



Chapter 1

2007 NOAA Accomplishments and Performance Results



2007 Accomplishments

NOAA Is Major Contributor to Nobel Prize-Winning Intergovernmental Panel on Climate Change Reports

Many NOAA scientists, as well as NOAA technology and models, contributed to the Intergovernmental Panel on Climate Change (IPCC) climate science reports since the IPCC was established in 1988. For their collective efforts, the nearly 2,000 scientists who comprised the IPCC were awarded the 2007 Nobel Peace Prize. NOAA scientists served as contributors and government reviewers of the Fourth IPCC Assessment Report and its associated chapters issued this year. Dr. Susan Solomon of NOAA's Earth System Research Laboratory served as co-chair of IPCC Working Group 1 and was instrumental in the production of the group's report, *The Physical Science Basis for Climate Change*. Nine lead and review authors were NOAA scientists, and NOAA observation networks, computer modeling labs, and research programs provided data and analysis. NOAA's Geophysical Fluid Dynamics Laboratory provided model runs that enhanced the projections used in the IPCC report and contributed improved climate models coupling the interactions of the atmosphere and the oceans.



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Magnuson-Stevens Act Implementation



The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 was signed on January 12, 2007. The reauthorized Act contains significant new provisions to end overfishing, promote market-based approaches to fisheries management, improve the science used in fisheries management, improve recreational data collection, enhance international cooperation in fisheries management, and address illegal, unreported, and unregulated fishing as well as bycatch of protected living marine resources. Especially notable is the requirement to establish an annual catch limit for each fishery, which for the first time creates a mandate with a timetable to end overfishing. The Act includes 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 reautho-

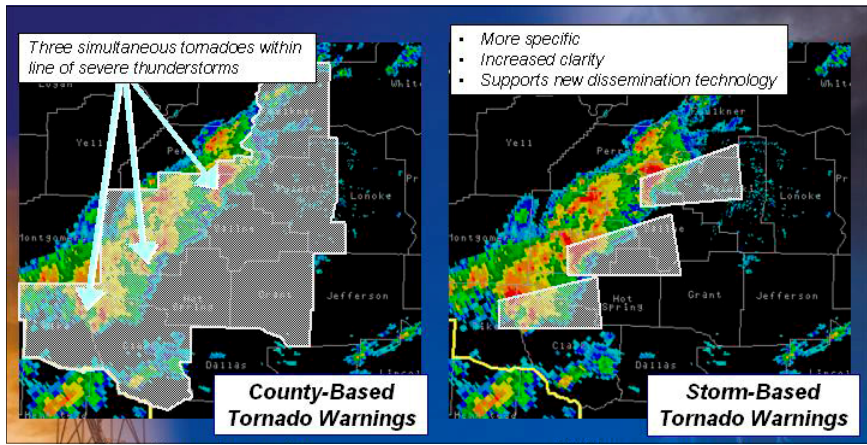


rized Act, forming an implementation team, meeting with Regional Fishery Management Councils and State Marine Fisheries Directors, holding public meetings on annual catch limit guidelines and the environmental review processes, and holding a roundtable with conservation organizations and a workshop on annual catch limit data needs. The reauthorized Magnuson-Stevens Act added new provisions that support the Administration’s goal to increase the number of market-based fisheries management programs. NOAA Fisheries added three new market-based management programs in FY 2007. At the end of FY 2007, NOAA Fisheries has 11 Limited Access Privileged programs in operation, with one being implemented, and five in various stages of development.

