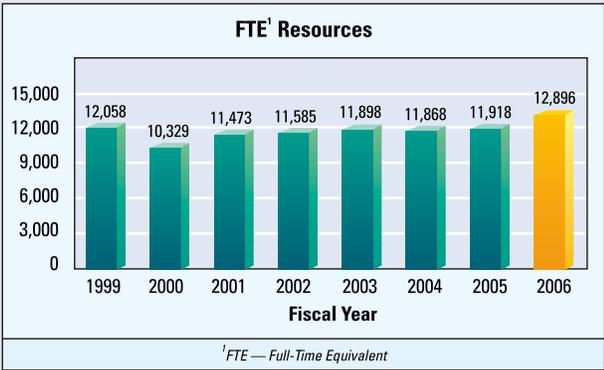
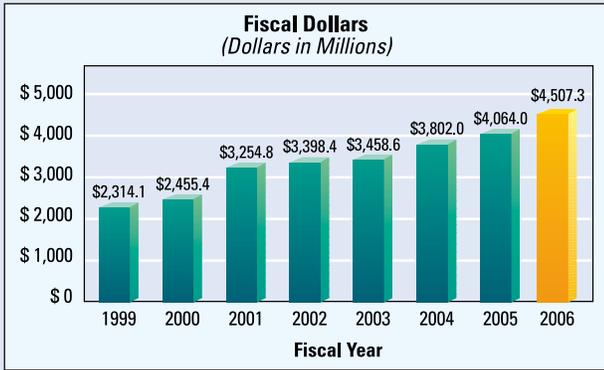




STRATEGIC GOAL 3

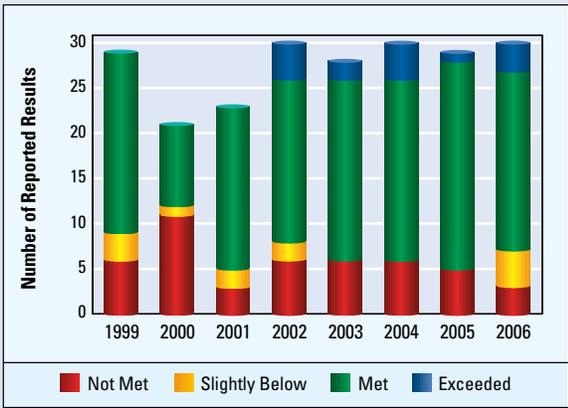
Observe, protect, and manage the Earth's resources to promote environmental stewardship

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 U.S. 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—the Department's science, service, and stewardship touch the life of every citizen in the United States and in much of the world every day.

STRATEGIC GOAL 3 PERFORMANCE RESULTS



See Appendix A: Performance and Resource Tables for individual reported results.



Together the Department 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.

In FY 2006 the National Oceanic and Atmospheric Administration (NOAA) accomplished some major bureau-wide successes:

National Weather Service (NWS) Response to Hurricane Katrina

The devastation left in Katrina's wake over southeast Louisiana and coastal Mississippi was immense. The storm surge ravaged coastal Mississippi, and several levee breaches occurred in and around New Orleans. The levee breaches and overtopping resulted in floodwaters of 15 to 20 feet covering about 80 percent of the city. The catastrophic damage and loss of life inflicted by this hurricane is staggering, with an estimated 1,353 direct fatalities and 275,000 homes damaged or destroyed. Total economic losses could be greater than \$100 billion. These impacts make Katrina the costliest hurricane in U.S. history and one of the five deadliest hurricanes to ever strike the United States.

A follow-up Service Assessment Team, composed of experts in and outside NWS, found that NWS performed admirably before, during, and after Katrina. The products and services provided by NWS offices were particularly accurate and timely, and they contributed significantly to critical customer decision-making. The hurricane forecast track error was considerably better than average through the five-day forecast period. Lead times on hurricane watches and warnings for Louisiana, Mississippi, Alabama, and the Florida panhandle were eight hours above average. A noteworthy moment for NWS came when the Weather Forecast Office (WFO) in New Orleans/Baton Rouge issued a statement one day prior to Katrina's landfall that emphasized the likely impacts of the hurricane on southeast Louisiana and coastal Mississippi. Due to the unprecedented detail and foreboding nature of the language used, the statement helped reinforce the actions of emergency management officials as they coordinated one of the largest evacuations in U.S. history. The NWS actions leading up to Katrina's landfall and the efforts of the NWS tropical cyclone outreach program over the last two decades contributed to these high evacuation rates and undoubtedly saved many lives.

During extremely difficult working conditions, the ingenuity, dedication, and sheer will of NWS employees enabled the provision of products and services even as infrastructure and back-up systems failed. Incident meteorologists served a vital role in the aftermath of Katrina by establishing portable communications systems and weather observing systems to mitigate critical outages. Most importantly, service backup operations were transparent to most users and partners as high quality products and services were provided by alternate offices.

President Sets Aside Largest Marine Conservation Area on Earth **Northwestern Hawaiian Islands (NWHI) Marine National Monument Encompasses Nearly 140,000 Square Miles**

The Administration created the world's largest marine conservation area off the coast of the Northwestern Hawaiian Islands in order to permanently protect the area's pristine coral reefs and unique marine species. The NWHI Marine National Monument encompasses nearly 140,000 square miles of U.S. waters, including 4,500 square miles of relatively undisturbed coral reef habitat that is home to more than 7,000 species. The monument will be managed by the Department of Interior's (DOI) U.S. Fish and Wildlife Service and NOAA, in close coordination with the State of Hawaii.

"This is a landmark achievement for conservation, protection and enhancement of the Northwestern Hawaiian Islands," said Commerce Secretary Carlos Gutierrez. "Approximately one quarter of the species here are found nowhere else in the world and a marine national monument will provide comprehensive, permanent protection to this region."



New NOAA Environmental Satellite Launched, Reaches Orbit

NOAA and NASA officials confirmed that a new geostationary operational environmental satellite, designed to track hurricanes and other severe weather impacting the nation, successfully reached orbit. The first signal acquisition occurred six hours and 30 minutes after the launch, at the Air Force Tracking Station, Diego Garcia, located in the Indian Ocean.

The NOAA satellite, GOES-13, will assume its place in the NOAA GOES satellite constellation that provides continuous critical data for severe weather forecasts and warnings, and supplies data critical for fast, accurate forecasts and warnings for severe weather, including tornadoes, winter storms and hurricanes. Additionally, after a period of on-orbit storage, it will detect solar storm activity, relay distress signals from emergency beacons, monitor the oceans, and scan the landscape for the latest drought and flood conditions.

This satellite will serve the nation by monitoring conditions that trigger dangerous weather, and it will serve the world by contributing vast amounts of observational data, as part of the U.S. contribution to the Global Earth Observation System of Systems (GEOSS).

NOAA Accepts Delivery of New Fisheries Survey Vessel (FSV) Advanced Capabilities Provide Unique Fisheries Research Platform

NOAA took delivery of HENRY B. BIGELOW, one of a new class of FSVs being built under contract with VT Halter Marine Inc., in Pascagoula, MS. The vessel will support NOAA research efforts in conservation and management of fisheries and marine ecosystems primarily in northeastern U.S. waters, replacing the 45-year-old ALBATROSS IV. The ship will be home ported in New England, although a permanent base has not been named. The ship will be based temporarily at Naval Station Newport, in Newport, RI.

Like its sister ship OSCAR DYSON, BIGELOW's high-tech capabilities make it one of the most advanced fisheries research ships in the world. The advanced capabilities of HENRY B. BIGELOW will enable NOAA to conduct its fisheries research and assessment mission in New England with greater accuracy and cost efficiency.

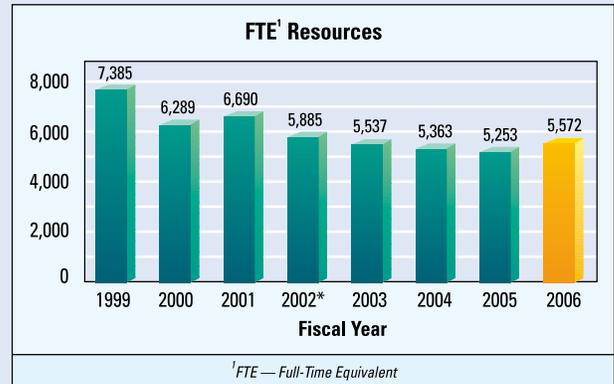
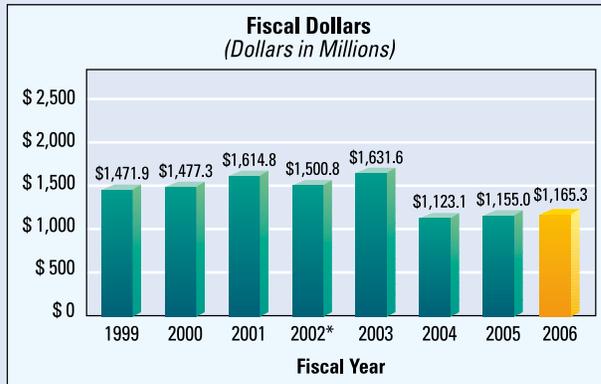
Senator Gregg stated, "The HENRY B. BIGELOW is going to have a tremendous impact on the way scientists and researchers study the health of our marine environment, especially in the Gulf of Maine and the northeast. And it is a fitting tribute to the kids from Winnacunnet that this vessel, bearing the name they chose to honor one of the most respected oceanographers in the northeast, is now going to be used off our shores."

HENRY B. BIGELOW is the second of four 208-foot FSVs to be delivered by VT Halter Marine, with the third ship, PISCES, and the as-yet unnamed fourth ship in various stages of construction. Together, these ships will expand the capabilities of the NOAA fleet greatly by meeting data collection requirements of the National Marine Fisheries Service (NMFS), as well as providing a cutting-edge, low acoustic signature. The FSV will have the ability to perform hydro-acoustic surveys of fish, and also will be able to conduct bottom and mid-water trawls while running physical and biological-oceanographic sampling during a single deployment—a combined capability unavailable in the private sector.

STRATEGIC OBJECTIVE 3.1

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

STRATEGIC OBJECTIVE 3.1 TOTAL RESOURCES

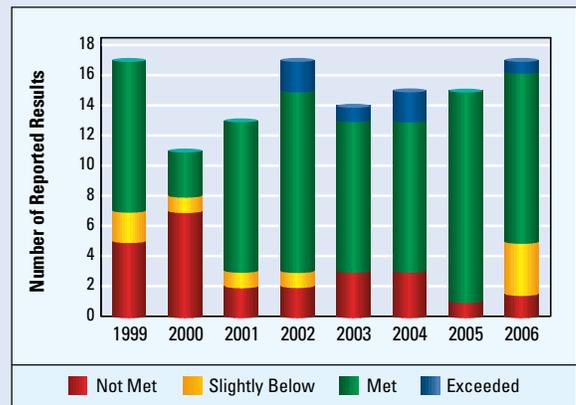


* In FY 2002, NOAA created a Mission Support goal that covered activities spanning both objectives and all four performance goals. The Mission Support goal does not currently have performance measures. Funding and FTE were split off from the other performance goals. Consequently, the funding and FTE for objectives 3.1 and 3.2 began to decline in FY 2002, with those amounts appearing in the Mission Support goal.

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. The Department 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. The Department will expand services to support evolving national needs, including those associated with space weather, freshwater and coastal ecosystems, and air quality prediction.

STRATEGIC OBJECTIVE 3.1 PERFORMANCE RESULTS



See Appendix A: Performance and Resource Tables for individual reported results.

