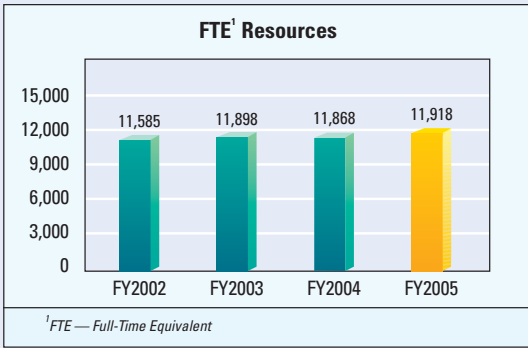
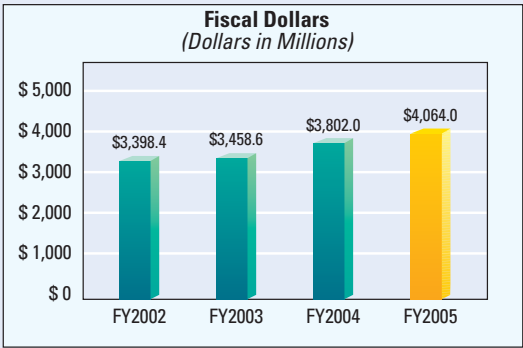




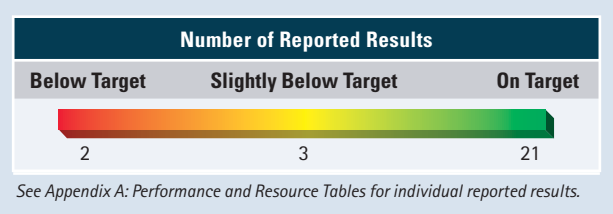
STRATEGIC GOAL 3

Observe, protect, and manage the Earth's resources to promote environmental stewardship

STRATEGIC GOAL 3 TOTAL RESOURCES



The Department is a future-minded environmental science agency whose mission is to understand and predict changes in the Earth's environment and manage coastal and marine resources to meet the nation's economic, social, and environmental needs. The Department has responsibilities for the environment, ecosystems, safety, and commerce of this nation that span oceanic, coastal, and atmospheric domains. Understanding the oceans and atmosphere is essential to sustaining the United States' environmental and economic health. The Department provides products and services that are a critical component of the daily decisions made across the United States. From satellite imagery to tornado warnings, navigational charts to fish stock assessments, hurricane tracking to El Niño and harmful algal bloom predictions, severe weather forecasts to coastal zone management—Commerce's science, service, and stewardship touch the life of every citizen in this country and in much of the world every day.



Together Commerce and its partners provide weather and climate services; manage and protect fisheries and sensitive marine ecosystems; conduct atmospheric, climate, and ecosystems research; promote efficient and environmentally safe commerce and transportation; and provide emergency response and vital information in support of homeland security. The breadth and scope of these services require the Department to be responsive to both short-term and long-term societal needs.



PERFORMANCE SECTION * STRATEGIC GOAL 3

In fiscal year (FY) 2005 the National Oceanic and Atmospheric Administration (NOAA) accomplished some major bureau-wide successes:

NOAA Provided Critical Information and Support Before and After Hurricane Katrina: Within 48 hours of landfall on the central Gulf coast, all NOAA National Hurricane Center forecasts indicated that Katrina would come ashore in southeastern Louisiana with a hurricane intensity of at least a level four. NOAA accurately predicted the path of this hurricane well in advance of landfall, enabling governments to initiate mass evacuations. During Katrina, NOAA collected accurate tide and current information on storm surge that will be invaluable to engineers planning the recovery and rebuilding of the coasts according to standards safe for people and the environment. NOAA provided thousands of before and after Katrina images using high-resolution aerial photography that provided critical help to damage assessment teams and emergency recovery operations. Google Earth and GlobeXplorer companies integrated the imagery into their Web services allowing the public to use these images to begin assessing impacts and damages and the insurance industry to expedite claims disbursements. NOAA's mapping and charting services acted immediately after the storm to find navigation obstructions that might impede maritime commerce and delivery of critical supplies to stricken populations. NOAA analyzed satellite imagery of the area to determine coastal impacts (e.g., amount of land inundated and wetland loss.) NOAA assisted the State of Louisiana Department of Wildlife and Fisheries Enforcement agents in security and safety matters involving marine rescues through the provision of NOAA enforcement agents and vessels. NOAA determined a commercial fishery failure and a fishery resource disaster in the Gulf of Mexico which will enable additional assistance to be delivered. Further, NOAA helped provide emergency response for more than 200 hazard incidents, including several Superfund hazardous waste sites.

The Department Led the Advancement of Integrated Earth Observations Systems: The Department led the approval and is leading the implementation of the *Strategic Plan for the US Integrated Earth Observation System* through the U.S. Group on Earth Observations (USGEO). USGEO, a standing subcommittee of the White House Committee on Environment and Natural Resources composed of 15 federal agencies and three White House offices, created the plan released in April 2005. The Department then led a U.S. Public Engagement Workshop in May 2005 to discuss the plan and its implementation. On a parallel track, the Department continued to provide international leadership in Earth observations and helped to facilitate international agreement on the Global Earth Observation System of Systems (GEOSS). The 10-year implementation plan was adopted at the Third Global Earth Observation Summit, held in February 2005 in Brussels. By adopting the plan, the nations have accomplished the first phase of realizing the goal of a comprehensive, integrated, and sustained Earth observation system. The Department also played a vital role in the establishment of the permanent Group on Earth Observations (GEO) through membership on its Executive Committee and in the successful transition of its Secretariat from the United States to Geneva, Switzerland.

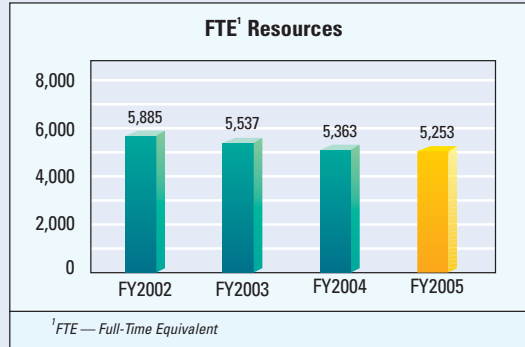
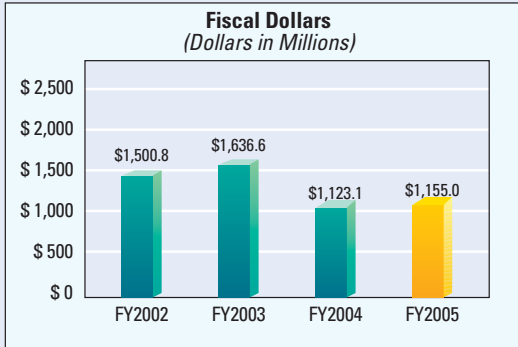
NOAA Created its First-ever Corporate 20-Year Research Vision and 5-Year Research Plan in FY 2005: Documents to guide the long and short-term direction of NOAA's research enterprise were developed and widely distributed through an extensive stakeholder outreach campaign. The 20-Year Research Vision adopts a longer-term perspective of ecological challenges and the scientific advances that can be expected to help meet those challenges, while the 5-Year Research Plan includes milestones for NOAA's research that are aimed at improving NOAA's products and information services in the near term.

NOAA's Successful Satellite Launch Ensures Continuity and Improved Collection of Data: NOAA-N was successfully launched from Vandenberg Air Force Base, California on May 20, 2005. Upon achieving orbit NOAA-N became NOAA-18 and was declared operational on August 30, 2005 as the primary afternoon satellite in the Polar Operational Environmental Satellite (POES) constellation. NOAA-18 marks the beginning of the NOAA and European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) Initial Joint Polar System (IJPS) agreement. The IJPS project comprises two NOAA polar satellites (NOAA-18 and NOAA-N Prime) and two EUMETSAT satellites (Metop A and Metop B). This gives NOAA and EUMETSAT the ability to share satellite instrument data and products.

