery plan. Examples of work accomplished with these funds include: assessments of adult and juvenile salmon populations, evaluations of various stocking practices, studies of adult and juvenile migration, and monitoring water quality in Maine salmon rivers. Funds from the NMFS grant provide up to 64% of Commission monies, and allow the Commission to complete critical recovery work which is not done by any other agency or group.	
Pacific Salmon	-	$9,664	This request includes three components: recovery implementation and management actions; improved scientific advice for Pacific salmon recovery; and response to EPA consultation workload. 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. Without the proposed increase, the program will revert to a program without the resources to provide customer service and the species will suffer from a lack of coordinated local action on recovery.	134
Enforcement	-	$3,979	The increase in Enforcement and Surveillance will support the need of NOAA's increased Management and Stewardship role addressing investigations and monitoring capabilities within the Northeast Shelf and Gulf of Mexico large marine ecosystems (LMEs). The additional funds for the 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. Approximately ten (10) currently authorized investigative and enforcement support positions will be filled to partially assume the increased workload created by anticipated regulations for General Access Scallop, Recreational Fisheries, Red Snapper IFQ, South Atlantic Snapper/Grouper, Gulf Shrimp, and HMS Species.	172
Alaska Composite R & D	-	$6,724	These funds support science, research, and management of Alaskan living marine resources by better understanding living marine resources and providing for sustainable and abundance-based harvests. NMFS' support of the Alaska Composite Research and Development line will lead to a better understanding of living marine resources and will provide for sustainable and abundance-based harvests. The interactions of	206

			fisheries and marine mammals are the subject of intensive research in many parts of the world, and will be a major focus of research in the North Pacific for many years to come.	

Measure 1d: Number of Habitat Acres Restored (Annual/Cumulative)

Explanation of Measure

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.

FY 2006 and FY 2007 Targets

NMFS participates in a variety of regional and national programs to restore NOAA trust resources and meet the FY 2006 and FY 2007 targets. On a national basis, NMFS directs restoration planning, implementation and monitoring for the Community-based Restoration Program, a program of modest grants for local, partnership-based restoration activities. NMFS serves as the Department of Commerce representative to the Coastal Wetlands Planning, Protection and Restoration Act Task Force, through which the agency undertakes large-scale habitat restoration and protection projects in coastal Louisiana. NMFS serves as the primary source of restoration expertise for the NOAA Damage Assessment and Restoration Program. Working with staff from the National Ocean Service and the NOAA General Counsel's Office, NMFS experts address large-scale oil spills, releases of toxic compounds, and ship groundings to obtain monetary compensation from responsible parties and apply funds to restore or replace injured resources.

Great Lakes Habitat Restoration	-	$1,500	These funds will establish a Great Lakes Habitat Restoration Program, emphasizing restoration of NOAA trust resources at the watershed scale within the Great Lakes Areas of Concern. The two primary components of the Great Lakes Restoration Program will be: 1) the establishment of a cross-NOAA Great Lakes Habitat Restoration Program Office 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.	188

Measure 1e: Annual Number of Coastal, Marine and Great Lakes Ecological Characterizations that Meet Management Needs.

This measure was reworded since the FY 2005 APP due to suggestions from the OMB Ecosystem Research Program PART process.

Sound management of coastal and ocean ecosystems requires scientifically-based information on their condition. At the most fundamental level, ecosystem characterization includes identification of the physical location (ecosystem boundaries), spatial extent, socioeconomic, and biological, chemical, and physical characteristics. NOAA's ecological environmental characterizations improve understanding of the history, current state, and future condition of ecosystems. They are cornerstones to ecosystem-based approaches to management and the basis for many coastal and ocean management tools including forecasts, assessments, and management plans.

NOAA will make decisions about what and when to characterize based on major user demand and requirements identified for each major ecosystem by agency and regional stakeholders. Characterization efforts will be prioritized using the following criteria: user community demand and priorities, including those for NOAA management programs; adequacy of indicator; significance of issue; and consequences of management action/ inaction. NOAA will focus on protected areas or areas where NOAA has a clear management mandate, including essential fish habitat, National Marine Sanctuaries, National Estuarine Research Reserves, the Great Lakes, the coastal zone, and coral reef ecosystems. NOAA will work with others to identify key parameters for characterizing their condition and develop assessments of their present "health."

The indicator in this measure is **characterizations that meet management needs.** Management needs, and thus the characterizations required to address them, vary temporally and geographically. Thus, National Marine Sanctuaries, National Estuarine Research Reserves, coral reef ecosystems, the coastal zone, the Great Lakes, Essential Fish Habitats, Ecological Species Units, and unexplored areas will each have different management needs and associated ecological environmental characterizations.

FY 2006 and 2007 Targets

NOAA will conduct 110 ecological environmental characterizations in FY 2006 and 84 in FY 2007 at ecosystem sites that include the following:

- National Marine Sanctuaries (Channel Islands, Cordell Bank, Florida Keys, Flower Garden Banks, Gray's Reef, Northwestern Hawaiian Islands, Monterey Bay, Hawaiian Islands Humpback Whale, Fagatele Bay, Gulf of the Farallones, Monitor, Olympic Coast, Stallwagen Bank, Thunder Bay).
- National Estuarine Research Reserves.
- Coral reef ecosystems (American Samoa, Guam, CNMI, Hawaii, NWHI, Florida, Puerto Rico, USVI, and FAS)
- The coastal zone (e.g., Lake St. Clair and the St. Clair River, Apalachicola Bay, Coastal Southern Maine, Elwha River Watershed, and Coastal Louisiana).
- Great Lakes (Lake Erie, Huron, Superior, Michigan, and Ontario).

- Essential fish habitat.
- Ecological species units.
- Unexplored areas.

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

This measure was reworded since the FY 2006 APP to incorporate suggestions from the OMB PART process. 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 these 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 to evaluate the potential of various options to manage those stressors. These forecasts will be based upon 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 – HAB forecasts in the Gulf of Mexico and Gulf of Maine will be counted as two separate forecast capabilities. Similarly, multiple, distinct forecast capabilities could be counted within a single ecosystem (i.e., NOAA may forecast harmful algal blooms (HABs), pink shrimp harvest, and hypoxia in the Gulf of Mexico).

The ultimate goal is for resource managers to routinely use NOAA's forecasts to better manage ecosystem use, condition, and productivity. Progress toward this goal has been documented since 2001 and includes: Eastern Gulf of Mexico and Gulf of Maine harmful algal bloom alerts (2001), pink shrimp harvest and Gulf of Mexico hypoxia forecast model development (2002), transfer of an operational oyster mortality forecast capability to the US Army Corps of Engineers (2003), transfer of an operational Eastern Gulf of Mexico harmful algal bloom alert capability to NOAA's Coastal Services Center (2004), transfer of the Great Lakes Forecasting System to NOAA programs (i.e., National Ocean Service Center for Operational Oceanographic Products and Services and National Weather Service) (2005), and preliminary forecasts for domoic acid in Pacific Northwest razor clams, coral bleaching, oyster mortality, and real-time jellyfish prediction in the Chesapeake Bay.

FY 2006 and 2007 Targets

By the end of FY 2004, the capability to forecast HABs in the Gulf of Mexico was complete. Under the current schema, by 2011, five NOAA ecosystem forecast capabilities will be affecting management decisions. In FY 2006, NOAA will focus on developing and validating forecasts for domoic acid in Pacific Northwest razor clams, coral bleaching, oyster mortality, and real time jellyfish predictions in the Chesapeake Bay, but none of these are expected to be transferred to managers until FY 2008 and beyond. The FY 2007 target is to develop a pink shrimp harvest forecast and transfer it to the North Carolina Department of Fisheries.

Measure 1g: Percentage of tools, technologies, and information services that are used by NOAA partners/customers to improve ecosystem-based management. (Note: Baseline data and targets are under development.)

This measure was reworded since the FY 2006 APP to incorporate suggestions from the OMB PART process. This measure will track NOAA's success in providing tools, technologies, and information services that improve the use and management of coastal, ocean, and Great Lakes ecosystems. This measure will capture a range of products and services that NOAA provides to coastal and marine resource managers. Tracking the accessibility and use of information by target audiences will allow NOAA to identify and expand its most effective programs and products. NOAA partners and customers include federal, state, local and tribal authorities who make decisions that affect the state of resources in the U.S. coastal zone, and other users whose actions impact the condition of coastal ecosystems (e.g., private industry, school children.)

Examples of tools include: coastal population change data, land cover data, benthic habitat maps, and environmental sensitivity index maps. Technologies refer to the transfer of new or underused approaches for addressing coastal management (e.g., remote sensing, biosensors, Automated Underwater Vehicles (AUVs), genetic markers for fishery stocks) and resource development (e.g., culture systems for aquaculture, marine pharmaceuticals). This includes the application of technology to coastal resource management through synthesis, integration, training, and the development of new management tools. Information services would include technical assistance, education materials and curricula, extension and training. Tools or techniques used for modeling or forecasting are measured elsewhere and excluded here.

FY 2007 Target

The measure's baseline data and targets remain under development, and it is planned to be ready for use in FY 2007. NOAA will continue to develop baseline and targets for this measure during FYs 2005 and 2006.

Measure 1h: Number of coastal, marine, and Great Lakes habitat acres acquired or designated for long-term protection. (Note: This is a separate habitat performance measure from the established GPRA measure *number of habitat acres restored,* 1d.)

Since the FY 2006 APP, this measure has been reworded, and scope reduced to not include habitat restoration at this time. Serious habitat degradation is evident throughout the nation's coastal, marine, and Great Lakes areas. Current threats to these habitats include coastal urbanization, fragmentation of habitats, overuse, and impacts of vessel groundings, dredging, and fishing gear on underwater habitats. Habitat restoration (the established GPRA measure, 1d) and long-term protection (this new measure, 1h) are critically needed to help maintain the function of important coastal and marine ecosystems. Under NOAA's legislative mandates, NOAA protects and restores key habitats that provide critical ecosystem functions that support the health of endangered or threatened species, essential fish habitat, as well as provide a number of 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). 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. 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.

The measure does not track NOAA's proactive efforts to educate landowners and inform decision-makers about reducing the number of proposals that degrade or destroy habitat or its reactive efforts to comment on permits requesting development in areas that would have adverse effects on marine and coastal ecosystems.

FY 2006 and 2007 Targets

This measure was under development in FY 2006 APP and targets for acres acquired are for FY 2007 APP. Target numbers for "acres *designated* for long-term protection" have been established based on the planned designation of the Mission Aransas National Estuarine Research Reserve in FY 2006 and planned designation of the Northwest Hawaiian Islands Coral Reef Ecosystem Reserve as the 14th National Marine Sanctuary in FY 2007. NOAA target numbers for "acres *acquired* for long-term protection" are difficult to establish because 1) these projects are competitively selected based on availability of funding and 2) the variability in cost per acre of land make it difficult to estimate acreage based on average cost.

MEASURE UNDER DEVELOPMENT: Percentage of Coastal, Marine and Great Lakes Ecosystems with Improved Ecosystem Health (as Demonstrated by a Suite of Indicators of Ecosystem Health).

The key outcome of NOAA's Ecosystem Goal is "Healthy and productive ocean, coastal, and Great Lakes ecosystems that benefit society". NOAA works to achieve this goal through the execution of numerous legislative mandates, which convey public trust responsibilities to NOAA for the nation's coastal and marine resources. NOAA, other Federal, state, and local government agencies, the private sector, nongovernmental groups and the public influence the desired outcome. To gauge progress toward achieving this goal, NOAA is developing a new performance measure that indicates whether ecosystem health is improving in each of the large ecosystems or sub-ecosystems within its purview.

NOAA has made significant progress toward establishing this measure, but much work remains. For example, NOAA has begun to delineate coastal, marine, and Great Lakes ecosystems at their largest scale. NOAA will continue to develop this regional framework, and in consultation with key stakeholders, will identify sub-ecosystems (encompassing coastal watersheds, marine waters, and Great Lakes environments). Concurrently, NOAA will continue to develop an adaptive suite of indicators of ecosystem health in those regions. Until subecosystems are defined, NOAA will refine its adaptive

suite of indicators of ecosystem health. NOAA will continue to work toward establishing a system for integrated budget and performance management that will give NOAA the verified data needed to track its planned index measure on ecosystem health.