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)	●

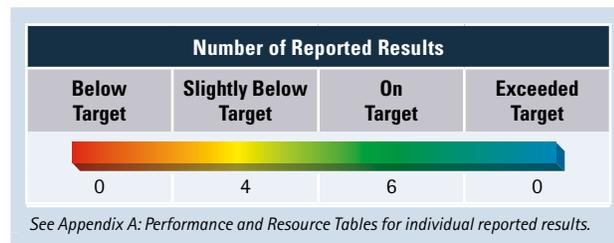
* ● = MET (100%) ● = SIGNIFICANTLY MET (75% - 99%) ● = NOT MET (< 75%) ● = NOT APPLICABLE



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 2006 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 2006 include:

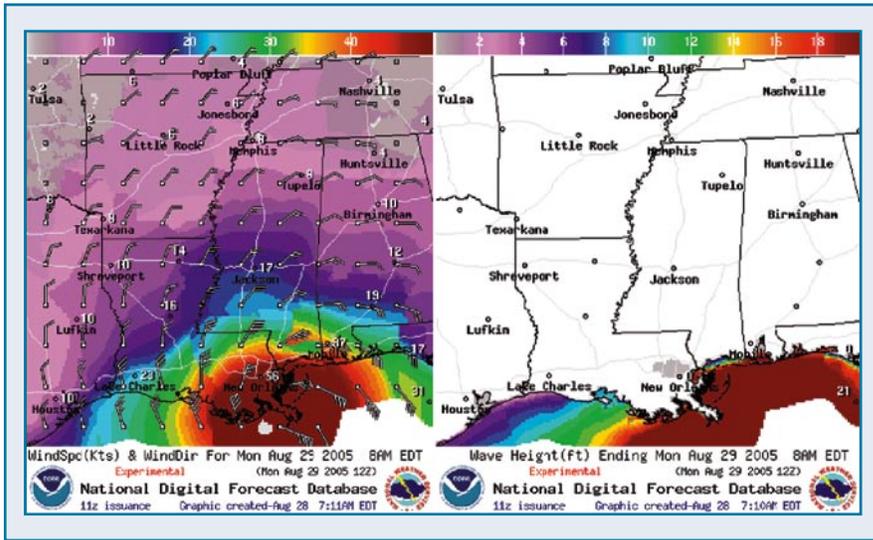
NWS Telecommunication Gateway (NWSTG) Replacement

The most significant accomplishment of the Telecommunications Operations Center (TOC) was reaching Initial Operational Capability for the Replacement Telecommunications Gateway (RTG) system. NWSTG is the primary data communications switching system of the NWS. It is a global distributor of weather messages, and is located in the NWS TOC. This system can route more than 50 routine messages per second, within one minute, 99.9 percent of the time. Additionally, the system can route Watches, Warnings, and other perishable observation messages in 10 seconds, which directly supports dissemination systems supporting disaster management such as the Emergency Managers Weather Information Network, NWS offices, other government agencies, and the public in a timely manner so they can be most useful.

Improved Model Enables Better Precipitation Forecasts

NOAA's Earth System Research Laboratory (ESRL) weather model scientists joined forces with the National Center for Atmospheric Research (NCAR) to develop and test a new national model called Rapid Refresh that is designed to substantially improve NOAA's forecasting skill. The Rapid Refresh is the next-generation version of the 1-h cycle system, to replace the current Rapid Update Cycle (RUC) forecast by 2008. This model will take advantage of the collaboratively developed, state-of-the-art Weather Research and Forecast (WRF) model. Rapid Refresh uses WRF's optimal combination of numerical and physical parameterizations. The emphasis for the enhanced model is on aviation and severe weather applications in one to 12-hour forecasts.

The nation relies on numerical weather models and complex computer programs to process millions of weather observations and produce accurate and timely weather forecasts. Developers must make sure that models are both accurate and fast so that watches and warning can be issued with as much lead time as possible.



National Digital Forecast Database (NDFD) Continues to Improve and Expand

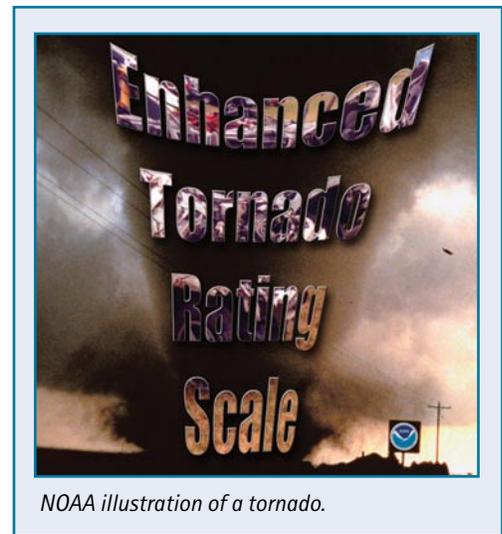
As the foundation of the NWS Digital Services Program, the NDFD consists of gridded forecasts of sensible weather elements (e.g., cloud cover, maximum temperature) in a seamless mosaic from NWS. In FY 2006 NWS upgraded four experimental elements (wind speed, wind direction, apparent temperature, and relative humidity) to operational status for the coterminous United States (CONUS), Puerto Rico/Virgin

Islands, Hawaii, and Guam. Eight of the original 12 elements in NDFD are now operational. Several new experimental elements were added to NDFD this year, including the first set of experimental elements for Alaska: maximum temperature, minimum temperature, 12-hour probability of precipitation, wind direction, wind speed, and significant wave height. Adding these elements for Alaska is a first step in fulfilling a strong demand for high resolution gridded forecasts for Alaska from many national and local customers. Wind gust forecasts for the CONUS, Puerto Rico/Virgin Islands, Hawaii, and Guam; and six tropical cyclone surface wind speed probability elements for the CONUS and adjacent coastal areas were also introduced as new experimental elements in NDFD this year. Finally, changes were implemented to improve accessibility to the data in NDFD. Ongoing customer demand for additional data reflects the significant role the NDFD plays in weather-sensitive decision-making.

NWS Improves Tornado Rating System

NWS announced plans to implement the Enhanced Fujita (EF) Scale to rate tornadoes to replace the original Fujita (F) Scale. The EF Scale will continue to rate tornadoes on a scale from zero to five, but ranges in wind speed will be more accurate with the improved rating scale. NWS has approved the EF Scale and expects it to be fully implemented by February 2007.

The EF Scale takes into account additional variables which will provide a more accurate indication of tornado strength. The EF Scale will provide more detailed guidelines that will allow NWS to more accurately rate tornadoes that strike in the United States. Limitations of the original F Scale may have led to inconsistent ratings, including possible overestimates of associated wind speeds. The EF Scale incorporates more damage indicators and degrees of damage than the original F Scale, allowing more detailed analysis and better correlation between damage and wind speed. The original F Scale historical database will not change. An F5 tornado rated years ago is still an F5, but the wind speed associated with the tornado may have been somewhat less than previously estimated. A correlation between the original F Scale and the EF Scale has been developed. This makes it possible to express ratings in terms of one scale to the other, preserving the historical database.



NOAA illustration of a tornado.

NOAA Announces Forecasts of Entire Atlantic Basin **New System Gives Unprecedented Forecasts of Earth's Second Largest Ocean**

The NOAA Environmental Modeling Center, Marine Modeling and Analysis Branch, has implemented a new revolutionary Real-Time Ocean Forecast System that will provide mariners with "nowcasts" and five-day forecasts for the entire North Atlantic Ocean. The Real-Time Ocean Forecast System generates applications that can support operations at sea such as search and rescue operations, containment of toxic spills, exploration of natural resources, fishing, recreation and much more.

Expanded ocean forecasting for areas from Europe to the U.S. east coast and from the Caribbean to Canada represents a major step in NOAA's commitment to forecasting the Earth system. These new capabilities provide us with the potential to mitigate impacts from natural hazards and are just one example of the tangible benefits of an integrated observation system. Meteorologists, who focus on predicting the weather over the oceans, note that in the future this system will provide the foundation for the initial and boundary conditions for the ocean component of NOAA's coupled ocean-hurricane prediction model, as well as the high-resolution regional models for environmental and ecosystem management, safety of marine transportation, and coastal flooding.

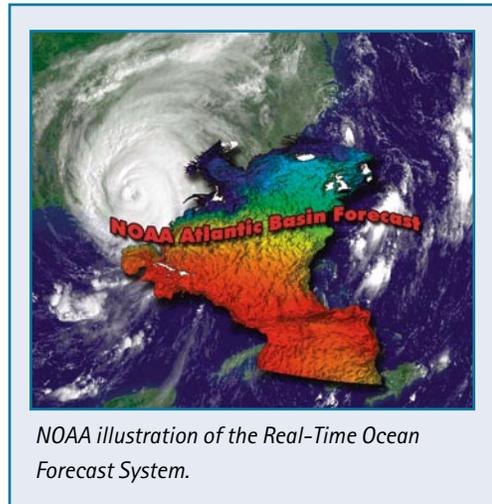
The inclusion of the new ocean prediction system will contribute to NOAA's ongoing effort to improve hurricane track and intensity forecasts throughout the entire Atlantic Ocean basin.

The Real-Time Ocean Forecast System for the Atlantic Ocean produces daily "nowcasts" and five-day forecasts over the Atlantic Ocean domain of 25 degrees south to 70 degrees north and across the basin from west to east, including the Gulf of Mexico, Caribbean Sea, Gulf of Maine, and Gulf of St. Lawrence. The system replaces the regional Ocean Forecast system, which covered a limited part of the U.S. east coast.

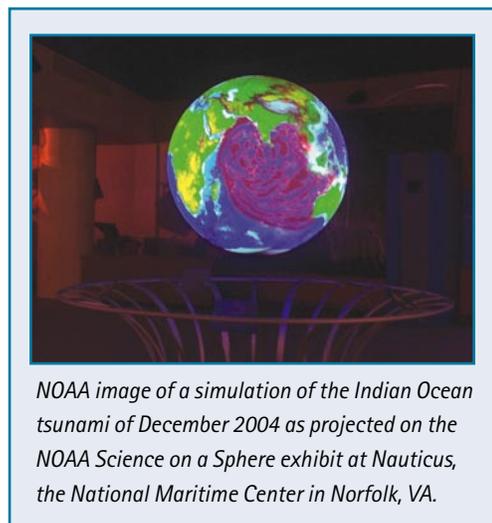
Work on the Real-Time Ocean Forecast System was partially supported through a National Ocean Partnership Project grant. It is the first in a series of the Environmental Modeling Center's real-time, high-resolution ocean forecast system implementations over the next decade. Currently, global and Pacific Ocean (Earth's largest body of water) versions of this system are under development.

Norfolk, VA First East Coast City Declared Tsunami Ready

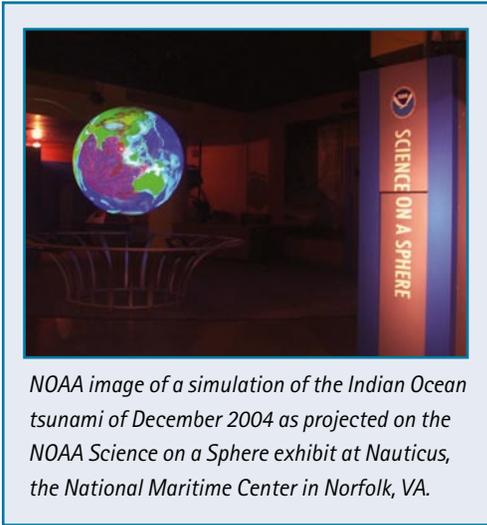
Norfolk became the first major east coast city with a well designed tsunami emergency response plan to alert residents and visitors of tsunami threats, and evacuate areas if necessary. NOAA, the federal agency responsible for tsunami and all severe weather warnings, officially recognized the City of Norfolk as the latest of 26 TsunamiReady communities along U.S. coasts. Norfolk also was recognized as StormReady, becoming one of nearly 1,000



NOAA illustration of the Real-Time Ocean Forecast System.



NOAA image of a simulation of the Indian Ocean tsunami of December 2004 as projected on the NOAA Science on a Sphere exhibit at Nauticus, the National Maritime Center in Norfolk, VA.



NOAA image of a simulation of the Indian Ocean tsunami of December 2004 as projected on the NOAA Science on a Sphere exhibit at Nauticus, the National Maritime Center in Norfolk, VA.

TO BE RECOGNIZED AS TSUNAMIREADY/STORMREADY, A COMMUNITY MUST:

- ◆ Establish a 24-hour warning point and emergency operations center
- ◆ Have multiple ways to receive severe weather warnings and forecasts and to alert the public
- ◆ Create a system that monitors weather conditions locally
- ◆ Promote the importance of public readiness through community seminars
- ◆ Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises

communities across the country with a proactive approach to warning and educating the public about tornadoes, flooding and other severe weather.

