

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
FY 2005 ANNUAL PERFORMANCE PLAN

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.

Understanding the ocean and atmosphere is essential to sustaining the United States' environmental and economic health. As an agency, NOAA provides products that form a critical part of the daily decisions made across the United States. From satellite imagery to tornado warning, navigational charts to fishery stock assessments, hurricane tracking to El Nino and harmful algal bloom predictions, severe weather forecasts to coastal zone management - every day NOAA's science, service and stewardship 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. With effective partnerships among governments, universities, non-governmental organizations, and communities, NOAA helps to manage the critical issues along the U.S. coasts and the Great Lakes. A healthy coastal environment is intrinsic to the United States' economic prosperity.

The 21st century poses complex challenges for NOAA. 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, given intensifying national needs related to the economy, the environment, and public safety. 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.

In FY 2003, NOAA developed a new Strategic Plan that responds to all of these challenges. It forges a path for meeting the needs of the Nation today and addressing the critical issues of tomorrow. It responds to the President's Management Agenda for a citizen-centered, performance-driven organization that serves every American every day. And it provides a blueprint for ensuring value and corporate accountability in NOAA's daily operations, and for improving NOAA's services - and the benefits from our services - to all Americans.

The new Strategic Plan resulted from consultations with more than a thousand stakeholders and NOAA employees across the Nation to identify present and future environmental, economic, and public safety issues. Based on their input, the Plan sets an agenda for wise investment of finite resources through four mission goals for achieving NOAA's mission:

Goal:

- 1. Protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management.**
- 2. Understand climate variability and change to enhance society's ability to plan and respond.**
- 3. Serve society's needs for weather and water information.**
- 4. Support the Nation's commerce with information for safe, efficient , and environmentally sound transportation.**

This Plan's elevation of ecosystem management and climate science to high-priority goals 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 combine to make improved water resources prediction an urgent requirement for NOAA's future weather and climate mission. Human health linkages with weather, climate, and ecosystem goals are also priorities. 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 new Strategic Plan will guide all NOAA's management decisions and will provide a consistent framework for Line Office (LO) and cross-organizational plans, initiatives, and performance measures to be implemented. Through this plan, NOAA employees and contractors will also better understand their role in meeting NOAA's strategic priorities and goals.

NOAA's CROSS-CUTTING PRIORITIES

When NOAA held discussions with stakeholders and employees to identify strategic directions for the next decade, both groups emphasized that NOAA needs to increase its priority on improving the core capabilities that support the Agency's four mission goals. As a result, NOAA has selected five essential areas of growth for the future. These cross-cutting priorities describe the programmatic and managerial underpinnings that facilitate NOAA's delivery of services and enable effective operations.

INTEGRATED GLOBAL ENVIRONMENTAL OBSERVATION AND DATA MANAGEMENT SYSTEM

NOAA will work with its local, state, regional, national, and international partners to develop global-to-local environmental observations and data management for comprehensive, continuous monitoring of coupled ocean/atmosphere/land systems. This network will enhance NOAA's ability to protect lives and property, expand economic opportunities, understand climate variability, and promote healthy ecosystems. As part of building this capability, NOAA has begun to inventory its observing and data management capabilities, and has designed an architectural process for evaluating the efficiency of its data observation and management system and increasing the multiple use of observation platforms and availability of real time data.

ENVIRONMENTAL LITERACY, OUTREACH, AND EDUCATION

NOAA will apply its broad spectrum of environmental and social science expertise to establish an environmental literacy program for educating present and future generations about the changing Earth and its processes. NOAA hopes to inspire our nation's youth to pursue scientific careers, thereby advancing the future talent of NOAA and its mission partners. This program will improve the public's understanding and response to natural hazards, will assist state and local natural resource managers, and will ensure that decision makers have access to the information they need to appropriately reduce significant human impact on the environment and to respond to storm warning and environmental change. Due to the high priority of enhancing NOAA's capabilities for Environmental Literacy, Outreach and Education, NOAA produced a strategic plan on the subject during FY2003.

INTERNATIONAL COOPERATION AND COLLABORATION

A rapidly shifting political, cultural, and economic world requires Federal agencies involved in world affairs to cultivate fresh approaches and new services to maintain U.S. leadership in these fields. NOAA will support and promote national policies and interests in ecosystem management, climate change, Earth observation, and weather forecasting and will seek to maximize the mutual benefits of international exchange with its global partners. World-wide benefits of NOAA's El Niño forecasts are at least \$450 million annually. Better ship routing from U.S. satellites is worth nearly \$100 million a year, \$20 million of which is realized by U.S. consumers. Such international collaboration in scientific understanding will significantly benefit the American public economically and socially.

HOMELAND SECURITY

NOAA's core missions of environmental prediction and management are manifested in more than eighty capabilities that support America's efforts to prepare for and, if necessary, respond to terrorist attacks. Best known are NOAA's hazardous materials spill response, atmospheric and waterborne dispersion forecasting, vessel monitoring systems, and support for communities and first responders, including training, decision-making tools, rapid on-site weather forecasts to support emergency operations, and civil emergency alert relay through NOAA Weather Radio. NOAA is also ready to quickly provide its other assets—ships, aircraft, global observation systems, and professional law enforcement officers—to serve the Nation when the need arises. The commercial and academic sectors are critical partners in these efforts—developing and applying new technologies to get the warning message out quickly, deploying important observing systems available in time of need, and advancing science and technology applicable to our common security.

ORGANIZATIONAL EXCELLENCE:

Leadership, Human Capital, Facilities, Information Technology and Administrative Products and Services

This priority provides a framework for raising the bar of performance for NOAA. Improvements in these areas will increase the satisfaction of the customers of NOAA's administrative processes, both inside and outside the Agency; increase employee satisfaction; and improve organizational performance and productivity. They will also address the reforms necessary to comply with the President's Management Agenda.

Resource Requirement Summary
(Dollars in Millions. Funding amounts reflect total obligations.)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Grand Total	Actual	Actual	Actual	Actual	Enacted	Estimate
Operations, Research, and Facilities						
National Ocean Service	272.8	390.2	406.4	426.2	505.0	378.8
National Marine Fisheries Service	416.6	634.1	586.8	713.7	622.3	623.2
NOAA Research	297.5	327.3	347.3	372.4	392.9	350.3
National Weather Service	601.4	629.4	675.2	694.5	722.0	749.2
NESDIS	108.1	125.0	142.5	149.7	151.8	149.0
Program Planning and Integration	----	-----	-----	-----	2.0	2.0
Program Support	90.5	104.1	177.8	179.0	303.5	220.4
Procurement, Acquisition, and Construction	600.1	----	-----	-----	-----	
National Ocean Service	----	53.9	61.7	69.3	100.3	14.5
National Marine Fisheries Service	----	62.5	14.8	13.5	22.5	2.0
NOAA Research	----	23.0	13.6	10.3	21.3	10.5
National Weather Service	----	63.4	71.9	60.3	102.9	87.6
NESDIS	0.0	515.0	517.1	634.6	675.4	748.9
Program Support	0.0	39.6	37.7	85.0	40.2	37.0
Other Accounts	68.4	----	-----	-----	-----	
Discretionary						
National Ocean Service	----	152.9	142.7	(6.9)	0.0	0.0
National Marine Fisheries Service	----	112.2	161.0	129.5	89.0	101.4
Mandatory						
National Ocean Service	----	0.0	15.1	0.0	1.0	1.0
National Marine Fisheries Service	----	6.9	10.4	0.0	26.4	8.6
Program Support	0.0	15.3	16.1	15.7	18.0	17.8
Total Funding	2,455.4	3,254.8	3,398.1	3,546.8	3,796.5	3,502.2
Direct	2,455.4	3,254.8	3,398.1	3,546.8	3,796.5	3,502.2
Reimbursable	290.6	204.0	204.4	194.6	235.2	235.2
IT Funding	367.7	359.7	288.3	318.0	379.9	

FTE	10,329	11,473	11,596	11,799	12,088	12,165
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IT funding included in total funding. For FY 2002-2004, the total IT dollars include the figures for four additional categories (infrastructure, architecture and planning, grants management, and financial management) that were not included in the total IT dollars for each of the performance goals.

Notes:

NOAA changed its methodology for allocating support costs by Performance Goal to more accurately reflect the distribution of the budget across performance goals.

Other Accounts/Mandatory Program Support is a breakout of the CSRS funds.

PAC/Program Support includes the distribution of CAMS.

Targets and Performance Summary

General Goal/Objective 3.1: Advance understanding and predict changes in the Earth's Environment to Meet America's Economic, Social and Environmental Needs

Resource Requirements (Dollars in Thousands)					
Performance Goal 1: Improve accuracy and timeliness of weather and water information	FY 2004 Enacted	FY 2005 Base	FY 2005 Program Change	FY 2005 Request	Increase/ Decrease
Operations, Research, and Facilities					
National Ocean Service	2.7	2.7	0.3	3.0	0.3
National Marine Fisheries Service	---	---	---	---	---
NOAA Research	58.7	46.0	0.0	46.0	0.0
National Weather Service	673.1	685.0	13.0	698.0	13.0
NESDIS	61.0	60.2	7.6	67.8	7.6
Policy, Program, and Integration	.5	.5	---	.5	---
Program Support	---	---	---	---	---
Procurement, Acquisition, and Construction	619.2	608.6	25.6	634.2	25.6
Business Management Fund	---	---	---	---	---
Other-Discretionary and Mandatory	---	---	---	---	---
Total	1,415.2	1403.0	46.5	1,449.5	46.5
IT Funding					
FTE	4,960	4,966	0	4,966	0

Note: This performance goal is based on the new NOAA Strategic Plan and includes portions of various performance goals as reported in previous years Annual Performance Plans. Information regarding resource requirements by performance goals as reported in previous years is included in the back of this section.