Discontinued Measures

Measure: Number of Overfished Major Stocks of Fish

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Target	45	43	43	40	42	N/A
Actual	45	42	42	42		
Met/Not Met	*	*	*	*		

* The primary reason this measure is being replaced is due to the difficulty of tracking it from year to year. There is poor alignment of the timing between the availability of final information from one year and need to specify targets for the next year. This problem has been further exacerbated by updated stock information that has led to baseline adjustments not related to stock recovery. In retrospect the problem has caused the targets to have inconsequential meaning and the assessment of whether or not a target was met, not particularly informative. The discussion that follows attempts to describe these changes on an annual basis. In sum, two stocks were rebuilt between FY 2002 and FY 2005, and none are planned to be rebuilt in FY 2006.

FY 2002 started with an actual of 46 from FY 2001. The target for FY 2002 was a reduction of one (from 46 to 45). During the year, however, there was a change to the baseline from 46 to 45 (one stock that had been included in the baseline was removed). Since F Y2002 ended with 45 the measure was not met.

FY 2003 started with the actual of 45 from FY 2002. The target for FY 2003 was a reduction of two (from 45 to 43). Once again, however, there was a modification to the baseline (two stocks originally included as separate stocks were determined to be a single stock and combined) resulting in a revised baseline of 44. This effectively made the target 42, but this target was never modified to reflect that change. Two stocks were actually rebuilt in FY 2003 so the actual at the end of the year was 42 and the target was met. (NOTE: The 42 end-of-year actual was erroneously reported as 43 in the Department of Commerce FY 2004 Performance and Accountability Report and as 44 in the FY 2006 Annual Performance Plan).

FY 2004 started with the actual of 42 from FY 2003. The target remained at 43 based on the baseline without the modification from FY 2003. There was no planned reduction for FY 2004. Since FY 2004 ended with an actual of 42, the measure was met.

FY 2005 started with the actual of 42 from FY 2004. The target for FY 2005 was a reduction of one (from the FY 2004 target of 43 to the original FY 2005 target of 42. The 2005 PAR modified the FY 2005 target to 40 to reflect the baseline changes noted above). Since FY 2005 ended with an actual of 42 representing no reduction, the target was not met.

FY 2006 began with an actual of 42. The 2006 target of 42 reflects all currently available information regarding the rebuilding status of the stocks as well as the adjustments to the baseline. There is no planned reduction for FY 2006.

Measure: Number of Major Stocks With an Unknown Stock Status

	FY 2002*	FY 2003*	FY 2004*	FY 2005*	FY 2006*	FY 2007
Target	120	88	84	81	70	N/A
Actual	88	94	77	73		
Met/Not Met	Met	Met	Met	Met		

*The primary reason for this measure being replaced is that it does not have a constant baseline. Since the number of major stocks changes from year to year, many changes in the numbers did not reflect changes in performance.

FY 2002 started with an actual from the previous year of 120. There was no planned reduction for FY 2002. FY 2002 ended with an actual of 88. Of the 32 stock decrease, 30 stocks (net) moved from major to minor, while two stocks (net) moved from unknown to known. Zero were targeted, two were accomplished. Therefore the measure was met.

FY 2003 started with an actual from the previous year of 88. There was no planned reduction for FY 2003. FY 2003 ended with an actual of 94. However, a net of eight stocks moved from minor to major, while a net of two stocks went from unknown to known. Targeted zero, accomplished two. Therefore the measure was met.

FY 2004 started with an actual from the previous year of 94. The target for FY 2004 was a reduction of 4 (from an original estimate of 88 in FY 2003 to 84 in FY 2004). FY 2004 ended with an actual of 77 unknown stocks. Of the 17 stock reduction, a net of 10 stocks were added, removed, or merged into complexes, while 7 stocks moved from unknown to known. Targeted 4, accomplished 7. Therefore the target was met.

FY 2005 started with an actual from the previous year of 77. The target for FY 2005 was a reduction of 4 (from an original estimate of 85 in FY 2004 to 81 in FY 2005). FY 2005 ended with an estimated actual of 73. This estimate is based on four new assessments having been approved during FY 2005. Targeted 4, accomplished 4. Therefore the measure was met.

FY 2006 began with an estimated actual from the previous year of 73. The target for 2006 is a reduction of 3 (from 73 estimated to 70).

Measure: Number of Stocks of Protected Species with Adequate Population Assessments

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Target	N/A	N/A	N/A	N/A	59	N/A
Actual	N/A	N/A	61	57		
Met/Not Met						

Explanation of Discontinued Measures

Number of Overfished Major Stocks of Fish

This measure is being discontinued for three reasons. First, since it focused only on the major stocks that were listed as overfished in the 2000 Report to Congress on the Status of Fisheries, it did not encompass stocks that have become overfished since 2000 and thus did not convey the most up-to-date status of NMFS-managed fish stocks. Second, despite the wording, it focused on those stocks that have not yet been rebuilt to sustainable levels rather than those that remain overfished, which was confusing. Third, by focusing only on overfished status, there were many important aspects of fishery management, in particular reductions in overfishing, that it did not reflect. Because the program more directly influences fishing mortality rates and stock assessments and only indirectly influences biomass levels through controlling fishing mortality, the new measure is a more accurate and timely reflection of program performance while still being outcome oriented.

Number of Major Stocks with an "Unknown" Stock Status

This measure was problematic because it did not have a constant baseline. Due to the definition of a major stock as simply one with more than 200,000 pounds of landings, the list of major stocks changed frequently with new landings data, causing the measure to report changes in numbers that did not correspond to changes in performance. The new measure Percent of Living Marine Resources (LMRs) With Adequate Population Assessments tracks a fixed set of priority fish stocks and thus avoids this problem. It also focuses on the level and quality of scientific information available for each stock rather than on its official status determination, which is a management rather than a scientific decision.

Number of Stocks of Protected Species with Adequate Population Assessments

This measure is a component of the new measure Percent of Living Marine Resources (LMRs) with Adequate Population Assessments, so keeping it as a separate measure would be redundant.

Program Evaluation

Virtually every aspect of National Marine Fisheries Service's fisheries science program is peer reviewed, either internally within NMFS or outside the agency by, for example, the National Academy of Sciences or the National Science Foundation. NMFS also relies on extensive informal networks of university partnerships and laboratories throughout the Nation. Moreover, reviews often occur by opposing parties' scientists in the court system when fisheries management decisions are litigated.

Evaluation efforts include peer reviews of proposals, internal and external reviews of programs, and quarterly reviews of NMFS' overall performance in protected species recovery. Constituent input is an important part of the evaluation process and is solicited regularly through constituent workshops.

NOAA's goal to sustain healthy coasts is the product of more than 25 years of experience helping to understand and manage coastal resources so that their ecological and economic productivity can be fully realized and sustained. Evaluation efforts exist at a variety of levels, from peer reviews of proposals and evaluations of individual projects, to internal and external reviews of entire programs and quarterly reviews of NOAA's overall performance in coastal stewardship areas. Constituent input is an important part of the evaluation process and is solicited regularly through constituent workshops.

Cross-cutting Activities

Intra-Department of Commerce

The National Marine Fisheries Service will focus on reducing overfishing and overcapitalization of U.S. fishery resources by improving stock assessment and prediction, improving essential fisheries habitat, and reducing fishing pressure, including downsizing of fishing fleets. The Department of Commerce, enlisting the support of key bureaus such as the Economic Development Administration, the Minority Business Development Agency, and the National Institute of Standards and Technology, will play a key role in mitigating the impact of these critical resource conservation decisions in the transition to economically sustainable communities.

Other Government Agencies

The Department of Commerce will enlist the support of other federal agencies, such as USDA, the Small Business Administration, and the U.S. Department of Labor, to mitigate the effect of resource conservation decisions.
Over the past year, NMFS has developed innovative partnerships with the states of Maine, Washington, Oregon, and California to promote the recovery of listed and at-risk salmon and steelhead species.

NOAA has leveraged its resources through a variety of effective international, interagency, state, local, private sector, and other partnerships to develop world-class coastal stewardship capabilities. These partnerships are essential to effectively integrate coastal science, assessment, monitoring, education, and management activities.

NOAA provides technical and scientific assistance to a variety of partners involved in protection, monitoring, and restoration of coastal resources. For example, NOAA provides critical information to the U.S. Coast Guard to help the Coast Guard respond to approximately 70 serious oil and chemical spills every year. NOAA also works closely with other agencies, Department of Commerce bureaus, states, local governments, and industry on important cross-cutting activities such as reducing the risks and impacts of natural hazards, protecting and restoring essential fish habitats, reducing runoff pollution, forecasting and preventing harmful algal blooms, and exploring the deep ocean and new uses of the ocean's rich biodiversity.

External Factors and Mitigation Strategies

Various external factors may affect NMFS' ability to reach its targets. The impact of climate, biological, and other natural conditions affect NMFS' efforts to recover protected species and maintain the status of healthy species. In addition, many of NOAA's coastal stewardship activities depend on contributions from multiple partners, particularly states, territories, and other federal agencies. The failure of one or more of these partners to fulfill their cooperative contributions could have very serious consequences on overall efforts. Further, the effect of national and/or local economic conditions may affect NOAA's ability to reach certain targets. Research may identify opportunities to pursue mitigating strategies in some cases.

Performance Goal for Climate: Understand climate variability and change to enhance society's ability to plan and respond

DOC Strategic Goal 3: Observe, protect, and manage the earth's resources to promote environmental stewardship

General Goal/Objective 3.1: Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs

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.

To enable society to better respond to changing climate conditions, NOAA, working with national and international partners, will employ an end-to-end system comprised of integrated observations of key atmospheric, oceanic, and terrestrial variables; a scientific understanding of past climate variations and present atmospheric, oceanic, and land-surface processes that influence climate; application of this improved understanding to create more reliable climate predictions on all time scales; and service delivery methods that continuously assess and respond to user needs with the most reliable information possible.

These activities will accelerate the development of a structure and process for improving the relevance of climate science to assist decision-makers in their development of national, regional and sectoral adaptation responses (actions to reduce vulnerability, seize opportunities, and enhance resilience) to variability and long-term changes in the climate, particularly for industry, natural resource and water managers, community planners, and public health professionals.

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Integrated Ocean Observing System (IOOS): Global Ocean Observing System for Climate	-	$6,052	Completes 61% of the planned global ocean observing system for climate, which is the global component of the Integrated Ocean Observing System and the ocean component of the Global Earth Observation System of Systems (GEOSS). This request responds to the long-term observational requirements of operational forecast centers, international research programs, and major scientific	250

			assessments.	
NIDIS and Regional Decision Support Partnerships: Coping With Drought	-	$4,000	Develops a focused decision-support research effort to aid risk management in the context of severe, sustained drought, and broader water resources management issues.	253
Explain Climate Conditions to Improve Predictions	-	$2,000	Develops new climate reanalysis data sets that will improve operational climate prediction and improve knowledge of the causes of observed climate variability, whether natural or human- induced.	259
Climate Reference Network	-	$1,161	Enables installation and commissioning of the remainder of the full network of 114 stations for adequate documentation of long-term changes in temperature and precipitation (50-100 years) and a more robust climate record.	271
Earth System Research Laboratory: Regional Air Quality Assessment	-	$2,420	Comprehensive Air Quality (AQ) regional assessments that will characterize atmospheric processes that are key causes of air quality problems. The centerpiece of each assessment is a comprehensive month-long field experiment that will measure many aspects of weather and air quality in a region with serious AQ problems. Each assessment provides both general and region-specific information to air quality decision-makers, including policy-makers at all levels of government, enabling them to develop plans that protect both public health and economic vitality. NOAA's assessments also provide essential information for improving and evaluating numerical models of air pollution that are used to predict unhealthful conditions and evaluate potential policies.	279
Laboratories & Cooperative Institute: Climate Research	-	$1,225	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 and how they work. The research aims to improve NOAA's ability to assess climate variability on seasonal to interannual timescales, as well as interdecadal to	242

			centennial timescales and beyond.	
Tornado/Severe Storm Research (Phased-Array Radar).	-	$2,014	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 for appropriate action. 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.	286
National Sea Grant College Program	-	$741	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.	297
Global Climate Observing System	-	$2,743	Supports NOAA's commitment to build an Integrated Global Environmental Observation and Data Management System and provides resources to help build climate observation systems in developing countries throughout the world. This will yield a more robust global record of climate trends.	268
Regional Climate Services	-	$528	Provides climate-sensitive sectors (farmers, utilities, land managers, business owners, energy, re-insurance, weather-risk industry) with climate data and information products and climate forecasts tailored toward regional impacts. This activity forms the backbone of the customer service and information distribution to be leveraged for the National Integrated Drought Information System (NIDIS).	263