NOAA’s National Weather Service Provides More Specific Warning Information for Severe Weather

NOAA’s National Weather Service (NWS) began issuing more geographically specific warnings for tornadoes, severe thunderstorms, floods, and marine hazards on October 1, 2007. The new “storm-based warnings” allow forecasters to pinpoint the specific area where severe weather threats are highest, thereby reducing the area warned by as much as 70 percent when compared to the previously used county-by-county warning system. Storm-based warnings are displayed graphically and are extremely adaptable to cell phones, PDAs, and the Internet. The Emergency Alert System

(EAS) is geared toward counties and NOAA Weather Radio (NWR) All Hazards will still sound an alarm if there is a warning anywhere in a county. However, text and audio messages will provide more specific information about the location of the storm in the county, and the direction



in which it is moving. Storm-based warnings will reference landmarks such as highways, shopping centers, and parks, and will use directional delimiters to indicate county location.

National Water Level Observation Network Upgraded to Real-time Status

NOS completed a three-year effort to upgrade the technology of its National Water Level Observation Network (NWLON). NWLON stations provide mariners, first responders, and the public with real-time tide and water-level information. A major benefit of the upgrade is that network stations normally equipped to transmit water-level and other environmental data at hourly increments via NOAA Geostationary Operational Environmental Satellites now transmit data every six minutes, thus enabling users to access data much more quickly.



Moved Forward on Next Generation Geostationary Satellite Program

Geostationary satellites remain the weather sentinels for NOAA. The next-generation geostationary satellite series, GOES-R, will provide new and improved atmospheric, climatic, solar, and space data. In 2007, NOAA revised the management and acquisition strategy for the GOES-R program, partnering more closely with NASA to take advantage of each agency's technical expertise. In February 2007, the Advanced Baseline Imager (ABI), the main instrument on GOES-R, completed a key milestone, enabling the contractor to begin building the first instrument. Throughout 2007, NOAA awarded the three remaining instrument contracts for the Solar Ultraviolet Imager, Extreme Ultra Violet and X-Ray Irradiance Sensors, and Geostationary Lightning Mapper. These instruments will help us to understand and forecast solar disturbances as well as track lightning strikes from space.

Pilotless Aircraft Flies Toward Eye of Hurricane for First Time

NOAA scientists from the Atlantic Oceanographic and Meteorological Laboratory and the Earth System Research Laboratory, and NASA flew an unmanned aircraft system (UAS) into Hurricane Noel, giving researchers the first real-time, low-altitude look at a storm with hurricane category 1 winds hovering around 80 miles per hour. NOAA hurricane researchers are leading efforts to test the ability of using a remotely controlled UAS to fly into the eyewall of a hurricane at altitudes as low as 500 feet. Scientists hope using unmanned aircraft will help fill a gap in near-surface data. The data have been hard to gather because of the safety risks of low-level flight. The five-foot-long Aerosonde UAS aircraft with a wing span of 10 feet is owned and operated by AAI Corporation subsidiary, Aerosonde Pty Ltd., located in Victoria, Australia.



Fleet Modernization Moves Ahead

In June 2007, NOAA celebrated the keel laying of NOAA ships BELL M. SHIMADA (Fisheries Survey Vessel 4) and FERDINAND R. HASSLER (SWATH CMV--small water-plane area twin hull coastal mapping vessel) at the VT Halter Marine shipyard in Moss Point, Mississippi. This marked the first time NOAA has celebrated this important construction milestone for two ships simultaneously. HENRY B. BIGELOW, second of the four fisheries survey vessels of the same class being built by VT Halter Marine, was commissioned into the fleet in July before beginning operations in New England. Prior to commissioning, the U.S. Navy completed a battery of underwater acoustic tests that found BIGELOW's acoustics exceed international standards set by the International Council for the Exploration of the Sea to optimize fish-



eries research worldwide. In September, Phase I of conversion of NOAA Ship OKEANOS EXPLORER (formerly USNS CAPABLE) to an ocean exploration ship was completed by Todd Pacific Shipyards of Seattle, Washington, following successful completion of sea trials. NOAA Ship PISCES (Fisheries Survey Vessel 3) passed a significant construction milestone in December with her christening by Dr. Annette Nevin Shelby, wife of Senator Richard Shelby (R-AL), and subsequent launching at the VT Halter Marine shipyard.