Performance Goal 1: Improve accuracy and timeliness of weather and water information

Measure		FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Target	FY 2003 Actual	FY 2004 Target	FY 2005 Target
Lead Time (Minutes), Accuracy (%), and False Alarm Rate (FAR, %) for Severe Weather Warnings Tornadoes	Lead Time	10	10	12	12	13	12	13
	Accuracy	63%	67%	76%	72%	79%	72%	73%
	FAR	76%	72%	73%	72%	76%	70%	69%
Lead Time (Min) and Accuracy (%) for Severe Weather Warnings for Flash Floods	Lead Time	43	46	52	47	41	50	53
	Accuracy	86%	86%	89%	87%	89%	88%	89%
Hurricane Forecast Track Error (48 Hour)	Nautical Miles	New	New	122	130	107*	129	128
Accuracy (%) (Threat Score) of Day 1 Precipitation Forecasts		New	New	30	25	27	25	27
Lead Time (Hours) and Accuracy (%) for Winter Storm Warnings	Lead Time	9	13	13	13	14	14	15
	Accuracy	85%	90%	89%	88%	90	89%	90%
Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts		6%	8%	8%	17%	17%	17%	28%

*Preliminary actual; will be finalized in 2nd quarter of FY 2004.

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report which were based on information from the third quarter and estimates for the year.

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.

Measure 1a: Lead Time (Minutes), Accuracy (%), and False Alarm Rate (FAR, %) of Severe Weather Warnings for Tornadoes

		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Lead Time (Minutes)	Target	12	13	11	12	12	13
	Actual	10	10	12	13		
	Met / Not Met	Not Met	Not Met	Met	Met		
Accuracy (%)	Target	70%	68%	69%	72%	72%	73%
	Actual	63%	67%	76%	79%		
	Met / Not Met	Not Met	Not Met	Met	Met		
FAR (%)	Target	65%	73%	71%	72%	70%	69%
	Actual	76%	72%	73%	76%		
	Met / Not Met	Not Met	Met	Not Met	Not Met		

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. 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. NOAA is exploring how best to represent events where the public is not provided warning in time to take action.

FY 2004 and 2005 Targets

NWS lead time target for FY 2004 will remain at 12 minutes and will gradually increase to 13 minutes by FY 2005 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.

Measure 1b: Lead Time (Minutes) and Accuracy (%) for Severe Weather Warnings for Flash Floods

		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Lead Time (Minutes)	Target	55	45	45	47	50	53
	Actual	43	46	52	41		
	Met / Not Met	Not Met	Met	Met	Not Met		
Accuracy (%)	Target	86%	86%	86%	87%	88%	89%
	Actual	86%	86%	89%	89%		
	Met / Not Met	Met	Met	Met	Met		

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. 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% represents the percentage of events without a warning.

FY 2004 and 2005 Targets

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. In addition, the implementation of NEXRAD ORDA in FY 2005 will provide precipitation estimates on a much smaller grid, which will give 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. NOAA is exploring how best to represent events where the public is not provided warning in time to take action.

Measure 1c: Hurricane Forecast Track Error (48 Hours)

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	New	New	142	130	129	128
Actual	New	New	New	122	107*		
Met/Not Met	New	New	New	Met			

**Preliminary actual; will be finalized in 2nd quarter of FY 2004.*

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). 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 (thirty-year) trend, and basing outyear goals on that trend, is preferred over making large upward or downward changes to the goals each year. The average track error is projected to decrease due to improvements in 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 forecast operations.

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

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	New	New	New	25%	25%	27%
Actual	New	New	New	30	27%		
Met/Not Met	New	New	New	Met	Met		

Explanation of Measure

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. The measure reflects the ability to forecast accuracy of precipitation events one day in advance. Through this measure, the Hydrometeorological Prediction Center (HPC) focuses on relatively heavy amounts of

precipitation, usually a half inch or more in a 24-hour period (short-term 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 of the NOAA National Weather Service began providing quantitative precipitation forecasts (QPFs) in 1961. These forecasts indicate how much precipitation is expected across the U.S., 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%, indicating no skill, to 100% for a perfect forecast. In verifying the accuracy of a 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 U.S. 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 it would rain at least an inch or it had actually rained an inch. 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.

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, 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 2002 had more skill than the day 1 forecasts in 1994, and HPC’s day 3 forecasts in 2002 were more accurate than the day 2 forecasts in 1997.

Measure 1e: Lead Time (Hours) and Accuracy (%) of Winter Storm Warnings

		FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Lead Time	Target	New	12	13	13	13	14	15
	Actual	11	9	13	13	14		

(Hours)	Met / Not Met	New	Not Met	Met	Met	Met		
Accuracy (%)	Target	New	85%	86%	86%	88%	89%	90%
	Actual	85%	85%	90%	89%	90%		
	Met / Not Met	New	Met	Met	Met	Met		

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.

Measure 1f: Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	14%	6%	17%**	17%	17%	28%
Actual	6%	8%*	8%	17%		
Met/Not Met	Not Met	Met	Not Met	Met		

**This figure was reported as 6% in the FY 2003 APP. However, based on the DOC Office of the Inspector General study (FY 2002), NOAA understated the results for FY 2000 and FY 2001 and should have reported 8% (instead of 6%) of shoreline as having improved ability to reduce impacts from coastal hazards.*

***The change also resulted in an increase of the target for FY 2002 from 15% to 17%.*

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 2004 and 2005 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 2005, 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%. 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.

Unit Cost Measures

The NOAA performance measures for this performance goal relate to the scientific work conducted within the agency. Overall, because of the technical and complex nature of NOAA activities and the impact of biological and other natural conditions, unit cost measures are not used. However, NOAA is reviewing its current performance measures and developing (if needed) new measures for FY 2006.

Office of Management and Budget (OMB) - Program Assessment Rating Tool (PART)

For this performance goal, the programs under NOAA's National Weather Service (NWS) were reviewed using the Office of Management and Budget's PART. The NWS provides the public with weather, water, and climate warnings and forecasts. The information is critical for public safety, protecting lives and property. The data is also critical for business planning and decisions. The NWS is the only national provider of daily warnings and forecasts, storm and severe warning tracking, and flood forecasting. The NWS is also the only entity with an established national infrastructure for collecting weather observations and disseminating information. Using PART, NOAA's NWS received a total score of 89% out of 100%.

Program Evaluation

NOAA's vision for FY 2005 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.

Resource Requirements (Dollars in Thousands)					
Performance Goal 2: Increase understanding of climate variability and change	FY 2004 Enacted	FY 2005 Base	FY 2005 Program Change	FY 2005 Request	Increase/ Decrease
Operations, Research, and Facilities					
National Ocean Service	---	---	---	---	---
National Marine Fisheries Service	1.5	1.5	0.5	2.0	0.5
NOAA Research	178.4	181.6	13.3	194.9	13.3
National Weather Service	17.1	17.8	0.3	18.1	0.3
NESDIS	71.5	52.7	5.3	58.0	5.3
Program, Policy and Integration	.5	.5	---	.5	---
Program Support	---	---	---	---	---
Procurement, Acquisition, and Construction	114.4	103.7	7.6	111.3	7.6
Business Management Fund	---	---	---	---	---
Other-Discretionary and Mandatory	---	---	---	---	---
Total	383.4	357.8	27.0	384.8	27.0
IT Funding					
FTE	862	847	(13)	834	(13)

Note: This performance goal is based on the new NOAA Strategic Plan and includes portions of various performance goals as reported in previous years Annual Performance Plans. Information regarding resource requirements by performance goals as reported in previous years is included in the back of this section.

Performance Goal 2: Increase understanding of climate variability and change

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Target	FY 2003 Actual	FY 2004 Target	FY 2005 Target
U.S. Temperature Forecasts (Cumulative Skill Score Computed Over the Regions Where Predictions are Made)	27	20	18	20	17	21	22
New Climate Observations Introduced	New	132*	192	275	182	275	355
Assess and Model Carbon Sources and Sinks throughout the United States	New	New	Identified Five Pilot Carbon Profiling Sites and four New Oceanic Carbon Tracks	Reduce Uncertainty of Atmospheric Estimates of U.S. Carbon Source/Sink to +/- 0.8 Gt. Carbon per Year	Reduce Uncertainty of Atmospheric Estimates of U.S. Carbon Source/Sink to +/- 0.6 Gt. Carbon per Year	Improve Model-data Fusion Techniques and Reduce Uncertainty of Atmospheric Measurement Estimates of U.S. Carbon Source/Sink to +/- Gt. 0.7 Carbon per Year	Reduce Uncertainty of Atmospheric Estimates of U.S. Carbon Source/Sink to +/- 0.5 Gt. Carbon per Year
Assess and Model Carbon Sources and Sinks Globally	New	New	Establish Three New Global Background Sites as Part of the Global Flask Network	Complete a Working Prototype of a Coupled Carbon-climate Model	Completed a Working Prototype of a Coupled Carbon-climate Model	Develop Carbon-Climate Scenarios for Input to Assessment	Improve Measurements of North Atlantic and North Pacific ocean Basin Carbon Dioxide Fluxes to Within +/- 0.1 Petagrams Carbon/year
Determine Actual Long-term Changes in Temperature and Precipitation throughout the United States	New	New	Capture More than 85% of True Contiguous U.S. Temperature Trend and Capture More than 35% of True Contiguous U.S. Precipitation	Capture More than 70% of True Contiguous U.S. Temperature Trend and Capture More than 40% of True Contiguous U.S. Precipitation	Captured 95% of True Contiguous U.S. National Annual Temperature Trend and Captured 84% of True Contiguous U.S. National	Capture More than 80% of True Contiguous U.S. Temperature Trend and Capture More than 55% of True Contiguous U.S. Precipitation Trend	Capture More than 90% of True Contiguous U.S. Temperature Trend and Capture More than 70% of True Contiguous U.S. Precipitation

Trend Trend Annual
Precipitation
Trend

**This number reflects the total number of climate observations (buoys) budgeted for the year as opposed to the numbers actually deployed. In FY 2001, twenty buoys were deployed.*

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report which were based on estimates for the year.