City officials and emergency managers have worked hard to establish a 24-hour system to receive NOAA warnings and inform Norfolk residents about what actions to take if a tsunami or severe weather is headed their way. NOAA has expanded its tsunami detection and warning capability since the Indian Ocean tsunami, and community preparedness programs like TsunamiReady are key components of this effort. Ultimately it is the public's ability to react to such warnings that completes the chain in an effective tsunami warning process. TsunamiReady helps accomplish this.

Coastal communities like Norfolk contain 53 percent of the nation's population. Protecting the growing population along the coastline from the ravages of natural disasters is a major concern in Virginia. Hurricane Isabel in 2003 was the costliest disaster ever in Virginia, with more than \$1 billion in damages. All coastal communities in the United States are at some risk for a tsunami. NOAA is honored that the City of Norfolk is leading the way in preparedness with the designation of being both TsunamiReady and StormReady.

The City of Norfolk has made tremendous progress on educating its citizens about all natural disasters, from hurricanes to tornadoes and winter storms, to east coast tsunamis. This program will enable the city to apply for additional reductions in the premiums paid into the National Flood Insurance Program, which could result in an additional savings of over \$100,000 for the city and local taxpayers.

Norfolk also became the fifth Hampton Roads community to earn the StormReady designation. TsunamiReady is an outgrowth of the StormReady program created by NWS in 1999 to encourage communities to take a proactive approach to improving local hazardous weather operations and public awareness. The voluntary program provides communities with clear-cut advice through a partnership between local NWS offices and state and local emergency managers.

StormReady and TsunamiReady help us create better prepared communities throughout the country. Through StormReady and TsunamiReady, the City of Norfolk will be better prepared to help protect the lives and property of its citizens and visitors during severe weather events, as well as for the rare, but potentially devastating tsunami.

NOAA Web Portal Makes the Search for Past Weather Data User-Friendly

Finding climate information, such as past weather conditions and temperature and precipitation averages and extremes, can be easily achieved through NOWData (NOAA Online Weather Data)—a tab click away on the newly-standardized climate pages of the 122 local NWS forecast offices.

By visiting NWS's national climate Web portal, users can click a desired location on a national map and be taken directly to the local climate page of the appropriate NWS forecast office. Then, by clicking on the NOWData tab, users can access a wide range of climate products for nearly 3,900 locations. Daily past weather is available for the last two years with climate averages for the standard 30-year period of 1971–2000 and extremes for as long as a station has been taking observations.

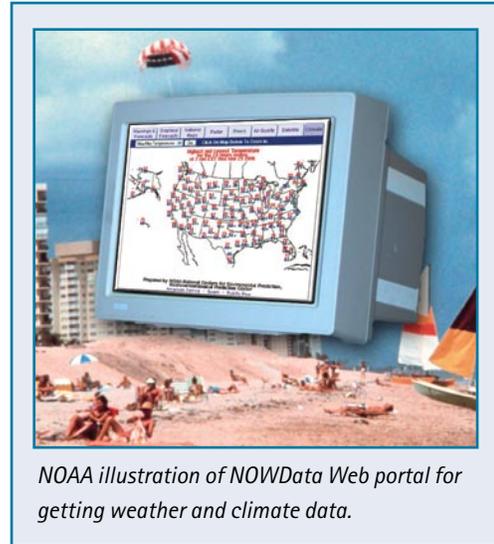
NOWData enhances access to recent past weather information, which is often the focus of questions NWS receives from the public. NOWData stems from the collaboration between the NOAA Office of Climate, Water, & Weather Services, part of NWS, which provides weather and water services to the United States, American Samoa, Guam, and Puerto Rico; the NOAA National Climatic Data Center (NCDC), the official archives of U.S. weather and climate information; and the nation's six Regional Climate Centers that operate the database, which supports NOWData.

NOWData is a potentially vast educational resource for teachers and students undertaking weather and climate-related projects. NOWData is a source of data that is collected by instruments that are components of the GEOS.

Past weather data offered by NWS forecast offices and linked from the NOWData Web site are considered preliminary, and therefore, unofficial. Certified weather data, for uses such as litigation, are available only through the NOAA NCDC.

National Water Level Observation Network (NWLON) Improvements [Tsunami Gauge Network Upgrades]

In FY 2005, in response to the Indian Ocean tsunami, NOAA established a Tsunami Warning Program. The Center for Operational Oceanographic Products and Services' (CO-OPS) role in the Program is Sea Level Monitoring for tsunami detection. NOAA monitors sea height through a network of buoys and tide gauges. This information is critical to understanding the time of arrival and the height the tsunami wave will be when it comes ashore. CO-OPS completed the addition of 16 new NWLON stations this year to fill critical observation gaps in the detection network. These 16 stations were installed in California, Oregon, Washington, Alaska, Puerto Rico, and the Virgin Islands. These and other new stations will bring the NWLON to 200 stations by the end of FY 2006. In addition, NOAA continued the upgrade of the entire NWLON to real-time status by replacing another 50 Data Collection Platforms. This is part of the Administration's Ocean Action Plan and will be completed in FY 2007.



NOAA illustration of NOWData Web portal for getting weather and climate data.



CO-OPS supports the Integrated Ocean Observing System (IOOS) Data Management and Communications Plan

CO-OPS is pleased to announce that an IOOS-oriented Web portal is up and running: <http://tidesandcurrents.noaa.gov/opensdap.html>. In partnership with the National Data Buoy Center (NDBC), CO-OPS created this IOOS Web site to provide access to NDBC and CO-OPS observational oceanographic data. The CO-OPS IOOS team designed the portal by following guidance presented in the Ocean U.S. Data Management and Communications Plan. Users will find improved methods for observational data retrieval, information concerning IOOS meetings, useful IOOS links, and related information.

NOAA Completes Great Lakes Operational Coastal Forecast Systems

NOAA launched three new operational coastal forecast systems for the Great Lakes this year to complete the Great Lakes Operational Forecast System (GLOFS). These new systems cover three Great Lakes (Superior, Huron, and Ontario) and provide lake carriers, mariners, port managers, emergency response teams, and recreational boaters with present and future conditions of water levels, water currents, and water temperatures. The GLOFS also includes the operational systems for Lake Erie and Michigan that were launched in 2005. The National Ocean Services (NOS) keeps the GLOFS operational 24 hours a day, seven days a week.

New Estuarine Reserve Designated, Program Expands

NOAA's Estuarine Reserves Division and the National Estuarine Research Reserve System (NERRS) continued to expand their reach and programs in 2006 with the official designation of the twenty-seventh reserve in the system, Mission-Aransas in Texas. Mission-Aransas and its fellow reserves around the country will be guided over the next five years by a newly adopted strategic plan focusing on coastal and estuarine stewardship grounded in research and education. While celebrating the first 10 years of the system-wide monitoring plan, the reserve system also adopted a new research and monitoring plan to focus and integrate system-wide activities. The NERRS also has conducted a teacher needs assessment that will guide the development of education products based on water quality and weather data generated in the reserve system.

National Currents Program Reinvigorated

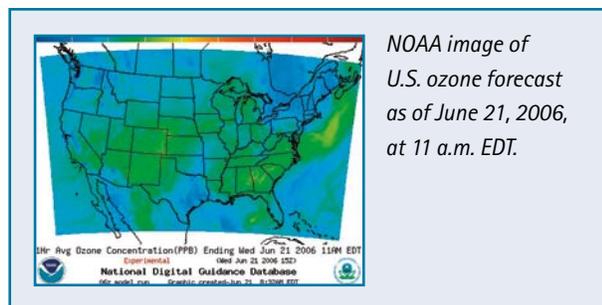
The year 2006 was the first of an expanded National Current Observation Program with current surveys undertaken in southeast Alaska, Penobscot Bay, ME, and Hudson River, NY. The collection of short-term tidal current observations will update old, potentially inaccurate, tidal current predictions and will be used to reintroduce historical products in an updated format. NOAA installed two long-term horizontal-looking current meters in the rivers and connecting channels of the Great Lakes. The current data from each meter will provide speed and direction of flow to assist all vessels to safely navigate these rivers. Data will be disseminated in real-time, accessible by telephone, and through the Great Lakes Online link at <http://tidesandcurrents.noaa.gov/>.

NOAA CoastWatch Program Opens East Coast Node; Chesapeake Bay Office Hosts Enhanced Environmental Satellite Data Capabilities

On June 29, 2006, NOAA officially opened the East Coast Node of NOAA's CoastWatch program, which will broaden the availability of environmental data for the Atlantic Ocean collected by the Agency's geostationary and polar-orbiting satellites. The East Coast Node, part of a network of other CoastWatch offices around the country, will be located at the NOAA Chesapeake Bay Office in Annapolis, MD. The new node will gather data, including sea surface temperature, ocean surface winds, and chlorophyll-a levels, and post the information on the Internet. Scientists, resource managers, and fishermen use these data to forecast atmospheric events, predict harmful algal blooms, and study fish and marine mammal distribution, along the eastern seaboard of the United States.

NOAA Ozone Forecasting Tool Now Covers Western United States

NWS, in partnership with the Environmental Protection Agency (EPA), provides experimental forecast guidance for ground-level ozone for the western half of the contiguous United States—a total of 17 states from the Plains to the Pacific coast. This is in addition to the air quality forecast guidance currently available for the eastern half of the United States. This new forecast guidance will provide accurate projections of ozone levels near the ground, linked to Agency weather forecast models. Weather and air quality go hand-in-hand. Daily weather conditions, such as temperature and wind, play an integral role in creating and trapping harmful ozone where people all work, play and breathe.



NOAA image of U.S. ozone forecast as of June 21, 2006, at 11 a.m. EDT.

Hour-by-hour ozone forecasts, through midnight of the following day, are available online, providing information for the onset, severity, and duration of poor air quality for more than 290 million people from coast to coast. This product also serves as a tool that local and state air quality forecasters can use when creating daily air quality outlooks and issuing poor air alerts.

Air quality forecasts can help Americans reduce their exposure to ozone pollution, which is a special concern for children and people with asthma and other lung diseases. This expanded tool will help improve forecasts for cities across the country.

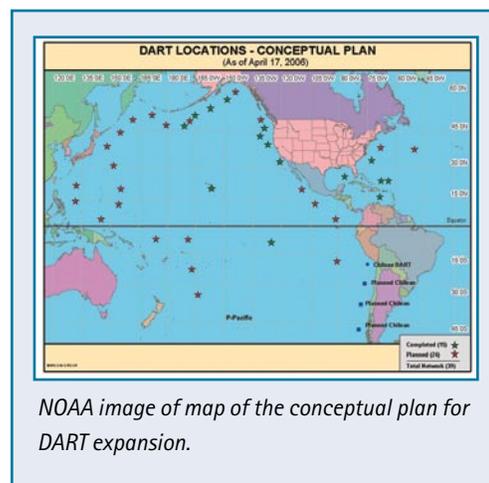
This new experimental guidance expands coverage westward to the Pacific Ocean and will enable additional state and local agencies to issue enhanced and more geographically specific ozone-based air quality warnings to the public. States included in this experimental expansion are Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming, and the remaining western portions of Kansas, Nebraska, North Dakota, Oklahoma, South Dakota, and Texas. The eastern halves of these states were included in last year's expansion into the central United States. Air quality forecast guidance was first implemented into operations for the northeast quadrant of the United States in 2004.

The air quality forecast capability is being built by a team of NOAA and EPA scientists that develop, test, and implement improvements in the science of air quality forecasting for real-time predictions. NWS forecast models are used to drive simulations of atmospheric chemical conditions using pollutant emissions and monitoring data provided by EPA. Twice daily, supercomputers operated by the NOAA National Centers for Environmental Prediction (NCEP) produce ground-level ozone forecasts, which are available on NWS and EPA data servers.

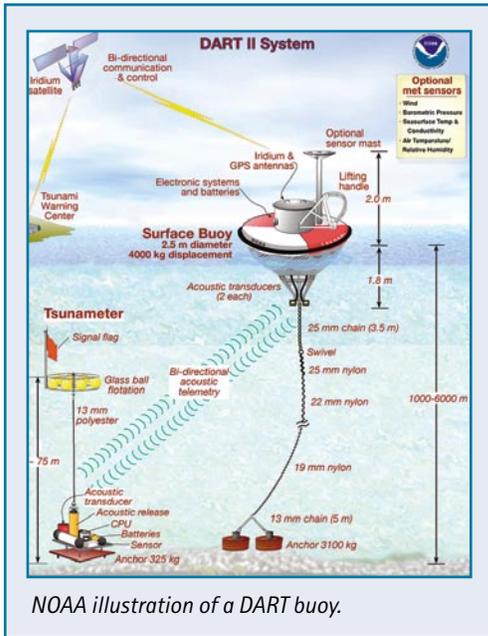
NOAA Launches First Set of Atlantic Basin Tsunami Buoy Stations

NOAA finished installation of five Deep-ocean Assessment and Reporting of Tsunami (DART) buoy stations off the East and Gulf coasts and the Caribbean as part of the expansion of the U.S. tsunami warning system. The latest buoy station, off New Orleans, joins stations off Charleston, SC; Miami, and two off San Juan, Puerto Rico.

