FY 2012 BUDGET SUMMARY

FEBRUARY 14, 2011

NOAA
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

NOAA Ship *Thomas Jefferson* approaches the Deepwater Horizon incident location, collecting water and air samples. Also, utilizing its advanced acoustic intrumentation typically used for hydrographic survey, the Thomas Jefferson investigated the undersea oil plume.

DEAR FRIENDS OF NOAA

I am pleased to present the NOAA budget summary for Fiscal Year 2012. Here you will find accomplishments from the previous year, descriptions of our programs and missions, and our plans for fulfilling NOAA's Next Generation Strategic Goals and the priorities set forth by the Administration and the Department of Commerce.

NOAA has a strong track record of scientific excellence and this budget will continue to advance that work. Science and innovation are the engines of economic growth; moreover, diverse businesses and communities rely on NOAA's data and products to make important decisions. So while NOAA takes significant steps within this budget to help reduce government spending, it also makes key investments in the next generation of research and informational products to meet the growing demand for NOAA's science and services and to drive economic recovery. Ultimately, supporting America's businesses, communities, and people is NOAA's business.

Climate is everyone's business. NOAA is working to understand and predict near- and long-term changes in our climate and provide this information to inform real decisions. Farmers across the country need climate information to make choices about what crops to plant and when to plant them. City planners armed with predictions about future sea level rise can direct coastal development to safer locations – protecting lives, property, and commerce. The construction industry needs information on climate variability in order to adequately design new projects and materials that are resilient to the projected range of heat and cold. To ensure that NOAA can provide these data and products in a timely way, this budget proposes a reorganization of NOAA to create a Climate Service. The Climate Service will be a single, reliable, and authoritative source for products and information that address people's needs. Additionally, this budget supports increases in our regional climate services to provide regionally tailored climate products in six U.S. regions.

Weather is everyone's business. No business or community is spared the impacts of severe weather. Storms can wreak havoc on transportation, bringing air, rail, and highway travel to a standstill, stranding thousands of travelers, and impeding the transport of goods and services. Accurate NOAA weather forecasts help the airlines and others plan in advance to avoid these impacts, lessening the economic toll and enhancing public safety. Agriculture, tourism-related businesses, emergency managers, and fisherman are all directly impacted by weather and rely on accurate weather forecasts to plan accordingly. This budget provides improvements to key Weather Service infrastructure necessary for the timely delivery of more complex and tailored weather forecasts and continues the successful implementation of NOAA's satellite program.

Energy is everyone's business. Solar, wind, and wave energy generation are closely tied to weather and climate trends – and therefore new research in these areas is essential to the growth of the renewable energy sector. Energy companies and businesses looking to increase the generation and use of renewable energy will need forecasts to understand when renewable generation is likely, and equally

importantly, when it is not. NOAA proposes budget increases that will improve our capabilities to understand and forecast atmospheric conditions amenable to wind energy generation, and proposes improvements to the Integrated Ocean Observing System that will aid in generating wave forecasts. The budget also continues to support regional planning efforts so that all offshore uses – include renewable energy – are sited in a manner that reduces user conflicts and limits site-specific and cumulative impacts to the ecosystem.

Healthy oceans and coasts are everyone's business. In 2010, the White House released the first National Ocean Policy – reinforcing the notion that "Healthy Oceans Matter." The far reaching impacts of the Deepwater Horizon Oil spill further demonstrated the close tie between healthy oceans and healthy coastal economies and communities. NOAA is committed to providing the information necessary to promote environmental stewardship, support a range of coastal-based industries, and benefit coastal communities and economies. Sustainable fish stocks support robust commercial and recreational fisheries, which in turn support numerous associated onshore businesses. NOAA's efforts to sustainably manage fisheries nationwide – including the budget proposal for increasing baseline stock assessments – will add value to coastal communities over the long term. NOAA also provides nautical charts and high-resolution port information critical to America's shipping industry and the transportation of billions of dollar in goods. Modest proposed increases in our mapping program through this budget will significantly improve the accessibility of NOAA mapping data.

I believe this budget has achieved balance between fiscal responsibility and promoting the next generation of science, products, and services to improve American competitiveness. NOAA and the Department of Commerce will continue to pursue innovation throughout our mission and to support advances in the green economy as avenues to promote economic recovery and growth. I look forward to continuing to work with excellent people throughout NOAA, our partners in the Federal government and nationwide, and with the Congress to ensure that we collectively achieve these goals and continue to serve America's businesses, communities, and people.

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TERMINOLOGY

The reader should be aware of the specific meaning of several terms as they are used throughout this budget summary:

"FY 2010 Enacted"
Fiscal Year (FY) 2010 Appropriations (P.L. 111-117)

"FY 2011 Annualized CR"
An annualized version of P.L. 111-322, this represents NOAA's estimated funding levels throughout FY 2011.

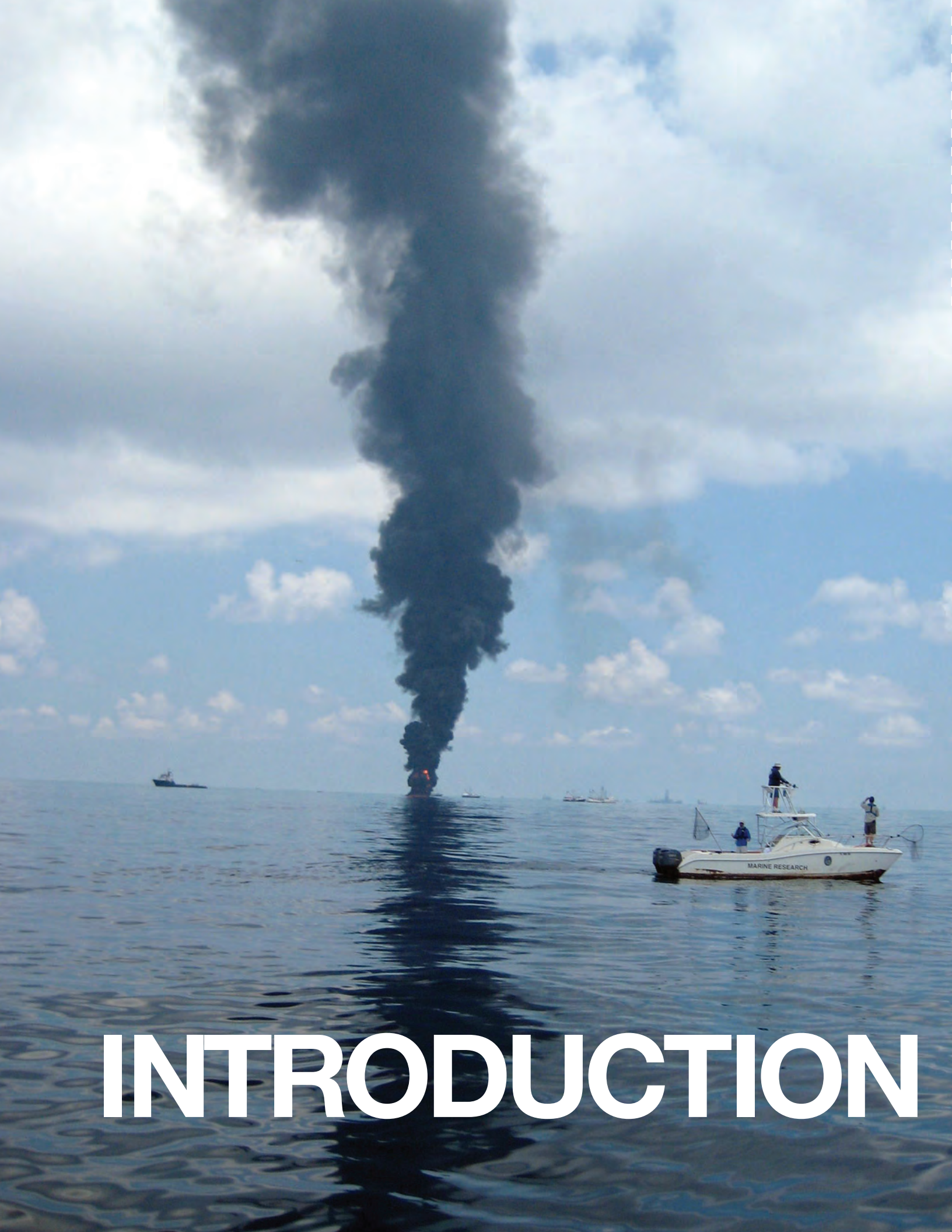
"Climate Reorg"
In the FY 2012 President's Request, NOAA proposes consolidating climate related activities into a new line office the Climate Service. As part of this process, technical adjustments are made to the budget, transferring funds and FTEs from the OAR, NWS, and NESDIS line offices to the proposed line office, the Climate Service.

"Adjustments-to-Base"
Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from GSA. In addition, ATBs include unique/technical adjustments to the base program, for example transfers of base resources between budget lines

"FY 2012 Base"
Fiscal year (FY) 2011 Annualized CR plus Adjustments-To-Base including those related to the proposed Climate Reorganization and other Adjustments

"Program Change"
Requested increases/decreases over the FY 2012 base

"FY 2012 Request"
FY 2012 Base, plus Program Changes



INTRODUCTION

NOAA: PROTECTING LIVES AND LIVELIHOODS

NOAA generates tremendous value for the Nation—and the world—by advancing our ability to understand and anticipate changes in the Earth's environment, improving society's ability to make scientifically informed decisions, delivering services vital to the economy and public safety, and by conserving and managing ocean and coastal ecosystems and resources.

May 27 near the Deepwater Horizon convergence zone showing dark brown and red emulsion oil.

NOAA provides weather, water, and climate forecasts and warnings for the private and public sectors. Annually, NOAA provides 76 billion environmental observations, 1.5 million forecasts, and 50,000 severe weather warnings. Observations from Next Generation Radars have enabled earlier tornado warnings which have reduced anticipated fatalities by 45 percent[1]. NOAA has improved hurricane storm track forecast error by 50 percent since 1990 and hurricane wind speed forecasts by 15 percent since 2004. Hurricane forecast improvements save the U.S. economy approximately $640,000 per mile of coast line by avoiding unnecessary evacuations[2].

NOAA sustains and manages ocean and coastal resources and evaluates the status of, and threats to, protected marine species (whales, seals, etc.). Commercial and saltwater recreational fisheries supported 1.9 million full- and part-time jobs and generated $163 billion in economic activity[3]. NOAA will continue working with the eight regional fishery management councils to implement annual catch limit management programs for all fisheries by 2011 to end and prevent overfishing, improve fisheries management, and put fisheries on a path to sustainability and profitability.

1 Sutter, D., and Simmons, K., 2005: WSR-88D radar, tornado warnings, and tornado casualties. *Weather and Forecasting,* 20(3), 301-310.
2 http://www.economics.noaa.gov/
3 Fisheries Economics of the United States, 2008.

NOAA delivers nautical charts, real time tides and currents, accurate positioning infrastructure, and emergency response support to benefit safe, efficient, and secure transportation on U.S. waterways. The U.S. Marine Transportation System contributes nearly $2 trillion to the GDP and creates over 8 million jobs. NOAA's science and services contribute to the stewardship of our nations coastal and ocean resources and the economic and environmental sustainability of coastal communities. Shore-adjacent counties, that encompass 18 percent of U.S. land area and 36 percent of U.S. population, generate 42 percent of the national economic output. NOAA partners with states to implement a range of programs that help manage coastal resources, such as Coastal Zone Management Act, National Estuarine Research Reserves, and National Marine Sanctuaries.

NOAA also supports world-class science that increases our foundational knowledge of how ecosystems work and continues to make advances in ocean exploration. NOAA's web site (www.noaa.gov) provides a wealth of knowledge to schools, scientists, businesses, managers, and the public.

NOAA's Mission Statement summarizes the Agency's fundamental responsibilities.

NOAA's Mission: SCIENCE, SERVICE, AND STEWARDSHIP

To understand and predict changes in climate, weather, oceans, and coasts

To share that knowledge and information with others

To conserve and manage coastal and marine ecosystems and resources

NOAA's Next Generation Strategic Plan (http://www.ppi.noaa.gov/ngsp.html) presents the goals and objectives of the Agency that will allow NOAA to pursue its mission within the context of a new vision of resilience.

NOAA's Vision of the Future: Resilient Ecosystems, Communities, and Economies

Earth's ecosystems support people, communities, and economies. Human health, prosperity, and well-being depend upon the health and resilience of natural and social ecosystems. NOAA's mission of science, service, and stewardship is directed to a vision of the future where societies and their ecosystems are healthy and resilient in the face of sudden or prolonged change. A vision of resilience will guide NOAA and its partners in a collective effort to reduce the vulnerability of communities and ecological systems in the short-term, while helping society adapt to potential long-term environmental changes.

To this end, NOAA will focus on four long-term goals:

Climate Adaptation and Mitigation: An informed society anticipating and responding to climate and its impacts

Weather-Ready Nation: Society is prepared for and responds to weather-related events

Healthy Oceans: Marine fisheries, habitats, and biodiversity are sustained within healthy and productive ecosystems

Resilient Coastal Communities and Economies: Coastal and Great Lakes communities are environmentally and economically sustainable

NOAA's ability to achieve these goals is wholly dependent on the Agency's enterprise-wide capabilities that underlie and support all other activities:

Science and technology

Engagement

Organization and administration

An overview of the Next Generation Strategic Plan is presented on the following page, followed by a list of NOAA short-term priorities, developed within the context of these larger, long-term goals.

NOAA'S MISSION:
SCIENCE, SERVICE & STEWARDSHIP
To understand and predict changes in climate, weather, oceans, and coasts,
To share that knowledge and information with others, and
To conserve and manage coastal and marine ecosystems and resources
SCIENCE & TECHNOLOGY ENTERPRISE
A holistic understanding of the earth system through research
Accurate, reliable data from integrated Earth observations
An integrated environmental modeling system
CLIMATE ADAPTATION & MITIGATION
Improved scientific understanding
Assessments identify impacts, inform decisions
Mitigation, adaptation choices supported
A climate-literate public
RESILIENT COASTAL COMMUNITIES & ECONOMIES
Resilient coastal communities
Ocean and coastal planning, management
Safe, sound, efficient marine transportation
Improved coastal water quality
Safe, sound Arctic access, management
NOAA'S VISION OF THE FUTURE:
RESILIENT ECOSYSTEMS, COMMUNITIES & ECONOMIES
Healthy ecosystems, communities, and economies that are resilient in the face of change
WEATHER READY NATION
Reduced loss of life, property, disruption
Improved freshwater management
Transportation efficiency, safety
Healthy people, communities
Productive, efficient economy
HEALTHY OCEANS
Improved understanding of ecosystems
Recovered, healthy species
Healthy habitats sustain resources, communities
Sustainable fisheries, safe seafood
ENGAGEMENT ENTERPRISE
An engaged, educated public for informed environmental decisions
Integrated services for evolving demands of regional stakeholders
International partnerships and policy leadership
Diverse, evolving workforce
Modern information technology
Modern, safe, sustainable facilities
A high performing organization
ORGANIZATION & ADMINISTRATION ENTERPRISE
U.S. DEPARTMENT OF COMMERCE • NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA SHORT-TERM PRIORITIES

Advance Climate Services:

The Climate Service will bring together longstanding NOAA core capabilities into a single, more coordinated and effective organization. NOAA must build on these existing capabilities and grow our capacity to develop and deliver a new generation of climate science and services to our partners, our customers, and the public.

Define the future of NOAA's weather and water services:

As science and technology evolve, we must develop a new vision of weather and water service delivery for the future and build the scientific, technological, and organizational capacity required to achieve that vision.

Provide sustainable seafood and jobs by eliminating overfishing, rebuilding fish stocks, conserving habitat and fostering sustainable aquaculture:

Eliminating overfishing, rebuilding overfished stocks, and enabling ecologically sustainable marine aquaculture helps ensure the long-term sustainability of the U.S. commercial and recreational fishing industries, coastal tourism, and related businesses that support coastal communities. NOAA must continue to implement the innovative policies and collaborative management practices needed to achieve sustainable fisheries seafood.

Promote stewardship of oceans and coasts by implementing the National Ocean Policy (NOP):

For the first time in our nation's history, the United States has a national policy that clearly states, "healthy oceans matter." NOAA is committed to supporting the implementation of the Policy and engaging with our federal partners on the National Ocean Council.

Strengthening science:

Strengthening NOAA's science means promoting scientific excellence and enabling scientists within NOAA to thrive. Working with our partners in academia and the international community, we must embrace new challenges and focus on the integrated observations and data collection, model development, and physical and social science research needed to understand Earth systems and the services they provide.

Support recovery in the Gulf of Mexico:

In collaboration with federal, state, and local partners, NOAA is committed to the long-term restoration of the Gulf of Mexico and to understanding lessons that can be applied in other regions necessary to realize our vision of healthy

ecosystems, communities, and economies that are resilient in the face of change.

Improve understanding, planning, and environmental protection in the Arctic:

The Arctic contains diverse and unique ecosystems and abundant natural resources; the region is also significant because changes in its climate and ecosystems have global impacts. As the region opens up to new development and use, NOAA must engage its diverse and unique capabilities and associated data and information products to rapidly address the emerging environmental, social, economic, safety, and national security issues in the Arctic.

2010 ACCOMPLISHMENTS—

STEPPING UP TO NATIONAL CHALLENGES AND ADVANCING KEY PRIORITIES

2010 was a year of accomplishments and challenges for NOAA. NOAA provided critical response support and science capabilities to the BP Deepwater Horizon Oil Spill Federal response effort while continuing mission critical work and, making significant progress in key priority areas: reforming NOAA's satellite programs, advancing NOAA's climate services, rebuilding fish stocks, and playing a leading role in developing and establishing a National Ocean Policy for the oceans and Great Lakes. NOAA also took significant steps to strengthen the core science that is central to all of its mission areas by convening the first NOAA-wide science workshop to establish a long-term science vision for NOAA.

LTJG Matthew Griffin, sensor operator on the NOAA P3 aircraft, doing aerial photography to document the pre-oiled Louisiana coast for the emergency response effort on May 29, 2010.

NOAA has long been recognized as the leading provider of weather and climate data and forecasts. The year 2010 saw a number of extreme weather events including the historic winter blizzards in the Northeast early in the year, historic flooding in the Midwest and Tennessee, and the third most active Atlantic hurricane season on record. Throughout these and other events, the National Weather Service provided critical information to communities and emergency managers. In February, the Secretary of Commerce announced the intent to create a Climate Service, similar to the National Weather Service, to provide more relevant and useful climate information to businesses and decision makers. Throughout the year the agency has continued to improve its climate science and services provision and advance plans for establishing the new line office.

NOAA's satellite program is the backbone of NOAA's weather and climate data and services. The program provides critical observations and support to all mission areas. The year 2010 saw considerable progress in transitioning the management and structure of the National Polar-orbiting Operational Satellite program to a new NOAA-NASA managed Joint Polar Satellite System, as well as the launch of the newest Geostationary Operational Environmental Satellite Series P (GOES-15), and the finalization of significant international satellite data agreements, all of which will add to our climate and meteorological abilities for years to come.

When the Deepwater Horizon oil rig exploded on April 20, 2010 NOAA responded within hours, providing targeted weather forecasts, oil spill trajectory maps, and mobilizing personnel and assets to respond to what evolved

into the largest oil spill in U.S. history. As the lead federal science agency on oil spills in the marine environment, NOAA's response was immediate and sustained, strategic and scientific. NOAA tracked every aspect of the spill to guide the response operations. It closed and then carefully re-opened fisheries in Federal waters to ensure seafood was safe and it deployed teams to assess, respond to, and minimize consequences to coastal communities, wildlife, and the marine environment. All assets and scientific methods were called into action, including satellites in space, planes in the air, boats on the water, scientists on the ground, and information online.

NOAA's work continues, ensuring the safety of gulf seafood, assessing and cleaning up oil that remains on beaches and in the nearshore, and assessing damages as the lead Federal trustee for the Natural Resource Damage Assessment process. In keeping with its commitment to transparency and scientific integrity, NOAA made it a priority throughout this large scale emergency to share data and information in a timely and responsible fashion to inform the public and local officials and to increase collaboration with independent and academic scientists working in the region.

The widespread economic and human impact of the spill clearly demonstrated that healthy oceans matter. A commitment to coastal communities and a healthy ocean has been a priority of this Administration since it began and in July 2010 the White House announced a National Ocean Policy to ensure a coordinated approach to improving ocean management and health. As the steward of our Nation's oceans and coasts, NOAA played a central role in developing this historic policy and is committed to its successful implementation.

NOAA rose to many challenges in 2010, providing critical information and services to the Nation and the world in times of crisis and moving forward on key program priorities to advance science, service, and stewardship abilities in all its mission areas.

NOAA Ship *Thomas Jefferson* approaches the Deepwater Horizon incident location, collecting water and air samples. Also, utilizing its advanced acoustic intrumentation typically used for hydrographic survey, the *Thomas Jefferson* investigated the undersea oil plume.

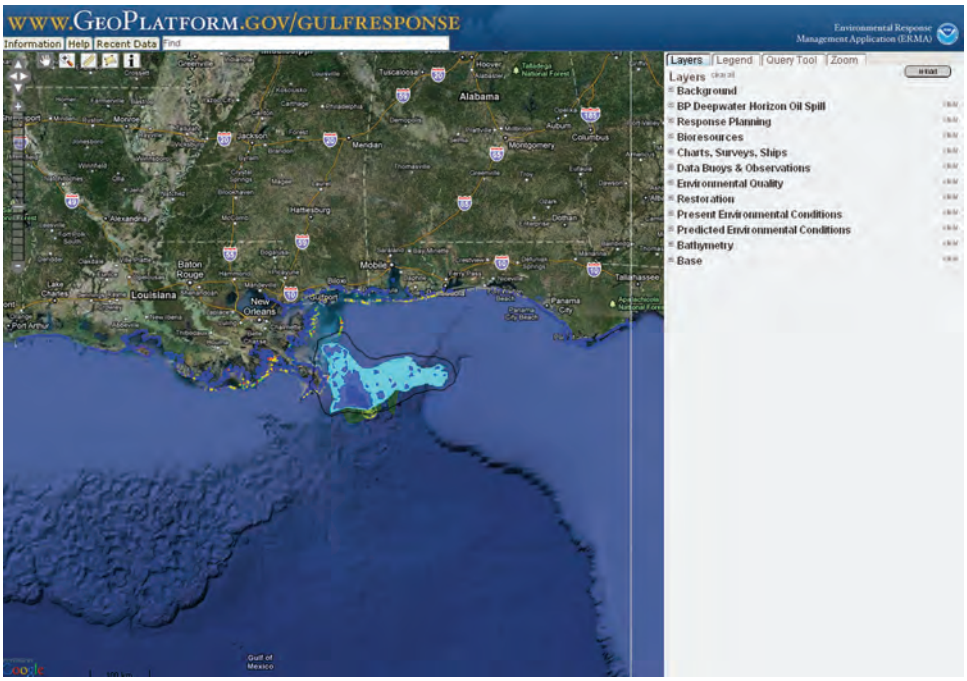
DEEPWATER HORIZON

ONE-NOAA RESPONDS TO THE DEEPWATER HORIZON OIL SPILL

NOAA was on-scene for the April 2010 Deepwater Horizon oil spill from the earliest moments of the crisis. The scale of the Deepwater Horizon spill tested NOAA's capacity to respond to a disaster of such incredible magnitude. However, numerous people throughout the agency rose to the occasion and ensured that NOAA's capabilities and expertise informed response activities, ultimately helping to protect the people in the Gulf Coast region and their livelihoods to the greatest extent possible.

During the course of the response, NOAA staff collectively worked over 384,620 hours in the Gulf and throughout the country, on spill response and damage assessment activities; 7 NOAA ships (39 percent of the NOAA fleet) conducted numerous cruises with missions as diverse as seafood safety monitoring, wellhead monitoring, and detecting subsurface oil; and 5 NOAA aircraft flew over 773 flight hours to track the oil spill and to measure air quality impacts.

NOAA has four primary roles in oil spill response: conducting science, keeping seafood safe, protecting wildlife, and assessing damage.



GeoPlatform.gov/gulfresponse is an online tool that provides near-real time information about the Deepwater Horizon response effort. Developed by NOAA with the EPA, U.S. Coast Guard, and the Department of Interior, the site offers a "one-stop shop" for spill response information.

CONDUCTING SCIENCE

From the very beginning, NOAA provided extensive scientific expertise and monitoring capabilities to inform daily response operations and to help quantify and better understand the impacts of the spill on the Gulf ecosystems. NOAA's information enabled responders to anticipate where the oil was going and to predict what areas might be impacted. Two hours and 14 minutes after the rig exploded, NOAA issued the first spill trajectory map. Ultimately, NOAA produced hundreds of 24-, 48-, and 72-hour oil trajectory forecasts, 30 loop current location graphics, 3000 spot-weather forecasts, and 50 shoreline impact forecasts – all of which were vital in informing response actions. NOAA used all types of technologies to guide response operations and assist with trajectory modeling, including satellites to analyze surface conditions and underwater unmanned gliders owned by NOAA's university partners to peer below the surface. NOAA also created the Gulf of Mexico Geoplatform.gov (http://www.geoplatform.gov/), a new online tool that employed a web-based GIS platform and provided near-real time information about the response effort. This site offered the public a "one-stop shop" for spill response information.

Steve Wilson, chief quality officer for NOAA's Seafood Inspection Program, demonstrates sensory analysis of a sample of shrimp on July 8, 2010 at NOAA's National Seafood Inspection Laboratory in Pascagoula.

KEEPING SEAFOOD SAFE

NOAA worked with the Food and Drug Administration (FDA), Environmental Protection Agency (EPA), and Gulf States to ensure that fish and shellfish harvested from the Gulf of Mexico were safe to eat and of highest quality. These measures benefit both consumers and the families who make their living from the Gulf's resources. If oil was present or threatened a location, NOAA proactively closed that area to commercial and recreational fishing. On June 2, 2010, the closed area was at its largest – measuring 88,522 square miles (approximately 37 percent of Gulf of Mexico federal waters). NOAA and our partners also developed a testing protocol to ensure fish were safe prior to re-opening closed areas.

Dr. Brian Stacy, a NOAA veterinarian, is pictured here cleaning a Kemp's ridley turtle aboard the vessel before the turtle is taken to Audubon Aquarium of the Americas in New Orleans for rehabilitation. In all, almost 500 turtles were brought in to be rehabilitated; nearly three-quarters of them have been released back to healthy habitat.

PROTECTING WILDLIFE

As stewards of our Nation's coasts, oceans, and marine wildlife, NOAA was, and continues to be, concerned about the short-term and long-term impacts of the oil spill on the ecological health of the Gulf of Mexico and the marine life it supports. NOAA experts worked with a network of partners to rescue and rehabilitate sea turtles and marine mammals and helped to determine the highest priority habitats and areas in need of direct response resources, such as the deployment of boom and shoreline cleanup crews. NOAA staff helped man 5 turtle rescue boats in search of oiled turtles and well over 150 turtles were rescued and rehabilitated.

Assessing Oiling of Marshes in Barataria Bay, LA

ASSESSING ECOSYSTEM DAMAGE

NOAA is the lead agency for the Natural Resource Damage Assessment (NRDA) process helping identify and quantify short- and long-term impacts to the Gulf of Mexico's thriving ecosystems. Quantifying these impacts is critical to ensuring that there is a true understanding of the extent of the damages. By April 23, one day after the oil leak was discovered, NOAA scientists began pre-assessment activities by identifying a range of potentially affected habitats and organisms. On any given day, more than 40 teams from across NOAA were in the field collecting data on these resources and their lost use. NOAA continues to collaborate with various federal and state agencies, industry, and citizens to collect data in the Gulf of Mexico and across the affected states to determine which natural resources have been harmed, which remain in jeopardy, and which human uses have been lost. With an understanding of ecosystem assessment and life in the Gulf, we will be better able to develop the best management tools for restoration of this valuable, integrated ecosystem.

Lt Cdr Marc Pickett and Lt Mark Sarmek wrestle to free an entangled Hawaiian Monk Seal from a derelict fishing net

NOAA PROGRAM ACCOMPLISHMENTS

MARINE DEBRIS PARTNERSHIP ADVANCED DETECTION OF DERELICT FISHING GEAR AND "FISHING FOR ENERGY" HONORED

Derelict fishing gear is one of the major types of debris impacting the marine environment today. It can entangle and potentially kill marine life, smother habitat, and act as a hazard to navigation. In partnership with several NOAA line offices, other federal agencies, the State and University of Hawaii, and the private sector, the NOAA Marine Debris Program increased the capacity to detect derelict fishing gear in the open ocean. NOAA's Marine Debris Program - Hawaii office - worked with the National Aeronautics and Space Administration (NASA), NOAA's Unmanned Aerial Systems Program, the Coastal Storms Program, and the Office of Marine and Aviation Operations to develop and test new sensor-and-platform systems to detect and ultimately remove derelict fishing gear before it enters sensitive near-shore environments. Additionally, the Fishing for Energy partnership was awarded the Coastal America Partnership Award due to its innovative efforts to provide fishermen with a no-cost disposal option for old or derelict fishing gear. Fishing for Energy is a partnership between NOAA's Marine Debris Program, Covanta Energy Corporation, the National Fish and Wildlife Foundation (NFWF), and Schnitzer Steel for reducing derelict fishing gear through prevention activities and working with the fishing community and related industries to find positive solutions to address derelict fishing gear. Once gear is removed from the environment, it is transported to the nearest Energy-from-Waste facility where it is used to create clean energy. The partnership collected over 350 tons of old fishing gear between February 2008 and May 2010 from ports in Maine, Massachusetts, New York, Rhode Island, New Jersey, Virginia, and Oregon (three ports were added to the partnership in FY 2010 and more will be added in FY 2011). Approximately one ton of derelict nets can provide enough electricity to power one home for 25 days. For more information on the partnership, visit www.nfwf.org/fishingforenergy.

Red tide cell concentrations around South Padre Island.

HARMFUL ALGAL BLOOM FORECASTS IN NORTH ATLANTIC AND GULF OF MEXICO HELPED COMMUNITIES PREVENT SHELLFISH POISONINGS

In 2010, the Gulf of Maine Toxicity project, an outlook for significant regional blooms of toxic algae that cause 'red tides' in the spring and summer, was issued for the first time. Although the algae in the water pose no direct threat to human beings, toxins produced by the algae can accumulate in mussels and clams and cause paralytic shellfish poisoning in humans who consume them. Scientists have been reluctant to make a "forecast" of precisely where and when the bloom will make landfall because bloom transport depends on weather events that cannot be predicted months in advance. However, new research has shown that cyst abundance in the fall can be an indicator of the magnitude of the bloom in the following year. Early warnings of algal blooms can give shellfish farmers and fishermen the opportunity to shift the timing of their harvest or postpone plans for expansion of aquaculture beds. Area restaurants may also benefit from advance warnings by making contingency plans for supplies of seafood during the summer. This past year, NOAA offices collaborated to warn an isolated area in the Gulf of Maine (via NOAA Weather Radio) of high toxin values in local shellfish. As in the past, effective monitoring succeeded in preventing illnesses from legally harvested shellfish.

In addition, NOAA's Harmful Algal Bloom Operational Forecast System (HAB-OFS) provides information on the location, extent, and the potential for development or movement of harmful algal blooms in the Gulf of Mexico. Texas officials and coastal managers can now receive weekly bulletins about potential outbreaks of toxic algae that threaten public health and affect beach and fishing activities along the coast. NOAA has had an operational forecast in the eastern Gulf of Mexico for harmful algal blooms since 2004, but this expansion of the operational system allows daily review of conditions with coastal managers from all of the Gulf of Mexico states.

Halibut fishing in Sitka, Alaska

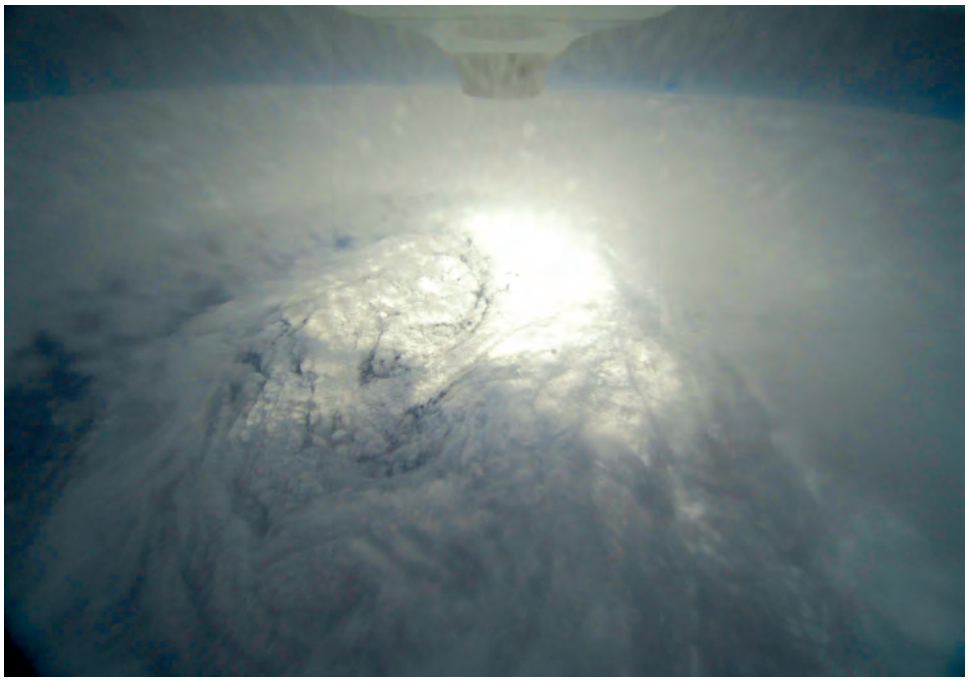
THREE NEW CATCH SHARE PROGRAMS IMPLEMENTED IN 2010

To help rebuild fisheries and sustain fishermen, communities, vibrant working waterfronts, and culturally important fishing traditions, NOAA released a national catch share policy to encourage the consideration and use of catch shares in fishery management plans. Catch share programs, which include limited access privilege programs and individual fishing quotas, dedicate a secure share of fish to individual fishermen, cooperatives, or fishing communities. In the United States, catch shares are used in 14 fisheries managed by 6 different fishery management councils from Alaska to Florida and are being developed in additional fisheries. Both here and in other countries, catch shares are helping to eliminate overfishing and achieve annual catch limits; improve fishermen's safety and profits; and reduce the negative biological and economic effects of the traditional "race for fish." In 2010, the National Marine Fisheries Service (NMFS) implemented three new catch share programs, including the Gulf of Mexico Grouper and Tilefish Individual Fishing Quota (IFQ), Atlantic Sea Scallops IFQ, and the Northeast Multispecies Sectors.

Adult female blue king crab with eggs that were expected to hatch in spring 2010.

FOUR FISH STOCKS REBUILT TO OPTIMAL LEVELS

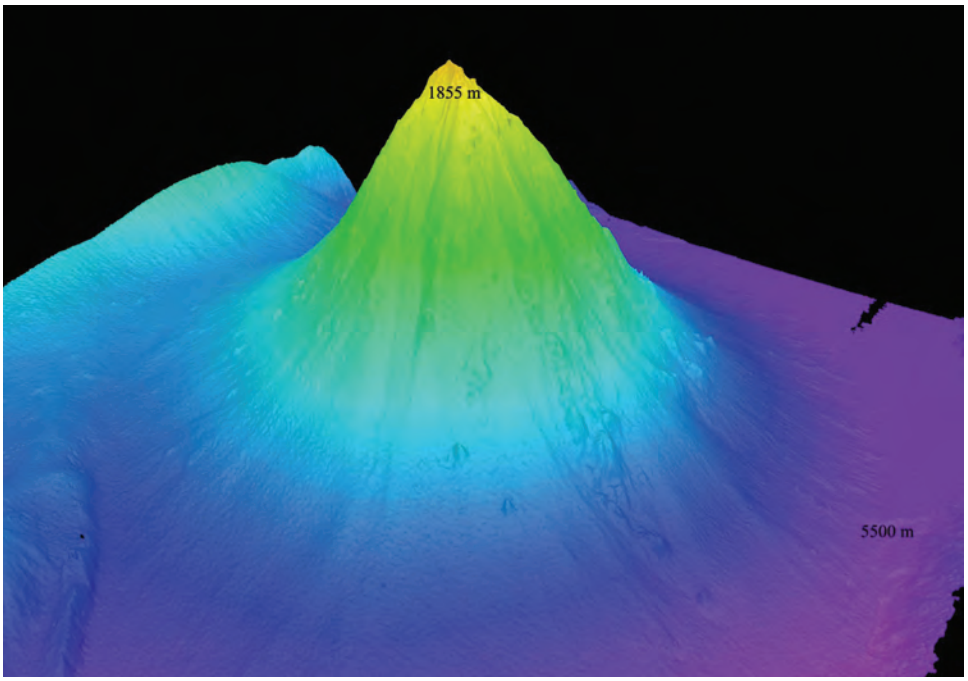
During FY 2010, NOAA rebuilt the following four fish stocks, important to commercial and recreational fisheries, to optimal population levels: North Atlantic swordfish, Georges Bank haddock, Atlantic coast spiny dogfish, and St. Matthews Island blue king crab. These stocks had been under rebuilding plans due to low population levels caused by overfishing and other factors. Through the use of fisheries management measures to ensure the health and viability of the stocks, NMFS tied the record set in FY 2009 for the greatest number of fish stocks rebuilt in a single year.



Hurricane Earl as seen from the unmanned aerial system (UAS) Global Hawk

OBSERVATIONS PLAYED A CRITICAL ROLE IN HURRICANE FORECASTING RESEARCH

Due to the combined 2010 hurricane field programs of NOAA, NASA, and the NSF, Hurricane Earl, a category 4 hurricane, became the best sampled tropical cyclone of all time. Scientists from the Atlantic Oceanographic and Meteorological Laboratory (AOML) collected data almost continuously over a 7-day period while aboard NOAA's hurricane hunter for a total of 18 flights. These data documented Earl's rapid intensification, weakening, and early stages of extratropical transition. Hurricane Earl also marked the first flight of an unmanned aerial system (UAS), NASA's Global Hawk, above a fully-developed tropical cyclone, allowing AOML and NASA researchers to collect data and images of Earl at 60,000 feet. Improving the use of observations is a major component of NOAA's Hurricane Forecast Improvement Project (HFIP), which is close to meeting its five-year goal for a 20 percent improvement in forecasting hurricane intensity.



This is a perspective view of the Kawio Barat (West Kawio) seamount looking from the northwest. The underwater volcano rises around 3800 meters from the seafloor. Image courtesy of INDEX 2010: "Indonesia-USA Deep-Sea Exploration of the Sangihe Talaud Region"

NOAA SHIP EXPLORED UNDERSEA, MAPPED INDONESIAN OCEAN SEAFLOOR

In the first week of a joint Indonesia-U.S. expedition to explore the deep ocean north of Sulawesi, Indonesia, the NOAA Ship *Okeanos Explorer* used its built-in multibeam sonar to map a huge undersea volcano. The ship's remotely-operated vehicle also took high-definition images of the feature called Kawio Barat, referring to the ocean area west of Kawio Islands. The undersea volcano is taller than all but three mountains in Indonesia and rises more than 10,000 feet from the seafloor in water more than 18,000 feet deep. The discovery and characterization of the volcano and habitats will help increase our understanding of habitat-species associations and biodiversity, issues that are important for making decisions on how to manage human activities in the marine environment. Using a new model of exploring the ocean through telepresence, most scientists worked from shore. Scientists at the Exploration Command Centers in Jakarta and Seattle were connected to *Okeanos Explorer* live via satellite and high-speed Internet pathways and were able to interact with shipboard personnel to guide the expedition. The success of having scientists command operations from these shore-based centers has initiated a new approach for ocean exploration, research, and education where the results are available in real-time. In addition, NOAA partnered with Google to incorporate all high resolution multibeam data collected by the *Okeanos Explorer* into Google's base bathymetry layer that is accessible publically in Google Earth (http://bit.ly/eDGybQ).

NOAA's Climate Services portal

On February 8, 2010, DOC and NOAA announced the intent to create a Climate Service and concurrently unveiled a new Web site, www.climate.gov, that serves as a single point-of-entry for those looking for NOAA's climate information, data, products, and services. Known as the NOAA Climate Services Portal, the site is designed to address the needs of four key audiences: decision makers and policy leaders; scientists and applications-oriented data users; educators; and businesses and the public. The site responds to growing user demand for useful climate information and will continue to develop based on user comments and feedback as it expands into a fully operational resource. One feature is the new Web-based climate science magazine, *ClimateWatch,* featuring videos, images, and articles of scientists discussing their recent work in the field. NOAA will continue to build upon its existing capabilities to improve our scientific and technological capacity to develop and deliver a new generation of climate science and services to our partners, our customers and the public.

COMMERCE SECRETARY GARY LOCKE AND UNDER SECRETARY DR. LUBCHENCO UNVEILED LANDMARK CLIMATE.GOV PORTAL

NOAA's workshop report on REgional Integrated Science and Assessment (RISA) program: *Looking Ahead at Climate Service, Assessment, and Adaptation* (full report available at http://www.cpo.noaa.gov/cpo_pa/risa/pdf/RISAWorkshopReport.pdf)

REGIONALLY INTEGRATED SCIENCE AND ASSESSMENT TEAMS EXPANDED

NOAA's Climate Program Office has nearly doubled funding for Regionally Integrated Science and Assessment (RISA) teams and expanded the network by nearly 20 percent since 2009. RISAs are expected to play a critical role in both climate science and service development by providing integrated assessment in 11 different regions of the United States and the National Climate Assessment identifying vulnerabilities, needs, and capabilities of users. RISAs are regional "centers of excellence" that work with users (policymakers, resource managers, communities, etc.) to co-develop climate science and services. Aside from being user-driven, RISAs are structured around the requirements of sustained regionally-based interactions; interdisciplinary assessment and science (not just climate science); ongoing climate literacy efforts; a focus on both climate variability and climate change; and interagency partnerships that leverage different capabilities and resources. In future years, the sustained regional capacity of RISAs can help NOAA address the Nation's priorities for climate service and adaptation.

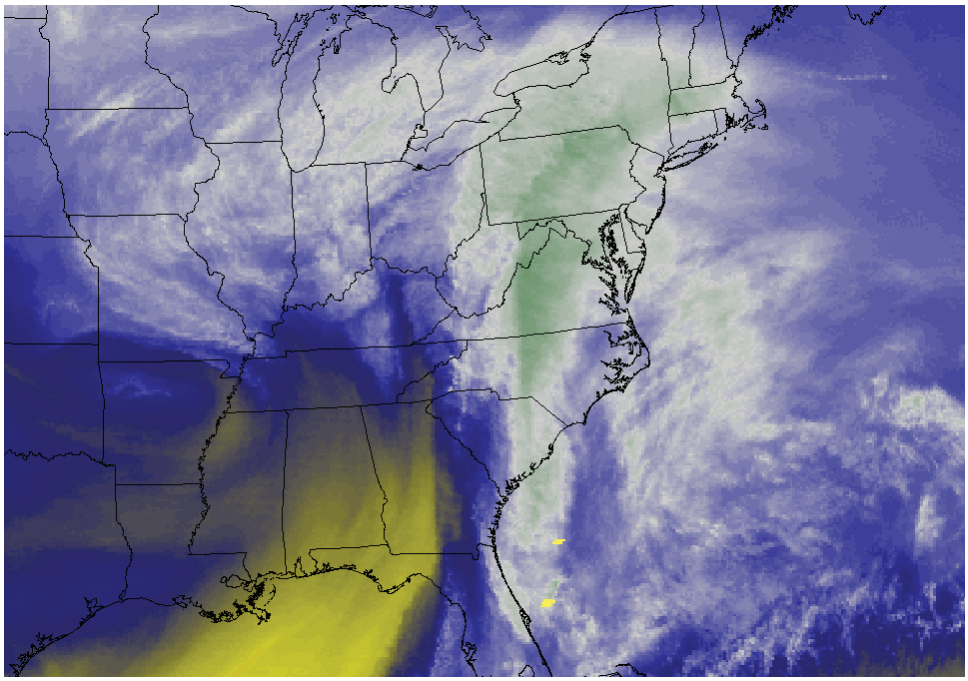


Image of Feburary 2010 "Snowmageddon" taken from NOAA's Cooperative Institute for Meteorological Satellite Studies (CIMSS)

NOAA'S NATIONAL WEATHER SERVICE PROVIDED EARLY WARNINGS FOR HISTORIC 2010 MID-ATLANTIC "SNOWMAGEDDON" SNOWSTORMS

During a five-day period in early February 2010, two snowstorms of historic proportions struck the Mid-Atlantic region. The first storm hit February 5-6 and produced record setting snowfalls in excess of 20 inches in the Washington, DC area. The NWS issued accurate outlooks for this storm 3 days in advance with an unprecedented forecast of 20 to 30 inches before the first flakes were observed. NOAA forecasts had an average lead time of 42 hours for a winter storm watch, which provided local emergency managers with almost two days of preparation time. Three days later, a second blizzard struck the same region with an additional foot and a half to three feet of snow, which brought the total snow accumulation on the ground to three to five feet in places. NOAA accurately forecasted this second storm 4 days in advance, with an average lead time of 47 hours for winter storm watches and an average lead time of 32 hours for winter storm warnings. NOAA's Weather Forecast Office (WFO) staff provided exemplary service during these consecutive, extreme events that generally shut down the region, including governments, schools, businesses, roads, and airlines.

