



STRATEGIC GOAL 3

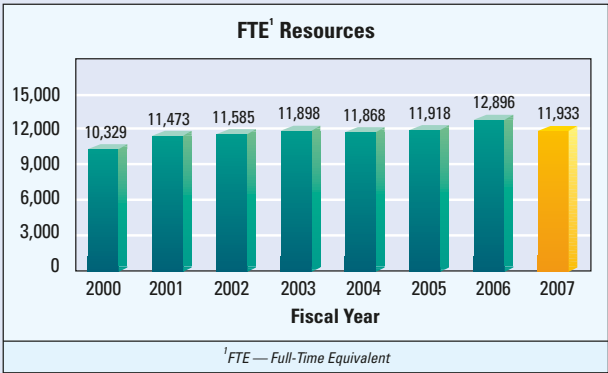
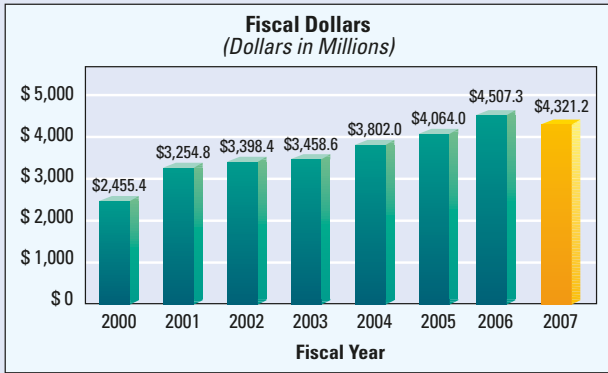
PERFORMANCE OBJECTIVE	TARGETS MET OR EXCEEDED
Serve society's needs for weather and water information (NOAA)	10 of 10
Understand climate variability and change to enhance society's ability to plan and respond (NOAA)	5 of 6
Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management (NOAA)	8 of 8
Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation (NOAA)	6 of 6



STRATEGIC GOAL 3

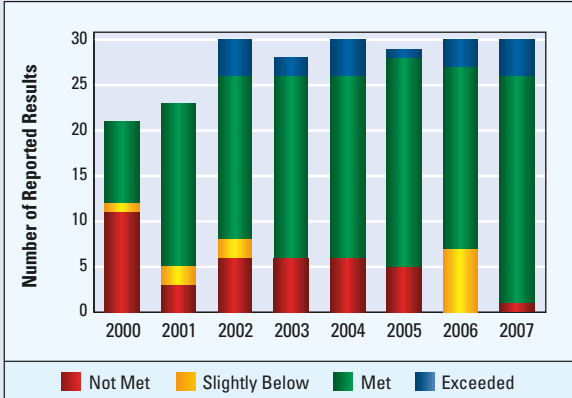
Observe, protect, and manage the Earth's resources to promote environmental stewardship

STRATEGIC GOAL 3 TOTAL RESOURCES



The Department has responsibilities for the environment, ecosystems, safety, and commerce of the 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 hurricane tracking to El Niño and harmful algal bloom predictions, navigational charts to fish stock assessments, severe weather forecasts to coastal zone management—the Department's future-oriented science, service, and stewardship missions touch the life of every citizen in the United States and in much of the world every day.

STRATEGIC GOAL 3 PERFORMANCE RESULTS



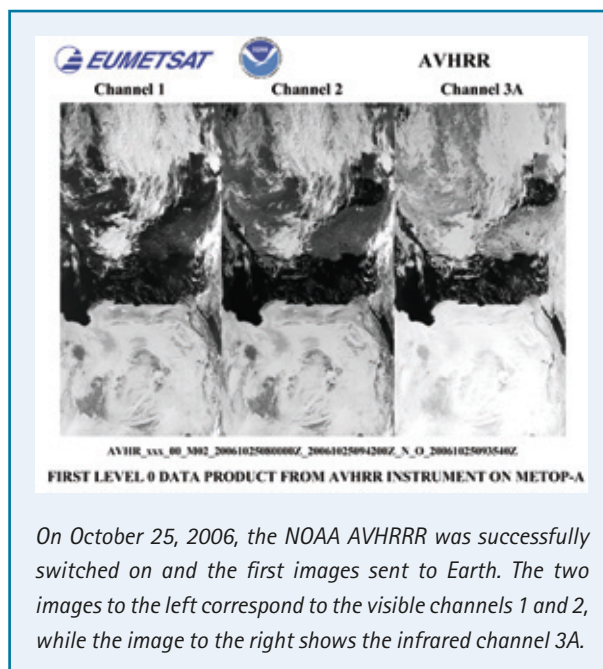
See Appendix A: Performance and Resource Tables for individual reported results.

Together the Department and its partners provide weather and climate services; conduct atmospheric, climate, and ecosystems research; manage and protect fisheries and sensitive marine ecosystems; 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.

FY 2007 accomplishments include:

***EUMETSAT Satellite, a Milestone in U.S.-European Cooperation, Sends First Images
NOAA Instruments aboard Satellite are Switched on***

MetOp-A was launched from the Baikonur Space Cosmodrome in Kazakhstan on October 19. The European polar-orbiting satellite, MetOp-A, is being heralded as a major milestone in the U.S.-European Initial Joint Polar System (IJPS). The agreement between the National Oceanic and Atmospheric Administration (NOAA) and the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) coordinates respective polar satellite launches to improve coverage of weather and climate conditions. On October 25, 2006, the NOAA Advanced Very High Resolution Radiometer (AVHRR) was successfully switched on and the first images sent to Earth. The global data collected are used extensively in NOAA's weather and climate prediction numerical models. The primary purpose of AVHRR is to provide global cloud imagery for meteorological purposes, although many other applications have developed around the use of this versatile instrument previously flown on NOAA satellites, such as mapping of sea ice and sea surface temperatures, vegetation mapping, and land surface analysis. The AVHRR instrument is provided to EUMETSAT by NOAA.



"The NOAA-EUMETSAT partnership is absolutely crucial to the continuous flow of environmental data captured from space," said Greg Withee, assistant administrator for the NOAA Satellite and Information Service. "Launching MetOp-A is a milestone for NOAA and the United States because of the value and applications of data it will provide for monitoring sea-surface temperatures, drought, and other climate conditions." Lars Prahm, director-general of EUMETSAT, said, "The agreed partnership between the United States and Europe will jointly ensure a continuous flow of vital data from polar orbit."

On May 15, MetOp-A was formally declared operational, enabling users in Europe and beyond to benefit from the satellite's unique capabilities. MetOp-A instruments provided by NOAA include the Advanced Microwave Sounding Unit (AMSU-A1 & A2); High Resolution Infrared Sounder (HIRS/4); AVHRR/3; and Space Environment Monitor (SEM-2). The MetOp satellite series consists of three spacecraft, including MetOp-A, which are designed to provide operational data until 2020.



NOAA Promotes Safety in Gulf Region

One of NOAA's central missions is to promote public safety and preparedness. Since Hurricanes Katrina and Rita, NOAA has responded to requests from the U.S. Army Corps of Engineers and U.S. Coast Guard and has surveyed 677.92 square nautical miles and utilized contractors to locate potential dangers to marine navigation along the Gulf Coast. New elevations were published for more than 340 benchmarks and the values will provide official elevations in 27 parishes across the southern part of Louisiana that experienced damage from the storms. To improve communication, NOAA has developed a Web site (<http://gulfofmexico.marinedebris.noaa.gov/>) that will allow stakeholders to stay abreast of meetings, projects, and outreach events. Plans are currently underway to establish a Gulf of Mexico Disaster Response Center in Mobile, AL.

New Community Hydrologic Prediction System (CHPS) Successfully Demonstrated

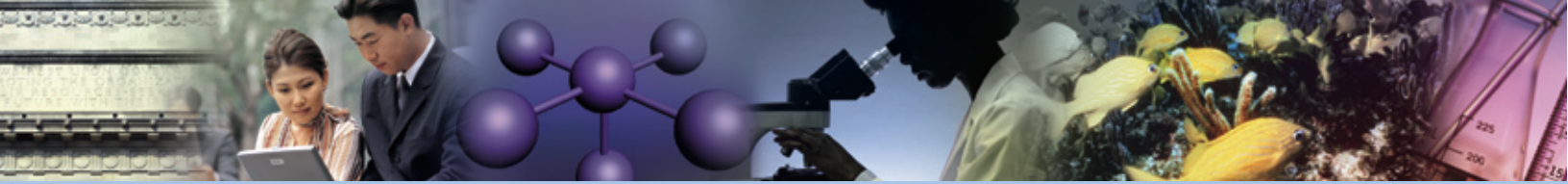
NOAA National Weather Service (NWS) Office of Hydrologic Development (OHD) completed the first successful demonstrations of pilot components of the new CHPS at the Northwest River Forecast Center (RFC) in Portland, OR during April 2007 and at the California-Nevada RFC in Sacramento, CA during July 2007. CHPS is a new modern software infrastructure, built on standard software packages and protocols and open data modeling standards to provide the basis from which new and existing hydraulic and hydrologic models and data can be shared within a broader hydrologic community. Developed using a service oriented architecture, an emerging standard for large-scale system design, CHPS enables scientists and programmers to work together and rapidly transition new innovative analyses and forecast techniques, for example new water quality models, from the drawing board to operational deployment efficiently. CHPS provides a new business model in which members of the hydrologic community, including other agency and academic collaborators, can operate more collaboratively through the sharing and infusion of advances in science and new data.

NOAA's Efforts to End Overfishing Strengthened by the Reauthorization of the Magnuson-Stevens Act

The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, signed on January 12, 2007, contains a requirement to establish an annual catch limit (ACL) for each fishery, for the first time creating a mandate with a timetable to end overfishing. Other significant new provisions include promoting market-based approaches to fisheries management; improving the science used in fisheries management; improving recreational data collection; enhancing international cooperation in fisheries management; and addressing illegal, unreported, and unregulated fishing as well as bycatch of protected living marine resources. The act included over 100 requirements for reports, studies, Secretarial determinations, and other activities to be completed by specific dates. NOAA has made important progress on many of these, such as establishing a Web site devoted to the reauthorized act, forming an implementation team, meeting with Regional Fishery Management Councils and State Marine Fisheries Directors, holding public meetings on ACL guidelines and the environmental review processes, and holding a roundtable with conservation organizations and a workshop on ACL data needs.

National Plan for Managing Drought Released

The National Integrated Drought Information System (NIDIS) Implementation Plan: A Pathway for National Resilience was released in hardcopy in June. NIDIS will enable users to determine the risks associated with drought and provide supporting data and tools to inform drought mitigation. NOAA led the process for creating the plan in response to a request from the Western Governor's Association.



The plan describes how an accessible and usable drought information system will be developed, deployed, and operated to facilitate informed decision-making by resource managers and others. In addition, it outlines the governance structure, priorities, and operational requirements needed to meet objectives for NIDIS. The plan was created by a NIDIS Program Implementation Team composed of federal agency, state, association, academic, and private sector participants. Critical to the success of this plan is the continued cooperation with partners at all levels of government, academia, and the private sector. The plan is responsive to the Western Governors' Association, June 2004 document on "Creating a Drought Early Warning System for the 21st Century," and the NIDIS Act (Public Law 109-430) signed into law on December 20, 2006.