Society exists in a highly variable climate system, with conditions changing over the span of seasons, years, decades, and longer. Weather- and climate-sensitive industries, both directly and indirectly, account for about one-third of the Nation’s gross domestic product, or \$3.0 trillion. Seasonal and interannual variations in climate, like El Niño, led to economic impacts on the order of \$25 billion for 1997-98, with property losses of over \$2.5 billion and crop losses approaching \$2.0 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.

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

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	20	20	20	20	20	21	22
Actual	23	27	20	18	17		
Met/Not Met	Met	Met	Met	Not Met	Not Met		

Explanation of Measure

The Heidke Skill Score (HSS) 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 = $(1/3) \times$ 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.

Accurate measures of temperature 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 prediction 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 CPC seasonal forecast maps) are not included in the computation of HSS.

The HSS is a function of both whether or not a forecast verifies and whether or not a prediction is made, but does not reward when the forecast verifies 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 advance 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. Prior to FY 2001, the Heidke skill score reported by NOAA was averaged only over the past 36 seasons. A decision to change to an average over 48 seasons was based on following considerations: (1) A longer average reduces the influence of natural unpredictable variability on the skill score, and (2) a cumulative average over 4 years tends to better capture transitions from El Niño to neutral, and then to La Niña conditions. After the definition for the reported scores was changed in FY2001, NOAA recomputed the skill scores for FY 1999 and FY 2000, and these numbers, based on 48 season cumulative average, appear in the Table above. Temperatures across the United States will be measured using NOAA's cooperative network maintained by volunteers across the nation. Temperature data will be collected and analyzed by NOAA.

FY 2004 and 2005 Targets

The National Weather Service is working with the research and modeling communities to help improve its skill and consistency, but it may take several years to show improvement. NWS is also working with the same communities to develop and propose a new/improved GPRA skill measure for seasonal outlooks.

Measure 2b: New Climate Observations Introduced

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	120	174	275	275	355
Actual	New	132*	192	182		
Met/Not Met	New	Met	Met	Not Met		

**This number reflects the total number of climate observations (buoys) budgeted for the year as opposed to the number actually deployed. In FY 2001, twenty buoys were deployed.*

Explanation of Measure

NOAA is undertaking new efforts to better describe the atmosphere–ocean–land system to improve its climate monitoring and prediction capability. As a part of this effort, the Office of Oceanic and Atmospheric Research and NESDIS will expand their existing observation systems, that is, data buoys and new satellites, which will lead to better forecasts.

The oceans provide the largest source of potential predictability for the climate system as well as the potential to produce large climatic surprises, and yet they are currently critically under-observed for certain variables and in many regions. This measure will continue NOAA’s long-term and sustained effort to improve ocean observational capabilities and to increase the usefulness of observations for this critical part of the Earth’s climate system. NOAA will complete an annual report detailing how these new climate observations increased data density and coverage and how they will be used in climate analysis and prediction.

NOAA’s actions include, as resources permit, expanding its ocean observing systems, focusing on the highest priority variables for climate monitoring and prediction, and addressing critical oceanic data voids. NOAA will also place high priority on improving the assimilation and optimal use of ocean observations in climate models that are used for climate analyses and forecasts. NOAA will also estimate the reduction in analysis error that accompanies increases in data quality, density, and coverage.

Measure 2c: Assess and Model Carbon Sources and Sinks Throughout the United States

	FY 2002	FY 2003*	FY 2004	FY 2005*
Target	Establish Five New Pilot Atmospheric Profiling Sites and Four New Oceanic Carbon Tracks	Reduce Uncertainty of Atmospheric Estimates of U.S. Carbon Source/Sink to +/- 0.8 Gt. Carbon per Year	Improved Model-data Fusion Techniques and Reduce the Uncertainty of Atmospheric Measurement Estimates of US Carbon Source/Sink to +/- 0.7 Gt. Carbon per Year	Reduce Uncertainty of Atmospheric Estimates of U.S. Carbon Source/Sink to +/- 0.5 Gt. Carbon per Year
Actual	Identified Five Pilot Carbon Profiling Sites and Four New Oceanic Carbon Tracks	Reduce Uncertainty of Atmospheric Estimates of U.S. Carbon Source/Sink to +/- 0.6 Gt. Carbon per Year		
Met/Not Met	Not Met	Met		

**The value was previously expressed in terms of percentages.*

Explanation of Measure

Carbon dioxide is the most important of the greenhouse gases that are undergoing change 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 not understood. A large portion of the variability is believed to be related to the terrestrial biosphere in the Northern Hemisphere, and quite likely North America itself. NOAA needs to understand 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.

This performance measure will reduce the uncertainties in climate projections and depends on major advances in understanding and modeling radiative forcings (atmospheric concentrations and radiative roles of greenhouse gases and aerosols) and climate feedback mechanisms. In addition, these data will provide the advanced climate-modeling community with the capability to project future climate under a range of potential scenarios.

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.

Reducing the uncertainty of atmospheric estimates of the U.S. carbon balance to +/- 50 percent is a long-term target and not expected to be achieved until after the full network of 36 stations has been established and monitored. The current goal for achieving this target is FY 2007.

Establishment of the five pilot atmospheric profiling sites, planned for FY 2002, was delayed until FY 2003 due to receipt of funds late in the fiscal year. These five sites are not yet operational. One oceanic carbon track is in operation from Los Angeles to New Zealand. Two others have been identified: (1) from New Zealand to South America, and (2) from New York to Cape Town.

Measure 2d: Assess and Model Carbon Sources and Sinks Globally

	FY 2002	FY 2003	FY 2004	FY 2005
Target	Establish Three New Global Background Sites as Part of the Global Flask Network ¹	Complete a Working Prototype of a Coupled Carbon-climate Model	Develop Carbon Climate Scenarios for Input to Assessment	Improve Measurements of North Atlantic and North Pacific Ocean Basin Carbon Dioxide Fluxes to Within +/-0.1 Petagrams Carbon/year
Actual	Established Three New Global Background Sites as Part of the Global Flask Network ¹	Completed a Working Prototype of a Coupled Carbon-climate Model		

Met/Not Met	Met	Met
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¹ The Global Flask Network is an observational network of monitoring stations with headquarters in Boulder, Colorado.

Explanation of Measure

By FY 2008 NOAA will provide publicly available, routine inventory of carbon, heat, and salinity in the ocean basins and provide near -real-time, global carbon source and sink maps.

The research community is moving toward monthly mean maps, but it is hampered by data that is not at the appropriate temporal resolution. In addition, carbon models are only partially coupled to computer models that account for a changing ocean, atmosphere, and land.

Preliminary work suggests that feedbacks between the land and ocean and the atmospheric carbon dioxide concentration can be strong and result in release of carbon to the atmosphere from the stored pools on land and in the ocean.

Activities planned to assess and model carbon sources and sinks in both the North American and global programs are similar but vary in scale with the North American network having a finer spatial scale. These activities consist of increasing the observing network by establishing new sampling sites, and completing or improving computer models to simulate atmospheric transport of carbon. Both cases will result in more accurate estimates of the atmospheric carbon balance.

The carbon atmospheric observing system over North America has been designed to develop regional (about 600 mile) scale estimates of carbon dioxide sources and sinks, especially within the U.S. It requires vertical profiling over terrestrial ecosystems using aircraft and tall towers.

The global atmospheric observing system is designed to determine carbon dioxide sources and sinks for global continental-scale regions and involves additional surface measurements at background (clean air) sites such as coastal regions. The current lack of data results in large variations in carbon source-sink estimates at this scale.

Measure 2e: Determine the Actual Long-term Changes in Temperature and Precipitation Over the United States

	FY 2002	FY 2003	FY 2004	FY 2005
Target	Capture More than 60% of True Contiguous U.S. Temperature trend and Capture More than 25% of True Contiguous U.S. Precipitation Trend	Capture More than 70% of True Contiguous US Temperature Trend and Capture More than 40% of True Contiguous U.S. Precipitation Trend	Capture More than 80% of True Contiguous U.S. Temperature Trend and Capture More than 55% of True Contiguous U.S. Precipitation Trend	Capture More than 90% of True Contiguous U.S. Temperature Trend and Capture More than 70% of True Contiguous U.S. Precipitation Trend

Actual	Captured More than 85% of True Contiguous U.S. Temperature trend and Captured More than 55% of True Contiguous U.S. Precipitation Trend	Captured 95% of True Contiguous U.S. National Annual Temperature Trend and Captured 84% of True Contiguous U.S. National Annual Precipitation Trend
Met/Not Met	Met	Met

Explanation of Measure

This measure is designed to address the significant shortcomings in past and present observing systems by capturing more than 95% of the true contiguous U.S. national temperature trend and 80% of the true contiguous U.S. national precipitation trend by FY 2006.