Completing a three-week deployment mission aboard the University-National Oceanographic Laboratory System ship SEWARD JOHNSON, the fifth station was deployed.



NOAA image of map of the conceptual plan for DART expansion.



NOAA illustration of a DART buoy.

These buoys are a first line of defense in providing citizens of the Atlantic, Caribbean and Gulf regions with a comprehensive tsunami warning system. The DART stations are an advanced technology that will help to protect densely populated, highly attractive tourist destinations in these regions as well as protect their significant economic resources.

The DART system was designed and built by NOAA to provide real-time tsunami detection as the waves travel across the open ocean. The newly installed stations are a more robust DART-II, equipped with advanced two-way satellite communications that allow forecasters to receive and retrieve critical data. NOAA expects the network to total 39 DART-II buoy stations by 2008 (32 in the Pacific and seven in the Atlantic Basin).

NOAA's tsunami warning centers have expanded their services to provide tsunami watches and warnings to the entire U.S. Atlantic coast, Gulf of Mexico, Puerto Rico, the U.S. Virgin Islands, and eastern Canada. These regions can now receive tsunami warnings and watches through NOAA Weather Radio All Hazards and the Emergency Alert System, just as they would be notified of tornadoes, flooding, or other hazards.

The DART network is one component in a comprehensive system to detect and warn the public of a tsunami threat. NOAA has made important strides in enhancing its communication networks so east coast residents and visitors can receive tsunami watches and warnings, upgrading its network of tide stations, working to staff its tsunami warning centers around the clock, producing forecast models for at-risk communities, transferring technology from research to operations, and providing public education.

Tsunami Warning System Improved

In support of the National Tsunami Warning System, the Pacific Marine Environmental Laboratory deployed two DART-II buoys in Alaska while NOAA's NDBC was recovering from Hurricane Katrina. DART-II technology utilizes the commercial Iridium satellite communications system and acoustic modems to send data between the DART-II system and shore side operators.

In addition to global coverage, lower power requirements, and increased bandwidth for an increased data rate, the improved DART-II buoys offer two-way communication capabilities that are not possible using the GOES satellite system employed in the DART-I system. For Tsunami Warning Center personnel, two-way communication offers the option to interrogate and command a DART-II before a tsunami is detected. This is valuable for observing a tsunami that is below the DART detection threshold. For engineering purposes, two-way communications allows engineers to troubleshoot the system from the lab, and to determine if the system can be repaired remotely. This new capability minimizes system downtime, especially in the harsh winter conditions of the North Pacific; and moreover, saves money by not having to deploy a ship to make this type of repair.



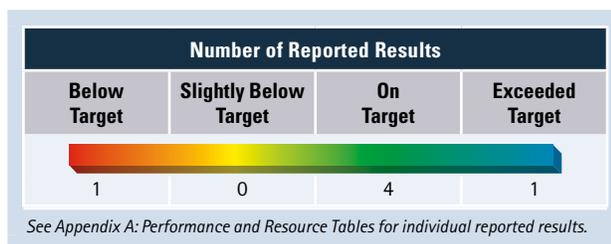
Blacksburg, Virginia, Warning Coordination Meteorologist Mike Emlaw, right, explains NWS performance goals to Pulaski County, Virginia, Emergency Manager Stan Crigger. All NWS office display the Agency's performance measures similarly.



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 1997-1998, 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 2006 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).

Scientists Internationally Honored for Ozone-Depleting Research

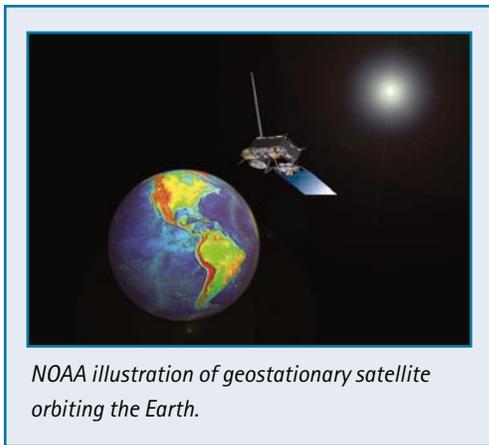
Dan Albritton, Acting ESRL Director (retired) and Susan Solomon of the Chemical Sciences Division (CSD) of NOAA's ESRL, have been recognized with the United Nations Environment Programme/World Meteorological Organization (UNEP/WMO) Vienna Convention Award. The award was presented as part of the celebration of the 20th Anniversary of the Vienna Convention for the Protection of the Ozone Layer. The Vienna Convention Awards were announced September 21, 2005 and were distributed at the Meeting of the Parties to the Montreal Protocol in Dakar, Senegal, in December. Through the Protocol and its subsequent Amendments and Adjustments, the production and use of ozone-depleting substances has plummeted worldwide.

NOAA's Height Modernization Program Improves Gulf Coast Safety and Planning

NOAA invested over \$6.4 million in 2006 to implement Height Modernization in the Gulf states. The goal of the Height Modernization program is to accurately and efficiently determine heights and monitor changes in elevation. Accurate elevations are critical to the rebuilding or lifting of homes, buildings, and levees. This project included obtaining accurate elevation profile data along 846.9 miles of hurricane evacuation routes and along 12.4 miles of hurricane protection levees in southern Louisiana. Critical to the post-hurricane rebuilding effort, NOAA published updated heights for approximately 300 bench marks in Louisiana based on new leveling surveys. NOAA's National Geodetic Survey (NGS), in partnership with the Louisiana Spatial Reference Center (LSRC), also entered into an agreement with FEMA to take responsibility for responding to all elevation concerns in Louisiana and extending the network of accurate reference survey marks in the coastal areas of Louisiana affected by hurricanes Katrina and Rita.

Safe Seas 2006 (SS2006) Emergency Response Exercise

SS2006 was a multi-agency effort lead by NOAA in collaboration with U.S. Coast Guard, California Office of Spill Prevention and Response, Harley Marine Services, and DOI. More than 300 people participated in training, field operations, oceanographic surveys, and incident command post activities. SS2006 exercised oil spill response preparedness in the Gulf of the Farallones and Monterey Bay National Marine Sanctuaries in the waters near San Francisco. The exercise highlighted capabilities to deliver data, observations, forecasts, and expertise towards the goal of protecting life, commerce, and the environment during an emergency. The exercise built on the oil spill preparedness efforts of governments, the private sector, and universities in California. Vessels and aircraft from NOAA, the U.S. Coast Guard, U.S. Air Force Reserve, Marine Spill Response Corporation, Alameda County Sheriff's Department, and Bodega Marine Laboratory participated in the exercise. Additionally, the Central and Northern California Ocean Observing System will activate the new surface current mapping radar in support of exercise data requirements.



NOAA illustration of geostationary satellite orbiting the Earth.

NOAA Plans Shift in Geostationary Satellite Orbit to Improve Weather Forecast Coverage Over South America Continent Will Benefit from Emerging Global Earth Observation Network

In Buenos Aires, NOAA, the Comisión Nacional de Actividades Espaciales (CONAE), and the World Meteorological Organization (WMO) announced news of the repositioning of GOES-10. Shifting the spacecraft from its current position above the equator in the west to a new spot in orbit will greatly improve environmental satellite coverage of the Western hemisphere, especially over South America. The repositioning has already begun and should be completed this winter.

The shift will help protect lives and property in North, Central, and South America by significantly improving satellite detection of such natural hazards as severe storms, floods, drought, landslides, volcanic ash clouds, and wildfires. The shift will further strengthen the WMO's World Weather Watch Global Observing System. It will allow for improved prediction, response, and follow-up, and expanded understanding of how the Earth system works. Nearly half the disasters in South America are caused by flooding. In February 2005, massive flooding and landslides in low-lying coastal areas of Venezuela, Guyana, and Colombia caused nearly 100 deaths and left tens of thousands of South Americans homeless.

"Repositioning NOAA's GOES-10 geostationary satellite will help limit the effects of natural disasters in our region and improve energy and water resource management and over-all economic development, all key elements of the emerging GEOSS, of which Argentina is a member country," said Conrado Franco Varotto, executive and technical director, CONAE, and chair, Committee on Earth Observation Satellites.



GOES-10 first full disk image taken on May 13, 1997 orbiting the Earth.

By linking many thousands of individual pieces of technology as one sustained, comprehensive global system, GEOSS will, over the next decade, integrate 21st century technology, making it more reflective of the planet it observes, predicts, and protects. In addition to Argentina and the United States, 58 other countries, the European Commission, and 43 international organizations are active supporters of GEOSS.

Strengthening satellite detection of severe weather and other natural hazards in the Western hemisphere will be a key element of the new global network. "A benchmark of GEOSS is full and open access and exchange of environmental satellite and other data, and the GOES-10 move enables the United States to improve the quality and quantity of data available to our Latin American partners, especially for near-term forecasting," said retired Air Force Brig. Gen. John J. Kelly, Jr., NOAA deputy undersecretary for oceans and atmosphere, and the U.S. Permanent Representative to WMO.

Commodore Miguel Angel Rabiolo, general director of the Servicio Meteorológico Nacional of Argentina, said, "We are pleased with NOAA's response to the South American hydro-meteorological community's request for a more continuous data stream. The move of GOES-10 will allow us to optimize the availability of satellite information in order to improve weather monitoring and forecasting. Without any doubt, GEOSS, the Earth Observation Partnership of the Americas (EOPA) initiative, and the WMO Space Program play a critical role in the forecasting of severe meteorological events and in mitigating the effects of the natural disasters."

Repositioning the spacecraft is part the EOPA initiative. Additionally, the president of the WMO Regional Association for South America requested that NOAA consider the shift. Through EOPA, NOAA is exploring partnerships with countries and scientific organizations in the Americas and the Caribbean to share Earth observations, develop and strengthen data networks, and enhance delivery of benefits to society. By ensuring that users in the Americas and Caribbean can receive and fully utilize data from current and next generation observing systems, EOPA will help both policymakers and other citizens understand their environment and make informed decisions of economic and other societal importance.

Through the emerging GEOSS, NOAA is working with its federal partners and nearly 60 countries to develop a global monitoring network that is as integrated as the planet it observes.

**NOAA Atmospheric Monitoring Facility in Hawaii Marks Milestone
Mauna Loa Turns 50**

The NOAA Mauna Loa Observatory (MLO) in Hawaii marked its 50th anniversary as the premier atmospheric monitoring facility in the world. The facility was dedicated on June 28, 1956, as a site to measure solar radiation and atmospheric trace gases that could change Earth's climate. It later began monitoring air quality and changes in the stratosphere, the latter primarily to track the ozone hole and its recovery. MLO is best known for its record of the continuous rise of carbon dioxide in Earth's atmosphere, measurements originated by the late Charles David Keeling. MLO keeps tabs on more than 50 chemical species in Earth's atmosphere.

MLO data on a host of atmospheric gases and aerosols, solar radiation, and standard meteorological measurements are freely available online, many in real time.

STRATEGIES AND FUTURE PLANS

Weather and Water

The Department utilizes several strategies, identified in the five-year NOAA strategic plan, to improve accuracy and timeliness of weather and



NOAA image of researchers braving bitter-cold temperatures and snow squalls to dedicate the Summit building in December 1951.



NOAA image of the NOAA Mauna Loa Observatory in Hilo, Hawaii.

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 United States 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) improving NOAA's tsunami detection, warning, and mitigation capabilities and expanding its scope from the Pacific to the Atlantic and Caribbean; (3) conducting 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) expanding ozone air quality forecast to the rest of the nation; 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 Global Earth Observatory (GEO) and the U.S. Global Earth Observatory (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. The Department must further the examination of land-water interfaces from an ecosystem perspective to successfully address ocean and coastal issues. 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.