NOAA Moves Forward on Plans for Monitoring the Seas

Changes in the ocean from sea level rise and coastal flooding to harmful algal blooms and dead zones are impacting U.S. society. To prepare for and help manage these changes, NOAA's U.S. Integrated Ocean Observing System (IOOS) Program dedicated a full-time senior director to advance data integration and support regional IOOS development within the long-term goals of improving the Nation's understanding of climate change, safety and efficiency of marine operations, mitigation of natural hazards, and protection and restoration of marine ecosystems.

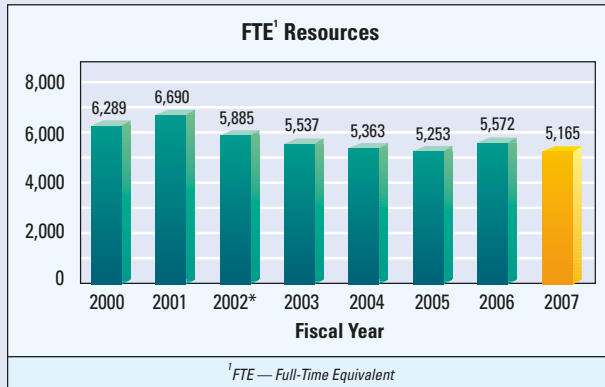
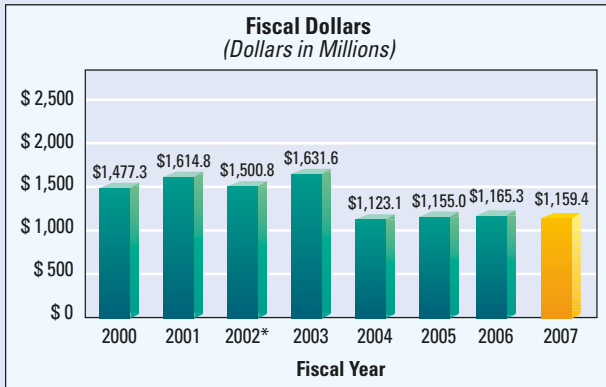
Ocean observations are more and more important to scientists who characterize, understand, predict, and monitor changes in coastal and ocean environments and ecosystems. Integration of data from ocean observations is also critical to commercial fisheries incorporating climate forecasts into management and harvest decisions. Ocean observation networks can improve NOAA's storm surge forecasts that allow emergency managers to make better decisions about evacuation plans.

Specifically, the IOOS Program created baselines for data flows and conditions for four thematic focus areas, completed five interoperability tests to understand and document issues with making data from disparate systems work together, and identified a realistic standards process. NOAA announced an IOOS merit-based competition to support regional IOOS development as an opportunity for FY 2008. The IOOS Program published the first version of the National High Frequency radar plan, representing needs of federal and state governments and established a formal requirement for this system within NOAA. Working with interagency partners, NOAA published a national near-shore waves plan which documents a national requirement for wave measurement that will define type and location of systems, applicable standards, and data products.

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

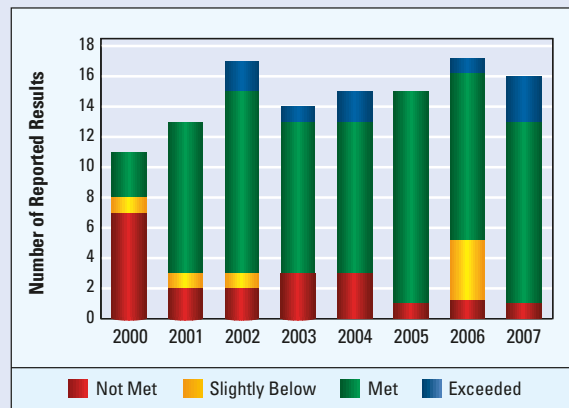


* In FY 2002, NOAA created a Mission Support goal that covered activities spanning both objectives and all four performance goals. The Mission Support goal does not currently have performance measures. Funding and FTE were split off from the other performance goals. Consequently, the funding and FTE 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 conducting sound, scientific research and providing 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



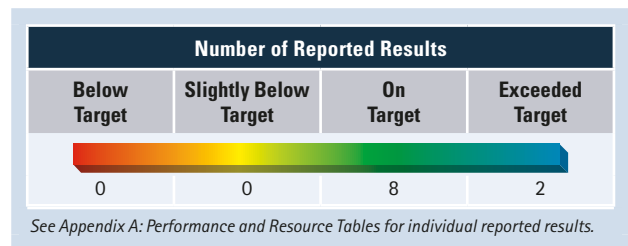
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Serve society's needs for weather and water information (NOAA)	10 of 10
Understand climate variability and change to enhance society's ability to plan and respond (NOAA)	5 of 6

Performance Objective: 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 2007, 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 2007 include:

Web-based Product Brings Weather Forecasts Instantly to Fire Agencies

The Fire Weather Dynamic Point Forecast Matrix (PFM), an experimental Web-based product, is helping land managers and fire agency officials better plan for and manage fire activity, from prescribed burns to large wildfires. Activated in January 2007, PFM is available across the western United States and provides dynamic forecast updates with enhanced usability for fire management, including Lightning Activity Level, Haines Index, and smoke management variables. More efficient fire administration results in cost savings to the Nation and improved management of U.S. public lands and forest ecosystems. A typical weather forecast is produced for seven days, every three hours for the first three days and then every six hours for the last four days. PFM allows fire agencies to access a Web-based tool. By clicking on a map, fire agencies are able to quickly receive a Dynamic Forecast generated from the latest information available.

NOAA Weather Radio Activities: Meeting the Expectations of the Nation for Weather and All Hazard Warning Information

To achieve 100 percent coverage of high-risk areas, NOAA added 17 broadcast stations to the network in 2006 and 2007. In addition, NOAA refurbished 62 broadcast stations with technology upgrades that significantly improve reliability and availability while decreasing maintenance costs. Refurbishing these older broadcast stations and installing new broadcast stations allow the network to meet expectations of availability as the Nation's weather and all hazard warning system. NOAA Weather Radio All Hazards is a reliable and inexpensive means of communicating weather, hazard, and emergency information directly to the public. The network infrastructure consists of over 972 broadcast stations covering 98 percent of the Nation's population and has the ability to deliver messages to individuals monitoring their own receivers as well as the ability to reach millions of listeners and viewers through the Emergency Alert System, which is monitored by television and radio license holders.

The network is required to broadcast to all areas identified in the United States as being at high risk of experiencing severe weather and to sustain a high level of reliability and maintainability in those areas. NOAA categorizes 248 areas in the United

States as being at high risk of experiencing severe weather events, including tornados, hurricanes, flash floods, flooding, severe winter weather, and severe marine weather.

NOAA Surpasses Goal for Increasing the Number of Heat Health Warning Programs in U.S. Cities

Recognizing the dangers of excessive heat conditions, NOAA has exceeded its goal for implementing the Heat Health Watch/Warning Systems (HHWS). NOAA's NWS forecasters will use this system to help predict severe heat conditions that adversely affect human health and endanger life.

NWS successfully implemented two HHWSs in San Francisco/San Jose, CA and Houston, TX in May 2007. The California HHWS is a multi-city system with funding contributed by San Jose's Office of City Emergency Services, helping NWS to exceed its HHWS coverage goal for 2007. This brings the total number of HHWSs to 19, covering 29 cities.

Expanding U.S. Tsunami Preparedness

The National Data Buoy Center (NDBC) is responsible for the expansion of the U.S. network of tsunami detection sensors. During FY 2007, 14 Deep-Ocean Assessment and Reporting of Tsunamis (DART) buoys were established in the Western Pacific Ocean (4), off the Pacific Coast of Central America (3), in the North Western Pacific Ocean (5), and in the North Atlantic Ocean (2) bringing the total number of U.S. DART stations to 34. The DART project is an ongoing effort to maintain and improve the capability for the early detection and real-time reporting of tsunamis in the open ocean. DART provides tsunami hazard mitigation and warnings and capacity building in the international tsunami community.

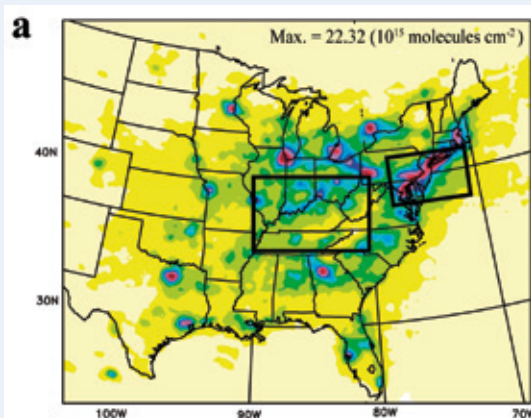
In addition, NWS works with communities to prepare for tsunamis through the TsunamiReady program. To date, there are 42 TsunamiReady sites in nine states, Puerto Rico, and Guam. NWS reached its goal of recognizing 10 new TsunamiReady communities in FY 2007.

Satellites Find Cleaner Air across the Eastern United States

A major smog-forming pollutant is declining over the eastern United States, according to a new study by scientists at NOAA and the University of Bremen, Germany. New satellite observations mark the first time space-based instruments have detected the regional impact of pollution controls implemented by coal-burning electric power plants in the 1990's. The findings were published in *Geophysical Research Letters*, a publication of the American Geophysical Union.



A DART buoy located at the NOAA NDBC at Stennis Space Center, MS.



NOAA image of the Ohio River Valley showing a decline in nitrogen dioxide.

High-precision instruments aboard European satellites have detected a 38 percent decline in nitrogen dioxide (NO₂) in the Ohio River Valley and nearby states between 1999 and 2005, according to the study. NO₂ and nitric oxide (NO) are two gases that form a group of pollutants known as nitrogen oxides (NO_x), which are created primarily through fossil fuel burning. When combined with other gases and sunlight, they form ozone, the major urban air pollutant in smog. Ground-level ozone harms human health and vegetation and is a key pollutant targeted by the Environmental Protection Agency (EPA). The next step is to confirm through observations and further analysis that ozone is actually declining, advises Si-Wan Kim, of the Earth System Research Laboratory (ESRL) and the Cooperative Institute for Research in Environmental Sciences and lead author of the study. "NOAA scientists and their colleagues have provided an objective assessment of the positive impact on Earth's atmosphere of actions taken by industry with the ultimate goal to improve air quality over the eastern United States," said Richard W. Spinrad, Ph.D., assistant administrator of NOAA Research. "This work is an excellent example of NOAA's value to society as an objective science broker."

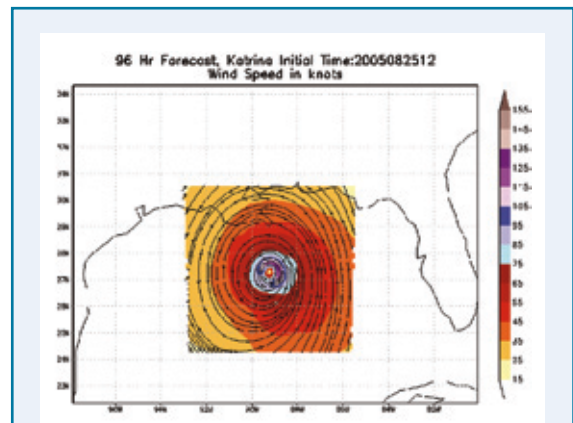
Advance Hurricane Model Aides NOAA Forecasters

Understanding hurricane intensity is one of NOAA's greatest challenges. To that end, the National Centers for Environmental Prediction (NCEP) implemented the Hurricane Weather Research and Forecast (HWRF) Model operationally on June 19, 2007. It joins the Geophysical Fluid Dynamics Laboratory Hurricane Model to provide operational hurricane guidance forecasts for the 2007 hurricane season. The new model will improve forecast accuracy by better addressing the intensity, structure, and rainfall forecast problem in addition to advancing wave and storm surge forecasts. "It is vital that we understand all the factors of hurricane forecasting throughout the life of a storm and HWRF will provide an unprecedented level of detail. Over the next several years, this model promises to improve forecasts for tropical cyclone intensity, wave and storm surge, and hurricane-related inland flooding," said Mary Glackin, acting director of NWS. "It will be one of the most dynamic tools available for our forecasters."