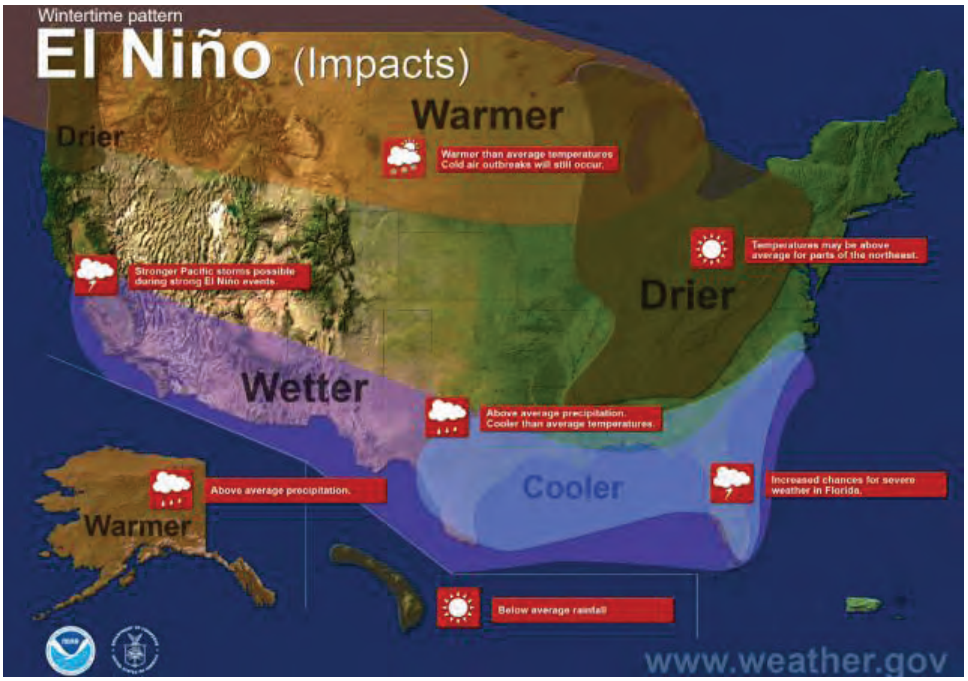


Image from NWS's "El Niño Road Show"

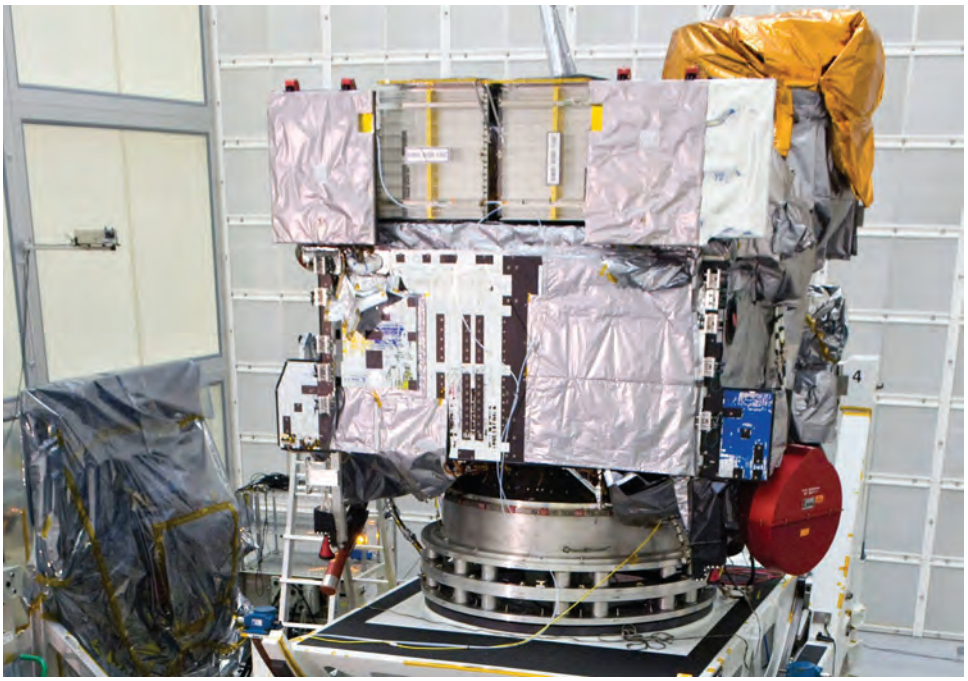
NWS PREPARED PUBLIC AND PARTNERS FOR EL NIÑO

In 2009 and 2010, NWS launched an aggressive geographically-targeted information campaign to prepare people and communities for dealing with the potential wintertime effects expected from a developing El Niño. El Niño impacts weather and climate patterns, significantly altering local droughts and floods, increasing the number of tornadoes, and affecting business sectors such as agriculture and recreation. NWS conducted approximately 40 public outreach activities dubbed "El Niño Road Show" for the media and NWS partners in Texas, California, Washington, the District of Columbia, North Carolina, Florida, Arizona, Hawaii, Guam, and other Pacific islands. Experts from the Climate Prediction Center and Pacific ENSO (El Niño-Southern Oscillation) Application Climate Center joined local NWS WFO staff to provide briefings and media interviews with state partners. News media, representatives from the governors' offices, and emergency management officials were invited to the briefings. Each road show event focused on the specific impacts to the visited region. For example, in Florida, NOAA noted that the state's manufactured home parks and campgrounds were at higher risk due to high density and high winter occupation rates. In the Northeast, ski lodge owners were provided with information to prepare for the possibility of less natural snow for skiing, and retail businesses were made aware of potentially less need for winter consumer goods, such as heavy clothing and plows. This targeted information helped people prepare productively for the winter El Niño.

Red River flooding in Fargo, North Dakota

NWS PROVIDED KEY SUPPORT AND FORECASTS FOR SPRING 2010 RED RIVER FLOODING RESPONSE

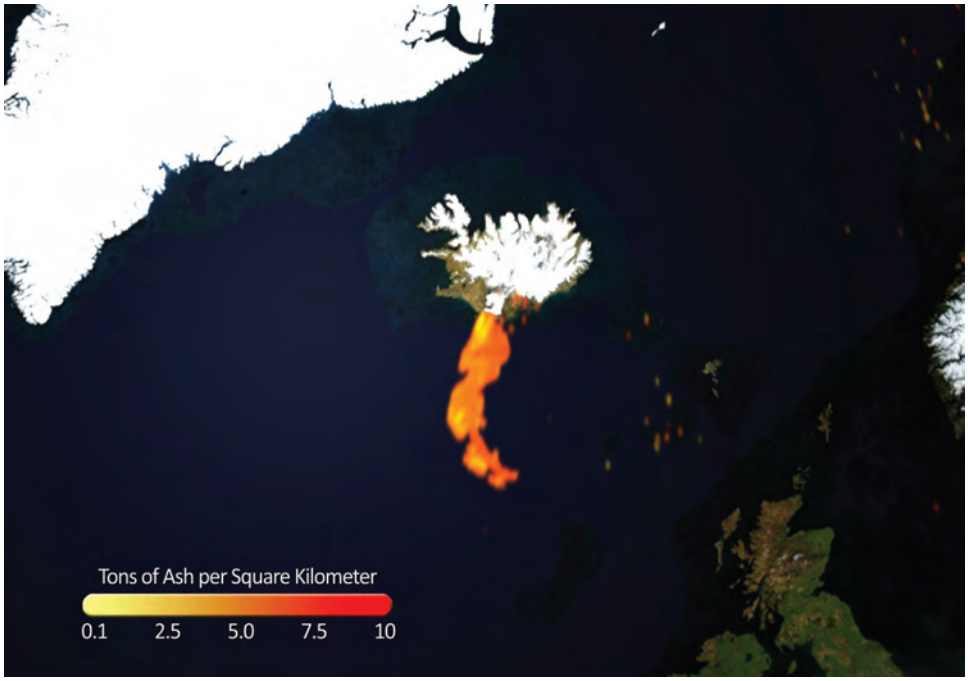
In early November 2009, according to the U.S. Geological Survey, the flow of the Red River at Fargo, ND was at its highest level ever recorded for the month of November. Key decision-makers became concerned about the potential for flooding in 2010 similar to that experienced in 2009. During the Spring 2010 event, NWS offices in the Central Region provided Integrated Decision Support Services to varied customers. NOAA's Regional Operations Center (ROC) provided video teleconference and telephone briefings to personnel at Federal Emergency Management Agency (FEMA) Regions V, VII, and VIII and coordinated the overall information to support decisions at state and local levels. Two River Forecast Centers (RFCs) (North Central and Missouri Basin) collaborated closely with the U.S. Coast Guard and the U.S Army Corps of Engineers on modeling efforts. Five local WFOs provided staff for the state Emergency Operations Centers in North Dakota, South Dakota, and Minnesota, and the local WFO in Grand Forks provided personnel to the cities of Fargo and Moorhead—particularly high impact locations—to provide information to support decisions. Senators from both North Dakota and Minnesota visited the Fargo/Moorhead area and had the opportunity for face-to-face briefings from the WFO Grand Forks Meteorologist-In-Charge. Focused information and forecasts yielded many positive results within the Red River Valley, including FEMA approval of a disaster declaration for North Dakota prior to the actual onset of flooding along the Red River, which enabled the mobilization of emergency power, medical services, food and shelter.



GOES-P Satellite under construction

NEWEST NOAA GEOSTATIONARY SATELLITE REACHED ORBIT

On March 4, 2010, NOAA successfully launched the Geostationary Operational Environmental Satellite - P (GOES-P) from Cape Canaveral, FL. GOES-P, which was renamed GOES-15 once it reached final orbit, underwent a series of tests for approximately six months before completing its "check-out" phase. GOES-15 will capture higher resolution images of weather patterns and atmospheric measurements than those provided by earlier satellites allowing forecasters to pinpoint the location of severe weather with greater accuracy. GOES-15 will also provide better data for space and solar weather thanks to its Solar X-Ray Imager (SXI). SXI data will improve forecasts and warnings for solar disturbances, protecting billions of dollars of commercial and government assets in space and on the ground. This vital information will also reduce the effect of power surges for the satellite-based electronics and communications industry. GOES-15 is the final spacecraft in the latest series of NOAA geostationary satellites. It joins three other NOAA operational GOES spacecraft; after check-out, GOES-15 was placed into orbital storage mode and remains ready for activation should one of the operational GOES fail.



Data from the NASA Aqua/MODIS satellite shows the concentration of ash being emitted from the Eyjafjallajökull volcano.(NOAA Environmental Visualization Lab)

CRITICAL INFORMATION PROVIDED DURING THE ICELANDIC EYJAFJALLAJÖKULL VOLCANIC ERUPTION

In response to the eruption of the Eyjafjallajökull volcano in April 2010, NOAA satellites began providing near-real-time information about the resulting ash cloud to the London Volcanic Ash Advisory Center. Volcanic ash poses a major threat to jet aircraft and must be avoided. The Icelandic volcano's eruption led to the unprecedented closure of North Atlantic and European airspace, disrupting commerce and travel in the area for a month long period. Using an algorithm developed for the next generation geostationary satellite series, GOES-R, and data from the European Organisation for the Exploitation of Meteorological Satellites's Spinning Enhanced Infrared and Visible Imager, NOAA provided estimates of volcanic ash cloud height, mass loading, and particle size. These data proved critical to tracking and forecasting the dispersion of dangerous volcanic ash clouds and eventually determining when the airspace could be re-opened.

Satellite antennae at Fairbanks Alaska Satellite Operations Facility (FSOF)

CONSTRUCTION COMPLETED OF FAIRBANKS ALASKA SATELLITE OPERATIONS FACILITY

NOAA achieved a major infrastructure milestone in FY 2010 with the construction of the Fairbanks Alaska Satellite Operations Facility (FSOF), a new operations center for satellite command and control. FSOF, which was completed on September 30, 2010, will support a broad range of U.S. and international environmental monitoring satellites, thus providing critical datasets, products, and services to users worldwide. FSOF replaces the current Fairbanks Command and Data Acquisition Station, parts of which dated back to the early 1960s. Modernizing this facility ensures reliable and robust satellite tracking for NOAA far into the future. On a global scale, public safety and economic interests will continue to benefit from the comprehensive and accurate information derived from the site's work. The new 20,000 square foot FSOF was a shovel-ready project, using *American Recovery and Reinvestment Act* (ARRA) and NOAA appropriated funds to complete the project. The U.S. Army Corps of Engineers oversaw construction, which took place between July 2009 and September 2010. Satellite operations will transition to FSOF during the first three quarters of FY 2011.

Jason Project "Argonauts" deploy a NOAA drifting buoy in the Channel Islands

NOAA SCIENTISTS SUPPORTED NATIONAL GEOGRAPHIC'S THE JASON PROJECT

NOAA scientists are working on *National Geographic's* The JASON Project, which is a new climate mission for teachers and students focused on observing the ocean to understand climate. Two NOAA scientists served as NOAA host researchers and worked side-by-side with JASON students to teach them how skills in math, applied technologies, and scientific interpretation are necessary to understand the full effects of climatic change. The JASON Project Climate Mission in the Channel Islands allowed student and teacher "Argonauts" to deploy drifting buoys and an autonomous underwater vehicle, which generate ocean temperature and circulation data that can be applied to predictions of global climate change. NOAA is in the process of developing an entire climate curriculum that will be available for use by teachers around the world. This program will challenge students and the public to make wise choices that benefit society by applying their knowledge to real-world climate scenarios and questions that scientists face every day. For more information, visit www.jason.org.

NOAA G-IV aircraft

NOAA G-IV AIRCRAFT DISPATCHED TO GATHER WINTER STORM DATA

NOAA's Gulfstream IV-SP aircraft conducted 46 flights over the North Pacific Ocean to fill gaps in existing atmospheric observations. NOAA crew flew 310.8 hours, covering 134,000 nautical miles, and launched 634 GPS dropwindsondes, of which 97.2 percent provided substantial, detailed data on 12 intensifying winter storms. Flying out of Yokota Air Force Base in Japan, the Office of Marine and Aviation Operations-operated plane collected wind speed and direction, air pressure, temperature, and humidity information from data-sparse regions. The data was sent via satellite to global operational weather forecasting centers and fed into sophisticated computer forecast models.

NOAA ship *Bell M. Shimada*

NOAA COMMISSIONED THE NOAA SHIP BELL M. SHIMADA

NOAA commissioned the *Bell M. Shimada*, the fourth of a new class of fisheries survey vessels on August 25, 2010. The ship's primary mission will be to study, monitor, and collect data on a wide range of sea life and ocean conditions, primarily off the West Coast. The 208-foot vessel will also observe environmental conditions; conduct habitat assessments; and survey fish, marine mammal, sea turtle, and marine bird populations. The ship's state-of-the-art design allows for quieter operation and movement of the vessel through the water, giving scientists the ability to study fish and marine mammals without significantly altering their behavior.

NOAA GPRA PERFORMANCE RESULTS

NOAA's mission goals in scientific knowledge, weather, water and climate, fisheries, and coastal communities are integrated from a funding and organizational perspective, in order to maximize support for the Departmental themes of Science and Information and Environmental Stewardship. In FY 2010 NOAA had 31 Government Performance & Results Act (GPRA) measure targets. Of these, NOAA achieved or exceeded targets for 25 of 31 measures, or 81 percent of the targets. The funding requested in this budget is essential for employing new and modified measures to better represent and assess NOAA's performance in achieving our mission.

In FY 2010, NOAA continued to improve the fish stock sustainability index (FSSI), its comprehensive measure for sustainability of 230 U.S. fish stocks selected for their importance to commercial and recreational fisheries. NOAA rebuilt the following four fish stocks to optimal population levels: North Atlantic swordfish, Georges Bank haddock, Atlantic coast spiny dogfish, and St. Matthews Island blue king crab.

During a five-day period in early February 2010, two snowstorms of historic proportions struck the Mid-Atlantic region. NOAA issued accurate outlooks for the storms three days in advance with an unprecedented forecast of 20-30 inches before the first flakes were observed. NOAA's winter storm warnings were an average of 30 hours ahead of the first snow fall, nearly double NOAA's national goal for winter storms. For FY 2010, NOAA exceeded the winter storm warnings lead time GPRA measure with an average of 21 hours, compared to the target of 15 hours.

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 is continuously striving to improve its measures to better the service it provides to the American public. For more information on NOAA's FY 2010 performance, please refer to the Department of Commerce FY 2010 Performance and Accountability Report (PAR), located at: http://www.osec.doc.gov/bmi/budget/FY10PAR.html. Results reported here are actuals and may be slightly different in the FY 2010 PAR, which reported estimates at the time of publication.

NOAA PERFORMANCE SUMMARY FOR FY2010

GOAL	MEASURE	FY2010 TARGET	FY2010 ACTUAL	STATUS
ECOSYSTEMS	Fish Stock Sustainability Index (FSSI)	580	582.5	
	Percentage of priority fish stocks with adequate population assessments and forecasts	57.4%	57.4%	
	Percentage of protected species with adequate population assessments and forecasts	20.1%	20.1%	
	Number of protected species designated as threatened, endangered, or depleted with stable or increasing population levels	25	29	
	Number of habitat acres restored	8,875	6,907	
	Annual number of coastal, marine, and Great Lakes ecological characterizations that meet management needs	50	48	
	Cummulative number of coastal, marine, and Great Lakes issue-based forecasting capabailities developed and used for management	42	42	
	Percentage of tools, tecnologies, and information services that are used by NOAA partners/ customers to improve ecosystem based management	86%	88%	
	Annual number of coastal, marine, and Great Lakes habitat acres acquired or designated for long-term protection	2,000*	21,341	
CLIMATE	U.S. Temperature Forecasts (Cumulative Skill Score computed over the regions where predictions are made)	24	18	
	Reduce the Uncertainty in the Magnitude of the North American Carbon Uptake	0.40 GtC/yr	0.40 GtC/yr	
	Reduce the Uncertainty in Model Simulations of the Influence of Aerosols on Climate	15% Improvement	18% Improvement	
	Reduce the Error in Global Measurement of Sea Surface Temperature	0.53°C	0.53°C	
	Regionally focused climate impacts and adaptation studies communicated to decision makers	41 risk assessments / evaluations	41 risk assessments / evaluations	

Key To Color Coding: Exceeded Target | Met Target | Slightly Below Target | Did Not Meet Target

1 The Annual Performance Plan targets for this measure represent the number of acres acquired or designated for long-term conservation in a given year. In the President's Budget, however, the targets represent the number of acres that are estimated to be acquired or designated with the expected funding appropriated for that year, although the actual acquisition or designation may occur in a later year.

NOAA PERFORMANCE SUMMARY FOR FY2010

GOAL	MEASURE	FY2010 TARGET	FY2010 ACTUAL	STATUS
WEATHER & WATER	Percentage of U.S. coastal states and territories demonstrating 20% or more annual improvements in resilience capacity to weather and climate hazards (%/year)	29%	29%	
	Severe weather warnings for tornadoes (storm based)—Lead time (minutes)	12	14	
	Severe weather warnings for tornadoes (storm based)—Accuracy (%)	70%	74%	
	Severe weather warnings for tornadoes (storm based)—False Alarm Rate (%)	72%	74%	
	Lead time (min) for severe weather warnings for flash floods	38	76	
	Accuracy (%) for severe weather warnings for flash floods	72%	82%	
	Hurricane forecast track error (48 hour) (nautical miles)	107	89	
	Hurricane forecast intensity error (48 hour) (difference in knots)	13	15	
	Accuracy (%) (threat score) of day 1 precipitation forecasts	30%	35%	
	Winter storm warnings—Lead time (hours)	15	21	
	Winter storm warnings—Accuracy (%)	90%	90%	
COMMERCE & TRANSPORTATION	Reduce the hydrographic survey backlog within navigationally significant areas (square nautical miles surveyed per year)	5,160	4,395	
	Percentage of U.S. counties rated as fully enabled or substantially enabled with accurate positioning capacity	74%	79%	
	Marine wind speed accuracy (%)	69%	74%	
	Marine wave height accuracy (%)	74%	75%	
	Aviation forecast accuracy of ceiling/visibility (3 mile/1,000 feet or less) (%)	65%	66%	
	Aviation forecast False Alarm Rate (3 mile/1,000 feet or less) (%)	42%	36%	

Key To Color Coding: Exceeded Target | Met Target | Slightly Below Target | Did Not Meet Target

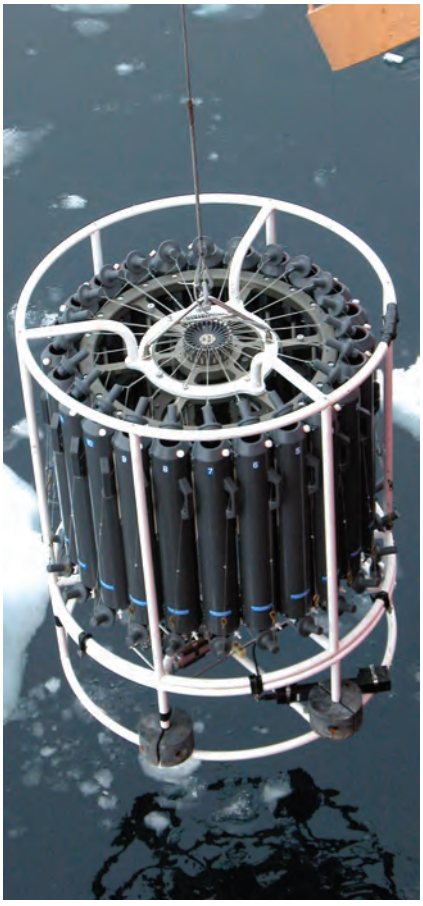
CHAPTER 1

FY 2012 Budget Highlights

NOAA employees haul bays of oyster shells into Chesa

BUDGET HIGHLIGHTS

NOAA generates value for the Nation by providing the information and services that communities, managers, businesses, and people rely on daily to make decisions about their lives and occupations. This role has become increasingly critical given the economic, environmental, and societal challenges currently facing the nation. To better meet its mission, NOAA is first proposing a reorganization of its climate research, monitoring and services to consolidate these activities and establish a new Climate Service line office to better serve the public need for reliable, authoritative climate information and efficient service delivery.



A CTD cast and rosette full of water sampling containers are lowered into icy Arctic waters during the NOAA-sponsored 2005 "Hidden Ocean" cruise to study marine life in the Canada Basin, one of the deepest regions of the Arctic Ocean.

Along with this reorganization, NOAA is proposing a variety of activities that support the Administration's economic and environmental priorities, including winning the future through innovation, strengthening research and development, and the National Ocean Policy. This budget request is the result of a rigorous review and prioritization of the agency's programs and activities. Low priority programs or activities have been curtailed or eliminated, core functions and services are sustained, and increases are requested for only the most critical programs, projects, or activities necessary to meet the growing demand for NOAA's services. The additional resources requested in this budget will improve NOAA's prediction of high impact weather and water events; manage ocean and coastal resources; deliver safe, efficient, and environmentally sound transportation; and maintain and expand the technical infrastructure that supports NOAA's mission.

For Fiscal Year FY 2012, NOAA proposes a budget of $5,497.7 million, an increase of $749 million or 15.8 percent over the FY 2010 enacted level. While this is a substantial increase over the FY 2010 enacted level, when critical on-going procurements for the next generation of weather and climate satellites are excluded, the request is only one percent over the FY 2010 enacted level. The requested level adheres to the President's call to improve the efficiency of programs without reducing their effectiveness, demonstrates tough choices and sacrifices, while making critical investments to make America more competitive.

For example, the NOAA budget proposes to terminate or reduce funding for a number of programs including the International Research Institute for Climate

and Society, international partnerships through The Observing System Research and Predictability Experiment (THORPEX), and the Cooperative Observer Program. In addition to making program cuts, NOAA is proposing to reduce its administrative expenses by $67.7 million as part of the President's Administrative Efficiency Initiative. This will be achieved through among other things: the consolidation of activities, use of more efficient acquisition vehicles for commodity purchases, and elimination of unnecessary travel. However, at the requested level, NOAA will still maintain its critical services and address core infrastructure needs as well as key coastal management, fisheries, and climate and weather activities

Within the request, $75.0 million is required for Adjustments to Base (ATBs) to support inflationary costs. Net changes within the Operations, Research, and Facilities (ORF) account represent a decrease of $42.3 million and within the Procurement, Acquisition, and Construction (PAC) account net changes result in an increase of $703.7 million, for a net increase of $646.7 million over the FY 2012 base amount, including NOAA's other accounts.

The FY 2012 budget request for NOAA preserves the Administration's environmental and economic priorities established in the FY 2011 President's Budget. This request sustains NOAA's climate programs, provides increases for fisheries and coastal management, and makes necessary investments in NOAA's core infrastructure of facilities, observing systems, IT systems and personnel needed to support the services planned for FY 2012.

NATIONAL OCEAN SERVICE

Through a diversity of programs, NOS supports resilient coastal communities; promotes sustainable coastal economies; and protects the productivity and diversity of coastal and marine places. NOS activities also serve to support sound decision making for human, ecological, and economic health. The NOS request includes $5.0 million to provide a dedicated source of funding to sustain and maintain Regional IOOS High Frequency radar stations, which map surface current measurements important for oil spill response, search and rescue missions, and marine transportation uses, among others. Also included are $2.9 million for oil spill research, and $1.0 million for integrated ocean and coastal mapping among other investments to support our coasts and ecosystems. An $8.0 million increase will create a National Working Waterfronts grant program to assist fishing-dependent coastal communities. These grants will aid distressed coastal fishing communities by providing resources for planning and other activities that will lead to economic diversification, resource conservation, and economic growth.

Representation of a HF radar system, known as CODAR. The CODAR ocean sensor is used to measure the speed and direction of surface currents.

NATIONAL MARINE FISHERIES SERVICE

NMFS is dedicated to the environmental sustainability of our coastal and ocean resources and the associated economic sustainability of our coastal communities. NMFS conserves, protects, and manages living marine re-

sources in a way that ensures their continuation as functioning components of marine ecosystems, affords economic opportunities, and enhances the quality of life for the American public. The NOAA FY 2012 budget submission also seeks to preserve transformational changes in how fisheries and ecosystems are monitored and managed by the Department of Commerce. NOAA is proposing an additional $15.0 million to expand annual stock assessments—the scientific basis for all of our fisheries management decisions. Other program investments to increase our knowledge of the resource, and therefore the effectiveness of catch allocation decisions, include $3.0 million for improved recreational fishing surveys and another $8 million for Species Recovery grants. The request also seeks to close data gaps for protected species conservation, with an additional $2.5 million for critical protected resources stock assessments.

Studies of pelagic ecosystems frequently include surveys of mid-water fauna using large trawl nets. Catches are moved into the ship's laboratory for the demanding tasks of sorting and identification.

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH

OAR is NOAA's centralized research and development (R&D) line office and the engine of innovation that strengthens the scientific underpinnings necessary to improve NOAA climate, weather, coastal, and ocean services. OAR promotes economic growth through the development of environmental observation technologies; new approaches to extreme weather preparedness; innovative methodologies to sustainably use coastal, marine, and Great Lakes resources; and the application of emerging science techniques, such as in marine biotechnology. NOAA's FY 2012 request includes an investment of $2.0 million to advance weather forecast quality and accuracy to promote wind energy generation in the United States. An increase of $1.5 million is requested to provide the scientific and technical support for operating the NOAA research ship, the *Okeanos Explorer,* as well as support the operation of telepresence technology. The FY 2012 request also includes $6.1 million to sustain capabilities in research, monitoring, and enhanced forecasting capabilities to improve adaptive management strategies for ecosystems impacted by ocean acidification. The President's FY 2012 Budget proposes to transfer the majority of climate research, modeling, and services activities of this office to create the new Climate Service line office.

Dedicated solely to exploration, the ship conducts operations around the globe, mapping the seafloor and characterizing largely unknown areas of the ocean. Interesting seafloor features can be discovered with the deep water multibeam sonar mapping system. Sites are further explored with a Conductivity Temperature and Depth sensor (CTD) and a Remotely Operated Vehicle (ROV). Images and high-definition video from the underwater vehicles can then be sent from the vehicle to the ship to the shore all in real-time. This technology is referred to as "telepresence."

CLIMATE SERVICE

The FY 2012 budget proposes a new Climate Service line office that will allow NOAA to more effectively and efficiently provide reliable and authoritative climate data, information, and decision-support services and to improve coordination with other agencies and partners. Climate change is apparent now across our nation. Trends observed in recent decades include rising temperatures, increasing heavy downpours, rising sea level, longer growing seasons, reductions in snow and ice, and changes in the amounts and timing of river flows. These trends are projected to continue, with larger changes expected if heat-trapping gas emissions are not curtailed. NOAA needs to better understand and characterize the nation's vulnerability to climate change and its adaptive capacity to reduce that vulnerability. Building on the

past two decades of experience, NOAA proposes a $4.7 million increase for Carbon 14 measurements to capture the distribution of fossil fuel emissions across the United States, and a $3.0 million increase to support regional climate services. These investments build on prior year investments to strengthen NOAA's capacity to deliver climate services to the Nation.

State climate offices provide climate services at the state and local level in partnership with NOAA and other federal agencies, including the Regional Climate Centers (RCC), Regionally Integrated Sciences and Assessments (RISA) program, the National Climatic Data Center (NCDC), the National Weather Service (NWS), and the USDA's Natural Resource Conservation Service (NRCS).

NATIONAL WEATHER SERVICE

The National Weather Service (NWS) is the Nation's first line of defense against severe weather, providing weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy. A weather-ready nation is a society that is able to prepare for and respond to environmental events that affect safety, health, the environment, economy, and homeland security. NOAA's capacity to provide relevant information can help create a society that is more adaptive to its environment; experiences fewer service disruptions, displacement of people, and injuries; and operates a more efficient economy. In FY 2012, NOAA proposes several increases to help ensure that our weather research and forecasting abilities stay strong and move into the future. With an increase of $5.0 million to fully fund the purchase of Global Positioning System (GPS) radiosondes for all 102 NOAA/NWS upper air observing stations, NOAA will improve weather models. An $11.0 million increase is dedicated to transitioning NOAA's operational high performance computing to a new contract, as well as continuing regular improvements to our numerical weather prediction modeling. Finally, NOAA will be investing an additional $26.9 million to fund the third year of planned Next Generation Air Transportation (NextGen) development activities, allowing for better integration of weather information into decision-making solutions for the Federal Aviation Administration – potentially reducing the number of air delays for travelers.

Weather accounts for 70% of all traffic delays within the National Airspace System. The FAA has determined that two thirds of these delays are preventable with better weather information. Better weather information doesn't just mean better forecasts…it means better assimilation of weather into the FAA decision makers. For example, better access to weather information for better forecasts and consistency.

NATIONAL ENVIRONMENTAL SATELLITE SERVICE

The National Environmental Satellite Service (NESS) is responsible for the procurement, launch, and operation of the Nation's civil polar-orbiting and geostationary operational environmental satellites.* One of the greatest challenges facing NOAA today is ensuring continuity of satellite operations to provide unbroken coverage of weather forecasts and climate measurements into the future. NOAA and NASA have established a successful partnership to replace and update the existing GOES series of satellites. The new satellites in this series will carry improved environmental instrument suites providing more timely and accurate weather forecasts and improved observation of meteorological events that directly affect public safety, protection of property, and economic development. NOAA continues to work on the transition of

NOAA-N Prime provides a polar-orbiting platform to support environmental monitoring instruments for imaging and measuring the Earth's atmosphere, its surface and cloud cover, including Earth radiation, atmospheric ozone, aerosol distribution, sea surface temperature, and vertical temperature and water profiles in the troposphere and stratosphere. The satellite assists in measuring proton and electron fluxes at orbit altitude, collecting data from remote platforms and is crucial to the Search and Rescue Satellite-Aided Tracking system.

* The FY 2012 request proposes to rename the National Environmental Satellite, Data, and Information Service (NESDIS) to the National Environmental Satellite Service (NESS), which reflects the proposed transfer of data and information management archive activities to the new Climate Service line office.

the Joint Polar Satellite System (JPSS) and requests an increase of $687.8 million to minimize the probability of a gap in polar satellite coverage. The request also includes increases for the Deep Space Climate Observatory (DSCOVR) of $47.3 million, the Constellation Observing System for Meteorology, Ionosphere and Climate (COSMIC-2) of $11.3 million, Jason-3 of $33.0 million, and the restoration of climate sensors of $30.4 million.

Ka'imimoana, *Hawaiian for Ocean Seeker, is the only ship of the National Oceanic and Atmospheric Administration (NOAA) dedicated solely to climate research, through its support of NOAA's Tropical Atmosphere-Ocean (TAO) Project. This project is designed to improve our understanding of the role of the tropical ocean in modifying the world's climate.*

OFFICE OF MARINE AND AVIATION OPERATIONS

NOAA's Office of Marine and Aviation Operations (OMAO) operates a wide variety of specialized aircraft and ships to complete NOAA's environmental and scientific missions. The FY 2012 request ensures that NOAA's fleet of vessels is able to provide reliable, compliant, and high-quality ship services to NOAA programs in support of at-sea data collection requirements. An additional $3.4 million is requested to support environmental compliance costs for NOAA's vessels. In order to extend and maintain the life of the NOAA ships, *Ka'imimoana* and *Miller Freeman,* NOAA is requesting an increase of $11.6 million.

PROGRAM SUPPORT

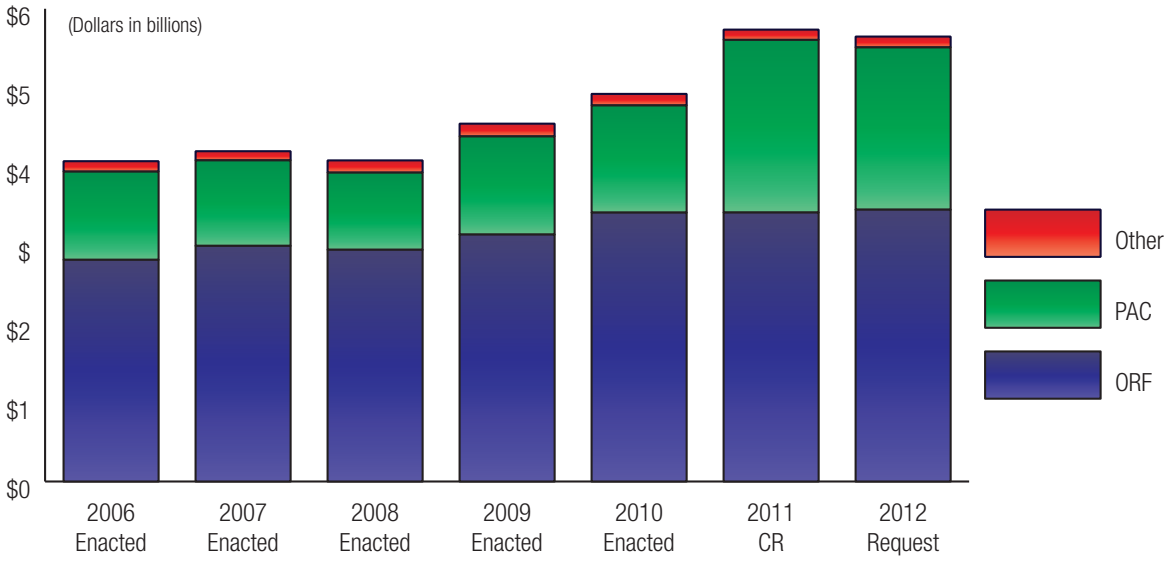
NOAA Program Support provides the planning, administrative, financial, procurement, information technology, human resources, and infrastructure services that are essential to the safe and successful performance of NOAA's mission. The FY 2012 budget request includes $0.9 million to support project management costs at the new Main Facility of the Pacific Regional Center. An additional $10.0 million is requested for facilities restoration and modernization. Targeted investments have been made towards NOAA's IT infrastructure. An increase of $5.1 million has been requested to enhance NOAA's enterprise IT security, fortifying critical IT support of NOAA's mission by reducing potential risks against data integrity and network failures. To support NOAA's corporate services, NOAA is requesting an increase of $5.0 million to migrate the current Commerce Business System to the new standard operating system of the Department of Commerce. An additional $6.3 million is requested to support acquisition and grants services for NOAA.

NOAA's Pacific Region Center (PRC) Laboratory and Office Complex on historic Ford Island, Pearl Harbor, Hawaii. The 345,000 square foot facility will consolidate NOAA's many Honolulu-area offices and labs into a single, efficient campus facility with pier facilities for NOAA's Hawaii-based research and fisheries enforcement vessels and small boats. Facilities will include office space, wet laboratories, marine animal tanks, and administration and support space for NOAA's research, conservation management and enforcement programs. 3D Rendering Provided by Ferraro Choi And Associates, Ltd.

FY 2012 BUDGET HIGHLIGHTS

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
ORF	$3,412,778	$3,376,721	$3,449,807	$37,029
PAC	1,360,353	1,360,353	2,059,777	699,424
Other Funds	147,180	207,837	137,497	(18,683)
Financing	(171,958)	(196,558)	(149,411)	(31,547)
Total Discretionary Appropriation	**$4,748,353**	**$4,748,353**	**$5,497,670**	**$749,317**
FTE	**12,321**	**12,321**	**12,459**	**138**

Budget Trends FY 2006-2012



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

Other: Other Accounts

CHAPTER 2

FY 2012 Budget Reorganization

FY 2012 BUDGET REORGANIZATION SUMMARY

Consistent with the Department of Commerce's authority under the National Climate Program Act (15 U.S.C. §2901, *et seq.*), NOAA's Fiscal Year (FY) 2012 Budget Request includes a proposed reorganization that brings together its existing widely dispersed climate capabilities under a single line office management structure, the Climate Service. The principal goal of this reorganization is to better position NOAA to respond to the rapidly increasing demand for climate services. The Climate Service will allow NOAA to more efficiently and effectively provide the reliable and authoritative climate data, information, and decision-support services that Americans seek, and to better coordinate with other agencies and partners.

"Papa" NOAA buoys measure parameters such as air and sea surface temperature, wind, relative humidity, rain rate, and ocean currents and transmit this data via satellite communications multiple times daily in real time to meteorological and science centers for use in weather forecasting and climate study.

Through this reorganization NOAA is also strategically realigning its existing core research line office, the Office of Oceanic and Atmospheric Research (OAR), to strengthen the agency's overall science enterprise and advance the atmospheric and ocean, coastal and Great Lakes research and applied science goals expressed in the America COMPETES Reauthorization Act of 2010. OAR will transfer much of its climate research portfolio to the Climate Service and in doing so renew and expand its role as the focus for long-term research in NOAA; an innovator and incubator of new science, technologies, and application, and an integrator of science and technology across all of NOAA to attain mission objectives.

The reorganization also affects some climate-related programs and activities of the National Environmental Satellite, Data, and Information Service (NESDIS) and National Weather Service (NWS), and reflects some consolidation in NOAA headquarters planning offices. The reorganization does not affect the National Ocean Service (NOS), National Marine Fisheries Service (NMFS), or Office of Marine and Aviation Operations (OMAO).

NOAA will continue to address all of its mission requirements. The budget neutral realignment of resources within the current NOAA budget does not change staffing levels, will not require employee relocations, physical relocation of programs or labs, require any new facilities, and will not increase the size of NOAA overhead. The Climate Service headquarters will be located in Silver Spring, MD.

THE NEED FOR CLIMATE SERVICES

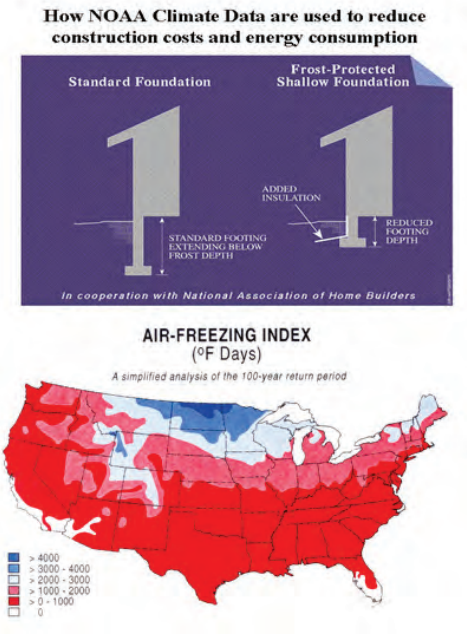
Every place on Earth is sensitive to changes in climate and weather. Up to one-third of the U.S. gross domestic product depends on accurate weather and climate information. Until now, individuals, communities, governments and industry have relied on what we know about the climate in the past to make important decisions about our systems and infrastructure – from agriculture to energy to transportation. Increasing business, industry, government and public sector awareness about the potential impacts of climate variability and change are fueling an exponential growth in the demand for climate services—easily accessible and timely scientific data and information about climate that helps people make informed decisions in their lives, businesses, and communities. Electric utilities, for example, need reliable predictions of future temperature and precipitation in order to invest in new power generation capacity that is appropriately designed to meet projected heating and air conditioning demands and ensure sufficient water for facility cooling purposes.

For decades, NOAA and its partners have been providing climate observations, monitoring, modeling, and predictions—underpinned by the best available science. Through its existing laboratories, data centers, programs, and operational assets distributed throughout the agency, NOAA currently responds to millions of annual requests for climate information.

While NOAA has continued to build a suite of climate services within its existing framework, the agency's climate assets are currently distributed across the agency, diminishing NOAA's ability to anticipate, develop and deliver climate science and services that meet the rapidly-increasing demands of users and providers. Similar to a corporation that adjusts its structure to better respond to customer demand, NOAA needs to make adjustments to bring its dispersed assets under a unified leadership structure to efficiently and effectively meet existing and future demands. Americans have come to rely upon authoritative and official forecasts from NOAA's National Weather Service, and now, they are also requesting the same quality of information about climate on many scales, from local to global, monthly to decadal. NOAA must therefore, make adjustments today that will support our long-term commitment to serving the climate service needs of the Nation.

EXAMPLE ACTIVITY: CONSTRUCTION AND CLIMATE

NOAA provides air-freezing index data to the home building industry, which helps it to establish the most cost efficient insulation standards for protecting building foundations from frost. Using up-to-date NOAA climate data, the industry developed new insulation requirements that are resulting in annual building cost savings of $330 million and energy cost savings of 586,000 megawatt-hours.



THE CLIMATE SERVICE IN NOAA

NOAA has spent many months carefully studying alternatives to determine how NOAA can best meet the Nation's growing demand for climate information and has benefited from substantial input from the public, our employees and advisory bodies and the National Academies. For more information on this process, please visit www.noaa.gov/climate.