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, 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 Gulf States Marine Fisheries Commission 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 Weather Radio All Hazards Activities: Meeting the Expectations of the Nation for Weather and All Hazard Warning Information

NOAA's National Weather Service added 16 broadcast stations to the NOAA Weather Radio (NWR) All Hazards network in 2007. In addition to achieving 100 percent coverage of high-risk areas, NOAA refurbished 62 broadcast stations with technology upgrades that significantly improved reliability and availability, while decreasing maintenance costs. This allows the network to meet expectations of availability as the Nation's weather and all hazard warning system. NWR is a reliable and inexpensive means of communicating weather, hazard, and emergency information directly to the public. The network infrastructure consists of 986 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 re-





quired to broadcast to all areas of the United States identified as being at high risk of experiencing severe weather and to sustain a high level of reliability and maintainability in those areas.

New State-of-the-Art Satellite Operations Facility Officially Opened

In June 2007, NOAA and the General Services Administration officially opened the new state-



of-the-art NOAA Satellite Operations Facility (NSOF). NSOF is the new home for NOAA's around-the-clock environmental satellite operations, which provides data critical for weather and climate prediction. NSOF spans 208,271 gross square feet and supports more than \$50 million of high technology equipment, including 16 antennas monitoring the operations of 16 on-orbit satellites. NOAA engineers developed effective transition plans so that NOAA maintained over 99.5 percent recovery of its satellite data while moving into the new building!

Marine Reserves Established in Channel Island National Marine Sanctuary

In 2007, NOS established the Federal portion of the marine reserves and conservation area network within the Channel Islands National Marine Sanctuary. This is the largest network of marine reserves in Federal waters in the continental United States. This action complements the State of California establishment a network of marine reserves and conservation areas within the State waters of the sanctuary in 2003.

Expanding U.S. Tsunami Preparedness

NOAA's National Weather Service (NWS) is responsible for the expansion of the U.S. network of tsunami detection sensors. During 2007, 14 Deep-ocean Assessment and Reporting of Tsunamis (DART™) buoys were established: four in the Western Pacific Ocean, three off the Pacific Coast of Central America, five in the north-western Pacific Ocean, and two in the North Atlantic Ocean, bringing the total number of U.S. DART™ stations to 34. The U.S., with NOAA as lead agency, is currently working with approximately 70 countries, the European Commission, and over 50 non-governmental agencies in planning and implementing the Global Earth Observation System of Systems (GEOSS), which includes a global tsunami warning system. In addition, NWS works with communities to prepare for tsunamis through the TsunamiReady™ Program. As of De-

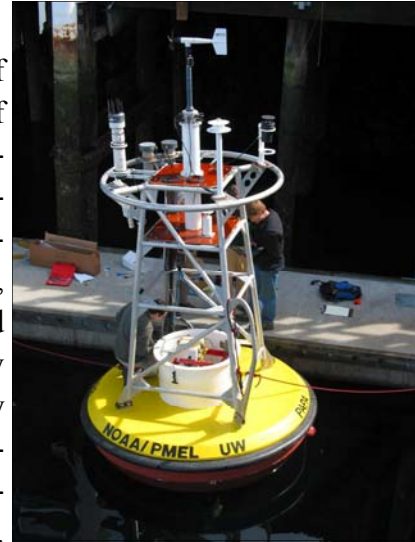




September 12, 2007, there are 47 TsunamiReady™ sites in 10 states, Puerto Rico, and Guam. The National Weather Service reached its goal of recognizing 10 new TsunamiReady™ communities in fiscal year 2007.