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, 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. The fully deployed network will ensure that NOAA can measure more than 90% of the variance in monthly trends of temperature and precipitation at the national level. NOAA will deploy instrument suites in a combination of single and nearby paired sites.

Deployment of the U.S. Climate Reference Network is continuing, with stations added over the next several years. However, due to funding limitations, the full implementation has been scaled back to ensure funds are allocated to maintain the operational performance of the network and ensure the quality of the data are the highest possible, given the current state of technologies. While national trends will still be captured, as noted in the performance measure, the smaller sized network will not be able to achieve the level of monitoring and evaluation of climate variations and trends at the regional scale.

Discontinued Measures

Determine the Accuracy of the Correlation between Forecasts of the Southern Oscillation Index (SOI) and El Niño/La Niña Events

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	0.85	0.85	0.85	0.85	0.86	.86
Actual	0.84	0.85	0.85			
Met/Not Met	Not Met	Met	Met			

This measure has been discontinued due to its complexity. The National Weather Service acknowledges that this measure is too technical and is working with the broader NOAA climate community to develop more meaningful measures.

Number of New Monitoring or Forecast Products that Become Operational per Year (cumulative)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	4	8	12	16	
Actual	New	4	8			
Met/Not Met	New	Met	Met			

This performance measure has been discontinued. NOAA will consider the development of new procedures to verify new climate products and develop a definition of a “new climate product”. When this action is completed the performance measure will be reevaluated.

Results of 90% of NOAA Climate Research Activities Cited in the 2001 Intergovernmental Panel on Climate Change’s Third Assessment of Climate Change

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	N/A ¹	N/A ¹	90% cited	N/A ¹	N/A ¹	N/A	
Actual	N/A ¹	N/A ¹	100% cited	N/A ¹			
Met/Not Met	N/A ¹	N/A ¹	Met				

This measure has been discontinued since the Intergovernmental Panel on Climate Change assessments are only published every five years. In off years there are no results to report thus not making it an appropriate APP/GPRA measure that can be tracked on an annual basis.

Unit Cost Measures

The NOAA performance measures for this performance goal relate to the scientific work conducted within the agency. Overall, because of the technical and complex nature of NOAA activities and the impact of biological and other natural conditions, unit cost measures are not used. However, NOAA is reviewing its current performance measures and developing (if needed) new measures for FY 2006.

Program Evaluation

A number of NOAA line offices participate in the activities that support climate research. The Office of Oceanic and Atmospheric Research (OAR) conducts periodic reviews of the activities of its Environmental Research Laboratories. 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. In addition, the NOAA Science Advisory Board, made up completely of private sector, university, and other Federal agency scientists, provides input on climate and air quality research. NOAA's Office of Global Programs, funded in OAR's Climate and Global Change research line item, receives review from international science agencies, universities, and private sector scientists. The NOAA Research Laboratories are reviewed on a regular basis. The Sea Grant Colleges are visited at least every 2 years by a review panel.

Cross-cutting Activities

Intra-Department of Commerce

In partnership with the Technology Administration and the International Trade Administration within the Department of Commerce, other federal agencies, the private sector, and academia, NOAA is providing the foundation the United States will depend upon to lead new emerging global industries in economically and environmentally sustainable ways.

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.

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, including the Global Climate Change Program.

External Factors and Mitigation Strategies

A major failure of Earth observing and computing infrastructure would impair NOAA's ability to produce climate forecasts. NOAA has been looking for backup outside the organization. For example, the Department of the Navy provides backup to the National Centers for Environmental Prediction mainframe computer.

An unanticipated major increase of the customer base for climate-related products may strain NOAA resources. In such an event, NOAA would prioritize its activities to meet the immediate increase in demand while it looks for alternative ways to meet the needs of all its customers.

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

The science of climate change crosses generations and has progressed as a result of evolving technology. Our ability to measure performance is contingent upon many external factors, including the advancement of climate change itself. While the time frame of these processes spans decades and even centuries, the reporting periods extend over years.

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

General Goal/Objective: Enhance the Conservation and Management of Coastal and Marine Resources to Meet America's Economic, Social and Environmental Needs

Resource Requirements (Dollars in Thousands)					
Performance Goal 3: Improve protection, restoration, and management of coastal and ocean resources through ecosystem-based management	FY 2004 Enacted	FY 2005 Base	FY 2005 Program Change	FY 2005 Request	Increase/Decrease
Operations, Research, and Facilities					
National Ocean Service	353.3	258.2	(14.1)	244.1	(14.1)
National Marine Fisheries Service	620.8	520.3	100.9	621.2	100.9
NOAA Research	155.8	111.4	(2.1)	109.3	(2.1)
National Weather Service	---	---	---	---	---
NESDIS	10.3	11.6	1.0	12.6	1.0
Program, Policy and Integration	.5	.5	---	.5	---
Program Support	303.0	294.3	(73.9)	220.4	(73.9)
Procurement, Acquisition, and Construction	157.9	29.1	45.4	74.5	45.4
Business Management Fund		---	---	---	---
Other-Discretionary and Mandatory	134.4	135.2	(6.4)	128.8	(6.4)
Total	1,736	1,360.6	50.8	1,411.4	50.8
IT Funding					
FTE	5,448	5,453	84	5,537	84

Note: This performance goal is based on the new NOAA Strategic Plan and includes portions of various performance goals as reported in previous years Annual Performance Plans. Information regarding resource requirements by performance goals as reported in previous years is included in the back of this section.

Performance Goal 3: Improve protection, restoration, and management of coastal and ocean resources through ecosystem-based management

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Target	FY 2003 Actual	FY 2004 Target	FY 2005 Target
Number of Overfished Major Stocks of Fish	56	46*	45	43**	43***	43	42
Number of Major Stocks with an "Unknown" Stock Status	120	120	88	88	88****	84	77
Percentage of Plans to Rebuild Overfished Major Stocks to Sustainable Levels	93%	93%	90%	96%	90%***	96%	98%
Increase in Number of Threatened Species with Lowered Risk of Extinction	New	2	7	5	Available May 31, 2004	5	6
Number of Commercial Fisheries that Have Insignificant Marine Mammal Mortality	New	2	3	6	Available May 31, 2004	8	8
Increase in Number of Endangered Species with Lowered Risk of Extinction	New	3	5	6	Available May 31, 2004	6	7
Number of Habitat Acres Restored (Annual/Cumulative)	New	1,520	4,300/5,820	2,829/8,649	5,200/11,020	3,760/14,780	4,500/19,280

*The original baseline was fifty-six of which ten were later reclassified as not being subject to overfishing requirements as defined in the associated Fisheries Management Plans.

**This target number was originally reported as 55 in the FY 2003 Annual Performance Plan (APP). However, due to the reclassification of 10 major stocks as not being subject to overfishing requirements as defined in the Fisheries Management Plan, the targets for FY 2003 and beyond have been adjusted accordingly.

***Preliminary estimates, actuals available May 31, 2004.

****The original figure reported in the FY 2003 and 2004 APP was 118, but has been modified to reflect changes in the fisheries.

Note: Protected species are defined as all marine mammal stocks and those domestic non-marine mammal species listed as threatened or endangered under the Endangered Species Act that are under the jurisdiction of the National Marine Fisheries Service.

Coastal areas are among the most developed in the Nation, with over half of our population residing within less than one-fifth of the land area in the contiguous United States. Coastal counties are growing three times faster than counties elsewhere, adding more than 3,600 people a day to their populations. Coastal and marine waters support over 28 million jobs, generate over \$54 billion in goods and services a year, and provide a tourism destination for 180 million Americans a year. The value added to the national economy by the commercial fishing industry is over \$28 billion annually, and about 18 million Americans engage in marine recreational fishing every year. 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.

STRATEGIC OBJECTIVES

NOAA has identified three strategic objectives to further delineate what it does under this mission goal:

- A. Protect and restore ocean, coastal, and Great Lakes resources;
- B. Recover protected species; and
- C. Rebuild and maintain sustainable fisheries.

NOAA recognizes that these three objectives are scientifically, socially and economically interdependent and is moving toward managing living marine and other ocean and coastal resources using a truly integrated ecosystem management approach. Until ecosystem approaches are fully adopted, NOAA will continue to manage on a more narrowly focused species- and site-specific basis. However, NOAA will be improving the science, management, and regulatory processes to implement a more comprehensive ecosystem approach that will allow better management decisions for the Nation's ocean, coastal, and Great Lakes resources.

In the short term, NOAA will apply this new focus by giving increased priority to: habitat protection and restoration for all species; interactions of target species management decisions with nontarget species and ecosystem effects; and partnerships with international organizations, foreign governments, Federal agencies, state and local governments, academia, and nongovernmental organizations in applying ecosystem approaches to coastal, ocean, and Great Lakes resource management.

In the longer term, NOAA will strive to manage multiple aspects of sustainable ecosystems, including fisheries resources, threatened and endangered species, marine mammals, biodiversity, important habitats that support those resources, and the impacts of ecosystem-based management decisions on the economy and communities. Ecosystem management will also require improved understanding of the pressures--both natural and human-induced--that change ecosystems.