At the request of Congress, NOAA commissioned the National Academy of Public Administration (NAPA) to study organizational options for delivering climate services, which included its own extensive stakeholder engagement process. On September 14, 2010, NAPA released its final recommendations to NOAA and Congress. The final report contained more than two dozen insightful recommendations on business processes and other aspects of implementing the Climate Service.

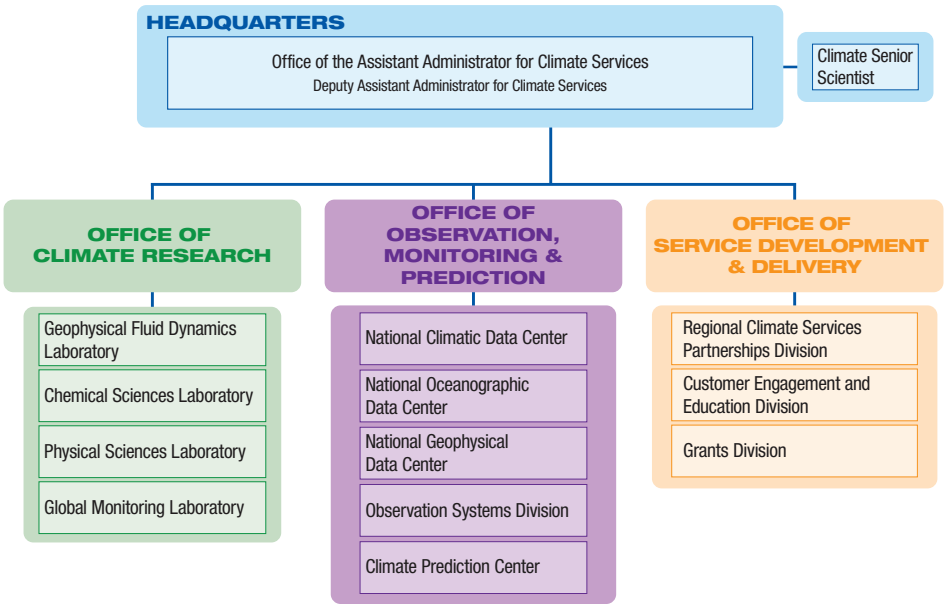
Based on the breadth of input received, the Climate Service brings together NOAA's existing climate research, observations, monitoring, modeling, information product development and delivery, and decision support functions, including:

(1) from NOAA's **Office of Oceanic and Atmospheric Research,** the Geophysical Fluid Dynamics Laboratory, the Climate Program Office, and from the Earth System Research Laboratory – the Chemical Sciences Division, the Global Monitoring Division and the Physical Sciences Division,

(2) from the **National Environmental Satellite, Data and Information Service,** the three data centers - the National Climatic Data Center, the National Oceanographic Data Center and the National Geophysical Data Center, and

(3) from the **National Weather Service,** the Climate Prediction Center, and management responsibilities for climate observing networks including the Tropical Atmosphere Ocean (TAO) array and Historical Climate Network modernization (HCN-m).

PROPOSED CLIMATE SERVICE



The Climate Service integrates longstanding NOAA capabilities -- world-class researchers, observations, monitoring, predictions, assessments, and training -- into a single, more coordinated and efficient organization. The Climate Service will also leverage the existing on-the-ground user engagement and service delivery of many programs across the agency such as National Weather Service forecast offices, Sea Grant, Coastal Services Center, and external partner institutions such as Regional Integrated Science and Assessments and Regional Climate Centers. Similarly, NOAA recognizes that no single agency can fulfill these growing needs. NOAA envisions the new Climate Service as a streamlined and coordinated line office positioned to contribute to and participate fully in federal interagency partnerships, which are vital to fulfilling the demand for climate services.

The new line office will strengthen and expand NOAA's contributions to climate science and services, creating a unified and responsive organization with broader reach than can be achieved today within the limitations of NOAA's existing climate structure. As a result, climate service users, providers, and partners will have a single, highly visible point of entry into NOAA for reliable and authoritative climate data, information and decision-support services. Decision makers, in particular, seek accurate, reliable climate information that will help them evaluate options and make smart investment choices that take into account the impacts of climate variation and change.

NOAA is developing a *Vision and Strategic Framework*,* which benefited from a recently-completed public comment period. This framework outlines strategic goals and business practices related to the delivery and development of reliable, timely, and authoritative climate science and services to enable a climate-resilient society to grow and prosper.

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH (OAR)

The Office of Oceanic and Atmospheric Research (OAR) serves as NOAA's central research line office that supports and produces preeminent long-term and transformational research and technology innovation that advances NOAA's science, stewardship and service mission.

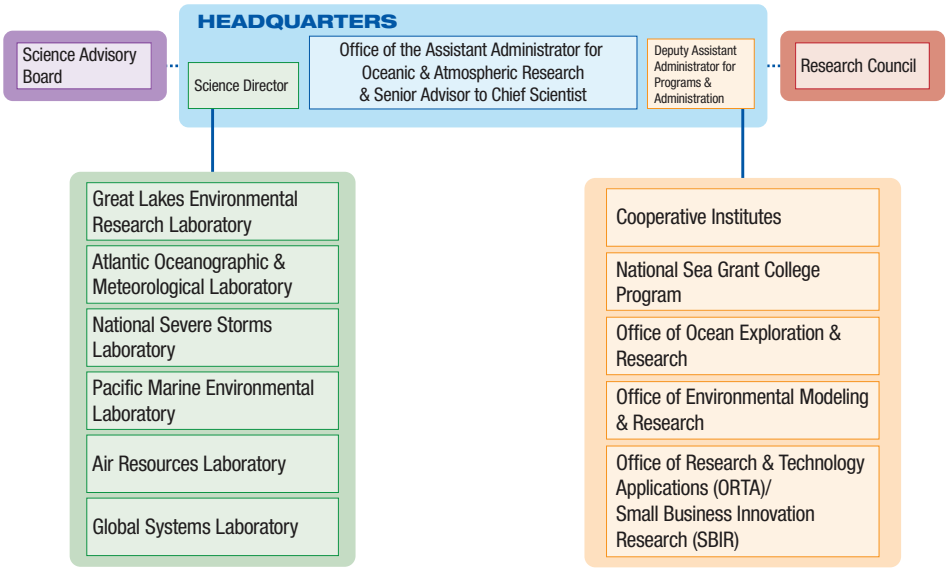
> "All parts of NOAA benefit from OAR's work to incubate fundamentally new approaches to mission-centered science, a capability best sustained by maintaining a nimble, freestanding OAR Line Office."
>
> **NATIONAL ACADEMY OF PUBLIC ADMINISTRATION, SEPTEMBER 2010**

Through this reorganization, NOAA is strategically realigning OAR, recognizing that the climate science enterprise that started in OAR as part of its atmospheric science program has matured to where it is now ready to more closely inform the development of climate services. In transferring much of its climate research portfolio to the Climate Service, OAR will renew its forward-looking research agenda - one that incubates tomorrow's long-term science challenges, integrates an agency-wide science portfolio, and drives science and technology innovation.

In cooperation with other NOAA line offices, including the Climate Service, OAR guides the analysis and direction of NOAA's agency-wide research portfolio. This responsibility includes identifying NOAA's science challenges and gaps, recommending novel approaches to research portfolio management, and integrating research across NOAA's Line Offices to gain a comprehensive understanding of the earth system. In addition, OAR's Assistant Administrator, as a career federal executive, will be designated as the

* http://www.noaa.gov/climateresources/resources/CS_Draft_Vision_Strategic_Framework_v9.0 2010_12_20-1.pdf

PROPOSED OFFICE OF OCEANIC & ATMOSPHERIC RESEARCH (OAR)



Senior Advisor to the NOAA Chief Scientist, and responsible for providing him or her with science program analysis and policy support.

OAR will coordinate and manage emerging and transformational research portfolios including ocean acidification, improved meteorological, oceanic, and climatological observations, modeling, and forecasting to expand the use of renewable energy sources, unmanned air and underwater observing systems, high performance computing, and weather "warn-on-forecast" programs to increase lead time and accuracy for hazardous weather. OAR will also emphasize areas that are important challenges and opportunities for NOAA, such as fostering integrated ecosystem science beyond its current scope to include new tools for sustainable community planning, novel ways to observe the world around us, new ways to conduct fishery assessments, and innovative aquaculture and feed technologies. OAR will help move NOAA toward a fully integrated approach to environmental modeling that spans the full domain of physical, chemical, and biological systems.

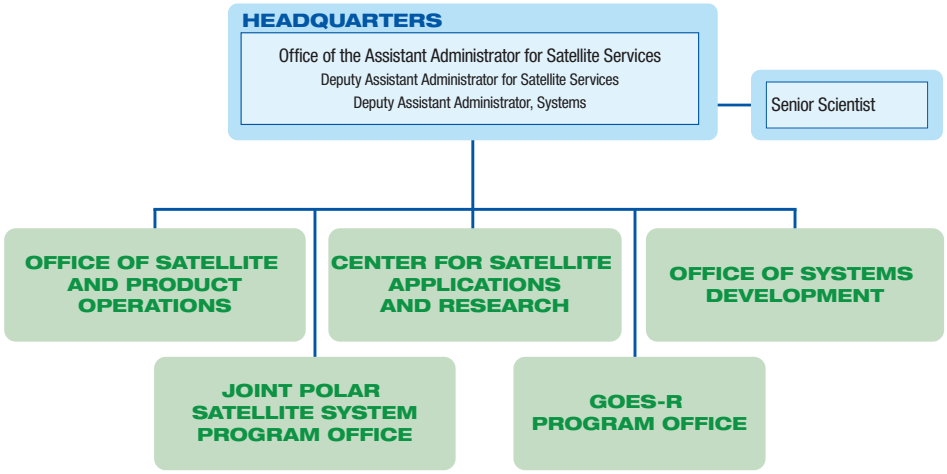
OAR's research programs, conducted at NOAA laboratories throughout the country, at field stations around the globe, and at facilities maintained by an international network of universities and other partners, support the agency's mission — and the broader U.S. environmental, social, and economic sectors — through increased knowledge and novel advances in technologies that benefit society.

NATIONAL ENVIRONMENTAL SATELLITE SERVICE (NESS)

Under the reorganization, the National Environmental Satellite, Data, and Information Service (NESDIS) will be renamed the National Environmental Satellite Service (NESS), and transfer all three of its Data Centers to the Climate Service.

NESS will continue with its ongoing satellite acquisitions, operations, and service delivery to provide timely access to global environmental data from satellites and other sources to promote, protect, and enhance the Nation's economy, security, environment, and quality of life.

PROPOSED NATIONAL ENVIRONMENTAL SATELLITE SERVICE (NESS)



The National Climatic Data Center, the National Oceanographic Data Center and the National Geophysical Data Center will continue to serve their current functions, supporting not only the Climate Service, but all of NOAA. The Climate Service will build on the long tradition of data stewardship that the data centers have established, and provide an opportunity for expanded responsibility with regard to integration with observing systems and related science. NESS will work closely with the Data Centers in the Climate Service to ensure that data and information produced by the satellites are archived and accessible for use by NOAA's internal and external stakeholders.

NATIONAL WEATHER SERVICE (NWS)

NOAA is committed to ensuring cross-line integration to support both the NWS and Climate Service missions. The NWS will work with the Climate Service and other NOAA line offices to ensure a seamless suite of weather and climate services – from minutes to decades – that are easily accessed and understood by our users.

For example, the data collected by NWS each day feeds into the long-standing climate record currently maintained by the National Climatic Data Center (NCDC), now proposed to be part of the Climate Service. NWS will continue to work with the Climate Service (through NCDC) on data standards, continuity of data and our relationship with the Regional Climate Centers. The Climate Service will also house the six new Regional Climate Service Directors in the established NWS Regional Headquarters to ensure coordination between NWS and the Climate Service and leverage the existing relationships in the regions.

NWS will transfer the Climate Prediction Center (CPC) and management oversight for the two climate-focused observing systems (the Tropical Amosphere Ocean (TAO) array, and the Regional US Historical Climatology Network) to the Climate Service. The transfer of CPC will provide enhanced continuity between NOAA's short and long-term climate prediction capabilities. Although the CPC will be moved into the Climate Service it will continue to provide operational seasonal outlooks and predictions, hazard assessments, and inform both NWS and the Climate Service about phenomena that link climate to weather events (e.g., El Niño/La Niña, Madden/Julian Oscillation, teleconnections, etc.). The transfer of the observing systems will allow consolidation of NOAA's climate observing assets under the same management.

NOAA HEADQUARTERS

The reorganization will consolidate the functions of the line office Program Planning and Integration (PPI), and the Office of Program Analysis and Evaluation to form a new NOAA Office of Strategic Planning and Evaluation within the budget sub-activity: NOAA Wide Corporate Services & Agency Management. The NOAA Central Library will move from the National Oceanographic Data Center to the NOAA Office of the Chief Information Officer. These changes will enhance leadership and improve management of all NOAA programs through policy development and planning, and provide efficiencies in staffing planning activities.

CONCLUSION

NOAA believes that this reorganization of our considerable, but distributed climate assets will better meet the growing demands of the public and private sectors for climate services by enhancing NOAA's ability to:

- Connect users to existing climate products and services, while continuing to develop new authoritative, reliable services.
- Transform current science and data into understandable, relevant and accessible information, while continuing to strengthen and expand climate science and research.
- Engage users and partners in service development and dissemination.

Since many sectors and regions served through NOAA's existing core climate capabilities are strongly linked to missions of other federal agencies, the Climate Service will continue to work with federal, state, tribal, and local partners to ensure the best possible set of climate services are delivered to the nation.

Authoritative, timely and reliable information about climate variability and change opens a world of possibilities to build resilient communities, infrastructure, and economies. The Climate Service in NOAA will advance and transform science into useable climate services for the nation.

BENEFITS OF A CLIMATE SERVICE IN NOAA

Authoritative, timely and reliable information about climate variability and change opens a world of possibilities to build resilient communities, infrastructure, and economies. Examples of benefits include:

(1) Supports a new category of economic innovation: entrepreneurs and other businesses that specialize in the provision of services and products based on environmental and climate data.

(2) Cities, tribes, and states will have a primary and authoritative source of information on the likelihood of heat waves, storm surges, and other climate extremes (and related impacts such as poor air quality and flooding) to help them address vulnerabilities and develop adaptation plans.

(3) Coastal communities will become more resilient as Climate Service services enhance state and local policy and planning. These services will include integrating local sea-level trends with global sea-level projections, for example, and assessing the risk of coastal inundation from changes in storm intensity and frequency.

(4) Natural resource management agencies will use Climate Service information to make more informed adaptation decisions in the fulfillment of requirements to protect ecosystems and species.

(5) More durable, resilient, and cost-effective housing, water systems, dams, runways, roads, and bridges will result from Climate Service collaborations with infrastructure planners.

CHAPTER 3

NOAA Operations, Research, & Facilities By Line Office

NATIONAL OCEAN SERVICE

The National Ocean Service (NOS) is responsible for the preservation of coastal resources by providing science-based solutions through collaborative partnerships to address evolving economic, environmental, and social pressures on our oceans and coasts. Over half of the U.S. Gross Domestic Product (GDP) is generated in coastal counties.[1] Today, coastal communities comprise only one-fifth of the Nation's land, but they house over one-half of the U.S population and generate nearly 60 percent of the U.S. economy.[2] Marine transportation is a key component of this economic engine. More than 78 percent of U.S. overseas trade (by volume) and 43.5 percent (by value), including nine million barrels of imported oil daily, transits through our seaports.[1] Port activities alone are responsible for 8.4 million American jobs and nearly $2 trillion in economic output.[2] Through a diversity of programs, NOS supports healthy, resilient coastal communities; promotes sustainable, robust coastal economies; and protects the productivity and diversity of coastal and marine places. NOS activities also serve to support sound decision making for human, ecological, and economic health. This is important because over half of the Nation's population already live in coastal areas—comprising only 17 percent of U.S. land area—and it is expected that by 2020 the U.S. coastal county population will grow by 13.6 million people, representing an 8 percent increase.[3] This rising density, coupled with the important economies of coastal areas and marine transportation, makes the task of managing coastal resources a critical challenge for the Nation. Coastal communities are also vulnerable to hazards such as sea level rise or storms, habitat loss, and other threats which can negatively impact our economy and our quality of life, further emphasizing the need for access to data and sound science to inform decision making and hazard preparedness.

Jim Gilpatrick, John McCombs, and Dean Dale working at the Houma, Louisiana facility Deepwater Horizon war room on May 30, 2010

As a national leader for coastal and ocean stewardship, NOS promotes a wide range of research and operational activities aimed at developing a better understanding of ocean, coastal and Great Lakes ecosystems and

1 *An Ocean Blueprint for the 21st Century, USCOP 2004*
2 *State of the US Ocean and Coastal Economies, NOEP 2009*
3 *Pocket Guide to Transportation Table 5-5, U.S. Department of Transportation*
4 http://www.economics.noaa.gov/
5 *NOAA - State of the Coast website*

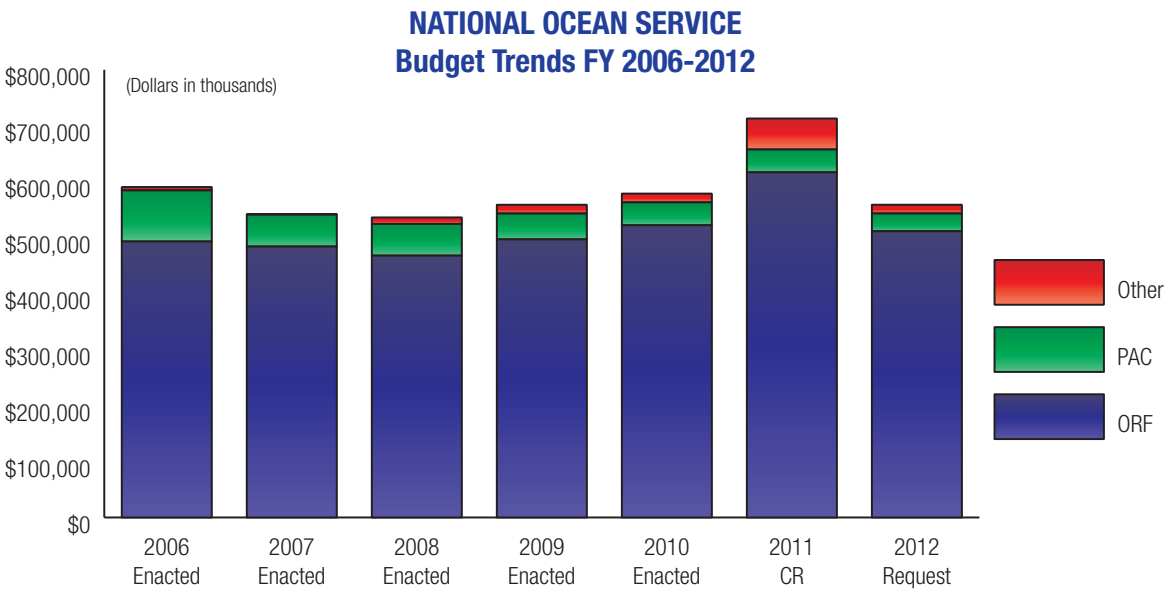
communities. This research provides the strong scientific foundation required to effectively manage and advance the sustainable use of our coastal and ocean systems, improve ecosystem and human health, increase the resiliency of coastal communities, and support coastal economic vitality. NOS also promotes advancements in the quality, quantity, geographic distribution, and timeliness of ocean and coastal observations through innovative research and technology development. Observations by NOS assets and partners are critical components of the Nation's Integrated Ocean Observing System (IOOS®) as well as fundamental contributors to the Global Earth Observation System of Systems (GEOSS). NOS mapping, charting, geodetic, and oceanographic activities build on marine and coastal observations collected to increase the efficiency and safety of maritime commerce, support coastal resource management and coastal and marine spatial planning, and address coastal flooding and water quality concerns. These services have real impact. Mariners can use NOS navigation tools to maximize port throughput and economic gain with less risk to the environment by knowing the exact water depth. For every additional inch of water draft available to a tanker, it can carry 70,000 gallons more of heating oil and just one extra inch of draft to a container ship can mean 9,600 more laptop computers, at a value of $8.5 million.

In addition, NOS protects and restores coastal resources damaged by releases of oil and other hazardous materials. As the nation's leading scientific resource for oil spills in the marine environment, NOAA was on the scene of the Deepwater Horizon incident from the start, providing coordinated scientific services and support to federal, state, and local organizations. NOS also protects and manages the special marine areas of the Nation's thirteen National Marine Sanctuaries (NMS) and the Papahānaumokuākea Marine National Monument. Sanctuaries contribute to the multiplier effect of consumer spending in local economies. For example, in 2008, visitor spending for recreation in Monroe County (of which the Florida Keys NMS occupies a major area) was estimated to be $1.99 billion, including $970 million in income to Monroe County residents and 32,000 jobs. Likewise, in counties surrounding Thunder Bay NMS in Michigan, total visitor spending on recreation in Alpena, Alcona, and Presque Isle Counties in 2006 was estimated to be $110 million, including $36 million in income to residents and 1,700 jobs. Through partnerships with coastal states, NOS manages and protects the Nation's valuable coastal zones and nationally significant estuarine reserves. NOS helps federal, state, local, and international managers build the suite of skills and capacity needed to protect, restore, and use coastal ecosystems by providing financial and technical assistance, process and technical skill training, and other applied research and capacity-building resources. Specifically, NOS is partnering with the states and other federal agencies to help prepare the maps and information needed to make sound, environmental-based decisions about future alternative energy sources such as wind, wave, tidal and thermal energy in the nation's coastal zones.

NOS delivers a range of nationwide coastal and Great Lakes scientific, technical, and resource management services in support of safe, healthy, resilient coastal communities; sustainable, robust coastal economies; and productive oceans and coasts. In carrying out its diverse programs and services, NOS forges partnerships to integrate the expertise and efficiency of effort across all levels of government and with nongovernmental organizations. NOS's expertise and partnership ethic will be particularly important as NOAA supports Administration-wide priorities related to renewable energy and coastal and marine spatial planning. NOS integration and expertise will be particularly important as NOAA implements Administration priorities such as coastal and marine spatial planning. The Deepwater Horizon incident is already demonstrating how NOS programs strategically coordinate internally, across NOAA, and with other federal, state, local and other partners. This coordinated approach is an essential component of NOS' national effort to protect, maintain, and sustain the viability of coastal communities, economies, and ecosystems.

NATIONAL OCEAN SERVICE

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
NOS — ORF				
Navigation Services	$168,172	$162,438	$157,362	($10,810)
Ocean Resources Conservation & Assessment	195,932	186,394	188,528	(7,404)
Ocean and Coastal Management	158,116	152,418	174,201	16,085
Congressionally Directed Projects	0	15,455	0	0
Administrative Effificeny Initiative	0	0	(8,872)	(8,872)
Total, NOS - ORF	522,220	516,705	511,219	(11,001)
Total, NOS - PAC	40,890	40,890	31,734	(9,156)
Total, NOS - Other	15,600	55,326	16,600	1,000
GRAND TOTAL NOS (Direct Obligations)	**$578,710**	**$612,921**	**$559,553**	**($19,157)**
Total FTE	**1,246**	**1,246**	**1,259**	**13**



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

Other: Environmental Improvement and Restoration Fund; Coastal Impact Assistance Fund; Coastal Zone Management Fund; Damage Assessment and Restoration Revolving Fund

The FY 2012 President's Budget supports funding and program requirements that enable NOS to deliver a dynamic range of nationwide coastal and Great Lakes scientific, technical and resource management services. This funding enables NOS to address established NOAA strategic goals and to continue along the path to meet the NOS vision: A nation with safe, healthy, resilient, and productive oceans and coasts.

FY 2012 ORF BUDGET SUMMARY

NOAA requests a total of $511,219,000 and 1,242 FTEs to support the continued and enhanced operations of the National Ocean Service. This total includes an increase of $7,385,000 and 1 FTE for Adjustments to Base (ATB), a net decrease of $18,386,000 in program changes and an increase of 12 FTEs for a total decrease of $11,001,000 and an increase of 13 FTEs from the FY 2010 Enacted.

ADJUSTMENTS TO BASE:

The ATB request includes an increase of $7,385,000 and 1 FTE, which is comprised of a restoration of the FY 2011 and FY 2012 ATBs. The increase will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration.

NOS — ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2012:

Select program changes are summarized at the sub-activity level below. A summary of funding by line item is located in Chapter 8, *Special Exhibits.* Detailed descriptions of all program changes by line item are located in the NOAA FY 2012 Technical Budget.

NAVIGATION SERVICES $157,362,000

NOAA requests program changes that net to a decrease of $10,050,000 and 0 FTEs and a total of $157,362,000 and 550 FTEs under the Navigation Services sub-activity.

Mapping and Charting Base: NOAA requests an increase of $250,000 and 0 FTEs. This increase is comprised of one new initiative and termination of FY 2010 congressionally specified spending of $750,000 for activities not proposed to be continued in FY 2012:

Integrated Ocean and Coastal Mapping: NOAA requests an increase of $1,000,000 and 0 FTEs to fund Integrated Ocean and Coastal Mapping (IOCM) Data Processing to maximize mapping data collection efficiencies and products provided to the public. Many Federal, state and private-sector customers rely on seafloor and water column mapping data, and demand for these data is growing exponentially. Ocean and coastal mapping is essential, but expensive. Improving capabilities for integration and data sharing provides an opportunity to meet multiple needs more efficiently. With this increase, NOAA will invest in an Integrated Ocean and Coastal Mapping (IOCM) data processing capability to greatly enhance NOAA's existing, overextended hydrographic data processing capacity. This will enable NOAA to use its seafloor and ocean mapping assets more efficiently in support of ocean and coastal mission requirements. This includes conserving and managing living marine resources and habitats, sustaining economic uses such as navigation, commercial/recreational fisheries and tourism, coastal hazard resilience, promoting climate change mitigation and adaptation strategies, and conducting scientific research. The increase will also support implementation of the Ocean and Coastal

Autonomous Underwater Vehicles (AUV), also known as unmanned underwater vehicles, can be used to perform underwater survey missions such as detecting and mapping submerged wrecks, rocks, and obstructions that pose a hazard to navigation for commercial and recreational vessels. AUV and NOAA's Bay Hydrographer in Chesapeake Bay shown here.

Mapping Integration Act (OCMIA) of 2009, which codifies collaborative approaches for Federal mapping agencies, and the Administration's National Ocean Policy, which calls for implementation of a coastal and marine spatial planning framework and other essential ocean and coastal economic and management activities. This enhanced effort will enable NOAA to accept mapping data from a variety of sources, manage these data with advanced systems, and produce and deliver quality-assured products to support both navigation and non-navigation (e.g. recreational, commercial) requirements. Data will be archived at the National Geophysical Data Center so that NOAA can provide universal access that would otherwise be unavailable to the broader research and resource management community and the public.

Geodesy: This consists of one termination of FY 2010 congressionally specified spending of $5,500,000 for activities not proposed to be continued in FY 2012.

Tides and Currents: NOAA requests a decrease of $4,800,000 and 0 FTEs. This is comprised of one decrease and one termination of FY 2010 congressionally specified spending of $3,800,000 for activities not proposed to be continued in FY 2012:

Tides and Currents Data Base: NOAA requests a decrease in the Tides and Currents Base of $1,000,000 and 0 FTEs. This decrease includes $600,000 to reflect the completion of the installation of meteorological sensors (wind speed/direction, air temperature and barometric pressure) at National Water Level Observation Network (NWLON) stations and a decrease of $400,000 in funding for the "hardening" (e.g. installation of hurricane protection measures) of NWLON stations damaged by recent hurricanes.

OCEAN RESOURCES CONSERVATION AND ASSESSMENT $188,528,000

NOAA requests program changes that net to a decrease of $2,547,000 and an increase of 11 FTEs and a total of $188,528,000 and 439 FTEs under the Ocean Resources Conservation and Assessment subactivity.

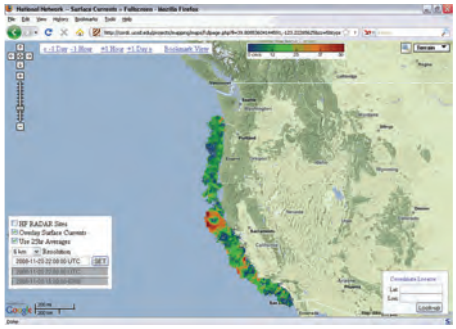
Ocean Assessment Program: NOAA requests an increase of $876,000 and 11 FTEs. This increase is comprised of six new initiatives, one decrease and one termination of FY 2010 congressionally specified spending of $20,718,000 for activities not proposed to be continued in FY 2012:

The Multipurpose Marine Cadastre (MMC) data viewer is an integrated marine information system that provides legal, physical, ecological, and cultural information in a common geographic information system (GIS) framework. In particular, the MMC is beneficial to those involved in coastal and marine spatial planning efforts that involve finding the best location for renewable energy projects.

Coastal and Marine Spatial Planning: NOAA requests an increase of $6,770,000 and 9 FTEs to develop an agency-wide capability to conduct and support comprehensive Coastal and Marine Spatial Planning (CMSP) in U.S. waters. Human uses of ocean resources are accelerating faster than our current ability to manage them. Increasing conflicts are unavoidable as demands increase for ocean-based energy (oil and gas, wind, wave), marine aquaculture, commercial and recreational fishery products, shipping and navigation services, and other activities. The health of ocean ecosystems is at risk, as are the benefits they provide to coastal communities and the national economy. The Nation's current approach to managing the use of ocean resources is ad hoc and fragmented, with no systematic way of evaluating competing ocean uses as well as informing and navigating the often difficult trade-offs they require. In July 2010, President Obama signed Executive Order #13547, adopting the Final Recommendations of the Interagency Ocean

Policy Task Force as the National Policy for the Stewardship of the Oceans, Our Coasts and the Great Lakes. This Policy includes a Framework for implementing CMSP across the United States. CMSP is intended to facilitate sustainable economic growth in coastal communities by providing transparency and predictability for economic investments in coastal, marine and great Lakes industries, transportation, public infrastructure and related businesses. Through the CMSP process, agency and partner data would be integrated into a useable format dramatically improving the access of industry, users and resource managers to this information. Through the development of a user interface and decision-support tools, industry, stakeholders and Regional Planning Bodies would be able to visualize different options, benefits and challenges of various use scenarios in defined areas to help prevent use conflicts before siting and permitting decisions have to be made—saving time and money. CMSP can make managing competing uses of coastal and marine resources more efficient and economically beneficial because it provides transparency and predictability to both sides of the equation—both developers and the coastal communities and environments potentially impacted by industry, transportation, infrastructure and other investment areas. Building upon NOAA's broad science, technical and policy strengths, this increase will fund activities that address NOAA's diverse place-based stewardship and marine transportation mandates and provide the foundation necessary for effective data integration and regional capacity building. These activities will fulfill a critical role in implementing the National Ocean Policy and NOAA's Next Generation Strategic Plan (NGSP), and will enable balanced use of our oceans and coasts so that valuable ecosystem services can be sustained for this and future generations. In addition to promoting sustainable ecosystem services, CMSP provides efficiencies and cost savings to coastal and marine industries. Mapping projects connected with CMSP can save time by dramatically improving the ability to visualize different constraints and benefits of various uses of an area.

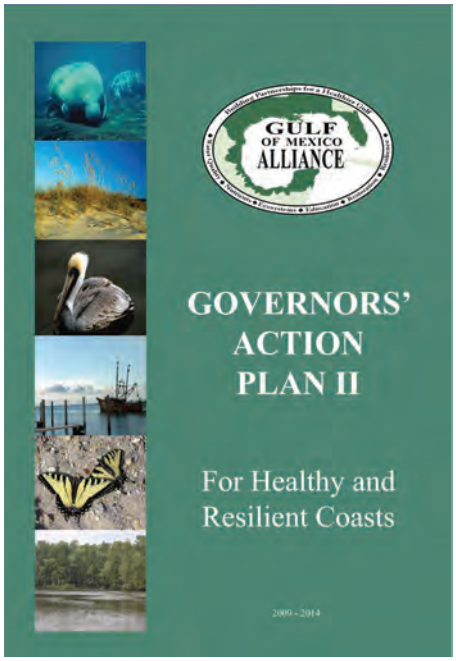
U.S. IOOS® Surface Current Mapping plan using High Frequency Radar: NOAA requests an increase of $5,000,000 and 0 FTEs to implement the U.S. IOOS® Surface Current Mapping plan to monitor near-shore currents using High Frequency (HF) Radar. HF Radar surface current measurements provide oceanographic data in support of national defense and homeland security, U.S. Coast Guard search and rescue (SAR) operations, marine transportation, water quality pollutant tracking, and harmful algal bloom (HAB) forecasting. The 2010 Deepwater Horizon oil spill highlighted the utility of HF Radar. NOAA's Office of Response and Restoration relied on real-time data collected from the national HF Radar surface current monitoring network to inform trajectory forecasts that were used by Federal responders to deploy spill response assets and identify fishery closures and to verify models used to assess the likelihood of the oil moving into the Loop Current. Additionally, the National HF Radar surface current monitoring network has recently attracted the attention of offshore energy projects. In New Jersey, for example, the state could expand the HF Radar network in the Mid-Atlantic to support assessments of offshore wind projects worth $7 billion. The state can realize these assessments due to the existing NOAA-supported national HF Radar management infrastructure. SAR operations also demonstrate the benefits of improved surface current monitoring. The Coast Guard currently ingests surface current data from HF Radar into its SAR operations center for the mid-Atlantic coast and estimates that access to HF Radar data in all U.S. coastal waters would save 26-45 additional lives annually and reduce costs spent on



Real-time display from existing west coast High Frequency Radar network

rescue flights. This increase will sustain and maintain the Regional IOOS® HF Radar stations currently operating and delivering data to the national network with a priority on HF radar systems located in regions of offshore oil production and in the vicinity of major ports and harbors. The U.S. IOOS® program will award funding via an established merit-based competitive process with the Regional Coastal Ocean Observing System and through contracts with Federal partners.

IOOS® Regional Observations and Technology Innovation: NOAA requests an increase of $8,500,000 and 0 FTEs for U.S. IOOS Regional Observations to develop and improve sensors for ocean chemical, biological, and physical parameters at multiple spatial and temporal scales to monitor changing conditions in the oceans, coasts, and Great Lakes. Approximately 100 million Americans go to the beach or swim in the ocean each year, many of them multiple times, where they can be exposed to a dangerous array of ocean health threats from impaired water quality due to industrial, urban, and agricultural activities. In 2004, there were nearly 20,000 days of closings and advisories at ocean, bay, and Great Lakes beaches, of which 73 percent were attributed to unknown sources and cost millions to local economies. This funding will enable rapid and cost-effective identification of ocean-borne health threats, thereby enabling actions to protect public and animal health, and advance our understanding of how multiple stressors—including climate change—affect the health of coastal ecosystems. The Integrated Ocean Observing System (IOOS) is a coordinated network of people and technology that work together to generate and disseminate continuous data on the Nation's coastal waters, Great Lakes, and oceans. IOOS effectively delivers this data to decision makers to meet user needs at local, regional, and national scales within the framework of national IOOS goals. These funds will be competitively awarded through the National Ocean Partnership Program for the development, demonstration, and transition to operations of marine sensor technologies. These activities have the potential to result in significant improvements to meet National Ocean Policy priorities related to informing decisions and improving understanding, water quality, observations, mapping, and infrastructure This sustained investment in technology innovation will propel marine sector businesses, job growth, and scientific discovery while supporting science, technology, engineering, and mathematics (STEM).



Gulf of Mexico Regional Collaboration: NOAA requests a decrease of $4,750,000 and 0 FTEs, ending the NOAA grant program targeted at advancing regional coastal resource priorities defined by the five Gulf States in *The Governors' Action Plan II for Healthy and Resilient Coasts.* Regional Ocean Partnerships, a new $20 million dollar competitive grant program, will provide funding to implement the action plans of existing regional ocean partnerships or begin planning activities in all of the nine coastal regions. As such, entities that had competed for funds under the Gulf of Mexico grant program in the past will be eligible to compete for funds under Regional Ocean Partnerships. In addition, the FY 2012 President's Budget includes a $4M request for preparing coastal communities for climate hazards (see below). This activity will have an initial focus on the Gulf of Mexico and the Pacific Islands and would support the *Governors' Action Plan II*

priority to employ "mitigation methods such as accurate mapping, tide level predictions, resilient land use plans, and habitat conservation" that can increase a community's ability to recover after experiencing destructive coastal storms to due climate change and sea level rise.

Coastal Services Center - Climate Hazards: NOAA requests an increase of $4,000,000 and 2 FTEs to prepare coastal communities for climate hazards. As coastal populations continue to grow, coastal communities are becoming increasingly vulnerable to climate hazards (from winds, waves, and flooding generated by hurricanes and other major storms, as well as physical impacts caused by sea-level rise, coastal erosion, and long-term shoreline changes). Today, coastal communities comprise only one-fifth of the Nation's land, but they house over one-half of the U.S population, generate nearly 60 percent of the U.S. economy and account for the most repetitive flood loss claims with the National Flood Insurance Program (NFIP) and the private casualty loss insurance industry at a cost of $200 million per year for the NFIP alone[6]. This increasing flood damage is increased significantly by wetland loss, costing states such as Florida and Texas millions of dollars per year. To reduce the vulnerability of coastal communities to the hardship and costs associated with climate-related natural hazards, NOAA will apply its scientific and technical expertise towards the development of improved environmental tools. NOAA will work with communities on applying these tools in an effort to mitigate or effectively manage the devastating human, economic and environmental impacts of events such as sea level change and other forms of coastal inundation. With an initial focus on the Gulf of Mexico and Pacific Islands, this request will allow NOAA to develop planning guidelines, provide training and information on understanding coastal risk and vulnerability assessments, and develop decision support resources that integrate social, economic, and climate data. NOAA will also provide accurate and timely prediction of changing sea level at global, regional, and local scales to improve resiliency and response to climate hazards. This funding increase represents a joint effort across NOAA to address climate hazards by leveraging strengths and collaboratively addressing needs identified via regional and national coastal management assessments. NOAA offices involved in this project include the Coastal Services Center (including the Pacific Services Center), the National Climate Data Center, the Office of Ocean and Coastal Resource Management, Climate Program Office, the Office of Coast Survey, the National Weather Service and the Coastal Storms Program.

Coastal Service Center—Gulf of Mexico Coastal and Marine Elevation Pilot: NOAA requests an increase of $2,000,000 and 0 FTEs to develop a Gulf of Mexico Coastal and Marine Elevation Pilot. Coastal wetland loss and rapid erosion in the Gulf of Mexico has led to the loss of key ecosystem services (such as critical storm protection), causing economic and environmental consequences for both the region and the Nation. To address these issues, NOAA will develop a national integrated high-resolution topographic and bathymetric dataset that will improve the accuracy of storm surge models, optimize ecosystem restoration, inform coastal and marine spatial planning (CMSP), and enhance ecosystem assessments. This effort will be pursued jointly with the Department of Interior (USGS and BOEMRE). Initial pilot efforts will focus on Mississippi and Louisiana, in support of the Gulf Coast Ecosystem Restoration Working Group and

[6] *24th Annual Workshop on Hazards Research and Applications, Howard 1999*

the Interagency Working Group on Long Term Disaster Recovery; however, the intent is to develop a robust framework that can be extended to other regions and applications over time. Ultimately, this increase will provide the foundational data and geospatial framework needed to measure changes in coastal elevation and nearshore bathymetry, delivering critical data to monitor and mitigate for the impacts of coastal erosion, habitat loss, and coastal inundation (including sea level rise). This effort will allow for more effective science-based decisions at state and local levels regarding habitat restoration and can inform coastal planning activities.

Response and Restoration: NOAA requests an increase of $88,000 and 0 FTEs. This is comprised of one new initiative and one termination of FY2010 congressionally specified spending of $2,812,000 for activities not proposed to be continued in FY 2012:

Example of the oil from Deepwater Horizon incident stranded on the North Chandeleur Islands. There were four areas with this kind of oiling. The areas were in the range of 100 to 300 meters long and 0.5 to 2 meters wide, with 25 up to 90 percent distribution of oil less than 1 centimeters thick (cover). Three of the four areas were on the north sides of the inlets between the islands.

Strengthening Oil Spill Response and Restoration Research and Development: NOAA requests an increase of $2,900,000 and 0 FTEs to develop an oil spill research and development program: NOAA's Office of Response and Restoration (OR&R) is the lead trustee for the public's coastal natural resources and an international scientific leader for oil spill response, assessment, and restoration. The Deepwater Horizon oil spill is a stark reminder that spills of national significance can occur despite the many safeguards and improvements that have been put into place since the passage of Oil Pollution Act of 1990. The risk of oil spills remains a concern given increases in marine transportation, pressures to develop domestic areas for drilling offshore, aging infrastructure susceptible to sea level rise and more frequent and violent storms in U.S. coastal areas, and opening the Arctic to both shipping and oil development. The public deserves and expects prompt and effective cleanup following an oil spill, and responders must be equipped with the appropriate tools and information to help meet those expectations. Existing research has resulted in advancing some response technologies; however, much more can be done to strengthen our Nation's response capabilities, especially in deep water and Arctic environments. With this increase, NOAA will support external grants for essential research to provide useful information, methods and tools for planners, oil spill responders, and assessment practitioners. In addition, NOAA will implement additional focused peer reviewed research, and communicate research results and recommendations to key decision makers throughout the Nation. Research will focus on oil fate and behavior from deepwater releases, long-term effects on species and habitats, tools for assessment and restoration, oil in arctic environments, and human dimensions of oil spills. Applying the latest science and continuing research and development will improve NOAA's response decisions, thereby reducing the severity of oil spill injuries and impacts to our Nation's economy, communities, and environment.

National Centers for Coastal Ocean Science (NCCOS): NOAA requests a decrease of $3,511,000 and 0 FTEs. This is comprised of two new initiatives and one termination of FY2010 congressionally specified spending of $5,511,000 for activities not proposed to be continued in FY 2012.

Coastal Ecosystem Science: NOAA requests an increase of $1,000,000 and 0 FTEs for inter-disciplinary science, information and decision support tools to improve coastal management and stewardship. Human activity along our coasts such as coastal development, industrial run-off, agricultural waste as well as changes in land use and a changing climate, are adding a complexity of environmental and human stresses, the consequences which we do not yet fully understand and are currently ill-prepared to manage. Coastal communities are home to more than half of the U.S. population and generate nearly 60 percent of the US economy. Land-based discharges of trace metals, pesticides, pharmaceutical agents and pathogens from industrial, urban and agricultural sources negatively impact human health, impair coastal ecosystems, close beaches, and devastate coastal communities that rely on tourism and recreation as sources of income to achieve economic and environmental sustainability. The increase will allow NOAA to maintain and enhance NOAA's Mussel Watch Program, the Nation's longest-standing baseline data collection effort, and to conduct essential NOAA laboratory equipment maintenance and refresh to maintain NOAA's scientific leadership in coastal and ocean ecosystem science. Approximately 12 percent of coastal waters are considered unfit for designated uses, over 50 percent of the Nation's estuaries experience hypoxia and beach advisory days due to biological contamination (pathogens) have more than tripled. With this increase, NOAA also seeks to substantially strengthen existing partnerships within the Department of Commerce, including the National Institute of Standards and Technology (NIST) and Commerce Connect, the broader Federal community, including the U.S. Geological Service (USGS), Environmental Protection Agency (EPA), Food and Drug Administration (FDA), and Center for Disease Control (CDC), states, and academic institutions to jointly address critical research and applied science.

Oceans and Human Health: NOAA requests an increase of $1,000,000 and 0 FTEs for the Oceans and Human Health Program. The combined pressures of coastal development, changes in watersheds and climate change on our ocean and coastal systems pose both immediate and long term human health threats from disease-causing pathogens, contaminants and biotoxins. Funds for the Oceans and Human Health Program will implement the Oceans and Human Health Act (OHHA) through the cross-NOAA Oceans and Human Health Initiative. This increase will advance NOAA research, tools, and technology through NOAA's Centers of Excellence in Oceans and Human Health and increase external partnerships and graduate and postdoctoral traineeships to provide NOAA with premier research community expertise and build a cadre of future scientists who will help solve complex, interdisciplinary problems associated with oceans and human health in the future.