Over the next three years the model will be upgraded to include advanced data assimilation for the hurricane core, making use of observations from airborne Doppler radar and land based radars, and it will be coupled to an advanced version of the operational hurricane wave model. Additionally, a land surface component will improve forecasting of inland flooding problems associated with hurricane land falls.

Storm Size, Intensity, Key to Evaluating Potential Hurricane Damage

During 2007, NOAA hurricane researchers investigated the destructive potential of land-falling hurricanes and indicated that the overall size of the storm, as well as the area reached by its winds should be considered when assessing its possible damage.



NOAA image showing the HWRF 96-hour (4-day) forecast for Hurricane Katrina, heading for New Orleans in 2005.



A view of the destruction from Hurricane Katrina in Biloxi, MS.



In April 2007 the Bulletin of the American Meteorological Society published a study by a research meteorologist at the NOAA Atlantic Oceanographic and Meteorological Laboratory in Miami describing a new Hurricane Destructive Potential classification. The new proposed metric associates a numerical value similar to the Saffir-Simpson scale to each storm, and reflects potential damage due to wind, storm surge, and waves. The overall goal is to provide a better measure of the threat posed by a hurricane.

Technology to Remotely Measure Hurricane Surface Winds now Installed on U.S. Air Force Hurricane Hunter Aircraft

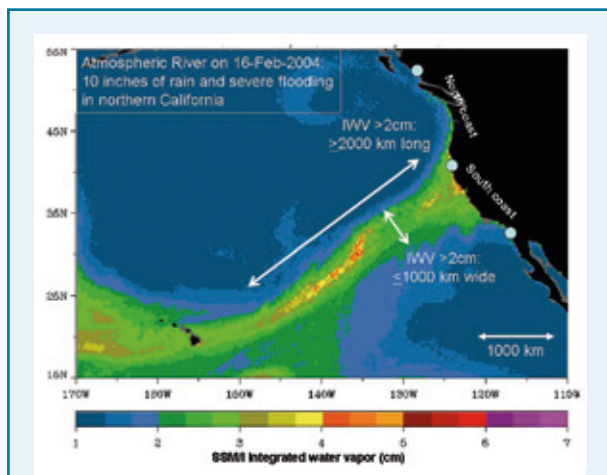
NOAA has successfully integrated a new wind speed measuring instrument into the broader U.S. hurricane reconnaissance arsenal, the Stepped Frequency Microwave Radiometer (SFMR). As of July 2007, the U.S. Air Force Weather Reconnaissance Squadron has outfitted three of its C-130 hurricane hunter aircraft with SFMRs, with the goal of outfitting one new aircraft per month through the rest of 2007, and an ultimate goal of outfitting each aircraft in the squadron. NOAA's two P-3 hurricane hunter aircraft are already outfitted with SFMRs with plans for the Gulfstream-IV jet to be outfitted in the next year.

The SFMR uses remote sensing technology to measure wind speeds directly below the aircraft when flying in the hurricane environment. The algorithms that are used to convert raw SFMR data into highly accurate surface wind speed estimates were developed by NOAA hurricane researchers at the Atlantic Oceanographic and Meteorological Laboratory. Wind speeds from SFMRs provide a wealth of precise data on a storm's current wind speeds that were previously only available in the form of sporadic data points from air-deployed instruments or flight level estimates. This significantly improves NOAA's ability to accurately describe a hurricane's strength and also improves model output by more completely and accurately describing the current conditions.

Phased Array Radar Speeds Scanning

Early tests of the Phased Array Radar system by the National Severe Storms Laboratory (NSSL), working with private sector partners, including Lockheed Martin, show that this innovative technology, developed by the Department of Defense (DOD), has the potential to vastly improve upon the capabilities of the national Next Generation Weather Radar system (NEXRAD) for all weather radar applications. Tests demonstrated a complete volume scan around the Multi-functional Phased Array Radar can be obtained in less than one minute, while the current NEXRAD

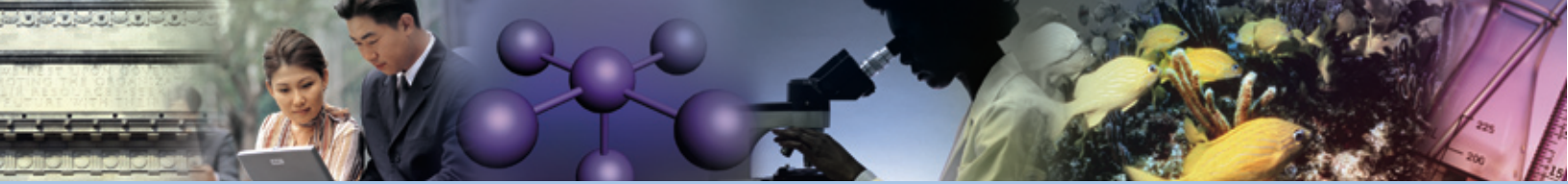
radar takes five to six minutes for such a scan. This technology has the potential to increase the average lead time for tornado warnings well beyond the current average of 13 minutes. NSSL's Phased Array Radar captured a number of significant severe and tornadic weather events during the spring storm season in 2007. For the first time these data were made available for operational use to the NWS Weather Forecast Office (WFO) in Norman, OK.



NOAA image of the Hydrometeorology Testbed-West 2007 Basin Scale Domain.

NOAA Studies the Causes of Catastrophic Urban Floods on the West Coast

Researchers from the NOAA ESRL are intensively monitoring air, water, and soil in the American River basin between Reno, NV and Sacramento, CA. Part of a regional implementation of a national hydrometeorological testbed (HMT) program, ESRL scientists are working closely with NWS forecasters and hydrologists and other NOAA research laboratories to improve



predictions of California's heavy winter rains to help water resource managers prevent catastrophic flooding in the Sacramento region. New sensors, computer models, and other tools tested during the study eventually will be used to improve NWS rainfall forecasts up and down the West Coast through HMT's efforts to enhance and accelerate research to operations.

FY 2007 saw the successful completion of the second full field season (late November through mid-March), and included several new instrumented sites as well as the addition of new experimental workstations distributed to three NWS WFOs and the California-Nevada RFC. These work stations delivered custom, river basin scale ensemble forecasts of rain and weather in the HMT area. A new water vapor flux product, using HMT atmospheric river observatory data, was developed and distributed for the first time this year—in mountainous terrain, rainfall is directly related to the water vapor flux. Rainfall estimates derived from high-resolution, gap-filling radars were delivered to NWS in support of the second Distributed (hydrologic) Model Inter-comparison Project (DMIP2). Motivated by HMT, data from the commercial KPIX radar in the San Francisco Bay area came online and are supporting the NWS WFO in Monterrey.

Global Hazard Data for Geoportal Support Tsunami Risk Identification and Reduction

NOAA's National Geophysical Data Center (NGDC) recently made the Global Historical Tsunami, Significant Earthquake, and Significant Volcano Databases available through Web Map, Web Feature, and Web Coverage services. This is the first step in providing these data to the Global Earth Observatory (GEO) community through the GEO Web Portal. This included a quality review of all major tsunami events in the World Data Center's Global Historical Tsunami Database (<http://www.ngdc.noaa.gov/seg/hazard/tsu.shtml>). Each event reported, from 2000 BCE to the present, is carefully compared against and referenced to tsunami documents and published reports. The event database includes information on the tsunami source (i.e. earthquake, volcano, and landslide) and impacts (i.e. maximum inundation, deaths, and damage). A review of all events impacting U.S. coasts was completed in 2006 as the basis for release in 2007 of "Tsunami Hazard Assessment for U.S. Coasts." These data are essential input to tsunami forecast models and warnings.

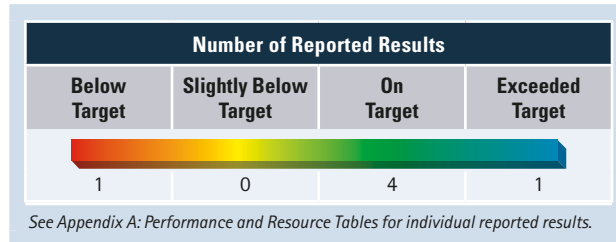
NOAA Unveils New Product Line for Pacific Northwest to Improve Storm Planning, Prediction, and Recovery

The NOAA Coastal Storms Program (CSP) managed by the Coastal Services Center (CSC) has developed a suite of products for Oregon and Washington coastal communities to improve storm planning, prediction, and recovery. The Pacific Northwest is vulnerable to flooding, debris flows, and coastal erosion because of battering coastal storms during the winter months. The impacts of these storms are quite diverse, ranging from treacherous navigation conditions at the mouth of the Columbia River (known as "the graveyard of the Pacific") to stormwater impacts on spawning salmon. The products developed by CSP contribute to alleviation of hazard impacts to the region. Outreach and training for these products were provided through the Oregon Sea Grant Program and the Coastal Zone 07 conference in Portland, OR. Similar efforts are underway for Southern California and the Gulf of Mexico.

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

One of NOAA's mission objectives 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, and centuries. Seasonal and interannual variations in climate, like El Niño, led to economic impacts on the order of \$25 billion for 1997 to 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 2007, 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 NIDIS, and completion of initial climate scenario runs for the Intergovernmental Panel on Climate Change (IPCC).

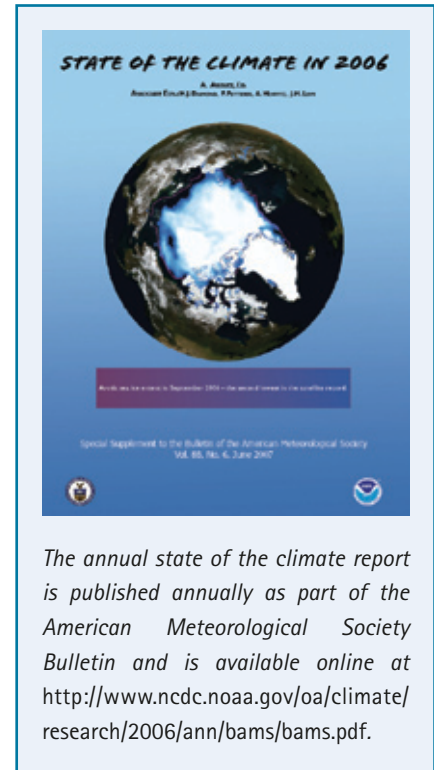
NOAA Made Major Contributions to IPCC Reports

Twenty of the model runs, such as the one above, used in the production of IPCC reports were done by the NOAA Geophysical Fluid Dynamics Laboratory.

NOAA individuals and technology made major contributions to the IPCC international climate science report. The depth of NOAA's contributions in this international effort, from a leadership role, highlights the preeminent science conducted by NOAA providing observations, data, model simulations, analysis, authors, and review editors. A cadre of NOAA scientists from the laboratories and programs, including the joint and cooperative institutes, served as contributors and government reviewers of the final report, which is a state-of-the-science report based on published peer-reviewed literature. Many of IPCC efforts were supported by NOAA and the U.S. CCSP.