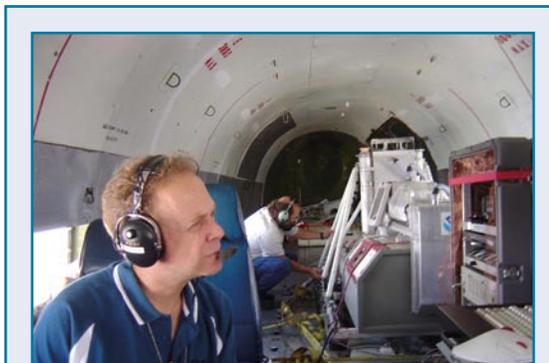
As the new century unfolds, new priorities for NOAA action are emerging in the areas of climate change, freshwater supply, and ecosystem management. In recent years, extreme drought and flooding conditions in large regions of the nation have combined to make improved water resources prediction an urgent requirement for the Department's future weather and climate mission.



PERFORMANCE SECTION * STRATEGIC GOAL 3

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.

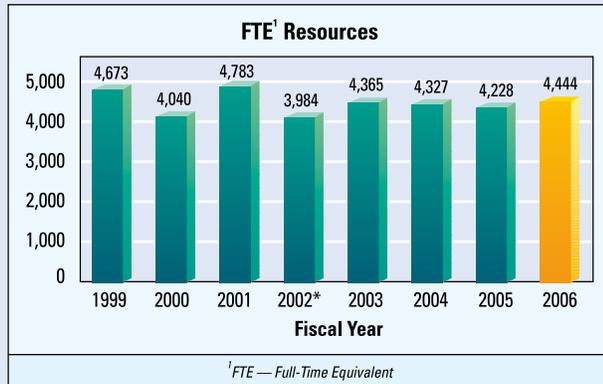
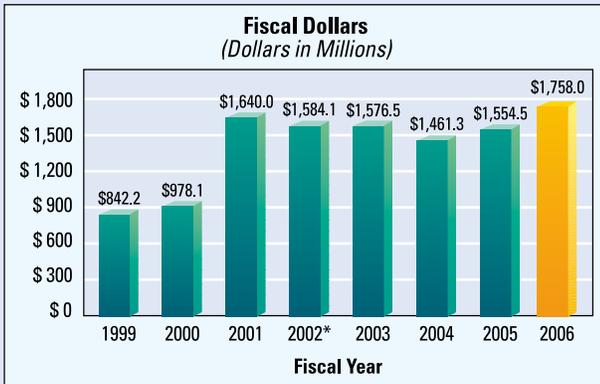


A NOAA scientist studies a real-time display of ozone and aerosol data for the New England Air Quality Study.

STRATEGIC OBJECTIVE 3.2

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

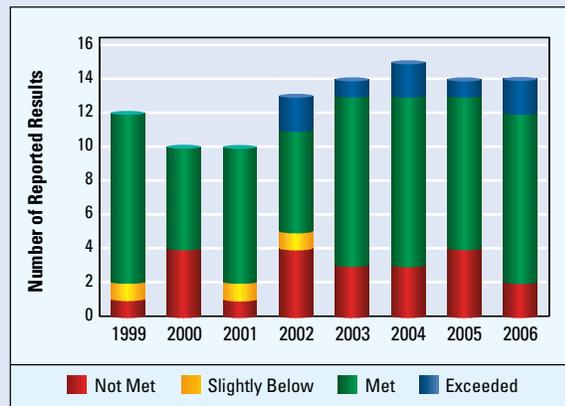
STRATEGIC OBJECTIVE 3.2 TOTAL RESOURCES



* In FY 2002, NOAA created a Mission Support goal that covered activities spanning both objectives and all four performance goals. The Mission Support goal does not currently have performance measures. Funding and FTE were split off from the other performance goals. Consequently, the funding and FTE for objectives 3.1 and 3.2 began to decline in FY 2002, with those amounts appearing in the Mission Support goal.

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, 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, the Department 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.

STRATEGIC OBJECTIVE 3.2 PERFORMANCE RESULTS



See Appendix A: Performance and Resource Tables for individual reported results.

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%) ● = NOT APPLICABLE	

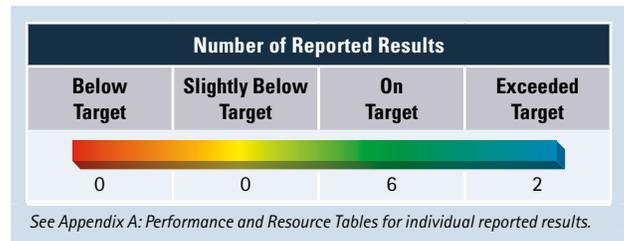


In addition, NOAA's mission to support safe and efficient transportation systems is crucial to the U.S. economy. Department information improves transportation efficiency and safety on roads, rails, and waterways. The Department supports commerce through marine, aviation, and surface weather forecasts; the availability of accurate and advanced Electronic Navigational 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 United States 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 2006, NOAA provided national and international leadership for the U.S. Ocean Action Plan by participating in 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 2006 include:

State, Federal Leaders Release Plan to Strengthen Protection for the Gulf of Mexico Within Three Years **Governors' Action Plan Outlines Projects for a Healthy and Resilient Coast**

Top environmental officials from the five Gulf Coast states and 13 federal agencies unveiled a plan to strengthen environmental protection for the Gulf of Mexico and further the ongoing recovery and rebuilding effort after the devastating effects of the 2005 hurricane season. The Governors' Action Plan for Healthy and Resilient Coasts is a framework and guide for meaningful and sustained progress in the shared stewardship of the Gulf of Mexico by the U.S. Gulf states.

The state-federal alliance outlined 11 actions to improve and protect water quality, restore coastal wetlands and estuarine ecosystems, reduce pollution and nutrient loading, identify Gulf habitats to support coastal management, and expand environmental education. They include:

- ◆ Improving detection and forecasting of harmful algal blooms.
- ◆ Improving government efficiency in water quality monitoring.
- ◆ Increasing the safety of Gulf communities by better understanding the risks of localized sea level rise, storm surge and subsidence.
- ◆ Creating and providing access to interactive habitat maps for priority Gulf of Mexico habitats.
- ◆ Implementing nutrient reduction activities during Gulf recovery and rebuilding to restore key coastal watersheds impaired by excessive nutrient inputs.
- ◆ Galvanizing local communities to protect the Gulf of Mexico through targeted education.

Entangled Humpback Whale Rescued in Hawaiian Waters

Federal and state officials, along with local volunteers, teamed up to free a humpback whale from a life-threatening entanglement. Members of the National Marine Fisheries Service (NMFS) and Hawaiian Islands Humpback Whale National Marine Sanctuary, and Hawaii Department of Land and Natural Resources, along with the community-based Whale Disentanglement Network unraveled lines dragging 25 feet from the whale's mouth and freed the humpback whale, which was located off the north side of the island of Lana'i. The whale was entangled in 5/8 inches and 3/4 inches diameter lines coming from the left side of its mouth. Two large red buoys and a smaller bullet buoy were part of the gear dragging from the whale, threatening the health of the animal.



NOAA image of oil booms being placed in Lake Charles, LA., on September 29, 2005, following Hurricane Rita.

"Our partnership with the Gulf of Mexico Alliance allows us to explore better mechanisms for applying a regional ecosystem approach to management and for using integrated coastal and ocean observations for management purposes. NOAA has committed experts and resources to help the Alliance in four ways. We will expand our real-time harmful algal bloom forecasts to Texas and Mexico, hold Gulf-wide habitat restoration workshops, create a Web-based priority habitat information system, and help the states demonstrate the importance of ensuring the environmental and economic resilience of the Gulf."

*- Conrad C. Lautenbacher, Jr.,
Ph.D., Undersecretary of Commerce
for Oceans and Atmosphere and
NOAA Administrator*



NOAA image of efforts to disentangle a humpback whale in Hawaiian waters.

The Hawaiian Island Disentanglement Network has experienced and trained personnel that are authorized to safely cut large whales free of gear and marine debris using specially designed tools and techniques. The network in Hawaii is a partnership of federal, state and local members that also includes staff from NOAA Fisheries Pacific Islands Regional Office and the Marine Mammal Health and Stranding Response Program. The disentanglement network operates in other parts of the United States and its regional teams have successfully freed more than 50 large whales over the years along the east coast of the United States and Canada, the Caribbean, Alaska and in Hawaii without a single serious injury.

While cutting an animal free of a life threatening entanglement may save the animal, it is not the long-term answer to the problem. Preventing entanglements is actually the ultimate solution, and cutting whales free and documenting entanglements in the meantime provides valuable information to help us prevent entanglements in the future.

NOAA Implements Harmful Algal Bloom Forecast System for Texas Gulf Coast

A new harmful algal bloom forecast system developed by NOAA is now in place along the Gulf Coast of Texas. The announcement of the ecological forecast program was made at the meeting of the Gulf of Mexico Alliance, a federal-state partnership to address critical coastal issues facing the Gulf states. The system generates forecasts weekly to determine the current and future location and intensity of blooms, and the likely impacts to the environment. "Because these blooms contain neurotoxins, they threaten human and ecosystem health, and can substantially impact coastal economies," said Margaret A. Davidson, director of the NOAA Coastal Services Center and the NOAA delegate to the alliance. "Using a combination of satellite and in-place ocean and coastal observational data for ecological

forecast systems shows the value and need for the development of an IOOS, one that can assist in addressing the threats to our health and our economy caused by harmful algal blooms."

NOAA Announces Expanded Coral Warning System Meets International Partnership Goal of President's Ocean Action Plan

NOAA announced that it will expand regional coverage for the NOAA Coral Reef Watch Satellite Bleaching Alert monitoring system from six Caribbean sites to a total of 24 sites throughout the United States and international Caribbean. This is one of the Administration's Ocean Action Plan initiatives that call for development of new international partnerships to enhance the management of coral reefs. The expansion was made possible through collaborative efforts with NOAA, the World Bank, and the Global Environment Facility.

The alert system is part of a growing number of in-place components of an integrated ocean observing system, which in turn is helping develop a coordinated ocean research plan and advancing international capacity building.

The warning system will give local officials advance warning that a bleaching event is about to occur. With this advance notice, officials can take measures to prevent human activity, such as diving, boating and recreational fishing, from adding to the stress of higher sea temperatures already affecting the coral reefs.

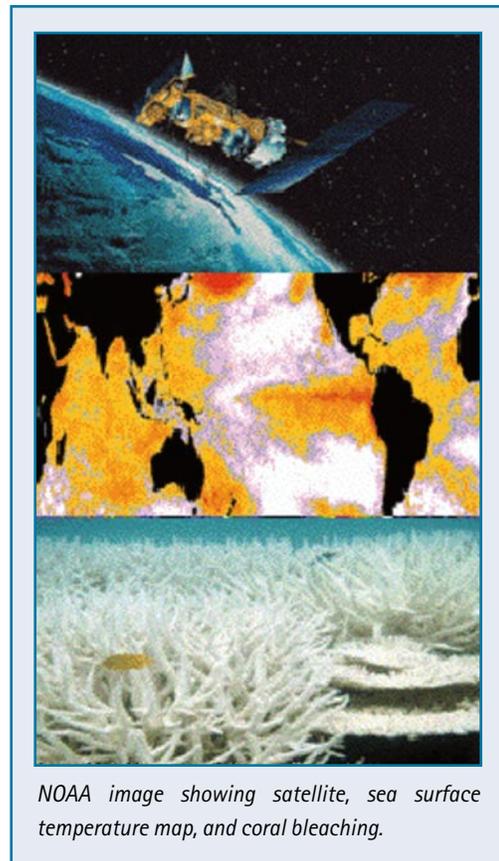
Coral bleaching is associated with a variety of stresses, including increased sea surface temperatures. This causes the coral to expel symbiotic micro-algae living in their tissues — algae that provide corals with food. Losing their algae leaves coral tissues devoid of color, and thus the coral appears to be bleached. Prolonged coral bleaching (more than a week) can lead to coral death and the subsequent loss of coral reef habitats for a range of marine life.