OCEAN AND COASTAL MANAGEMENT $174,201,000

NOAA requests program changes that net to an increase of $18,703,000 and 1 FTE and a total of $174,201,000 and 253 FTEs under the Ocean and Coastal Management sub-activity.

Coastal Management: NOAA requests an increase of $22,754,000 and 1 FTE. This is comprised of three new initiatives, one decrease and one termination of FY 2010 congressionally specified spending of $4,046,000 for activities not proposed to be continued in FY 2012.

Working waterfront

Working Waterfronts: NOAA requests an increase of $8,000,000 and 0 FTEs to create a working waterfronts grant program. An active fishing industry contributes to the economic base of many coastal communities. Commercial and recreational fisheries result in $162.9 billion in sales impacts in the U.S. economy each year. However, a number of U.S. fisheries are under-performing biologically and economically. The present productivity of U.S. fishery resources is 24 percent below the long term sustainable yield of 12.4 million tons. NOAA proposes to create an $8,000,000 National Working Waterfronts grant program for FY 2012 to assist fishing-dependent coastal communities adversely affected by changes in the fishing industry on which they depend. Numerous communities that traditionally relied on robust fishing fleets are finding it necessary to diversify their economies and workforces in order to support more economically and biologically sustainable conditions. This program will assist distressed fishing communities by providing resources for communities to engage in planning, capacity building, and other activities to support economic diversity, resource conservation, and economic growth. These funds will be used for competitive external funding opportunities to support socio-economic studies, community-based planning/capacity building, economic development and transition implementation projects, and management support for fishing-dependent coastal communities.

Regional Ocean Partnership Grants: NOAA requests an increase of $20,000,000 and 1 FTE to establish a competitive grants program to support regional ocean partnerships. The National Ocean Policy, the Pew Oceans Commission, the U.S. Commission on Ocean Policy, and the Joint Ocean Commission Initiative all call for regional ocean governance mechanisms to address the growing crises facing our oceans. The value of regional approaches in this regard is reflected in the rapid engagement by most coastal states in new regional ocean governance partnerships. Regional ocean governance mechanisms facilitate the effective management of ocean and coastal resources across jurisdictional boundaries by improving communications, aligning priorities, and enhancing resource sharing between local, state, and federal agencies. With this increase, NOAA will establish a competitive grants program to advance effective ocean management through regional ocean governance. To this end, the program will help support priority actions identified in plans of the existing regional ocean partnerships (e.g., Gulf of Mexico Alliance, Northeast Regional Ocean Council, Great Lakes Regional Collaboration, and the West Coast Governors' Agreement on Ocean Health), as well as support the development and implementation of ocean management plans in other regions (e.g. the Mid-Atlantic Regional Council on the Ocean, the South Atlantic Alliance, Hawaii, and elsewhere) and address regional activities in other parts of the country (e.g. the Pacific and Caribbean territories, and Alaska). Support for these partnerships will also include the development of comprehensive coastal and marine spatial plans (CMSP) consistent

with the U.S. National Framework for CMSP. Eligible grant recipients will include state, local and tribal governments, institutions of higher learning and non-profit organizations working with these regional ocean partnerships or member states. Each year, NOAA will work with the regional ocean partnerships to identify priority areas to focus the funding opportunity. This grant program will be closely coordinated with other NOAA programs and the activities supported through the coastal and marine spatial planning increase also requested in FY 2012.

Energy Licensing and Appeals: NOAA requests a decrease of $1,200,000 and 0 FTEs for Energy Licensing and Appeals. Developing a successful offshore energy sector is important to the U.S for energy security, military readiness, and global competitiveness. Renewable coastal and ocean energy efforts are growing exponentially—to exploit the enormous power available from wind, tides, currents, and thermal differences, as well as to avoid the issues associated with terrestrial energy development. NOAA will work to meet its statutory responsibilities related to energy under the Federal Consistency provisions of the Coastal Zone Management Act (CZMA) and the Ocean Thermal Energy Conversion Act (OTECA) by utilizing current agency resources. Resources will allow NOAA to augment policy, management and legal capabilities and to support critically needed technical and scientific expertise. Specifically, NOAA will provide technical and management support to states, industry, and other stakeholders on siting and Federal Consistency issues relating to offshore energy development, coordinate with other federal agencies that have responsibilities for offshore energy, and for the initiation of a commercial permitting process for Ocean Thermal Energy Conversion (OTEC) facilities.

NATIONAL MARINE FISHERIES SERVICE

The National Marine Fisheries Service (NMFS) is responsible for the management and conservation of living marine resources within the U.S. Exclusive Economic Zone (EEZ), the area extending from three to 200 nautical miles offshore. NMFS provides critical scientific and policy leadership in the international arena and plays a key role in the management of living marine resources in coastal areas under state jurisdiction. NMFS implements science-based conservation and management measures and actions aimed at sustaining long-term use and promoting the health of coastal and marine ecosystems. NMFS' mission is to maximize benefits to the Nation from the protection and use (commercial, recreational, and aesthetic) of living marine resources.

Commercial fishing

To achieve its mandates, NMFS works to ensure the long-term health, productivity, and diversity of our Nation's oceans and coastal living marine resources—including fish, invertebrates, sea turtles, marine mammals, and other marine and coastal species—and their habitats. NMFS is charged with balancing these protection mandates with multiple uses and interests in living marine resources, including commercial, recreational, and subsistence fishing; aquaculture; and marine and coastal observation and research. NOAA is committed to supporting the fishing industry and ensuring the long-term economic sustainability of coastal communities, which can be achieved through sound management. Based on estimates, rebuilding U.S. fisheries would increase the current dockside value by an estimated $2.2 billion (54 percent annually from $4.1 billion to $6.3 billion annually.) Successful management relies upon NMFS' strong scientific and research competency to support the challenging public decision-making processes associated with NMFS' stewardship responsibilities.

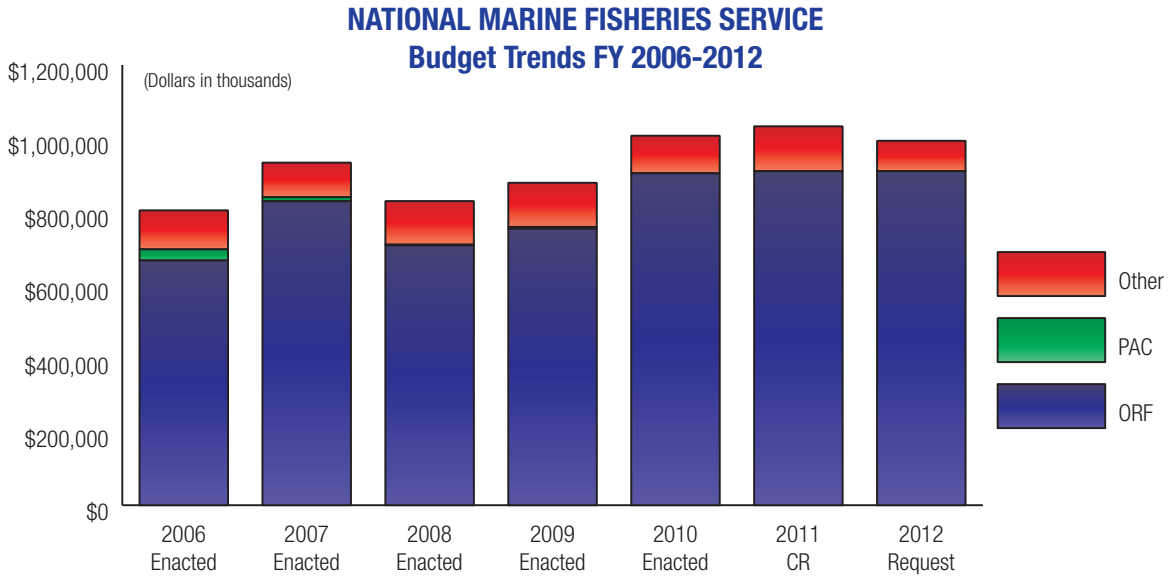
NMFS continues to develop and track key performance measures that demonstrate meaningful results to the American public. In FY 2012, NMFS will continue to focus its resources on building and maintaining fish stocks at productive levels; improving the status of overfished fisheries and of endangered and threatened species and ensuring those species have adequate population assessments and forecasts; implementing plans to rebuild, recover, and conserve major fish stocks and protected species; and restoring habitat for NOAA trust resources.

NMFS will also continue its efforts to end overfishing, support market-based management approaches such as catch shares, improve recreational fisheries data collection, reduce bycatch of living marine resources, and address illegal, unregulated, and unreported (IUU) fishing. NMFS will conduct Endangered Species Act (ESA) listing activities such as status reviews, development of protective regulations, and critical habitat designations for species that have been petitioned for listing. NMFS will collaborate with other agencies and organizations on Administration priorities, such as renewable energy and the National Ocean Policy's objective for an ecosystem-based approach, to develop indicators of ecosystem status and trends, as well as joint strategies to address priority regional ecosystem issues.

The FY 2012 President's Budget Request supports funding and program requirements to enable NMFS to be effective stewards of living marine resources for the benefit of the Nation through science-based conservation and management and the promotion of ecosystem health.

NATIONAL MARINE FISHERIES SERVICE

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
NMFS — ORF				
Protected Species Research and Management	$203,952	$199,447	$216,581	$12,629
Fisheries Research and Management	432,917	420,228	476,024	43,107
Enforcement and Observers	106,747	105,619	106,207	(540)
Habitat Conservation and Restoration	58,193	49,812	53,600	(4,593)
Other Activities Supporting Fisheries	102,730	86,456	74,271	(28,459)
Congressionally Directed Projects	0	33,418	0	0
Administrative Efficiency Initiative	0	0	(16,271)	(16,271)
Total, NMFS - ORF	904,539	894,980	910,412	5,873
Total, NMFS - PAC	0	0	0	0
Total, NMFS - Other	103,642	122,420	90,692	(12,950)
GRAND TOTAL NMFS (Direct Obligations)	**$1,008,181**	**$1,017,400**	**$1,001,104**	**($7,077)**
Total FTE	**2,823**	**2,823**	**2,897**	**74**



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

Other: Fishermen's Contingency Fund; Foreign Fishing Observer Fund; Fisheries Finance Program Account; Promote and Develop; Pacific Coastal Salmon Recovery Fund; Marine Mammal Unusual Mortality Event Fund; Federal Ship Financing Fund; Environmental Improvement and Restoration Fund; Limited Access System Administration Fund

FY 2012 ORF BUDGET SUMMARY

NOAA requests a total of $910,412,000 and 2,892 FTEs to support the continued and enhanced operations of the NMFS. This total includes an increase of $18,435,000 and an increase of 42 FTEs for Adjustments to Base (ATBs) and a net decrease of $12,562,000 in program changes and an increase of 32 FTEs for a total increase of $5,873,000 and 74 FTEs from the FY 2010 Enacted.

ADJUSTMENTS TO BASE:

The ATB request includes an inflationary increase of $19,935,000 and 42 FTEs which is comprised of a restoration of the FY 2011 and FY 2012 ATBs. This increase will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

Adjustments also include the following:

- FY 2012 Technical ATBs: a decrease of $1,500,000 and 0 FTEs to transfer $6,002,000 from Cooperative Research and $11,400,000 from Fisheries Research and Management Programs to National Catch Share Program to consolidate resources for the operations of the National Catch Share Program. NOAA also requests a technical adjustment to move $1,500,000 from NMFS to Oceanic and Atmospheric Research (OAR).

NMFS—ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2011:

Select program changes are summarized at the sub-activity level below. A summary of funding by line item is located in Chapter 8, *Special Exhibits.* Detailed descriptions of all program changes by line item are located in the NOAA FY 2012 Technical Budget.

PROTECTED SPECIES RESEARCH AND MANAGEMENT $216,581,000

NOAA requests program changes that net to an increase of $10,018,000 and 12 FTEs and a total of $216,581,000 and 829 FTEs under the Protected Species Research and Management sub-activity. This increase is comprised of five new initiatives, one decrease, and one termination of FY 2010 congressionally specified spending of $6,650,000 for activities not proposed to be continued in FY 2012:

Protected Resources Stock Assessments: NOAA requests an increase of $2,500,000 and 2 FTEs to conduct protected species stock assessments at a frequency required to adequately support effective conservation decision making. Stock assessments of marine mammals and turtles provide a wide range of information for use by managers to conserve these species and accurately assess the effects of proposed activities on them. This is the basis of Endangered Species Act (ESA) biological opinions and NEPA environmental impact analyses that inform NOAA's decisions whether to authorize the "taking" of marine mammals or turtles incidental to human activities. Such take may be prohibited, or mitigated with the design and conduct of specific conservation measures. NOAA also uses its stock assessment and monitoring information to evaluate the effectiveness of fisheries efforts to reduce incidental mortality and serious injury to biologically insignificant levels. Adequate stock assessments will enable NOAA to develop more specific and less restrictive consultation responses to fishery management plans allowing for increased number of fishing days, incidental takes and the

geographical area in which fishing can occur. This funding will support ship and aircraft time (NOAA or charter) for assessments of 15 stocks in the Arctic (harbor porpoise, and minke, beaked, and northern Pacific right whales) and the Western Pacific (marine turtles, sperm, blue, false killer, and sei whales) to help determine the impact of human activities. Planned human activities that will increase protected species harassment, injury, and mortality include: 1) expansion of areas allowed for oil and gas exploration in the Arctic; 2) defense readiness training and operations in the Arctic and Western Pacific; and 3) commercial fishing activities in Alaska and Western Pacific.

Bearded seal

Protected Species Research and Management Programs Base: NOAA requests an increase of $3,000,000 and 7 FTEs to increase its capacity to meet interagency consultations and authorizations under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). Consultations are necessary to authorize lawful activities potentially affecting protected species and to ensure that economic development and national defense actions are compatible with species conservation and recovery. Through the consultation process, NMFS helps agencies tailor their actions, so as to avoid additional peril to the impacted species and assist in conservation efforts. Over the past five years, NMFS has experienced a 16 percent decline in on-time processing of MMPA and ESA permits. In FY 2010, approximately 70 percent of formal ESA consultations received no action within statutory deadlines due to the increased number of listed species and complex consultations. The number of consultations is expected to increase in FY 2012 and beyond because of new species listings. In 2010 four species were added to the endangered species list, and many more might be added in 2011 due to the large number of species that have been petitioned and are now proposed and candidates for listing. The anticipated increase in consultation is also being driven by the new Pacific Marine National Monuments, increased vessel traffic in the Arctic environment, development of conventional and alternative energy projects, and national security. This increase will support consultations and authorizations for regional energy development, national defense related activities, pelagic longline fishery operations, and operations of the Pacific Marine National Monuments. Funding will also support NMFS' efforts to improve its on-time completion rate and reduce the backlog of consultation that have received no action.

Species Recovery Grants: NOAA requests an increase of $8,000,000 and 0 FTEs for the conservation and recovery of marine and anadromous species under NMFS jurisdiction and listed under the Endangered Species Act (ESA) through the Species Recovery Grants Program. NMFS currently has jurisdiction over 72 threatened or endangered species, seventeen species that have been proposed for listing, and 88 candidates for listing under the ESA. In 2010 four species were added to the endangered species list, and more might be added in 2011. The addition of species to these lists without corresponding investments in, and implementation of, recovery and conservation actions results in increasing pressure on all ESA programs within NMFS, and an increasing regulatory burden on the public. With increased funding for the Species Recovery Grants Program, NMFS will conduct cooperative conservation and recovery implementation by providing additional grants to states and tribes. Most partners do not have adequate resources to address necessary recovery actions and Federal assistance is necessary to ensure their ability to engage in effective partnership. By leveraging the financial, technical, and educational resources from states and tribes, NMFS can achieve

a greater level of conservation of listed species. Matching funds allow for larger and more complex conservation and habitat restoration projects. Fostering relationships with other states and tribes effectively incorporates local expertise to protect and recover listed species. Priority recovery actions funded can include restoring habitat necessary for the recovery of listed species, assessing and monitoring species status and trends, partnering with others to conduct cross-jurisdictional conservation actions, developing conservation plans to mitigate incidental take of listed species, and educating the public about the conservation of ESA-listed species. Grants may also support needed monitoring of candidate and recently de-listed species. NMFS will track ongoing and completed recovery actions by incorporating NMFS information into the U.S. Fish and Wildlife Service's "Recovery Online Activity Reporting System" or an equivalent tracking system. NMFS will also develop a database to track and evaluate the effectiveness of funded projects and provide searchable information for the public.

Coho salmon

Pacific Salmon: NOAA requests an increase of $2,668,000 and 0 FTEs to monitor Pacific salmon reintroductions, evaluate the effectiveness of restoration efforts, and expand NMFS genetic stock identification capability. This increase will improve the scientific information for Pacific salmon recovery allowing managers to effectively focus efforts on the most critical actions threatening salmon. Managers will be better able to predict ocean abundance and develop improved conservation strategies, improve success of restoration projects, and understand the risks of hatchery supplementation. In turn, better management of the salmon fishery should provide greater fishing opportunities. Funding of $668,000 will support fish tagging and tracking technology to monitor and evaluate watershed level salmon reintroduction and habitat restoration actions. This effort will focus restoration efforts to those habitat elements that can best increase survival. Genetic tools and stock indicators will be funded at $2,000,000 to provide stock specific ocean distribution and catch information providing new opportunities to manage fisheries and target strong stocks while limiting the impact on ESA-listed salmon populations.

Pacific Salmon - CALFED Bay-Delta Program: NOAA requests an increase of $1,000,000 and 3 FTEs to support the Water Operations Oversight and Coordination activities under CALFED Bay- Delta Program. The CALFED Bay-Delta Program is a cooperative effort of 18 State and Federal agencies with regulatory and management responsibilities in the San Francisco Bay/Sacramento/San Joaquin River Bay-Delta to develop a long-term plan to restore ecosystem health and improve water management for beneficial uses of the Bay-Delta system. Funding will support NOAA's actions required under the new Operations Criteria and Plan (OCAP) Biological Opinion (issued June 4, 2009) on Endangered Species Act (ESA) listed Chinook salmon, steelhead and green sturgeon. Specifically, funding will support the "Smarter Water Supply Use" activities delineated in the recent Interim Federal Action Plan. This includes coordinating ESA compliance and permitting with the Bureau of Reclamation and the California Department of Water Resources. These funds will also enable NMFS to monitor compliance with the new Reasonable and Prudent Alternative (RPA) in the OCAP biological opinion by allowing NMFS to participate in reviewing water operations forecasts, participate on technical teams, and assist in adaptive management decisions regarding operations of the state and Federal Central Valley water projects.

Atlantic Salmon: NOAA requests a decrease of $500,000 and 0 FTE for Atlantic Salmon. Remaining funds will be used to continue implementing projects to address fish passage barriers, restore habitat, study the major threats to Atlantic Salmon, and conduct ESA consultations on Federal projects that might impact Atlantic Salmon survival. Funding will also be used to conduct estuarine and early marine survival assessments using telemetry; undertake hatchery evaluation studies; study diseases; and research the development of hydroacoustic techniques to monitor smolts and estimate abundance. These activities, in turn, will enable the effective conservation and protection of Atlantic salmon by NOAA.

FISHERIES RESEARCH AND MANAGEMENT $476,024,000

NOAA requests program changes that net to an increase of $35,750,000 and 28 FTEs and a total of $476,024,000 and 1,394 FTEs under the Fisheries Research and Management sub-activity. This increase is comprised of four new initiatives, one decrease, and one termination of FY 2010 congressionally specified spending of $10,750,000 for activities not proposed to be continued in FY 2012.

Halibut catch share

National Catch Share Program: NOAA requests an increase of $36,600,000 and 10 FTEs to accelerate and enhance the implementation of a National Catch Share Program. Rebuilding our Nation's fisheries is essential to preserving the livelihood of fishermen, the vibrancy of our coastal communities, the sustainability of a healthy seafood supply, and restoring ocean ecosystems to a healthy state. Catch share programs give fishermen a stake in the benefits of a well-managed fishery, and therefore, greater incentive to ensure effective management. This funding will support the development, implementation, and operation of catch share programs in fisheries across the nation. Specifically the analysis and evaluation of new programs, the development of fishery management plans and regulations to support catch shares, observing and monitoring at sea and on shore for specific fisheries, and enforcement activities. It also provides for the continued implementation of electronic log books as well as dockside data collection and management, including quota accounting and lien registry. The funding also increases NMFS' analytical capacity to evaluate and report performance of catch share monitoring programs with respect to economic performance, fleet behavior, annual catch limits, and bycatch reduction. There are currently 15 catch shares are in place and NOAA estimates that two additional catch shares will be implemented in FY 2012 for a total of 17. This increase continues support for key catch share programs such as the Northeast groundfish fishery sector management, the West Coast Trawl Individual Quota Program, and the Gulf of Mexico Grouper and Tilefish program. In addition, the following programs will be supported in the North Pacific: Gulf of Alaska Trawl Rockfish Cooperative and Alaska Halibut Guided Sportfish Individual Fishing Quota.

Expand Annual Stock Assessments: NOAA requests an increase of $15,000,000 and 10 FTEs to increase the number of stocks with adequate assessments to help verify that overfishing is no longer occurring and allow optimum catch levels to be set to support the sustainability and economic viability of fish stocks. The Magnuson-Stevens Act (MSA), which mandates establishment by 2011 of annual catch limits (ACLs) in all fisheries to prevent overfishing, requires improved assessment capacity. For many fish stocks, the incomplete scientific information resulting from lack of adequate

stock assessments forces fishery managers to resort to setting annual catch limits in an overly conservative manner, thus limiting fishing opportunity in order to prevent overfishing. Adequate stock assessments increase economic opportunities for fishing communities whose livelihood depends on the scientifically sound management of fisheries. The requested increase will allow for a significant increase in NMFS capacity to conduct stock assessments, therefore allowing optimum fishing opportunity in more fisheries without risking overfishing and harm to the marine ecosystem. NMFS will conduct improved fishery independent surveys using advanced technologies to estimate fish abundance in additional habitats and conduct workshops to improve standardization and public understanding of assessment methods. NMFS will prioritize assessments for stocks using the following criteria: 1) Economically valuable stocks and associated fishery-limiting stocks with high uncertainty influencing ACLs; 2) Intensity of fishing, including stocks that have an overfishing status or increased pressure; 3) Stock abundance, such as those on the brink of overfished; 4) Increase the updating of assessments that are more than five years old, have lapsed into "inadequate" status, or have never been assessed; 5) Importance of the stock economically and ecologically; and 6) Synergistic factors such as the benefit to other stocks and future assessments.

Salmon Management Activities: NOAA requests a decrease of $13,500,000 and 0 FTEs due to the completed implementation of the revised 2008 Pacific Salmon Treaty. The remaining $8.7 million in overall Pacific Salmon Treaty funding includes the base funding level of $5.7 million for treaty implementation, as well as $3.0 million to implement the 2008 Chinook salmon agreement which includes the Coded Wire Tag (CWT) Program Improvements ($1.5 million) and for Puget Sound Critical Stocks Augmentation ($1.5 million). The reduction also includes a planned decrease for the Alaska fishery adjustment mitigation of $7.5 million. These funds were provided to partially mitigate the economic consequences of Alaska reducing its harvest of Chinook in Southeast Alaska by 500,000 fish in fulfillment of the Pacific Salmon Treaty obligations. In addition, a planned reduction of $6.0 million from $7.5 million to $1.5 million is requested for the Puget Sound Critical Stocks Augmentation. The Puget Sound Critical Stocks Augmentation supports projects to assist in recovery of critical Puget Sound Chinook salmon stocks in a manner that complements the benefits of harvest reductions provided by the Treaty revisions, including hatchery actions, such as captive brood and supplementation programs and habitat projects (e.g., barrier removals, stream stabilization, and estuary rehabilitation).

Fisheries Statistics: NOAA requests an increase of $3,000,000 and 3 FTEs to provide an improved recreational fisheries monitoring program that meets fisheries management requirements. The MSA mandates that NMFS establish annual catch limits (ACLs) that prevent overfishing. However, without proper catch monitoring, fishery managers are limited in their ability to prevent the recreational fishing sector from exceeding these catch targets. In the past, fishery managers have been obliged to set catch limits at lower levels to account for poor catch monitoring and help mitigate the chance of ACLs being exceeded. Consequences of such actions include less catch, shorter fishing seasons, and underutilization of the resource. The proper and timely tracking proposed through this request will support the successful management of recreational fisheries using ACLs and reduce the chance that targets are exceeded. In FY 2012, NOAA will provide more timely data for management through the execution of telephone and shore

side sampling surveys. NMFS will implement monthly, rather than bimonthly surveys, of shore and private boat catches in two NMFS regions by 2016. The Marine Recreational Information Program (MRIP) is currently designing and testing improved sampling and estimation designs which will allow for shorter survey time frames and greater spatial resolution of statistical results. In addition, funds will provide for the phased implementation of mandatory electronic logbook reporting programs for charter boasts and headboats in two NMFS regions by FY 2016. The use of electronic technologies will provide more timely transmission of logbook reports and support faster, more efficient processing of data.

Fisheries Oceanography: NOAA requests an increase of $5,400,000 and 5 FTEs to support the expedited creation of Integrated Ecosystem Assessments (IEAs) for three of NOAA's eight Regional Ecosystems. To better manage the Nation's highly complex and evolving marine ecosystem resources and services, IEAs provide a comprehensive, science-based decision-making framework and holistic approach to ecosystem-based management (EBM). IEAs bring scientific and technological rigor to resource management decisions by incorporating diverse sources of data into ecosystem models, including socio-economic data, that evaluate trade-offs between societal goals of resource protection and use. In 2012, this effort will focus primarily on the California Current Ecosystem and will include work on the Gulf of Mexico and Northeast Shelf IEAs. IEAs will allow managers to make informed management decisions through the management strategy evaluation tools. Such tools will provide managers with sectoral uses (e.g., fishing, aquaculture, offshore alternative energy development, recreation, and other ecosystem goods and services sectors) as well as socioeconomic implications of management actions. In turn, this will promote job retention and economic growth by supporting sustainable resource use within various sectors.

ENFORCEMENT AND OBSERVERS $106,207,000

NOAA requests program changes that net to a decrease of $3,615,000 and 0 FTEs and a total of $106,207,000 and 385 FTEs under the Enforcement and Observers sub-activity. This decrease is comprised of one termination of congressionally specified spending of $3,615,000 for activities not proposed to be continued in FY 2012.

HABITAT CONSERVATION AND RESTORATION $53,600,000

NOAA requests program changes that net to an increase of $2,544,000 and 0 FTEs and a total of $53,600,000 and 149 FTEs under the Habitat Conservation and Restoration sub-activity. This increase is comprised of one new initiative, one decrease, and one termination of FY 2010 congressionally specified spending of $1,000,000 for activities not proposed to be continued in FY 2012:

Fisheries Habitat Restoration (CBRP & Open Rivers): NOAA requests an increase of $5,044,000 and 0 FTEs for the Community-based Restoration Program to implement larger-scale ecological restoration. Habitat destruction, degradation, and modification are a threat to endangered and threatened species populations and serve as major limiting factors in the recovery of such populations. In order to effectively implement recovery efforts for listed species, improving habitat condition and ecosystem function through larger-scale habitat restoration in targeted areas is required. With this

increase NOAA will implement larger-scale ecological restoration to increase habitat to support recovery of threatened and endangered species. Specific activities include restoring wetlands and rivers and removing barriers to fish passage to provide spawning and rearing habitat for fish. Secondary benefits include the protection of communities and infrastructure to improve coastal resiliency to storms and flooding, increased habitat connectivity and migratory corridors for fish and wildlife, and provision of critical green space for public recreation and enjoyment within the most rapidly developing areas of the United States. Activities would also address habitat degradation which is caused by human impacts and has been further exacerbated by climate change. The requested funding will advance national priorities for larger-scale habitat restoration, strengthen NOAA's leadership role in science-based conservation, and allow NOAA to capitalize on previous experience gained from implementing larger-scale habitat restoration projects through the American Recovery and Reinvestment Act (ARRA).

NOAA's habitat restoration projects are focused on returning damaged shoreline areas, such as this one in Massachusetts, to productive fisheries habitat.

Fisheries Habitat Restoration: NOAA requests a decrease of $1,500,000 for the NOAA Great Lakes Habitat Restoration Program (GLHRP). NOAA continues to receive funding from Environmental Protection Agency to assist the implementation of the President's Great Lakes Restoration Initiative (GLRI). The GLRI was developed to restore and protect this national treasure. The GLRI invests in the region's environmental and public health through a coordinated interagency process and build's upon NOAA's programs in the Great Lakes region. The other principal agencies involved in the GLRI are USDA, HHS, DHS, HUD, DOS, Army (Civil Works), DOI, and DOT.

OTHER ACTIVITIES SUPPORTING FISHERIES $74,271,000

NOAA requests program changes that net to a decrease of $7,213,000 and a decrease of 8 FTEs for a total of $74,271,000 and 135 FTEs under the Other Activities Supporting Fisheries sub-activity. This increase is comprised of two new initiatives, two decreases, and one termination of FY 2010 congressionally specified spending of $9,000,000 for activities not proposed to be continued in FY 2012:

Aquaculture: NOAA requests an increase of $2,352,000 and 1 FTE to support the NOAA/USDA Alternative Feeds initiative. Fish meal and fish oil are important components in the feeds for many farm-raised species, from pigs and poultry to farmed fish. However, as recognized in the 2008 GAO Report "Offshore Aquaculture: Multiple Administrative and Environmental Issues in Establishing a U.S. Regulatory Framework, the growing pressure on the wild fisheries that supply the fish meal and fish oil and their relatively high cost make alternative feeds one of the top issues facing the aquaculture industry. Reducing the amount of fish meal and fish oil required in fish feeds will therefore, have economic benefits to seafood processors and the aquaculture industry. Current research has made progress in this effort and NOAA and other federal agencies play a vital role in that research and the transfer of such technology to industry. These funds will support NOAA's partnership with USDA in the Alternative Feeds Initiative. Staff will lead NOAA's internal and external research on alternative feeds by expanding research at the NOAA Fisheries Science Centers, supporting a competitive grants initiative on priority alternative feed research topics, and work with NOAA Fisheries' Fishery Finance Program and other DOC and Federal agencies to transfer technology and enable expanded alternative

The new draft NOAA Aquaculture Policy provides guidance for agency actions regarding all forms of marine aquaculture, from shellfish farming and habitat restoration to the culture of marine fish and algae on land and offshore. Pictured here, a researcher shows visitors microalgae tanks which supplies a steady supply of nutrients for young oysters.

aquaculture feeds production in the United States. Areas of alternative feed research that show particular promise and will be key focus areas are: (1) plant-based proteins and oils (e.g., from marine algae, soy, and other plants) to replace fish meal and fish oil and (2) recaptured fish trimmings (e.g., heads and tails) from seafood processing plants to use in fish feeds.

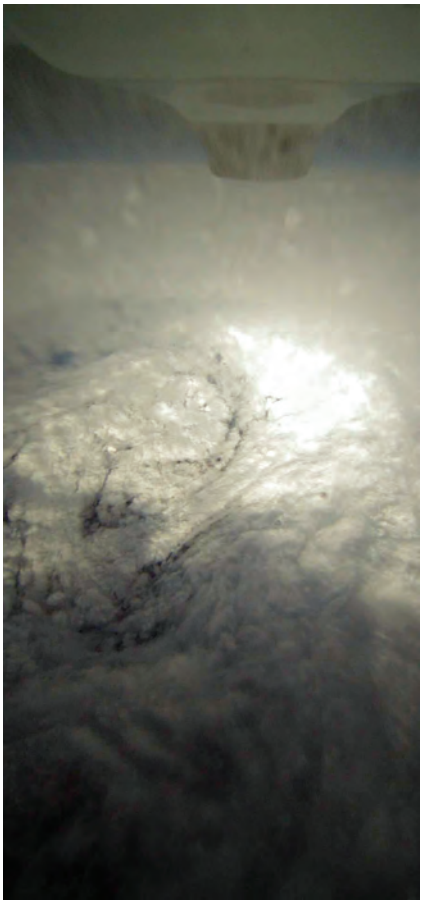
Regional Studies: NOAA requests an increase of $5,000,000 and 4 FTEs to improve the quality of NOAA's research in the Chesapeake Bay through the acquisition of new technology and infrastructure improvement projects, which support the Chesapeake Bay Executive Order (EO). The population of the 64,000 square-mile Chesapeake Bay watershed has increased by about eight percent in the past decade and the amount of impervious surface has increased by over 40 percent. These trends have drastically altered the hydrology and natural filtering systems of the Bay, overtaking restoration and protection efforts to date with large infusions of sediment and nutrients. As a result, many of the Bay's living resources and key habitats, such as wetlands, submerged grasses, oysters, crabs, and finfish, have suffered. The Bay has tremendous cultural significance and economic potential for the region. This increase will provide enhanced understanding of the relationships between the Chesapeake Bay's living resources and habitat, coordinate protection and restoration of key species and habitats across jurisdictional lines, and support a coordinated system of monitoring platforms distributed across the Bay. FY 2012 funds will be targeted to improve the quality of NOAA's research through the acquisition of new technology and infrastructure. The funding will ensure NOAA has state of the art field and laboratory equipment in place in FY 2012 and the base resources required for addressing the mandates of the EO in FY 2013 and beyond. NOAA proposes to obtain field equipment to enhance field restoration efforts, support enforcement for oyster sanctuaries, and for staff support to plan and implement habitat assessments and characterizations. NOAA will also enhance scientific and laboratory applications as well as geospatial modeling capacity to support the proposed restoration of native oysters in 20 tributaries by 2020. Funds will be used to enhance operations and maintain the Chesapeake Bay Interpretive Buoy System (CBIBS) and incorporate data into the Integrated Ocean Observing System.

Cooperative Research: NOAA requests a decrease of $4,565,000 and 13 FTEs for Cooperative Research. This decrease is offset by increases in other fisheries research. At this level of funding, NOAA's cooperative research program will continue to support high-level projects nationwide through competitive grant and contract procurements, as well as cooperative agreements. Identifying research priorities to be addressed by cooperative research will be done in consultation with the Regional Fishery Management Councils, Interstate Fishery Commissions, and stakeholders. Of the total funding amount, $3,000,000 will be directed toward developing environmentally friendly fishing gear.

Southwest Fisheries Science Center: NOAA requests a decrease of $1,000,000 and 0 FTEs for the Southwest Fisheries Science Center. This is a planned decrease for the leasing of temporary office and laboratory space in La Jolla, California.

OFFICE OF OCEANIC & ATMOSPHERIC RESEARCH

The Office of Oceanic & Atmospheric Research (OAR) is NOAA's centralized research and development (R&D) line office and its engine of innovation. OAR plays a major role in strengthening the state of science within the Agency, supports NOAA's mission, and creates advances in new scientific knowledge, new technologies, and improved services for the Nation. OAR also serves such NOAA-wide functions as managing NOAA's Cooperative Institutes and Small Business Innovation Research Program. Finally, OAR helps NOAA meet its grand scientific challenge of developing and applying holistic, integrated Earth-system approaches to understand the processes that connect physical changes in the atmosphere, ocean, space, and land and ice surfaces with ecosystems, organisms, and humans over different spatial and temporal scales. OAR does this by:



Hurricane Earl (2010) viewed by Unmanned Aerial System (UAS) Global Hawk

(1) Innovating—making the discoveries that reveal new scientific challenges

(2) Incubating—conducting long-term research and developing the technology needed for NOAA missions

(3) Integrating—building bridges to link research activities across NOAA LOs with our external partners

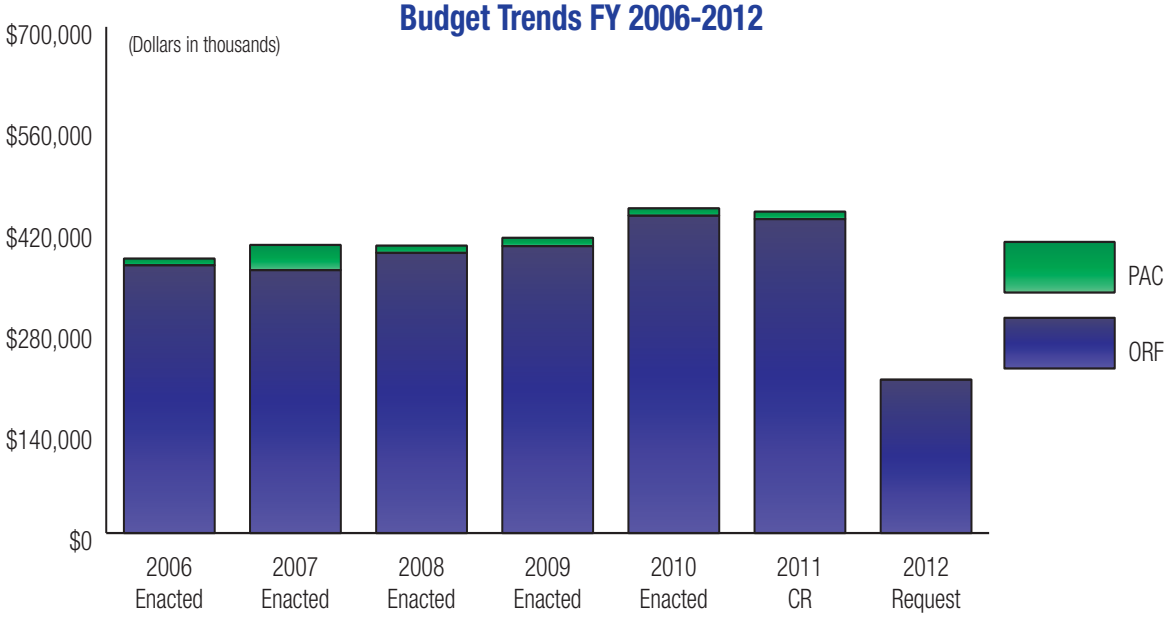
OAR's intramural component consists of six research laboratories. In addition, OAR manages an extensive extramural component that includes 32 National Sea Grant colleges, several undersea research centers, multiple cooperative institutes with academia, and many other university and research institutions. By working with its partners, OAR leverages their expertise and capabilities to expand the breadth and depth of our knowledge and skills to more efficiently and effectively serve the Nation.

OAR's activities are organized along four themes: (1) Climate Research; (2) Weather and Air Quality Research; (3) Ocean, Coastal, and Great Lakes Research; and (4) Information Technology (IT) R&D. The goals of these four theme areas are to: (1) understand complex climate systems to improve predictions; (2) understand atmospheric events to assist in saving lives and property worldwide; (3) explore, investigate, and understand the complexities of our ocean, coastal, and Great Lakes ecosystems and resources; and (4) accelerate adoption of advanced computing, communications, and IT

OFFICE OF OCEANIC & ATMOSPHERIC RESEARCH

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
OAR — ORF				
Climate Research	$225,135	$218,705	$22,182	($202,953)
Weather and Air Quality Research	69,997	63,865	53,722	(16,275)
Ocean, Coastal, and Great Lakes Research	130,606	114,334	126,078	(4,528)
Information Technology, R&D & Science Education	13,028	12,890	13,266	238
Congressionally Directed Projects	0	24,335	0	0
Administrative Efficiency Initiative	0	0	(3,235)	(3,235)
Total, OAR - ORF	438,766	434,129	212,013	(226,753)
Total, OAR - PAC	10,379	10,379	0	(10,379)
GRAND TOTAL OAR (Direct Obligations)	**$449,145**	**$444,508**	**$212,013**	**($237,132)**
Total FTE	**744**	**744**	**472**	**272**

OFFICE OF OCEANIC & ATMOSPHERIC RESEARCH
Budget Trends FY 2006-2012



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

throughout NOAA. The research is carried out through a national network of more than fifty Federal and university-based laboratories and research programs. With this diverse research "tool kit," OAR provides national and international leadership on critical environmental issues and addresses the environmental R&D needs of internal NOAA customers as well as of states, industry, the Department of Commerce, and other Federal agencies. OAR researchers represent the cutting edge in sustained, long-term environmental observations and modeling. Their contributions enhance the health and economic well-being of society.

OAR's FY 2012 request seeks funding to: (1) sustain critical base research activities in support of NOAA climate, weather, ocean, and coastal missions; (2) initiate new activities that address currently unmet gaps in the NOAA service missions; and (3) meet the information needs of our Nation's environmental decision-makers. The request also responds to recent considerations on: (1) strengthening collaboration between OAR & NWS; (2) supporting a "warn-on-forecast" capability, improved lead time for forecasts, and new observational tools (e.g., MPAR (Multi-Function Phased-Array Radar)); and (3) establishing a climate service. Also looking ahead, OAR will place greater focus on transformative, innovative, and technological research, such as advancement of weather forecast quality in support of renewable energy, advancements in the quality and usefulness of both weather and climate models, and development of advanced observational techniques using Unmanned Aircraft Systems (UAS). OAR will also pursue such near-term opportunities as ocean acidification, resilient coastal communities, and long-term ecosystem research in the Gulf of Mexico.

FY 2012 ORF BUDGET SUMMARY:

NOAA requests a total of $212,013,000 and 472 FTEs to support the continued and enhanced operations of the Office of Oceanic and Atmospheric Research. This total includes an increase of $4,268,000 and an increase of 1 FTE for Adjustments to Base (ATBs), a decrease of $215,520,000 and a decrease of 276 FTEs to reflect the transfer of base programs to establish a new climate office, and a net decrease of $15,501,000 and an increase 3 FTEs in program changes for a total decrease of $226,753,000 and 272 FTEs from the FY 2010 Enacted.

ADJUSTMENTS TO BASE:

The above ATB request includes an inflationary increase of $2,768,000 and 1 FTE, which is comprised of a restoration of the FY 2011 and FY 2012 ATBs. This increase will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

Adjustments also include the following:

- Climate Reorganization: decrease of $215,520,000 and a decrease of 276 FTEs
- FY 2012 Technical ATBs. An increase of $1,500,000 and 0 FTEs to transfer the NMFS Climate Regimes and Ecosystem Productivity line to the OAR Integrated Ocean Acidification line.

OAR—ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2012:

Select program changes are summarized at the sub-activity level below. A summary of funding by line item is located in Chapter 8, *Special Exhibits.* Detailed descriptions of all program changes are located in the NOAA FY 2012 Technical Budget.

WEATHER & AIR QUALITY RESEARCH $53,722,000

NOAA requests program changes that net to an increase of $3,075,000 and 0 FTEs and a total of $53,722,000 and 183 FTEs under the Weather and Air Quality Research.

Laboratories and Cooperative Institutes: NOAA requests a decrease of $1,625,000 and 0 FTEs. This decrease is comprised of one new initiative, one decrease, and one termination of FY 2010 congressionally specified funding of $650,000 for activities not proposed to be continued in FY 2012:

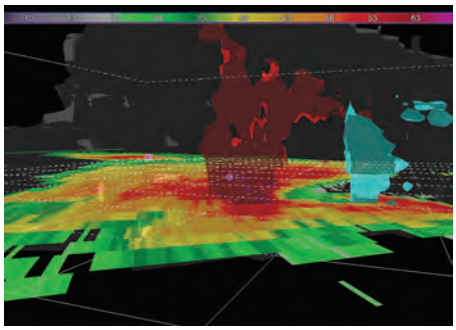
Global Hawk

Unmanned Aircraft Systems (UAS): NOAA requests a decrease of $3,000,000 and 0 FTEs to reflect the planned completion of the High-Altitude Long-Endurance (HALE) UAS testing and demonstration program. The UAS Program has identified and demonstrated several UAS technologies using various platforms and payloads. In particular, NOAA and NASA have successfully demonstrated the long-range and endurance potential of high altitude UAS. During FY 2010 the Global Hawk was flown from the NASA Dryden Flight Research Center in California to observe dust plumes from the Gobi Desert traversing the Pacific Ocean; polar vortex and ice conditions of the Arctic; and tropical cyclones in the Eastern Pacific, Atlantic, and Caribbean undergoing various stages of genesis, intensification, and dissipation. The results of the test observing missions over the Atlantic Ocean, Central Pacific, and the Arctic will be fully evaluated and considered in FY 2011 with respect to a possible future expansion of NOAA's suite of observing capabilities to include this new technology, which may be capable of expanding NOAA's observational reach with greater efficiency and less risk to human life than current methods. Development of a UAS strategic plan and business case for UAS acquisition and partnerships is underway. As a result, NOAA leadership will be able to make an informed decision about the desired level of access to and use of UAS technologies for achieving its science, service, and stewardship missions.