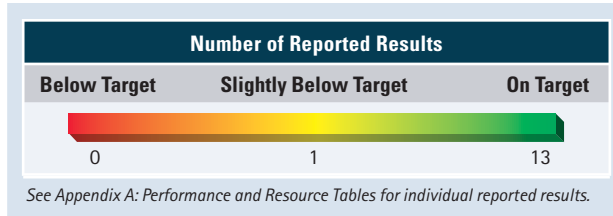
STRATEGIC OBJECTIVE 3.1

Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs

TOTAL RESOURCES



The Department's role in understanding, observing, forecasting, and warning of weather events is expanding. The Department is strategically positioned to conduct sound, scientific research and provide integrated observations, predictions, and advice for decisionmakers who manage environmental resources, ranging from fresh water supplies to coastal ecosystems to air quality.



Realizing that the Department's information and services bridge both weather and climate timescales, the Department will continue to collect and analyze environmental data and issue forecasts and warnings that help protect life and property and enhance the U.S. economy. Commerce is committed to excellent customer service and depends on its partners in the private sector, academia, and government to add value and help disseminate critical weather and climate information. Commerce will expand services to support evolving national needs, including those associated with space weather, freshwater and coastal ecosystems, and air quality prediction.

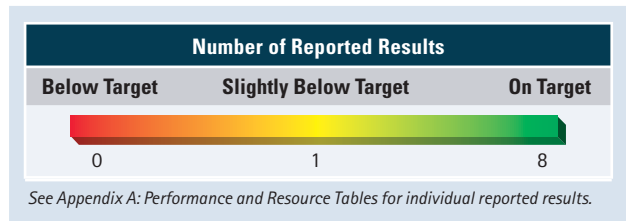
PERFORMANCE GOAL	STATUS*
Serve society's needs for weather and water information (NOAA)	●
Understand climate variability and change to enhance society's ability to plan and respond (NOAA)	●

* ● = MET (100%) ● = SIGNIFICANTLY MET (75% - 99%) ● = NOT MET (< 75%)

Performance Goal: Serve society's needs for weather and water information (NOAA)

Floods, droughts, hurricanes, tornadoes, tsunamis, and other severe weather events cause \$11 billion in damages each year in the United States. Weather is directly linked to public safety, and nearly one-third of the U.S. economy (\$3 trillion) is sensitive to weather and climate. With so much at stake, NOAA's role in understanding, observing, forecasting, and warning of environmental events is expanding. Private and business sectors are also getting more sophisticated about how to use NOAA's weather, air quality, water, and space weather information to improve operational efficiencies, to manage environmental resources, and to create a better quality of life.

In FY 2005 NOAA continued its leadership in weather and water science and technology by expanding sources of observational data, advancing numerical models, and improving the accuracy of its forecasts and warnings. In addition, NOAA responded to society's evolving needs for forecast services by leveraging its partnerships in the public, private, and academic sector.



Some highlights from FY 2005 include:

NOAA Begins Expansion of U.S. Tsunami Warning Program; Accurately Predicts West Coast Tsunami: In response to the December 26, 2004 Indian Ocean tsunami, NOAA has taken actions to expand the U.S. Tsunami Warning Program. The multi-year implementation plan, developed after NOAA received supplemental funding in FY 2005, will improve the Tsunami Warning and Mitigation System and Tsunami Forecast System. Among the steps taken in FY 2005, NOAA now provides 24 hours a day, seven days a week (24/7) operations at NOAA Tsunami Warning Centers, seismic monitoring, and improved community preparedness through the Tsunami Ready program. NOAA also utilized the experimental Tsunami Forecast System to accurately predict a tsunami just off the coast of Oregon following an approximately 7.2 magnitude earthquake off of the northern California coast in June. The accurate forecast and measurement of the resulting tsunami enabled NOAA's Alaska Tsunami Warning Center to cancel its warning for the Oregon coast, which was issued five minutes after the earthquake struck.

National Digital Forecast Database (NDFD) Adds Additional Forecast Elements and Expands: Two new experimental elements, relative humidity and apparent temperature, were added to the NDFD for the lower 48 states, Puerto Rico, Hawaii, and Guam the week of June 20, 2005. This is the first expansion of NDFD. The elements were added in response to land management, emergency response, and public health officials who requested relative humidity, wind chill, and heat indices be added to the digital database. The National Weather Service (NWS) also upgraded six experimental elements to operational status for Puerto Rico and Hawaii in June. These six forecast elements are already operational for the lower 48 states and will be operational for Guam later in 2005. NOAA customers continue to be excited about these products and are utilizing the NDFD in decision-making and as part of business operations.

NOAA Deploys Seven New Hurricane Buoys: Following the active 2004 Atlantic hurricane season, the NOAA National Data Buoy Center, part of NWS, received \$1.8 million in supplemental funding from Congress for the new buoy stations. NOAA launched six new weather data buoy stations (and re-established a seventh) designed to help the Tropical Prediction Center/National Hurricane Center (NHC) more accurately determine formation or dissipation, extent of wind circulation, maximum intensity, and center location of the tropical cyclones.



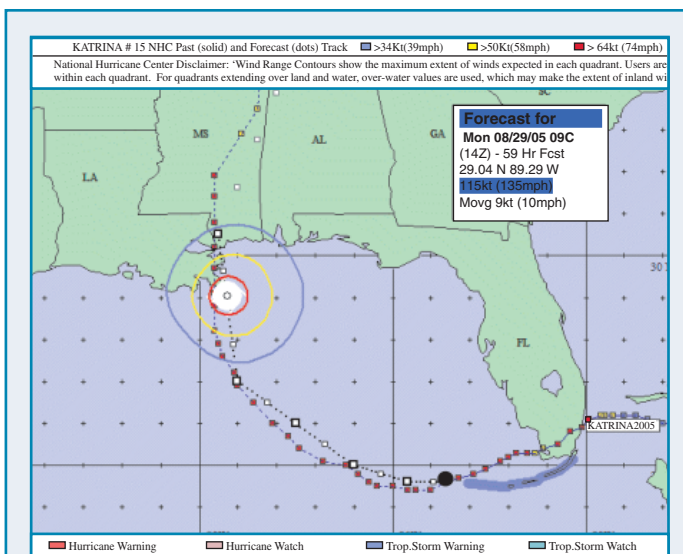
Improving Understanding and Prediction of Hurricane Intensity Change: NOAA began the Intensity Forecasting Experiment (IFEX), a multi-year project. IFEX is intended to improve NOAA's understanding and prediction of hurricane intensity change by collecting observations that will aid in the improvement of current operational models and the development of the next-generation operational hurricane model, the Hurricane Weather Research and Forecasting model (HWRF). NOAA aircraft will be flown into hurricanes to take observations at different stages in their lifecycle, from formation and early organization to peak intensity and subsequent landfall or decay over open water.

NOAA's Central Computer System (CCS) Runs with Full Backup: NOAA's National Centers for Environmental Prediction (NCEP) computer operations were moved to the new Weather and Climate supercomputer. The planned system upgrade to the computer, under the \$180 million nine-year contract, provides the necessary computational power to operate higher resolution numerical weather prediction models, coupled ocean-atmosphere models, operational climate models, and improved ensemble models. The new CCS, for the first time, is comprised of two identical, geographically separate systems, which will provide full backup capability for the entire suite of over five million numerical guidance products.

Observing Monsoons to Improve Predictions: NOAA successfully completed the North American Monsoon Experiment (NAME) field campaign in collaboration with other U.S., Mexican, and Central American agencies and academic institutions. NAME provides an unprecedented collection of detailed atmospheric, oceanic, and land-surface observations in the core region of the North American Monsoon over northwest Mexico, southwest United States, and adjacent oceanic regions. It better documents the evolution of the monsoon convection and precipitation and helps to outline the key physical processes that must be parameterized for improved simulations and predictions with climate models.