Advance warnings of the oncoming event were first reported in July 2005 by the NOAA Coral Reef Watch Satellite Bleaching Alert system; the first bleaching was seen in late August 2005 in the Florida Keys. The bleaching spread throughout much of the eastern Caribbean, from Texas in the north, to Tobago in the south, and Belize in the west. Initial reports indicated 85 to 95 percent of coral colonies were bleached in some reef areas.

The U.S. Coral Reef Task Force includes 12 federal agencies; the governors of seven states, territories, and commonwealths; and heads of the three Pacific Freely Associated States. The Task Force is co-chaired by the Secretary of Commerce and the Secretary of the Interior.

NOAA Maps, Removes Hundreds of Tons of Marine Debris from Hawaiian Islands

From 2000 to 2006, NOAA's Coral Reef Conservation Program (CRCP) and partners have led efforts to locate and remove over 542 tons of marine debris from the Northwestern Hawaiian Islands (NWHI). These islands, now part of a Marine National Monument, are particularly prone to the accumulation of floating debris due to their central location in the North Pacific gyre. Most of the debris is derelict fishing gear that entangles and kills endangered Hawaiian monk seals, endangered green sea turtles, coral, and other wildlife. Future operations will include the removal of new marine debris accumulations each year. In 2006, CRCP scientists also led efforts to assess the extent and impact of marine debris in the main Hawaiian Islands for the first time. Hot-spot debris areas were located via aerial surveys, and these data used to create maps of debris distribution and abundance. Surveys of Kauai, Molokai, Lanai, Maui, Oahu, and the Big Island of Hawaii are now complete. As in the NWHI, the marine debris problem in the main Hawaiian Islands has proven to be greater than expected, with over 650 debris sites reported. These maps will aid communities and federal, state, and local coastal managers to identify and prioritize clean-up areas and target sites for future monitoring.



NOAA image showing satellite, sea surface temperature map, and coral bleaching.

NOAA Finalizes Coastal Zone Management Act (CZMA) Federal Consistency Rule

In January 2006, NOAA published in the *Federal Register* the Final Rule revising NOAA's CZMA federal consistency regulations. This is a major accomplishment for NOAA as well as DOI. The Final Rule is the result of a three-and-a-half-year effort to respond to the Vice President's Report of the National Energy Policy Development Group, as well as the Energy Policy Act of 2005. The rulemaking process involved a close working partnership with DOI; greatly improving interagency relations; and involving coordination with the Department of Energy (DOE), the Federal Energy Regulatory Commission, the Vice President's Office, the Council on Environmental Quality, and the Office of Management and Budget (OMB). The Final Rule contains improvements to CZMA federal consistency regulations. The revised regulations continue to balance the state-federal-private interests embodied in the CZMA, while providing for more efficient approval of both energy and non-energy projects by providing greater clarity, transparency, and predictability in the regulatory process. The Final Rule fully maintains the authority of coastal states to review proposed federal actions that have reasonably foreseeable effects on a state's coastal uses or resources, as provided for in the CZMA and NOAA's implementing regulations, as revised in 2000.

National Marine Sanctuaries Undergo Management Update

NOAA released the Gray's Reef National Marine Sanctuary Final Management Plan. The plan updates research, monitoring, enforcement, exploration, administration, and education programs that are intended to enhance conservation with compatible public and private uses in Gray's Reef Sanctuary. There are two notable changes—prohibiting anchoring in the sanctuary and revised regulations to allow fishing only with rod and reel, handline, and spearfishing gear without powerheads. The regulations apply to all sanctuary users and were adopted after extensive public input including recommendations from Gray's Reef Sanctuary Advisory Council, other state and federal agencies, and approximately 1,800 public comments. Similarly, NOAA released a draft document for a revised management plan and proposed rule in Channel Islands National Marine Sanctuary to establish no-take and limited take marine zones.

NOAA Releases Report on Status of U.S. Marine Fisheries for 2005

NOAA released a report on the status of U.S. marine fisheries for 2005. The government report shows both progress in rebuilding overfished species and response of fisheries managers to slow fishing rates for species that were found in 2005 to have above-target harvests. Each year, NOAA announces the state of U.S. fisheries to inform Congress and the U.S. public of the Agency's progress in restoring fish stocks to sustainable population levels. The annual report tracks both population levels and harvest rates for species caught in federal marine waters, between three and 200 miles off U.S. coasts. In 2005, NOAA scientists determined population levels for 206 fish stocks and multi-species groupings known as complexes. Of these, 152 (74 percent) were not overfished. NOAA scientists also determined the harvest rates for 237 stocks and found that 192 (81 percent) were not subject to overfishing.

NOAA has implemented plans to rebuild the 54 overfished stocks within the last eight years which, in some cases, is not enough time for them to recover from previous decades of substantial overfishing. Although overfishing still occurs on 45 fish stocks and complexes, the regional fishery management councils have been taking action to scale back the rate of overfishing. In many cases, rebuilding plans phase out overfishing over time to prevent major social and economic impacts to fishing communities, as required by the Magnuson-Stevens Act.

NOAA scientists collect and analyze data to determine population levels and fishing rates for the major species targeted by recreational and commercial fishermen. While NOAA does not evaluate populations of every marine species, the Agency continues

to assess the health of more species each year. In 2005, new assessments helped NOAA determine population levels and/or fishing rates for 20 additional stocks and stock complexes.

When a fish stock is determined to be either overfished or subject to overfishing, the regional fishery management councils must develop a plan to correct the problem. The councils were notified of the four new overfished and seven new overfishing determinations for 2005, and have taken corrective action or are scheduled to take action this summer.

NMFS is dedicated to protecting and preserving the nation's living marine resources and their habitats through scientific research, management and enforcement. NMFS provides effective stewardship of these resources for the benefit of the nation, supporting coastal communities that depend upon them, and helping to provide safe and healthy seafood to consumers and recreational opportunities for the U.S. public.

Protecting Essential Fish Habitat

NOAA made important strides in designating and protecting essential fish habitat by establishing the 279,114 square nautical mile Aleutian Islands Habitat Conservation Area and designating 150,000 square miles of Pacific marine waters from Canada to Mexico as essential fish habitat. The Aleutian Islands Habitat Conservation Area—an area of the Alaskan sea floor approximately the size of Texas and Colorado combined—was closed to bottom-contact fishing gear to protect sensitive habitats, including vulnerable coral gardens first discovered by NOAA scientists in 2002. The essential fish habitat designations in the Pacific, and the accompanying bottom gear restrictions, will serve to replenish stocks of Pacific Coast groundfish.

Habitat Restoration

NOAA's Habitat Program supported the restoration of 7,598 acres of habitat in 2006. A significant portion of this restoration was accomplished through NOAA's Community-based Restoration Program through partnerships with state, local, tribal, and non-governmental organizations (NGO). These partnerships leverage funds, often three to five times the NOAA contribution. Celebrating its 10-year anniversary this year, the Community-based Restoration Program has implemented more than 1,300 coastal restoration projects restoring over 30,000 acres and 900 river miles with the contribution of more than 740,000 hours of community participation. The Agency also was responsible for opening 200 miles of rivers and streams to fish passage in 2006. The bulk of these miles were derived from the Community-based Restoration Program and the Agency's hydropower program.

New Electronic System for Streamlined Fisheries Data Reporting Implemented

The Alaska fishing industry has started to electronically report landings of commercial fish and shellfish using one system shared by several agencies. The new Interagency Electronic Reporting System moves Alaska fisheries reporting into the modern era, leaving behind paper fish tickets and consolidating the reporting requirements of NMFS, the State of Alaska Department of Fish and Game, and the International Pacific Halibut Commission. The new system removes reporting duplications and will make reporting more straight forward for fishermen, processors, and managers.



Limited Access Program Implemented

The American Samoa Longline Limited Access Program was implemented December 1, 2005. In response to a dramatic increase in the number of longliners operating in the waters around American Samoa, NOAA now requires an American Samoa longline permit to catch pelagic fish with longline gear around American Samoa. The program will prevent fishing gear conflicts, maintain average albacore catch rates in the domestic longline fishery at optimum yield, provide for sustained community participation, ensure opportunities for future participation in the fishery by indigenous American Samoans, minimize bycatch, and preclude waste of pelagic management unit species.

Completion of the Consolidated Atlantic Highly Migratory Species Fishery Management Plan

NMFS completed the Consolidated Atlantic Highly Migratory Species Fishery Management plan in 2006. This rulemaking addresses phase 1 of the 5-year essential fish habitat review, workshops, time/area closures, overfishing of finetooth sharks, rebuilding of northern albacore tuna, bluefin tuna effort controls and in-season actions, fishing years, authorized gears, billfish mortality, and some regulatory housekeeping issues.

Longline Catcher Processor Non-Pollock Groundfish Buyback Implemented

NOAA published the final rule for the longline catcher processor non-pollock groundfish buyback in the Federal Register on September 29, 2006. The program would provide a loan of up to \$36 million in exchange for relinquishing non-interim Federal License Limitation Program groundfish licenses endorsed for Bering Sea or Aleutian Islands catcher processor activity, as well as any present or future claims of eligibility for any fishing privilege based on such permit. This project had an extremely ambitious time frame which included completing the rulemaking process in less than six months.

Response to Fishery-Related Impacts of Hurricane Katrina

NOAA mounted a multi-pronged effort to address fishery-related impacts in the Gulf of Mexico. In August 2006, NOAA awarded \$128 million, the largest grant in its history, to the Gulf States Marine Fisheries Commission to reseed and restore oysterbeds and to conduct fisheries monitoring in the Gulf. NOAA also conducted research surveys and monitored the seafood coming from the Gulf to ensure it was safe from PCBs, pesticides, and fossil fuels. Changes in species abundance as a result of the general decrease in fishing effort continue to be tracked monthly and will be used to help managers in the future to determine optimal effort. Marine debris removal efforts focused on protecting fishing grounds. NOAA also completed survey of damage to the industry-related infrastructure in Gulf states.

Advancing Ecosystem Approaches to Management

NOAA scientists are now developing and implementing ecologically broad models to assess living marine resources in the context of the entire ecosystems in which they exist. These ecosystem assessments and forecasts are a key component of reaching NOAA's strategic goal of implementing an ecosystem approach to management. The first of these assessments focused on the Bering Sea, the Gulf of Alaska, and the Gulf of Maine-Georges Bank-Middle Atlantic Bight ecosystems. Future ecosystem assessments will include sub-regions within the California Current, Pacific Islands Complex, South Atlantic, Gulf of Mexico, Caribbean and Antarctic Large Regional Marine Areas.



NOAA also led a collaborative effort to develop *Fisheries Ecosystem Planning for Chesapeake Bay*. Published by the American Fisheries Society in the fall of 2006, it is a guide to ecosystem-based resource management—a conceptual framework that promotes incorporation of established ecosystem principles into both fisheries and nonfisheries management. Revisions to existing Bay-wide fisheries management plans are under way to begin the transition from traditional single species plans, to multispecies plans, and finally true ecosystem-based fisheries management plans.

Protecting Right Whales

NOAA published a proposed rule describing regulations to reduce the risk of collisions between North Atlantic right whales and ocean-going vessels. The rule, negotiated with federal agencies and the shipping industry, proposes a speed restriction of 10 knots or less in three major regions along the U.S. east coast, based on seasonal occurrence of whales in each area, as well as commercial ship traffic patterns and navigational concerns. The right whale population numbers about 300 individuals, making it one of the most critically endangered species in the world. Existing conservation measures have not been sufficient to reduce right whale deaths and serious injuries associated with ship strikes.

Energy Policy Act

NOAA successfully implemented the hydropower provisions of the Energy Policy Act for two high priority and high profile hydropower projects: the Klamath (CA/OR) and Santee Cooper (SC) projects. Fish passage past the Klamath project would restore access to more than 350 miles of historic habitat in the Klamath Basin for salmon, lamprey, and resident trout. Historically, the Klamath Basin has been the third most productive salmon river system on the west coast. Fish passage past the Santee Cooper Project would restore access to over 300 miles of historic habitat in the Santee River Basin for species such as American shad, river herring, striped bass, and the endangered shortnose sturgeon.

New Endangered Species Listing

NOAA listed the southern resident killer whale as an endangered species in November 2005. NOAA has worked to further its understanding of this species distribution, abundance, and fecundity, and the causes for its decline in the Pacific Northwest. Threats to this species include vessel interactions in Puget Sound (whale watching) and a severe decline of salmon, its primary nutritional source.