National Undersea Research Program	-	$4,990	This will restore NURP's capability to provide state-of-the-art undersea research capabilities that are geographically balanced across the U.S. In FY 2006, NURP maintained minimum support to one East Coast center and, thus, a very limited capability to support undersea research off the Atlantic coast and in the Gulf of Mexico and Caribbean regions. This initiative will allow NURP to fully comply with Congressional mandates and recommendations and serve scientists and the general public by providing cutting-edge undersea research and technologies and will provide managers and stakeholders with tools, technologies, and data to serve as stewards of our Nation's natural resources. NURP will be able to provide such support across both ocean basins in an efficient and cost-effective manner through a balanced set of centers on both East and West coasts.	300
Ocean Exploration Program	-	$1,513	This increase will restore key investments in the Nation's only program dedicated to systematically exploring the world's oceans. It will support NOAA's ability to fulfill its scientific, environmental assessment, and technology development responsibilities. In response to the U.S. Commission on Ocean Policy's recommendations for a National Ocean Exploration Program, the U.S. Ocean Action Plan highlighted the development of a new NOAA vessel dedicated to ocean exploration. In September of 2004, NOAA obtained this vessel, the *Okeanos Explorer*. In addition, OE funding has also been critical for the operations of the University-National Oceanographic Laboratory System (UNOLS) fleet and the National Deep Submergence Facility (NDSF) assets (e.g., ALVIN submersible, JASON ROV) since 2002.	305
High Performance Computing and Communication	-	$6,474	These funds will be used to make major improvements in the 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	319

			dependent on major advances in high-end computing power, advanced information technology, and the availability of environmental data and information.	
Archive, Access, and Assessment	-	$6,700	This increase is necessary to carry out key data archive, access, and assessment activities, and sustain operations at NOAA's National Data Centers. This funding is necessary to ensure timely and quality service delivery for more than 50,000 users per year from the private sector, academia, and government.	402
Climate Database Modernization – Quality Assurance / Quality Control (NC)	-	$275	With this funding, NOAA and the NCDC manage the conversion of historical data records to electronic format and accessibility via the Internet. Basic operational efforts such as processing and keying incoming NOAA records, image access, subscription services and accounts receivable will be supported.	403
Research Supercomputing/Climate Change Computing Initiative	-	$984	Provides critical computing, storage, and analysis capabilities, as well as model development and infrastructure support, for meeting the objectives of the Administration's Climate Change Science Program (CCSP).	558

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

Explanation of Measure

Accurate temperature forecasts are critical to many sectors of the national economy, including agriculture and energy utilities. This measure compares actual observed temperatures with forecasted temperatures from areas around the country. For those areas of the United States where a temperature forecast (warmer than usual, cooler than normal, near-normal) is made, this score measures how much better the forecast is than the random chance of being correct. Areas where no forecast for surface temperature is made (i.e., areas designated as "equal chance" on the Climate Prediction Center (CPC) seasonal forecast maps) are not included in the computation of the Heidke Skill Score (HSS), the metric used for this measure to compare actual and observed temperatures. It is one of several accepted standards of forecasting in the scientific community. It is calculated as follows:

Heidke skill score: $S = ((c-e)/(t-e)) \times 100$

where c = number of stations correct

and e = number of stations correct by chance = (1/3) x total number of stations in a 3 equal class system

and t = number of stations, total

S is approximately equal to one-half of the correlation between forecast and observations.

The HSS is a function of whether or not a forecast is correct and for how many locations a forecast is made, but does not reward when the forecast is verified by chance. Skill score is based on a scale of -50 to +100. If forecasters match a random prediction, the skill score is zero. Anything above zero shows positive skill in forecasting. Given the difficulty of making seasonal temperature and precipitation forecasts for specific locations, a skill score of 20 is considered quite good and means the forecast was correct in almost 50% of the locations forecasted. Forecasts will likely be better in El Niño years than in non-El Niño years. Reported skill score is a cumulative average over past 48 consecutive 3-month seasons. For example, skill score of 18 reported at the end of FY 2002 is the HSS averaged over 48 surface temperature forecasts from October 1998 to September 2002. Temperatures across the United States will be measured using NOAA's cooperative network maintained by volunteers across the nation. Temperature data is collected and analyzed by NOAA.

In June 2005, NOAA switched to a new method of computing HSS and the new method will be reflected in the reporting of the FY 05 actual (none of the data reported in the summary table has changed). The old technique was done manually, and as such, was subject to occasional human errors. It was calculated using data for major cities, which resulted in the score being disproportionately weighted toward the eastern U.S. The new technique verifies a gridded objective analysis of the forecast field against a gridded analysis of the observed verification field. This treats the entire area of the lower 48 states more fairly and objectively.

2007 Targets

The FY 2006 target score is 18 and is an increase over the target for FY04 of 17. Beyond FY 2006, a gradual increase in performance skill score is expected due to improvements in modeling and research activities.

Specifically, the National Weather Service accelerated implementation of the new Climate Forecast System originally scheduled for FY 2005 to FY 2004, which is expected to yield benefits in the late 2005 or early 2006 time period. NOAA's Climate Prediction (CPC) is leading an effort to spin up a Climate Test Bed which will accelerate the transition of research improvements to operational climate prediction, and has redirected nearly 25% of its federal and contract staff to accelerate improvements in seasonal climate prediction. Increased collaboration with the research climate community is also planned to enhance model diagnostics and testing from the internal and external science communities. In addition, CPC will expand the collaborative forecast process to include more scientists and experimental forecast tools in their operational seasonal forecasts. This targets the best possible prediction expertise and cutting edge science. Other activities include completion of North American Monsoon Experiment (NAME) in FY04, aimed at improving warm-season predictions, and implementing a new training program that provides forecasts that take into account the latest science and technology advances and the use of new seasonal climate tools/products.

Measure 2b: Reduce the uncertainty in the magnitude of the North American carbon uptake

Explanation of Measure

By 2008, NOAA will reduce the uncertainty of atmospheric estimates of the North American carbon uptake by half to +/- 0.3 Gt C per year, assuming a full network of 36 stations has been established and monitored. Several inverse transport models are being used to determine the uncertainty in the North American carbon uptake as the number of carbon dioxide profiling sites is increased. The uncertainty is estimated on an annual basis, to track progress toward the long-term goal. The baseline uncertainty is +/- 0.6 GtC per year (as determined in 2000). Reducing the uncertainty by 50% will allow resolution of the interannual variability in the North American carbon flux and U.S. regional carbon dioxide emissions and uptake.

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). These reservoirs of carbon are known as carbon "sinks." However, the variation in the uptake from year to year is very large and poorly understood. A large portion of the variability is thought to be related to the terrestrial biosphere in the Northern Hemisphere, and quite likely North America itself. 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. This can only be done 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 (about 600 mile) scale. This will provide a powerful tool to gauge the effectiveness of carbon management and enhanced sequestration efforts.

Research supporting this measure also ensures a long-term climate observing system that provides an observational foundation to evaluate climate variability and change, and provides the mechanism to support policy and management decisions related to climate variability and change at national and regional scales. More information can be found at http://www.cmdl.noaa.gov/carbonamerica/.

FY 2006 and 2007 Targets

An intensive interagency field campaign in the north-central United States, which began in FY 2005 with the implementation of new aircraft sites in Iowa, Illinois, Nebraska, North Dakota and Wisconsin is planned during the 2006-2007 period to reconcile estimates of regional carbon sources and sinks calculated from atmospheric measurements, with direct estimates utilizing field measurements, land-based carbon inventories, regional geographic information, and remote sensing. The campaign also seeks to attribute sources and sinks of carbon dioxide to ecosystem processes and human activities within the region.

The expansion of the North American observing network of tall tower and aircraft profiling sites is delayed from the original planned deployment due to the enacted funding level. Targets in FY 2006 and FY 2007 remain virtually constant from the FY 2005 actual (+/- 0.4 gigatons C/yr) and achieving the long-term target of +/- 0.3 gigatons C/yr will be delayed until deployment of the planned network is completed.

Measure 2c: Reduce the uncertainty in model simulations of the influence of aerosols on climate

Explanation of Measure

The near-term goal. *By 2007, NOAA observational and theoretical research will reduce the uncertainty in the simulated influence of North American aerosols on climate by 10%.* The baseline for comparison will be the level of uncertainty reflected in the 2001 climate-change assessment of the Intergovernmental Panel on Climate Change (IPCC), which was prepared by the worldwide scientific community. The meeting of the 10% measure will be judged by the findings of the forthcoming 2006/7 IPCC assessment, which will update the understanding of climate change.
The longer-term goal. By 2010, *NOAA observational and theoretical research will reduce the uncertainty in the simulated influence of global aerosols on climate by 40%.* The baseline for comparison will again be the high level of uncertainty reflected in the 2001 climate-change assessment of the IPCC, prepared by the worldwide scientific community. The meeting of this longer-term 40% measure will be judged by the findings of forthcoming IPCC assessments, further updating the understanding of climate change.

Background on the science. Aerosols are liquid or solid particles suspended in the atmosphere. They force changes in the climate system by (i) directly absorbing and scattering of radiation from the sun and (ii) by changing the way clouds reflect back solar radiation. While greenhouse gases warm the atmosphere, aerosols and clouds can both counteract greenhouse gases by reflecting incoming solar radiation and cooling the atmosphere, or, under different conditions, can absorb solar radiation, 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). This GPRA measure addresses the first of the two factors. In later years the second factor will also be included.

NOAA research plan and annual performance measures. To meet the 2007 goal, NOAA has designed a four-step research program. It is complete with annual measures of success of each year's step, plus an overall evaluation of how all four steps contribute to the 2007 goal. *Plan.* (1) The multi-stepped plan began in 2002, scoping out the information needs associated with the climate influence of North American aerosols. (2) In 2003, instruments were developed to fill the North American observational gaps. (3) In 2005, monitoring of the seasonal changes of the aerosols and their climate impact began in one key North American region. (4) In 2006, NOAA will carryout an intensive field campaign using long-existing and newly developed instruments in the Gulf of Mexico region. The results from this field study, monitoring activities, and laboratory-derived data will be used to evaluate the percentage improvement in model simulation of the role of North American aerosols on climate via scattering and absorption of radiation. *Annual Performance Measures.* Annual targets quantitatively score the success of each of the individual research tasks in preceding years. Success in each of these preceding steps is necessary for success in meeting the 10 percent improvement of uncertainty associated with the 2006 goal and the 15% improvement in uncertainty for the 2007 goal.

Outcome and payoffs. 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. Reductions in the uncertainties surrounding aerosols relate directly to the confidence with which model simulations can support policy decisions on the climate issue. Furthermore, since

aerosols are also a human-health, air quality issue, there is the opportunity to quantify "win-win" opportunities of how decisions made to improve air quality may also contribute to reduce the forcing of climate change.

FY 2006 and FY 2007 Targets

While 2006 will be the first year this measure is presented in this report, progress toward this near-term goal is already being tracked at the program level. A series of annual research activities from instrument development in FY2003, to field process studies and long-term monitoring of aerosol distributions in FY2004 and FY2005, will be utilized to achieve the FY2006 and FY 2007 goals and further enhance our understanding of how aerosols affect climate.

Measure 2d: Determine the National Explained Variance (%) for Temperature and Precipitation for the Contiguous United States using USCRN Stations

Explanation of Measure

This measure is designed to address the significant shortcomings in past and present observing systems by capturing 98% of the long-term changes in the national annual average surface air temperature and 95% of the long-term changes in the national annual average precipitation throughout the contiguous U.S. using the U.S. Climate Reference Network (USCRN).

Inadequacies in the present observing system increase the level of uncertainty when government and business decision-makers consider long-range strategic policies and plans. The U.S. Climate Reference Network (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. Deployment of the U.S. Climate Reference Network is continuing, with stations added over the next several years.

The original full national network implementation plan has been scaled back to ~110 stations deployed across the contiguous U.S., capturing long-term temperature and precipitation trends only at the national level across the lower 48 states, due to lower enacted funding. Given the current and future states of available technologies, the adjusted network distribution provides for the life cycle high performance operations and maintenance of the commissioned stations while maintaining the quality of the data at the highest possible level, given the current and future state of available technologies. The smaller sized network will not be able to achieve the level of monitoring and evaluation of climate variations and trends originally intended at the regional scale. This may be possible if funding for modernizing the Historical Climatology Network (HCN) is made available as a part of the NOAA Environmental Real-time Operational Network (NERON) project.