NOAA and the Environmental Protection Agency (EPA) Extend Reach of Air Quality Forecasts and Promote Awareness: Air quality forecasts produced by NOAA and EPA were enhanced and expanded to serve better more regions of the United States. Forecast information for ground-level ozone that has been available for the northeastern United States will now include areas from just east of the Rocky Mountains to the Atlantic and Gulf coasts. Hour-by-hour forecasts, through midnight the following day, are available online, providing information for the onset, severity, and duration of poor air quality to more than 180 million people. State and local air quality forecasters use this information as another tool in issuing next-day alerts for poor air quality to more than 300 communities. Also in 2005, NOAA and the EPA urged Americans to "Be Air Aware" through an air quality awareness days campaign.

Researchers Demonstrate Radar Helps NOAA's NWS Forecasters Save Lives: The June 5 issue of *Weather and Forecasting*, a journal of the American Meteorological Society (AMS), was published which included a study concluding that tornado warnings have improved significantly since NOAA's NWS installed a network of Doppler weather radars a decade ago. Researchers examined the impact of Weather Surveillance Radar-



Within 48 hours of landfall on the central Gulf coast, all NOAA National Hurricane Center forecasts indicated that Katrina would come ashore in southeastern Louisiana with a hurricane intensity of at least a level 4. NOAA accurately predicted the path of this hurricane well in advance of landfall, enabling governments to initiate mass evacuations.



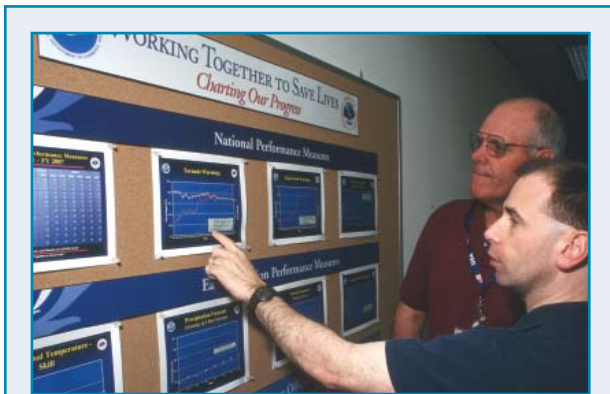
PERFORMANCE SECTION * STRATEGIC GOAL 3

1988 Doppler (WSR-88D), also known as NEXRAD, which was installed in the 1990s during the NWS's \$4.5 billion modernization. They also found the warnings from the radars have lowered the number of tornado casualties nationwide. This provided indirect evidence of the life-saving effects of tornado warnings.

NOAA Debuts New Heat/Health Watch Warning System in the Seattle Area: Seattle, WA, implemented a new Heat/Health Watch Warning System in the Spring of 2005, joining 14 other metropolitan areas using the Heat/Health Watch Warning System as guidance for issuing Excessive Heat Watches, Excessive Heat Warnings, and Heat Advisories. When unseasonably hot conditions do arise, the Seattle NWS office will issue a Heat/Health Watch Warning System message, alerting people in the region that precautions need to be taken against the hot weather. Based on NOAA NWS data from 1994 to 2003, excessive heat is the top weather-related killer.

FY 2005 GOVERNMENT ACCOUNTABILITY OFFICE (GAO) REPORTS ISSUED

GAO-05-253: Freshwater Programs: Federal Agencies' Funding in the United States and Abroad (Final Report March 2005 - no recommendations for NOAA) <http://www.gao.gov/new.items/d05253.pdf>



Blacksburg, Virginia, Warning Coordination Meteorologist Mike Emlaw, right, explains NWS performance goals to Pulaski County, Virginia, Emergency Manager Stan Crigger. All NWS office display the agency's performance measures similarly.

GAO conducted a review to determine for FYs 2000 through 2004 how much financial support federal agencies provided for freshwater programs in the United States and abroad. This review involved 32 agencies including NOAA. NWS provided the largest portion of the Agency's budget for freshwater programs. The hydrology program supports watershed management and flood control activities, such as forecasting water availability on rivers, lakes, and streams and inland water research.

GAO-05-927: Managing for Results: Enhancing Agency Use of Performance Information for Management Decision Making <http://www.gao.gov/cgi-bin/getrpt?GAO-05-927>

NWS participated in a GAO study of how federal agencies use performance information and how selected federal agencies have used performance information to manage for results and what practices have contributed to their use of that information.

Performance information can be used to trigger corrective action (e.g., change an existing program approach or adopt a new one), identify and disseminate successful practices, set job expectations for staff, and plan and budget. A final report was issued in September 2005 using NWS as an example for successful and effective use of performance measures.

FY 2005 OFFICE OF INSPECTOR GENERAL (OIG) REPORTS ISSUED

IPE-17259: The Northeast River Forecast Center Is Well Managed, But Some Improvement Are Needed (eight recommendations - Final Report) http://www.oig.doc.gov/oig/reports/audit_inspection_and_evaluation_reports/index.html

This review concluded that financial and administrative operations are generally well managed, and management and oversight are adequate. OIG found the use of Geographic Information System should be expanded and NWS should be prepared to meet

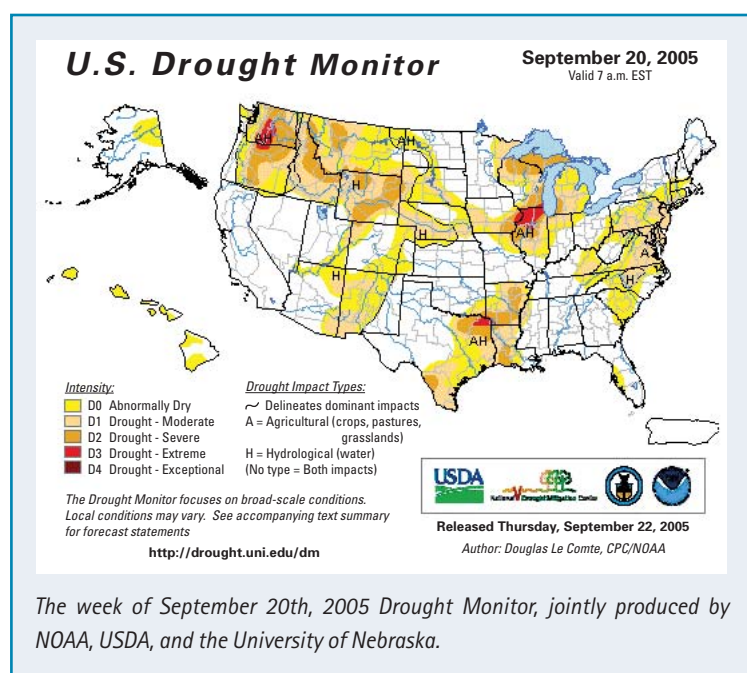
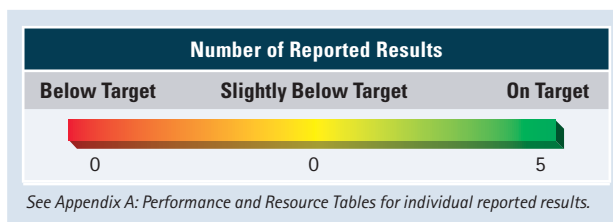


increased hydrology products demands and better document its plan for improving river forecast verification. While external partners are mostly satisfied, OIG found that some additional Weather Forecast Office and River Forecast Center coordination would be beneficial. OIG also touched on facility maintenance problems that need to be addressed. NOAA concurred with all recommendations, and a final action plan is being drafted.