Monk Seal Protection Efforts

NOAA scientists in the Pacific Islands carried out population surveys and assessments of endangered Hawaiian monk seals in the recently designated Northwestern Hawaiian Islands Marine National Monument. These assessments and other conservation efforts are part of an ongoing effort to prevent extinction of this species. Monk seal numbers have declined to 1,200 individuals, and their numbers are expected to fall to or below 1,000 by 2011. NOAA took twin female monk seal pups into to captivity in early summer 2006 for rehabilitation and future release back to the wild. Twinning in monk seals is rare, and pup survival has been low for more than 10 years. Because Hawaiian monk seals are critically endangered, each individual represents a significant contribution to the population; therefore, these pups, which would have little chance of survival without human intervention, were removed for rehabilitation.



Assessing Excess Fishing Capacity

Excess fishing capacity is a key obstacle to meeting the objectives of sustainable fisheries. In March 2006, NOAA completed the report, *Assessments of Excess Fishing Capacity in Select Federally-Managed Commercial Fisheries*. The report provides assessments of excess fishing capacity for select federally-managed fisheries, and it demonstrates methods for assessing excess fishing capacity that can be used in other fisheries. Overall, the assessments found evidence of significant excess capacity in the majority of fisheries and fleets analyzed.

Rim of the Pacific (RIMPAC) Incidental Take Authorized

NMFS worked closely with the U.S. Navy to issue a Marine Mammal Protection Act (MMPA) incidental take authorization for the RIMPAC training exercises conducted in waters around Hawaii in July of 2006. RIMPAC is a multi-national training exercise, led by the United States, that includes the use of tactical military sonar in anti-submarine warfare. This was the first-ever MMPA incidental take authorization issued to the U.S. Navy for military sonar.

Seismic Surveys Authorized

NMFS worked closely with members of the oil and gas industry to authorize several seismic surveys of potential oil and gas resources on the outer continental shelf in the Alaskan Arctic in FY 2006. These surveys were conducted in the Beaufort and Chuckchi Seas and represent important steps towards future development and production of offshore oil and gas resources in the region.

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 2006 include:

**NOAA Study Shows Value of PORTS® Program to Marine Transportation Industry
Tampa Bay System Is First to Quantify Economic Benefits**

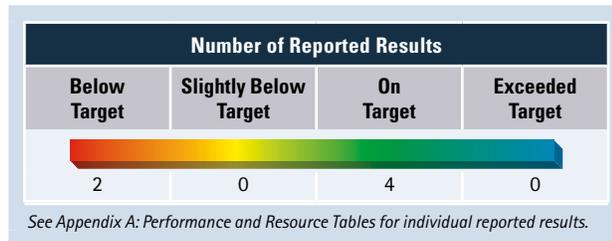
The Tampa Bay economy receives more than \$7 million a year in savings and direct income from the operation of the Physical Oceanographic Real-Time System (PORTS®), according to a new NOAA sponsored study. The report details the first study of the navigational aid, which is in operation at 13 major ports across the United States. Tampa’s PORTS® system provides accurate real-time oceanographic information tailored to the specific needs of the 6,700 commercial vessels transiting Tampa Bay each year.

The PORTS® system is a good example of how research and observing system development expertise can be applied to support safe, efficient, and environmentally sound marine transportation. Tampa Bay PORTS® is an excellent example of NOAA’S creativity and technological expertise. The Tampa Bay maritime users have realized enhanced navigational safety while transiting the long channels of the harbor. This has resulted in more efficient loading logistics, enhanced vessel traffic management, and better protection of the environment and citizens of the Tampa Bay region. It is especially helpful for both planning and maintaining the flow of maritime commerce during periods of disturbed weather conditions.

This study validated what has been reported for anecdotally some time. It quantified the benefits as being far greater than the cost of the system and demonstrates that the system provides valuable support for the safe and efficient maritime commerce necessary for a healthy economy. The benefits are not just good, they are impressive.

The most significant change in the 1990s in maritime shipping operations in the bay occurred when Harbor pilots onboard vessels began using portable computers to access PORTS® in real-time. During this time, groundings decreased by half. With tankers accounting for 2,200 transits per year, the 50 percent reduction in groundings translates into a conservative estimate of \$2.8 million in avoided costs annually. The PORTS® system was installed in Tampa in 1990.

The system provides real-time data available to load ships to drafts 12 inches or more above what had been considered the safe guideline. The additional capacity for the phosphate trade alone in Tampa Bay could equal an increased benefit of \$1.1 million each year.



Even though hazardous chemical spills in Tampa Bay are rare, at a conservative estimate the additional efficiency and accuracy of applying these data would avoid nearly \$1.8 million per year in losses.

PORTS® data are used to enhance area weather and coastal marine forecasts, particularly coastal flooding. Tampa Bay is considered one of the most storm surge threatened areas in the country because of its large coastal population and its geography. Applying PORTS® data risk formulas for forecasts in the area gives it an estimated yearly value of \$2 million.

Recreational boaters, using better real-time information available through PORTS®, may make more excursions, bringing an estimated \$946,000 to the economy each year. Fishermen looking for water temperature and tidal data to improve their catch contribute another estimated \$150,000 per year in port area income.

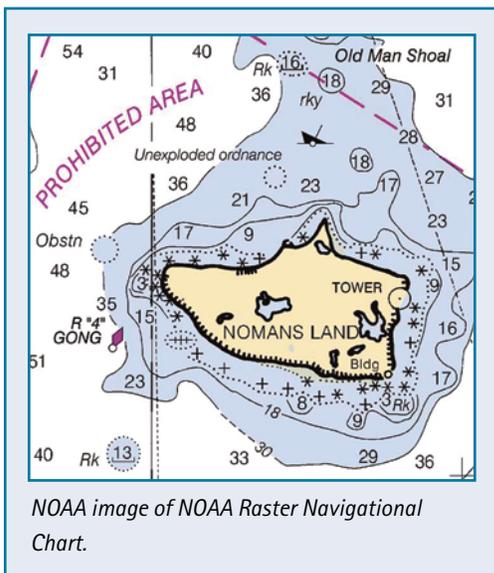
The report was authored by Hauke Kite-Powell, Ph.D., of the Woods Hole Oceanographic Institute Marine Policy Center, who designed the method of identifying as well as collecting and quantifying the data. The Tampa study was the first application of the methodology, which NOAA plans to use in evaluation of PORTS® systems in Houston in 2006 and New York in 2007.

PORTS® systems also operate in San Francisco Bay; Chesapeake Bay, which serves Delaware, Maryland, and Virginia; Narragansett Bay, RI; Soo Locks, MI; Los Angeles/Long Beach, CA; Delaware River and Bay; Tacoma, WA; Port of Anchorage, AK; New Haven, CT, and the Lower Columbia River, bordering Oregon and Washington.

**Mariners Can Chart Courses At No Charge
NOAA Offers Free Navigational Charts on Web**

Mariners can now get free electronic downloads of NOAA Raster Navigational Charts (RNC). A raster chart is a digitally scanned image of a paper nautical chart used by mariners for navigation.

The raster navigational charts contribute to safe, efficient, and environmentally sound marine transportation. By providing these charts for free, NOAA offers easy access to mariners to make navigation safer in U.S. waters.



Before the 1990s, NOAA's paper nautical charts were created and maintained by hand engraving photographic images. NOAA electronically scanned all of its paper charts in the 1990s. Recently, the raster charts were incorporated into international standards for electronic chart systems and are now accepted as meeting international chart regulations for Safety of Life at Sea (SOLAS) vessels. SOLAS is a designation of the International Maritime Organization and usually is reserved for large merchant ships.

NOAA will produce official raster charts and deliver weekly updates with Notice to Mariners—notices containing changes in local navigational information. The NOAA Web site will contain a fully updated raster chart for each chart in NOAA's suite. A cumulative file of updates with Notice to Mariner information for each chart edition will be posted on the Web site.

NOAA will distribute the free raster charts and updates the same way it distributes NOAA ENC's online.

The NOAA Coast Survey anticipates establishing a program where commercial value-added providers may download the raster charts for free, compress, encrypt, and/or package them with additional data or services, and then may sell that product. By adhering to a set of NOAA-specified practices, these raster charts will retain their official status and their original high quality and accuracy. No date has been set by which the value-added redistributors program will be in place.

NOAA also plans to make the raster charts available on the Web site in an easy-to-view format for non-navigational purposes, such as port security and management, marine boundary delineation, coastal zone management, and environmental assessment and spill response.

NOAA Satellites Play Key Role in Rescues in 2006 More Beacons Registered During The Year

As summer weather brings out more boaters, campers, and hikers, NOAA satellites and search and rescue staff are prepared to handle distress signals from emergency locator beacons. NOAA's polar and geostationary satellites, along with Russia's Cospas spacecraft, are part of the sophisticated, international Search and Rescue Satellite-Aided Tracking System, called COSPAS-SARSAT. The SARSAT system uses a network of satellites to quickly detect and locate distress signals from emergency beacons onboard aircraft, boats, and from hand-held personal locator beacons. When a satellite pinpoints a distress location within the United States, or its surrounding waters, the information is relayed to the SARSAT Mission Control Center in Suitland, MD, and sent to a Rescue Coordination Center operated by either the U.S. Air Force (for land rescues), or U.S. Coast Guard (for water rescues).

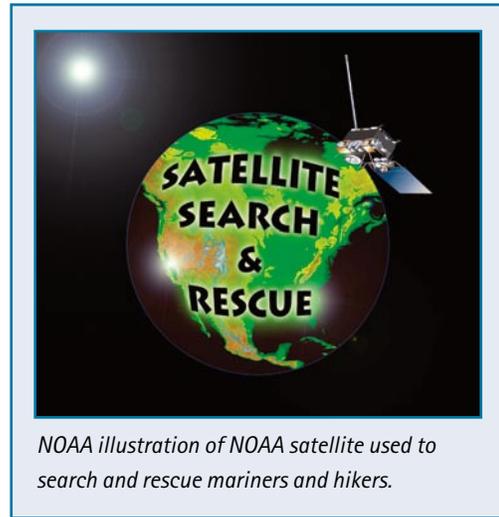
"This program stands vigilant so that people can responsibly take part in outdoor recreation with less fear of harm, injury or death," said Ajay Mehta, NOAA's SARSAT program manager. "SARSAT is crucial because it can literally be the difference between life and death."

The system uses a constellation of satellites to detect and locate distress signals from emergency beacons onboard aircraft, boats, and from hand-held personal locator beacons. Once the satellites pinpoint the location of the distress within the United States or surrounding waters, the information is relayed to the SARSAT Mission Control Center in Suitland, MD, and sent to a Rescue Coordination Center, operated by either the U.S. Air Force (for land rescues), or U.S. Coast Guard (for water rescues).

"The SARSAT program is doing exactly what it was intended to do—save lives," said retired Navy Vice Admiral Conrad C. Lautenbacher, Ph.D, Undersecretary of Commerce for Oceans and Atmosphere and NOAA administrator. "NOAA satellites and the quick responses of the U.S. Air Force and Coast Guard continue to be the difference between life and death."

Since its creation in 1982, COSPAS-SARSAT has been credited with more than 18,500 rescues worldwide, and 5,107 within the United States and its surrounding waters. Most of the rescues each year happen at sea. Alaska led the nation with 65 rescues in 2005; followed by Florida (49 rescues); and Louisiana, California, and Hawaii rounding out the top five with 13, 12, and 10 saves respectively.

- ◆ On January 15, a 406 MHz distress beacon was detected at a position of 17 57 north, 42 39 west. This position is 1,300 nanometers (nm) east of the Caribbean Islands in the middle of the Atlantic Ocean. The two persons onboard the vessel activated their emergency position indicating radio beacon (EPIRB) after the vessel started taking on water. The two people



NOAA illustration of NOAA satellite used to search and rescue mariners and hikers.



PERFORMANCE SECTION * STRATEGIC GOAL 3

were part of the Woodvale TransAtlantic Rowing Race. The boat named the AMERICAN FIRE capsized in heavy seas. Their lifeboat was lost, but they did manage to climb atop their overturned boat. The 180-foot two-masted sailing vessel, the STAVROS S. NIARCHOS, sailed to the scene and rescued the two people. Two SARSAT rescues.