The USCRN will strengthen the existing climate record through determination of transfer functions between these stations and the instrumentation and stations of other observing networks. 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. More information can be found at http://www.ncdc.noaa.gov/crn/performancemeasures.html.

FY 2006 and FY 2007 Targets

Due to reduced funding levels in FY 2005 and FY 2006, the deployment of new stations was suspended and available funds used for operations and maintenance (O&M) of commissioned observing stations. All other USCRN related activities, such as developing instrument transfer functions and station normals, were suspended during FY 2005. The percent national explained variance for FY 2006 for the annual average surface air temperature will be 96.9% and for precipitation, 91.4%. Provided funding is enacted at the FY 2007 requested level, the target completion date will be extended from FY 2007 to FY 2010 for completing the deployment of the remainder of the currently planned network of stations across the lower 48 states. In addition, quality control technique improvements will be delayed, and incomplete instrument transfer functions will prevent improvements in the quality and value of other NOAA observations from in situ and remote (satellite based) observing systems, as related to climate monitoring and evaluation of present, past, and future climate variation and change.

Program Increase

The following program increase is directly related to this performance measure (Dollars in Thousands):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Climate Reference Network	-	$1,161	Enables installation and commissioning of the remainder of the full network of 114 stations for adequate documentation of long-term changes in temperature and precipitation (50-100 years) and a more robust climate record.	271

Measure 2e: Reduce the error in global measurement of sea surface temperature

Explanation of Measure

This measure is intended to document progress in accurately measuring the global sea surface temperature. The unit of measure is potential satellite bias error (in degrees Celsius) of global sea surface temperature. Bias error is due to a systematic difference between multiple types of observing instrumentation (e.g., satellites and in situ buoys, ships, etc.). The current satellite bias error is 0.6 °C (2005). The long-term goal is to reduce the error to 0.2 °C by FY2008. The maximum allowed bias error has been specified as less than 0.5 °C on a monthly scale for a 5° latitude-longitude box.

The sea surface, covering over 70% of the Earth surface, has a tremendous influence on global climate. It is where the atmosphere responds to the ocean, via the transfer of heat either to or from the atmosphere. Warmer than normal sea surface temperatures in the tropical Pacific is a dominant characteristic of the El Niño phenomenon, and predictive climate models for El Niño must be initialized using the most precise observed surface temperature possible to produce accurate forecasts. 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.

This performance measure also 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. More accurate estimates of sea surface temperature and ocean heat content will improve our ability to respond to changes in the climate system.

FY 2006 and FY 2007 Targets

The integrated ocean climate observing system is ~53% complete at the end of 2005. Current limitations in accurate measurements of global sea surface temperature include insufficient observing platforms in the global ocean. FY2006 and FY2007 will be dedicated to maintaining current coverage of the global ocean observing network, working toward global coverage and the long-term goal of reduced error in the global measurement of sea surface temperature. The reduction in uncertainty in sea surface temperature is dependent upon the deployment of global drifting buoys and subsequent response of the network as the data are collected. While the target deployment of 1250 buoys was completed in FY 2005, 2006 and 2007 will be dedicated to optimizing the location of the buoys in order to more effectively reduce uncertainty in estimates of global sea surface temperature.

Program Increase

The following program increase is directly related to this performance measure (Dollars in Thousands):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Integrated Ocean Observing System	-	$6,052	Completes 61% of the planned global ocean observing system for climate, which is the global component of the Integrated Ocean Observing System and the ocean component of the Global Earth Observation System of Systems (GEOSS). This request responds to the long-term observational requirements of operational forecast centers, international research programs, and major scientific assessments.	250

Measure 2f: Improve society's ability to plan and respond to climate variability and change using NOAA climate products and information

Explanation of Measure

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. The unit of measure is: number of risk and impact assessments/evaluations published and communicated to decision makers. The baseline is 28 risk and impact assessments/evaluations published in 2003.

NOAA currently provides state of the art science and discovery information products to a range of 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). These information summaries highlight important deliverables such as reducing uncertainty in climate forcing models (e.g., carbon sources and sinks, effects of aerosols on climate), as well as in seasonal, interannual, and decadal climate forecasts. These deliverables form the basis of NOAA's emerging climate products and services. NOAA requires stakeholder input and feedback for product development and improvement. These interactions are facilitated by both interdisciplinary research and NOAA operations, bridging the gap between research and production, and decision makers. By increasing the interactions between NOAA and the users of climate information, NOAA will ensure that climate products and services are reaching the key decision making sectors.

FY 2006 and FY 2007 Targets

NOAA is planning on continuing the development of prototype climate decision support tools and the broadening of decision support partnerships through extramural research grants, and enhancements to the already successful Regional Integrated Sciences and Assessments (RISA) Program and newly established Sector Applications Research Program (SARP). The NOAA Climate Transition Program (NCTP), newly implemented in FY2005, will continue to focus on successful transfers of experimental research and information products into operational settings. NOAA plans to expand RISA into the Alaska region; and through a focus on Coping with Drought will seek to enhance drought impacts research, generate directed drought regional and river basin decision support activities, and transition drought related research tools into operations.

Program Increase

The following program increase is directly related to this performance measure (Dollars in Thousands):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
NIDIS and Regional	-	$4,000	Develops a focused decision-support research effort to aid risk	253

Decision Support Partnership: Coping with Drought			management in the context of severe, sustained drought, and broader water resources management issues.	

Program Evaluation

The NOAA Scientific Advisory Board (SAB), made up completely of private sector, university, and other Federal agency scientists, conducts periodic reviews of the activities of the Office of Oceanic and Atmospheric Research Laboratories and Joint Institutes. The SAB also provides guidance on NOAA's Climate Program. A number of NOAA line offices participate in the activities that support climate research. The National Environmental Satellite, Data, and Information Service (NESDIS) holds management performance reviews several times a year. NWS conducts reviews of the National Centers for Environmental Prediction (NCEP). In addition, programs are evaluated by the National Science Foundation and the National Research Council. NOAA holds annual constituent workshops at which NOAA's seasonal climate forecast efforts are discussed with the community of seasonal-to-interannual climate forecast users, and input is solicited to shape future efforts. NOAA's Climate Program Office, funded in Oceanic and Atmospheric Research's (OAR) Competitive Research Programs line item, is reviewed by international science agencies, universities, and private sector scientists.

Cross-cutting Activities

Other Government Agencies

NOAA works with a wide variety of partners in the area of climate forecasts, including other federal agencies (for example, the Federal Emergency Management Agency and the U.S. Agency for International Development), state and local agencies (for instance, state departments of environmental protection and emergency preparedness managers), academia, foreign government agencies, and international organizations. In preparing for the 1997–98 El Niño, NOAA worked closely with the Federal Emergency Management Agency and state and local officials, greatly improving public preparedness for the severe weather resulting from El Niño.

In 2003, the US government formed the Climate Change Science Program (CCSP) to facilitate the creation and application of knowledge of Earth's global environment through research, observations, decision support, and communication. The DOC, partnering with 12 other Federal agencies, leads this nationwide effort (http://www.climatescience.gov/Library/stratplan2003/default.htm). At NOAA, Climate Goal strategic performance objectives correspond directly to CCSP goals and are managed by NOAA's Climate Goal.

Government/Private Sector

NOAA depends strongly on universities to help accomplish its science objectives through a network of joint and cooperative institutes and universities. NOAA also funds academic researchers through competitive, peer-reviewed programs, namely, OAR's Competitive Research Program (formerly referred to as the Climate & Global Change Program).

External Factors and Mitigation Strategies

Improving our understanding of the natural environment requires advanced infrastructure and therefore continual investment in new technology, such as improved in situ observing systems, supercomputers, and environmental satellites.

Performance Goal for Weather and Water: Serve society's needs for weather and water information

DOC Strategic Goal 3: Observe, protect, and manage the earth's resources to promote environmental stewardship

General Goal/Objective 3.1: Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs

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. With so much at stake, NOAA's role in observing, forecasting, and warning of environmental events is expanding, while economic sectors and its public are becoming increasingly sophisticated at using NOAA's weather, air quality, and water information to improve their operational efficiencies and their management of environmental resources, and quality of life.

NOAA is strategically positioned to conduct sound science and provide integrated observations, predictions, and advice for decision makers to manage many aspects of environmental resources–from fresh water to coastal ecosystems and air quality. Bridging weather and climate time scales, NOAA will continue to collect environmental data and issue forecasts and warnings that help protect life and property and enhance the U.S. economy.

NOAA is committed to excellent customer service. NOAA depends on partners in the private sector, academia, and government to help disseminate critical environmental information. NOAA will work even closer with existing partners and will develop new partnerships to achieve greater public and industry satisfaction with weather, air quality and water information. NOAA will expand services to support evolving national needs, including space weather, freshwater and coastal ecosystems, and air quality predictions throughout the Nation.

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Strengthen Tsunami Warning Network	4	$9,920	Sustain the Administration's commitment to strengthen the U.S. Tsunami Warning Program.	352
National Profiler Network Frequency Conversion	5	$3,500	Transfers wind profilers from research to operations and funds a conversion of the radio frequency over which they transmit so that the profilers do not impede search and rescue satellite communications.	356
Florida/Caribbean Hurricane Data Buoy (O&M)	-	$1,400	Funds operation and maintenance of seven new weather data buoys funded/deployed under 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.	350

Air Quality Forecasting	-	$2,500	Funds Air Quality Forecasting program deployment schedule for nationwide deployment of ozone forecasts in FY 2009 and for initial PM forecast capability in FY 2012.	355
Sustain Cooperative Observer Program	-	$890	Funds O&M support for NOAA legacy Cooperative Observer program.	356
Pacific Island Compact	-	$50	Provides for support for the five Micronesian Weather Forecast Offices served by the Compact of Free Association.	358
Space Environment Center	-	$3,199	Funds increases for the Space Environment Center to provide real-time monitoring and forecasting of solar and geophysical events, conduct research in solar-terrestrial physics, and develop techniques for forecasting solar and geophysical disturbances.	358
US Weather Research Programs (USWRP)	-	$2,457	Accelerates air quality research for particulate matter forecasts and to expand THORPEX.	358
Advanced Hydrological Prediction Services (AHPS)	-	$1,098	Continues nationwide implementation of AHPS, with deployment at an additional 309 forecast points in these areas planned in FY 2007.	359
Next Generation Weather Radar (NEXRAD)	-	$2,830	Provides increases necessary for continued operations and maintenance for the network of 123 NEXRAD systems.	369
Advanced Weather Interactive Processing System (AWIPS)	-	$3,461	Funds necessary increases for continued operations and maintenance for the network of 169 fielded systems.	369
NWS Telecommunications Gateway	-	$2,500	Implements a telecommunications network solution that resolves an existing single-point-of-failure associated with the NWS Telecommunications Gateway.	370
NOAA Center for Weather and Climate Prediction	-	$11,000	Prepares the NOAA Center for Weather and Climate Prediction (NCWCP) for FY 2008 occupancy and operations.	627
WFO Construction	-	$30	Upgrades and modernizes Alaska and Pacific Region Weather Service Offices, Tsunami Warning Centers, and associated employee housing units to bring the NWS into full compliance with federal law and national and local building codes.	627
National Water Level Program	-	$2,000	The requested increase will rebuild and strengthen the National Water Level Observation Network's (NWLON) ability to provide critical navigation and storm tide information throughout extreme weather and water events. Hurricanes Katrina, Rita and Wilma destroyed a total of nine tide gauges in the Gulf and southern Florida, and	54

			inflicted serious damage across the rest of the NWLON. The funds will re-establish destroyed stations and make other needed system wide repairs. In addition to filling observation gaps, the funds will significantly improve the NWLON's ability to continue operation and provide critical real time data for storm surge forecasts and emergency response throughout a storm's duration by "hardening" stations.	
Archive, Access, & Assessment	-	$152	This increase is necessary to carry out key data archive, access, and assessment activities, and sustain operations at NOAA's National Data Centers. This funding is necessary to ensure timely and quality service delivery for more than 50,000 users per year from the private sector, academia, and government.	402

Measure 3a: Lead Time (Minutes), Accuracy (%), and False Alarm Rate (FAR, %) of Severe Weather Warnings for Tornadoes

Explanation of Measure

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. In FY 2005, the percentage of events with a lead time greater than zero was 66 percent. 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% 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. The false alarm rate was added as a reportable measure in FY 2000, although it had been collected and used internally previously.