Performance Goal: Understand climate variability and change to enhance society's ability to plan and respond (NOAA)

One of NOAA's mission goals is to understand climate variability and change to enhance society's ability to plan and respond by employing an end-to-end system comprised of integrated environmental observations leading to a scientific understanding of past and present climate and enhanced climate predictive capabilities, and enhanced service delivery methods that continuously assess and respond to stakeholder needs.

Society exists in a highly variable climate system, with conditions changing over the span of seasons, years, decades, or even longer. 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 it is essential for NOAA to provide reliable observations, forecasts, and assessments of climate, water, and ecosystems to enhance decisionmakers' ability to minimize climate risks. This information supports decisions regarding community planning, business management, and natural resource and water planning. In the U.S. agricultural sector alone, better forecasts can be worth more than \$300 million in avoided losses annually.



In FY 2005 NOAA continued its efforts to obtain the best science through the Climate Change Science Program (CCSP) and NOAA Climate Program. NOAA accomplished this through its continuing role as lead agency of the interagency CCSP. In addition, NOAA increased the production of climate information and services for decisions, including Synthesis and Assessment Reports, implementation of the National Integrated Drought Information System (NIDIS), and completion of initial climate scenario runs for the Intergovernmental Panel on Climate Change (IPCC).

NOAA Assists the IPCC Fourth Assessment Report on Climate Change: NOAA's new state-of-the-art coupled climate model (CM2) provided massive amounts of data to the world's research communities for the IPCC Fourth Assessment Report on Climate Change (2007). The CM2 model



PERFORMANCE SECTION * STRATEGIC GOAL 3

was evaluated and revealed as one of the best in the world by a variety of measures. This accomplishment represents the culmination of an intensive effort by the Geophysical Fluid Dynamic Laboratory (GFDL) scientists over the last several years to construct this climate model. The experiment was begun using two initial conditions: one representing present-day climate, and one from 1860. To assess the effects of global warming, two scenarios were created; the first ran increasing atmospheric carbon dioxide (CO₂) concentrations one percent per year until it reached twice the concentration relative to present day and the second was run increasing atmospheric concentrations of CO₂ one percent per year until it reached four times the concentration relative to present day. Nearly 500 gigabytes of data have been shipped to the Program for Climate Model Diagnosis and Intercomparison (PCMDI) on a large computer disk. NOAA/GFDL is the first organization to ship nearly 500 gigabytes of model data from a state-of-the-art model.

Kuroshio Extension Observatory Buoy has Stunning First Year: Outstanding buoy performance drives improved ocean models that underpin NOAA's understanding of the role of the oceans in climate. The moored buoy located in the Kuroshio current in the north Pacific returned 100 percent of surface data, including winds, air temperature, relative humidity, rain rate, downwelling solar and longwave radiation, sea surface temperature, and salinity. It also returned 90 percent of subsurface temperature and salinity data. The mooring is located in international waters, where the currents can be strong and deep, winds high, and the sea state rough. The buoy survived the record 2004 typhoon season and a full season of winter storms, providing unprecedented data for analyzing air-sea interaction in the western boundary region of the north Pacific.

Presidential Award given to NOAA Research Scientist: Dr. Daniel Cziczo, currently a research scientist at the Institute for Atmospheric and Climate Science at the Swiss Federal Institute of Technology, and formerly a research scientist at NOAA's Aeronomy Lab and Cooperative Institute for Research in Environmental Sciences, was awarded a 2004 Presidential Early Career Award for Scientists and Engineers. He was awarded the nation's highest award for young scientists for pioneering research and leadership in climate studies that have made the first unambiguous identification of the atmospheric particle types that are effective seeds for cloud formation in the atmosphere.

NOAA Advances Global Ocean Observing System (GOOS) with Deployment of Global Drifter 1250: In cooperation with interagency and international partners, NOAA advanced the global component of the GOOS past the 50 percent milestone in February 2005. A major earth observation milestone was also achieved on September 18, 2005 when NOAA ceremonially deployed Global Drifter 1250 near Halifax, Nova Scotia. With this deployment, the global surface drifting buoy array achieved its design goal of 1250 data buoys in sustained service and became the first component of the GOOS to be fully implemented. This milestone also represented the first element of GEOSS to be completed.

AgClimate Decision Support Tool: NOAA-supported university scientists introduced AgClimate, a prototype decision support Web site (<http://www.agclimate.org/>) which includes several decision support tools. The current version of AgClimate includes (1) a tool which allows users to learn about risks associated with climate variability and El Niño/Southern Oscillation (ENSO) for their county; (2) crop risk tools for peanut, tomato, and potato to enable users from selected counties to learn how climate variability and ENSO affect these crops, as well as to view probabilities of how these crops will perform for a climate forecast; and (3) wildfire risk forecast for the forested areas of the Southeast.

Release of the Annual Greenhouse Gas Index (AGGI): NOAA developed and released for the first time this year its AGGI. The AGGI is a readily understood measure of the status of long-lived, human-influenced greenhouse gases. The NOAA AGGI is designed to enhance the connection between scientists and society by providing a normalized standard that can be easily understood and followed. The contribution of long-lived greenhouse gases to climate forcing is well understood by scientists and has been reported by NOAA through a range of national and international assessments. Nevertheless, the language of scientists (for example, watts per square meter per year) often eludes policymakers, educators, and the general public. This index is designed to help bridge that gap.

NOAA Develops a Plan for a National Integrated Drought Information System (NIDIS) Implementation Office: NIDIS answers the call for a national drought policy that must provide for the development of a comprehensive monitoring system to collect, analyze and disseminate available data and products in a usable manner. Following the recommendation of the Western Governors' Association, NOAA will host the NIDIS Implementation Office, which will manage and oversee the broad-based NIDIS Implementation Team (interagency, states, tribes, and other partners). A plan for the Office was completed this year.

STRATEGIES AND FUTURE PLANS

Weather

The Department utilizes several strategies, identified in the five year NOAA strategic plan, to improve accuracy and timeliness of weather and water information. Improved weather and water information can have a profound impact on the economy. The Department strives to ensure that reliable, accurate, and timely weather and water information is available for informed and reasoned decision-making. Strategies to achieve this end state include:

- ◆ Improve the reliability, lead-time, and understanding of weather and water information and services that predict changes in environmental conditions.
- ◆ Integrate an information enterprise that incorporates all stages from research to delivery, seeks better coordination of employee skills and training, and engages customers.
- ◆ Develop and infuse research results and new technologies more efficiently to improve products and services, to streamline dissemination, and to communicate vital information more effectively.
- ◆ Build a broad-based and coordinated education and outreach program by engaging individuals in continuous learning toward a greater understanding of the impacts of weather and water on their lives.
- ◆ Employ scientific and emerging technological capabilities to advance decision support services and to educate stakeholders.
- ◆ Work with universities, industry, and national and international agencies to create and leverage partnerships that foster more effective information services.



National Hurricane Center Director Max Mayfield previews Hurricane Michelle's track for (from left) Jim Lushine, Warning Coordination Meteorologist, WFO, Miami; Chuck Lanza, Director, Emergency Management, Miami-Dade County; and an unidentified aide.



One of NOAA's top priorities is to effectively and efficiently deliver information and services to customers when they need it and in standardized formats. NOAA strives to support a safer, healthier, and economically stronger U.S. through reliable, timely, and accurate weather and water information. NOAA-wide information such as all-hazards warnings and a wide range of environmental information from an expanding customer base must be available in digital formats with the necessary supporting infrastructure.

NOAA will continue to provide critical services to the nation, including (1) advancing science to improve water resource forecasting and service delivery; (2) accelerating NOAA's tsunami detection, warning and mitigation capabilities and expanding its scope from the Pacific to the Atlantic and Caribbean; (3) accelerating research to yield improvements in the accuracy of one-day to two-week high-impact weather forecasts; (4) improving international efforts to address medium range forecasting and climate variability; (5) accelerating the expansion of national ozone air quality forecasts; and (6) improving operational atmospheric, ocean, and coastal modeling capabilities.