- ◆ On February 27, at 0133 coordinated universal time (UTC), the COSPAS-SARSAT system detected a 406 MHz distress beacon located 52 nm south of Wainwright, AK. North Slope Borough Search and Rescue dispatched a two-man search team, as the weather was too severe for helicopter launch. The beacon was activated when the snowmobile broke down. The victim was rescued 14 hours later by the rescue team. One SARSAT rescue.
- ◆ On May 20, at 1859 UTC, the COSPAS-SARSAT system detected a 406 MHz distress signal 10 nm south of Pensacola Pass, FL. The crew of the pleasure craft CISCO KID activated their EPIRB when the vessel capsized. Using the point-of-contact information in the registration data, Coast Guard District Eight determined that the vessel was underway. Using the location data provided in the SARSAT alert messages, Coast Guard Station Pensacola launched a 41-foot utility boat which rescued the five people from the vessel's life raft. Five SARSAT rescues.
- ◆ On June 2, the COSPAS-SARSAT system detected a 406 MHz distress beacon on Montaque Island, AK. Coast Guard District 17 launched a HH-60 from Air Station Kodiak. On arrival, the helicopter located a crashed Cessna 182. The helicopter picked up the pilot and his dog and transported them to Valdez. One SARSAT Rescue.
- ◆ On July 19, the COSPAS-SARSAT system detected a 121.5 MHz distress beacon 42 nm northwest of Bettles, AK. This was within the Gates of Arctic National Park. A couple rafting on the Wild River activated their beacon after the raft overturned. The National Park Service arranged for a helicopter to recover the distressed people. Two SARSAT Rescues.
- ◆ On July 24, at 0833 UTC, the COSPAS-SARSAT system detected a 406 MHz distress signal 240 nm south of Adak, AK. Coast Guard District 17 received a request for assistance from the 654-foot Singapore flagged, automobile carrier COUGAR ACE. The vessel was listing approximately 80 degrees to port with 23 persons aboard. Because of several conflicting position reports, the Coast Guard directed the crew of the M/V COUGAR ACE to activate their 406 MHz EPIRB. Once the EPIRB alert position was received the position conflict was resolved. The Coast Guard launched an HH-60 Jayhawk rescue helicopter and crew from Air Station Kodiak. They worked with two Air National Guard Pavehawk helicopters with rescue crews from Kulis Air National Guard Base and successfully hoisted the 23 crewmembers of the COUGAR ACE to safety. Twenty-three SARSAT Rescues.

Older emergency beacons, which operate on the 121.5 and 243 megahertz frequency, will be phased out by early 2009, when 406 megahertz beacons will be the standard. Emergency beacon owners can register their devices online using the National Beacon Registration Database.

NOAA's National Geodetic Survey (NGS) Captures Post-Hurricane Imagery

NOAA provided hurricane damage assessment by responding rapidly to two tropical systems that made landfall along the United States coastline. Following the landfall of Hurricane Rita, NOAA performed aerial surveys that collected over 3,000 high resolution digital images from Galveston, TX, to just west of the Lake Charles, LA. NOAA responded to Hurricane Wilma by collecting approximately 1,600 high resolution digital images, covering selected areas from the Naples, FL vicinity south through the Florida Keys. The high resolution aerial imagery collected during both incident response efforts was disseminated via the Internet to federal, state, and local government agencies, as well as the general public within 24 hours of acquisition. The data was critical to national and local response efforts and to the timely assessment of personal and property damages sought by the general public and insurance industry.

NOAA's National Geodetic Survey (NGS) Contributes to Navigation Safety

NOAA's NGS's Coastal Mapping Program (CMP) evaluated 11 of the 40 Priority Port Areas (27.5 percent) for changes in shoreline and critical port infrastructure. This was done by comparing the latest NOAA ENC and raster chart products to new commercial satellite imagery and aerial photography, as part of the Coast and Shoreline Change Analysis Program (CSCAP). In addition, the CMP delivered updated shoreline and coastal feature data for over 4,000 miles of U.S. shoreline, compiled from aerial and satellite imagery, for application to NOAA nautical charts and to support hydrographic survey operations. Aerial imagery acquisition, data processing, and shoreline compilation were accomplished through a combination of in-house work and external contracts.

NOAA's Aviation Weather Service Aligns Efforts with Next Generation Air Transportation System Vision

This spring, the Joint Planning and Development Office's (JPDO's) Weather Integrated Product Team (WxIPT), led by the Department, released its *Next Generation Air Transportation System (NGATS) Aviation Weather Concept of Operations*. This document draws upon the experience of members of the JPDO's constituent agencies, industry, and academia to present a comprehensive view of the future of aviation weather and its use in the NGATS. The vision of this concept of operations is to integrate weather information into the automated and manual decision-making processes available to the users of the National Airspace System as they plan and execute flights. The Aviation Services Branch of NOAA's NWS is aligning its planning activities with this vision to ensure compatibility with the JPDO effort and the user community's need for aviation weather services. The full document can be found at <http://techhangar.jpdo.aero>.

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.

- ◆ 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.



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.



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.

- ◆ 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; NGOs; 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 195 NWLON stations with real-time operational capability at the top 175 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.

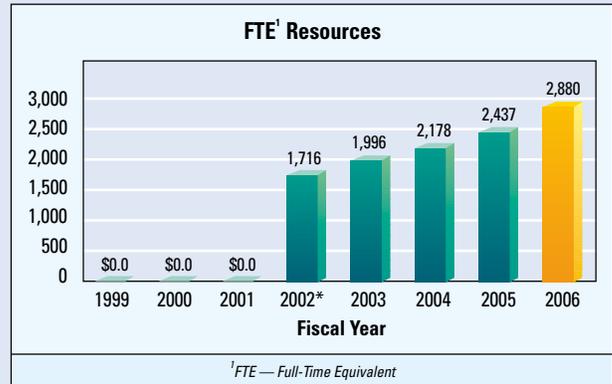
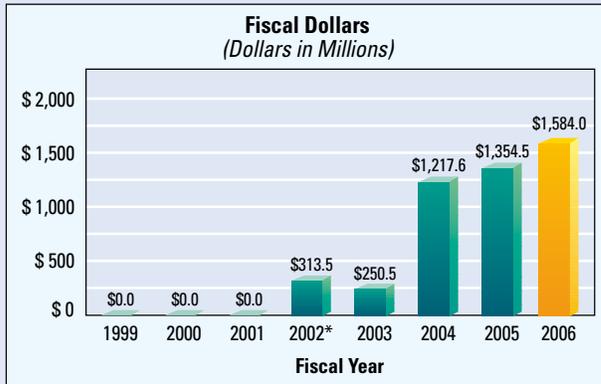
CHALLENGES FOR THE FUTURE

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 stakeholders 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.

MISSION SUPPORT GOAL

Provide critical support for NOAA's mission

MISSION SUPPORT TOTAL RESOURCES



¹FTE — Full-Time Equivalent

* In FY 2002, NOAA created a Mission Support goal that covered activities spanning both objectives and all four performance goals. The Mission Support goal does not currently have performance measures. Funding and FTE were split off from the other performance goals. Consequently, the funding and FTE for objectives 3.1 and 3.2 began to decline in FY 2002, with those amounts appearing in the Mission Support goal.

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

110 Students Spend Summer with NOAA on Hollings Scholarships

Students from colleges and universities in 36 states and Puerto Rico are spending most of their summer in NOAA laboratories or programs as part of the Hollings Scholarship Program. The scholarship program, named after former Senator Ernest F. Hollings of South Carolina, a strong supporter of science education, began in 2005 with the summer internship assignments starting in the summer of 2006.

The program began May 30, 2006 and ended the first week of August 2006 with a series of workshops in Silver Spring, MD. The 110 students are engaged in a wide variety of projects, including conducting fisheries surveys, engineering remotely operated underwater vehicles, studying the carbon flux in marine waters, forecasting seabreeze and lightning, monitoring tornado processes, analyzing storm data, identifying acoustic signatures of marine mammals, evaluating sea bass habitat, and participating in studies of the Antarctic climate.

These scholarships provide the hands-on training and experience to encourage undergraduates to pursue study in the NOAA fields, such as atmospheric or oceanic science, research, and technology. NOAA is very pleased with the quality and the quantity of scholarship recipients in this first year.



NOAA theme collage.

The NOAA Hollings scholarship program is designed to increase undergraduate training in oceanic and atmospheric science, research, technology, and education and foster multidisciplinary training opportunities; to increase public understanding and support for stewardship of the ocean and atmosphere and improve environmental literacy; to recruit and prepare students for public service careers with NOAA and other natural resource and science agencies at the federal, state, and local levels of government; and to recruit and prepare students for careers as teachers and educators in oceanic and atmospheric science and to improve scientific and environmental education in the United States.

Scholarship students are eligible for up to \$8,000 of academic assistance per year for full-time study during the junior and senior years, a 10-week, paid (\$650/week) internship during the intervening summer, housing subsidy during the internship, round-trip travel to the internship site, and travel expenses to the Hollings scholarship program conference in Silver Spring.

To be eligible, students must be U.S. citizens; a full-time junior in an accredited college or university within the United States or U.S. Territories; hold a cumulative grade point average of 3.0 (based on a 4.0 scale) in all completed undergraduate courses, and major in a discipline area related to oceanic and atmospheric science, research, technology, or education; and supportive of the purposes of NOAA's programs and mission (biological, social, and physical sciences; mathematics; engineering; computer and information sciences; or teacher education).

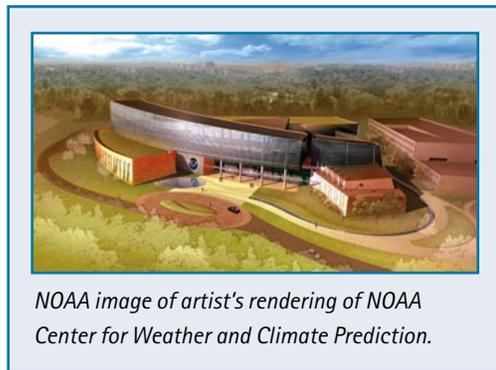
***GSA, NOAA, and OPUS Break Ground for NOAA Center for Weather and Climate Prediction
New Facility to be Centerpiece of the University of Maryland's M-Square Research and Technology Park***

The General Services Administration (GSA), in partnership with NOAA and Opus East, L.L.C., broke ground for the NOAA Center for Weather and Climate Prediction, the crown jewel in a new 50-acre section of the University of Maryland's M-Square Research and Technology Park. Opus East, L.L.C., of Rockville, MD., working with Hellmuth, Obata + Kassabaum, Inc. (HOK) as the lead design and interior architect, will design, construct, and own the building and lease it to the GSA. Opus arranged a long-term ground lease with the University of Maryland for the development. The 268,762 square-foot office and research complex will become the new headquarters for the NWS National Center for Environmental Prediction (NCEP). Approximately 800 people will work in the facility.

By locating this facility adjacent to the University of Maryland, GSA enhances NOAA's ability to develop closer collaboration between its scientists and forecasters, and the faculty and students at the University of Maryland. This benefits NOAA, the University, and the American people.

Virtually all the meteorological data collected globally will arrive at NOAA's Center for Weather and Climate Prediction. Environmental scientists will analyze this information and generate a wide variety of atmospheric and oceanic forecasts and guidance products using sophisticated numerical weather and climate prediction models.

With the groundbreaking for this new \$125 million facility in College Park, NOAA is continuing to ensure that the nation's top scientists, researchers,



NOAA image of artist's rendering of NOAA Center for Weather and Climate Prediction.



NOAA image of NOAA Administrator Conrad C. Lautenbacher joining assembled dignitaries at the ground breaking of the NOAA Center for Weather and Climate Prediction.



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and other professionals have the state-of-the-art facilities and tools to match their talents so that they can continue to perform NOAA's vital mission. "We take great pride in having NOAA located here in Maryland and in the men and women who will work here continuing to contribute to the well being and the protection of our natural resources," said Senator Paul S. Sarbanes.

"This is a significant milestone towards completion of the new NOAA Center for Weather and Climate Prediction, which will be a state-of-the-art advanced weather operations and research facility," said Congressman Steny H. Hoyer. "This critical project will not only vastly improve our nation's weather systems and be much better suited to meet NOAA's needs, but it will also ensure that our region remains an attractive destination and home for the best and brightest minds."