Measure 3a: Number of Overfished Major Stocks of Fish

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	New	45	43**	43	42
Actual	56	46*	45	43***		
Met/Not Met			Met	Met		

*The original baseline was fifty-six of which ten were later reclassified as not meeting the criteria for an “overfished” designation.

**This number was originally reported as 55 in the FY 2003 Annual Performance Plan (APP). However, due to the reclassification of 10 major stocks as not being subject to overfishing requirements as defined in the associated Fisheries Management Plans, the targets for FY 2003 and beyond have been adjusted accordingly.

***Preliminary estimate, actual number available May 31, 2004.

Explanation of Measure

The purpose of this measure is to focus on the number of overfished major stocks. A major stock is defined as a stock that yields annual catches of more than 200 thousand pounds (90.7 metric tons). An overfished designation means that the biomass of a given fishery’s stock is below a prescribed threshold as defined in the Fishery Management Plan.

The 2001 Annual Report to Congress identified 295 major stocks, only 167 of which have a known status with respect to an “overfished” or “not overfished” designation.

The goal for this measure is to decrease the number of overfished major stocks from a FY 2000 baseline of forty six to thirty-two by 2009. The original baseline was fifty-six of which ten were later reclassified as not meeting the criteria for an “overfished” designation.

The National Marine Fisheries Service (NMFS) is providing some financial assistance, such as disaster relief programs, to alleviate some of the hardship encountered by fishermen during the course of rebuilding fisheries stocks.

Measure 3b: Number of Major Stocks with an “Unknown” Stock Status

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	New	120	88*	84	77
Actual	120	120	88	88**		
Met/Not Met			Met	Met		

*The original figure reported in the FY 2003 and 2004 APP was 118, but has been modified to reflect changes in the fisheries.

**Preliminary estimate; actual number available May 31, 2004.

Explanation of Measure

The purpose of this measure is to track progress in improving knowledge about the population status of major stocks as defined in the Annual Report to Congress. In many cases the current status of stocks under NMFS authority remains unknown. The goal for this measure is to reduce the number of major stocks with an unknown status to no more than 69 by FY 2009.

Not all unknown stocks are of equal importance; parameters such as the value and quantity of catches or known role in the ecosystem as key predators or prey determine a stock's level of importance. This measure takes into account the outcome of investments in staff and data acquisition, such as charter and research vessel days-at-sea and stock assessment methodological research.

Of the 905 stocks mentioned in the 2001 Annual Report to Congress, the status of more than 600 was either unknown or was classified as undefined. The vast majority of these unknown or undefined stocks are classified as minor stocks. Minor stocks, in fact, accounted for 83% of the stocks whose status were either unknown or undefined, while only 17% of the unknown and undefined stocks were categorized as major.

Measure 3c: Percentage of Plans to Rebuild Overfished Major Stocks to Sustainable Levels

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	New	94%	96%	96%	98%
Actual	93%	90%	90%	90%*		
Met/Not Met			Not Met	Not Met		

Note: All baseline rebuilding plans will be in place by 2005 except for Scup in the Northeast. The Scup rebuilding plan was disapproved but the stock has been rebuilding and a determination will be made when a rebuilding plan will be developed. Future targets will be modified as appropriate.

**Preliminary estimate, actual number available May 31, 2004.*

Explanation of Measure

This measure relates directly to the statutory requirements of the Magnuson-Stevens Fishery Conservation and Management Act that require regional councils to develop rebuilding plans for stocks of fish that have been identified as overfished. By maintaining this measure as a percentage, NOAA and the councils can measure their performance in putting together an approved rebuilding plan within the 18 month expected timeframe. This measure is also best represented as a percentage because to do otherwise would show an inaccurate negative trend where one does not exist. For example, the target for FY 2002 was to have 94% of rebuilding plans in place for 45 overfished major stocks ($45 \times 0.94 = 42$). In actuality, only 41 overfished major stocks were required to have rebuilding plans and 4 plans were delinquent ($37/41 = 90\%$). The target is to have 98 percent of the rebuilding plans in place by FY 2005 based on a total of 45 overfished major stocks, and a determination on the need for a rebuilding plan for Scup before FY2005.

The Magnuson-Stevens Act outlines specific parameters and timeframes for rebuilding. At this time, major and minor stocks have been differentiated to highlight the relative priorities and complexities of producing a rebuilding plan and the consequent impact on performance measurement. Measurement of this metric will occur in the annual Status of Stocks Report to Congress.

Measure 3d: Increase in Number of Threatened Species with Lowered Risk of Extinction

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	2	2	5	5	6
Actual	New	2	7	Available May 31, 2004		
Met/Not Met		Met	Met			

Explanation of Measure

The measure addresses 10 of the 27 threatened species that have been identified as the “threatened” species most in danger of extinct. The authority to list species at “threatened” or “endangered” is shared by the National Marine Fisheries Service, which is responsible for listing most marine species, and the Fish and Wildlife Service of the Department of the Interior, which administers the listing of all other plants and animals. There are two classifications under which a species may be listed:

- Species determined to be in imminent danger of extinction throughout all or a significant portion of their range are listed as “endangered”
- Species determined likely to become endangered in the foreseeable future are listed as “threatened.”

The threatened species considered in this measure are the Atlantic salmon, Johnson’s seagrass, the loggerhead turtle, the green turtle, the olive ridley turtle, Stellar sea lions, and four species of Pacific salmonids.

Strategies to accomplish this performance measure include enforcing existing conservation measures; conducting priority research as identified in species recovery plans; developing partnerships with states and others to implement conservation programs; and building the tools and technology to improve the effectiveness of conservation actions.

Because this measure reflects only general trends in status of threatened species, it does not capture the impact of work that NOAA undertakes on an annual basis to improve the understanding of protected species, build partnerships to address the conservation needs of those listed species, or the development of new tools and technology to address conservation needs. This performance measure is being reviewed and will be modified to more accurately address NOAA-controlled activities.

FY 2004 and 2005 Targets

Investments in FY 2005 will address improved stock assessment capabilities for assessing the status and trends of targeted protected species through genetic profiling, improved telemetry techniques (e.g., satellite tagging) and new assessment technologies such as towed passive acoustic arrays and high frequency sonar. Additional investment in recovery plan development and implementation will allow for delivery of improved on-the-ground recovery projects and support for recovery plans that identify the threats to species and the actions necessary to eliminate or neutralize them and bring the species back from their threatened or endangered status.

Measure 3e: Number of Commercial Fisheries that Have Insignificant Marine Mammal Mortality

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	2	6	6	8	8
Actual	New	2	3	Available May 31, 2004		
Met/Not Met		Met	Not Met			

Explanation of Measure

This measure tracks the number of commercial fisheries where marine mammal deaths are substantial and where these deaths will be reduced to insignificant levels by 2007. Insignificant levels mean that total mortality or rate of death is no more than 10% of the maximum number of marine mammals that could die from human-caused mortality. For this measure, 15 out of 32 fisheries have been targeted.

One of the most significant impacts on marine mammal stocks is death from entanglement and drowning in fishing gear. Certain marine mammal species are particularly vulnerable to interactions with fisheries because of location and type of fishing gear used. The 15 fisheries and marine mammal stocks targeted in this measure are the following: for the Western North Atlantic stock of coastal bottlenose dolphins, the fisheries are the Mid Atlantic coastal gillnet, North Carolina inshore gillnet, Southeast Atlantic gillnet, Southeast Atlantic shark gillnet, Atlantic blue crab trap or pot, Mid Atlantic haul or beach seine, North Carolina long haul seine, North Carolina roe mullet stop net, and Virginia pound net. For the Gulf of Maine/Bay of Fund stock of harbor porpoise, the fishery is the Northeast sink gillnet. For the Atlantic large whale, the fisheries are the Northeast and Mid Atlantic American lobster trap or pot, Northeast sink gillnet, Mid Atlantic coastal gillnet, and Southeast Atlantic shark gillnet. Finally, for the Pacific, new fishing technologies to reduce gear impacts need to be developed. Strategies to reduce offshore cetacean interactions between fishing gear and marine mammals need to be devised. NOAA also needs to educate fishermen about how they can avoid marine mammals while still being able to catch fish.

A successful program to reduce mortality of marine mammal stocks will require research on marine mammal behavior, assessment of marine mammal populations, reduction of interactions in problem fisheries, and monitoring and analysis via the observer program.

FY 2004 and 2005 Targets

The 2-year period identified for each performance target reflects the multi-year process required for the cycle of identifying, implementing, and monitoring the strategies identified to accomplish these goals.

Measure 3f: Increase in Number of Endangered Species with Lowered Risk of Extinction

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	3	6	6	6	7
Actual	New	3	5	Available May 31, 2004		
Met/Not Met		Met	Not Met			

Explanation of Measure

The term "endangered species" is defined in the Endangered Species Act as any species that is in danger of extinction. Of the list of 29 endangered species, 11 have been identified as the most critically in danger of extinction. These eleven species include the Pacific leatherback turtle, kemp's ridley turtle, hawksbill turtle, Hawaiian monk seal, Western Stellar sea lion, shortnose sturgeon, and five species of Pacific salmonids. Efforts to prevent extinction will focus on identifying the factors that contribute to extinction and developing and implementing recovery plans to address these factors. Reducing the probability of extinction requires a reduction in human activities that are detrimental to the survival of protected species, that is, reducing incidental and direct catch (takes), increasing species habitat, decreasing negative interactions, and mitigating natural phenomena.