NOAA must continue to refine its Earth observing architecture and data management infrastructure in order to increase its capacity to meet the information requirements of NOAA's four mission goals. NOAA's mission goals are directly related to the "nine societal benefit areas" identified by the intergovernmental GEO and the USGEO. As such, NOAA will continue to be an active participant on both the USGEO, which is charged with developing the U.S. Integrated Surface Observing System (ISOS), and the GEO, which is developing GEOSS.

Climate

The Department utilizes several strategies identified in the five year NOAA strategic plan to assist customers in better understanding the impacts of climate change and variability. Like weather, improved climate information can have a profound impact on the economy, and the Department strives to ensure that reliable, unbiased climate information is available for informed and reasoned decision-making. Strategies to achieve this end state include:

- ◆ Improving the number and quality of climate observations and analyses.
- ◆ Quantifying the forces and feedbacks from human-induced changes in atmospheric gases (e.g. greenhouse gases).
- ◆ Advancing climate predictions from sub-seasonal to decadal time scales and beyond.
- ◆ Developing the ability to predict the consequences of climate change on ecosystems.
- ◆ Developing and contributing to routine state-of-the-science assessments of the climate system for informed decision-making.
- ◆ Effectively delivering timely climate services and products to climate-sensitive sectors (e.g. health, safety, energy, and resource management).
- ◆ Supporting educational efforts to create a more climate-literate public.

The Department's Climate Program is aligned with the five goals of the CCSP in an effort to ensure optimal partnerships with other federal agencies and to advance the state of the science, while also enabling society to understand and respond to changing climate conditions. The program is working to improve the linkages among planning, budgeting, and performance management

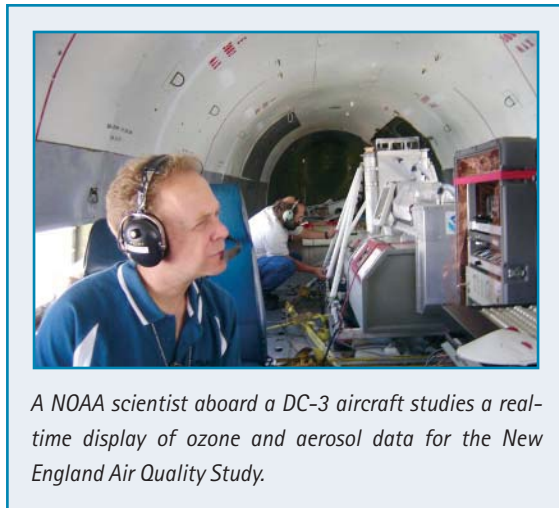


activities. The Climate Goal is also striving to develop more outcome- and impact-oriented performance measures representative of the diverse research, development, and operational activities conducted within the Department. As these efforts are realized, the Department's performance measures will be adjusted to evolve with the needs of the program.

CHALLENGES FOR THE FUTURE

The 21st century poses complex challenges for the Department. As the new century unfolds, new priorities for NOAA action are emerging in the areas of climate change, freshwater supply, and ecosystem management. In recent years, extreme drought and flooding conditions in large regions of the nation have combined to make improved water resources prediction an urgent requirement for the Department's future weather and climate mission. Human health linkages with weather, climate, and ecosystem goals are also priorities and directly relate to the Administration's focus on a healthy and growing economy. In 2003, the U.S. government formed the CCSP to facilitate the creation and application of knowledge of Earth's global environment through research, observations, decision support, and communication. The Department, working with 12 other federal agencies, leads this nationwide effort. In response to last year's devastating Indian Ocean tsunami, a new tsunami detection and warning network is planned. This network will be an integral part of GEOSS and the United States will play a key role in this effort.

The climate, weather, and water challenges that face the nation continue to grow as trends such as just in-time production, globalization, and increased travel amplify the impact of climate, weather, and water information services on the economy. Substantial population and business growth in coastal and arid regions increases the sensitivity to climate, weather and water conditions as well. This interdependence means climate, weather, and water events in one geographic area can have national and international economic impact.

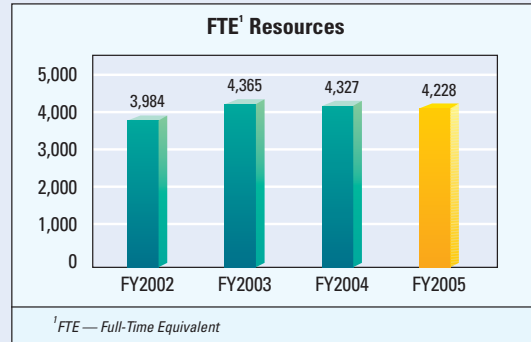
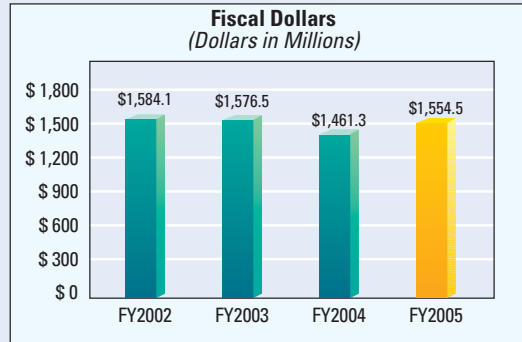


A NOAA scientist aboard a DC-3 aircraft studies a real-time display of ozone and aerosol data for the New England Air Quality Study.

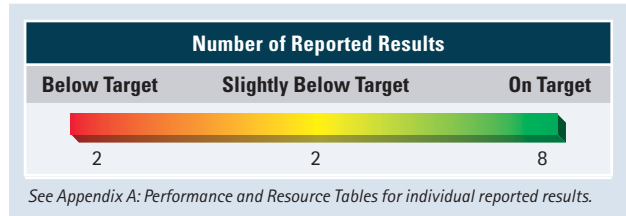
STRATEGIC OBJECTIVE 3.2

Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs

TOTAL RESOURCES



The Department works to protect, restore, and manage ocean and coastal resources. To meet this mandate, the Department maintains a world-class expertise in oceanography, marine ecology, fisheries management, conservation biology, and risk assessment. To achieve balance among ecological, environmental, and social influences, the Department has adopted an ecosystem approach to management—an approach that is deliberate, incremental, and collaborative. Within the Department of Commerce, NOAA's mission "to protect, restore, and manage fisheries and coastal and ocean resources" is critical to the health of the U.S. economy. To the extent it is possible to balance sustainable economic development and healthy functioning marine ecosystems, Commerce seeks to provide an example for the rest of the world in how to protect, restore, and manage resources of the world's oceans and coasts.



In addition, NOAA's mission to support safe and efficient transportation systems is crucial to the U.S. economy. Department information improves transportation efficiency and safety on roads, rails, and waterways. The Department supports commerce through marine, aviation, and surface weather forecasts; the availability of accurate and advanced Electronic Navigational

PERFORMANCE GOAL	STATUS*
Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management (NOAA)	●
Support the nation's commerce with information for safe, efficient, and environmentally sound transportation (NOAA)	●

* ● = MET (100%) ● = SIGNIFICANTLY MET (75% - 99%) ● = NOT MET (< 75%)

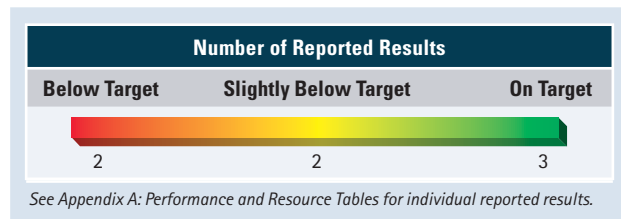


Charts (ENC); and the delivery of real-time oceanographic information. The Department provides consistent, accurate, and timely positioning information that is critical for air, sea, and surface transportation. The Department responds to hazardous material spills and provides search and rescue location support routinely to save lives and money and to protect the coastal environment. The Department works 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. The Department works with the Federal Aviation Administration (FAA) and the private sector to reduce the negative impacts of weather on aviation without compromising safety. Finally, the Department enforces regulations, reviews applications, and supports U.S. government interests in policy coordination on commercial remote sensing.