FY 2006 and 2007 Targets

The FY 2006 and FY 2007 targets for tornado lead time and FAR have been revised based on analysis of recent trends in performance, combined with impacts of prior fiscal year budget reductions and residual impacts those reductions have had on programs. Specifically the NEXRAD Open Radar Data Acquisition (ORDA) deployment start date was delayed from fall 2004 to fall 2005 due to a FY 2004 budget cut that impacted NWS' ability to meet the accelerated schedule that had been established. The subsequent delay of the deployment of the ORDA super resolution capability from spring 2005 to spring 2008 has also contributed to the revision of targets. The super resolution capability was delayed due the

technical design being more challenging than anticipated, and also due to a NEXRAD tri-agency team decision to deploy the basic ORDA functionality before deploying super resolution.

There are several actions that will lead to tornado warning improvement in FY 2006 and FY 2007. NWS lead time target will gradually increase to 14 minutes by FY 2007 after completion of retrofits of the NEXRAD systems, implementation of new training techniques such as a weather event simulator, and realization of the operational benefits of Advanced Weather Interactive Processing System's five software enhancements, including enhancements to the Mesocyclone and Tornado Vortex Signature Algorithms delivered during FY05. Technological advances and new training techniques have resulted in meeting or exceeding lead time and accuracy goals in recent years. The same training techniques have also led to False Alarm Rate not meeting the goals set in FY 2002, FY 2003 and FY 2004. National emergency manager and media surveys indicate that they can "tolerate" a higher false alarm rate if it results in longer lead times and increased accuracy. Supplemental coverage from FAA radars and enhanced radar algorithms and scan strategies are being incorporated into AWIPS from FY 2005 through FY 2010 to reduce the false alarm rate.

Program Increases

The following program increases are directly related to this performance measure ($K). Note: this increase is related to the GPRA measures only at the Weather Forecast Offices (WFOs) within the National Wind Profiler Network; it does not affect the national GPRA targets. This is explained in more detail in the budget narrative.

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
National Profiler Network Frequency Conversion	5	$3,500	Transfers wind profilers from research to operations and funds a conversion of the radio frequency over which they transmit so that the profilers do not impede search and rescue satellite communications.	356

Measure 3b: Lead Time (Minutes) and Accuracy (%) for Severe Weather Warnings for Flash Floods

Explanation of Measure

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. In FY 2005, the percentage of events with a lead time greater than zero was 74 percent. 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.

FY 2006 and 2007 Targets

The FY 2006 and 2007 targets for the Flash Flood accuracy were adjusted based on analysis of performance and budget reductions in recent fiscal years. NWS expects to improve both flash flood lead-time and accuracy over the next several years through the implementation of new Advanced Hydrologic Prediction Service (AHPS) flash flood decision assistance tools. However, the FY 2005 enacted budget delayed the implementation of forecaster-requested enhancements to the operational AHPS Flash Flood Monitoring and Prediction (FFMP) decision assistance tool, and this will have residual effects in FY 2006 and FY 2007, which is why the goals have been revised. Critical flash flood operations related training to field staff will also be delayed in FY 2005 and in FY 2006, which contributes to the goal revision. The implementation of NEXRAD Open Radar Data Acquisition (ORDA), originally scheduled to begin in the fall of 2004, began in FY 2005 due to a FY 2004 budget cut that impacted NWS' ability to meet the accelerated schedule that had been established. The goal of ORDA is to provide precipitation estimates on a much smaller grid, giving forecasters many more points to average for the basin rainfall. The larger number of points for averaging the rainfall will deliver more precise precipitation input for forecasting flash floods. Also, in FY 2006 Distributed Modeling will be installed into the AWIPS baseline software. This will introduce a level of specificity to the hydrologic modeling that will take advantage of the smaller grid precipitation estimates provided by ORDA and improve the precision of flash flood forecasting. By FY 2007, improvements to precipitation estimates in mountainous areas will be added which will also improve the precision of forecasting in areas that have historically been difficult due to lack of data. Lead time and accuracy should be improved by these new capabilities.

Measure 3c: Hurricane Forecast Track Error (48 Hours)

Explanation of Measure

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.

FY 2006 and 2007 Targets

Based on an analysis of recent performance and long-term trends, the FY 2006 and FY 2007 targets for hurricane track forecast error have been lowered. Based on observed data from 1987 – 2004, a new trend line for performance has been calculated, and targets have been adjusted according to the new trend line. The average track error is projected to decrease due to improvements in observations, hurricane forecast models, aircraft upgrades, supporting data and computer infrastructure, and by conducting research within the U.S. Weather Research Program (USWRP) that will be transferred to NOAA NWS forecast operations. Specifically, the first generation Hurricane Weather Research Forecast model assessment will occur in during the 2006 hurricane

season and will make use of advanced observations for large-scale atmosphere (winds, moisture and temperature observations) and oceans, and NOAA will install additional marine buoys at high priority sites in the Caribbean and Atlantic Ocean which will provide an early warning system of marine observations in the open ocean. In addition, ten Air Force C-130 aircraft will be equipped with Stepped Frequency Microwave Radiometers in late FY 2005 which will provide more accurate observations of surface winds.

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

Explanation of Measure

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. This measure was originally, "Accuracy of 3-day Forecast of Precipitation." The measure has been revised to reflect a more representative and accurate means of measuring the performance for this strategic goal. 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.

The HPC began providing quantitative precipitation forecasts (QPFs) in 1961. These forecasts indicate how much precipitation is expected across the United States, not just whether it will rain or snow. The HPC began making QPFs through two days into the future in 1965 and through three days in 2000. The HPC has tracked the accuracy of these forecasts very carefully over the years using a metric with the statistical name of "threat score" or equivalently "critical success indicator". This accuracy metric ranges from 0 percent, indicating no skill, to 100 percent for a perfect forecast. In verifying the accuracy of a forecast of 1 inch or more of precipitation for day 1 (the next 24 hours), for example, the HPC first determines everywhere in the U.S. where an inch or more actually fell and was observed by rain gauges. On a given day this occurs only over a very small percentage of the country (although a 1 inch or more precipitation event is significant for the inhabitants of that particular area). The HPC then compares these observed areas of at least 1 inch of precipitation with the forecasted areas of at least 1 inch, counting only those points in the United States where HPC forecasted and observed at least an inch as being an accurate forecast. (These points are called "hits".) Thus, if HPC forecasts 1 inch to fall at the point representing Washington, DC, and it observed only 3/4" actually had fallen in that specific area, the forecast is then rated as a "miss", even if an inch of rain was observed to have fallen at the points nearby representing the area of Fairfax City, Virginia, or the area of Upper Marlboro, Maryland. The overall accuracy score for the country for that particular day 1 forecast is then determined by dividing the total number of correctly forecast points (hits) by the total number of points where HPC had either forecast at least 1 inch of liquid precipitation or 1 inch of liquid precipitation had actually occurred. Thus this measure takes into consideration those areas where 1 inch or more of precipitation was correctly forecast, where it was forecasted but did not occur, and where it occurred but had not been forecasted. In summary, to earn a high accuracy score, HPC has to forecast the time, place, and amount of precipitation very well.

Regarding the quality control of the forecast and verification processes, 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 day 1 forecast is prepared by the SBF, who works closely with the day 2-3 forecaster to ensure consistent forecast products.

The forecasts from complex computerized weather prediction models are the forecasters' starting point upon which they improve by applying their experience and scientific knowledge. The forecasters make their predictions on meteorological workstations. Approximately two days after the day 1 forecast has been made, the SBF verifies the precipitation forecasts. Another SBF serves as his or her verification assistant as needed. These verifying SBFs make sure data necessary for the verification are available, including the human forecasts and the observed precipitation observations. The observations of precipitation are collected by the NWS from several thousand locations around the U.S.

On a meteorological workstation, the verifying SBF displays a graphic of the precipitation observations with contour lines drawn to indicate the amounts of precipitation wherever it has been observed over the U.S. The verifying SBF then reviews this graphic to ensure there are no noticeable errors or large numbers of missing precipitation data. As required, the verifying SBF corrects observational errors on the graphic and supplements missing data areas based on radar information. Once satisfied with the quality of the observed precipitation graphic, the verifying SBF runs various workstation programs that provide needed calculations, save the information, and print out a copy of the statistics and graphics generated.

With each passing day, a similar procedure is followed. Once all forecasts for the month have been verified, the verifying SBF runs a computer program on workstation (called QPFV) that calculates the monthly values for threat score, equivalent threat score, bias, probability of detection, and false alarm rate for various precipitation thresholds (0.5, 1.0, 2.0, 3.0, 4.0, 5.0, and 6.0 inches), saves this information on workstation QPFV, and prints out a copy of the monthly statistics. Workstation QPFV data are backed up once a month to two places – tape and another workstation. Information in the fundamental verification database is write protected and can only be modified or deleted under one user account, which is under the control of a GS-13 meteorologist, whose primary job is not forecasting but techniques development. This account is password protected.

Several important points should be noted. First, although the accuracy scores are low with respect to perfection, the accuracy is clearly high enough to be of major utility to America's decision makers. As indicated by the numerous requests for HPC's precipitation products, especially in times of hardship, the Federal Emergency Management Agency (FEMA), Army Corps of Engineers, the media, and farmers among others all rely heavily on NOAA forecasts to decide how to proceed.

Secondly, the scores are continuing to improve in accuracy. The metrics from the last 40 years indicate the day 2 forecasts of at least one inch of precipitation in 2004 had similar skill to the day 1 forecasts in 1985, and HPC's day 3 forecasts in 2004 were as accurate as the day 2 forecasts in 1995.

FY 2006 and 2007 Targets

NOAA has an intensive effort internally and with its partners to improve the accuracy of its numerical weather prediction models, as well as enhance the global observing system providing the foundation for observations needed by these models. During the next several years, NOAA will implement several numerical weather prediction model enhancements aimed at improving heavy precipitation forecasts.

In addition, NOAA delivered and installed an upgrade to its Central Computer System in 2004 and began operational implementation in January 2005 that is improving the delivery of products to the field and providing system users with enhanced productivity. Investments are also being made to expand the Hydrometeorological Testbed at the HPC in FY 2006 for the purpose of improving precipitation prediction. This will include assessing scientific breakthroughs and new techniques to identify advanced, real-time, data analysis and forecast techniques, numerical forecast models and methods, observational systems, and climate-water-weather linkages that could significantly improve the forecast guidance which are necessary to improving quantitative precipitation forecasts through seven days. New training and forecast tools are also planned over the next couple of years. The combination of these activities will lead to improvements in Quantitative Precipitation Forecasts over the course of the next decade.

Measure 3e: Lead Time (Hours) and Accuracy (%) of Winter Storm Warnings

Explanation of Measure

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**.**

FY 2006 and FY 2007 Targets

The performance indicator measuring the accuracy and advance warning lead time of winter storm events will rise to 90 percent accuracy and 15 hours lead time in FY 2006 and FY 2007. These advancements will be attributed to improvements in numerical weather prediction, super computer upgrades, the use of ensemble modeling forecasting techniques, and local training initiatives.

Measure 3f: Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts

Explanation of Measure

This measure tracks improvements in NOAA's ability to assist coastal areas with estimating the risks of natural hazards in U.S. coastal regions. 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 more effective hazard mitigation decisions to reduce the impacts of hazards 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 area. Through the coastal 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 for specific U.S. coastal regions and improve their hazard mitigation planning capabilities.

FY 2006 and 2007 Targets

NOAA began working to expand phase II of the Coastal Risk Atlas to other areas within FEMA Region IV (North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi) during FY 2003. This expansion will not result in an increase to the target for FY 2004, but results in an increase in FY 2005. The completion of the expansion in FY 2005 will increase the cumulative total to 26,778 miles of the total shoreline, 97,128, or 28 percent. This increase will consist of 2,344 mile of shoreline for Georgia and 7,721 miles of shoreline for Louisiana. An evaluation at the end of the phase II expansion will determine the feasibility of continued expansion of the Coastal Risk Atlas beyond FY 2005. If continued expansion is deemed feasible, efforts will focus on adding Oregon and Texas to the Coastal Risk Atlas. This increase will consist of 1,357 of shoreline for Oregon (53 of the total 1,410 miles of shoreline for Oregon has previously been attributed towards this measure in FY 2001) and 3,359 miles of shoreline for Texas. For 2007, the coastal risk atlas will be expanded to include Maryland and Virginia.