NOAA Provides the Nation with an Annual “State of the Climate Report”

The *State of the Climate in 2006* report, published as a special supplement to the June 2007 Bulletin of the American Meteorological Society, provides a summary of global climate conditions for the year. This 135-page report is the product of collaboration among 159 individuals from 33 countries. The goal of the annual report is to routinely analyze and report on a total of 42 atmospheric, ocean, and terrestrial climate “state” variables. The 2006 edition reported on 20 essential climate “state” variables. Two major highlights from the report include: the contiguous United States experienced the second warmest summer on record, and globally, it was the fourth warmest August on record on land and the ocean surface waters. To produce products such as this report, NOAA, through the auspices of the Climate Observations and Analysis (COA) Program, and the National Environmental Satellite, Data, and Information Service (NESDIS) line office, coordinates the analyses of current observations and places the recent measurements in context with historical observations. This NOAA cross line office activity requires adequate observational measurements, data management, and stewardship of those measurements, and a quantitative analysis of long-term trends and variations in the climate record. Reports such as these are part of NOAA suite of climate information products and allow policymakers and resource managers to make more informed decisions that have far reaching effects on the environment and socio-economic related issues.



The annual state of the climate report is published annually as part of the American Meteorological Society Bulletin and is available online at <http://www.ncdc.noaa.gov/oa/climate/research/2006/ann/bams/bams.pdf>.

NOAA Releases Local Temperature Outlook

NWS released its first official local climate outlook product for 1,000 locations nationwide, including Alaska and Hawaii. The Local 3-Month Temperature Outlook augments current climate services by providing local-level outlooks. The forecasts are produced monthly for 13 three-month forecast periods. This new product will, for the first time, give the agricultural industry, local government officials, and the public the ability to plan for longer term temperature events. The forecasts are available on national and local NWS Web sites under the heading “Climate” (<http://www.weather.gov/climate/l3mto.php>).

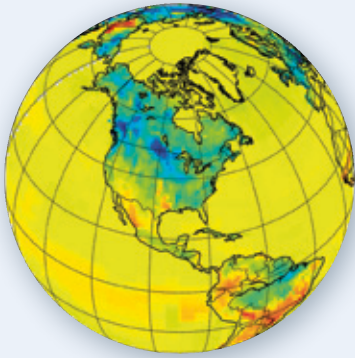
New Climate Observatory in Russia Closes Gap on Arctic Research



NOAA image of the newly constructed NOAA research station in Tiksi, Russia.

During the summer of 2007, the NOAA ESRL expanded its Arctic observation with the construction of a new location in Tiksi, Russia, joining five existing laboratories placed internationally along the Arctic rim. It will be an important component of the NOAA Arctic Atmospheric Observatory Program, closing a significant gap in vital Arctic atmospheric research. This new observation station is an example of increasing international cooperation in Earth observation around the world. Information from the Tiksi research laboratory will provide scientists with a better understanding of the rates and processes of Arctic climate change, including the retreat of sea ice and permafrost. Tiksi was chosen for its geographically favorable atmospheric conditions consisting of very clean and clear air, which

will provide the greatest possible measurements of solar radiation, aerosols, air chemistry, trace gases, cloud properties, water vapor, ozone, temperatures, winds, and stratospheric properties.



NOAA snapshot of the surface uptake of CO₂ across North America showing the strongest CO₂ sinks (blue colors) in the East Coast forests, coniferous forests in Canada and the U.S. Midwest. Note that the largest carbon cycle component, the fossil fuel emissions, is not shown on this map. The image represents a week in July of 2005 and illustrates one of the many products in CarbonTracker.

Powerful New NOAA Tool to Track Atmospheric Carbon Dioxide by Source

Scientists from the NOAA ESRL launched a new tool called CarbonTracker to monitor changes in atmospheric carbon dioxide and other greenhouse gases by region and source. CarbonTracker will enable its users to evaluate the effectiveness of their efforts to reduce or store carbon emissions. The online data framework distinguishes between changes in the natural carbon cycle and those occurring in human-produced fossil fuel emissions. It also provides verification for scientists using computer models to project future climate change. Potential users include corporations, cities, states, and nations assessing their efforts to reduce or store fossil fuel emissions around the world.

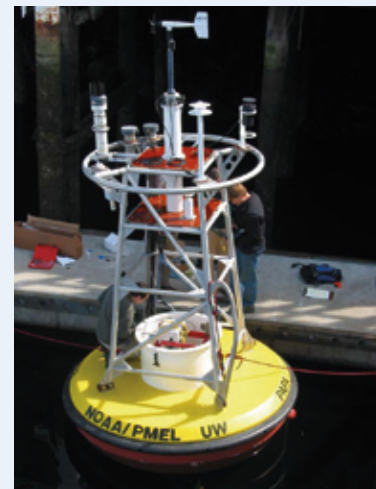
The Release of the 2006 Ozone Assessment

In mid-January the WMO/UNEP (World Meteorological Organization/United Nations Environment Programme) publicly released the "Scientific Assessment of Ozone Depletion: 2006." The 2006 report describes past and expected future levels of ozone-depleting substances, past and expected future behavior of the ozone layer in polar regions and throughout the globe, implications for ultraviolet radiation at the

Earth surface, short-lived ozone depleting substances, and interrelationships between climate and ozone depletion. NOAA scientists have played prominent roles in leading, authoring, contributing to, and reviewing the 2006 ozone assessment. In addition, scores of NOAA-authored scientific papers are cited in the eight detailed scientific chapters of the report. NOAA, through its prominence in leading, authoring, and publishing the report, reaches a truly global set of customers and these efforts directly serve NOAA's goal of providing scientific information in support of decision-making.

First-of-Kind Buoy to Monitor North Pacific Acidification

The first buoy to monitor ocean acidification, a result of carbon dioxide absorbed by the ocean, has been launched in the Gulf of Alaska and is a new tool for researchers to examine how ocean circulation and ecosystems interact to determine how much carbon dioxide the North Pacific Ocean absorbs each year. This project is a collaboration between the NOAA Pacific Marine Environmental Laboratory, the University of Washington, Fisheries and Oceans Canada, and the Institute of Ocean Sciences in Sidney, BC.



NOAA scientists and technicians making final adjustments on the first buoy to carry equipment that measures ocean acidification. This buoy was deployed on June 7 in the Gulf of Alaska.

In terms of performance, the only target NOAA missed was the sea surface temperature error in the climate variability outcome. This measure is a key measure, perhaps the most important measure for the climate outcome. Accuracy of sea surface temperature measurements impacts much of NOAA's long-term work in the climate area, particularly with regard to predicting serious events such as hurricanes. The target for this measure remained the same for FY 2006 and FY 2007, and NOAA did not meet it either year. Furthermore, the explanation for not meeting the target both years was essentially the same even though NOAA stated in FY 2006 they were taking steps to improve the performance in FY 2007.

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 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.

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 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 objectives. NOAA's mission objectives are directly related to the "nine societal benefit areas" identified by the intergovernmental GEO and the U.S. GEO (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 the Global Earth Observation System of Systems (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:

- ◆ Develop an integrated global observation and data management system for routine delivery of information, including attribution of the state of the climate.
- ◆ Document and understand changes in climate forcings and feedbacks, thereby reducing uncertainty in climate projections.
- ◆ Improve skill of climate predictions and projections and increase range of applicability for management and policy decisions.
- ◆ Understand impacts of climate variability and change on marine ecosystems to improve management of marine ecosystems.
- ◆ Enhance NOAA's operational decision support tools to provide climate services for national socio-economic benefits.

NOAA will continue to strive toward an integrated approach in the provision of environmental information and modeling as described in the climate-related aspects of the U.S. Integrated Earth Observation System (IEOS) Strategic Plan. In response to the Ocean Research Priorities Plan, NOAA will enhance its ocean focus to provide understanding of climate impacts on ecosystems. These focus areas will increase the progress of the Climate Goal to integrate observations, data management, and modeling, as well as provide a new suite of environmental products and services.

CHALLENGES FOR THE FUTURE

As the 21st 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.

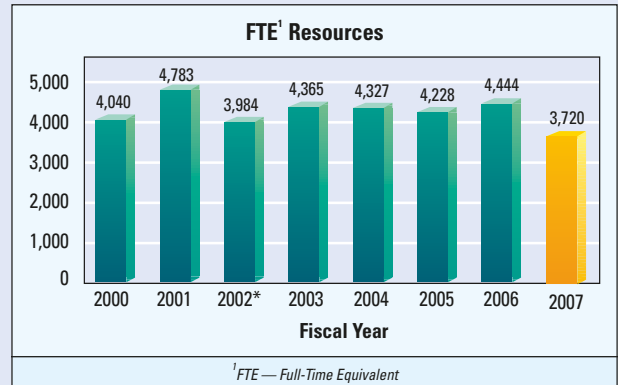
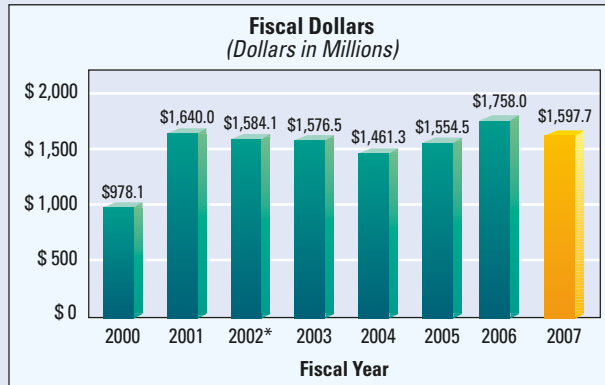
NOAA's challenge will be to continue to improve critical services to the Nation, including (1) advancing science to improve water resource forecasting and service delivery; (2) improving NOAA's tsunami detection, warning, and mitigation capabilities and expanding its scope from the Pacific to the Atlantic 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.

Society will continue to face major challenges in which the influence of climate will be a fundamental factor. Reducing climate-related uncertainties in policy and decision-making can be valued at more than \$100 billion for the United States alone, and relatively small increases in accuracy can yield substantial benefits. In the next five years and beyond, NOAA's climate priorities and outcomes will lead to science-based climate information services as envisioned by the U.S. CCSP and as needed to meet NOAA's commitments to deliver climate information services to the Nation. To this end, NOAA's research activities will be expanded beyond traditional research efforts supporting the provision of climate data, summaries, and forecasts to address the increasing demand for research on, and assessments of, the impacts of climate on livelihoods, health, safety, and quality of life.

STRATEGIC OBJECTIVE 3.2

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

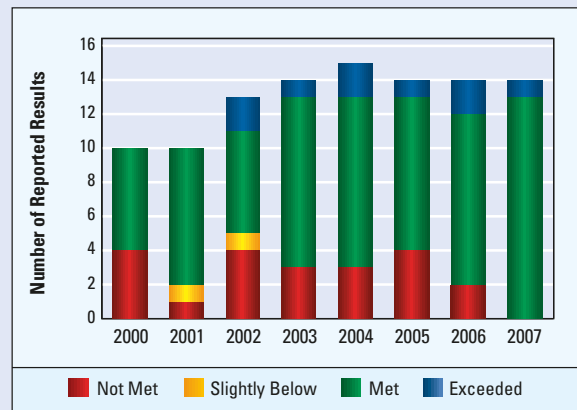
STRATEGIC OBJECTIVE 3.2 TOTAL RESOURCES



* 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.