First Buoy to Measure Acidification Launched

The first buoy to monitor directly ocean acidification, a result of carbon dioxide absorbed by the ocean, was launched in the Gulf of Alaska. This new buoy, part of a National Science Foundation project awarded to PMEL and the University of Washington in Seattle, in collaboration with Fisheries and Oceans Canada and the Institute of Ocean Sciences in British Columbia, measures the air-sea exchange of carbon dioxide, oxygen, and nitrogen gas, in addition to the pH — a measure of ocean acidity — of the surface waters. The buoy is anchored in water nearly 5,000 meters deep and transmits data via satellite. Rising acidity in the ocean could have a detrimental effect on ocean organisms, with resulting impacts on ocean life and the food chain. This system is the first specifically designed to monitor for ocean acidification.



NOAA Ships Arrive at New Home Port in Hawaii

OSCAR ELTON SETTE, HI'IALAKAI, and KA'IMIMOANA relocated to piers F-9 and F-10 at historic Ford Island, Pearl Harbor, Hawaii, heralding the permanent presence of NOAA on Ford Island. This was a major milestone in the multi-year, multi-phase construction of the NOAA Pacific Regional Center, a project to consolidate NOAA programs and operations on the island of Oahu into a single facility on Ford Island.

NOAA's Open Rivers Initiative Completes First Projects



In its first year, NOAA's Open Rivers Initiative completed three projects that restored over 30 miles of spawning and rearing habitat for migratory fish. The obsolete Brownsville Dam, located on the Calapooia River in Oregon, was removed in August 2007, effectively eliminating an obstruction to migratory fish and a safety hazard to the local human community. In California, two failing and undersized culverts were removed, allowing endangered salmon to reach

their historic spawning and rearing grounds. In collaboration with local communities, NOAA's



Open Rivers Initiative will continue to restore free-flowing river systems and yield unimpeded fish passage to historic habitat by removing obsolete dams and barriers that dot the rivers of coastal states.

Delivering Real-Time Data to Help Shellfish Growers

Shellfish growers in the Pacific Northwest can get near real-time water quality data from the System-wide Monitoring Program operating at National Estuarine Research Reserves in Alaska,

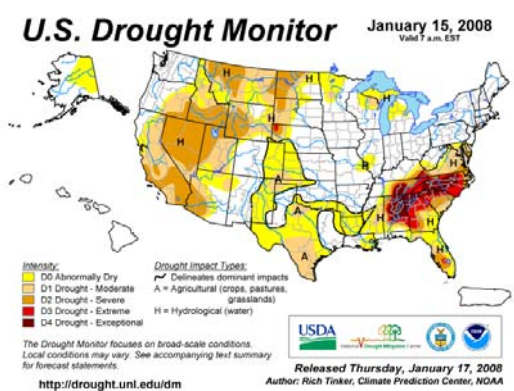


Washington, and Oregon. The data are available through telemetering capabilities, which measure, receive, and transmit data automatically from distant sources. Through a Web site (<http://www.nanoos-shellfish.org/>) jointly sponsored by NOS and the Northwest Association of Networked Ocean Observing Systems (NANOOS), growers can view up-to-date water temperature, salinity, oxygen, turbidity, pH, and chlorophyll data from reserves in Kachemak Bay, Alaska; South Slough, Oregon; and Padilla Bay, Washington. Data are also available from four buoys operated by the University of Washington in Hood Canal, a long arm of Puget Sound west of the main basin. The project received funding support from NOS, the National Estuarine Research Reserve Association, and NANOOS. The Pacific Coast Shellfish Growers Association and the Pacific Shellfish Institute provided technical assistance.

Water quality and weather data are transmitted every 30 minutes via satellite from monitoring stations at all 27 National Estuarine Research Reserves, providing information to the growing Integrated Ocean Observing System (IOOS).

Provided Better Access to Drought Information

NOAA's National Climatic Data Center is continuing to work with other U.S. Government agencies on the National Integrated Drought Information System (NIDIS). NIDIS is a drought risk information system that provides users with the ability to determine the potential impacts of drought. It also provides the decision support tools necessary to better prepare for and mitigate the effects of drought. November 2007, the U.S. Government unveiled a new website for the public and civic managers to monitor U.S. drought conditions, get forecasts, know how drought impacts their communities, and know what mitigation measures exist. Called the U.S. Drought Portal, the www.drought.gov site provides a weekly updated map on drought conditions. Along with the existing international cooperation on a monthly product





called the North American Drought Monitor, these tools serve as an international model to help coordinate drought preparedness, response, mitigation, and recovery activities.