Wind Boundary Layer Research to Support Clean Energy Generation: NOAA requests an increase of $2,000,000 and 0 FTEs for wind boundary layer research to support clean energy generation by advancing weather forecast quality and accuracy to allow for faster and more efficient implementation of wind power usage in the United States. Improved weather and climate information and predictions will allow the Nation to obtain larger amounts of energy from renewable resources, use current energy sources more efficiently, reduce the cost of renewable energy, and provide improved grid stability. With this requested increase, NOAA proposes to conduct the following: (1) Deploy wind test beds in regions that have distinct boundary layer meteorology, such as the Pacific Northwest, offshore along the Atlantic Coast, the Appalachian region, the inter-mountain west, and California. These test beds will help determine the optimal mix of instrumentation needed for wind resource characterization and forecast improvement. (2) Leverage high performance computing investments to facilitate improved Numerical Weather Prediction forecasts that the private sector could leverage to develop tailored products allowing for more efficient operation of the Nation's electric grid. (3) Conduct climate studies on the spatial and temporal climatological relationships of wind, solar, and water resources as compared to energy demand; the dependency of renewable energy resources on climate drivers such as El Niño and La Niña; and the predictability of

renewable energy resources at intra-seasonal (a few weeks) and annual timescales. Providing weather observations and predictions is a core NOAA mission, and OAR is well positioned to perform this research, develop improved operational forecasts, and conduct the climate studies that will benefit the renewable energy industry.

Weather & Air Quality Research Programs: NOAA requests an increase of $4,700,000 and 0 FTEs. This increase is comprised of one new initiative and one decrease:



Phased array radar isosurface image. 3-D contour surface with red indicating the hail core of the storm, blue showing the area of rotation, and grey/black showing the entire thunderstorm structure

Multi-Function Phased Array Radar: NOAA requests an increase of $6,000,000 and 0 FTEs to continue research demonstrating MPAR technology's potential for replacing aging operational weather and aircraft tracking radars. The MPAR program is jointly funded by NOAA and the FAA, and both agencies are coordinating their budget requests. By 2020, more than 350 FAA radars and by 2025 nearly 150 weather radars will need to be either replaced or have their service life extended. This investment in MPAR provides the resources needed for the next step of the project, which engages industry to add polarization to their radars by FY 2014. The improved and expanded hazardous weather detection, weather forecasting and aircraft surveillance capabilities of an MPAR network could potentially benefit security, safety, and air traffic control efficiency beyond that provided by the systems replaced. Matching funding will be provided by the FAA to fulfill its requirement for airport terminal weather and aircraft tracking.

US Weather Research Program (USWRP) / THORPEX: NOAA requests a decrease of $1,300,000 and 0 FTEs to end base funding for The Observing System Research and Predictability Experiment (THORPEX), as projects will be completed sooner than originally planned. When created, THORPEX was designed to be an international, multi-agency project ending in 2015. Although this successful project was scheduled to end in 2015, NOAA is eliminating its base contribution to this international effort several years earlier, as projects will be completed sooner than originally planned while still accomplishing much of proposed research. Recent research funded under THORPEX has focused on ensemble forecast systems and in improving the predictability of and reducing uncertainty associated with weather forecasts. Although THORPEX projects will no longer receive USWRP funding starting in 2012, other NOAA programs will continue to support research to improve the accuracy of numerical weather and ocean predictions.

OCEAN, COASTAL & GREAT LAKES RESEARCH $126,078,000

NOAA requests program changes that net to an increase of $4,106,000 and 3 FTEs and a total of $126,078,000 and 166 FTEs under the Ocean, Coastal, and Great Lakes sub-activity.

National Sea Grant College Program: NOAA requests a decrease of $594,000 and 0 FTEs. This decrease is comprised of one new initiative, one decrease, and one termination of FY 2010 congressionally specified funding of $1,001,000 for activities not proposed to be continued in FY 2012:

Helping Coastal Communities Prepare for and Respond to Natural Hazards and Extreme Events: NOAA requests an increase of $885,000 and 0 FTEs to expand the level of support for regional research, training, and technology transfer. Sea level rise, the increased number and intensity of coastal storms, the ongoing threat of oil spills, and other natural and human hazards are putting more people and property at risk along the nation's coasts, with major implications for human safety and the economic and environmental health of coastal areas. It is essential that residents of coastal communities understand these risks, adapt and learn what they can do to reduce their vulnerability, and respond quickly and effectively when events occur. With this request, NOAA will (1) conduct risk assessment research in the context of hurricanes, other coastal storms, and climate-related changes; (2) assist public and private decision-makers in creating and adopting policies, plans, and ordinances to reduce risks, manage catastrophic events, and speed recovery; (3) conduct research and communicate information on how the use of natural features and new technologies can help communities prepare for and mitigate the impacts of hazardous events and climate change; (4) make Sea Grant's local knowledge and contacts available to work with Federal, state, regional, and local agencies, non-governmental organizations, and international partners that have hazardous event responsibilities; (5) identify viable strategies and formulate plans to prepare for, mitigate, and adapt to climate expected impacts; and (6) consolidate best research-based practices in risk analysis, assessment, mitigation, adaptation and communications, and disseminate risk information to citizens, industries and decision makers in coastal communities.

Sea Grant National Marine Aquaculture Initiative: NOAA requests a decrease of $478,000 and 0 FTEs for the Sea Grant National Marine Aquaculture Initiative. This national strategic investment will implement a two-pronged approach to address marine aquaculture: competitive extramural research and transfer of research by Sea Grant Extension. These efforts will complement, accelerate, and enhance current aquaculture activities in the National Marine Fisheries Service (NMFS) and address research gaps identified in the 2008 Governmental Accountability Office (GAO) report "Offshore Marine Aquaculture: Multiple Administrative and Environmental Issues Need to be Addressed in Establishing a U.S. Regulatory Framework" (GAO-08-594, May 9, 2008), with the goal of adaptive strategies that improve NOAA's ability to manage fisheries, end overfishing, and ensure the viability of the multibillion-dollar U.S. seafood industry. Together with the NMFS Aquaculture Program Office, NOAA will address all four aquaculture research areas identified in the 2008 GAO report.

Ocean and Exploration Research: NOAA requests a decrease of $1,400,000 and 0 FTEs. This decrease is comprised of one new initiative and one termination of FY 2010 congressionally specified funding of $2,900,000 for activities not proposed to be continued in FY 2012:

Okeanos Explorer's Control Room

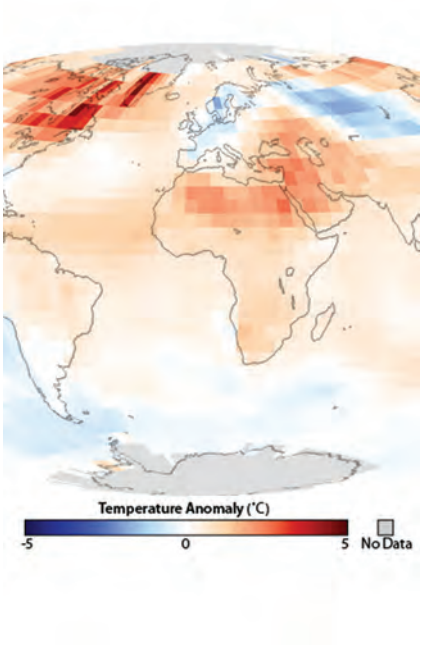
***Okeanos Explorer:* ROV and Telepresence: NOAA requests an increase of $1,500,000 and 0 FTEs to provide the scientific and technical support to operate the dedicated mission equipment that is permanently installed on the NOAA Ship *Okeanos Explorer* and support telepresence technology.** NOAA has acquired and outfitted a former Navy ship, the *Okeanos Explorer,* to explore unknown areas of our ocean ecosystems. No other Federal agency has the ability to explore the oceans in the manner that NOAA can with this dedicated vessel, unique technologies, and experienced personnel. With this request, NOAA will support (1) the operation of telepresence technology which enables scientists, educators, and others to participate in and even lead ocean exploration missions from remote shore-based Exploration Command Centers (a focus for the new funding, coupled with additional days-at-sea) and (2) the operation and upgrade of the ship's dedicated science platforms (autonomous and remotely-operated vehicles or ROV's). Systematic exploration products will complement the growing Integrated Ecosystem Approach (IEA) initiative, improve understanding of existing data and information, and identify gaps for further exploration and research.

Other Ecosystem Programs: NOAA requests an increase of $6,100,000 and 3 FTEs. This increase is comprised of one new initiative:

Integrated Ocean Acidification: NOAA requests an increase of $6,100,000 and 3 FTEs to complement, accelerate, and enhance current NOAA Ocean Acidification (OA) activities and provide comprehensive research, dedicated monitoring, and enhanced forecasting capabilities leading to adaptive strategies toward the improved management of living marine resources impacted by OA. Increased atmospheric carbon dioxide concentrations result in increased carbon levels in our oceans, causing changes in seawater chemistry that have been labeled ocean acidification. OA generates a unique suite of environmental changes that increasingly affect ocean ecosystems, fisheries, and other marine resources in such profound ways as reducing the ability of many organisms to build their shells and impacting both the carbon and nitrogen cycles that help sustain life on Earth. Our present understanding of the processes associated with OA and its impacts on large marine ecosystems is not sufficient to derive adaptive management strategies, especially those targeting the management of living marine resources—a mainstay of the economy. This increase will support new technologies and ecosystem monitoring systems, better models, and dedicated research programs as prescribed in the draft NOAA OA Implementation Plan: (1) OA Monitoring; (2) Ecosystem Impacts of OA; (3) Biogeochemistry & Ecosystem Models; (4) Human Dimensions; (5) Data Synthesis & Information Products; and (6) Engagement. This coordinated effort throughout NOAA will build upon current funding.

CLIMATE SERVICE

Business, industry, government, and public concerns about the potential impacts of climate variability and change are fueling an exponential growth in the demand for scientific information and for climate projections and predictions at different geographic and time scales. Until now, individuals, communities, governments and industry have relied on what we know about the climate in the past to make important decisions about our future systems and infrastructure—from agriculture to energy to transportation. But to be successful and competitive in a changing climate, people need information and data about expected future conditions to spur innovation and to support smart choices for businesses and communities.



Capping off the warmest decade on record, the average global temperature in 2010 tied 2005 as the warmest year since reliable records began in 1880. This global map shows where average temperatures in 2010 were warmer (red), cooler (blue), or near (white) the 1971-2000 average. Despite chillier-than-usual temperatures in January and February, most of the United States was warmer than normal for the year as a whole

The increased demand clearly demonstrates the need for coordinated, more accessible, user-driven climate information and services.

For decades, NOAA and its partners have been providing climate observations, monitoring, modeling, and predictions—underpinned by the best available science. Through its existing laboratories, data centers, programs, and operational assets distributed throughout the agency, NOAA currently responds to millions of annual requests for climate information. While NOAA has continued to build a suite of climate services within its existing framework, science and services are currently distributed across the agency, challenging NOAA's ability to respond to the rapidly increasing user demand and outpacing NOAA's capacity to effectively deliver requested products and information.

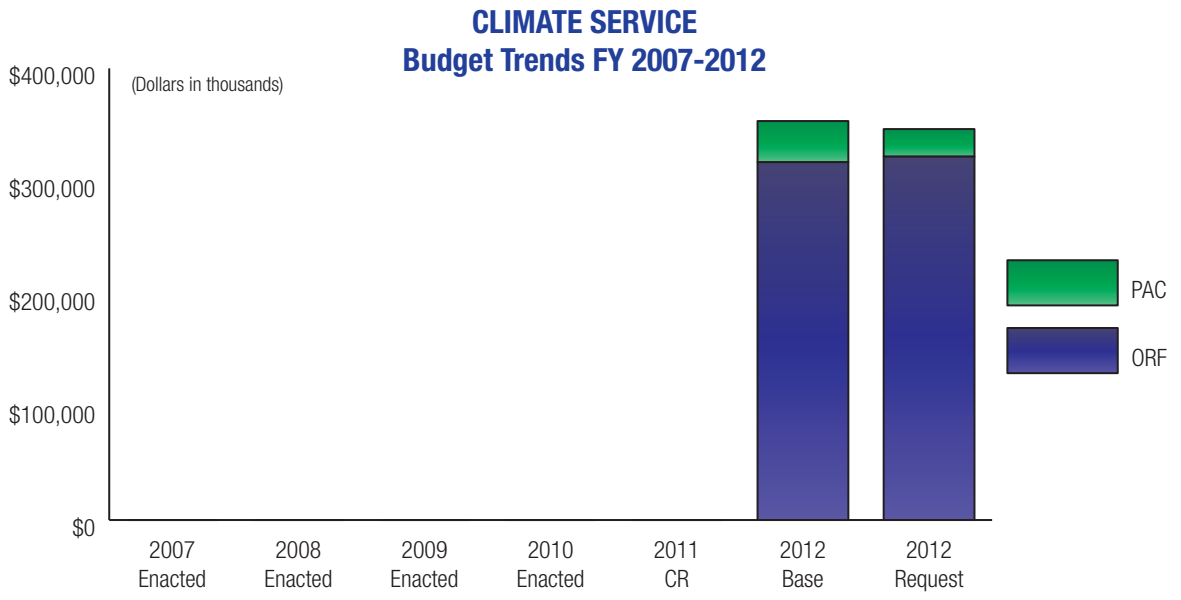
The proposed Climate Service organizes NOAA's longstanding agency programs, activities, and services to more efficiently and effectively respond to the rapidly increasing demand for climate services—easily accessible and timely scientific data and information about climate that helps people make informed decisions in their lives, businesses, and communities. The Climate Service will provide a reliable and authoritative source for climate data, information, and decision-support services and to more effectively coordinate with other agencies and partners.

The Climate Service will operate through a network of laboratories, programs, and university-based research partnership programs and the Climate Service budget will be managed through three core programs: (1) Climate Research

Program; (2) Integrated Climate Services; and (3) Observations and Monitoring. The reorganization to create a Climate Service will allow NOAA to integrate its existing climate research, observations, monitoring, modeling, information product development and delivery, and decision support functions to meet the demand for climate information for an informed society capable of anticipating and responding to climate change and its impacts.

CLIMATE SERVICE

(DOLLARS IN THOUSANDS)	FY 2012 BASE	FY 2012 REQUEST	INCREASE (DECREASE)
CS — ORF			
Climate Research	$137,497	$156,589	$19,092
Integrated Climate Services	29,017	31,056	$2,039
Observations and Monitoring	141,440	138,746	(2,694)
Congressionally Directed Projects	8,945	0	(8,945)
Administrative Efficiency Initiative	0	(4,564)	(4,564)
Total, CS - ORF	316,899	321,827	4,928
Total, CS - PAC	36,425	24,391	(12,034)
Total, CS - Other	0	0	0
GRAND TOTAL CS (Direct Obligations)	**$353,324**	**$346,218**	**($7,106)**
Total FTE	**583**	**610**	**29**



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction`

FY 2012 ORF BUDGET SUMMARY

NOAA requests a total of $321,827,000 and 610 FTEs to support the operations of the Climate Service. This includes $312,803,000 and 581 FTEs transferred from other NOAA line offices, an increase of $4,096,000 and 2 FTEs for Adjustments to Base (ATBs), and a program increase of $4,928,000 and an increase of 27 FTEs from the FY 2012 Base.

ADJUSTMENTS TO BASE:

The ATB request includes an increase of $4,096,000 and 2 FTEs, which is comprised of a restoration of the FY 2011 and FY 2012 ATBs. This increase will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

Adjustments also include the following:

- Climate Reorganization: an increase of $312,803,000 and 581 FTEs to reflect the resources transferred from other NOAA line offices to establish the base operating level for the Climate Service line office.

CLIMATE SERVICE - ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2012:

Select program changes are summarized at the sub-activity level below. A summary of funding by line item is located in Chapter 8, *Special Exhibits.* Detailed descriptions of all program changes by line item are located in the NOAA FY 2012 Technical Budget.

CLIMATE RESEARCH $156,589,000

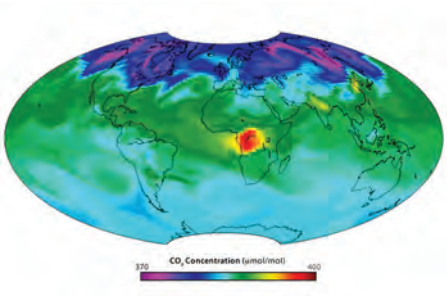
NOAA requests program changes that net to an increase of $19,092,000 and 17 FTEs total and a total of $156,589,000 and 269 FTEs under the Climate Research sub-activity. This increase is comprised of four new initiatives and one decrease, and one termination of FY 2010 congressionally specified funding of $2,200,000 for activities not proposed to be continued in FY 2012:

Earth System Modeling—Urgent Climate Issues: NOAA requests an increase of $6,980,000 and 10 FTEs to enable continued development and use of state-of-the-art Earth System Models to address urgent climate issues, including sea level rise and Arctic climate change. Numerical models that simulate the Earth System are the Nation's principal tool for understanding past climate and predicting future changes. The increased demand for projections of climate change at regional scales and understanding the range of potential climate impacts requires increased modeling resolution and realism, as well as improved scientific understanding of the reliability of models and downscaling techniques for various regional climate applications. The requested increase will allow NOAA to reduce uncertainties in sea level rise projections, address gaps in the understanding of the Arctic climate system, reduce uncertainties in the terrestrial carbon cycle and future biogeochemical feedbacks on climate, and augment decadal climate predictions and abrupt climate change. This effort to address urgent climate issues by improving Earth System Models, developing decadal prediction

systems, and integrating earth system model development with regional ecosystem and coastal process models will be further supported directly by recent investments in high performance computing resources for climate modeling in the American Recovery and Reinvestment Act of 2009.

Water Resources Research to Operations: NOAA requests an increase of $7,672,000 and 0 FTEs to research, develop and implement Integrated Water Resource Services. NOAA is the only Federal agency with the legislative mandate to provide water forecasts; however, such forecasts are currently not available along our Nation's coasts. To forecast these areas, NOAA must research, develop, and deliver water forecasting services for coastal areas. The OAR laboratories and NWS river and weather forecast centers will partner to develop and transition to operations new precipitation, river, estuary and coastal flood-forecast capabilities. With the proposed funding, NOAA seeks to support two projects designed to improve our Nation's water forecasts: (1) The Hydrometeorological Testbed (HMT), which is focused on reducing regional precipitation observation and forecasts errors by 50 percent for three-day forecasts and (2) the Coastal Estuary River Information System (CERIS), which is intended to increase the number of communities for which detailed stream and river forecasts are available.

$^{14}CO_2$ Measurements to Capture the Distribution of Fossil Fuel Emissions: NOAA requests $4,700,000 and 0 FTEs to increase the number of atmospheric $^{14}CO_2$ measurements, which will be critical for capturing the general distribution of fossil fuel emissions across the United States and for separating human from natural emissions. For decades, NOAA has played a leading role in monitoring atmospheric greenhouse gases. As the need for more information about greenhouse gas emissions increases, NOAA's monitoring, modeling, and analysis capabilities must include the ability to separate human from natural influences. NOAA will work with universities and DOE's Lawrence Livermore National Laboratory to increase $^{14}CO_2$ measurements at NOAA sampling sites and process them for analysis by accelerator mass spectrometry. NOAA will use funds to increase the capacity of university and agency partnerships with a total goal of processing over 5,000 measurements per year by 2014. This request supports the Administration's science and technology priority to fund research for measuring, reporting and verifying greenhouse gas emissions. Without the ability to separate human from natural emissions, it will be extremely difficult, if not impossible, to attribute changes in atmospheric CO_2 to specific greenhouse gas management strategies.



NOAA's CarbonTracker is a system that calculates carbon dioxide uptake, release, and transport over time.

Carbon Observing and Analysis System: NOAA requests an increase of $8,000,000 and 7 FTEs to complete and sustain an observation and analysis system to determine uptake and emissions of carbon dioxide and greenhouse gases across North America. Regulating carbon dioxide (CO_2), evaluating mitigation strategies and understanding and predicting future climate change and ocean acidification requires an accurate, reliable, and independent system for tracking sources and sinks of CO_2 and other greenhouse gases (GHGs). The CarbonTracker Observing and Analysis System is an observational and analysis network that measures CO_2 and other GHG, providing observational data necessary for predicting future climate change and ocean acidification and will serve as the backbone of a system for verifying GHG emission reduction and mitigation efforts in North America. The program must be expanded, however, to reduce the uncertainties in

emissions reporting and estimation that challenge our ability to make informed decisions on limiting GHGs in the atmosphere. With this funding, NOAA will: (1) install and operate 6 new tall towers (for a total of 14 tall towers) to measure CO_2 and other GHGs at several heights in the atmosphere; (2) increase frequency of flights at 14 existing sites by a factor of four and begin collecting twice-weekly vertical profiles of GHGs with aircraft up to ~8 km height at 10 additional sites across North America to achieve twice-weekly vertical profiles at a total of 24 sites; (3) improve modeling for NOAA's CarbonTracker tool by including NOAA forecast data and the latest NOAA transport models; and (4) use results from CarbonTracker observations and direct aircraft profiles to compare, verify, and validate CO_2 satellite retrievals.

International Research Institute: NOAA requests a decrease of $6,060,000 and 0 FTEs for the International Research Institute (IRI). For fifteen years, funding for international programs has supported Columbia University's International Research Institute for Climate and Society to predict regional impacts of changing climate outside the United States and demonstrate the utility of this information in decision making, especially in developing countries. With the emergence of NOAA Climate Services, the agency has recognized the need to review its international portfolio and restructure its international engagement in order to enable NOAA to be responsive to the increasing number of requests from bilateral partners and multilateral processes within the shifting landscape of societal demands, especially domestically.

INTEGRATED CLIMATE SERVICES $31,056,000

NOAA requests program changes that net to an increase of $2,039,000 and 5 FTEs and a total of $31,056,000 and 12 FTEs under the Integrated Climate Services Research sub-activity. This increase is comprised of two new initiatives and one termination of FY 2010 congressionally specified funding of $461,000 for activities not proposed to be continued in FY 2012:

Assessment Services: NOAA requests an increase of $1,000,000 and 3 FTEs to support a permanent capability to produce climate assessments at national and regional scales. Understanding and characterizing the nation's vulnerability to climate change and its adaptive capacity to reduce that vulnerability is not only essential for informed, near-term decisions, but also for determining how aggressively to reduce greenhouse emissions. Assessment processes are a proven way to conduct effective dialogue between users and producers of climate change information, as well as to enhance integration among involved experts of diverse backgrounds spanning academia, government, and private industry; thus assessments support the constructive expert and user-provider partnerships needed for a national climate change enterprise. The requested funding will be directed towards key positions to lead the National Assessment, and provide regional and sectoral leadership and coordination. In addition, funding will support regional modeling activities and scenario development for the National Climate Assessment. Regional and national assessments will meet an increasing range of demands for climate change decision support across the Nation.

NOAA Climate Services Portal: NOAA requests an increase of $1,500,000 and 2 FTEs to support the development of the NOAA Climate Services Portal Program, which will provide easy public access to NOAA's climate data, information, and services. As a leading provider of climate, weather, and water information to the Nation and the world, NOAA is a logical source for citizens to turn to for climate information. NOAA must expand and improve the way it communicates, educates, and engages with public stakeholders to better meet the Nation's needs for timely, authoritative climate data and information. As the public's primary online point of entry into NOAA's Climate Services, the Portal will be a central component in the agency's climate communications, education, extension, and outreach strategy. The climate services portal will have audience-focused sections designed to serve four key segments of society: (1) climate science decision makers and policy leaders; (2) scientists and applications-oriented data users (e.g., resource managers and business leaders); (3) educators; and (4) climate interested and attentive members of the public. With the funds requested, the Climate Service will work with partners across NOAA to build a comprehensive new Climate Services Portal (CS Portal).

NOAA's Climate Services Portal

Regional Climate Services: NOAA requests a decrease of $461,000 and 0 FTEs to reduce congressionally provided funds for Regional Climate Centers (RCCs). However, due to the high priority the Administration is placing on regional climate services, NOAA retains $3,000,000 and 6 FTEs in appropriated funds to provide regionally-tailored climate products and service delivery for a sustained, integrated regional climate services enterprise in six U.S. regions. This request maintains support for the RCCs as critical partners in NOAA's Regional Climate Services program. The RCCs will be aligned to coincide with the six NOAA Climate Service Regions and be managed by the newly hired Regional Climate Service Directors to ensure full integration as core components of NOAA's regional climate services partnership. Each center will function as trans-boundary experts working to identify stakeholder needs and match these needs with the emerging science developed through Climate Service core capabilities with its existing laboratories, centers, and grantees. The RCCs will serve as a core part of NOAA's regional climate services partnership and will continue to deliver climate services at the regional level, conduct interdisciplinary research with our academic and research partners, conduct education and outreach activities, and enhance the integration and data quality of NOAA's observing networks.

CLIMATE OBSERVATIONS AND MONITORING $138,746,000

NOAA requests program changes that net to a decrease of $2,694,000 and an increase of 5 FTEs and a total of $138,746,000 and 329 FTEs under the Climate Observations and Monitoring sub-activity. This increase is comprised of four new initiatives and one termination of FY 2010 congressionally specified funding of $7,116,000 for activities not proposed to be continued in FY 2012:

Arctic Watch: NOAA requests an increase of $3,000,000 and 1 FTE to make progress toward completing and sustaining Arctic observations as part of the U.S. contribution to the International Arctic Observing Network and the associated Global Ocean Observing System (GOOS). The Arctic region is currently undergoing profound atmospheric, terrestrial, and oceanic changes related to climate variation and change. In many cases, observed changes far exceed the current model

projections. These changes impact human health, infrastructure, fisheries, ecosystems, coastal communities, international maritime activity, and regional to mid-latitude climate shifts. An expanded, more robust, integrated and coordinated NOAA Arctic program is necessary for addressing immediate and near-term impacts of climate change and supporting NOAA's response capabilities to stakeholders, particularly those in Alaska and the Pan-Arctic region, but also throughout the Nation. This increase will expand NOAA's Arctic observing capacity and produce data that will allow existing NOAA programs to improve modeling, analysis, and assessment products. Specifically NOAA will establish with international partners an Arctic Observing Network that integrates observations from new and existing atmospheric, coastal, and oceanographic observatories; ocean moorings; ice buoys and stations; and ship transects; improves and increases representation of Arctic climate processes in global climate models, regional physical-ecological models, and Arctic System Reanalysis, predictive capability for Arctic sea ice; and provides Alaska/Arctic regional climate and decision-making information and services, user-focused research assessments, and projection tools for planners, including data management activities and support for the Alaska Regional Integrated Sciences Assessments (RISA).

Global Ocean Observing System: NOAA requests an increase of $1,384,000 and 0 FTEs to continue implementation of the Global Ocean Observing System (GOOS) with an emphasis on improving sea level rise monitoring and understanding. Episodes of devastating coastal inundation over the last decade have emphasized the critical importance of fielding an ocean observing system that can continuously monitor approaching marine hazards and provide early warnings to aid in hazard mitigation. A sustained global observing system is therefore, the foundation of all climate research and services. NOAA's global ocean observing system must deliver continuous real-time measurements that will allow the modeling community to improve data assimilation and improve the accuracy of climate model projections. It must also be capable of delivering quantitative ocean indicators at a few strategic reference locations that will alert the nation and the world if and when major changes are occurring. Specific enhancements to the global ocean observing system that will advance the FY 2012 priorities of monitoring global sea level rise and its drivers include: five reference tide gauge stations equipped with GPS receivers and real-time reporting transmitters to provide measurement of absolute sea level rise and satellite ground truth and to provide real-time monitoring for tsunami, El Niño, and storm surge events; development and deployment of deep Argo profilers capable of descending to 3000+ meters to measure changes in ocean heat resulting in the expansion of seawater and hence sea level rise; and sixteen days of ship support to deploy deep Argo floats in remote ocean regions for measurement of the ocean's heat storage.

An illustration of the components of the Global Ocean Observing System. The national system is modeled on a similar framework.

Data Center Operations: NOAA requests an increase of $2,000,000 and 2 FTEs to provide NOAA the operational capability to close the gap in long-term safe storage of and access to the Nation's environmental data and information. A 3,000 percent increase in data volume generated from NOAA's investment in observations, such as NPP and the Joint Polar Satellite System (formerly NPOESS), requires additional support for operational capabilities to archive and access data. This requested increase will enable users to search for and acquire archived data by seamlessly connecting the

Comprehensive Large Array-data Stewardship System (CLASS) IT infrastructure capabilities with the Data Center archive management system. This funding will also allow NOAA to meet emerging requirements associated with implementing NOAA's climate services which include the long-term preservation of the Nation's climate record.

Climate Data Records: NOAA requests an increase $8,000,000 and 2 FTEs for Climate Data Records (CDRs) to transform raw satellite data into unified and coherent long-term environmental observations and products. Climate data records are critical to climate modelers and decision makers concerned with advancing climate change understanding, prediction, mitigation and adaptation strategies, policies, and science. Key NOAA constituents, including national defense entities and major private sector industries such as insurance, agriculture, energy and transportation have increasingly called for authoritative climate reference data upon which to base their investments. This request funds two critical activities needed to support the Nation's climate science and services: (1) POES & GOES Multi-satellite CDRs, which builds multi-decadal, historical climate information records required by scientists to detect, assess, model, and predict climate change and by decision-makers to devise effective strategies to respond, adapt, and mitigate the impacts of climate change and (2) JPSS Climate Raw Data Records (C-RDRs), which repackages raw JPSS data for climate re-use (e.g., ocean color and temperature, clouds, sea ice, aerosols, ozone) to ensure NOAA archives capture and disseminate credible information to support private and public decision-makers and scientists.

NATIONAL WEATHER SERVICE

The National Weather Service (NWS) is the Nation's first line of defense against severe weather. The NWS provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure that is used by other government agencies, the private sector, the public, and the global community. Within a typical year, Americans cope with an average of 10,000 violent thunderstorms, 5,000 floods, 1,270 tornadoes, and 6 hurricanes. Nationally, there are approximately 575 weather-related deaths, 5,000 weather-related injuries, and $17.7 billion in damage due to weather incidents.[7] Some 90 percent of all Presidentially-declared disasters are weather-related. According to the American Meteorological Society, weather is directly linked to public safety, and a significant portion of the U.S. economy is weather-sensitive.

Snow falling on the 1600 block of 19th Street, N.W., in the Dupont Circle neighborhood of Washington, D.C., during the North American blizzard of 2010

More and more sectors of the U.S. economy are recognizing the impacts of weather, water, and climate on their businesses and are becoming more sophisticated at using weather-related information to make better decisions. To meet the growing demand for information and to improve the timeliness and accuracy of warnings for all weather-related hazards, the NWS will continue to enhance observing capabilities; improve data assimilation to effectively use all the relevant data NWS and others collect; improve collaboration with the research community; make NWS information available quickly, efficiently, and in a useful form (e.g., the National Digital Forecast Database); and include information on forecast uncertainty to help customers make fully informed decisions. A key focus for the NWS is to improve decision support for high-impact weather events.

With about 4,600 employees in 122 weather forecast offices, 13 river forecast centers, 8 national centers, and other support offices around the country, NWS provides a national infrastructure to gather and process data worldwide from the land, sea, and air. This infrastructure enables data collection using technologies such as Doppler weather radars; satellites operated by NOAA's

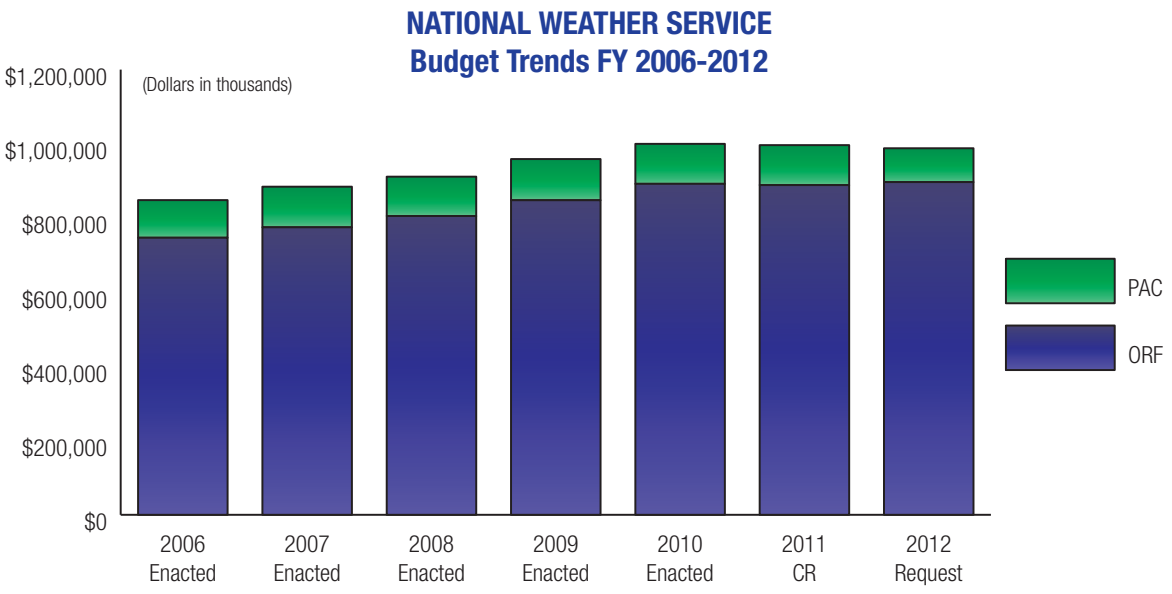
[7] http://www.weather.gov/os/hazstats/images/70-years.pdf
http://www.sip.ucar.edu/sourcebook/composite.jsp

National Environmental Satellite Service (NESS); data buoys for marine observations; surface observing systems; and instruments for monitoring space weather and air quality. These data feed sophisticated environmental prediction models running on high-speed supercomputers. Our highly trained and skilled workforce uses powerful workstations to analyze all of these data to issue public, aviation, marine, fire weather, air quality, space weather, river, and flood forecasts and warnings around the clock. A high-speed communications hub allows for the efficient exchange of these data and products between NWS components, partners, and customers. NWS forecasts and warnings are rapidly distributed via a diverse dissemination infrastructure including NOAA Weather Radio. Finally, customer outreach, education, and feedback are critical elements to effective public response and improvements to NWS services.

The FY 2012 President's Budget Request supports the funding and program requirements necessary to address established NOAA strategic goals and allows the NWS to achieve its vision to: produce and deliver forecasts that can be trusted, provide services in a cost-effective manner, reduce weather-related fatalities, and improve the economic value of weather, water, and climate information.

NATIONAL WEATHER SERVICE

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
NWS — ORF				
Operations and Research	$790,139	$775,631	$806,435	$16,296
Systems Operation & Maintenance (O&M)	101,979	100,902	103,408	1,429
Congressionallly Directed Projects	0	6,159	0	0
Administrative Efficiency Initiative	0	0	(13,055)	(13,055)
Total, NWS - ORF	892,118	882,692	896,788	4,670
Total, NWS - PAC	107,727	107,727	91,190	(16,537)
GRAND TOTAL NWS (Direct Obligations)	**$999,845**	**$990,419**	**$987,978**	**($11,867)**
Total FTE	**4,644**	**4,644**	**4,602**	**42**



FY 2012 ORF BUDGET SUMMARY

NOAA requests a total of $896,788,000 and 4,573 FTEs to support the continued and enhanced operations of the NWS. This total includes an increase of $20,268,000 and an increase of 3 FTEs for Adjustments to Base (ATBs), a decrease of $11,230,000 and 47 FTEs to reflect the transfer of base programs to establish a new Climate Service line office, and a net decrease of $4,368,000 in program changes and an increase of 4 FTEs for a total increase of $4,670,00, and a decrease of 40 FTEs from the FY 2010 Enacted level.

ADJUSTMENTS TO BASE:

The ATB request includes an increase of $16,764,000 and 1 FTE, which is comprised of a restoration of the FY 2011 and FY 2012 ATBs. This increase will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

Adjustments also include the following:

- Climate Reorganization: decrease of $11,230,000 and a decrease of 47 FTEs to reflect the proposed transfer of the Climate Prediction Center, the management of the TAO array, and the Cooperative Observer Network Modernization to assist with the formation of the new Climate Service line office.
- FY 2012 Technical ATBs: increase $3,504,000 and an increase of 2 FTEs for consolidation of lease costs.

NWS—ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2012:

Select program changes are summarized at the sub-activity level below. A summary of funding by line item is located in Chapter 8, *Special Exhibits.* Detailed descriptions of all program changes by line item are located in the NOAA FY 2012 Technical Budget.

OPERATIONS AND RESEARCH	$806,435,000

NOAA requests program changes that net to an increase of $14,583,000 and 4 FTEs and a total of $806,435,000 and 4,385 FTEs under the Operations and Research sub-activity.

Local Warnings and Forecasts: NOAA requests an increase of $14,583,000 and 4 FTEs for local warnings and forecasts. This increase is comprised of four initiatives, two decreases, and one termination of FY 2010 congressionally specified spending of $19,000,000 for activities not proposed to be continued in FY 2012:

Local Warnings and Forecasts: NOAA requests an increase of $4,000,000 and 0 FTEs to resolve sustainment gaps in the National Data Buoy Center's (NDBC) ocean observation capabilities, which include Coastal Weather Data Buoys (CWB) and Coastal-Marine Automated Network (C-MAN) stations. NWS currently operates 101 moored weather observation buoys and 49 C-MAN stations. Over the last 8 years, system performance has trended downward to the current low (as of January 2010) of 68 percent data availability. This trend will continue downward to 65 percent data availability

Coastal Weather Data Buoy

by 2011. Decreased data availability has caused large maritime data voids where no meteorological or oceanographic data is routinely sampled. This makes it difficult for NWS forecasters to make accurate and timely marine warnings and forecasts and to measure the accuracy of their forecasts. NDBC has witnessed a need for an increase in buoy and C-MAN station replacements as a result of damage from severe weather, commercial boating accidents, and vandalism. New international regulations prohibiting scuttling of plastic materials in the oceans have resulted in increased operational costs. In addition, O&M funding was not provided for the 12 operational buoy and C-MAN station replacements deployed over the past 8 years. The requested increase will provide O&M funding to support earmarked, damaged, and destroyed buoys and to comply with new international regulations. Remaining funding, if any, will be used to begin reducing the backlog of deferred maintenance and provide some funding for charter vessel contracts to supplement the diminishing availability to USCG ship time for servicing the weather buoy network.

Local Warnings and Forecasts: NOAA requests an increase of $5,042,000 and 0 FTEs to fully fund the acquisition cost of the global positioning system (GPS) radiosondes for all 102 NOAA/NWS Upper Air (UA) observing stations utilizing GPS tracking capability and GPS radiosondes. The current NWS UA operations concept, driven by National Centers for Environmental Prediction (NCEP) modeling requirements, necessitates an annual quantity of over 78,000 radiosondes per year to be launched at 102 sites. The cost of GPS radiosondes is significantly higher ($160 per unit) than the legacy radio-direction finding (RDF) radiosondes ($110 per unit). RDF radiosondes transmit 1,100 observations per flight, whereas GPS radiosondes transmit 6,700. This 45 percent increase in cost provides a valuable six-fold increase in vertical profile data. The current funding profile is insufficient for full deployment of GPS radiosondes at all 102 UA observing stations and would result in a discontinuation of launches equating to 22 percent of the network's UA observations. Such a loss of observations would have a negative impact on NCEP's ability to calibrate its satellite data and would degrade its 5-day global forecast model guidance by five percent. Forecast models at the regional scale would experience significant further degradation than experienced at the global scale, especially for severe weather forecasting.

The UA profile data received from GPS radiosondes serve as one of the principal data sources for NWS weather prediction models supporting days 2, 7, and 14 severe storm, aviation, and marine forecasts and warnings. Radiosonde data are also used by the Department of Homeland Security and the Environmental Protection Agency in modeling the dispersion and mixing of hazardous materials and pollutants that are released into the atmosphere. This information is also used by policy-makers to set regulations for industrial emissions and to protect the public from hazardous levels of pollution. The Federal Aviation Administration (FAA) uses radiosonde data to analyze the effects of freezing precipitation on aircraft, potentially informing aircraft design and improved safety measures for air transportation. This increase will complete the acquisition of GPS radiosondes to launch at all 102 UA observing sites.

Weather accounts for 70% of all traffic delays within the National Airspace System. The FAA has determined that two thirds of these delays are preventable with better weather information.

Aviation Weather: NOAA requests an increase of $26,944,000 and 4 FTEs to fund planned third year Next Generation Air Transportation System (NextGen) development activities in this multi-year, multi-agency effort to improve the Nation's air transportation system. In the May 2008 report on the cost of flight delays to passengers, the airline industry and the economy, the Congressional Joint Economic Committee quantified the total cost of air traffic delays for 2007 at $41 billion. Federal Aviation Administration (FAA) records indicate that on average, weather is a factor in 70 percent of these delays, or roughly $29 billion. The FAA estimates that two-thirds of these delays can be avoided with enhanced weather information fully integrated into its operational decision making process, thus saving approximately $19 billion annually. In addition, the demand for air transportation is expected to more than double by 2025. The current National Airspace System (NAS) simply cannot accommodate the increased demand and will be saturated by 2015. The multi-agency NextGen Joint Planning and Development Office (JPDO) has developed a plan to accommodate the expected growth in demand, which will allow for the reduction of air traffic delays. A critical component of the NextGen plan is the integration of weather information into air traffic operations. To enable this integration, the plan requires the creation of rapidly updated, high-resolution probabilistic weather information consistent across space and time and accessible to all NAS managers and users through a network-enabled infrastructure. Meteorologists will utilize and produce this information, using enhanced forecast processes to add value to forecast guidance and rapidly updated gridded datasets produced by automation. This capability does not presently exist, and the JPDO partner agencies are depending on NOAA, as the federal experts in the provision of weather information, to deliver it. This requested increase will support initial operational deployment of a 4-Dimensional (4-D) Weather Data Cube for aviation users and lay the foundation for the development of follow-on capabilities as required by the NextGen Integrated Work Plan. The NextGen 4-D Weather Data Cube will improve access and availability of observed and forecast weather information and enable its integration into an automated, multi-agency air traffic management system.

Local Warnings and Forecasts: NOAA requests an increase of $2,000,000 and 0 FTEs to complete required IT security improvements to the National Critical Space Weather System in order to prevent the loss of authority to operate, which would result in the shutdown of NOAA's space weather predictions and forecast program. Space weather has the potential to disrupt virtually every major public infrastructure system, including transportation systems, power grids, telecommunications, and GPS. Aircraft flying through polar routes now rely on space weather information to assess potential impacts to critical communication and navigation systems and the potential for hazardous solar radiation exposure. Strong storms with the potential to impact critical elements of our Nation's infrastructure can occur over 100 times during a solar cycle. NOAA's Space Weather Program depends on the National Critical Space Weather System to monitor the space environment and provide timely and accurate operational space weather forecasts, warnings, and alerts. The Program is the sole civilian entity that (1) operates and maintains the U.S. National Critical Space Weather System; (2) ingests and processes data from NOAA, NASA, and other sources; (3) supports research to understand the processes that cause severe space weather; (4) transitions research into operations to improve services; and (5) archives data from NOAA and the Department of

Defense (DoD) and makes it accessible to customers. Without the Authorization to Operate, all of the above activities will cease and the space weather products and services critical to our Nation's infrastructure and defense will be lost. In FY 2012, the additional funding of $2,000,000, combined with a redirection of resources provided in the base to enhance Space Weather modeling for a total of $4,700,000, will be used to address IT security deficiencies that jeopardize the Space Weather Prediction Center's authority to operate and provide the Nation with space weather forecasts and warnings.