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

NOAA's mission to conserve, protect, manage, and restore fisheries and coastal and ocean resources is critical to the health of the U.S. economy. The Department has a responsibility for stewardship of the marine ecosystem and for setting standards to protect and manage the shared resources and harvests of the oceans. The Department strives to balance sustainable economic development and healthy functioning marine ecosystems, and to conserve, protect, restore, and better manage resources.

Coastal areas are among the most developed in the nation, with over half the population living on less than one-fifth of the land in the contiguous United States. At over 230 persons per square mile, the population density of the near shore is three times that of the nation as a whole. That portion of the U.S. economy that depends directly on the ocean is also large, with 2.3 million people employed and over \$117 billion in value added to the national economy in 2000. Approximately 89 million people vacation and recreate along U.S. coasts every year. The amount added annually to the national economy by the commercial and recreational fishing industry alone is over \$43 billion with an additional \$1 billion of marine and freshwater aquaculture sales. With its Exclusive Economic Zone of 3.4 million square miles, the U.S. manages the largest marine territory of any nation in the world. Within this context, NOAA works with its partners to achieve a balance between the use and protection of these resources to ensure their sustainability, health, and vitality for the benefit of this and future generations and their optimal contribution to the nation's economy and society.



In FY 2005, NOAA provided national and international leadership for the U.S. Ocean Action Plan by co-leading the development of the U.S. Ocean Research Priorities Plan and Implementation Strategy and by supporting the establishment of the coordinated Ocean Governance Structure. NOAA continued rebuilding fisheries and reducing capacity to improve food security, increase economic benefits, and improve stability of marine ecosystems. NOAA also promoted greater use of market-based systems for fisheries management and regional collaboration on Oceans, Coasts, and Great Lakes Policy in partnership with leadership of states, local, and tribal leadership.

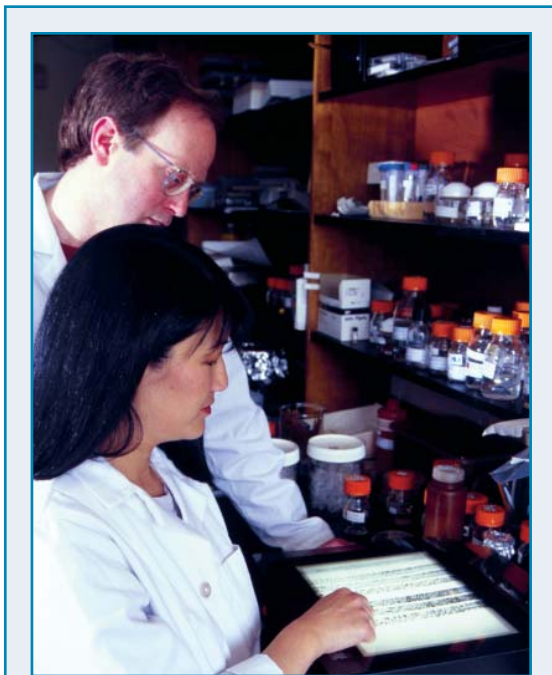
Some highlights from FY 2005 include:

U.S. Ocean Action Plan: In December 2004, the Administration released the "U.S. Ocean Action Plan," a response to the U.S. Commission on Ocean Policy's report entitled, "An Ocean Blueprint for the 21st Century." NOAA worked with the Council on Environmental Quality and other federal agencies to develop the action plan. NOAA is playing a key role in implementing many of

the new ocean policy measures, including supporting a coordinated ocean governance structure and co-leading the development of the Ocean Research Priorities Plan and Implementation Strategy due December 31, 2006. NOAA has worked to engender ecosystems-based management in ocean policy, improved ocean governance, and a stewardship ethic toward marine and coastal environments.

Recovering Threatened and Endangered Salmonids: The Department's efforts to conserve and recover the nation's protected resources have made steady and sometimes dramatic progress, as reported in the National Marine Fisheries Service (NMFS) 2004 Biennial Report to Congress on the recovery program for threatened and endangered species, published in August 2005. In recent years, the abundance of both hatchery-reared and naturally spawning populations of listed salmon and steelhead has generally increased. This increase in abundance is likely due to changes in ocean conditions; improvements to habitat from restoration efforts; and changes in harvest regimes, hydropower operations, and hatchery practices implemented since the listings occurred. Improvements are seen in many salmon populations—16 of 26 species or evolutionarily significant units (ESU) of Pacific salmon are stable or increasing, six more than had been anticipated for this time.

Regional Ecosystems: Following a major workshop involving 11 federal agencies, states, academic institutions, Councils, Commissions, the Coastal States Organization, and nongovernmental organizations, NOAA approved a set of 10 Regional Ecosystems in November 2004. This is an important step to further NOAA's efforts to implement an ecosystem-based approach to management. The Regional Ecosystems include the Arctic Seas (Beaufort Sea and Chukchi Seas combined), East Bering Sea, Gulf of Alaska (which combine to form the Alaskan Ecosystem Complex), California Current, Pacific Islands Ecosystem Complex, Gulf of Mexico, Caribbean, Southeast (Atlantic) Shelf, Northeast (Atlantic) Shelf, and Great Lakes.



The Hollings Marine Laboratory in Charleston, South Carolina, which became fully operational in FY 2004 provides for the application of medical technologies to issues of ecosystem health.

Proposed First Listing of Corals under the Endangered Species

Act (ESA): In 2005, NOAA proposed listing staghorn coral (*Acropora cervicornis*) and elkhorn coral (*Acropora palmata*) as threatened under the ESA, the first ESA listing of any coral species. These coral are found in shallow water on reefs throughout the Bahamas, Florida, and the Caribbean. Once abundant, these corals have remained at low levels without noticeable recovery, and in several monitored areas continued to decline. Threats to these species include physical damage from human activities and hurricanes, as well as disease and temperature-induced bleaching. A proposed rule to list these species will be published once public comments are reviewed.

NOAA helps to Advance Gulf of Mexico Regional Partnerships and Projects:

NOAA supported state-led, regional approaches to ecosystems-based management through the Regional Partnership Federal Workgroup and focused on priority ocean and coastal issues identified by the Gulf of Mexico Alliance (a state coalition of Alabama, Florida, Louisiana, Mississippi, and Texas). NOAA then funded partnership projects to (1) improve accuracy and timeliness of storm surge forecasts to help coastal communities mitigate coastal storm impacts and (2) better identify onset of harmful algal blooms and predict the transport of the blooms.

Rebuilt Fish Stocks: As a result of the Department's efforts to conserve and manage the nation's fishery resources, one formerly overfished fish stock, Pacific Whiting, was fully rebuilt. Pacific Whiting was rebuilt in only two years. In addition, six stocks are no longer considered to be overfished, and overfishing has been eliminated on three stocks. Overfished and/or overfishing determinations were made for 20 stocks whose status was previously unknown. The percentage of stocks with a known population status that are not overfished increased from 64 percent to 72 percent, while the percentage of stocks with a known fishing rate that are not subject to overfishing increased from 79 percent to 81 percent.

NOAA, the U.S. Coast Guard, State of Florida, Monroe County, and Local Response Organizations Conducted a Successful "Safe Sanctuary" Exercise: The scenario involved the grounding of an 800 foot containership carrying 1,200,000 gallons of fuel in the Florida Keys National Marine Sanctuary. The ship injured ecological and historical/cultural resources and had two releases of oil and potentially unstable cargo. The exercise evaluated the collective ability to deliver data, real-time observations, forecasts, and scientific expertise and assets to address protection of NOAA trust resources in the event of a major incident.