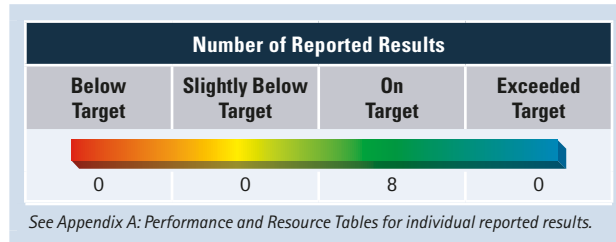
PERFORMANCE OBJECTIVE	TARGETS MET OR EXCEEDED
Protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management (NOAA)	8 of 8
Support the Nation's commerce with information for safe, efficient, and environmentally sound transportation (NOAA)	6 of 6



Performance Objective: 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 In FY 2007, 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 2007 include:

NOAA's Nutrient Pollution Forecasts Report Worsening Health for Nation's Estuaries

A team of scientists from NOAA and the University of Maryland Center for Environmental Science released the most comprehensive assessment of estuarine eutrophication to date, *Effects of Nutrient Enrichment in the Nation's Estuaries: A Decade of Change, National Estuarine Eutrophication Assessment Update*, which clearly indicates linkages between upstream activities and coastal ecosystem health. The report shows that the majority of U.S. estuaries assessed have moderate to high levels of nutrient related impairments, are highly influenced by human-related activities (i.e., agricultural activities, sewage effluent, urban runoff, atmospheric deposition), and most are expected to worsen in the future. The report also offers recommendations to reduce future problems.

NOAA Returns to Antarctica for “Sounds of the Southern Ocean”

Sounds from the Southern Ocean is a joint project between NOAA's Pacific Marine Environmental Laboratory, Oregon State University, and the Korea Polar Research Institute. Defined as the waters poleward of roughly 60 degrees south latitude, the Southern Ocean surrounds Antarctica and serves as a conduit between the Atlantic, Pacific, and Indian oceans. Constant severe weather makes the Southern Ocean a difficult place to work; so much of this ocean basin remains unexplored. When completed, NOAA plans to have characterized parts of this relatively unknown ecosystem through activities such as conducting the first long-term, microseismic survey of seafloor tectonic and volcanic activity in Antarctica. To meet the challenge for continuous monitoring in this extreme environment, during early FY 2006 NOAA deployed an array of autonomous underwater hydrophones (AUH), which act as “ears” in the ocean, recording sounds generated by moving ice sheets, undersea earthquakes, and volcanoes; even vocalizations from large baleen whales. In early FY2007, NOAA recovered and redeployed the AUH array and its initial data review indicates the hydrophones recorded hundreds of earthquakes from the seafloor spreading centers and submarine volcanoes within the Bransfield Strait, as well as events from the subduction zone off the South Shetland Islands and from throughout the Scotia Sea. Moreover, NOAA has observed harmonic tremors produced by the movement of large icebergs, and detected the vocalizations of several critically endangered cetacean species.

NOAA Exercises International Leadership in Fisheries Management

During FY 2007, NOAA continued to exercise strong international leadership and achieved results that advanced broad U.S. objectives for effective conservation and management of living marine resources. NOAA officials led U.S. delegations to meetings of international fisheries organizations and arrangements, such as the Inter-American Tropical Tuna Commission, the Western and Central Pacific Fisheries Commission, the Northwest Atlantic Fisheries Organization, and the North Atlantic Salmon Commission. NOAA staff served as chair of important international groups: Dr. William Hogarth, assistant administrator for Fisheries, served as Chairman of the International Whaling Commission and as chairman of the International Commission for the Conservation of Atlantic Tunas; and Greg Schneider served as Chairman of the Organization for Economic Development Committee on Fisheries. At the first ever joint meeting of the world's five Tuna Regional Fisheries Management Organizations (RFMO) in January 2007, U.S. leadership resulted in agreement to improve RFMO effectiveness and coordination. At the 2007 Conference of Parties to the Convention on International Trade in Endangered Species, a U.S. proposal to list all species of sawfish was adopted. At the 27th Meeting of the Food and Agriculture Organization Committee on Fisheries, U.S. leadership resulted in the advancement of a number of significant U.S. objectives, including addressing the effects of fishing on the marine environment and deterring illegal, unregulated, and unreported fishing. At the May 2007 meeting of the International Whaling Commission, NOAA leadership resulted in the renewal of U.S. five-year aboriginal subsistence whaling catch limits for bowhead and gray whales. NOAA was also instrumental in ongoing efforts to create non-tuna conservation and management regimes in the Northwest Pacific and South Pacific regions.

Marine Life Gets Added Protections with Marine Reserves Established in Channel Islands Sanctuary

NOAA's National Marine Sanctuary Program established the federal portion of the marine reserves and conservation area network within the Channel Islands National Marine Sanctuary. This action will help to maintain the natural biological communities, and to protect, restore, and enhance natural habitats, populations, and ecological processes. This action complements the State of California's establishment of a network of marine reserves and conservation areas within the state waters of the sanctuary in 2003. This is the largest network of marine reserves in federal waters in the continental United States.

NOAA Team Facilitates Removal of Dangerous Marine Debris from Vital Louisiana Lake



Images of marine debris removed from Calcasieu Lake, LA, in January 2007.

On February 20, 2007, NOAA and the Louisiana Sea Grant College Program teamed with state and local agencies, businesses, and organizations to help boaters and the environment through the Calcasieu Lake Marine Debris Marking and Mapping Program. With aid from the NOAA Marine Debris Program and a tremendous volunteer effort, the team identified and in January facilitated the removal of nearly 100 pieces of marine debris in Calcasieu Lake, LA, a vital shipping channel and significant estuary for the southwestern Louisiana economy.

Heavily damaged by Hurricane Rita in September 2005, Calcasieu Lake became a settling point for debris from nearby industries, homes, and wooded areas, pushed northward by hurricane-force winds and an unrelenting storm surge. Calcasieu Lake, a 67-square-mile brackish estuary, is shared by commercial and recreational fishermen and boaters and supports finfish, oyster, crab, and shrimp harvesting.

The program enlisted volunteers with boats to mark and report any debris they encountered. Louisiana Sea Grant personnel verified the location of reported debris and logged coordinates into a global positioning system (GPS) database. To compliment identification efforts, the Calcasieu Parish Sheriff's Office Marine Division volunteered the services of its side scan sonar-equipped boat that allows operators to view submerged debris that may otherwise be missed by visual inspections.

NOAA Aids in the Recovery of Fisheries and Fishing Communities Damaged by Hurricanes

NOAA funded and conducted a number of activities aimed at helping Gulf Coast fisheries recover from the devastating impacts of Hurricanes Katrina, Rita, and Wilma, which struck the Gulf Coast in 2005. Through two cooperative agreements with the Gulf States Marine Fisheries Commission (GSMFC), NOAA awarded the Gulf Coast states about \$85.0 million in emergency supplemental funds for fishery-related hurricane recovery activities. This is in addition to the \$127.3 million provided to the GSMFC for hurricane recovery efforts in 2006. The states are using these funds to restore and rehabilitate oyster, shrimp, and other marine fishery habitats damaged or destroyed by hurricane events, and to conduct cooperative research and monitoring and other activities designed to recover and rebuild Gulf of Mexico fisheries and fishing communities.

NOAA Seagrass Assessment to Raise Awareness of Apparent Worldwide Decline

NOAA in collaboration with seagrass experts from around the world have found that 65 percent of seagrass abundance investigations worldwide show declines in the resource, with an accelerating rate of decline in more recent studies. Seagrass is an important organism in the marine environment as it is a major source of oxygen in the water and serves as habitat for juvenile fish. The research will further examine regional trends to evaluate the correlation between seagrass change and environmental

and human stressors, and also inform resource managers and the public. The project will utilize access to the largest data set ever compiled on global distribution and abundance of seagrasses.

NOAA Scientists Discover New Species of Marine Life

NOAA Fisheries Service scientists led a team of world-renowned taxonomists on a three-week expedition in the Hawaiian Islands that found several potentially new species of crabs, corals, sea cucumbers, sea quirts, worms, sea stars, snails, and clams. From this expedition, well over 100 new species records will likely be identified for French Frigate Shoals in the Papahānaumokuākea Marine National Monument. The expedition was part of the international Census of Marine Life's Census of Coral Reef Ecosystems (CReefs), and was the first in a series of proposed coral reef surveys to take place around the globe, led jointly by Scripps Institution of Oceanography at the University of California-San Diego, Australian Institute of Marine Science, and NOAA. The goal of the expedition was to conduct biodiversity surveys, with a focus on small marine organisms (i.e., invertebrates, algae, and microbes). Over 50 sites were surveyed throughout the atoll using a variety of ingenious collection methods, including baited traps, brushing of rubble, underwater vacuuming with gentle suction, plankton tows, light traps, and sediment and water sampling. These methods were meticulously developed over the course of a year to minimize impact to the environment.

NOAA Project Named One of America's "Top Restored Beaches"

NOAA's Chaland Island project in Louisiana's Plaquemines Parish was recently named one of America's "Top Restored Beaches" by the American Shore and Beach Preservation Association. Despite delays caused by Hurricane Katrina, NOAA is on schedule to complete the first phase of an 800-acre barrier island project that will help protect Louisiana's coastal communities from the devastating effects of wind, waves, and flooding associated with these types of storms. In the largest island restoration project ever done by NOAA, workers are dredging and performing major earth-moving activities on Chaland Island to create beach and marsh habitat. Over the years, the shoreline has eroded severely due to human and natural factors, and recent storms breached the shoreline and segmented the 2.6-mile island into three smaller fragments. Left unaddressed, these breaches threaten the integrity of several major natural gas pipelines. Rebuilding and maintaining the extensive system of wetlands historically nourished by the Mississippi Delta are essential for the future health of estuarine-dependent fish populations.

NOAA "Green Ships" Win White House Award

NOAA's three Great Lakes research vessels were honored by the Office of the Federal Environmental Executive for the conversion from petroleum-based fuels and lubricants to bio-based products. The NOAA Great Lakes Environmental Research Laboratory (GLERL) in Ann Arbor, MI, was awarded a White House Closing-the-Circle Award in the green purchasing category. In 2006, the initiative won an award from the Department of Energy (DOE).

The conversion was a result of a call for "greening" of government agencies through waste reduction, recycling, and the use of environmentally friendly and sustainable products, including bio-products. GLERL's approach to this federal program was to focus on the use of bio-products with a goal of demonstrating the environmental and operational benefits.



NOAA image of NOAA Great Lakes Research vessels LAURENTIAN, SHENAHON, and HURON EXPLORER.



NOAA and Partners Set the Course for Salmon Recovery in Puget Sound

NOAA Fisheries Service approved a far-reaching plan to recover threatened Chinook salmon in the Puget Sound region of Washington State. This salmon recovery plan, required under the Endangered Species Act (ESA), is one of the largest and most comprehensive ever approved by the federal government. Although recovery plans for threatened and endangered species are typically written by federal officials, the Recovery Plan for Puget Sound Chinook Salmon was developed during more than five years of cooperative efforts by local stakeholder groups. NOAA is conducting recovery planning in conjunction with Shared Strategy for Puget Sound, a coalition of local citizens, tribes, technical experts, and policymakers engaged in building a practical, cost-effective recovery plan endorsed by the people living and working in the watersheds of Puget Sound. This plan sets the course for bringing salmon back to a healthy population size in Puget Sound, and integrates the management of habitat, harvest, and hatcheries—the “three Hs” considered key to salmon recovery.