Local Warnings and Forecasts: NOAA requests a decrease of $1,200,000 and 0 FTEs to the NWS Cooperative Observer Program (COOP) by phasing out approximately 1,000 COOP observing sites. NWS is reviewing and prioritizing the existing 11,000 COOP sites as part of the planning for phasing out approximately 1,000 sites. Since the new Climate Service is implementing a network to replace the U.S. Historical Climate Network (USHCN), existing COOP sites that are also designated as USHCN sites will be phased out.

Local Warnings and Forecasts: NOAA requests a decrease of $3,203,000 and 0 FTEs to achieve a target reduction in its telecommunications costs across all its programs and will take the reduction from its largest one, Local Warnings and Forecasts base. This reduction can be achieved by utilizing the new, more efficient U.S. General Services Administration (GSA) Networx contract. NWS is in the process of transitioning between GSA's FTS2001 and Networx contracts.

NATIONAL ENVIRONMENTAL SATELLITE SERVICE

The budget proposes to rename the National Environmental Satellite, Data, and Information Service to the National Environmental Satellite Service (NESS), reflecting the proposed transfer of data and information management archive activities to the Climate Service. NESS is responsible for the requirements definition, procurement, launch, and operation of the Nation's civil operational environmental satellites. NESS manages the Nation's operational environmental satellite systems by acquiring global environmental data as well as processing and distributing satellite-derived products and services. These environmental satellites support NOAA's National Weather Service, Federal and state agencies, and local emergency management agencies, enabling them to provide advance warnings of emerging severe weather such as hurricanes, tornadoes, flash floods, winter storms and wild land fires. The satellites, products, and services that NESS provides are essential to the protection of human life, property and critical infrastructure. This in turn supports the Nation's economy by providing accurate and timely information to those in critical decision-making positions. For example, the improved data from GOES-R satellites alone will benefit specific sectors of the economy including aviation, energy, irrigated agriculture, and recreational boating – providing a combined annual value for those sectors beginning in 2015 that exceeds $1.2 billion. The present value of the combined estimated benefits for the 2015-2027 period approaches $7.0 billion.[8]

A United Launch Alliance Delta IV rocket lifts off with the NASA/NOAA GOES-P from Space Launch Complex-37 at 6:57 p.m. EST on March 4, 2010

NESS's satellite command and control program acquires data from on-orbit U.S and international satellites 24 hours per day, 365 days per year. This includes monitoring satellite operations, which occur at the NOAA Satellite Operations Control Center in Suitland, Maryland; satellite command and data acquisition stations in Wallops, Virginia; and Fairbanks, Alaska. From these ground stations, NESS operates and acquires data from Polar-orbiting Operational Environmental Satellites (POES), Geostationary Operational Environmental Satellites (GOES), Department of Defense (DoD) Defense Meteorological Satellite Program (DMSP), and Jason-2.

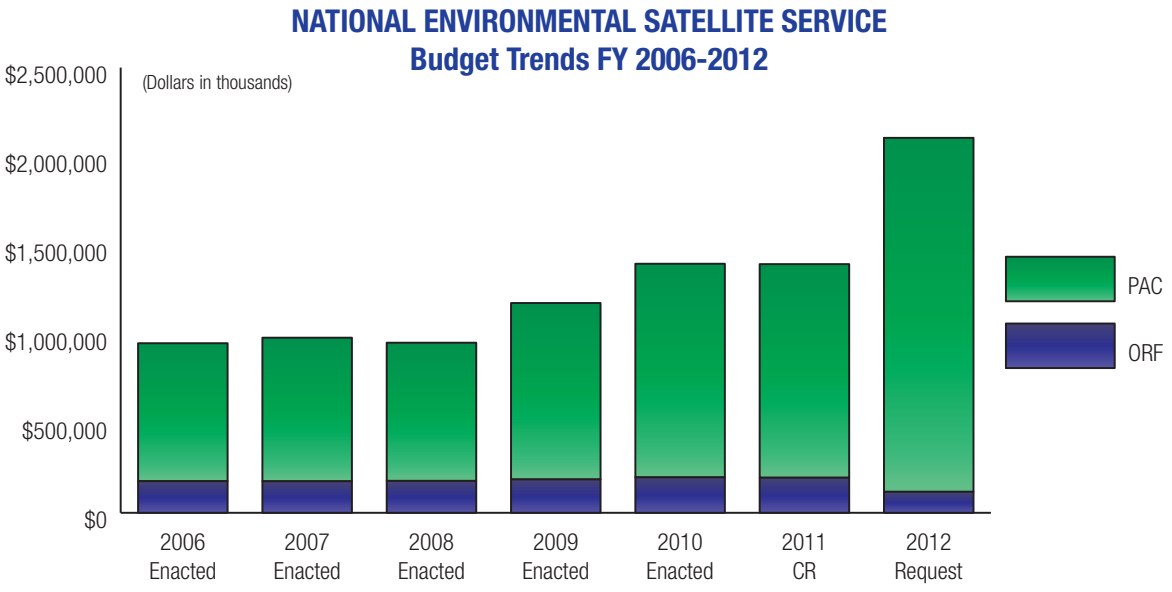
[8] *Centrec Consulting Group, LLC., 2007:* An Investigation of the Economic and Social Value of Selected NOAA Data and Products for Geostationary Operational Environmental Satellites (GOES). *A report submitted to NOAA's National Climatic Data Center. Centrec Consulting Group, Savoy, IL*

NESS provides the Nation with specialized expertise and computing systems that process, analyze, and distribute satellite-derived products and services using data from NOAA, DoD, and NASA environmental satellites, as well as foreign and commercial spacecraft. These products and services are provided to national and international users 24 hours per day, 7 days per week. This enables NOAA's programs and line offices and international users to accurately track the location, extent, and duration of severe weather, such as hurricanes and winter storms; support forecaster decisions to issue flash flood warnings; track volcanic ash clouds and severe winds that threaten aviation safety; detect remote wild land fires; monitor coastal ecosystem health such as coral bleaching; identify and monitor maritime hazards from sea ice; and assist the U.S. Coast Guard in satellite-assisted search and rescue activities.

NESS supports national priorities in space, climate sciences, ocean and coastal management, integrated earth observations, energy, and forest resources protection through the development of various products. NESS also works to transition products and services from research satellite capabilities to operational platforms.

NATIONAL ENVIRONMENTAL SATELLITE SERVICE

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
NESS — ORF				
Environmental Satellite Observing Systems	$110,490	$109,323	$119,746	$9,256
NOAA's Data Centers & Information Services	88,675	83,929	0	(88,675)
Congressionally Directed Projects	0	3,809	0	0
Administrative Efficiency Initiative	0	0	(1,856)	(1,856)
Total, NESS - ORF	199,165	197,061	117,890	(81,275)
Total, NESS - PAC	1,199,357	1,199,357	1,897,536	698,179
GRAND TOTAL NESS (Direct Obligations)	**$1,398,522**	**$1,396,418**	**$2,015,426**	**$616,904**
Total FTE	**831**	**831**	**558**	**(273)**



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

FY 2012 ORF BUDGET SUMMARY

NOAA requests a total of $117,890,000 and 409 FTEs to support the continued and enhanced operations of the National Environmental Satellite Service. This total includes an increase of $2,337,000 for Adjustments to Base (ATBs), a decrease of $88, 675,000 and 269 FTEs to reflect the transfer of base programs to establish a new Climate Service line office, and a net increase of $5,063,000 in program changes for a total decrease of $81,275,000 and 26 FTEs from the FY 2010 Enacted level.

ADJUSTMENTS TO BASE:

The ATB request includes an increase of $2,337,000 and 0 FTEs which is comprised of a restoration of the FY 2011 and FY 2012 ATBs. This increase will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration.

Adjustments also include the following:

- Climate Reorganization: decrease of $88,675,000 and a decrease of 269 FTEs to assist with the formation of the new Climate Service line office. Included in the climate reorganization transfer is a technical adjustment of $2,622,000 to support the functional transfer of providing library and information services from NESS to Program Support (PS), Office of the Chief Information Officer.

NESDIS—ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2012:

Select program changes are summarized at the sub-activity level below. A summary of funding by line item is located in Chapter 8, *Special Exhibits.* Detailed descriptions of all program changes by line item are located in the NOAA FY 2012 Technical Budget.

ENVIRONMENTAL SATELLITE OBSERVING SYSTEMS $119,746,000

NOAA requests program changes that net to an increase of $6,919,000 and 0 FTEs and a total of $119,746,000 and 409 FTEs under the Environmental Satellite Observing Systems sub-activity.

Product Processing and Distribution: NOAA requests an increase of $6,919,000 and 0 FTEs. This increase is comprised of two new initiatives:

Information Technology (IT) Satellite Security: NOAA requests an increase of $3,108,000 and 0 FTEs to implement mandated security controls over the most critical IT assets in the NESS portfolio. NOAA's environmental data and products are used to compute satellite data products and services for daily weather forecasts, hurricane tracking, and the Nation's public weather warnings. NOAA must protect its computing systems from unauthorized access and cyber attacks since these systems provide environmental data that are critical to protecting lives and preventing damage to the Nation's economy. The requested funds are required for NESS to comply with the National Institute of Standards and Technology (NIST) and Federal Information Processing Standard (FIPS) 200 minimum-required security controls. These security controls are

mandated and cannot be waived, making the implementation a required action. NESS has made significant progress to improve its IT security program, and this request ensures that NOAA can meet its core mission with adequate security of NESS information, assets, and services.

National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP)

NPP and Polar Continuity Data Processing and Distribution: NOAA requests an increase of $3,811,000 and 0 FTEs to process and distribute environmental data from the National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP) mission. NASA is scheduled to launch the NPP satellite in 2011. The NPP satellite will provide essential continuity of polar environmental observations. The NPP Production Environment system provides the only link to get near real- time NPP data to NOAA operational centers and other NOAA partners in the civilian user community. Funding will be used to procure a robust IT capability needed to generate products from NPP that will lead to improved daily weather forecasts and warnings, hurricane landfall warnings, harmful algal bloom assessments, and ultimately to reduced annual economic losses. NOAA will initiate NPP data processing and distribution of environmental products on a 24x7 basis.

PROGRAM SUPPORT

Program Support consists of Corporate Services, NOAA's Office of Education, Facilities, and the Office of Marine and Aviation Operations (OMAO).

Commissioning of Okeanos Explorer

CORPORATE SERVICES

NOAA Program Support provides the planning, administrative, financial, procurement, information technology, human resources, and infrastructure services that are essential to the safe and successful performance of NOAA's mission. In addition to NOAA-wide corporate services and agency management, Program Support activities specifically support the people and programs of NOAA, ensuring that they have the proper work environment, the necessary tools and equipment, and the vital personnel and finance services which, in turn, allow them to provide the finest possible science and service to the American people, our economy and our environment. Often, Program Support is what the public sees; NOAA's buildings, ships, and aircraft are highly-visible symbols of NOAA science.

OFFICE OF EDUCATION

NOAA's Office of Education provides advice and counsel to the Under Secretary of Commerce for Oceans and Atmosphere in matters pertaining to education. The Office, in conjunction with the Education Council, coordinates educational activities across NOAA and develops NOAA's Education Strategic Plan and policies. These efforts help to ensure that NOAA's education programs are based on NOAA science and support the agency's cross-cutting priority of promoting environmental literacy. The Office of Education directly implements and manages scholarship programs aimed at fostering competitiveness in science, technology, engineering and math by providing quality educational opportunities for the next generation. One example of this is the Educational Partnership Program, which had a total of 479 students in the pipeline and 837 graduates as of May 2010. The Office of Education also offers competitive grant programs at the national and regional level to promote environmental literacy efforts through collaboration with external partners.

In FY 2012 the Office of Education will continue to work with the NOAA education community to advance the priorities outlined in NOAA's 2009-2029 Education Strategic plan (http://www.education.noaa.gov/plan/), and will continue

its scholarship, fellowship, and education grants programs. NOAA will also work to address the recommendations from the recent National Research Council publication NOAA's *Education Program: Review and Critique (2010).*

FACILITIES

The NOAA Chief Administrative Officer (CAO), through the Facilities Management and Modernization Program, provides program direction and oversight to NOAA's major construction program and has been the focal point for facility master planning, project planning formulation and development, and project management oversight to support critical NOAA mission requirements. This program supports an integrated capital investment planning process, integrated facility condition inspection program, systems and technology tools to enable maximum efficiency in project and facility management planning, and investments required to support repair and modernization of NOAA' facilities.

NOAA owns more than 400 buildings, in addition to piers and other structures, which are valued at approximately $2.5 billion. These facilities are aging, with more than 30 facilities over 60 years old. NOAA's facilities are often subject to the extremes of weather and climate conditions, and are, therefore, more prone to needing unplanned repairs while simultaneously remaining in operation. This program provides funding to conduct facility condition inspections and supports investments in necessary facility repairs and modernization needed to ensure that the facilities remain safe, effective, and efficient in support of NOAA's programs. The CAO organization is responsible for managing the total project life cycle for facility construction and modernization projects, including environmental and safety projects.

MARINE OPERATIONS

OMAO operates NOAA's fleet of vessels and provides ship support to NOAA programs through outsourcing, operational readiness, and maximum platform utilization in support of NOAA's at-sea data collection requirements. OMAO provides centralized management for operations, fleet planning, and maintenance support and is responsible for NOAA's fleet safety and diving programs. Other mission responsibilities include training and certifying NOAA Corps Officers, crews, and scientists for at-sea duty.

NOAA's vessels support nautical charting, fisheries research, marine environmental assessments, coastal-ocean circulation studies, and oceanographic and atmospheric research, and operate on all U.S. coasts. Marine operations funding provides centralized management for NOAA's 18 active ships and supports chartering vessels to meet additional requirements. NOAA vessels are strategically deployed based on size, range, laboratory space, equipment, and accommodations of each ship that are necessary to meet project requirements. The class I and II vessels have the size, capabilities, and endurance to conduct operations in the deep ocean and remote areas such as Alaska and Antarctica, while the smaller Class III, and IV operate on the continental shelf and near shore.

In FY 2012, operation of NOAA vessels will provide approximately 2,963 Days at Sea (DAS) in support of NOAA's highest priority programs.

OMAO's Marine Operations Center (MOC) has Atlantic and Pacific regional offices located in Norfolk, Virginia, and Seattle, Washington, respectively (note: the MOC in Seattle will be moving to Newport, Oregon beginning Summer 2011), and most home ports provide a small support staff to support the vessels. The centers provide maintenance, stores, supplies, and repair facilities for the vessels.

The NOAA Commissioned Corps is the Nation's seventh and smallest uniformed service. NOAA Corps officers support the fleet and NOAA Line Offices. The majority of the NOAA Corps payroll is funded through the Marine Services line. The officers of the NOAA Corps command NOAA's research and survey vessels, fly NOAA's "hurricane hunters" and environmental monitoring aircraft, support field operations, and serve in a variety of technical and management positions throughout the agency.

DIVE CENTER

The NOAA Dive Program provides diver training, safety standards, certifications, technical advice, a Standardized Equipment Program, and publishes the NOAA Diving Manual. NOAA's 500 divers perform over 15,000 dives annually in support of NOAA's programs.

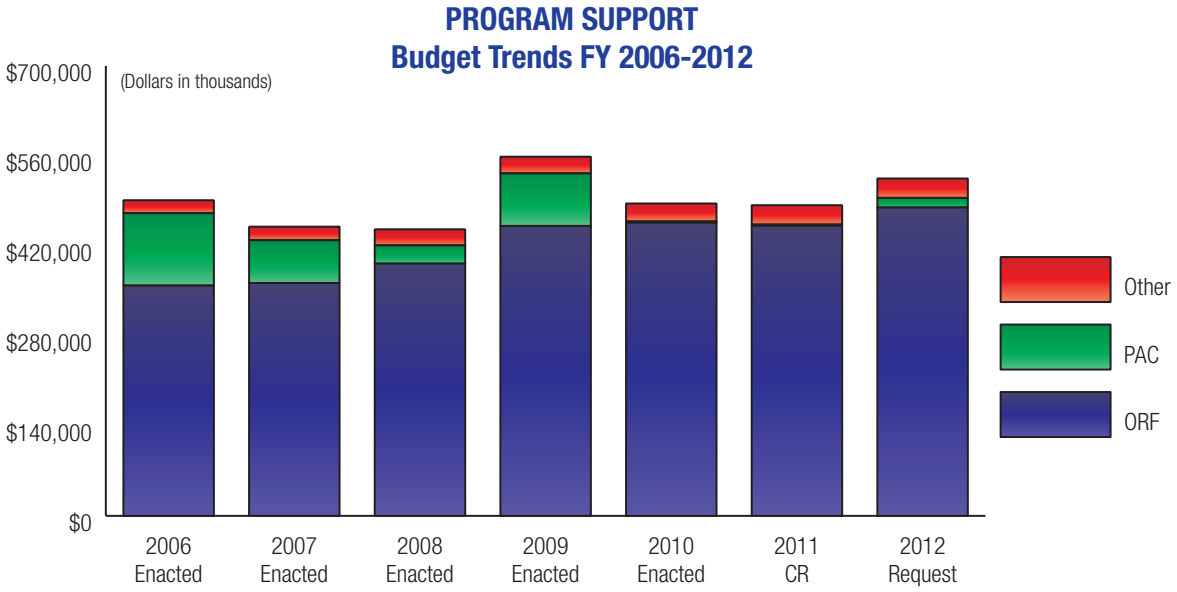
AVIATION OPERATIONS

OMAO's Aircraft Operations Center (AOC), located at MacDill Air Force Base in Tampa, Florida, ensures the availability and readiness of NOAA's uniquely configured aircraft. AOC operates a fleet of 12 aircraft used as observation platforms equipped with comprehensive data-collection systems in support of missions related to the Earth's environment, coastal and marine resources, and severe weather.

In FY 2012, Aircraft Services will provide approximately 2,845 flight hours in support of NOAA missions. NOAA aircraft are fitted with specialized instrumentation for airborne research, airborne data collection, and observation. Two of NOAA's three WP-3D aircraft (the "hurricane hunters") and the G-IV high-altitude jet will be mission-ready with instruments and personnel for hurricane surveillance, reconnaissance, and research during the hurricane season from June 1 to December 1. NOAA's third P-3 has a mission that includes air chemistry and air quality research, remote sensing, oceanographic research, and other missions not involving flights in severe weather. The G-IV will also be mission-ready with instruments and personnel to collect data for West Coast winter storm predictions from January 15 to April 1. NOAA's Jet Prop Commander and Shrike will be mission-ready with equipment and personnel for snow radiation surveys, flood forecasts, water management, and other background surveys throughout the year in Alaska and Northern United States. The four Twin Otters will continue to operate throughout the coastal Atlantic, Pacific, and Gulf of Mexico, surveying living marine resources and conducting remote sensing missions. NOAA's premier remote sensing aircraft, the King Air, will fly throughout the coastal United States responding and collecting damage assessment imagery, testing new remote sensing technologies, and performing coastal mapping missions.

PROGRAM SUPPORT

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
PS — ORF				
Corporate Services	$205,203	$203,037	$235,301	$30,098
NOAA Education Program	53,753	38,116	20,840	(32,913)
Facilities	30,346	30,025	41,763	11,417
Office of Marine & Aviation Operations	166,668	164,907	185,028	18,360
Congressionally Directed Projects	0	15,069	0	0
Administrative Efficiency Initiative	0	0	(6,800)	(6,800)
Total Program Support - ORF	455,970	451,154	479,658	23,688
Total, PS - PAC	2,000	2,000	14,926	12,926
Total, PS - Other	27,938	30,091	30,205	2,267
GRAND TOTAL PS (Direct Obligations)	**$485,908**	**$483,245**	**$524,789**	**$38,881**
Total FTE	**2,053**	**2,053**	**2,081**	**28**



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction

Other: NOAA Corps Commissioned Officers Retirement (Mandatory) and Medicare Eligible Retiree Healthcare (Discretionary)

FY 2012 ORF BUDGET SUMMARY:

NOAA requests a total of $479,658,000 and 2,076 FTEs to support the continued and enhanced operations of Program Support. This total includes an increase of $22,584,000 and a decrease of 2 FTEs for inflationary Adjustments to Base (ATB) and other adjustments, an increase of $2,622,000 and 11 FTEs as a result of the reorganization to establish a new Climate Service line office, and a net decrease of $1,518,000 in program changes for a total increase of $23,688,000 and 28 FTEs from the FY 2010 Enacted.

ADJUSTMENTS TO BASE:

The ATB request of $22,584,000 and a decrease of 2 FTEs is comprised of a restoration of the FY 2011 and FY 2012 ATBs. The increase will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Service Administration (GSA).

Adjustments also include the following:

- Climate Reorganization: increase of $2,622,000 and an increase of 11 FTEs to assist with the formation of the new Climate Service line office
- FY 2012 Technical ATBs: increase of $810,000 and a net decrease of 9 FTEs

PS - ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2012:

Select program changes are summarized at the sub-activity level below. A summary of funding by line item is located in Chapter 8, *Special Exhibits.* Detailed descriptions of all program changes by line item are located in the NOAA FY 2012 Technical Budget.

CORPORATE SERVICES $235,301,000

NOAA requests program changes that net to an increase of $19,029,000 and 13 FTEs and a total of $235,301,000 and 973 FTEs under the Corporate Services sub-activity.

Under Secretary and Associate Offices: NOAA requests an increase of $65,000 and 0 FTEs. This increase is comprised of one new initiative and one decrease.

Under Secretary and Associate Offices Base - NOAA General Counsel (GC): NOAA requests an increase of $1,000,000 and 0 FTEs to enable NOAA GC to provide necessary legal support to NOAA programs. Recent legislation and ongoing emergent issues have created additional requirements for legal support. With this requested increase, NOAA's Office of General Counsel will support the following NOAA activities: (1) limited access permit programs/catch shares under the Magnuson Stevens Fishery Conservation and Management Act; (2) increased responsibilities to reduce illegal, unreported, and unregulated fishing by foreign vessels on the high seas, including implementation and enforcement of the recently concluded FAO Port State Measures Agreement to Combat Illegal; (3) unreported and unregulated fishing, implementation of Western and Central Pacific Fishery Commission and Western Pacific Marine National Monuments;

(4) increased international responsibilities resulting from U.S. accession to the Law of the Sea Convention, which the United States is expected to join in 2010; (5) delimitation of the outer boundary of the U.S. extended continental shelf; and (6) consultations under the Endangered Species Act on alternative energy and other high priority projects.

Under Secretary and Associate Offices Base: NOAA requests a decrease of $935,000 and 0 FTEs targeting efficiencies and savings in on-going activities. The NOAA's Under Secretary and Associate Offices (USAO) provides the top leadership and management of NOAA and represents NOAAs executive level liaison with other Federal agencies, Congress, NOAA stakeholders, and private industry. Program activities consist of formulating and executing policies for achieving NOAA objectives, responding to executive branch policy decisions, and exercises delegated authority in committing NOAA to courses of action. NOAA leadership is committed to leading by example and believes that overhead costs should be minimized. This reduction will demonstrate to the agency that no programs are exempt from efforts to identify efficiencies and provide the best value to the taxpayer.

NOAA Wide Corporate Services & Agency Management: NOAA requests an increase of $9,864,000 and 5 FTEs. This increase is comprised of four new initiatives and one decrease:

Commerce Business Systems: NOAA requests an increase of $5,000,000 and 0 FTEs migrate the Commerce Business System (CBS) from the existing operating system to the Department of Commerce standard operating system. The NOAA CBS system provides a scalable and robust system for handling all aspects of the financial management process, including allocating and maintaining fund balances, recording obligations and accruals, and supporting the generation of monthly, quarterly, and year-end financial reports/statements. The current CBS operating system, HP Tru64, will no longer be supported by the vendor at the end of 2012. In addition, the Department of Commerce has mandated that all agencies running a CBS instance migrate to a standard operating system over the next 3 years to drive efficiencies, as well as to provide a more scalable and viable operating system for future needs of the financial system. The FY 2012 request of $5,000,000 will support the acquisition of Solaris as the Departmental standard operating system for CBS, allowing for procurement of initial hardware in time to configure and migrate the CBS environments in FY 2013. Migrating to the Departmental standard will allow NOAA to maintain compliance with OMB Circular A-123 and the Federal Information Security Management Act (FISMA).

Acquisitions and Grants Management: NOAA requests an increase of $4,345,000 and 0 FTEs to support acquisition and grant services for NOAA. The number of acquisitions awarded by the NOAA Acquisition workforce has increased by almost 300 percent in just 5 years. The Acquisition and Grants Office (AGO) currently performs approximately 16,000 acquisition actions and nearly 2,000 grants annually. As the NOAA acquisition workload has increased, the complexity of the acquisitions conducted and the level of contract administration oversight required have similarly increased. NOAA's AGO provides annual acquisition and grants support to DOC and NOAA valued at approximately $2 billion ($1 billion in grants awards, and $1 billion in contract awards). The success of DOC and NOAA in accomplishing their missions and goals is largely dependent on the ability of the NOAA AGO to successfully obligate these funds in accordance with statu-

tory and regulatory requirements. This requested increase will improve the capacity of the acquisition and grants workforce regarding the workload and will provide dedicated personnel and funding sufficient to implement an effective procurement oversight program. These resources will afford NOAA an opportunity to establish a Policy and Oversight Division, which will implement recommendations made by the Government Accountability Office (GAO) in their June 2006 report to Congress (GAO-06-594, NOAA Acquisition Function).

Department of Commerce Acquisitions Initiative: NOAA requests an increase of $1,113,000 and 1 FTE to support implementation of a DOC wide acquisition intern program. DOC's Acquisition workforce supports a diverse portfolio of acquisition areas, including construction of buildings, ships, and satellites. To support these wide-ranging needs, the workforce must be agile, flexible, and highly trained in the planning, solicitation, award, administration and close-out of acquisitions and financial assistance funding mechanisms. With this requested funding, NOAA would establish at NOAA the DOC Acquisition Intern Program, a three-year, career ladder developmental program. The additional FTE will oversee interns training and development activities and administer the program. As DOC's largest acquisition office, NOAA's robust acquisition community and expertise will serve the entire Department. All NOAA Acquisition Interns would receive training and developmental assignments in multiple bureaus. This model would promote interoperability between bureaus, provide increased opportunities for employee growth and development, and foster a sense of organizational unity. The intern program will be tailored to the agency's needs, thereby producing greater results and effectiveness for agency specific acquisition mission needs.

Acquisitions Staffing: NOAA requests an increase of $795,000 and 4 FTEs to support an acquisition and grants services initiative to build acquisition capacity within the Department. NOAA Acquisition and Grants Office provides support to the business and staff offices, and a number of other DOC bureaus, through the planning, solicitation, award, administration and close-out of acquisition and financial assistance funding mechanisms. Through its services, NOAA Acquisition and Grants facilitates the execution of NOAA's day-to-day responsibilities and provision of critical services to the Nation. With this increase, each of the acquisition offices will fill critical vacancies to address the following: increased focus on strategic acquisition planning, increased focus on proactive contract administration, and increased focus on closing-out completed contracts. The additional capacity also would allow for more one-on-one time to develop junior-level acquisition personnel and to focus on strategic sourcing initiatives across the Department to leverage the buying power of the Department both across the bureaus and in partnership with other Federal agencies.

Payment to the DOC Working Capital Fund: NOAA requests a decrease of $1,389,000 and 0 FTEs to reflect NOAA's share of savings that result from efficiency efforts in the Department's common services charged through the Working Capital Fund. The DOC Working Capital Fund provides centralized services to the Department's bureaus and to agencies outside the Department in the most efficient and economical manner possible. Goods and services are financed by charging operating expenses back to the customers. As part of the Administrative Efficiency Initiative, the

Department identified cost savings in these shared services which have been passed on to the agencies. With the requested decrease, NOAA will be able to reduce required payments to the Department of Commerce Working Capital Fund for services including but not limited to services for public affairs, security, operations and management.

Office of the Chief Information Officer: NOAA requests an increase of $9,100,000 and 8 FTEs. This increase is comprised of two new initiatives.

Information Technology Infrastructure: NOAA requests an increase of $4,000,000 and 2 FTEs to acquire, install, operate, and maintain the NOAAnet Single Enterprise Wide Area Network (WAN). NOAA's current operating network is inefficient, with each Line Office (LO) and sub-LO operating under its own independent WAN. This creates numerous points of failure and duplicative efforts across LO's. Network management is uncoordinated with duplicate network operations staff and duplicative circuits, with multiple separate acquisitions. With this request, NOAA will implement a single, transitional backbone wide area network that will enable secure communications among NOAA locations, while providing economies of scale and more complete network management. NOAAnet will ensure timely delivery of NOAA data and information products (such as tornado warnings, hurricane forecasts, climate models, and tide data) and allow secure, efficient, and highly reliable transport of NOAA's exponentially-growing environmental data. NOAA's environmental information products and resource management services are essential public goods used in households across the nation. NOAAnet will continue to ensure that NOAA's observing and modeling systems provide high-quality information and data products for public use 24 hours a day, 7 days a week. NOAA strives to meet the needs of its constituents and partners by providing a suite of products and services that continues to improve in scientific and technical quality, economic value, and social relevance. This investment in IT infrastructure is essential for moving NOAA forward in achieving mission goals and serving society in the best way possible. The request will provide the foundation for the Department to implement its plan to meet the Office of Management and Budget (OMB) Trusted Internet Connections Initiative.

Enterprise IT Security: NOAA requests an increase of $5,100,000 and 6 FTE to improve enterprise information technology (IT) security through services provided by NOAA's Office of the Chief Information Officer (OCIO). The frequency, sophistication, and maliciousness of cyber attacks across NOAA are rapidly increasing—NOAA currently experiences thousands of attacks every month. NOAA is at risk for data integrity losses, network failures, and website compromises that have a significant probability of affecting the collection, processing, and dissemination of forecast and warning information to the public and other government institutions, leading to possible loss of life and property. The requested increase will fortify critical IT support of NOAA's mission by decreasing mission risk; enable NOAA to increase the coverage and capabilities of the NOAA Computer Incident Response Team (N-CIRT); and enhance nationwide security monitoring and incident response. This increase will enhance nationwide 24x7 security monitoring and incident response, reduce the backlog and duration of IT security investigations, control the number of affected devices, reduce IT security risk in new enterprise deployments, fortify critical IT security support to NOAA programs and missions, and improve NOAA's enterprise management of security risks, threats, and vulnerabilities

FACILITIES $41,763,000

NOAA Facilities Management, Construction, & Safety: NOAA requests an increase of $10,758,000 and 1 FTE for a total of $41,763,000 and 47 FTEs. This increase is comprised of two new initiatives:

Location of the new Pacific Regional Center (PRC), Ford Island, Honolulu, Hawaii

NOAA Facility Restoration and Modernization: NOAA requests an increase of $10,000,000 and 0 FTEs to support major restoration and modernization projects to address critical facility condition deficiencies, and improve safety and operating conditions in support of NOAA's mission. NOAA owns over 400 buildings valued at over $2.5 billion. These buildings support NOAA's scientific and operational mission and programs and are designed to provide a safe working environment for NOAA's employees and contractors—in laboratory and research spaces, offices, and operational buildings. As facilities age, repair and restoration is necessary to sustain operational capabilities and provide a safe working environment. NOAA is requesting an increase of $10 million to support repair and restoration projects at NOAA's owned facilities, specifically addressing aged and deteriorated building systems and safety/environmental conditions. The FY 2012 request will address the continued deterioration of NOAA's owned facility portfolio through repair; restoration and modernization of aged and deteriorated building systems and facilities.

Pribilof Islands Environmental Monitoring: NOAA requests an increase of $758,000 and 1 FTE to restore funding for the long-term property transfer and environmental monitoring activities on Pribilof Islands. The funding requested will provide the Office of the Chief Administrative Officer (OCAO) with the resources to manage the long-term responsibility for property transfer activities, post environmental remediation monitoring and supporting well and landfill cap maintenance on the Pribilof Islands (St. Paul and St. George). Pribilof Islands remediation and long-term monitoring are mandated by a 1996 Two Party Agreement (TPA) between NOAA and the State of Alaska. Property transfers from DOC/NOAA to local island entities are mandated by a 1984 Transfer of Property Agreement (TOPA).

MARINE OPERATIONS & MAINTENANCE $159,196,000

NOAA requests program changes that net an increase of $9,757,000 and 5 FTEs and a total of $159,196,000 and 931 FTEs under the Marine Operations and Maintenance sub-activity.

Data Acquisition: NOAA requests an increase of $192,000 and 5 FTEs for data acquisition. This increase is comprised of two initiatives and one termination of FY 2010 congressionally specified spending of $2,500,000 for activities not proposed to be continued in FY 2012:

Marine Services: NOAA requests an increase of $1,902,000 and 0 FTEs for Homeport Facility Lease Costs. NOAA homeport facilities vary in size, condition, and configuration, but all homeports serve the same purpose: to provide a safe and secure environment for NOAA ships to tie up for periods of maintenance, crew rest, training, and staging and de-staging of cruises. Homeports generally consist of pier space with adequate water depth, a port office for on-site support personnel, and equipment storage areas. A permanent homeport guarantees access to a secure facility of sufficient water depth with safe operating conditions and gives crew members a place to call home. Homeports

have dedicated personnel providing logistical support to the vessel and receive mail, supplies, and equipment. With this request, NOAA will fund lease costs for the Marine Operations Center – Pacific and Davisville, RI. Newport, OR will be the new home of the Marine Operations Center – Pacific (MOC-P) and the homeport of NOAA Ships *McArthur II, Rainer, Miller Freeman* and *Bell M. Shimada*. Davisville, RI is the new homeport of NOAA Ship *Okeanos Explorer* and has been a temporary homeport for NOAA Ship *Henry B. Bigelow.*

NOAA's Henry B. Bigelow

Marine Services: NOAA requests an increase of $790,000 and 5 FTEs for the Dive Center Improvement Plan. This request will address the findings released in the NOAA Florida Keys National Marine Sanctuary Dive Fatality Incident Report. To date, 21 of 33 recommendations have been completed and a dive/small boat program database has been developed to more efficiently and effectively track critical data and measure execution of mission operations. The additional funding is required to provide the staff resources necessary to implement and oversee 3 of the remaining 12 recommendations. To meet these three outstanding recommendations, NOAA will guarantee that individual recall units meet specifications of the contract; ensure all diving conducted under NOAA's auspices is accomplished safely, efficiently, and cost-effectively; hire additional FTEs to support this recommendation; and comply with all applicable diving regulations, standards and policies. The Dive Center strives to satisfactorily meet NOAA's data collection requirements, and ensure that all diving is accomplished safely and in compliance with all regulations, standards, and policies.

Fleet Planning and Maintenance: NOAA requests and increase of $9,565,000 and 0 FTEs. This increase is comprised of two new initiatives:

Fleet Planning and Maintenance: NOAA requests an increase of $3,365,000 and 0 FTEs for Environmental Compliance for Vessels. New maritime environmental regulations will be enforced beginning in FY 2012, including stricter emissions requirements from the Environmental Protection Agency (EPA) and stricture discharge requirements from the United States Coast Guard (USCG). These new regulations will require significant changes to the existing vessel and small boat fleet to ensure compliance is maintained and monetary fines are avoided by NOAA. Proactively ensuring compliance with EPA and USCG environmental regulations will allow NOAA to maintain its position as a leader in environmental stewardship and in executing the Administration's energy priorities. In FY 2012, this program change increase will be applied to three categories: (1) engine and propulsion; (2) oils, hydraulics, and discharges; and (3) sustainment of ship conversions and equipment through design and training programs. These actions were selected according to their status as legal requirements with market-ready solutions.

Fleet Planning and Maintenance: NOAA requests an increase of $6,200,000 and 0 FTEs for Preventive, Corrective, and Deferred Ship Maintenance. There has been an 89 percent increase in the number of significant mechanical/electronic failures as indicated in NOAA Ship Casualty Reports (CASREPS) – from 95 in FY 2005 to 180 in FY 2008 – and a 44 percent increase in Lost Days at Sea (DAS) for NOAA programs – from 184 DAS in FY 2005 to 264 DAS in FY 2010. With this request, NOAA will address deferred maintenance items and decrease the number of CASREPS that impact accomplished days at sea and scientific data collection for NOAA programs. Specifically

this increase will eliminate the deferred maintenance backlog for electronics and marine engineering within five years and raise the preventative maintenance accomplishment rate. This increase supports NOAA's Ship Recapitalization Plan to ensure its oldest ships can operate until replacements are delivered and to bridge the operational period until a Major Repair Period can be funded. It also builds on major vessel maintenance and repair investments that were made during FY 2010 using American Recovery and Reinvestment Act of 2009 (ARRA) funding. The proposed increase also accelerates the accomplishment rate of OMAO's shipboard maintenance management program to enhance at-sea safety and ship productivity and to meet emerging regulatory requirements.

AVIATION OPERATIONS **$29,358,000**

NOAA requests program changes that net to a decrease of $1,162,000 and 0 FTEs and a total of $29,358,000 and 104 FTEs under the Aviation Operations sub-activity.

Aviation Operations: NOAA requests a decrease of $1,162,000 and 0 FTEs for Aircraft Services. To reflect the reprioritization of research missions and the completion of data acquisition needs for the CALNEX mission, NOAA proposes cancelling the CALNEX and Ocean Winds projects in FY 2012. OMAO will continue to support NOAA research missions throughout the agency. Flight hours will be used for hurricane research, snow surveys, assessments of marine mammal populations and other living marine resources, and coastal erosion surveys.

CHAPTER 4

NOAA Procurement, Acquisition, & Construction

PROCUREMENT, ACQUISITION AND CONSTRUCTION (PAC)

NOAA's Procurement, Acquisition, and Construction (PAC) account captures the cost of acquiring and improving capital assets, which are mission-critical to all agency programs and contribute significantly to achieving each of NOAA's Strategic Goals. This account is grouped by line office into five activities: (1) "Systems Acquisition," which includes projects that will have a major impact on NOAA's ability to monitor and to forecast weather and climate change on a global basis; (2) "Construction," which includes projects involving new construction or major modification of existing facilities; (3) "Climate Research," which includes NOAA's investments in research supercomputing; (4) "Observations and Monitoring," which includes investments in observing systems and data center modernization; (5) "Fleet and Aircraft Replacement," which includes funding to support modernization of NOAA's fleet of ships and aircraft either through new construction, major modification to existing assets, or long-term acquisition of capacity from third parties.

(2/2011) NOAA's nearly completed Gulf of Mexico Disaster Center (DRC). The DRC will deliver state of the art science and information to emergency managers and other critical stakeholders for crucial decision-making in protecting and restoring the Gulf Coast's communities, economies, and valuable natural resources

ADJUSTMENTS TO BASE:

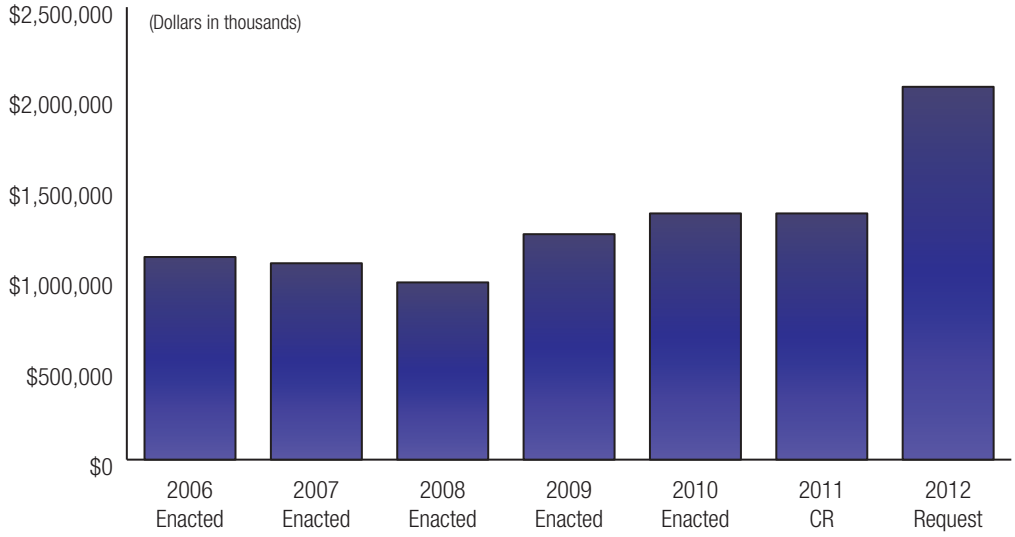
The NOAA PAC account requests technical adjustments to the FY 2010 Enacted level with a decrease of $4,314,000 and 6 FTEs to transfer $3,504,000 from the Weather Forecast Office (WFO) Construction line to the Operations, Research, and Facilities (ORF) account to consolidate funding for WFO leases in one sub-activity, Local Warnings and Forecasts; to transfer $810,000 and 4 FTEs from NESS to Program Support, Office of the Chief Information Officer to support the Radio Frequency Management Division; and to transfer 2 FTE from the NWS Cooperative Observer Network Modernization to Local Warnings and Forecasts. The request proposes to transfer responsbility for the Cooperative Observer Network Modernization from NWS to the new Climate Service. NOAA also requests the following transfers in the PAC account for the creation of the proposed Climate Service:

TRANSFER OFFICE	BUDGET LINE	RECIPIENT OFFICE	BUDGET LINE	AMOUNT ($K/FTE)
OAR	Research Supercomputing	Climate Service	Climate Research Super Computing	$10,379/0 FTE
NWS	Cooperative Observer Network Mod. (NERON)	Climate Service	Observations & Monitoring-Historical Climatology Network Modernization	$3,734/0 FTE
NESS	EOS & Advanced Polar Data Processing, Distribution & Archiving Systems	Climate Service	Observations & Monitoring – EOS & Advanced Polar Data Processing, Distribution, & Archiving Systems	$990/0 FTE
NESS	GOES-N	Climate Service	Observations & Monitoring – Data Center Modernization	$2,846/0 FTE
NESS	CLASS	Climate Service	Observations & Monitoring-CLASS	$18,476/0 FTE

PROCUREMENT, ACQUISITION, AND CONSTRUCTION (PAC)

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
National Ocean Service	$40,890	$40,890	$31,734	($9,156)
National Marine Fisheries Service	0	0	0	0
Ocean and Atmospheric Research	10,379	10,379	0	(10,379)
Climate Service	0	0	24,391	24,391
National Weather Service	107,727	107,727	91,190	(16,537)
National Environmental Satellite, Data and Information Service	1,199,357	1,199,357	1,897,536	698,179
Program Support	2,000	2,000	14,926	12,926
GRAND TOTAL PAC	**$1,360,353**	**$1,360,353**	**$2,059,777**	**$699,424**
Total FTE	**190**	**190**	**184**	**(6)**
Systems Acquisition	1,317,731	1,331,731	2,032,739	715,008
Construction	40,622	26,622	13,012	(27,610)
Fleet Replacement	2,000	2,000	14,026	12,026
TOTAL	**$1,360,353**	**$1,360,353**	**$2,059,777**	**$699,424**

Budget Trends FY 2006-2012
Procurement, Acquisition, & Construction (PAC)



PAC: Procurement, Acquisition, & Construction

PAC PROGRAM CHANGE HIGHLIGHTS FOR FY 2012

NOAA requests a net increase of $703,738,000 for a total of $2,059,777 and 184 FTEs for the PAC programs. A summary of funding by line item is located in Chapter 8, Special Exhibits. Detailed descriptions of all program changes by line item are located in the NOAA FY 2012 Technical Budget.