Program Increases

The following program increase is directly related to this performance measure ($K):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Coastal Storms	-	$1,653	This request supports regional expansion of NOAA's Coastal Storms Program. It will continue support for developing products and services for Southern California, such as an online, Geographic Information System based tool to help emergency and coastal managers identify key hazards for the region and tools available to address them (e.g., hazard	63

			mitigation planning); a seamless topographic-bathymetric database that will greatly enhance understanding of erosion and inundation due to storm surge and tsunamis; and an assessment of the ecological impacts of storm-water driven non-point source pollution in the region. The increase will also allow NOAA to begin initial efforts for the Gulf of Mexico. This will include identifying regional needs and potential partners, including a regional partner to lead outreach and training for the region.	

Program Evaluation

NOAA's vision for FY 2006 is to provide significantly improved short-term warning and forecast products and services that enhance public safety and the economic productivity of the Nation. While it is difficult to see the improvements on an annual basis because of the scientific nature and seasonal variations of weather events, historical trends have shown that NOAA continues to improve the accuracy and advance warning lead time of severe weather hazards.

Program evaluations at NWS Field Offices are conducted annually. Quality control procedures are followed to ensure the highest reliability of gathered data and weather products. The National Academy of Sciences is also involved in program analysis and evaluation processes on a national level.

Cross-cutting Activities

Intra-Department of Commerce

NOAA works closely with the National Institute of Standards and Technology and the Economic Development Administration on the Federal Natural Disaster Reduction initiative, which focuses on reducing the costs of natural disasters, saving lives through improved warnings and forecasts, and providing information to improve resiliency to disaster.

Other Government Agencies

NOAA also works closely with other agencies such as the Federal Emergency Management Agency, the Corps of Engineers, the Bureau of Reclamation, the Department of Defense, as well as state and local governments to complement their meteorological services in the interest of national security. NOAA works closely with the U.S. Coast Guard to disseminate marine weather warnings and forecasts and works directly with

the Federal Aviation Administration on aviation forecasts and with the National Aeronautics and Space Administration on launch forecasts and solar forecast effects.

Government/Private Sector

Weather and climate services are provided to the public and industry through a unique partnership between NOAA and the private meteorological sector. NOAA provides forecasts and warnings for public safety, and the private sector promotes dissemination of forecasts and tailors basic information for business uses.

External Factors and Mitigation Strategies

A number of factors unique to the atmospheric sciences must be considered when reviewing the performance measures for this goal. The primary factor to consider is the natural variation of this goal related to annual fluctuations in meteorological conditions. Another factor concerns the damage to critical equipment (for example, supercomputer fire and satellite outages) that can affect daily operations for extended periods, even though numerous safety measures and backup procedures are in place.

Although the performance measures for this goal may improve, the impact on society may not be obvious because of factors beyond our control. For example, hurricane warnings may become more accurate, but because of the increase in population along the coastlines, the deaths, injuries, and/or damage estimates may increase.

Improving our understanding of the natural environment requires advanced infrastructure and therefore continual investment in new technology such as supercomputers and environmental satellites.

NOAA relies on its partners in the media, private sector, and the state and local emergency management community to disseminate weather warnings.

Performance Goal for Commerce and Transportation: Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation

DOC Strategic Goal 3: Observe, protect, and manage the earth's resources to promote environmental stewardship

General Goal/Objective 3.2: Enhance the conservation and management of coastal and marine resources to meet America's economic, social and environmental needs

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 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 annually from vehicle crashes.

As U.S. dependence on surface and air transportation grows over the next 20 years with significant increases in the volume of land transportation and the projected doubling of maritime trade, better navigation, and weather information will be critical to protect lives, cargo, and the environment. NOAA is committed to improve the accuracy of its marine forecasts, provide advanced electronic navigational charts and real-time oceanographic information, and maintain a precise positioning network that mariners need to navigate with confidence. Consistent, accurate, and timely positioning information derived from NOAA's positioning services is critical for air and surface activities such as aircraft landings and improving the safety and efficiency of road and rail delivery.

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. Reducing the 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.

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Hydrographic and Shoreline Data Efficiencies	1	$1,000	Improve the accuracy of data acquisition and accelerate the delivery of navigation information to the maritime community for safe, efficient, and environmentally sound marine transportation. Reduces the amount of time it takes to collect hydrographic data, process it, apply it to the chart, and disseminate the chart to mariners.	37
Navigation Response Teams	2	$1,810	This increase will allow NOAA to maintain and expand the regional component of its Navigation Response Teams (NRTs). The requested increase will allow NOAA to fully staff, train, and implement NRTs 5, 6, and 7, and begin building NRT 8 in FY 2007. The increase request will restore contract support and FTE for full staffing, as well as some funds for NRT launch maintenance and routine equipment replacement. Eight regional NRTs will fulfill the requirement for an adequate distributed capacity to respond within 24 hours to incidents in all contiguous U.S. ports.	36
National Vertical Transformation Tool Database (VDatum)	2	$2,000	Enables NOAA to expand the National VDatum models to approximately 20% of the contiguous U.S. in FY 2007, reaching 100% coverage by 2011. The requested funds will be used to contract for tidal and geophysical modeling expertise, the design and construction of a Web-accessible multi-resolution database, temporary tide gauge installations around the country, and GPS referencing equipment to validate the models. Two FTE are requested to provide modeling expertise across different program areas (oceanographer, geodesist), as well as contract oversight.	35
Physical Oceanographic Real Time System® (PORTS)	-	$715	The increase will enable NOAA to maintain the existing thirteen PORTS® as well as continue expanding the system. With the requested increase, NOAA will fully support contracts that provide watchstanders for the 24x7 quality control of real time data, conduct data management system operation and maintenance, support development and integration of new technology and products, continue ongoing software development and maintenance, and other infrastructure maintenance activities associated with PORTS.	55
Socioeconomic Analysis	-	$300	With the requested increase, NOAA will contract with independent research firms to systematically collect, compile and analyze new or existing data from industry, academia and other Federal, state or local agencies relating to the national socioeconomic benefit of NOAA's Commerce and Transportation-goal related	38

			programs. Using a consistent, rigorous, and scientifically defensible methodology, this approach will generate information about the social and economic effects, benefits, and costs of NOAA programs, information and services. NOAA will use these analyses to prioritize products/services/uses, as well as to identify areas requiring more focused research into economic benefits and social science information to meet future user needs.	
Electronic Navigational Charts	-	$1,890	With this increase, NOAA will continue the planned incremental investment in the effort to provide full contiguous electronic navigational chart (ENC) coverage of U.S. waters. This increase will allow NOAA to build an additional 70 ENCs, as well as maintain the entire suite of 620 in continuous maintenance.	39
Aviation Weather	-	$1,200	Expands a multi-year effort to improve aviation weather services. Will enable procurement and fielding of 75 additional water vapor sensors as part of an Integrated Upper Air Observing system, and transition additional products to a digital environment.	359

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

Explanation of Measure

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. Ships traversing our coastal waters rely on charts based on sounding data that are more than 50 years old in many places. NOAA has identified approximately 510,000 square nautical miles of the U.S. Exclusive Economic Zone as navigationally significant and in need of resurvey. Since 1994, NOAA has focused primarily on surveying and reporting its accomplishments in the highest priority areas, many of which carry heavy commercial traffic, are less than 30 meters deep, and change constantly. However, this critical area constitutes only a small portion (8 percent) of the entire navigationally significant area used by large commercial vessels and recreational boaters. NOAA's surveying activities balance in-house resources with private sector contracts and use the latest full-bottom coverage sounding technologies to survey the nation's coastal areas for navigation.

Weather, mechanical failure, and level of surveying difficulty are variables for both NOAA and its contractors, and therefore variances from the targets of +/- 50 square nautical miles per vessel are to be expected in a normal field season.

FY 2006 and FY 2007 Targets

FY 2006 Target for Hydrographic Survey Miles Acquired was reduced to 2,500 based on FY 2006 final appropriations, which separately funded contract hydrographic surveys and a time charter vessel in lieu of all turnkey contract dollars. Based on prior experience, NOAA estimates the procurement for a contract using a dedicated vessel will take the better part of FY 2006, and said vessel will not likely perform in FY 2006. The contract and vessel should be on track to acquire 3,000 survey miles in FY 2007.

Program Increases

The following program increase is directly related to this performance measure ($K):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Address Survey Backlog/ Contracts	-	$10,487	The requested increase will allow NOAA to maintain its planned FY 2007 survey schedule to collect and process approximately 3000 square nautical miles of hydrographic data. NOAA will contract the requested funds for hydrographic data acquisition using Brooks Act Architect and Engineering procedures. This increase will allow NOAA to collect approximately 500 additional square nautical miles of data (+20%) in FY 2007.	42

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

Explanation of Measure

This new measure in FY 2006 tracks the progress of NOAA's Geodesy Program in facilitating the capacity of state and local governments and the private sector to utilize accurate positioning information. (The word "fully" was added to the measure in the FY 2007 APP to better distinguish between enabled and substantially enabled.) 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. Assessing state and local government and private sector usage at the county level is the most appropriate geographic unit. County-level assessments offer entire U.S. coverage and an existing infrastructure for addressing spatial issues.

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. This is indicated by having local interaction through, for example, a submitted and accepted OPUS project for inclusion in the NOAA's geodetic integrated database.

FY 2006 and FY 2007 Targets

Respectively, the targets for FY 2006 and FY 2007 will be 39 percent and 49 percent of U.S. Counties rated as fully enabled or substantially enabled. In other words, the targets for FY 2006 and FY 2007, respectively, will be 37 percent and 44 percent of U.S. Counties rated as substantially enabled and 2 percent and 5 percent of U.S. Counties rated as fully enabled. FY 2006 and FY 2007 targets have been revised upward to reflect both increased user demand for the relatively new OPUS tool and the availability of more data from which to determine performance trends. Greater demand for OPUS is the result of effective outreach efforts and increased partner funding for new Continuously Operating Reference Stations (CORS) from which OPUS solutions are derived.

Measure 4c: Accuracy (%) and False Alarm Rate (FAR) (%) of Forecasts of Ceiling and Visibility (3 Miles/1000 Feet) (Aviation Forecasts)

Explanation of Measure

This measure originally covered "1/4 mile/200 feet." Conditions of a 200-foot ceiling and one quarter mile visibility are components of the FY 2002 and earlier performance measure accuracy and false alarm rate percentages. However, these conditions are rare events. Because of the infrequency of these conditions, the performance measure poorly captured the operational impact of NWS aviation forecasts. The NWS decided that a better criterion of performance is an aviation performance measure based on a 1000-foot ceiling and three miles of visibility for both accuracy and false alarm rate, and is related to Instrument Flight Rules (IFR) conditions.

In accordance with the NWS strategic plan, this measure was added in FY 2000 to reflect a segment of customers that had not been represented in other performance measures. Visibility and cloud ceiling forecasts are critical for the safety of aircraft operations. Accurately forecasting the transition between Visual Flight Rule and IFR conditions significantly improve general and commercial aviation flight planning capabilities, improving both flight safety and efficiencies.

FY 2006 and 2007 Targets

NWS expects to see continued improvement of aviation forecasts for low ceiling and visibility. However, the FY 2006 target for accuracy has been lowered due to a delay in receiving the FY 2006 budget authority, which will delay the procurement and installation of new water vapor sensors until the end of 2006, and due to residual effects in reductions to FY 2005 training. Once the water vapor sensors are installed, NWS expects to see an impact on performance, and the FY 2007 target remains unchanged. The FY 2006 target for FAR has been lowered (improved) due to greater than anticipated results from the newly deployed AWIPS Aviation Forecast Preparation System, and COMET Distance Learning Aviation Course 1. Continued improvement in aviation forecasts will be accomplished through the implementation of an improved observational sensing strategy, higher resolution forecast models, and improved guidance tools integrated into AWIPS and the Aviation Forecast Preparatory System for our meteorologists to focus on this forecast challenge.

Program Increases

The following program increase is directly related to this performance measure ($K):

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Aviation Weather	-	$1,200	Expands a multi-year effort to improve aviation weather services. Will enable procurement and fielding of 75 additional water vapor sensors as part of an Integrated Upper Air Observing system, and transition additional products to a digital environment,.	359

Measure 4d: Accuracy (%) of Forecast for Wind Speed and Wave Height (Marine Forecasts)

Explanation of Measure

This measure was originally a "combined accuracy forecast for marine wind and wave." The measure has been revised 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.