Because this measure reflects only general trends in status of endangered species, it does not capture the impact of work that NOAA undertakes on an annual basis to improve the understanding of protected species, build partnerships to address the conservation needs of those listed species, or the development of new tools and technology to address conservation needs. This performance measure is being reviewed and will be modified to more accurately address NOAA-controlled activities.

FY 2004 and 2005 Targets

While it may not be possible to “recover or de-list” a species in a one or two year time frame, progress can be made to reduce the likelihood of these species becoming extinct – 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).

Measure 3g: Number of habitat Acres Restored (Annual/Cumulative)

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	New	New	2,829/8,649	3,760/14,780	4,500/19,280
Actual	1520	4,300/5,820	5,200/11,020		
Met/Not Met			Met		

This performance measure replaces the previous measure, “Number of Acres of Coastal Habitat Benefited.” The previous performance measure was changed to reflect a more precise measure of the actual and direct consequences of restoration actions with the recognition that indirect beneficial impacts may occur that cannot be precisely measured at present. With the replacement measure, a new baseline for tracking progress has been established.

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.

Discontinued Measures

Reducing the Impacts of Invasive Species within Six Regions in the United States

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	1	1	2	2	2		
Actual	0	1	2	2			
Met/Not Met	Not Met	Met	Met	Met			
Met							

Based on the DOC Office of the Inspector General Audit Report, “No. FSF-14998/November 2002, “ this measure will be replaced but will not be reported as an APP/GPRA measure. The future measure will be more specific in terms of scope and regional areas covered by the work.

Number of Acres of Coastal Habitat Benefited (Cumulative)

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
Target	New	New	108,531	117,884	
Actual	New	83,002	108,531		
Met/Not Met			Met		

This performance measure has been revised to show “Number of Habitat Acres **Restored.**” The performance measure has been changed to reflect a more precise measure of the actual and direct consequences of restoration actions with the recognition that indirect beneficial impacts may occur that cannot be precisely measured at present. With the revised performance measure, a new baseline for tracking progress has been established.

Basically, this discontinued measure reflects the number of acres that benefit from projects sponsored by NMFS and funded under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). The count includes acres adjacent to those restored that benefit from the restoration as well. For example, one project in 2001 will create seventy acres of marsh and protect up to thirty acres of the main habitat; it also will create about seventy-three acres of wetlands by trapping sediment.

In FY 2002, the DOC Office of the Inspector General undertook a study on how NOAA reports on its performance measures. Based on the findings of the IG study, the targets and actuals for FY 2001 and FY 2002 have been revised to more accurately document this performance measure. As a result, the actual for FY 2001 is 83,002 acres and the target for FY 2002 should have been 108,531 acres (as opposed to the original target of 122,000), which is also the actual for FY 2002. Therefore, based on the revision, NOAA has met the target for FY 2002.

The original FY 2001 performance results incorrectly included one project scheduled for completion in FY 2002, two scheduled for completion in FY 2003, and two for which the number of benefited acres was overstated by 50 percent. Taken together, these five projects inflated NOAA’s FY 2001 count by approximately 33,000 acres (39 percent). The supported number of acres that should have been reported as benefited was approximately 83,002, not the 116,000 contained in the FY 2001 APP/FY 2003 APP.

Unit Cost Measures

The NOAA performance measures for this goal 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 not used. However, NOAA is reviewing its current performance measures and developing (if needed) new measures for FY 2006.

Office of Management and Budget (OMB) - Program Assessment Rating Tool (PART)

For this performance goal, three programs were reviewed using PART, namely, the NOAA Fisheries' Regulatory Program, Pacific Coastal Salmon Recovery Program, and the Coastal Zone Management Program under the Coastal Zone Management Act (CZMA).

Within the Federally controlled U.S. Exclusive Economic Zone, the NOAA National Marine Fisheries Service (NMFS) is responsible for the management and conservation of the Nation's living marine resources and their habitats. The regulatory programs under NMFS promote sustainable use of living marine resources and the recovery of threatened and endangered species. The PART review of the NMFS Regulatory Program instructed NMFS to continue work implementing proposed management and organizational changes. NMFS is continuing efforts to improve the quality and frequency of stock assessments and to improve the ability to provide timely and high quality analyses for fisheries management decisions, at the same time working to more efficiently process regulatory actions.

The Pacific Coastal Salmon Recovery Fund is authorized for salmon habitat restoration, salmon enhancement, salmon research, and salmon supplementation activities. The program provides grants to States and Tribes to assist state, local, and tribal salmon conservation and recovery efforts. Using PART, this program received a total score of 80% out of 100%. The PART review of the Pacific Coastal Salmon Recovery Fund directed the program to "complete the development of program-wide long-term performance measures by June, 2003". In May 2003, the program published its Performance Goals and Reporting Metrics. Within the overarching goal of conservation, restoration and sustainability of Pacific salmon and their habitat, the program identified five program objectives that represent the categories of projects funded with PCSRF funds. These objectives are: 1) salmon habitat protection and restoration, 2) watershed and sub-basin planning and assessments, 3) salmon enhancement, 4) salmon research, monitoring and evaluation, and 5) public outreach and education. Investments in each of these will be measured against the performance goals identified for each category. The full report is available at:

http://www.nwr.noaa.gov/pcsrp/PCSRF_Performance_Measures.pdf

The CZMA of 1972, as amended, creates federal-state partnerships to support effective management, beneficial use, protection, and development of the coastal zone. The NOAA National Ocean Service (NOS) Coastal Zone Management Program addresses competing demands for economic development and environmental protection through an integrated approach to protecting, restoring, and developing the natural, cultural, and economic resources of the coastal zone. As a result of NOAA's efforts on the PART for the CZMA Program, NOAA will continue to develop meaningful long-term outcome measures.

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. These factors include the impact of climate and other natural conditions, such as El Niño, on biological stocks. In addition, the effect of national and/or local economic conditions may affect NOAA's ability to reach certain targets.

The impact of climate, biological, and other natural conditions affect NMFS' efforts to recover protected species and maintain the status of healthy species. Research may identify opportunities to pursue mitigating strategies in some cases.

Changes in climate, biological, and other natural conditions may affect NOAA's ability to carry out activities to sustain healthy coasts. In addition, many of these 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 the overall effort to sustain healthy coasts.

Resource Requirements (Dollars in Thousands)					
Performance Goal 4: Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation	FY 2004 Enacted	FY 2005 Base	FY 2005 Program Change	FY 2005 Request	Increase/ Decrease
Operations, Research, and Facilities					
National Ocean Service	149.0	117.1	14.6	131.7	14.6
National Marine Fisheries Service	---	---	---	---	---
NOAA Research	---	---	---	---	---
National Weather Service	31.8	32.8	0.4	33.2	.4
NESDIS	9.0	9.4	1.1	10.5	1.1
Program, Policy and Integration	.5	.5	---	.5	---
Program Support	.5	---	---	---	---
Procurement, Acquisition, and Construction	71.2	75.0	5.5	80.5	5.5
Business Management Fund	---	---	---	---	---
Other-Discretionary and Mandatory	---	---	---	---	---
Total	262.0	234.8	21.6	256.4	21.6
IT Funding					
FTE	818	826	2	828	2

Note: This performance goal is based on the new NOAA Strategic Plan and includes portions of various performance goals as reported in previous years Annual Performance Plans. Information regarding resource requirements by performance goals as reported in previous years is included in the back of this section.

Performance Goal 4: Support the Nation’s commerce with information for safe, efficient, and environmentally sound transportation

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Target	FY 2003 Actual	FY 2004 Target	FY 2005 Target
Reduce the Hydrographic Survey Backlog Within Navigationally Significant Areas (square nautical miles surveyed per year)	1,557	2,963	1,514	2,100	1,762	2,290	3,000
Percentage of National Spatial Reference System (NSRS) Completed (Cumulative %)	71%	75%	83%	84%	84%	85%	87%
Accuracy (%) and FAR (%) of Forecasts of Ceiling and Visibility (3miles/1000 ft.) (Aviation Forecasts)	New	New	45%	45%	48%	46%	46%
	New	New	71%	71%	64%	70%	68%
Accuracy (%) of Forecast for Winds and Waves (Marine Forecasts)							
Wind Speed	New	New	52%	54%	57%	57%	60%
Wave Height	New	New	68%	66%	71%	69%	72%

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. Waterborne cargo alone contributes more than \$740 billion to the U.S. gross domestic product and creates employment for over 13 million citizens. 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 \$4 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 railroad 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.

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

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	1,550	1,505	1,602	2,100	2,290	3,000
Actual	1,557	2,963	1,514	1,762		
Met/Not Met	Met	Met	Not Met	Not Met		

This measure has been changed to reflect the recommendation made by the Office of the Inspector General, Audit Report No. FSD-14998-3-001 dated February 2003. This measure was previously worded as "Hydrographic Survey Backlog (Square Nautical Miles) for Critical Navigation Areas (Cumulative Percentage).