NATIONAL OCEAN SERVICE $31,734,000

Systems Acquisition: NOAA requests an increase of $5,000,000 and 0 FTEs. This increase is comprised of one new initiative:

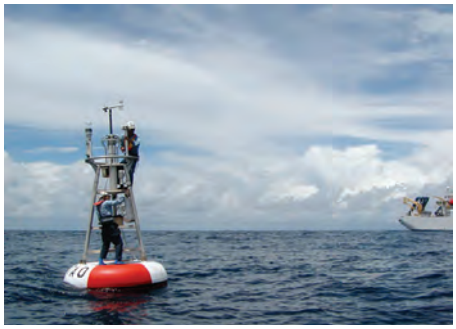
(BA IN THOUSANDS)	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
CELCP	25,000	TBD	TBD	TBD	TBD

Coastal and Estuarine Land Conservation Program: NOAA requests an increase of $5,000,000 and 0 FTEs for the Coastal and Estuarine Land Conservation Program (CELCP). Coastal counties are home to almost 153 million people, about 53 percent of the total U.S. population, and by 2015 the coastal population is estimated to reach 165 million. As the coastal population continues to increase, there are many competing demands for limited coastal areas and growing pressure to develop the remaining lands. Coastal lands and estuaries are ecologically productive and economically important. Through the competitive CELCP program, NOAA provides grants to state and local governments to protect important coastal and estuarine areas that have significant conservation, recreational, ecological, historic or aesthetic value that are threatened by development, such as tidal or freshwater wetlands, stream buffers, and floodplains. This increase of $5,000,000 will support land conservation grants, approximately 2-4 conservation projects per year. This funding will also enable NOAA to ensure that conservation projects satisfy the requirements of NEPA and meet federal appraisal standards. The federal grants require matching funds, which leverage additional state, local or private contributions. The program gives priority to lands that can be effectively managed and protected and have significant ecological value.

More than 95 acres of coastal land in Wareham, Mass., will be conserved under NOAA's Coastal and Estuarine Land Conservation Program
Photo courtesy: Mass Audubon

Construction: NOAA requests a decrease of $9,705,000 and 0 FTEs. This is comprised of one decrease and one termination of FY 2010 congressionally specified funding of $7,505,000 for activities not proposed to be continued in FY 2012.

(BA IN THOUSANDS)	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
National Estuarine Research Reserve Construction and Land Acquisition	1,690	TBD	TBD	TBD	TBD



Repairing a Tropical Atmosphere Ocean project (TAO) buoy windbird and mooring. The TAO project collects real-time data from moored ocean buoys for improved detection, understanding and prediction of El Niño and La Niña

National Estuarine Research Reserve System (NERRS): NOAA requests a decrease of $2,200,000 and 0 FTEs in funding that supports new acquisition and construction activities. In FY 2012 NOAA is requesting an increase for the Coastal & Estuarine Land Conservation Program (CELCP). Under the Omnibus Public Lands Act, no less than 15 percent of CELCP funds shall be available for acquisitions benefitting NERRS. The remaining $1.69 million will be competitively awarded for high priority NERRS construction activities.

CLIMATE SERVICE $24,391,000

Climate Observations and Monitoring: NOAA requests a decrease of $12,034,000 and 0 FTEs. This is comprised of one decrease and one termination in congressionally specified funding of $12,000,000 and 0 FTEs for activitites not proposed to be continued in FY 2012.

NATIONAL WEATHER SERVICE $91,190,000

Systems Acquisition: NOAA requests a net increase of $1,781,000 and 0 FTEs. This increase is composed of one new initiative and three decreases:

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Weather and Climate Supercomputing	40,169	TBD	TBD	TBD	TBD

IBM supercomputers, named "Stratus" and "Cirrus", used for climate and weather forecasts

Weather and Climate Supercomputing: NOAA requests an increase of $11,000,000 and 0 FTEs to transition NOAA's operational high performance computing (HPC) to a new HPC contract in order to support on-going Hurricane Forecast Improvement Project (HFIP) modeling activities, and to continue regular improvements to numerical weather prediction (NWP) modeling. The current operational HPC contract expires at the end of FY 2011. In FY 2012 and FY 2013, NOAA must transition operations to a newly competed contract utilizing more technologically advanced supercomputing systems. The first transition year enables preparation of data-center space and associated infrastructure and manufacturing, delivery, installation, and acceptance of systems. In the second transition year, NOAA will transition, integrate and validate its operational models onto the new systems. During this two year period, the production of operational NWP guidance on the current supercomputers will be maintained under a bridge contract while systems under the new contract are configured to support operations. The requested increase will fund the bridge contract. NOAA will acquire a new, ten-year performance based contract for scalable operational HPC. This new contract will include technology refreshment every three years, resulting in HPC capacity increases. This strategy ensures that NOAA's environmental modeling, contributing to Department of Commerce's mission, is processed on reliable, state of the art systems. One million dollars will be used to augment the current HFIP development HPC system enabling the provision of real-time experimental products to the National Hurricane Center (NHC). This continual growth in capacity will allow NOAA to implement enhanced NWP modeling systems that lead to continuous, incremental improvements to many of NWS Government Performance and

Reporting Act (GPRA) measures. NOAA's weather forecasts are derived from a suite of global to local NWP, hydrological, land, coastal, and ocean models. These models provide the basis for all of NWS' prediction and related service areas, except for localized severe weather. Likewise, enhancements in model resolution and sophistication made possible by increased HPC capacity have directly resulted in proportionate improvements in GPRA scores. Historically, NWS forecast skills and GPRA scores have steadily improved by 1-3 percent per year, to which HPC contributes significantly.

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
NEXRAD	5,819	TBD	TBD	TBD	TBD

Next Generation Weather Radar (NEXRAD) Product Improvement (PI): NOAA requests a decrease of $2,157,000 and 0 FTEs to reflect the planned completion of the NEXRAD Product Improvement project. The final year of the program will fund projected costs associated with the fifth year of a 5 year contract for the acquisition and deployment of Dual Polarization technology to 122 NWS operational NEXRADs.

NEXRAD Radar at the National Severe Storms Laboratory/National Storm Prediction Center in Norman, Oklahoma

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Complete & Sustain NWR	5,594	TBD	TBD	TBD	TBD

Complete and Sustain NOAA Weather Radio (NWR): NOAA requests a decrease of $5,406,000 and 0 FTEs to complete the modernization of the NOAA Weather Radio system via the Weather Radio Improvement Project (WRIP). This planned decrease reflects the continued deployment of the NWR Broadcast Management System (BMS) and associated hardware at all 122 Weather Forecast Offices (WFO).

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
NOAA Profiler Network	5,480	TBD	TBD	TBD	TBD

NOAA Profiler Conversion: NOAA requests a decrease of $2,020,000 and 0 FTEs to extend the ongoing modernization of the 20-year old NOAA Profiler Network (NPN). The revised outyear profile will enable NWS to convert 11 profilers currently operating at 404 MHz to 449 MHz and provide technology refresh to the 20-year old system. By coupling the frequency replacement with the tech refresh, the government avoids risking significant problems with technology integration and achieves a more cost-efficient solution to supporting the life-cycle of these operationally critical systems.

Construction: NOAA requests an increase of $3,150,000 and 0 FTEs for NWS Construction. This increase is composed of one new initiative:

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016

WFO Construction	3,150	TBD	TBD	TBD	TBD

Weather Forecast Office (WFO) Construction: NOAA requests an increase of $3,150,000 and 0 FTEs for a construction project in the Pacific Region and replacement of the heating, ventilating, and air conditioning (HVAC) systems at WFOs with modern, high efficiency units. Specifically, increased funding will complete ongoing construction modernization projects in the Alaska and Pacific Regions and replacement of two HVAC projects.

NATIONAL ENVIRONMENTAL SATELLITE SERVICE $1,897,536,000

Systems Acquisition: NOAA requests an increase of $731,393,000 and 0 FTEs. This increase is comprised of five new initiatives and three decreases:

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Joint Polar Satellite System	1,070,000	TBD	TBD	TBD	TBD

NOAA's Joint Polar Satellite System (JPSS). Courtesy: Ball Aerospace (artist's rendering)

Joint Polar Satellite System (JPSS): NOAA requests an increase of $687,800,000 and 0 FTEs to continue development of the instruments, ground systems, and to acquire the spacecraft for the afternoon orbit for the JPSS program. The program will continue to address NOAA's requirements to provide global environmental data used in numerical weather prediction models for near-term (1-3 day) and mid-term (3-5 day) forecasts, as well as provide space weather observation to civil and military customers. The JPSS program continues a number of management and acquisition reforms initiated in FY 2010 and continued in FY 2011 to deliver polar observations necessary to meet both the civil and military needs for weather and climate information. To implement the restructured JPSS program as directed by White House decision in February 2010, NOAA is overseeing program management while NASA, as NOAA's acquisition agent, is providing technical management. NOAA and NASA share the mission success responsibility. Mission success includes building all instruments, launching the spacecraft, developing algorithms, fielding ground systems, and all other program related activities that are essential to the success of the JPSS program.

FY 2012 funding will be used by NOAA and NASA to continue instrument, ground systems, satellite procurements, and engineering and management oversight to meet the program acquisition milestones and a first satellite launch readiness date of FY 2016. Funds will also support ground systems activities for a 2011 launch readiness of the NASA NPP mission. Successful NPP and JPSS systems will improve the Nation's ability to collect and distribute higher resolution data and products for use by the NWS and other Federal, state, and local government agencies. This will be achieved through the modernization of sensors and systems to ensure improved performance, compatibility, supportability, and maintainability. Data and imagery obtained from the JPSS satellites will help increase timeliness, accuracy, and cost effectiveness of public warnings and forecasts of climate and weather events, thus reducing the potential loss of human life and property.

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Climate Sensors	30,400	TBD	TBD	TBD	TBD

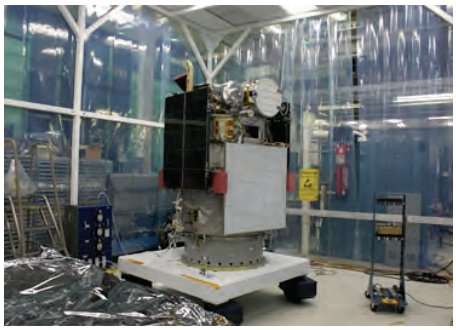
Restoration of Climate Sensors: NOAA requests an increase of $30,400,000 and 0 FTEs to support the continued development of Clouds and the Earth's Radiant Energy System Flight Model 6 (CERES FM-6) and the Total Solar and Spectral Irradiance Sensor (TSIS). This request continues the development of the climate sensors to be incorporated into the JPSS program. The continuation of the data sets from these instruments is critical to climate change research and monitoring, and understanding the impacts of climate change on the global environment. The prospect of climate change has profound implications for global society and the environment, underscoring the need for information derived from these instruments to aid decision makers in developing and evaluating options for mitigating the impacts of climate change as well as alternatives for adapting to a changing climate. Continuation of the data from these climate sensors will provide the needed datasets that will lead to improved forecasts and climate monitoring which will benefit agriculture, transportation, and energy production.

CERES Sensor Delivered to JPSS. Courtesy: Northup-Grumman

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Jason-3	53,000	TBD	TBD	TBD	TBD

Jason-3: NOAA requests an increase of $33,000,000 and 0 FTEs to continue the development of the Jason-3 satellite altimetry mission in partnership with the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), which started in FY 2010. Jason-3 will provide continuity of precise measurement of sea surface height, which is an important measurement to assess climate change, for applications in ocean climatology and for ocean weather. Jason-3 will continue the nearly 20-year climate data record created by the altimetry missions of TOPEX/POSEIDON and Jasons-1 and -2. NOAA will provide the launch vehicle and services and the microwave radiometer. EUMETSAT will provide the spacecraft and the altimeter. Both agencies will provide precision orbit and ground system components as required for respective operations of the satellite. The satellite will be commanded from either of the two NOAA Command and Data Acquisitions (CDA) stations or the third EUMETSAT station in Europe depending on which ground station is visible to the satellite. The data collected from each ground station is shared between the partners so that each will have a complete data set. This request allows NOAA and EUMETSAT to launch Jason-3 in 2014. In FY 2012, funds will continue to be used for launch vehicle development and support spacecraft integration and testing of the Advanced Microwave Radiometer, Global Positioning System and Laser RetroReflector Array.

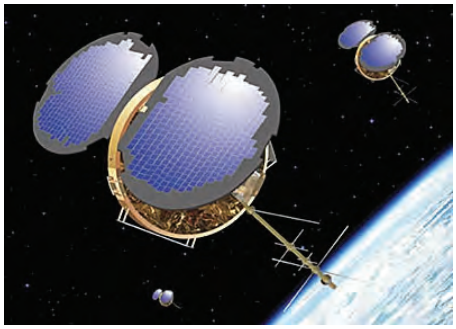
BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
DSCOVR	47,300	TBD	TBD	TBD	TBD



Deep Space Climate Observatory (DSCVR) satellite

Deep Space Climate Observatory (DSCOVR) - Space Weather Observations: NOAA requests an increase of $47,300,000 and 0 FTEs to acquire solar wind and Coronal Mass Ejection (CME) data. This acquisition will fund the refurbishment of an existing NASA satellite DSCOVR, as well as acquire a CME imager to the mission to provide solar wind data for geomagnetic storm forecasting. Under a reimbursable agreement between NESS and NASA, NASA/Goddard Space Flight Center (GSFC) will perform the refurbishment of the DSCOVR satellite currently housed at GSFC in preparation for an FY 2014 launch. It is anticipated that NOAA will lose two of its most critical observational data sources for geomagnetic storm warnings when the NASA ACE and the NASA/ESA SOHO satellites fail since they have already exceeded their operational life. Low reliability of those satellites and sensors and the high risk of unavailability of the data pose one of the most serious gaps for NOAA's space weather services. This comes at a time when a large increase in geomagnetic storm frequency and severity is expected during the next solar maximum beginning in 2013 and lasting for several years. According to a recent report by the National Academies, geomagnetic storm-disabled electric power grids and collateral impacts could result in projected economic and societal costs of ~$1 -$2 trillion, and full recovery could take 4 –10 years. Space weather has demonstrated the potential to disrupt virtually every major public infrastructure system, including commercial airlines and other transportation systems, telecommunications, electric power grids, and global positioning systems (GPS). With this increase in funding, NOAA will continue to provide timely and accurate alerts and warnings of geomagnetic storms to support these key industries and minimize disruptions to service. The U.S. Air Force will provide launch vehicle and launch services for the DSCOVR mission in a separate FY 2012 budget request. This interagency partnership to refurbish and launch DSCOVR is the most expeditious and cost effective option for making DSCOVR operational and replacing the ACE Spacecraft.

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
COSMIC-2	11,300	TBD	TBD	TBD	TBD



Constellation Observing System for Meteorology, Ionosphere & Climate (COSMIC) satellite constellation

Constellation Observing System for Meteorology, Ionosphere, and Climate (COSMIC-2): NOAA requests an increase of $11,300,000 and 0 FTEs to collaborate with the Taiwan National Space Organization (NSPO) for the launch of 12 satellites to provide replenishment and operational upgrade for the current COSMIC constellation. COSMIC-1 is a six satellite constellation that was launched in 2006 in collaboration between Taiwan, National Science Foundation, NASA, U.S. Air Force and the University Corporation for Atmospheric Research (UCAR). This COSMIC-1 constellation was a proof-of-concept effort for a new and inexpensive atmospheric sounding technique using the U.S. Air Force GPS system as a sounding source, called GPS Radio Occultation (GPSRO). The new technique proved so accurate and beneficial that NOAA began using the data operationally for weather forecasting within a year of the COSMIC-1 launch. COSMIC-1 provides

extremely accurate, bias free, daily worldwide measurements of atmospheric temperature and moisture profiles over the oceans and land that greatly improve NOAA's operational weather forecasting accuracy, and is useful for some space weather forecasting. COSMIC-1 also helps to eliminate bias for artificial offsets in other observing systems, which advances the overall impact on operational model systems and makes it a backbone for the total observing system. The observing system provides over 2500 atmospheric soundings every 24 hours around the globe, an improvement of about twice the number of daily weather balloon observations which are concentrated mostly over land. The success of the mission has inaugurated an age of operational GPS sounding for weather forecasting, climate analysis and research, ionospheric monitoring, and a suite of related Earth science pursuits. In this COSMIC-2 partnership, NOAA will procure 12 radio occultation (RO) sensors, ground station support and sensor processing support. Taiwan will provide the spacecraft and sensor integration. The funding in FY 2012 will start the development efforts for the COSMIC-2 sensors, as well as systems engineering, which is necessary to meet a planned FY 2015 launch date.

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
GOES-R	617,390	TBD	TBD	TBD	TBD

Geostationary Operational Environmental Satellites-R Series (GOES-R): NOAA requests a decrease of $50,110,000 and 0 FTEs for the GOES-R Series to provide continued satellite engineering development and production activities for GOES-R and GOES-S and to introduce development activities for the contract option satellites: GOES-T&U. This request is for a four satellite GOES-R (GOES-R, S, T, & U) program with enhanced capabilities above the current GOES-N, O, and P Series. The budget represents a re-phasing of the GOES-R program and does not increase cost, schedule or technical risk to the GOES-R program development. GOES-R Series will provide uninterrupted continuity of GOES data coverage before the end of the GOES-N series. The four satellite GOES-R program is the next-generation series of NOAA geostationary satellites and provides GOES mission continuity through 2036. The procurement of GOES-R satellites is a cooperative venture between NOAA and NASA. NOAA defines requirements, manages funds, implements system integration, procures ground segments and operates the GOES satellites. NASA serves as the agency with multi-disciplinary engineering expertise, develops detailed system specifications, procures and launches the spacecraft, and assists NOAA in system integration. The GOES-R procurements include priced options for acquiring additional satellites (T and U) and instruments to realize potential savings from economies of scale. The additional satellites will carry the same complement of instruments that are already under development for GOES-R and GOES-S: the Advanced Baseline Imager (ABI), Space Environment In-Situ Suite (SEISS), Extreme Ultraviolet Sensor/X-Ray Sensor Irradiance Sensors (EXIS), Solar Ultraviolet Imager (SUVI), Geostationary Lightning Mapper (GLM), including the communications packages SARSAT and Data Collection Systems. The GOES-R series satellites will not only provide critical weather observations for severe weather events such as hurricanes, but will also provide key enhancements in observational capabilities for climate, oceans and coasts, and the space environment.

In FY 2012, the program will continue development of the instruments, spacecraft, and ground system. Funds will also be used to complete Critical Design Reviews (CDR) for the spacecraft and ground system for a planned launch readiness of the first satellite in the series, GOES-R in 2015. The GOES-S planned launch readiness is 2017. These funds will also procure instruments to support launch readiness of GOES-T in 2019 and GOES-U in 2024.

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
GOES-N	33,967	TBD	TBD	TBD	TBD

Constructing the Geostationary Operational Environmental Satellite (GOES) N series satellite

Geostationary Operational Environmental Satellites-N Series (GOES-N): NOAA requests a decrease of $19,978,000 and 0 FTEs for the GOES-N Series to re-align the GOES-N series total program to support handover of GOES-P from NASA to NOAA. The GOES-N Series program includes GOES-13, GOES-14, and GOES-15 satellites, launched May 2006, June 2009, and March 2010, respectively. The primary function of the GOES program is to provide data which support the NWS with forecasting, tracking, and monitoring severe storms and weather events. GOES satellites provide continuous imaging and sounding of the Americas, which allows forecasters to better measure changes in atmospheric temperature and moisture distributions and hence increase the accuracy of their forecasts. The improved accuracy of NWS forecasts by using GOES data results in developing and disseminating more accurate and timely weather forecasting and advisories to ensure emergency managers and the public are warned ahead of time to take measures that will protect lives and property from harm. The planned funding decrease for FY 2012 realigns the GOES-N Series program to support the handover of GOES-15 from NASA to NOAA, and provides technical management, maintenance and operations of the on-orbit assets, GOES-13 and GOES-14.

BA IN THOUSANDS	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
POES	34,816	TBD	TBD	TBD	TBD

Polar-orbiting Operational Environmental Satellite (POES): NOAA requests a planned decrease of $8,319,000 and 0 FTEs for the continuation of the POES program and continued support for the MetOp (European Weather Satellite) program. The revised funding requirement represents recently identified savings as a result of the successful launch of the last POES satellite, NOAA-19, in February 2009. Continued funding will provide on-going satellite and instrument anomaly support to the on-orbit POES satellites, maintain the ground system for their operation, and support the maintenance and testing of U.S. instruments on the MetOp satellites.

PROGRAM SUPPORT $900,000

Construction: NOAA requests an increase of $900,000 and 0 FTEs in the Program Support Construction sub-activity. This increase is comprised of one new initiative:

(BA IN THOUSANDS)	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Pacific Regional Center	900	TBD	TBD	TBD	TBD

NOAA Construction: NOAA requests an increase of $900,000 and 0 FTEs to support the project management costs of the Main Facility being constructed at the new Pacific Regional Center (PRC) on Ford Island in Honolulu, HI. The Pacific Regional Center is a multi-phase, multi-year construction project to consolidate NOAA programs and operations (excluding the Honolulu weather forecast office) on the island of O'ahu into a single facility on federally-owned property at Ford Island. NOAA received funding in the American Recovery and Reinvestment Act of 2009 (P.L. 111-5) and the Omnibus Appropriations Act, 2009 (P.L. 111-8) to complete the building construction phase of the PRC project and achieve full consolidation of its operations on the island of O'ahu, Hawaii, with construction of the Main Facility. The FY 2012 request will support NOAA's project management costs to ensure effective oversight and execution of the project. The current projection for completion of the Main Facility is 2013.

Location of the new Pacific Regional Center (PRC), Ford Island, Honolulu, Hawaii

OFFICE OF MARINE AND AVIATION OPERATIONS $14,026,000

OMAO Fleet Replacement: NOAA requests an increase of $12,026,000 and 0 FTEs in the Program Support OMAO Fleet Replacement sub-activity for a total of $14,026,000 and 5 FTE. This increase is comprised of two new initiatives and one decrease:

(BA IN THOUSANDS)	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Repairs for KA and MF	12,626	TBD	TBD	TBD	TBD

Fleet Capital Improvements and Technology Infusion: NOAA requests an increase of $11,626,000 and 0 FTEs for highest priority repairs for the NOAA Ships *Ka'imimoana* and *Miller Freeman.* In FY 2009, NOAA conducted a dry dock and fleet inspection that revealed serious deterioration of critical shipboard systems on the *Ka'imimoana* (KA). At that time, it was discovered that the KA would not last to its schedule service life extension planned for FY 2020 with routine maintenance alone. The KA is the only vessel in the NOAA fleet capable of providing maintenance to the Tropical Atmosphere Ocean (TAO) Array, which provides critical El Niño/La Niña forecasting and climate science data. NOAA must make new capital investments beyond routine annual maintenance cycles to support the operational readiness and to ensure safe operations of the 24 year old vessel. With this request, NOAA will provide for highest priority repairs to structural and mechanical systems. OMAO will award a competitive contract for shipyard repairs with

NOAA Ship Ka'imimoana

NOAA Ship Miller Freeman

structural, mechanical and electrical focus areas. The *Miller Freeman* (*MF*) is one of the oldest ships in the NOAA fleet and recent assessments in FY 2009 confirmed the ship's continuing and rapidly deteriorating condition. The requested funds will accelerate a planned Major Repair Period for the *MF.* The *MF* currently supports major field programs, representing decades-long biological and oceanographic time-series in Alaska and off the West Coast. The loss of the ship would severely impact annual investments in important data collections and impede the advancement of NOAA science in the North Pacific. NOAA Fisheries has experienced loss of operating days due to mechanical breakdowns and shipyard delays. Without repair periods for these vessels, OMAO risks continued unplanned mechanical or infrastructure failures due to poor structural integrity that will result in lost days at sea and additional casualty reports. The condition of these ships may also jeopardize OMAO's ability to meet the ship certification requirements of the American Bureau of Shipping (ABS), the governing regulatory body for international voyages.

(BA IN THOUSANDS)	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Fisheries Survey Vessel (FSV 6)	1,400	TBD	TBD	TBD	TBD

NOAA's New San Diego-based Fisheries Survey Vessel (FSV-6)

New Vessel Construction: NOAA requests an increase of $1,400,000 and 0 FTE to provide project management and change margin funds for Fisheries Survey Vessel (FSV 6). FSV 6 will replace the retired vessel *David Starr Jordan* and perform acoustic surveys for fish and zooplankton and launch and recover a work boat in open seas. NOAA requires data collected at sea to achieve outcomes mandated by Congress and the economic impact is significant. The Magnuson-Stevens Fisheries Conservation and Management Reauthorization Act requires sufficient data to establish annual catch limits for fisheries. If sufficient data is not available, catch limits must be reduced from current levels with an estimated negative impact on the commercial fishing industry of up to $7 billion annually. With this increase, OMAO will procure continuity in the civilian expertise required to monitor and evaluate the contractor's progress during construction. The requested funding is necessary to complete construction and bring FSV 6 into operations.

(BA IN THOUSANDS)	FY 2012 REQUEST	FY 2013	FY 2014	FY 2015	FY 2016
Temporary Berthing	0	TBD	TBD	TBD	TBD

Temporary Berthing: NOAA requests a decrease of $1,000,000 and 0 FTEs for temporary berthing. Actual costs to berth *Bigelow* are substantially lower and will be accommodated within the Marine Operations and Maintenance-Marine Services activity in the ORF account.

CHAPTER 5

Mandatory & Discretionary Funds

DISCRETIONARY FUNDS

COASTAL ZONE MANAGEMENT FUND

The Coastal Zone Management Fund (CZMF) was established under the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508). The CZMF consists of loan repayments from the former Coastal Energy Impact Program. Loans under this program were made prior to 1992, but balances were not transferred to the General Fund in accordance with the Federal Credit Reform Act of 1990 (FCRA), even though the account effectively serves as a liquidating account. To resolve this inconsistency, the Budget proposes to cancel all balances in the Coastal Zone Management Fund, make future payments to the Fund subject to FCRA, and eliminate the annual transfer from this account to the Operations, Research, and Facilities account.

COASTAL IMPACT ASSISTANCE FUND

Congress authorized the Coastal Impact Assistance Program (CIAP) in 2001 to assist states in mitigating the impacts from Outer Continental Shelf (OCS) oil and gas production. Congress appropriated $150,000,000 in FY 2001 to seven coastal states: Alaska, California, Texas, Louisiana, Mississippi, Alabama, and Florida, to implement this program. Funds were expended according to Coastal Impact Assistance Plans developed by the states. NOAA was charged with implementing this program at the federal level. FY 2001 was the only year NOAA received an appropriation for these activities; however, NOAA continues to receive de-obligations from this grant program, which are deposited in this account.

FISHERMEN'S CONTINGENCY FUND

The Fishermen's Contingency Fund (FCF) program minimizes financial losses of the fishing industry caused by competing uses of the Outer Continental Shelf (OCS) and provides for timely resolution of claims by vessel owners. The FCF is authorized under Section 402 of Title IV of the Outer Continental Shelf Lands Act Amendments of 1978. NOAA compensates U.S. commercial fishermen for damage or loss of fishing gear, vessels, and resulting economic loss caused by obstructions related to oil and gas exploration, development, and production in any area of the Outer Continental Shelf. The funds used to provide this compensation are derived from fees collected by the Secretary of the Interior from the holders of leases, exploration permits, easements, or rights-of-way in areas of the Outer Continental Shelf. The FCF account is funded solely through user fees. Disbursements can be made only to the extent authorized in appropriation acts. In FY 2012 NMFS requests budget authority of $350,000 for the payment of claims filed by fisherman. These funds should be sufficient to cover the anticipated amount of claims for FY 2012.

FOREIGN FISHING OBSERVER FUND

The Foreign Fishing Observer Fund (FFOF) is financed through fees collected from owners and operators of foreign fishing vessels fishing within the Exclusive Economic Zone (EEZ) of the United States (such fishing requires a permit issued under the Magnuson-Stevens Fishery Conservation and Management Act). This includes longline vessels fishing in the Atlantic billfish and shark fishery and other foreign vessels fishing in the EEZ. The fund is used by NOAA to pay salaries, administrative costs, data editing and entry costs, and other costs incurred in placing observers aboard foreign fishing vessels. The observer program is conducted primarily through contracts with the private sector. NOAA/NMFS places these observers aboard foreign fishing vessels to monitor compliance with U.S. fishery laws and to collect fishery management data. Amounts available in the fund can be disbursed only to the extent and in amounts provided in appropriation acts. In FY 1985, Congress approved the establishment of a supplemental observer program. The program provided that foreign vessels without federally-funded observers are required to obtain the services of private contractors certified by the Secretary of Commerce. NOAA does not anticipate foreign fishing in the U.S. EEZ requiring funds from this account. In FY 2012, NOAA requests that $350,000 of the unobligated balance available be rescinded.

FISHERIES FINANCE PROGRAM ACCOUNT

The Fisheries Finance Program (FFP) Account is a national loan program that makes long-term fixed-rate financing available to U.S. citizens who otherwise qualify for financing or refinancing of the construction, reconstruction, reconditioning, and, in some cases, the purchasing of fishing vessels, shoreside processing, aquaculture, and mariculture facilities, and the purchase of individual fishing quota (IFQ). The FFP operates under the authority of Title XI of the Merchant Marine Act of 1936, as amended (46 USC 53701); Section 303(a) of the Sustainable Fisheries Act amendments to the Magnuson-Stevens Act; and, from time to time FFP-specific legislation. NMFS requests no increase for the FFP because these loans have a negative subsidy rate and no appropriated funds are required. However, specific loan ceilings for each type of loan authority within the FFP must be included in appropriation language or other bill language regardless of the need for cash appropriations. The FY 2012 budget proposal requests loan authority of $24 million for IFQ loans and $59 million for FFP traditional loans as authorized by the Merchant Marine Act. Three benefits will result from this action. First, the IFQ loan program is part of the Northwest Halibut and Sablefish and the Bering Sea and Aleutian Islands Crab limited entry fisheries management program that continues to stabilize these fisheries. This will also support the implementation of the crab IFQ loan required by the management plan approved by the North Pacific Fisheries Management Council. Second, FFP traditional lending is harvesting-capacity-neutral and supports qualified established U.S. seafood companies operating in a sustainable fisheries environment. Last, FFP lending to marine aquaculture facilities contributes to the development of a promising avenue of seafood production and greater economic sustainability from U.S. ocean resources.

PROMOTE AND DEVELOP FISHERIES PRODUCTS

The American Fisheries Promotion Act (AFPA) of 1980 amended the Saltonstall-Kennedy (S-K) Act to authorize a grants program for fisheries research and development projects to be carried out with S-K funds. S-K funds are derived from a mandatory transfer from the Department of Agriculture to NOAA from duties on imported fisheries products. An amount equal to 30% of these duties is made available to NOAA and, subject to appropriation, is available to carry out the purposes of the AFPA. The S-K grants program has provided substantial assistance to address impediments to the management, development, and utilization of the Nation's living marine resources. Each year a Federal Register notice is published

announcing the program. The annual notice outlines priority areas, such as research on reduction/elimination of bycatch and aquaculture. The remainder of the S-K funds, which are transferred as discretionary funds, are used to offset the appropriation requirements of the Operations, Research, and Facilities account.

PACIFIC COASTAL SALMON RECOVERY FUND

The Pacific Coastal Salmon Recovery Fund (PCSRF) was established by Congress in FY 2000 to address the listings of Pacific salmon and steelhead populations under the ESA and the impacts of the Pacific Salmon Treaty Agreement between the United States and Canada. Under the PCSRF, NMFS manages a program to provide funding to the states and tribes of the Pacific Coast region (Washington, Oregon, California, Idaho, Nevada, and Alaska) to implement projects that restore and protect salmonid populations and their habitats. Through FY 2010, over $880 million has been provided to nearly 9 thousand projects throughout the region that have made important contributions to improve that status of ESA-listed salmonids, preventing extinctions, and helping to protect currently healthy populations. In addition to the PCSRF federal funds, states provide significant matching funds through their grant allocation processes. Furthermore, the federal and state matching funds are supplemented by private and local contributions at the project level, including additional funding, volunteer time, and other in-kind donations. The FY 2012 President's Request includes $65,000,000 for this account.

MARINE MAMMAL UNUSUAL MORTALITY EVENT FUND

An unusual mortality event (UME) is defined under the Marine Mammal Protection Act as "a stranding that is unexpected; involves a significant die-off of any marine mammal population; and demands immediate response." In recent years, increased efforts to examine carcasses and live stranded animals have improved the knowledge of mortality rates and causes, allowing a better understanding of population threats and stressors and the ability to determine when a situation is "unusual." Understanding and investigating marine mammal UMEs is important because they can serve as indicators of ocean health, giving insight into larger environmental issues which may also have implications for human health and welfare.

Marine Mammal Protection Act Section 405 (16 USC 1421d) establishes the Marine Mammal Unusual Mortality Event Fund. The fund: "shall be available only for use by the Secretary of Commerce, in consultation with the Secretary of the Interior to compensate persons for special costs incurred in acting in accordance with the contingency plan issued under section 1421c(b) of this title or under the direction of an onsite coordinator for an unusual mortality event; for reimbursing any stranding network participant for costs incurred in preparing and transporting tissues collected with respect to an unusual mortality event for the Tissue Bank; and for care and maintenance of marine mammal seized under section 1374(c)(2)(D)." According to the MMPA, deposits can be made into the fund by the following: "amounts appropriated to the fund; other amounts appropriated to the Secretary with respect to unusual mortality events; and amounts received by the United States in the form of gifts, devises, and bequests under subsection (d) of this section."

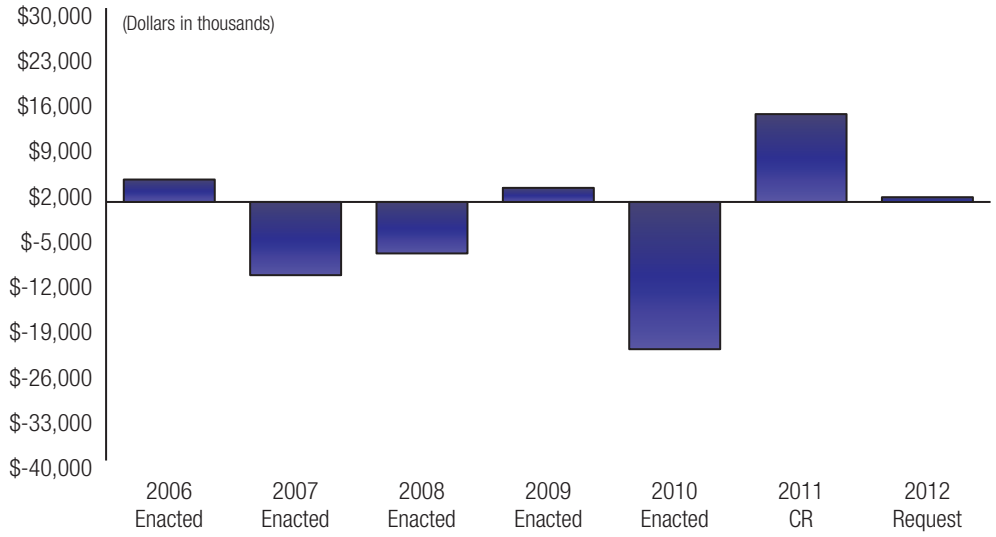
MEDICARE ELIGIBLE RETIREE HEALTH CARE FUND

The FY 2003 Department of Defense Authorization Act requires all uniformed services, including NOAA, to participate in an accrual fund for Medicare-eligible retirees. Payments into this accrual fund will cover the future health care benefits of present, active-duty NOAA officers and their dependents and annuitants.

OTHER DISCRETIONARY FUNDS

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
Other Discretionary Funds				
Fisherman's Contingency Fund	0	0	$350	$350
Foreign Fishing Observer Fund	0	0	(350)	(350)
Promote and Develop American Fisheries	(104,600)	(68,231)	(66,200)	38,400
Pacific Coastal Salmon Recovery Fund	80,000	80,000	65,000	(15,000)
Medicare Eligible Retiree Health Care Fund	1,822	1,822	1,936	114
Total Other Discretionary Funds (Budget Authority - BA)	**($22,778)**	**$13,591**	**$736**	**$23,514**
Total FTE	**1**	**1**	**1**	**0**

Budget Trends FY 2006-2012
Other Discretionary Funds (BA)



OTHER DISCRETIONARY REIMBURSABLE FUNDS

SANCTUARIES ENFORCEMENT ASSET FORFEITURE FUND

Sanctuaries Enforcement Asset Forfeiture Fund receives proceeds from civil penalties and forfeiture claims against responsible parties, as determined through court settlements or agreements, for violations of NOAA sanctuary regulations. Penalties received are held in sanctuary site-specific accounts from year to year as the funds are spent on resource protection within the sanctuary site where the penalty or forfeiture occurred. Funds are expended for resource protection purposes which may include all aspects of law enforcement (from equipment to labor), community oriented policing programs, and other resource protection and management measures such as the installation of mooring buoys or restoration of injured resources.

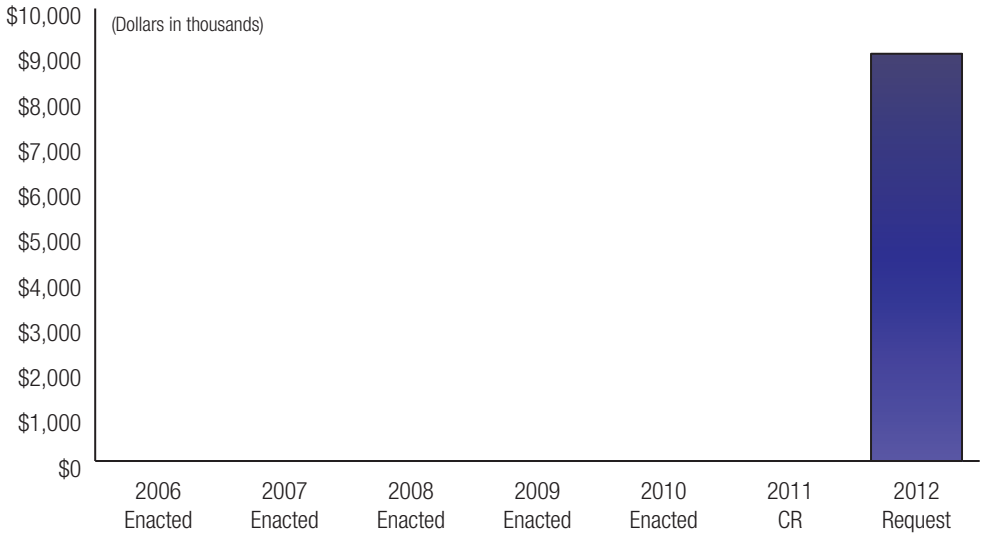
FISHERIES ENFORCEMENT ASSET FORFEITURE FUND

Section 311(e)(1) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) authorizes the Secretary of Commerce (Secretary) to pay certain enforcement-related expenses from fines, penalties and forfeiture proceeds received for violations of the Magnuson-Stevens Act, or of any other marine resource law enforced by the Secretary. Pursuant to this authority, the NOAA has established a Civil Monetary Penalty/Asset Forfeiture Fund (AFF). Certain fines, penalties and forfeiture proceeds received by NOAA are deposited into this fund, and subsequently used to pay for certain enforcement-related expenses. When Congress established the AFF it was deemed appropriate to use these proceeds to offset in part the costs of administering the enforcement program. Expenses such as: costs directly related to the storage, maintenance, and care of seized fish, vessels, or other property during a civil or criminal proceeding; reimbursement to other federal or state agencies for enforcement related services provided pursuant to an agreement entered into with the Secretary; and other limited uses as outlined in NOAA's Asset Forfeiture Fund policy. NMFS Office of Law Enforcement (OLE) manages the AFF, which is used by OLE and NOAA General Counsel for Enforcement and Litigation (GCEL) to pay for enforcement activities. NOAA is proposing language in FY 2012 to create this fund as described above.

OTHER DISCRETIONARY REIMBURSABLE FUNDS

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
Other Discretionary Reimbursable Funds				
Sanctuaries Asset Forefeiture Fund	0	0	$1,000	$1,000
Fisheries Asset Forfeiture Fund	0	0	$8,000	$8,000
Total Other Discretionary Reimbursable Funds (Budget Authority - BA)	**0**	**0**	**$9,000**	**$9,000**

Budget Trends FY 2006-2012
Other Discretionary Reimbursable Funds (BA)



MANDATORY FUNDS

COASTAL ZONE MANAGEMENT FUND

The Coastal Zone Management Fund (CZMF) was established under the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508). The CZMF receives loan repayments (mandatory) from the Coastal Energy Impact Program. In FY 2012 NOAA proposes to permanently cancel all balances in the CZMF and treat any future receipts in accordance with the Federal Credit Reform Act.

DAMAGE ASSESSMENT & RESTORATION REVOLVING FUND

The Damage Assessment and Restoration Revolving Fund (DARRF) was established in 1990 to facilitate oil and hazardous material spill response, damage assessment, and restoration activities for damages to natural resources for which NOAA serves as trustee. The fund receives proceeds from claims against responsible parties, as determined through court settlements or agreements. In FY 1999 and prior years, funds were transferred to the ORF account for the purposes of damage assessment and restoration. Beginning in FY 2000, funds were expended in DARRF and treated as mandatory budget authority.

DARRF facilitates and sustains: (1) natural resource damage assessment while the Departments of Commerce and Justice seek full reimbursement from potentially responsible parties, and (2) restoration, replacement, or acquisition of the equivalent of injured or lost natural resources, including resources of National Marine Sanctuaries and National Estuarine Research Reserves, tidal wetlands, and other habitats for which NOAA is trustee. These program functions are conducted jointly within NOAA by the Office of General Counsel, the National Ocean Service, and the National Marine Fisheries Service.

PROMOTE AND DEVELOP AMERICAN FISHERY PRODUCTS & RESEARCH PERTAINING TO AMERICAN FISHERIES FUND

The American Fisheries Promotion Act (AFPA) of 1980 amended the Saltonstall-Kennedy (S-K) Act to authorize a grants program for fisheries research and development projects to be carried out with S-K funds. S-K funds are derived from a mandatory transfer from the Department of Agriculture to NOAA from duties on imported fisheries products. An amount equal to 30% of these duties is made available to NOAA and, subject to appropriation, is available to carry out the purposes of the AFPA. The S-K grants program has provided substantial assistance to address impediments to the management, development, and utilization of the Nation's living marine resources. Each year a Federal Register notice is published announcing the program. The

annual notice outlines priority areas, such as research on reduction/elimination of bycatch and aquaculture. The remainder of the S-K funds, which are transferred as discretionary funds, are used to offset the appropriation requirements of the Operations, Research, and Facilities account.

FISHERIES FINANCE PROGRAM ACCOUNT

The mandatory component of the Fisheries Finance Program Account (FFP) Account authority is subject to the Federal Credit Reform Act of 1990 (FCRA) (2 U.S.C. 661). The FCRA requires estimated loan costs (FCRA cost) be appropriated in cash at the time Congress authorizes annual credit ceilings. FFP Account loan activity demonstrates that the FCRA subsidy is negative. Statutory authority is found in 46 U.S.C. 1274 and 16 U.S.C. 1801 et seq. FFP Account lending guidelines are found at Title 50, Code of Federal Regulations (CFR), Part 253, subpart B; and tempered by NOAA's sustainable fisheries policy and by the practical considerations of a program that has been self-sustaining throughout its credit history.

FEDERAL SHIP FINANCING FUND

This account manages the loan guarantee portfolio that existed prior to the enactment of the Federal Credit Reform Act of 1990.

ENVIRONMENTAL IMPROVEMENT & RESTORATION FUND

The Environmental Improvement & Restoration Fund (EIRF) was created by the Department of Interior and Related Agencies Appropriations Act of 1998 for the purpose of carrying out marine research activities in the North Pacific. These funds will provide grants to Federal, State, private or foreign organizations or individuals to conduct research activities on or relating to the fisheries or marine ecosystems in the North Pacific Ocean, Bering Sea, and Arctic Ocean.