In accordance with the NWS strategic plan, this measure was added in FY 2000 to reflect another segment of customers (marine) that had not been represented in other performance measures. The FY 2005 and FY 2006 goals have been updated to reflect recent performance and reductions in ongoing NWS training, operations, and research funding in the FY 2005 enacted budget. Loss of funding for marine training workshops will directly affect partnering opportunities to bring in marine experts outside NWS and NOAA to help train in marine meteorology. Partnerships

make it possible for NWS to develop cost-effective expansion of the marine observation network and growth in research (i.e., GLERL wave model). Loss of research partnerships and fewer observations will translate into weaker scores.

FY 2006 and 2007 Targets

Based on analysis of recent performance, budget constraints and prior year training reductions, the FY 2006 and FY 2007 targets for marine forecasts have been revised. Budget and training reductions from FY 2005 will have residual effects into the first and second quarters of FY 2006, impacting FY 2006 performance. NWS will continue to improve marine forecast (wind speed and wave height) accuracy through the implementation of higher resolution models on AWIPS, enhanced observation networks, and expanded training for marine forecasting. More advanced smart tools applied to digital wind data should improve wave height forecasts. NWS partnerships with boating organizations (such as U.S. Power Squadron) have yielded more marine observations that can be displayed as plots on AWIPS. Future releases and upgrades to AWIPS Interactive Forecast Preparation System software used by NWS forecasters for forecasts and warnings will help NOAA attain outyear goals. The marine Professional Development Series effort continues, with three modules already on-line and six more expected on-line by the end of FY 2006.

Program Evaluation

NOAA's goal to promote safe navigation is evaluated at a variety of levels, from peer reviews of products, papers, and projects, to internal and external reviews of entire programs and quarterly reviews of NOAA's overall performance in navigation products and services. Constituent input is an important part of the evaluation process and is solicited regularly through constituent workshops.

From 1992 to 1996, a number of National Research Council Marine Board studies examined the nautical charting program and its transition into the digital era. NOAA incorporated study recommendations on areas such as reducing the survey backlog, implementing new digital production techniques, and delivering new electronic chart products to the program. The Hydrographic Services Improvements Act of 1998 provided Congress and NOAA an opportunity to evaluate NOAA's capabilities for acquisition and dissemination of hydrographic data, develop standards and formats for hydrographic services, and contract for the acquisition of hydrographic data. NOAA now contracts out over 50 percent of its annual critical area hydrographic survey requirements while maintaining Federal competence and expertise with existing and developing surveying technologies. NOAA is currently studying its contracting policy with a target date of April 2006 for publishing revisions.

In 1998, Congress authorized the Height Modernization study to evaluate the technical, financial, legal, and economic aspects of modernizing the national height system with GPS. The study demonstrated the significant benefits to the Nation in terms of dollars and lives saved associated with GPS technology, and it led to current development of the vertical component of the National Spatial Reference System. In 1999, NOAA completed an assessment of its tidal currents program to develop guidelines for future current surveys to update U.S. reference stations for the Tidal Current Tables. The September 1999 Report to Congress that assessed the U.S. Marine Transportation System (MTS) further articulated the need for coordinated Federal leadership to achieve the MTS vision of becoming the world's most technologically advanced, safe, efficient,

globally competitive, and environmentally responsible system for moving goods and people. NOAA's navigation safety support functions underwent substantial review to identify opportunities for greater integration among Federal agencies. More recently, the 2003 National Academy of Sciences Report on establishing a *Geospatial Framework for the Coastal Zone*, the Transportation Research Board's 2004 examination of the Federal Role in the Marine Transportation System, the 2004 U.S. Commission on Ocean Policy report and the U.S. Ocean Action Plan have guided NOAA's approach to integrating and delivering its Navigation Services programs.

Cross-cutting Activities

Intra-Department of Commerce

In partnership with the Technology Administration and National Telecommunications and Information Administration within the Department of Commerce and other civil agencies from all civil departments, NOAA participates on the Interagency GPS Executive Board, which with the Department of Defense jointly manages the GPS satellite program as a national asset. Now a dual-use system heavily employed by civilian and commercial sectors, GPS is a global information utility that the United States has committed to provide free to the world for use as the international standard for navigation, positioning, and timing.

Other Government Agencies

NOAA works closely with agencies such as the Department of Transportation (DOT), the U.S. Coast Guard, and the U.S. Army Corps of Engineers in support of Marine Transportation System goals and objectives to identify and improve navigation services for maritime commerce while preserving navigation and environmental safety. NOAA and DOT also cooperate on the development of the Nationwide Differential GPS System, which employs NOAA's Continuously Operating Reference Stations to enable highly accurate GPS positioning in three dimensions across the nation. This system benefits from a multipurpose cooperative effort among government, academia, and the commercial sector and supports numerous NOAA objectives and activities. In addition, NOAA and DOT's Federal Highways Administration are partnering to improve road weather forecasts for surface transportation, and NOAA is participating in the Next Generation Air Transportation System Joint Planning & Development Office with the Federal Aviation Administration and other agencies to improve aviation weather for efficiency gains and safety improvements. NOAA's navigation and weather for transportation services also play a role in emergency and Homeland Security preparation and response.

External Factors and Mitigation Strategies

Weather has a significant impact on the promotion of safe navigation activities. Both in-house and contract hydrographic survey schedules can be affected by adverse weather conditions and equipment failure, as can aerial photography flights scheduled for shoreline photogrammetry. Storm damage frequently renders water-level stations inoperable, affecting surveying capabilities and real-time observations of water levels and currents so critical to safe navigation.

Natural disasters such as earthquakes and hurricanes can elevate the need to survey an area because of shoreline changes or obstruction accumulation; man-made impacts such as shifts in shipping patterns, newly regulated shipping lanes, port expansions, or wrecks will also impact NOAA's survey schedule. Finally, in addition to mission activities, NOAA ships and aircraft provide immediate response capabilities for unpredictable events such as search and recovery efforts after the TWA Flight 800 and Egypt Air Flight 990 crashes; damage assessments after major oil spills such as the Exxon Valdez and the grounding of the New Carissa off the Oregon coast in 1999; and severe hurricanes, most recently Isabel in 2003, Charlie and Ivan in 2004, and Dennis in 2005. NOAA mitigates these impacts with backup plans for relocating assets to other projects, or by reassessing survey schedules.

Performance Goal for Mission Support: Provide critical support for NOAA's Mission

DOC Strategic Goal 3: Observe, protect, and manage the earth's resources to promote environmental stewardship

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.

To achieve our Mission Goals, we must also commit to organizational excellence through management and leadership across a "corporate" NOAA. We will provide effective administrative, financial, and information technology services that enable us to deliver effective products and services. We will continue to improve the policy, programmatic, and managerial functions that support our Mission Goals. Our administrative and finance programs will ensure effective communication inside and outside NOAA, and efficient management of our assets, business processes, and financial resources.

Program Initiative	FTE	Funding Request	Anticipated Impact	Location in the Budget
Under Secretary and Associate Offices	2	$2,737	Provides dedicated, on-site legal support services for NOAA's activities in the Pacific Islands Region, particularly the Western Pacific Fishery Management Council as well as the NOAA Ocean Service in connection with National Marine Sanctuaries matters.	433
NOAA Wide Corporate Services and Agency Management	-	$8,959	Provides increases for NOAA Wide administrative support services.	441
IT Security	-	$2,050	Provides support for NOAA to implement, operate and maintain the NOAA enterprise level IT security architecture.	445

Ernest F. Hollings Scholarship Program	-	$3,700	Provides scholarships and program administration to improve coordination of NOAA's higher education activities directed at strengthening the future NOAA workforce.	448
Dr. Nancy Foster Scholarship Program	-	$400	Provides scholarships and program administration to improve coordination of NOAA's higher education activities directed at strengthening the future NOAA workforce.	450
Facilities Management and Modernization Program	-	$9,395	Provides crucial funding for new and planned facility repair and maintenance projects to address facility conditions affecting either employee safety or mission-operational readiness.	455
Environmental Compliance and Safety	-	$1,687	Provides funding to maintain a safe and environmentally-compliant work environment as required by Federal, state and local laws, and address the backlog of environmental cleanup projects.	458
Maritime Crew Safety and Rotation	--	$800	To enable NOAA to enhance safety aboard NOAA vessels. NOAA's fleet has experienced a high turnover rate; this program will use positions throughout the fleet to improve time off availability for personnel with the goal of curtailing the departure of well-trained personnel. The principal intent of crew safety-training and rotation is to provide sufficient manpower in order to safely navigate; to conduct safe operations; to respond to potential emergencies (i.e., fire, accidents, etc.); and to provide adequate maintenance for the NOAA Fleet.	469
G-IV Instrumentation	-	$680	To support the G-IV instrumentation upgrade the NOAA G-IV aircraft is being modified by adding extensive instrumentation in order to provide data to the National Weather Service (NWS) Hurricane Weather Research and Forecasting (HWRF) computer model. This instrumentation will provide the operational and maintenance support required to operate and maintain the instrumentation on the aircraft, process and transmit the data from the aircraft, and receive, conduct quality control, format, and submit the data for assimilation into the HWRF model.	486
Operations and Maintenance of New NOAA Vessels	-	$4,100	NOAA requests an increase of 0 FTEs and $4,100,000 for the additional operational needs of NOAA's new vessels. These ships are newer additions to NOAA's fleet over the last two years and have fuel, supply, and crew needs that cannot be absorbed in NOAA's current budget.	472
FSV #3 Operations	7	$400	For first-year operation of NOAA's third vessel in a four-vessel construction contract. FSV 3 will join the Alaska and North East FSVs in providing high-quality series surveys and data collection for the NOAA Fisheries Southeast Science Center	475

			Mississippi Laboratory. FSV 3 is scheduled to be delivered fourth quarter, FY 2007. The vessel will be homeported in Pascagoula, Mississippi.	
Maintenance Differential for NOAA Ships	-	$2,893	The newer additions to NOAA's fleet have higher costs for maintenance, repairs and spare parts that can not be absorbed in NOAA's current budget. By stocking the vessels with spare parts, disruptions in scientific cruises due to early returns to homeports or detours to other piers for unexpected repairs will be averted.	479
FSV #3 Maintenance	-	$99	For first-year maintenance of NOAA's third vessel in a four-vessel construction contract FSV 3 will join the Alaska and North East FSVs in providing high-quality series surveys and data collection for the NOAA Fisheries Southeast Science Center Mississippi Laboratory. FSV 3 is scheduled to be delivered fourth quarter, FY 2007. The vessel will be homeported in Pascagoula, Mississippi.	480
FSV Construction	-	$13,800	To complete construction of the third Fishing Survey Vessel and continue construction of FSV 4. The continued construction of these FSVs will enable NOAA to acquire acoustically quiet ships that reduce behavioral responses of species during surveys and minimize interference with hydroacoustic signals. The ships also permit extended research missions and are capable of performing multiple missions including surveys using many different methods of fishing and physical and biological oceanography.	637
Hydro Survey Launch Construction	-	$2,400	Funds provide for the construction of two fully instrumented Hydrographic Survey Launches. These survey launches will significantly increase the capacity of the NOAA fleet to collect hydrographic data. Survey launches are a force multiplier that contributes to the reduction of NOAA's backlog of Navigationally Significant areas. New survey launches with greatly improved reliability, handling, and speed will enhance hydrographic data collection rates.	643
HENRY B. BIGELOW Calibration	7	$3,500	Funds the cost associated with operating ALBATROSS IV with the ship it will eventually replace it with, Henry B. BIGELOW. Funding will be required to meet the 18-month overlap requirement to calibrate ground fish surveys. This overlap will be performed to maintain the consistency and continuity of stock assessments time-series data. It is imperative to replace the capabilities of existing platforms with new vessels and technologies that are calibrated with older vessels by performing side-by-side surveys.	640
Temporary Berthing of BIGELOW	-	$1,000	Addresses berthing issues associated with delivery of NOAA's second new FSV, HENRY B. BIGELOW. Funding is needed to provide temporary berthing of BIGELOW while the agency analyzes homeporting options for this new FSV.	645

NPOESS	-	$20,278	NOAA's share of the converged NOAA/DoD/NASA NPOESS program that will replace the NOAA POES program. Continue development and production of the NPOESS instruments, including the Visible Infrared Image radiometer (VIIRS), the Conical Microwave Imager Sounder (CMIS), the Cross-track Infrared Sounder (CrIS), the Ozone, Mapping and Profiler Suite (OMPS), the Aerosol Polarimetry Sensor (APS), and the Space Environmental Sensing Suite (SESS).	600
GOES	-	$104,039	Continue the procurement of spacecraft, instruments, launch services, and ground systems equipment necessary to maintain an uninterrupted flow of environmental data to users. GOES data supports: cloud images and precipitation estimates for hurricanes; sea surface temperature products for locating commercial and sport fish as well as protected marine species; weather information to emergency managers in times of severe weather and during other disasters; 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; images of the U.S. 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; a means to obtain quantitative environmental data such as temperature, moisture, wind, radiation and solar energy particle flux for use in weather predictions, hydometrological flux, climate long term trending, ecosystems management, commercial economic gain, and transportation safety; and unique monitoring capabilities that support air, land, and marine transportation.	591
Archive, Access, & Assessment	-	$274	This increase is necessary to carry out key data archive, access, and assessment activities, and sustain operations at NOAA's National Data Centers. This funding is necessary to ensure timely and quality service delivery for more than 50,000 users per year from the private sector, academia, and government.	402

There are no GPRA measures for the Mission Support goal since the activities of this goal support the outcomes of the Mission goals. NOAA is developing new and improving existing internal management performance measures for the Mission Support Goal.