NOAA Exploration of South Pacific Finds New Species and Magical Scenes; Sets Records for NOAA Undersea Research and Ocean Exploration: Hawaii Undersea Research Laboratory (HURL) and Ocean Exploration completed the longest and most-challenging ocean expedition in HURL's 25-year history. The ship traveled 10,000 nautical miles and the Pisces submersibles made 67 dives, one as deep as 1,820 meters on Brothers undersea volcano. The results included discovery and the advancement of knowledge about the largely unknown ocean in that region. The nearly five month long international expedition to explore the South Pacific produced many discoveries, including numerous suspected new species, new ranges for known species, measurements of the diversity of marine life, and more data about undersea volcanoes and the rare interface of life based on sunlight with chemosynthetic organisms.

NOAA Finalized Regulations for the North Pacific Crab Rationalization Program: This new program allocates Bering Sea and Aleutian Islands king and Tanner crab fisheries resources not only to fishermen, but also to processors and communities. The program encourages crab harvesting cooperatives that can fish individual fishing quota collectively and cooperatively. The value of Bering Sea and Aleutian Islands crab is expected to increase under the program. Other rationalization programs, such as the American Fisheries Act pollock cooperatives and the halibut/sablefish individual fishing quota program, have resulted in more valuable, better managed, and safer North Pacific fisheries.

NOAA Aids Regional Collaboration, Integration, and Research in Restoring the Great Lakes: The Department of Commerce and NOAA partnered with federal, state, and local governments, tribes, and others in the Great Lakes Interagency Task Force. Using science-based restoration, NOAA directed the Task Force's efforts to the most important sources of problems and ensured evaluation of socioeconomic consequences of the restoration. In addition, NOAA's Great Lakes Environmental Research Laboratory (GLERL),



NOAA's Ocean Exploration scientists launch the CTD (conductivity, temperature, depth) over the side of the research vessel Thompson to take ocean measurements.



NOAA continued its observer coverage in 42 fisheries in FY 2005, monitoring nearly 63,000 fishing days, up from 45,000 in 2000.

in collaboration with researchers in the United States and Canada, is leading one of the largest, most comprehensive Lake Erie research field programs. The two-year project, entitled International Field Years on Lake Erie (IFYLE) and initiated in May 2005, includes a series of ship cruises and field and laboratory work. Fourteen observation moorings will be deployed in the lake to continuously collect data. GLERL also conducted experiments on natural phytoplankton communities from the area that suggest genetic factors, not environmental, may be dominant in controlling "in situ" microcystin concentrations (a type of toxin).

Implementing the President's Preserve America Initiative: Through an Executive Order, *Preserve America*, President Bush asked federal agencies to accelerate efforts to inventory, preserve, and showcase federally-managed historic and cultural resources and foster tourism in partnership with local communities. NOAA's wealth of heritage resources includes centuries-old maps, charts, photographs, books, and scientific instruments recalling NOAA's long and proud history and dedicated service. NOAA initiated the first annual NOAA Heritage Week, including an exhibit of heritage resources called the *Treasures of NOAA's Ark*. The NOAA *Preserve America* Initiative Grant Program stimulated efforts within NOAA to preserve, protect, and promote heritage resources.

NOAA Worked with Various Government Agency Partners to Advance Marine Mammal Protection Act Reauthorization, The National Offshore Aquaculture Act, and Magnuson-Stevens Fisheries Conservation and Management Act Reauthorization:

NOAA transmitted to Congress a comprehensive package of amendments to reauthorize the Magnuson-Stevens Act and the Marine Mammal Protection Act, and proposed the National Offshore Aquaculture Act. The bills meet Administration commitments made in the December 2004 U.S. Ocean Action Plan and other key objectives and necessary improvements.

NOAA Sea Grant Researchers Develop Means to Predict Risk of Dioxin in Fish: University of Washington Sea Grant scientists are revealing the intricate molecular mechanisms by which dioxin (and similar compounds like PCBs) derails normal processes in the cells of developing fish. With a detailed understanding of these mechanisms, toxicologists will have a way to predict the danger a given species faces from dioxin by conducting a relatively simple analysis of that species' cellular biochemistry and describing how dioxin will corrupt it.



A listing of program evaluations that have been conducted follows.

FY 2005 OFFICE OF INSPECTOR GENERAL (OIG) REPORTS ISSUED

FSD-15989-4-0001: *Improvements Needed in the Reporting for NOAA GOALS—Build Sustainable Fisheries, Recover Protected Species, and Predict Climate Changes* (four recommendations—Final Report)

This audit concluded that NOAA has unclear measures, weak procedures in place to ensure data reliability, insufficient documentation, and inadequate explanations. The recommendations were implemented according to the action plan and a follow-up audit was initiated in FY 2005 to gauge the adequacy of the Agency's corrective actions.

STL-17242-5-0001: *National Marine Fisheries Service (NMFS) Review Process for California Central Valley and State Water Projects' Biological Opinion Deviated from Normal Practice* (three recommendations—Final Report)

This report revealed inconsistencies between the way the consultation was initiated by the NMFS southwest regional office and the way it initiated other consultations. The report also found that that regional office did not comply with two controls in its normal review process. NMFS is implementing the recommendations.

FY 2005 GOVERNMENT ACCOUNTABILITY OFFICE (GAO) REPORTS ISSUED

GAO-05-240: *Storm Water Pollution: Information Needed on the Implications of Permitting Oil and Gas Construction Activities* (no recommendations)

This report concluded that substantially more oil and gas activities would likely be affected by Phase II of the stormwater rule than were affected in the Phase I rule for sites greater than five acres (in the past 12 months 433 oil and gas sites were permitted under the Phase I rule in Louisiana, Texas, and Oklahoma). NMFS participated in the review because Phase II of the stormwater rule is expected to substantially increase NMFS' workload on consultations conducted pursuant to section 7 of the ESA, likely exceeding current staff capabilities.

GAO-05-241: *Individual Fishing Quotas: Management Costs Varied and Were Not Recovered as Required (Part 3 IFQ Study)* (two recommendations)

This report found that recovery of IFQ costs, as mandated in the Magnuson-Stevens Act, has been implemented in the Halibut and Sablefish IFQ, but not in the two East Coast IFQ programs, and recommended that the Agency implement cost recovery in all IFQ programs and develop the necessary guidance. NMFS generally agreed with the GAO recommendations and stated that the Agency will work with the Councils on IFQ cost recovery and will develop guidance on the determination of recoverable costs.

GAO-05-283: *Klamath River Basin: Reclamation Met Its Water Bank Obligations, But Information to Stakeholders Could Be Improved* (no recommendations)

This report examined compliance with the water bank requirements in the Biological Opinion on the Klamath River Basin project. GAO concluded the Bureau of Reclamation implemented the water bank in conformance with the Biological Opinion.

GAO-05-213: Food Safety: Federal Agencies Should Pursue Opportunities to Reduce Overlap and Better Leverage Resources (three recommendations)

This report identified overlaps in food safety activities at the U.S. Department of Agriculture (USDA), U.S. Food and Drug Administration (FDA), EPA, and NMFS and analyzed the extent to which the agencies use interagency agreements to leverage resources. GAO concluded that FDA and NMFS are not implementing an agreement designed to enable each agency to discharge its seafood responsibilities effectively. The report recommends that FDA and NMFS identify and inventory all active interagency food safety-related agreements and evaluate the need for these agreements, and where necessary, update the agreements to reflect recent legislative changes, new technological advances, and current needs. NMFS concurred with all recommendations and has submitted a draft revision of the subject agreement to FDA for their review and comment.