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 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 537,000 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%) of the entire navigationally significant area used by large commercial vessels and recreational boaters. The square nautical miles reported in the table above reflect data collected within all areas designated as navigationally significant. NOAA’s surveying activities balance in-house resources with contracts and use the latest full bottom coverage sounding technologies to survey the nation’s coastal areas for navigation. NOAA utilizes private contractors and a vessel time charter to supplement its in-house resources to conduct hydrographic data collection. 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 2004 and 2005 Targets

NOAA’s FY 2004 target is substantially lower than the FY 2005 target for several reasons. While NOAA expects to begin the operations of a time charter for hydrographic surveys in 2004, the contracting process has been fraught with delays. Therefore, the time charter will only operate for part of the year. A cooperative international charting project in Mexican waters is planned for the NOAA ship THOMAS JEFFERSON, which will redirect this asset from U.S. waters for approximately 45 sea days. In addition, the reactivated NOAA ship FAIRWEATHER will operate for only part of the year, and will sail with only two survey launches – two short of its capacity. Contracts for hydrographic services will be focused in critical waters on the Alaskan coast and the Gulf of Mexico.

In 2005, NOAA expects a full year of operations from both the time charter and the FAIRWEATHER, which will work in sheltered South East Alaskan waters near her home port in Ketchikan. Contracts for hydrographic services will continue to be focused in critical waters on the Alaskan coast and the Gulf of Mexico.

Measure 4b: Percentage of National Spatial Reference System (NSRS) Completed (Cumulative %)

	FY2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Target	64	75	78	84	85	87
Actual	71	75	83*	84		
Met/Not Met	Met	Met	Met	Met		

**This figure was reported as 81% in the FY 2002 APPR. As a result of the Office of Inspector General Audit Report No. FSD-14998-3-001 dated February 2003, the FY 2002 Actual reported previously has been revised to 83% in this document.*

Explanation of Measure

This measure was added in FY2000 to replace the Physical Oceanographic Real Time System measure, which was discontinued. The NSRS performance measure is effective because it integrates the different components of the geodesy program (spatial earth measurements) into a product more useful to customers rather than measuring individual components of horizontal and vertical positioning.

In order to meet the Nation’s navigation and other positioning needs, NOAA is enhancing the NSRS to provide the higher accuracy and accessibility needed for use with the space-based Global Positioning Systems (GPS), whose satellites transmit signals that allow determination of position, height, velocity, and time. The NSRS, a system of reference stations and monuments across the nation, provides integrity to geographic coordinates obtained from GPS satellite signals for accurate positioning in support of numerous applications, including land surveying, navigation, mapping, and infrastructure development such as 911 emergency response and scientific applications. New uses for GPS are being found every day, and many of them involve precision heights.

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

		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Accuracy (%)	Target	New	New	New	45%	46%	46%
	Actual	New	New	45%	48%		
	Met / Not Met	New	New		Met		
FAR (%)	Target	New	New	New	71%	70%	68%
	Actual	New	New	71%	64%		
	Met / Not Met	New	New		Met		

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 type of 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.

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

		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Wind	Target	New	New	New	54	57	60
Speed	Actual	New	New	52	57%		
	Met/Not Met	New	New		Met		
Wave	Target	New	New	New	66	69	72
Height	Actual	New	New	68	71%		
	Met/Not Met	New	New		Met		

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 type of measure was added in FY 2000 to reflect another segment of customers that had not been represented in other performance measures. NOAA actions to be taken include data collection and verification, which will be added to forecasts for the Great Lakes. The NWS expects the accuracy to gradually improve by 2009. This improvement will be possible as a result of operational deployment of new marine forecast capabilities, including future releases and upgrades to the Advanced Weather Interactive Processing System (AWIPS) software used by NWS forecasters; implementation of new wave forecast models through successful outreach and collaboration efforts with customers and partners of NOAA/NWS services; expanding the network of marine weather observations used in the forecast and verification process; and exploring and improving new methods of disseminating forecasts to customers in the digital era of providing forecasts.

Unit Cost Measures

The NOAA performance measures for this goal 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 not used. However, NOAA is reviewing its current performance measures and developing (if needed) new measures for FY 2006.

Office of Management and Budget (OMB) – Program Assessment Rating Tool (PART)

For this performance goal, the Nautical Mapping and Charting Program of NOAA’s National Ocean Service was reviewed using PART. The NOAA Nautical Mapping and Charting Program is responsible for charting U.S. and territorial waters to the limits of the U.S. Exclusive

Economic Zone, an area of 3.4 million square nautical miles. The program provides the necessary chart tools to all mariners in U.S. waters for safe navigation. The NOAA nautical charts support the U.S. Marine Transportation System and the U.S. economy in moving goods and people efficiently through U.S. coastal waters, ports, and waterways.

As a result of PART, NOAA's mapping and charting program is developing new long-term outcome measure. Specifically, NOAA has initiated a project with the U.S. Merchant Marine Academy to analyze U.S. Coast Guard accident data for navigation-related events to determine a baseline and targets for accident reduction via improved utility of NOAA navigational products and services.

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. A 2001 KPMG Consulting cost analysis of survey platform options supported NOAA's concept of a time charter for continuous survey operations. Pending FY 2003 appropriations, NOAA plans to contract for a time charter to test its effectiveness in real-world applications.

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 NSRS. 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. Finally, 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.

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, 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 the Department of Transportation 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.

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 EgyptAir Flight 990 crashes; damage assessments after major oil spills such as the Exxon Valdez, the Persian Gulf War, and the New Carissa; and severe hurricanes. NOAA mitigates these impacts with backup plans for relocating assets to other projects, or by reassessing survey schedules.

NOAA Data Validation and Verification

NOAA’s Office of Finance Administration/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.

<u>Performance Measure</u>	<u>Data Source</u>	<u>Frequency</u>	<u>Data Storage</u>	<u>Internal Control Procedures</u>	<u>Data Limitations</u>	<u>Actions to be Taken</u>
Measure 1a: 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 the actual event. The process begins with the collection of warnings from every NWS office across the nation. The severe weather event program includes extensive quality control procedures to ensure the highest reliability of each report. The data in each report are entered into a database that contains severe weather warnings where the warnings and events are matched and appropriate statistics are calculated and made available to all echelons of the NWS.	There are limitations of scientific verification in assessing data. The fundamental purpose of scientific verification is to objectively assess program performance through the use of standard statistical analysis. However, a number of factors unique to the atmospheric sciences must be considered to ensure proper interpretation of objectively derived statistics. The primary factor to consider is the natural variation of this performance measure related to annual fluctuations in meteorological	Review the storm data from individual events to pinpoint the causes and take corrective actions.

					conditions associated with severe weather.	
Measure 1b: 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 the actual event. The process begins with the collection of warnings from every NWS office across the nation. The severe weather event program includes extensive quality control procedures to ensure the highest reliability of each report. The data in each report are entered into a database that contains severe weather warnings where the warnings and events are matched and appropriate statistics are calculated and made available to all echelons of the NWS.	There are limitations of scientific verification in assessing data. The fundamental purpose of scientific verification is to objectively assess program performance through the use of standard statistical analysis. However, a number of factors unique to the atmospheric sciences must be considered to ensure proper interpretation of objectively derived statistics. The primary factor to consider is the natural variation of this performance measure related to annual fluctuations in meteorological conditions associated with severe weather.	NOAA will continue to collect data while reporting additional measures in the future
Measure 1c: 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	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	NOAA will report on the tracking of forecasts at 24, 48 and 72-hour intervals.

				<p>intensity are verified through surface and aircraft measurements. NOAA calculates the average accuracy of the TPC track and intensity forecasts for the Atlantic basin at the end of each hurricane season.</p>	<p>location of the hurricane events. Some types of systems can be more accurately forecasted than others. For example, hurricanes that begin in the northern sections of the hurricane formation zone tend to be much harder to accurately forecast. Out-year measures depend on a stable funding profile and take into account improved use of the Weather Service Radar (WSR-88D), new satellites, improved forecast models, new and continued research activities of the U.S. Weather Research Program (USWRP), and investments in critical observing systems</p>	
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<p>Measure 1d: Accuracy (%) (Threat Score) of day 1 precipitation forecasts</p>	<p>The Hydrometeorological Prediction Center <u>NWS field offices</u> <u>NOS, other federal and state agencies</u></p>	<p>Annual <u>Daily</u> <u>Annual</u></p>	<p>World Weather Building <u>NWS headquarters and OCWWS</u> <u>NOS will collect information, conduct assessments, and store data.</u></p>	<p>The Hydrometeorological Prediction Center has produced the Quantitative Precipitation Forecast since the early 1960s and has kept verification statistics related to the Quantitative Precipitation Forecast program since that time. All data are examined for accuracy and quality control procedures are applied. Verification is the process of comparing the predicted</p>	<p>The NWS routinely prepares and distributes to internal and external customers predictions of heavy rainfall. The Hydrometeorological Prediction Center has the responsibility to prepare both graphical and text</p>	<p>NOAA will implement planned weather improvements along with ongoing research projects. Introduce high-resolution regional models.</p>
<p>Measure 1e: Lead Time (Hours) and Accuracy (%) of Winter Storm Warnings</p>						