Eagerly Anticipated NOAA Guidance Allows Councils Flexibility in the Design and Use of Limited Access Privilege (LAP) Programs

NOAA Fisheries Service developed a technical memorandum to provide guidance to the Regional Fishery Management Councils on the design and implementation LAP programs for federally managed fisheries. The philosophy underlying the document is that the councils should have as much latitude as possible in the design of fishery management plans. This flexibility pertains to the choice of whether to use a LAP approach, and if so, to the type and the construction of that program. This document provides information on the important issues that must be addressed for each of the allowable types of LAPs, and discusses the pros and cons of various options for addressing those issues. The document was developed in a transparent and collaborative process by NOAA and the councils. The statutory basis is the recently reauthorized Magnuson-Stevens Act.

Innovative Ecosystem Agreement Aids Atlantic Salmon Recovery

NOAA Fisheries Service signed the 2007 Saco River Fisheries Assessment Settlement Agreement, an ecosystem approach to river management with coastal community participation that protects habitat and NOAA trust resources from priority threats. The settlement provides upstream and downstream fish passage measures for several species, creates studies evaluating fish passage and management needs, and enhances Atlantic salmon stocking efforts throughout the Maine watershed. In addition, the settlement eliminates a previous challenge to fishway prescriptions and resolves similar issues that might be subject to future trial-type challenges at five other dams.

NOAA and Louisiana Scientists Report Gulf of Mexico “Dead Zone” could be Largest Since Measurements Began in 1985

A team of scientists from NOAA, the Louisiana Universities Marine Consortium, and Louisiana State University is forecasting that the “dead zone” off the coast of Louisiana and Texas this summer—an area of low or no oxygen which can threaten or kill all marine life in it—has the potential to be the largest since shelf wide measurements began in 1985, and significantly larger than the average size since 1990. This NOAA-supported modeling effort, led by R. Eugene Turner of Louisiana State University, predicts this summer’s dead zone may be as large as 8,500 square miles, an area about the size of New Jersey. Since 1990, the average annual hypoxia-affected area has been approximately 4,800 square miles. The dead zone measured 6,662 square miles in 2006. Tropical storms and hurricanes are capable of disrupting the physical structure of the water column and aerating the bottom layer. While NOAA has predicted an active hurricane season for 2007, if no strong storms appear this year’s dead zone could equal the

largest recorded in 2002 and stretch into Texas's continental shelf waters. The forecast is based on nitrate loads from the Mississippi and Atchafalaya rivers in May and incorporates the previous year's conditions. The nitrogen data are provided by the U.S. Geological Survey. NOAA also funds research cruises to track development of hypoxia.

NOAA Unveils New State-of-the-Art Visitor Centers

In January 2007, White House Council on Environmental Quality Chair Jim Connaughton helped open the Florida Keys Eco-Discovery Center. Located in the heart of Key West, the free visitor center offers visitors and residents alike the opportunity to spend an afternoon learning about the significance of south Florida's natural and historic resources and how they can both enjoy and protect them. Located in NOAA's Dr. Nancy Foster Florida Keys Environmental Complex, the center features more than 6,400 square feet of interactive exhibits, which interpret the resources and management efforts of Florida Keys National Marine Sanctuary, two national parks, and four national wildlife refuges. In March 2007, The Mariners' Museum and NOAA opened the doors to one of the Nation's premier maritime Civil War attractions, the new USS Monitor Center. Visitors of all ages and backgrounds have an unparalleled opportunity to learn about one of the most revolutionary vessels in naval history. The opening of the USS Monitor Center is the result of 30 years of a highly successful public-private partnership involving NOAA, The Mariners' Museum, the U.S. Navy, Northrop Grumman Newport News and many others.

Innovative Habitat Conservation Plan Ushers in "New Era" with Timber Industry

NOAA Fisheries Service, in cooperation with Green Diamond Resource Company and the U.S. Fish and Wildlife Service, developed and approved a habitat conservation plan to conserve ESA-listed salmon and steelhead trout on Green Diamond's timberlands in northern California that minimizes and mitigates the effects of Green Diamond's commercial timber management practices, providing the company with regulatory assurances that enhance its ability to make long-term investments, thus allowing the company to remain competitive while becoming a better environmental steward. A local newspaper editorialized that with the plan "the relationship between the timber industry and environmentalists has entered a new era." The 50-year plan covers 416,000 acres critical to the support and recovery of these species. It focuses on enhancing and extending habitat by protecting streamside areas, avoiding surface erosion and land sliding, accelerating improvement of old and poorly designed roads, and opening access to spawning and rearing habitat that was previously blocked or naturally inaccessible.

NOAA Discovers New Cetacean Sounds Similar to Morse Code

In the past year, NOAA Fisheries Service researchers described a new kind of dolphin communication. The sound consists of repeated patterns of "burst pulses" of varying lengths. A burst pulse is a series of echo-location clicks that are so close together that they make a continuous buzzing sound. The repeated patterns of these clicks are closer to Morse code than they are to any previously described type of dolphin call. So far, this type of sound appears to be made only by northern right whale dolphins. It is still not clear how the dolphins use this sound, but the sound is likely to be useful to NOAA researchers in acoustically identifying this species at sea. A paper describing this discovery was published in the *Journal of the Acoustic Society of America*.

First Status Report Issued on Coral Reef Protected Areas

The first-ever inventory and assessment of U.S. marine protected areas (MPA) managed by state and territory governments was released this year by NOAA, as called for by the National Action Plan of the U.S. Coral Reef Task Force. The publication, *Report on the Status of Marine Protected Areas in Coral Reef Ecosystems of the United States Volume 1: Marine Protected Areas Managed by U.S. States, Territories, and Commonwealths*, was funded by the Coral Reef Conservation Program and coordinated by the Coastal Programs Division, both housed in NOAA's Office of Ocean and Coastal Resource Management. The report utilizes data collected



in the National Marine Managed Inventory as well as the expertise of NOAA and state and territory co-authors to explore the management status of 207 MPAs located across the seven jurisdictions. The report also identifies major challenges to effective MPA management and offers a series of recommendations both at the national and local levels to improve MPA success.

NOAA's Scientific Collaboration with Industry Improves Management of Key Recreational Fishery

In partnership with fishermen, NOAA Fisheries Service has developed a non-lethal surveying technique to assess the habitat and stocks of selected rockfish species in two marine conservation areas recently created in the Southern California Bight. Because this method involves collaboration with the fishing industry, the industry is supportive of the results, making management less contentious. Marine sportfishing in Southern California is a huge industry, in excess of \$200 million annually, and non-lethal fish surveying techniques are key to maintaining rockfishes and other overfished species because they are estimated at or below 25 percent of their pristine levels. The new survey method combines the information obtained from multi-frequency echo sounders mounted on commercial passenger fishing vessels with images captured by video and still cameras deployed from a remotely operated vehicle, exploiting the advantages of each measurement technology.

NOAA Celebrates the International Polar Year with Important Antarctic Research

NOAA's Antarctic Marine Living Resources (AMLR) Program is charged with providing the scientific information needed to conserve and manage the marine living resources in the oceans surrounding Antarctica. The United States is the leading consumer of Antarctic marine resources, including 80 percent of the imported Patagonian and Antarctic toothfish (Chilean sea bass). AMLR data are valuable to the Nation's commitment to the international treaty to preserve the Antarctic as its 21-year long-term data stream can be used to provide a unique historical perspective to International Polar Year research. AMLR has become a most comprehensive research program that utilizes land, sea, and space-based platforms to gather information on the environment and ecology from the northern end of the Antarctic Peninsula, and through cooperation with NOAA's international partners, relates this to the well being of the Southern Ocean. The program's mission of tracking the food web relationships between Antarctic krill and its predators as well as collecting environmental data under changing sea ice conditions is critical to managing these resources wisely. Completing its 21st year of land-based and ship-based research in the Antarctic, an AMLR-chartered vessel traveled approximately 3,250 nautical miles, allowing researchers to document population distribution patterns of finfish and crab species and place tracking tags on marine mammals to investigate annual survival rates. From these data, researchers can get an idea of what's occurring in the animals' environment over long distances and time periods.



**Great Lakes
Cooperative
Institute**

Great Lakes Cooperative Institute conducts collaborative research through a consortium of universities and institutions in the Great Lakes region.

NOAA Expands Great Lakes Research: Ten Universities Named to Form Great Lakes Cooperative Institute

On June 12, 2007, NOAA announced the establishment of a new Great Lakes Cooperative Institute to conduct collaborative research through a consortium of universities and institutions in the Great Lakes region. Research efforts will focus on forecasting; invasive species, control, impact, and assessment; the Great Lakes Observing System; protection and restoration of resources; and Great Lakes education and outreach.

The Cooperative Institute for Limnology and Ecosystems Research is comprised of a consortium of academic institutions, including the Grand Valley State University, Michigan State University, Ohio State University, Penn State University, State University of New York-Stony Brook, University of Illinois of Urbana-Champaign, University of Michigan, University of Minnesota, University of Toledo, and University of Wisconsin.

NOAA currently supports 21 Cooperative Institutes in 17 states focusing on research ranging from satellite climatology and fisheries biology to atmospheric chemistry and coastal ecology. Cooperative Institutes are located at parent institutions whose geographic expanse extends from Hawaii to Massachusetts and from Alaska to Florida.

The new Cooperative Institute for Limnology and Ecosystems Research will replace the current Great Lakes Cooperative Institute at the University of Michigan and will include an expanded partnership. Joining NOAA's other cooperative and joint institutes across the country, these institutes are NOAA-supported, non-federal organizations that have established an outstanding research program in one or more areas that are relevant to NOAA's mission. The Cooperative Institute collaborates with NOAA scientists on long-term research topics and provides significant coordination of resources among all non-government partners and promotes the involvement of students and postdoctoral scientists in NOAA-funded research.

NOAA Sea Grant Researcher Develops Storm Surge Vulnerability Maps

Researchers from the University of Puerto Rico Sea Grant Program, in collaboration with the Disaster Research Center (DRC) at the University of Delaware, have developed a storm surge flood model that assesses individual and community vulnerability on the coasts of Puerto Rico. New Geographic Information Systems maps were prepared by incorporating current coastal flood maps with satellite images and census data. The census data include socio-economic and demographic information that produces a more accurate representation of which, and to what degree, coastal community members are at risk. These maps will be available to planners, managers, and public officials throughout the island via a new interactive software program that will allow them to click on census blocks and view pertinent information about who lives in these vulnerable coastal areas. The data from this research contributed to the efforts of the Puerto Rico Tsunami Warning and Mitigation Program, which led to Mayagüez, the ninth-largest city in Puerto Rico, being certified as the first TsunamiReady city on the island. These maps will greatly benefit the approximately 1.4 million people in Puerto Rico who live in flood-sensitive zones. As a result of this work, members of University of Delaware's Coastal Community Development Initiative have met with DRC and University of Puerto Rico researchers to explore possibilities on how the project can be developed and implemented for coastal communities in Delaware.

NOAA Method May Help Reduce Losses in Aquaculture by Detecting and Managing Disease

NOAA researchers in collaboration with scientists at the North Carolina College of Veterinary Medicine have developed a sensitive and specific method to detect and help manage a parasite responsible for 20 percent of aquaculture losses of warm water fishes. The disease, Amyloodiniosis, is caused by a dinoflagellate. The new method can detect the parasite's DNA from a single cell, whereas previous microscopic methods could not detect the parasite until later stages of infestation.