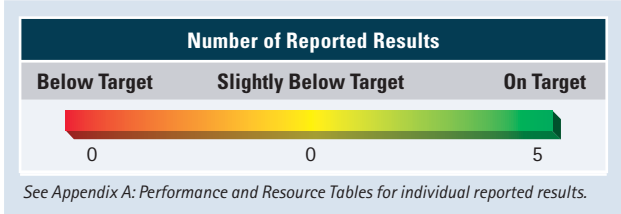
Performance Goal: Support the nation’s commerce with information for safe, efficient, and environmentally sound transportation (NOAA)

U.S. transportation systems are economic lifelines for the nation. As U.S. dependence on surface and air transportation grows over the next 20 years, and as maritime trade doubles, better navigation and weather information provided by NOAA will be critical to protect lives, cargo, and the environment. For example, better aviation weather information could significantly reduce the \$4 billion 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.

Some highlights from this performance goal in FY 2005 include:

NOAA’s Height Modernization Project increases Gulf Coast Safety and Planning: NOAA invested more than \$3.7 million in 2005 grant funding to implement the Height Modernization Project in the Gulf States. Implementation includes building the infrastructure and capacity of the states to determine and deliver consistent, accurate, and timely height information. The data are critical to determining effective highway evacuation routes, storm surge modeling, flood plain mapping, sea level rise calculations, vessel under-keel and bridge clearance, subsidence monitoring, and restoration of coastal habitats. NOAA released Technical Report 50 to describe the methods and results of research into recent rates of subsidence on benchmarks in the lower Mississippi Valley and northern Gulf Coast region. The data in this report were obtained from the analysis of leveling projects in NOAA’s geodetic database observed between 1920 and 1995.

NOAA Develops the Iraqi Geospatial Reference System (IGRS): NOAA provided critical assistance in the design, development, and implementation of IGRS. The IGRS was modeled after the National Spatial Reference System (NSRS) in the United States, which is managed by NOAA. Six Iraqi Continuously Operating Reference Stations (CORS) are now fully operational and data collection has been completed for a High Accuracy Reference Network (HARN) in southern Iraq. Army, Air Force, Marine, and civilian surveyors from many nations and disciplines are beginning to use the CORS and HARN stations for projects all around Iraq. The extreme accuracy and efficiency of the IGRS products are positively influencing the wide success of both military operations and civil reconstruction efforts.





NOAA's Aviation Weather Program Exceeded Aggressive Performance Criteria for Aviation Forecasts: This program is vital to aviation operations by improving the ceiling and visibility. The False Alarm Rate decreased five percentage points compared to FY 2004. The program also fielded and tested 25 Water Vapor Sensors to increase observations used in forecasts, created and conducted a new training course for meteorologists and pilot weather modules utilized by over 10,000 individuals, and successfully demonstrated the Volcanic Ash Collaboration Tool in collaboration with FAA.

New Physical Oceanographic Real-Time System (PORTS®) Established in Lower Columbia River: In partnership with the Port of Portland, NOAA established the Lower Columbia River PORTS® as the 13th PORTS®. The PORTS® program is designed to support safe, cost efficient marine transportation by providing accurate real-time oceanographic and meteorological data in a variety of user friendly formats, including telephone voice response and the Internet. Data are quality controlled on a 24/7 basis to allow navigation decisions to be made with confidence. The Columbia River annually handles nearly 48 million tons of cargo. Vessel operators must know the depth of the water in order to move the greatest amount of cargo without running the ship aground. In port areas, water levels and currents frequently differ from predictions as a result of changes in winds and water run off. Users of NOAA PORTS® information include port authorities, vessel pilots, shipping companies, U.S. Coast Guard, U.S. Navy, recreational boaters, fishermen, coastal managers, environmental organizations, academia, and surfers.

STRATEGIES AND FUTURE PLANS

Ecosystems

Consistent with the U.S. Ocean Action Plan and U.S. Commission on Ocean Policy Report, NOAA has adopted an ecosystem approach to management that will evolve over time in collaboration with its partners. The six strategies contained in the five year NOAA strategic plan include:

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

NOAA is implementing the call by its stakeholders to move towards an ecosystem approach to managing uses of coastal and marine resources. NOAA is integrating the application of its multiple ecosystem mandates in partnership with universities; industry; non-governmental organizations; and local, state, and federal agencies by developing and implementing ecosystem approaches to management of coastal and marine resources. NOAA is seeking improved understanding of ecosystems, identification of regional ecosystems, development of ecosystem health indicators, and new methods of governance to establish the necessary knowledge, tools, and capabilities to fully implement ecosystem approaches to managing coastal, ocean, and Great Lakes resources. Advancement in NOAA's performance measurement for an ecosystem approach to management is underway for FY 2006.

Commerce and Transportation

NOAA helps transportation information users and stakeholders reach their goals with the following strategies identified in the five year NOAA strategic plan:

- ◆ Expand and enhance advanced technology monitoring and observing systems, such as weather and oceanographic observations, hydrographic surveys, and precise positioning coordinates, to provide accurate, up-to-date information.
- ◆ Develop and apply new technologies, methods, and models to increase the capabilities, efficiencies, and accuracy of transportation-related products and services.
- ◆ Develop and implement sophisticated assessment and prediction capabilities to support decisions on aviation, marine, and surface navigation efficiencies; coastal resource management; and transportation system management, operations, and planning.
- ◆ Build public understanding of the technology involved and the role of the environment in commerce and transportation.

In the future, NOAA plans to enhance the intermodal transportation network by improving available products and services and investing in transportation related observing systems. For example, NOAA will continue to build and maintain its suite of ENC's to supply commercial and recreational mariners with the digital navigation data they need to navigate safely in the 21st century. Additionally, NOAA will focus on equipping all 175 National Water Level Observation Network Stations with real-time operational capability at the top 150 U.S. seaports. Enhanced ice forecasts and refinements to aviation, marine, and surface weather predictions will also contribute to NOAA's role in saving lives, property, and critical infrastructure. NOAA will continue to survey and chart U.S. waters, maintain the highly accurate positioning infrastructure the nation relies on each day, support Satellite Search and Rescue incidents, respond to hazardous material events, and support U.S. national interests in commercial remote sensing licensing. It is through these and other important activities that NOAA strives to improve and deliver information crucial to safe and efficient transportation.



Working with shrimp and longline fishermen, NOAA scientists have developed a new, soft Turtle Excluder Device (TED) and a highly effective double-flap hard TED that the shrimp industry has adopted to reduce the incidental capture of endangered and threatened sea turtles.

CHALLENGES FOR THE FUTURE

The Department must further the examination of land-water interfaces from an ecosystem perspective to successfully address ocean and coastal issues. Human health linkages with weather, climate, and ecosystem goals are priorities that directly impact the U.S. economy. NOAA's Strategic Plan's emphasis on the nation's needs for expanded commerce and economic development that is safe and environmentally sound directly supports the Department's focus on a healthy and growing economy. One initiative especially highlights NOAA's ability to provide services that support environmentally sound economic development. The Port Infrastructure and Economic Revitalization (PIER) initiative relies on partnerships to facilitate the revitalization of working waterfronts and other port infrastructure development needed to maintain pace with the exponential growth of the marine transportation system.

The Department's response to addressing the transportation challenges facing the nation include building on the foundation of expertise, research, and technology development to deliver the information, tools, and services essential to safe, efficient, and environmentally sound transport on water, land, and in the air. Impacts to the system, particularly at vulnerable choke points, affect transit time, delivery reliability, efficiency, cost of goods transported, and the environment. To improve service delivery, NOAA consults with its stake holders to identify valid user needs that cannot be met with existing information; enhance products that support transportation systems; work with partners to conduct research and development in weather, modeling, and geopositioning; and improve the translation of research into operational value. NOAA must also focus on connecting and strengthening its observations systems that gather data for transportation information.



NOAA surveys 95,000 nautical miles of U.S. coastline to provide an accurate and official delineation of the national shoreline for nautical chart production and coastal resource management.