NOAA 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.

Performance Measure	Data Source	Frequency	Data Storage	Internal Control Procedures	Data Limitations	Actions to be Taken
Measure 1a: The Fish Stock Sustainability Index (FSSI)	Stock assessments and status determinations	Quarterly	NMFS Stock Information System (SIS)	Results will be reported monthly in a signed memo from the Fishery Management Program Manager to the NMFS Chief Financial Officer and are housed and made available on an intranet site 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's Office of Protected Resources	Results will be approved by the NMFS Chief Science Advisor and reported monthly in a signed memo from the Ecosystem Observations Program Manager to the NMFS Chief Financial Officer and are housed and made available on an intranet site managed by the NMFS Office of	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

				Management and Budget; monthly reporting on performance to NOAA Deputy Under Secretary		
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's Office of Protected Resources	Results are reported monthly in a signed memo from the Protected Species Program Manager to the NMFS Chief Financial Officer and are housed and made available on an intranet site managed by the NMFS Office of Management and Budget; monthly 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 monthly in a signed memo from the Habitat Program Manager to the NMFS Chief Financial Officer and are housed and made available on an intranet site managed by the NMFS Office of Management and Budget; monthly reporting on performance to NOAA Deputy Under Secretary	Data is primarily provided by grantees	None
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	Annual	Metadata from all contributing sources to the measure is maintained by managers for the Coastal and	Results are reported monthly to the Ecosystems Research Program (ERP) Program Manager and NOAA Chief Financial Officers; monthly reports on performance data are	NOAA focuses on protected areas or areas where NOAA has a clear management mandate. NOAA works to identify key	

	Research Reserves, coral reef ecosystems, the coastal zone, Great Lakes, essential fish habitat, ecological species units, and unexplored areas.		Marine Resources and Ecosystem Research Programs and stored in an Excel database with limited access. The final performance data reported in monthly, quarterly, and annual performance reports is managed in a secure NOS database for annual milestones and annual and long-term performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow approval system).	submitted to the NOAA Deputy Under Secretary	parameters for characterizing their condition 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.	

Measure 1f: Cumulative Number of Coastal, Marine, and Great Lakes Issue-Based Forecasting Capabilities Developed and Used for Management.	NCCOS/ GLERL/SG	Annual	Metadata from all contributing sources to the measure is managed by the Ecosystem Program Manager and stored in an Excel spreadsheet with limited access. The final performance data reported in monthly, quarterly, and annual performance reports is managed in a secure NOS database for annual milestones and annual and long-term performance measures. Changes to reporting data require approval by the NOS administrator (managed by an e-mail workflow	Results are reported monthly to the Ecosystems Research Program (ERP) Program Manager and NOAA Chief Financial Officers; monthly 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 effort in developing new forecast capabilities and facilitating their transition to operational status based on: user community priorities, including those for NOAA management program; adequacy of data; significance of issue; and consequences of management action/inaction.

			approval system).			
Measure 1g: Percentage of tools, technology, and information services that are used by NOAA partners/customers to improve ecosystem based management.	Under Development	Under Develop-ment	Under Development	Under Development	Under Development	Under Development
Measure 1h: 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.	Annual	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 in monthly, quarterly, and annual performance reports is managed in a	Results are reported monthly 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	Since this measure does not capture all NOAA's activities to protect habitat, NOAA seeks to expand the measure in the future. NOAA is looking at the feasibility of tracking data based on acres acquired at time of funding and separately at acres acquired at the time of completion to compare and

			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).		reporting by grant recipients, accuracy of conversion from hectares to acres for some data, and the time delay between funding and completion.	track the two sets of data.
Measure 2a: U.S. temperature – skill score	Forecast data, observations from U.S. Weather Forecast Offices, and from a cooperative network maintained by volunteers across the nation	Monthly	NWS's National Centers for Environmental Prediction	NOAA performs quality control on the observed data (for example, error checking, elimination of duplicates, and inter-station comparison) both at the CPC and U.S. Weather Forecast Office level. In June 2005, NOAA has also implemented an objective verification procedure to minimize the impact of human errors in the computation of skill score; monthly reporting on performance to NOAA Deputy Under Secretary	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.	None
Measure 2b: Reduce the Uncertainty in the	NOAA's Global Carbon Cycle	Annual	NOAA's Earth System Research	Quality assurance and calibration against known	Number of tall tower/aircraft sites and	None

Magnitude of the North American Carbon Uptake	Research Program		Laboratory	standards performed by NOAA	our ability to incorporate these data into advanced carbon models	
Measure 2c: Reduce the 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	Monthly	NOAA's National Climatic Data Center	Monte Carlo simulations based on operation stations; monthly reporting on performance to NOAA Deputy Under Secretary	Number of stations commissioned in the Climate Reference Network	None
Measure 2e: Reduce the Error in Global Measurement of Sea Surface Temperature	NOAA's Office of Climate Observations	Quarterly	Pacific Marine Environmental Laboratory	Quarterly reporting mechanism on uncertainty in sea surface temperature measurements; quarterly reporting on performance to NOAA Deputy Under Secretary	Number of deployed observing platforms in the global ocean	None
Measure 2f: Improve society's ability to plan and respond to climate variability and change using NOAA climate products and information.	NOAA's Office of Global Programs	Annual	NOAA's Climate Program Office	Annual examination of grants awarded and research activities undertaken that result in various outputs (e.g. peer review publications, workshops) showing	Challenge of systematically collecting research-based outputs showing evidence of interactions with stakeholders to	None

				evidence of research-based interactions with decision makers	communicate risks of climate variability and change and to develop means of coping with impacts.	
Measure 3a: Lead time (minutes), accuracy (%), and false alarm rate (FAR, %) of severe weather warnings for tornadoes	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 the NWS, and the regional headquarters monitor performance within their respective regions. All data is reported on to NWS and NOAA leadership on a monthly basis.	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 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	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.

					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 secondary peak activity time period is October and November in the southeastern United States.	
Measure 3b: 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)	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	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	Review all warnings and storm data after each event to learn from past experiences. Use the information learned to improve forecast skill and product

				Instruction 10-1605. OCWWS monitors monthly performance throughout the NWS, and the regional headquarters monitor performance within their respective regions. All data is reported on to NWS and NOAA leadership on a monthly basis.	than others. Typically, 1st and 2nd Quarters have higher lead times, while the 3rd and 4th Quarters, during the convective season, bring the annual average down. Spring/summer mesoscale events (e.g., thunderstorms) are more difficult to predict than larger synoptic scale systems; hence lower scores are expected in the 3rd and 4th quarters.	quality in the future.
Measure 3c: Hurricane Track Forecasts Error (48 Hours)	NWS/Tropical Prediction Center (TPC)	Annual	TPC	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	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	NOAA will report on the tracking of forecasts at 24, 48 and 72-hour intervals.

				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. All data is reported on to NWS and NOAA leadership on an annual basis.	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	

Measure 3d: Accuracy (%) (Threat Score) of day 1 precipitation forecasts	The Hydrometeoro-logical Prediction Center and state agencies	Monthly	World Weather Building	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. All data are examined for accuracy and quality control procedures are applied, as described in the Description of Measure section. Verification is the process of comparing the predicted precipitation amounts to the observed amounts over the conterminous U.S. All data is reported on to NWS and NOAA leadership on a monthly basis.	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 Hydrometeorolo gical Test Bed will be expanded to accelerate the transition of research advancements into the operational prediction of precipitation.

Measure 3e: Lead Time (Hours) and Accuracy (%) of Winter Storm Warnings	National Weather Service (NWS) field offices	Quarterly	The regional headquarters, NWS headquarters and the Office of Climate, Water, and Weather Services (OCWWS)	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. All data is reported on to NWS and NOAA leadership on a quarterly basis.	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.	Review all warnings and storm data after each event to learn from past experiences. Use the information learned to improve forecast skill and product quality in the future.
Measure 3f: 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	Quarterly	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	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 are will depend on the	None

	Center and other federal and state agencies			portion of the shoreline more than once existed. For example, one year a project may improve an area's ability to reduce the impacts of hurricanes, and then another year a separate project may improve the same area's ability to reduce the impacts of another coastal hazard such as inland flooding. To avoid confusion, this measure 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; quarterly reporting on performance to NOAA Deputy Under Secretary	activities of other federal and state agencies with management responsibilities in this area.	
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 Office of Coast Survey Hydro Surveys	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 reporting on performance to NOAA	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 Office of Coast Survey Hydro Surveys

			Division.	Deputy Under Secretary		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 25.34% in 2004 to 92% in 2011).	NOAA's Online Position User Service (OPUS)	Monthly	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; monthly 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 who use the OPUS web site for precision positioning.	Analyze OPUS e-mail domain names to categorize and inventory OPUS users. Validate OPUS web site hits as a measure of use and benefit. Conduct a socio-economic analysis to validate OPUS benefits and who OPUS users are. Develop schema based on census data for scaling counties by area, population, and economic activity. Develop "county-based accurate positioning scorecard" with our partners.
Measure 4c: Accuracy (%) and FAR (%) of Forecasts of Ceiling and Visibility (Aviation Forecasts)	NWS field offices	Monthly	NWS headquarters and OCWWS	Forecasts and observations are collected from each airport for which the NWS issues a forecast. The OCWWS stores and	Due to the large volume of data gathered and computed, documentation for	Forecasters within each WFO will continue to monitor their

				quality controls all data, compares forecasts to observations, and computes verification statistics. Forecasters within each WFO are able to stratify verification statistics to his/her personal scores on specific days to learn from recent experience. WFO managers regularly monitor forecast performance. The regional headquarters and the OCWWS monitor performance monthly for their respective management areas. All data is reported on to NWS and NOAA leadership on a monthly basis.	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, investments in critical observing systems, and implementation of AWIPS. Inter-annual scores tend to fluctuate due to varying weather patterns. Some patterns are more difficult to forecast than others. Year to year variability is plus or minus 3 percent for both Accuracy and FAR. Typically, 3rd and 4th quarter scores during the convective	recent past forecast performance to learn from experience. The regional headquarters and the OCWWS will continue to monitor performance monthly for their respective management areas.

					season have lower accuracy scores and increased FARs than the 1st and 2nd Quarter cool season months.	
Measure 4d: Accuracy (%) of Forecast for Winds and Waves (Marine Forecasts)	NWS field offices	Monthly	The NWS and the National Centers for Environmental Prediction's Ocean Modeling Branch	Verification is the process of comparing the predicted weather with the actual event. 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. WFO managers regularly monitor forecast performance. The regional headquarters and the OCWWS monitor performance monthly for their respective management areas. All data is reported on to NWS and NOAA leadership on a monthly basis.	Due to the large volume of data gathered and computed, documentation for the accuracy of forecast for wind and waves cannot be finalized until well into the following fiscal year. Out-year measures depend on a stable funding profile and take into account improved use of the WSR-88D, new satellites, improved forecast models, new and continued research activities of the USWRP, investments in critical observing systems, and implementation of AWIPS. Inter-annual scores tend to fluctuate due to varying weather	NOAA will deploy enhanced versions of AWIPS, upgrade new forecast models, implement new wave forecast models, and improve communication and dissemination techniques to marine users.

					patterns. Some patterns are more difficult to forecast than others. Marine wind speed and wave height forecasts scores naturally vary (accuracy +/- 4% per year) due to fluctuations in the number of extreme events measured over NWS marine areas per year.	

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