Northwest Shellfish Growers Get Real Time Water Quality Data

Shellfish growers in the Pacific Northwest can now more closely monitor the safety of their oysters, mussels, and clams thanks to the Web-based availability of near-real-time regional water quality information. The Web site displays up-to-date water temperature, salinity, oxygen, turbidity, pH, and chlorophyll data from the Kachemak Bay, AK; Padilla Bay, WA; and South Slough, OR, National Estuarine Research Reserves, and from four buoys in Hood Canal operated by the University of Washington's ORCA (Oceanic Remote Chemical-Optical Analyzer) project. The data are available thanks to telemetering capabilities in the reserve system's System-wide Monitoring Program which strengthens the burgeoning IOOS. Water quality and weather data are transmitted every 30 minutes via satellite from monitoring stations at all 27 National Estuarine Research Reserves. The Web site is jointly sponsored by NOAA's National Estuarine Research Reserve System (NERRS) and the Northwest Association of Networked Ocean Observing Systems (NANOOS). The project received funding support from NOAA's CSC, the National Estuarine Research Reserve Association, and NANOOS. Technical assistance was provided by the Pacific Coast Shellfish Growers Association and the Pacific Shellfish Institute.

First-Ever Sanctuary Status Report Highlights Conditions in Sanctuaries

Reports that examine the status of everything from water quality in the sanctuary system to endangered whale populations were released this year. These sanctuary condition reports provide a wealth of information about the complex marine resources and archaeological treasures found in sanctuary waters in straightforward, easily understandable documents. The reports will help set the stage for management plan reviews at each site and help sanctuary staff identify monitoring, and research priorities for day-to-day management needs and new threats to the sanctuaries. National marine sanctuaries reporting in 2007 are: Stellwagen Bank, Fagatele Bay, and others.

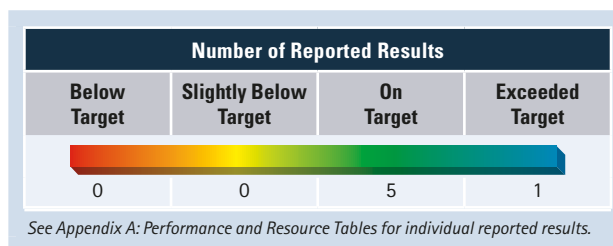
Performance Objective: Support the Nation’s commerce with information for safe, efficient, and environmentally sound transportation (NOAA)

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.

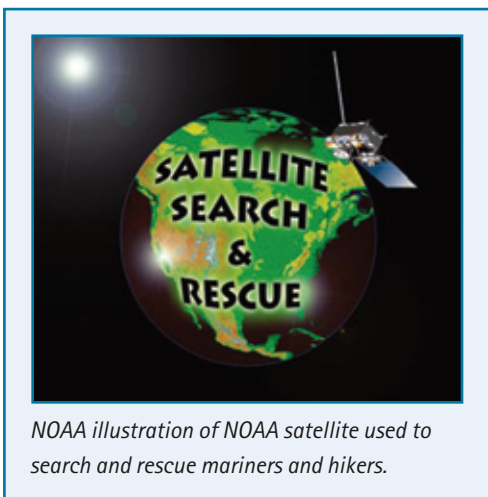
Some highlights from this performance objective in FY 2007 include:

NOAA Satellites Help Save 347 People in 2007

In FY 2007, through July 13, Search and Rescue Satellite-Aided Tracking System (SARSAT) has led to the rescue of 347 people surpassing the previous year’s total where NOAA satellites helped save 272 people from potentially life-jeopardizing emergencies throughout the United States and its surrounding waters. With over two months remaining in the fiscal year, SARSAT is fast approaching the 1999 10-year high of 294 rescues. One



possible explanation for the high totals this year is the increase in beacon population. NOAA currently has over 182,000 406 MHz emergency beacons in its registration database and is currently registering record numbers each month. Older emergency beacons operating on the 121.5 MHz and 243 MHz frequency will cease to be monitored as of February 1, 2009. Mariners, aviators, and individuals using emergency beacons will need to switch to those operating at 406 MHz if they want to be detected by satellites. Emergency beacon owners can register their 406 MHz beacons online at www.beaconregistration.noaa.gov.



NOAA Celebrates 200 Years of Nautical Charting

2007 marked the landmark 200th anniversary of the U.S. Coast and Geodetic Survey, the Nation's first federal science agency. Created in 1807 to implement Thomas Jefferson's vision for a stable maritime economy, the survey has a long history of service mapping U.S. shores and waterways, and establishing the positioning infrastructure across the United States. To celebrate, NOAA launched a poster exhibit designed by the Smithsonian Institution on World Hydrography Day (June 21st) in 200 venues nationwide. The 20 colorful posters, illustrated with photos, charts, and artwork from the survey's archives, were displayed in maritime museums, ports, aquaria, nature centers, schools, libraries, and lighthouses around the country to promote science and technology.

Secretary Gutierrez Announces New PORTS® Economic Benefits Study

An economics benefits study was released in May 2007 on the Houston Galveston Physical Oceanographic Real-Time System (PORTS®) showing that the program brings the Houston-Galveston area significant annual economic benefits and has helped achieve a 50 percent reduction in groundings. The study is based upon a standard methodology and was prepared for the Ports of Houston and Galveston and facilitated by the Houston Galveston Navigation Safety Advisory Committee. Knowledge of the currents, water levels, winds, and density of the water allow mariners to utilize every inch of dredged channel depth, which can increase the amount of cargo moved safely through a port and harbor. Secretary Gutierrez announced the study at the 25th World Ports Conference in Houston, saying: "Trade is a key part of America's economy, boosting jobs, expanding consumer choice and helping keep inflation in check and the Port of Houston is a major gateway for U.S. trade. The federal government can facilitate that trade by providing the key mapping information our seaborne trade needs to navigate our ports," said Secretary Gutierrez. "Indeed, NOAA's PORTS® program is estimating to bring \$14 to \$15 million in direct benefits to the Houston-Galveston economy."

Effective Partnership with Private / Public Entities Help Larger Commercial Shipping Remain Competitive

The Office of Coast Survey recently verified that deeper depths dredged in a channel leading to an oil transfer terminal in South Portland, ME were correctly surveyed and charted so that deeper-draft tankers could safely transit into port. To accommodate deeper-draft tanker vessels to its facility, the Portland Pipe Line Corporation (PPLC) acquired a U.S. Army Corps of Engineers permit to dredge the existing 45-foot deep federally-authorized channel leading to its terminal by an additional three feet. It is unusual for a private corporation to dredge a federally-maintained channel, which made coordination between PPLC, NOAA, the U.S. Army Corps of Engineers, and the U.S. Coast Guard essential to ensure that chart and survey standards were met, and that questions regarding liability and future maintenance were addressed to the satisfaction of the U.S. Coast Guard Captain of the Port. NOAA examined and combined three separate surveys into one cohesive product, and applied it to Chart 13292 for immediate publication. The greater depths reflected in NOAA's revised chart allowed the Captain of the Port to authorize harbor traffic to operate at the deeper depth. Adding three feet to a deep-draft petroleum port is a considerable undertaking; this activity showcases NOAA's ability to work with constituents and federal partners to address the needs of private industry and promote safe maritime commerce. Today's economy demands that companies like PPLC accommodate larger ships to remain competitive.



On May 14 NOAA representatives joined other federal, state, and local officials in Mobile, AL, to officially mark the installation of the Agency's 200th National Water Level Observation Network station at the Port of Alabama State Docks.



NOAA'S National Geodetic Survey (NGS) Helps Louisiana Stay Ahead of the Next Big Storm

A central NOAA mission is promoting public safety and preparedness, and NOAA's new, accurate elevations contribute significantly. After Hurricanes Katrina and Rita, NOAA supported rebuilding and restoration efforts in Louisiana by providing accurate benchmarks made possible through cooperative agreement with the Federal Emergency Management Administration (FEMA). In March, NOAA's NGS with the University of New Orleans and the U.S. Geological Survey measured coastal wetland elevations in southeastern Louisiana. The project promoted the integration of ecosystem observations through Height Modernization techniques and will provide baseline data to help researchers differentiate between potential causes of relative sea-level change in coastal areas, including subsidence, accretion, erosion, and local sea level rise. NOAA announced that new elevations for more than 340 benchmarks in southern Louisiana have been published. The published values provide official elevations in 27 parishes across the southern part of Louisiana that experienced hurricane damage. NOAA also worked closely with the Louisiana Spatial Reference Center at Louisiana State University located in Baton Rouge, LA.

Expanded Alaska Marine Weather Data Buoy Network Improves Marine Forecasts

To help improve marine forecasts, NOAA embarked upon a multi-year program to expand the limited Alaska marine weather data buoy network from only five weather buoys to a comprehensive network of 19 marine weather buoys. On May 4, 2007, the final buoy was deployed in the central Gulf of Alaska. In addition, two Coastal Marine Automated Network stations have also been deployed in Alaska's treacherous maritime waters. The expansion of the Alaska Data Buoy Network has improved wind speed and wave height verification by 25 percent and 32 percent, respectively. This improvement is the largest since the beginning of electronic verification in the mid-1990s.

Marine transportation and exports are a key driver of the Alaskan economy with 46 million tons of cargo exported from the state in 2005. Oil accounts for approximately \$26 billion worth of exports, and commercial fishing is a \$4 billion-a-year industry providing half of the seafood consumed in the United States. Providing the Alaska maritime industry with timely and accurate marine weather forecasts is crucial to the operations and safety of the fleet. At the same time, providing marine forecasts is a significant challenge because no other marine system in the United States has such extreme weather and climate, vast geographic distances (larger than the combined marine systems in the rest of the United States), and length of coastline (44,000 miles).

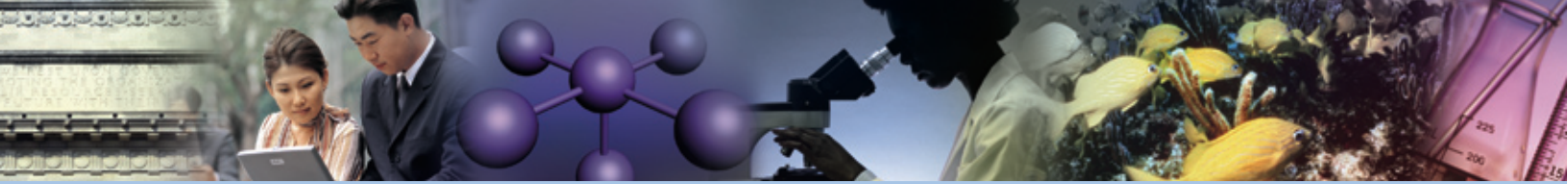
"Weather buoys provide not only marine forecasts and warnings, but they also play a significant role in science and research programs," said Senator Ted Stevens. "The expansion of the Alaska Data Buoy Network will help ensure mariners and the United States Coast Guard have the critical information they need to safely navigate our state's waters."

STRATEGIES AND FUTURE PLANS

Ecosystems

Consistent with the U.S. Ocean Action Plan and U.S. Commission on Ocean Policy Report, the Department has adopted an ecosystem approach to management that will evolve over time in collaboration with its partners. The Department uses several strategies in the NOAA strategic plan to carry out this approach.

- ◆ 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.