<u>Measure 1f: Cumulative percentage of U.S. shoreline and inland areas that have improved ability to reduce coastal hazard impacts</u>						
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	Annual	NWS's National Centers for Environmental Prediction	NOAA performs quality assurance analysis of the data (for example, error checking, elimination of duplicates, and interstation comparison) both at the national and U.S. Weather Forecast Office level	Given the difficulty of making advance 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.	None
Measure 2b: New Climate Observations Introduced	Observations from data buoys, ships, satellites, and so on	Annual	Oceanic and Atmospheric Research laboratories, NESDIS, and NCDC	NOAA performs quality assurance analysis and data processing.	Percentages of observing platforms operational at a given time and analyses of data quality and errors; observations received in time to be incorporated in operational climate analyses and forecasts.	None
Measure 2c: Assess and Model Carbon Sources and Sinks Throughout the United States	Observations from atmospheric profiling sites in North America and shipboard ocean carbon sampling	Annual	Climate Monitoring and Diagnostics Laboratory	Quality assurance and calibration against known standards performed by NOAA	Number of profiling/ocean sites and our ability to incorporate these data into advanced carbon models	None
Measure 2d: Assess and Model Carbon Sources and Sinks Globally	Flask samples taken from a global network and	Annual	Climate Monitoring and Diagnostics Laboratory	Quality assurance and calibration against known standards performed by NOAA	Number of flask sites and our ability to incorporate these	None

	analyzed by NOAA				data into advanced carbon models	
Measure 2e: Determine the Actual Long-term Changes in Temperature and Precipitation Over the United States	NOAA's National Climatic Data Center	Annual	NOAA's National Climatic Data Center	Monte Carlo simulations based on operation stations	None	None
Measure 3a: Number of overfished major stocks of Fish	NOAA's National Marine Fisheries Service (NMFS) report to Congress, <i>Status of Fisheries of the United States</i>	Annual	NMFS Office of Sustainable Fisheries	Stock assessments and peer reviews (internal and outside the agency)	None	
Measure 3b: Number of major stocks with an "unknown" stock status	NOAA/National Marine Fisheries Service (NMFS), Report to Congress: Status of Fisheries of the United States.	Annual	NOAA/NMFS Office of Sustainable Fisheries	Stock assessments and peer reviews (internal and outside the agency).	None	
Measure 3c: Percentage of plans to rebuild overfished major stocks to sustainable levels	NOAA/National Marine Fisheries Service (NMFS) Report to Congress: Status of Fisheries of the United States.	Annual	NOAA/NMFS Office of Sustainable Fisheries	Stock assessments and peer reviews (internal and outside the agency).	None	
Measure 3d: Increase in number of threatened species with lowered risk of extinction	NMFS	Annual	NMFS's Office of Protected Resources	Audits and internal peer review within NOAA and external peer review by regional fishery councils, the National Science Foundation, the National Academy of Science, and other organizations	None	
Measure 3e: Number of commercial fisheries that have insignificant marine mammal mortality	NMFS	Annual	NMFS's Office of Protected Resources	Audits and internal peer review within NOAA and external peer review by regional fishery councils, the National Science Foundation, the National Academy of Science, and other organizations	None	None

Measure 3f: Increase in number of endangered species with lowered risk of extinction	NMFS	Annual	NMFS's Office of Protected Resources	Audits and internal peer review within NOAA and external peer review by regional fishery councils, the National Science Foundation, the National Academy of Science, and other organizations	None	None
Measure 3g: Number of acres of coastal habitat restored (annual/cumulative)	Primary source is NMFS's Office of Habitat Conservation; NOS provides additional input	Annual	NMFS's Habitat Office will collect information, conduct assessments, and store data.	NMFS's Habitat Office will collect quality-controlled data to ensure performance data criteria are being met.	None	None
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	Annual	National Ocean Service will store data and publish nautical charts.	National Ocean Service will apply established verification and validation methods.	Progress in reducing the backlog is measured against a baseline value of 43,000 square miles as determined in 1994. Weather can affect scheduled surveys.	None
Measure 4b: Percentage of National Spatial Reference System (NSRS) completed (cumulative %)	The National Ocean Service and the National Geodetic Survey define and manage the NSRS, the foundation for the nation's spatial data infrastructure.	Ongoing, annual reporting	Automated database at National Ocean Service	National Ocean Service will apply standard verification and validation methods.	Weather conditions, security, employment, and funding issues can affect field operations. The National Geodetic Survey also works cooperatively with state organizations; accommodating partners can also impact activities to some extent.	None
Measure 4c: Accuracy (%) and FAR (%) of Forecasts of Ceiling and Visibility (Aviation Forecasts)	NWS field offices	Daily	NWS headquarters and OCWWS	Verification is the process of comparing the predicted weather with the actual event. The process begins with the collection of forecasts and observations from each NWS office across the nation. The	Due to the large volume of data gathered and computed, documentation for this measure cannot be finalized	NOAA will improve and expand its training program work with the National Aeronautics and Space

				<p>quality-controlled, collated data are transmitted to the National Centers for Environmental Prediction in Camp Springs, Maryland, where the data are stored as computer files. The data files are retrieved by the NWS headquarters' Office of Science and Technology. Following additional quality control the data are stored on an Office of Science and Technology workstation and used to generate semi-annual statistics on forecast accuracy.</p>	<p>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.</p>	<p>Administration and the Federal Aviation Administration to develop new software tools and forecast techniques.</p>
<p>Measure 4d: Accuracy (%) of Forecast for Winds and Waves (Marine Forecasts)</p>	NWS field offices	Daily	<p>The NWS and the National Centers for Environmental Prediction's Ocean Modeling Branch</p>	<p>Verification is the process of comparing the predicted weather with the actual event. The process begins with the collection of forecasts and observations from each NWS office across the nation. The quality-controlled, collated data are transmitted to the National Centers for Environmental Prediction, where they are stored as computer files. The data files are retrieved by the NWS, and the National Centers for Environmental Prediction's Ocean Modeling Branch. Following additional quality control the data are used to generate quarterly statistics on forecast accuracy.</p>	<p>Due to the large volume of data gathered and computed, documentation for the accuracy of forecast for wind and waves cannot be finalized until well into the following fiscal year. Out-year measures depend on a stable funding profile and take into account improved use of the WSR-88D, new satellites, improved forecast models, new and continued research activities of the USWRP, investments in critical observing systems, and</p>	<p>NOAA will deploy enhanced versions of AWIPS (Build 5), implement new wave forecast models, and improve communication and dissemination techniques to marine users.</p>

					implementation of AWIPS.	
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**Crosswalk of NOAA APP Performance Measures to the New NOAA Strategic Plan
(Based on the DOC FY 2004 Annual Performance Plan)**

Existing Performance Measure	Mission Goal based on Prior NOAA Strategic Plan (FY 2004)	Mission Goal based on New NOAA Strategic Plan (FY 2005)
Number of overfished major stocks of fish	Build Sustainable Fisheries	Ecosystem
Number of major stocks with an "unknown" stock status	Build Sustainable Fisheries	Ecosystem
Percentage of plans to rebuild overfished major stocks to sustainable levels	Build Sustainable Fisheries	Ecosystem
Number of acres of coastal habitat benefited (cumulative)	Sustain Healthy Coasts	Ecosystem
Introductions and effects of invasive species in a total of six regions within the U.S.	Sustain Healthy Coasts	Ecosystem
Percentage of U.S. Shoreline and inland areas that have improved ability to reduce hazard impacts	Sustain Healthy Coasts	Weather and Water
Increase in number of threatened species with lower risk of extinction	Recover Protected Species	Ecosystem
Number of Commercial fisheries that have insignificant marine mammal mortality	Recover Protected Species	Ecosystem
Increase in number of endangered species with lower risk of extinction	Recover Protected Species	Ecosystem
Lead time (minutes), accuracy (%) and false alarm rate (FAR% for severe weather warnings- tornadoes	Advance Sort-term Warnings and Forecasts	Weather and Water

Lead time (minutes) and accuracy(%) for severe weather warnings for flash floods	Advance Sort-term Warnings and Forecasts	Weather and Water
Hurricane forecast track error (48 hour)	Advance Sort-term Warnings and Forecasts	Weather and Water
Accuracy (%) of 1-day threat score forecast for precipitation	Advance Sort-term Warnings and Forecasts	Weather and Water
Accuracy (%) and FAR of forecasts of ceiling and visibility (1/2 mile/500 ft.) (aviation forecasts)	Advance Sort-term Warnings and Forecasts	Commerce and Transportation
Accuracy (%) and FAR (%) of forecasts for winds and waves (marine forecasts) wind speed and wave height	Advance Sort-term Warnings and Forecasts	Commerce and Transportation
Determine the accuracy of the correlation between forecasts of the southern oscillation index (SOI) and El Nino/La Nina events	Implement Seasonal to Interannual Climate Forecasts	Climate
U.S. temperature- skill score	Implement Seasonal to Interannual Climate Forecasts	Climate
Number of new monitoring or forecast products that become operational/year (cumulative)	Implement Seasonal to Interannual Climate Forecasts	Climate (also relates to Research Cross-cut)
New Climate observations introduced	Implement Seasonal to Interannual Climate Forecasts	Climate
Assess and model carbon sources throughout the U.S.	Predict and Assess Decadal to Centennial Climate Change	Climate
Determine actual long term changes in temperature and precipitation throughout the United States	Predict and Assess Decadal to Centennial Climate Change	Climate

Results of 90% of the research cited in the 2001 intergovernmental Panel on Climate Change's third assessment of climate change	Predict and Assess Decadal to Centennial Climate Change	Climate
Hydrographic survey backlog (square nautical miles) for critical navigation (cumulative percentage)	Promote Safe Navigation	Commerce and Transportation
Percentage of national spatial reference system completed (cumulative)	Promote Safe Navigation	Commerce and Transportation