Great Lakes Lab Recognized for ‘Green’ Research Vessels

NOAA’s Great Lakes Environmental Research Laboratory (GLERL) converted a fleet of research vessels from petroleum-based to 100 percent bio-based fuel and lubricants, earning a White House Closing-the-Circle Award in the green purchasing category. GLERL operates research vessels throughout the Great Lakes region as scientific platforms for ecosystems research and other NOAA interests in the area. The lab has focused efforts on innovative ways to engineer, operate, and maintain these ships to support scientific missions and advance



NOAA’s larger mission as a steward of the marine environment. 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.

Web-Based Product Brings Weather Forecasts Instantly to Fire Management Agencies

NOAA’s National Weather Service (NWS) Fire Weather Dynamic Point Forecast Matrix (PFM) 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 an experimental Web-based product available across the western United States that provides dynamic forecast updates with enhanced usability for fire management officials. A typical PFM weather forecast is produced for seven days, once every three hours for the first three days and then every six hours for the last four days. By clicking on a map on the Web-based PFM interface, fire agencies are able to quickly receive a dynamic forecast generated from the latest information available for the specific point of interest.

Use of this new tool allows for more efficient fire administration, resulting in cost savings to the Nation and improved management of our public lands and forest ecosystems.



America COMPETES Act Signed into Law

On August 9, 2007, The President signed into law the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science Act (America COMPETES) which gives NOAA a mandate to do education. The Act states that NOAA shall conduct, develop, support, promote, and coordinate education activities to enhance awareness and understanding of mission-related sciences.



NOAA Earns Unqualified Audit Opinion for 9th Straight Year

NOAA has been under the scrutiny of an external audit of our financial statements since 1994, and has received an “unqualified opinion” on its statements each year since 1998. An unqualified opinion is an independent auditor’s opinion of our financial statements, given without any reservations. This opinion states that the auditor believes NOAA followed all accounting rules appropriately and that the financial reports are an accurate representation of the agency’s financial management. The Commerce Business Systems (CBS) and accounting and financial controls are a strength for NOAA.



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NOAA GPRA Performance Results

NOAA's mission goals in ecosystems, climate, weather and water, and commerce and transportation are matrixed, from a funding and organizational perspective, to maximize our support of the Departmental performance goal to observe, protect, and manage the Earth's resources to promote environmental stewardship. NOAA currently has 30 Government Performance & Results Act (GPRA) measure targets. In FY 2007, NOAA achieved or exceeded targets on 27 of 30 measures, or 90 percent of the targets. We expect to improve on our GPRA measures to make them more outcome-oriented and to better improve upon our performance results now and in the future. The funding requested in this budget is essential to improving our scorecard results, and we are employing new and modified measures in FY 2008 to better represent and assess NOAA's performance in achieving our mission.

NOAA GPRA successes include increasing the lead time for severe weather warnings for flash floods and the number of habitat acres restored as well as protected. In addition, accomplishments also consist of reductions to the hydrographic survey backlog within navigationally significant areas, and an increase to the fish stock sustainability index.

NOAA's GPRA goals are focused on the results of key programs and services, support decision making and congressional oversight, and are designed to measure and improve the performance of NOAA in meeting its mission. GPRA is unique in its requirement that agency "results" be integrated into the budgetary decision-making process. NOAA continuously strives to improve its measures to better the service it provides to the American public.

For more information on NOAA's FY 2007 performance, please refer to the Department of Commerce FY 2007 Performance and Accountability Report (PAR), found here: <http://www.osec.doc.gov/bmi/budget/FY07PAR.htm>. Some of the actuals reported here are slightly different from what was reported in the FY 2007 PAR because estimates, as noted, were provided in the PAR.