PERFORMANCE SECTION * STRATEGIC GOAL 3

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

NOAA is implementing the call by its stakeholders to move towards an ecosystem approach to managing uses of coastal and marine resources. NOAA is integrating the application of its multiple ecosystem mandates in partnership with universities; industry; non-governmental organizations; and local, state, and federal agencies by developing and implementing ecosystem approaches to management of coastal and marine resources.

NOAA is seeking improved understanding of ecosystems; identification of regional ecosystems; development of ecosystem health indicators; and new methods of governance to establish the necessary knowledge, tools, and capabilities to fully implement ecosystem approaches to managing coastal, ocean, and Great Lakes resources.

Commerce and Transportation

The Department 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 electronic navigational charts (ENC) 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 National Water Level Observation Network (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

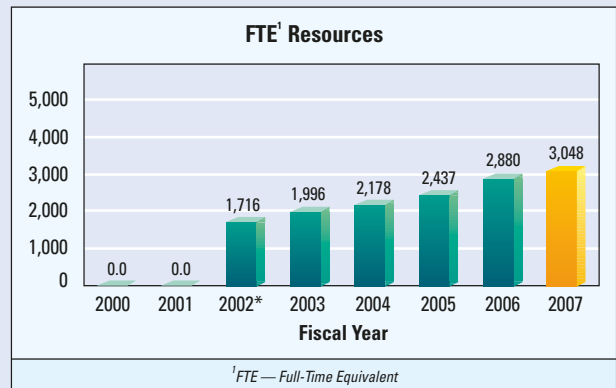
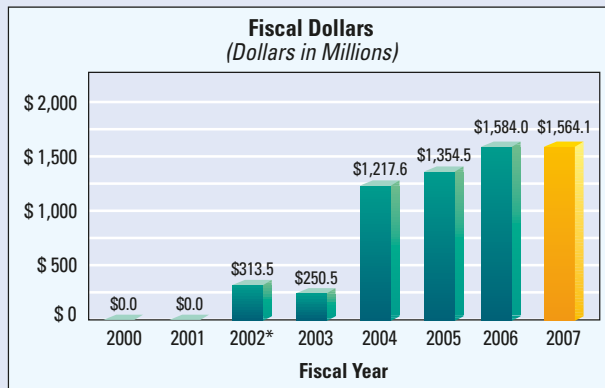
The Department will continue to address the challenges associated with delivering timely and accurate ecosystem data, information, and forecasts to stakeholders in useful formats. Ecosystem approaches to management will be an area of intense focus. Tradeoffs to address the highest priorities must continue to be made to achieve the right balance among NOAA's core natural resource and coastal management responsibilities with new and emerging needs. Navigating our increasingly complex and, at times, competing missions will be a test of NOAA's ability to effectively manage ecosystems using new tools in the years to come. NOAA will face challenges in developing unique and useful relationships with academia, non-governmental, and private sector partners to satisfy a large and growing demand for credible scientifically-based information products and management as we carry out our responsibilities across Great Lakes, coastal, and marine ecosystems.

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



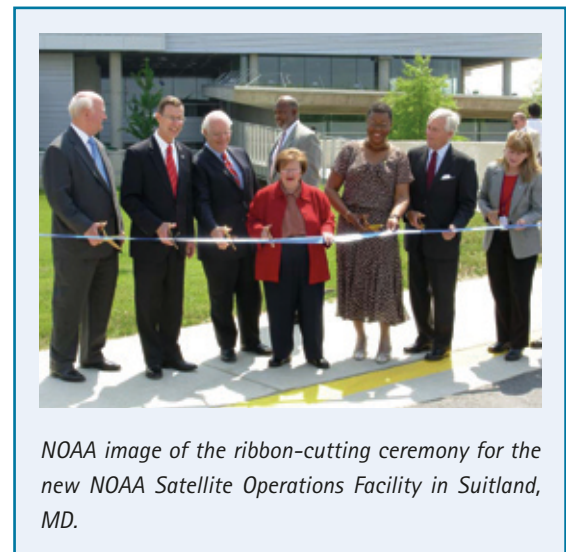
* In FY 2002, NOAA created a Mission Support goal that covered activities spanning both objectives and all four performance goals. The Mission Support goal does not currently have performance measures. Funding and FTE were split off from the other performance goals. Consequently, the funding and FTE 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 objective since the activities of this objective support the outcomes of the Mission objectives. NOAA is developing new and improving existing internal management performance measures for the Mission Support objective.

**NOAA, GSA Officially Open New Environmental Satellite Center
Award-Winning Facility Houses \$50 Million in High-Tech Equipment, Controls Satellites Worth \$4.7 Billion**

The new home for NOAA's around-the-clock, environmental satellite operations, which provides data critical for weather and climate prediction, was officially opened on June 11, 2007 at a ribbon-cutting ceremony in Suitland, MD. Top leaders from NOAA, the General Services Administration (GSA) and several Congressional representatives from Maryland, said the NOAA Satellite Operations Facility (NSOF) signifies America's solid commitment to providing the best possible environmental satellite services.

"The NOAA Satellite Operations Facility is a first-class center, with first-class technology and operations that supply essential satellite data to forecasters in order to produce the most accurate projections possible. Such a facility has a significant role in, for example, predicting where hurricanes will form, and when and where they will strike," said NOAA Administrator Conrad C. Lautenbacher.



NOAA image of the ribbon-cutting ceremony for the new NOAA Satellite Operations Facility in Suitland, MD.

At a total cost of \$81 million, including both NOAA and GSA funding, NSOF houses 549 employees consisting of personnel from NOAA, DOD, the U.S. Coast Guard, the National Aeronautics and Space Administration (NASA), and government contractors. Each day, NSOF processes more than 16 billion bytes of environmental satellite data from NOAA's geostationary and polar-orbiting

spacecraft and DOD's Meteorological Satellite Program (DMSP). NWS uses these data for the constant tracking of severe weather, as inputs into models for medium to long-range weather forecasts, and for tracking climate change. NSOF, which spans 208,271 gross square feet, supports more than \$50 million of high technology equipment, including 16 antennas that control more than \$4.7 billion worth of environmental spacecraft.

New Satellite Coverage in South America to Limit Effects of Natural Disasters

South Americans, and millions more in the Western Hemisphere, are benefiting from the reposition of NOAA's geostationary operational environmental satellite (GOES-10) spacecraft, a move designed to lessen the effects of natural disasters in the region. The satellite's successful shift from a position above the equator in the west, to a new spot in orbit, was announced on April 10, 2007 during a news conference at the Embassy of Brazil in Washington, D.C.

"Repositioning GOES-10 provides a constant vigil over atmospheric conditions that trigger severe weather, and I am pleased that the United States can strengthen the quality and quantity of data available to our Latin American partners," said NOAA Administrator Lautenbacher.

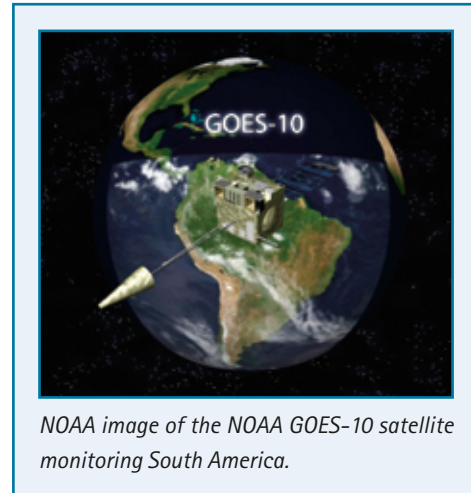
Shifting GOES-10 is part of the emerging GEOSS in the Americas, a Western Hemisphere initiative designed to advance GEOSS. Through this endeavor, NOAA is exploring partnerships with countries and scientific organizations in the Americas and Caribbean to share Earth observations and develop and strengthen data networks. Western Hemisphere nations will work together to ensure the satellite data are disseminated and training is available to enable full use of the new information.

The new satellite coverage is already having an impact in South America. On March 8, Argentina was able to trace a low pressure development and accurately issue a high-rainfall alert that helped save lives in Buenos Aires and other highly-populated areas. The new coverage also is contributing to improved fire detection in the Amazon rainforest of western Brazil. History has proven that there is a vital need for the advanced warning this additional information may provide. During the 1990s, natural disasters caused nearly 70,000 deaths in South America, more than half of which came from flooding. In May 2003, the largest flooding in 500 years hit Argentina's north-central region, displacing more than 100,000 people and causing \$1 billion in damage. Storms, cyclones, hurricanes, and mudslides caused another 20 percent of the deaths.

"The satellite is functioning well and ready for hurricane season," said Gilberto Câmara, Ph.D., director of Brazil's National Space Research Institute (Instituto Nacional de Pesquisas Espaciais). "In the past, coverage has been interrupted during hurricanes and other severe weather events in the United States. Now, South Americans will have continuing satellite coverage. We will no longer be left in the dark."

NOAA and VT Halter Marine Celebrated the "Laying of the Keel" for NOAA'S Two Newest Ships

On June 15, 2007 VT Halter Marine Inc. Shipyard and NOAA celebrated a construction milestone—the keel laying—for two new vessels at VT Halter's Moss Point, MS shipyard. A combined ceremony was held for NOAA coastal mapping vessel FERDINAND R. HASSLER and fisheries survey ship BELL M. SHIMADA. Both ships were named by student teams through regional NOAA ship-naming contests. The two teams are actively participating in today's ceremony.



NOAA image of the NOAA GOES-10 satellite monitoring South America.

"Although these ships will have very different missions, they are equally important to NOAA's success in meeting our strategic goals," said Lautenbacher. "Their state-of-the-art technologies will help NOAA more efficiently chart our waters and better assess the health of fish stocks and ecosystems on the West Coast. Celebrating this first important construction milestone together represents a great leap forward in NOAA's fleet modernization program."

Once completed, FERDINAND R. HASSLER will collect hydrographic data along the eastern seaboard of the United States for use in the creation and updating of NOAA's nautical charts, promoting safe navigation into and out of some of the Nation's busiest ports and recreational waterways. BELL M SHIMADA will collect fish stock data to support critical management decisions for some of the Nation's most economically important fisheries off of the West Coast.

NOAA Gulfstream-IV Hurricane Surveillance Jet Takes on Pacific Winter Storms to Improve Model Forecasts
Hawaii Middle School Teacher Member of Flight Crew

In an effort to improve forecasts released 24 to 96 hours before a winter storm, NOAA deployed its high-altitude Gulfstream-IV jet from a temporary base in Honolulu. The jet acquired atmospheric data from severe winter storms originating over the Pacific Ocean that will affect the continental United States, Hawaii, and Alaska. The flights are in support of the winter storms reconnaissance program of the NOAA NCEP, part of NWS.



NOAA image of the crew of the NOAA Gulfstream-IV high-altitude jet taking part in the 2007 Winter Storms Reconnaissance Program.

While conducting the winter storms project, the aircraft flew extended patterns over the North Pacific launching dropwindsonde atmospheric profiling devices to more accurately characterize the environment of developing winter cyclones and snowstorms. Data from these instruments were screened aboard the aircraft, transmitted to NCEP by satellite communication, and used in NOAA's most sophisticated forecasting models to improve warnings of severe weather events. In its seventh year, the winter storms reconnaissance program has improved forecast accuracy an average of 20 percent while accuracy for individual targeted events has been increased by as much as 60 percent to 80 percent in 24 to 96 hour forecasts during past missions.



Collage representing new NOAA ships, including the Small Water-Plane-Area Twin Hull (SWATH) Coastal Mapping Vessel (top) and the HENRY B. BIGELOW - launched on July 8, 2005 .