Key to Color Coding:



Exceeded Target



Met Target



Slightly Below Target



Did Not Meet Target



NOAA Performance Summary for FY 2007

Goal	Measure	FY 2007 Target	FY 2007 Actual	Met/Unmet
Weather and Water	Lead Time (Minutes), Accuracy (%), and False Alarm Rate (FAR) (%) for Severe Weather Warnings for Tornadoes (county based)	Lead Time: 13	13	
		Accuracy: 76%	78%	
		FAR: 75%	76%	
	Lead Time (Minutes) and Accuracy (%) for Severe Weather Warnings for Flash Floods	Lead Time: 48	60	
		Accuracy: 98%	90%	
	Hurricane Forecast Track Error, 48 Hour (Nautical Miles)	110	97	
Accuracy (%) (Threat Score) of Day 1 Precipitation Forecasts	29%	31%		
Climate	Lead Time (Hours) and Accuracy (%) for Winter Storm Warnings	Lead Time: 15	18	
		Accuracy: 90%	92%	
	Cumulative Percentage of U.S. Shoreline and Inland Areas that have Improved Ability to Reduce Coastal Hazard Impacts	32%	32%	
	U.S. Temperature Forecasts (Cumulative Skill Score)	19	29	
	Reduce the Uncertainty in the Magnitude of the North American (NA) Carbon Uptake	0.4 GtC/yr	0.4 GtC/yr	
	Reduce the Uncertainty in the Model Simulations of the Influence of Aerosols on Climate	10% Improvement	10% Improvement	
Determine the National Explained Variance (%) for Temperature and Precipitation for the Contiguous United States using USRCN Stations	Captured 97.2% - Annual National Temperature Trend	Temp: 97.7%		
	96.2% - Annual National Precipitation Trend	Precip: 93.8%		
Reduce the Error in Global Measurement of Sea Surface Temperature	0.5° C	0.5° C		
Improve Society's Ability to Plan and Respond to Climate Variability and Change Using NOAA Climate Products and Information	32 risk assessments/evaluations communicated to decision makers	32 assessments/evaluations		



Goal	Measure	FY 2007 Target	FY 2007 Actual	Met/Unmet
Ecosystems	Fish Stock Sustainability Index (FSSI)	505	524	
	Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts	40%	40.6%	
	Number of Protected Species Designated as Threatened, Endangered, or Depleted with Stable or Increasing Population Levels	26	26	
	Number of Habitat Acres Restored (Annual/Cumulative)	5,000/ 37,514	5,974/ 38,488	
	Annual Number of Coastal, Marine, and Great Lakes Ecological Characterizations that Meet Management Needs	27	27	
	Cumulative Number of Coastal, Marine, and Great Lakes Issue-Based Forecasting Capabilities Developed and Used for Management	35	35	
	Percentage of Tools Technologies, and Information Services that are Used by NOAA Partners/Customers to Improve Ecosystem-Based Management	85%	85%	
	Annual Number of Coastal, Marine, and Great Lakes Habitat Acres Acquired or Designated for Long-Term Protection (Annual)	2,000	3,020	
Commerce & Transportation	Reduce the Hydrographic Survey Backlog within Navigationally Significant Areas (square nautical miles surveyed per year)	1,350	3,198	
	Percentage of U.S. Counties Rated as Enabled or Substantially Enabled with Accurate Positioning Capacity	49%	51.6%	
	Accuracy (%) and FAR (%) of Aviation Forecasts for Ceiling and Visibility (3 miles / 1000 feet)	Accuracy: 62% FAR: 45%	61% 40%	
	Accuracy (%) of Forecast for Wind Speed and Wave Height	Wind Speed: 68% Wave Height: 73%	73% 78%	
Mission Support	There are no GPRA measures associated with the Mission Support Goal			