LIMITED ACCESS SYSTEM ADMINISTRATION FUND

Under the authority of the Magnuson-Stevens Act Section 304(d)(2)(A), NMFS must collect a fee to recover the incremental costs of management, data collection, and enforcement of Limited Access Privilege (LAP) programs. Funds collected under this authority are deposited into the "Limited Access System Administrative Fund" (LASAF). Fees shall not exceed three percent of the ex-vessel value of fish harvested under any such program, and shall be collected at either the time of the landing, filing of a landing report, or sale of such fish during a fishing season or in the last quarter of the calendar year in which the fish is harvested. The LASAF shall be available, without appropriation or fiscal year limitation, only for the purposes of administrating the central registry system; and administering and implementing the Magnuson-Stevens Act in the fishery in which the fees were collected. Sums in the fund that are not currently needed for these purposes shall be kept on deposit or invested in obligations of, or guaranteed by the U.S. Also, in establishing a LAP program, a Regional Council can consider, and may provide, if appropriate, an auction system or other program to collect royalties for the initial or any subsequent distribution of allocations. If an auction system is developed, revenues from these royalties are deposited in the LASAF.

WESTERN PACIFIC SUSTAINABLE FISHERIES FUND

Section 204(e) of the 2006 amendments to the Magnuson-Stevens Fishery Conservation and Management Act authorizes the establishment of the Western Pacific Sustainable Fisheries Fund . This fund serves as a repository for any permit payments received by the Secretary of Commerce for foreign fishing within the U.S. EEZ around Johnston Atoll, Kingman Reef, Palmyra Atoll, and Jarvis, Howland, Baker and

Wake Islands, sometimes known as the Pacific Remote Island Areas (PRIA). Also, in the case of violations by foreign vessels occurring in these areas, amounts received by the Secretary attributable to fines and penalties shall be deposited into the fund. Foreign fishing is only allowed though a Pacific Insular Area Fishery agreement. Before entering into such an Agreement, the Western Pacific Fishery Management Council must develop a marine conservation plan that provides details on uses for any funds collected. Marine Conservation Plans must also be developed by the Governors of the Territories of Guam and American Samoa and of the Commonwealth of the Northern Mariana Islands and approved by the Secretary of Commerce or designee. Additionally, any funds or contributions received in support of conservation and management objectives under a marine conservation plan for any Pacific Insular Area other than American Samoa, Guam, or the Northern Mariana Islands shall be deposited in this fund.

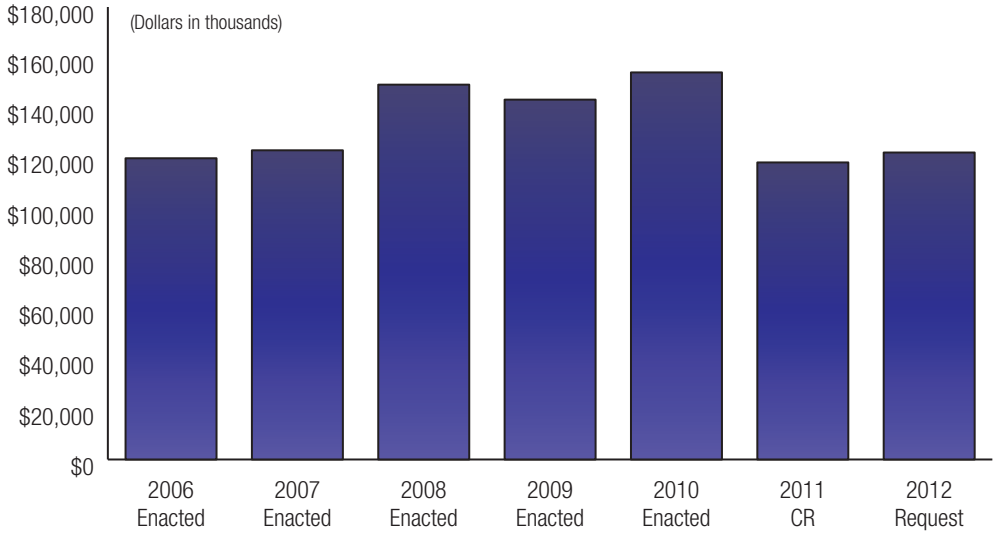
NOAA CORPS COMMISSIONED OFFICERS RETIREMENT

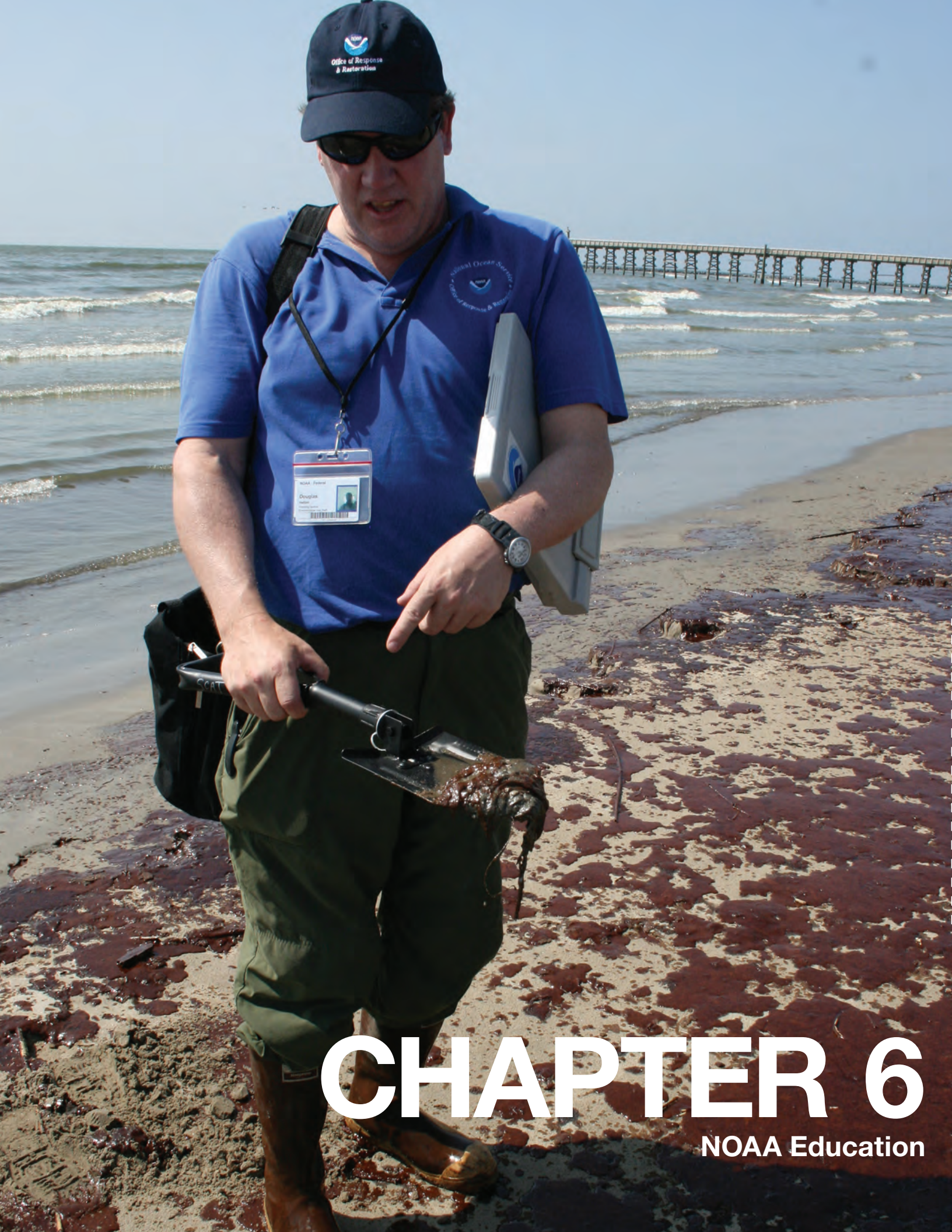
The retirement system for the uniformed services provides a measure of financial security after release from active duty for service members and their survivors. It is an important factor in the choice of a career in the uniformed services and is mandated by Federal statutes under Title 10, United States Code. NOAA transfers retirement pay funds to the Coast Guard, which handles the payment function for retirees and annuitants. Health care funds for non-Medicare-eligible retirees, dependents, and annuitants are transferred to the U.S. Public Health Service, which administers the health care program.

OTHER MANDATORY FUNDS

(DOLLARS IN THOUSANDS)	FY 2010 ENACTED	FY 2011 CR	FY 2012 REQUEST	INCREASE (DECREASE)
Other Mandatory Funds				
Coastal Zone Management Fund	($1,500)	($1,500)	($1,500)	$0
Damage Assessment & Restoration Revolving Fund	3,000	3,300	3,000	0
Promote and Develop American Fisheries Products	113,371	68,231	71,200	(42,171)
Fisheries Finance Program Account	5,777	9,910	0	(5,777)
Federal Ship Financing Fund	(740)	0	0	740
Environmental Improvement & Restoration Fund	506	378	1,467	961
Limited Access System Administration Fund	7,444	8,576	9,675	2,231
Western Pacific Sustainable Fisheries	0	1,000	1,000	1,000
NOAA Corp Commissioned Officers Retirement	26,116	28,269	28,269	2,153
Total Other Mandatory Funds (Budget Authority - BA)	**$153,974**	**$118,164**	**$113,111**	**($40,863)**
Total FTE	**20**	**20**	**20**	**0**

Budget Trends FY 2006-2012
Other Mandatory Funds





CHAPTER 6

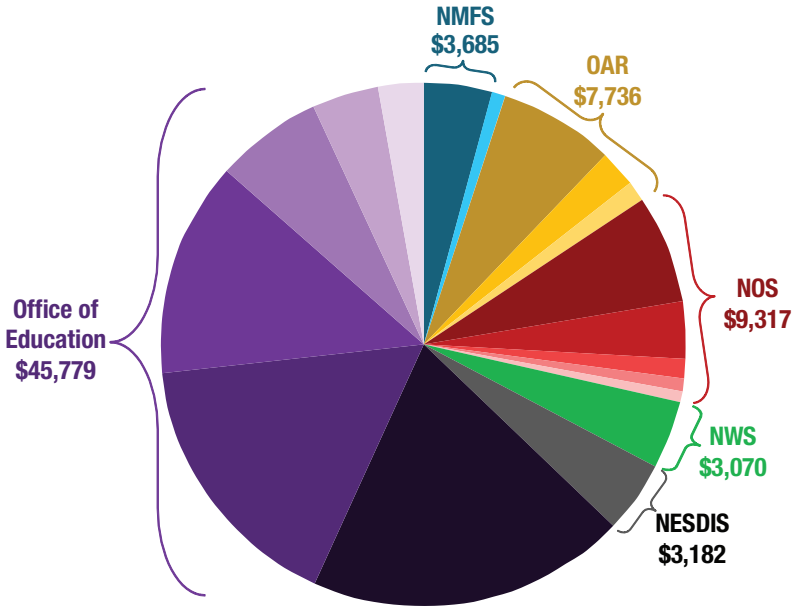
NOAA Education

NOAA'S EDUCATION MISSION

The America COMPETES Reauthorization Act, 2010 (P.L. 111-358) gives NOAA broad authority for educational activities. Stemming from this statute and other program-specific education mandates, the NOAA education community works collaboratively to advance the priorities outlined in NOAA's Education Strategic Plan and meet NOAA's Education Mission: "To advance environmental literacy and promote a diverse workforce in ocean, coastal, Great Lakes, weather, and climate sciences, encouraging stewardship and increasing informed decision making for the Nation." In FY 2010, NOAA's investment in education was $72.8 million, including congressionally directed spending–1.5% of the total NOAA enacted FY 2010 budget.

NOAA STEM Education Investment by Program for FY 2010, in $1,000s

Total Education Budget for FY 2010 = $72.8 Million



Office of Education (OED)
- Educational Partnership Program
- Environmental Literacy Grants
- Bay Watershed Education and Training (B-WET) Program
- Hollings Scholarship
- GLOBE Program
- OED Education Initiative

National Marine Fisheries Service (NMFS)
- NMFS Education
- Teacher at Sea Program

Office of Oceanic & Atmospheric Research (OAR)
- National Sea Grant Program
- Climate Communications and Education Program
- Ocean Exploration and Research

National Ocean Service (NOS)
- Office of National Marine Sanctuaries
- National Estuarine Research Reserve System
- Coral Program
- Nancy Foster Scholarship
- NOS Education

National Weather Service (NWS)
- NWS Education

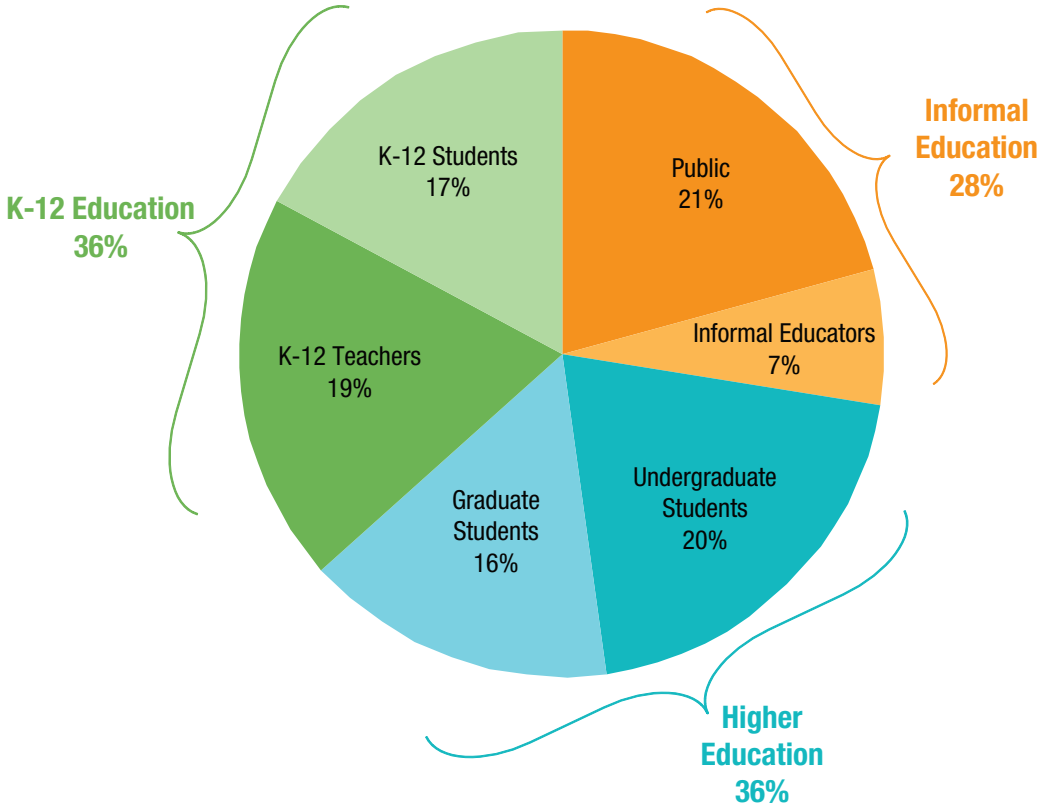
National Environmental Satellite, Data, and Information Service (NESDIS)
- NESDIS Education

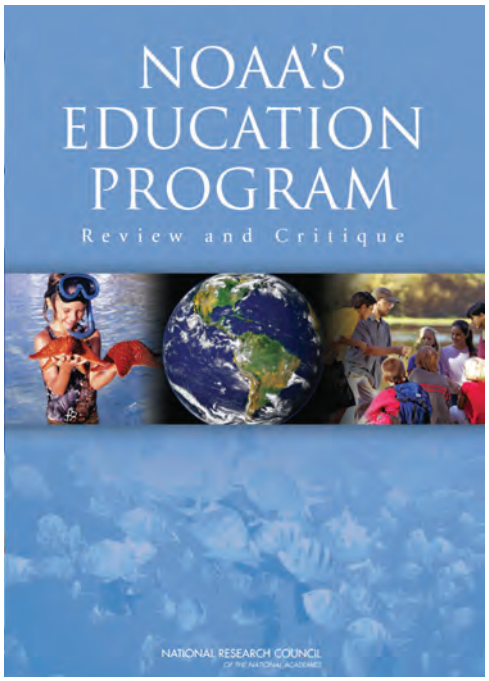
In FY 2012, NOAA estimates an investment of approximately $52.7 million in education funding, of which $20.8 million is for the Office of Education through the "Competitive Educational Grants and Programs" budget line. This request includes $14.4 million for the Educational Partnership Program, $5.0 million for the Competitive Education Grants Program and $1.4 million to pay for salaries and administrative costs. The balance of the FY 2012 NOAA Education request is within each line office.

WHO WE SERVE

NOAA has several formal and informal education programs and initiatives covering a wide range of Science, Technology, Engineering and Math (STEM) fields, including ocean, atmospheric, climate, and environmental sciences. Combined, these programs form a robust education portfolio that not only makes use of NOAA resources and capabilities, but also leverages those external to NOAA through a wide array of partnerships with schools, academic and education institutions, and other federal agencies, reaching several audiences across the Nation. NOAA education programs focus on connecting the public, students (K-12 through post-graduate) and educators across the country with NOAA-related sciences with the ultimate goal of increasing STEM competitiveness, promoting environmental literacy and helping to create a future workforce that reflects the diversity of the Nation. The following are just a few of NOAA's FY 2010 education accomplishments.

NOAA STEM Education Investment (FY'10) by Audience





National Research Council Report: "NOAA's Education Program Review and Critique"

NATIONAL ACADEMIES REVIEW OF NOAA EDUCATION

In 2008 NOAA contracted the National Research Council (NRC) of the National Academy of Sciences to perform a review of its education program and provide recommendations for optimizing NOAA's investment in education. The NRC report "NOAA's Education Program: Review and Critique" was released on March of 2010 (http://www.nap.edu/catalog.php?record_id=12867).

The report is very supportive of NOAA's education programs and commends NOAA for its leadership and role in STEM education. The report provides findings and excellent recommendations for moving forward in five areas: 1) NOAA's role in education; 2) Education goals and outcomes; 3) Composition and management of the education portfolio; 4) Education evaluation practices; and 5) Evidence of impact. NOAA is using the recommendations from this review to increase the overall efficiency and reach of its education efforts.

Students in the 2010 Class of the Educational Partnership Program's (EPP) Undergraduate Scholarship Program participating in NOAA Restoration Day activities.

EDUCATIONAL PARTNERSHIP PROGRAM

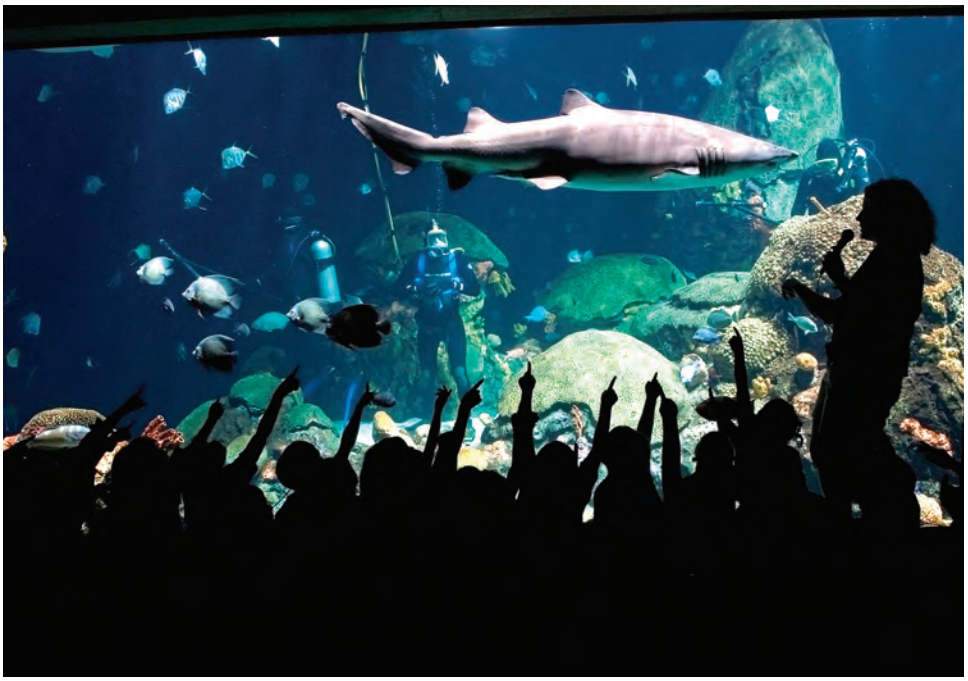
The Educational Partnership Program (EPP) with Minority Serving Institutions (MSIs) provides support primarily through grants for academic training, collaborative research, and experiential learning, through four competitive programs: Graduate Sciences Program (GSP), Undergraduate Scholarship Program (USP), Environmental Entrepreneurship Program (EEP), and Cooperative Science Centers (CSC). Students earn degrees while learning to conduct research in NOAA mission critical sciences. The program's goal is to increase the number of students, particularly from underrepresented communities, who are trained and graduate with degrees in NOAA mission critical fields, while strengthening NOAA's research capacity. Each of NOAA's five Cooperative Science Centers is led by an MSI. The EEP strengthens the capacity of MSIs to train underrepresented students in the NOAA sciences for careers; entrepreneurship opportunities in the application of NOAA science and technology; and advanced academic degrees in NOAA mission critical fields. For FY 2012, NOAA requests $14.4 million for the EPP.

FY 2010 Accomplishments:

FY 2010 EPP accomplishments include the recruitment of 10 students to USP, six students to GSP; and 132 Cooperative Science Center students graduating with STEM degrees. A total of 82 CSC students and two GSP trainees have been hired by NOAA. These students are working in very diverse areas of NOAA, for example, one student is a Research Meteorologist and works on projects that improve tropical cyclone forecasting in the National Weather Service at the National Center for Environmental Prediction.

The FY 2010 EEP-funded project entitled, "Greenproofing: Growing an Environmental Enterprise" is a student-driven demonstration and a business consulting venture. These entrepreneurs have gained real-life experience retrofitting existing buildings in the local Harlem, New York City community with green roofs.

For more information about EPP please visit: http://www.epp.noaa.gov/epp_about_us_page.html



Students observe the underwater environment at the Tennessee Aquarium. With the help of a 2009 ELG award, the Aquarium staff has reached over 23,000 underrepresented students through outreach programs and Experiential Learning Centers.

ENVIRONMENTAL LITERACY GRANTS PROGRAM

The Environmental Literacy Grants (ELG) program provides support to improve environmental literacy among our Nation's citizens and promotes a diverse workforce in ocean, coastal, Great Lakes, weather, and climate sciences, with the goal of encouraging stewardship and increasing informed decision making for the Nation. ELG funds a broad range of education projects implemented on regional to national scales, with a focus that alternates between informal and formal education. The program aligns with NOAA's mission goals and Education Strategic Plan and supports the President's "Educate to Innovate" campaign. ELG competitions also require robust project evaluation; promote best practices; complement other federal granting programs; emphasize partnerships that facilitate the integration of NOAA assets into education programs; and promote climate, ocean, and atmospheric literacy. For FY 2012, NOAA requests $5.0 million for Environmental Literacy Grants.

FY 2010 Accomplishments:

Since 2005, 76 competitive awards totaling $40.6M have been granted, supporting a wide range of project types. Demand for these awards is very high, and in FY 2010, 357 letters of intent and 95 full applications were reviewed. With the available funding, 17 new awards were made. In addition, NOAA also funded nine continuing awards initiated in FY 2009. The FY 2010 awards, which emphasize informal and nonformal science education, support projects that enhance or expand museum exhibits using data visualization; expand public participation in science; develop family programs for underserved/underrepresented audiences; and enhance teen environmental education programs. For example, the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS),a citizen science network that engages volunteers in precipitation monitoring in all 50 states, is using its 2010 ELG award to advance the use of interactive advanced technologies to improve climate literacy among a broader, younger, and more diverse audience (www.cocorahs.org).

For additional information about the ELG Program please visit: http://www.oesd.noaa.gov/elg/elg_projects.html

Class of 2010 Ernest F. Hollings Scholars at the Cooperative Oxford Laboratory.

ERNEST F. HOLLINGS UNDERGRADUATE SCHOLARSHIP PROGRAM

The Ernest F. Hollings Scholarship Program provides successful undergraduate applicants with up to two years of academic assistance and one 10-week NOAA internship that provides "hands-on" experience in NOAA-related science, research, technology, policy, management, and education activities. The Program's goals are: to increase undergraduate training in oceanic and atmospheric science, research, technology, and education; foster multidisciplinary training opportunities; increase public understanding and support for stewardship of the ocean and atmosphere and improve environmental literacy; recruit and prepare students for public service careers with NOAA and other natural resource and science agencies at the federal, state and local levels of government; recruit and prepare students for careers as educators in oceanic and atmospheric science; and to improve scientific and environmental education in the United States. The Ernest F. Hollings Undergraduate Scholarship Program is funded by an assessment of one-tenth of one percent of NOAA's overall appropriation. At the FY 2012 request level for NOAA, the program will receive $5.6 million.

FY 2010 Accomplishments:

In FY 2010 the program selected 139 students from 43 states and territories. Twenty-five of the 2010 Hollings Scholars attend Minority Serving Institutions. Students participated in internships across NOAA from Alaska to American Samoa. Students were trained in research areas related to NOAA mission critical sciences, including: shark research, numerical models that predict severe storms, tsunamis, precipitation estimates, climate variability, restoration of coral reefs, coasts and Great Lakes region, and oil spill cleanup.

For more information about the NOAA Hollings Scholarship Program please visit: http://www.oesd.noaa.gov/Hollings_info.html

District of Columbia high school student studies blue crabs in the Chesapeake Bay to help prepare for National Ocean Science Bowl.

NATIONAL MARINE FISHERIES SERVICE EDUCATION

The National Marine Fisheries Service (NMFS) education program translates marine science and management information into learning tools and opportunities for educators, students, and families. NMFS staff in 32 regional offices, science centers, and laboratories, reach thousands of teachers and students via hands-on science experiences inside and outside the classroom, professional develop opportunities through the National Science Teachers Association, internships, graduate and undergraduate programs, and resource materials. For FY 2012, NOAA estimates investing approximately $3.3 million in FY 2012 funds on NMFS education.

FY 2010 Accomplishments:

In 2010, NMFS and the National Ocean Service produced the first interactive video game on sea turtles, using innovative technology to meet a recovery action for threatened Loggerhead turtles. Geared toward students in grades 5-9 and educators, the game teaches the biology and life history of the loggerhead, while having students balance the resources needed to save the species. In addition, over 3,000 students engaged in conservation education activities about the critically endangered Right whale and endangered sea turtles. Across the country, NMFS also provided several hundred laboratory internship experiences for high school and university students. At the Partnership Education Program in Woods Hole, Massachusetts, students from diverse backgrounds and Minority Serving Institutions attended summer long classes and completed research with NOAA Fisheries scientists on topics such as Age/Growth Analysis of Yellowtail Flounder from Mark-Recapture Study and Fecundity and Histology of the Monkfish. At the Alaska Fisheries Science Center, interns worked with local scientists to conduct field and lab work aboard vessels and on research sites. Recent projects included collection and analysis of acoustic data on juvenile walleye Pollock and assisting with life history studies of California sea lions via behavior observations on California's San Miguel Island.

For more information about NMFS Education please visit: http://www.nmfs.noaa.gov

NOAA Teacher at Sea, Nicolle von der Heyde, weights and measures a Warsaw Grouper during a reef fish survey in the Gulf of Mexico on NOAA Ship *Pisces.*

TEACHER AT SEA PROGRAM

Since 1990, NOAA's Teacher at Sea Program has provided hands-on research experiences to teachers aboard NOAA ships working throughout the Nation's waters. In FY 2010, 31 teachers completed research cruises and now make up a portion of over 600 alumni from around the country who are using NOAA science and data in the classroom, reaching thousands of students each year. One of the 2010 teachers summed up her participation in the program by saying that "The Teacher at Sea experience was one of the most enriching and rewarding of my life. Without this program I never would have had the opportunity to work closely with scientists as a member of a research team. I am now able to communicate confidently with my students and the general public firsthand about the importance of ocean conservation, and the ongoing work of research scientists." For FY 2012, NOAA estimates investing approximately $0.6 million for the Teacher at Sea Program.

FY 2010 Accomplishments

NOAA's Teacher at Sea Program also piloted three other components in FY 2010 - Teacher in the Lab, Teacher in the Field, and Teacher in the Air. Teachers were placed for three to six weeks in laboratories, field sites, and on aircraft, respectively. In all four program components, elementary through college-level teachers work side-by-side with scientists in order to introduce real-world scientific research into their classrooms. Teachers who participate develop education products they use in their own school districts and that they share with other schools around the nation.

This year also marked the first external evaluation of the program. The evaluation concluded that "as a result of the NOAA Teacher at Sea Program, educators are changing their teacher behavior related to NOAA science and they now use NOAA data in their curricula development, discuss the career opportunities that support NOAA's mission, and provide their students with real-world examples of scientific research."

For more information about NOAA's Teacher at Sea Program please visit: http://teacheratsea.noaa.gov

Students learn about aquatic plants on the R/V *Clinton* during a Great Lakes Education Program (GLEP) cruise on the Detroit River. The GLEP program is designed to stimulate interest in the Great Lakes and help students understand their role in protecting these vital freshwater resources.

NATIONAL SEA GRANT COLLEGE PROGRAM

The National Sea Grant College Program's well-established Sea Grant Education Network (SGEN) consists of professional educators working at universities across the Nation to further NOAA's education goals of advancing environmental stewardship and workforce development. SGEN provides pre-college teachers with enhanced science content knowledge, instructional skills, and high-quality curricula for teaching students about watersheds, climate change, coastal processes, organisms and habitats, technology, ocean and Great Lakes literacy and marine and aquatic sciences. For FY 2012, NOAA estimates investing approximately $5.2 million for the SGEN.

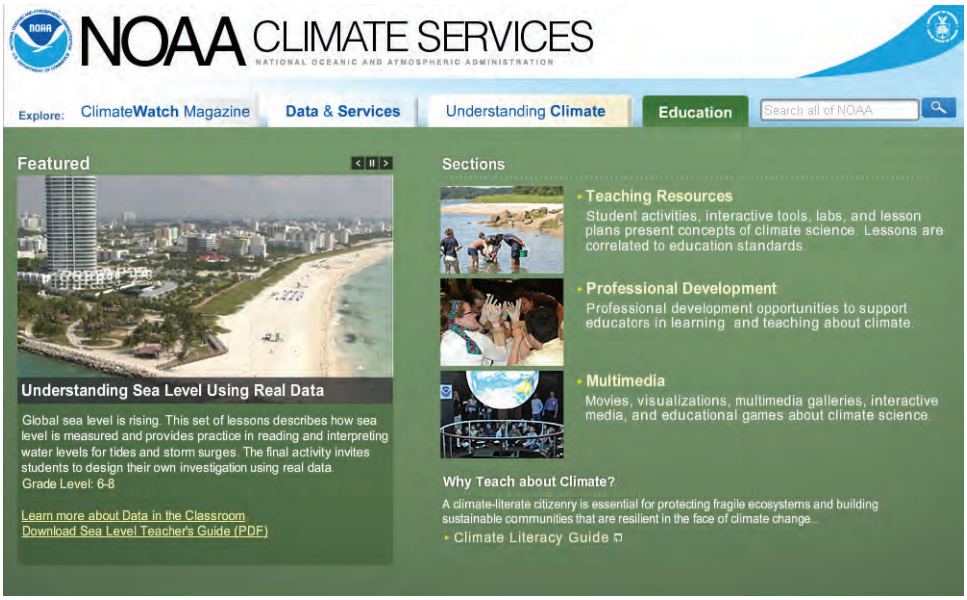
FY 2010 Accomplishments:

During FY 2010, the SGEN conducted inquiry-based instruction for 5,851 teachers and 3,840 informal educators, and reached 380,875 students through those educators as well as through direct contact with Sea Grant Educators. The SGEN also developed 406 curricular activities ranging from lesson plans that encourage students to hone math and science skills by graphing and analyzing scientific data from NOAA data sets, to hands-on activities designed to teach teachers and/or students basic science principles such as buoyancy and water displacement, to online educational tools intended to promote increased environmental awareness.

SGEN also co-sponsors The Bridge (http://web.vims.edu/bridge/) - an extensive web-based marine education center offering more than 1,000 teacher-reviewed, classroom-friendly resources. Sea Grant is unique because it is required to match every $2 of federal funding with $1 of non-federal funds – with many state programs far exceeding this match. In FY 2010, 87% of SGEN funds were matched with non-federal funds. By leveraging additional money, Sea Grant expands the reach and effectiveness of NOAA and other partners in planning for and managing the future of America's ocean, coastal, and Great Lakes resources while, in turn, ensuring that the country receives the maximum benefit from every dollar invested in Sea Grant.

For more information on the SGEN please visit: http://www.seagranted.net

The Climate Portal prototype only scratches the surface of the many climate datasets, products, services, and educational resources available across NOAA and the federal government. This effort will gradually transition from a prototype to an operational status over the next year. The goal for the Portal is to become the "go-to" website for NOAA's and our partner's climate data, products, and services for all users.



CLIMATE COMMUNICATIONS AND EDUCATION PROGRAM

The NOAA Climate Communications and Education Program seeks to improve public climate science literacy and to raise public awareness and understanding of, and engagement with, NOAA's climate science and services programs. Climate Education produces and distributes a range of products, conducts programs, and collaborates in partnerships designed to help NOAA fulfill its climate goal (http://www.climate.noaa.gov/education/). For FY 2012, NOAA estimates investing approximately $3.0 million for the Climate Communications and Education Program.

FY 2010 Accomplishments:

- Developed the Climate Services Portal prototype (www.climate.gov) to support research and public education.
- Provided a variety of climate and related focused online learning experiences through partnerships with a variety of NOAA education programs and the National Science Teachers Association. Since May 2006, NOAA has sponsored and archived 35 90-minute live web seminars, which reach on average 50 teachers per seminar, thus providing virtual "in-person" support for approximately 1,750 teachers.
- Co-developed the CLEAN: the Climate Literacy and Energy Awareness Network Pathway, a digital resource for teaching about climate science, climate change and energy awareness – resources are reviewed by educators and scientists, annotated and aligned with national education standards (http://www.cleanet.org/).
- Increased programmatic coordination across the federal agencies through leadership at the US Global Change Research Program.
- Coordinated the development of the 2010 Climate Action Report's chapter on Education, Training, and Outreach (http://www.state.gov/g/oes/rls/rpts/car5/index.htm).
- Supported the Climate and Society Master's Program to enable understanding of climate science, decision processes, and social needs to deliver management strategies that incorporate climate.

Teachers participate in a day-long professional development institute in NOAA's Ocean Exploration and Research Program at the National Aquarium in Baltimore as they learn how hydrothermal vents are formed on the deep-sea floor.

OCEAN EXPLORATION AND RESEARCH PROGRAM

NOAA's Office of Ocean Exploration and Research is committed to engaging educators and their students in near-real time ocean exploration to raise America's environmental literacy and interest in the science, technology, engineering, and mathematics (STEM) disciplines. The program offers onsite and online opportunities for educators to learn about ocean exploration and how they can use STEM content associated with exploring the poorly-known ocean in classrooms. Educational offerings incorporate scientific data to introduce educators to ocean scientists and explorers, their research and deep-sea explorations. They also equip educators with exemplary tools and other resources that intrigue students in the world of ocean discovery. For FY 2012, NOAA estimates investing approximately $0.9 million on Ocean Exploration and Research Program education activities.

FY 2010 Accomplishments:

In FY 2010, educators and students learned about the first Federally-dedicated ship for ocean exploration, the NOAA Ship Okeanos Explorer, through new inquiry-based teaching materials that teach students about ocean exploration, the technologies used to explore the ocean, and what scientists might expect to find. Approximately 700 teachers received intensive onsite professional development (approximately 5,000 total teacher contact hours), reaching approximately 78,000 students. A total of 1,072 educators participated in the "Why Do We Explore?" online professional development offering, representing 45 states and 29 countries.

Formal evaluation of the program has shown that educators are very complimentary of the professional development offerings and that their content knowledge increases. After the course, one of the teacher participants said: "...I've been attending NOAA Online professional development courses since 2003, this one was truly the BEST! The presentations and organization of the information...allowed for a much deeper understanding and appreciation of the world in my front yard."

For more information about the Ocean Exploration and Research Program please visit: http://oceanexplorer.noaa.gov/edu/welcome.html

NOAA Office of National Marine Sanctuaries Educator, Dawn Hayes, conducting a water quality monitoring session at the Dive into Education Ocean Science Workshop in American Samoa.

OFFICE OF NATIONAL MARINE SANCTUARIES

National marine sanctuaries are living classrooms where people can see, touch and learn about our nation's spectacular marine life and rich maritime history. Since 1972, the NOAA Office of National Marine Sanctuaries (ONMS) has been federally mandated to promote STEM education through 13 national marine sanctuaries and one marine national monument. Through hands-on activities, teacher workshops, curricular materials, field studies, multicultural programs and innovative technology, the sanctuary system instills an ocean ethic that touches the hearts and minds of millions of people each year. For FY 2012, NOAA estimates investing approximately $4.2 million for ONMS education activities.

FY 2010 Accomplishments:

Highlights for FY 2010 include the Dive into Education Ocean Science Workshop hosted in American Samoa, which brought together 19 educators from the sanctuary system to conduct a two-day workshop with hands-on sessions for over 100 K-12 teachers. These sessions provided educational expertise, resources and training to support ocean and climate literacy in the classroom. An evaluation determined that 92% of teachers indicated they plan to use the educational materials produced by NOAA in their classroom, and 87% feel confident in their ability to incorporate ocean literacy principles into their classroom.

In FY 2010, the MERITO program, a multi-cultural education program, received the prestigious DOC Silver Medal Award. This program provides under-served students with hands-on, inquiry-based in-class and field activities. In addition, the NOAA ONMS finalized a 10-year education strategic plan (2010-2020), accompanied by a five-year implementation plan.

For more information about national marine sanctuaries education programs visit: http://sanctuaries.noaa.gov/education.

Students collect glass eels on several Hudson River tributaries as part of a "citizen science" project led by the Hudson River NERR (NY). In 2010 approximately 250 citizen-scientists participated and collected baseline information on migrating patterns of over 11,000 juvenile American eels in Hudson River tributaries.

Student's comments demonstrate their excitement for the project:

"It's taught me that I share my waters with awesome eels!"

"It has taught me that eels are smart and word spreads of the giant net in the river"

"I feel that I help the earth by doing the eel project"

Project website: http://www.dec.ny.gov/lands/49580.html

NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

The National Estuarine Research Reserves System (NERRS) aims to increase participant's environmental literacy and ability to make science-based decisions related to estuaries and coastal watersheds. Through NERRS education programs, students, teachers and community members gain real-world opportunities to acquire first-hand understanding of local estuary and coastal issues, use data from the Reserve System's System-Wide Monitoring Program, and develop the skills and motivation to become life-long leaders in addressing environmental issues. Research Reserves protect more than 1.3 million coastal and estuarine acres in 28 reserves located in 22 states and Puerto Rico for purposes of long-term research, education and stewardship. For FY 2012, NOAA estimates investing approximately $2.4 million for NERRS education activities.

FY 2010 Accomplishments:

In FY 2010, NERRS conducted 2,200 K-12 programs and trained 3,500 K-12 teachers. The Teachers on the Estuary Program provided several success stories of teachers and students working in their communities to improve conditions in their local watersheds and estuaries. For example, Patricia Busse was a participating teacher whose students, all 12th graders in AP Chemistry, set out to build and install monofilament fishing line recovery bins at fishing piers and boat ramps to encourage anglers to cast their used lines in these safe receptacles instead of allowing them to end up, even accidentally, in the Narragansett Bay.

In FY 2010, NERRS also conducted field-based programs for 80,000 K-12 students involving them in "citizen-science" projects. Reserves act as "living laboratories" giving volunteers opportunities to work alongside researchers and coastal educators. At the end of 2010, volunteers had contributed over 104,500 hours to various on the ground projects. Also in FY 2010, a Wisconsin Reserve was added to the System and a new educational interface was launched to support educators in using real-time data, from all 28 Reserves

For more information on the NERRS Program, visit: http://www.estuaries.gov/estuaries101/ScienceData/Home.aspx

Coral Reef Conservation Program staff conducting an ocean acidification demo, explaining how it impacts coral ecosystems, at the National Mall as part of "Hands Across the Ocean" event.

CORAL REEF CONSERVATION PROGRAM

The Coral Reef Conservation Program (CRCP) works closely with states and U.S. territories to address climate change, adverse impacts of fishing, and land-based sources of pollution that damage reef ecosystems. The program has a congressional mandate to conduct education and outreach activities to enhance public understanding and appreciation of coral reefs. Using Coral Reef Conservation Act funds, the program conducts localized education activities in the seven U.S. coral jurisdictions as well as assisting educators nationwide. For FY 2012, NOAA estimates investing approximately $0.8 million for CRCP education activities.

FY 2010 Accomplishments:

During FY2010, CRCP funded and led the ongoing development of an ocean acidification (OA) Data-in-the-Classroom project, among the first efforts to link real-time OA data to tailored lesson plans, supported by a dedicated database delivering science data over a teacher/student web interface. CRCP also funded fellowships in seven U.S. coral jurisdictions (Florida, US Virgin Islands, Puerto Rico, Hawaii, Commonwealth of the Northern Mariana Islands, Guam and American Samoa) that provide post-graduate opportunities and professional development while supporting local coral reef management projects. In the Pacific region, coral fellows organized and managed a six-week planting period, leading volunteers in the planting of nearly 25,000 grass and tree seedlings, coordinated a regional Climate Change summit to assist in local adaptation measures, and led a "Guardians of the Reefs" school program involving thousands of students in coral stewardship. In the Caribbean region, coral fellows advanced sustainable tourism planning and user assessments, led contractor training to reduce impacts from coastal construction, and initiated events bringing local communities closer to their reefs with plastic reduction campaigns and cultural events.

Also in FY 2010, CRCP programs hosted student interns, involving them in coral immune system research and experimental restoration efforts in floating nursery structures.

For more information about CRCP please visit: http://coralreef.noaa.gov/education/

Five of seven 2010 Class of Dr. Nancy Foster Scholarship Recipients.

DR. NANCY FOSTER SCHOLARSHIP PROGRAM

The Dr. Nancy Foster Scholarship Program recognizes outstanding scholarship and encourages independent graduate level research, particularly by female and minority students, in oceanography, marine biology and maritime archaeology. The scholarship provides a 12-month stipend, an annual cost-of-education allowance, and support for each scholar to conduct a four-to six-week research collaboration at a NOAA facility. Masters students may be supported for up to two years, and doctoral students for up to four years. At the FY 2012 request level for the National Marine Sanctuaries Program, the Dr. Nancy Foster Scholarship Program will receive $0.5 million.

FY 2010 Accomplishments:

Seven new scholarships were awarded in FY 2010. Some of the research activities by Nancy Foster Scholars will include how whales perceive objects and respond to sound as this can assist in development of a ship-alert device to prevent whale fatalities, and encourage international marine policies to reduce man-made noises. Also, investigating how sewage contamination of the reef environment can be monitored using sponges and coral as indicators will assist the Florida Keys National Marine Sanctuary with coral reef management and water quality research. Of the 47 total Dr. Nancy Foster Scholarships, 42 have been awarded to women; one recipient is now a Federal Employee, and three recipients are contractors to NOAA.

For more information about the Nancy Foster Scholarship Program, please visit: http://fosterscholars.noaa.gov/aboutscholarship.html

Educators in the Climate Stewards project attended the NOAA Symposium on Climate change at the National Science Teachers Conference and learned about the impacts of climate change on coral reef organisms and ecosystems.

NATIONAL OCEAN SERVICE EDUCATION

The National Ocean Service (NOS) Education team serves educators and students through websites and programs that promote environmental literacy using ocean, coastal, and climate science. Tools for teachers and resources for students are posted at http://oceanservice.noaa.gov/education. For FY 2012, NOAA estimates investing approximately $0.5 million for NOS education activities.

FY 2010 Accomplishments:

The Climate Stewards pilot project was started in FY 2010 and provided professional development opportunities to formal and informal educators and citizen scientists to increase climate literacy. The project is managed by NOS and welcomed a first group of 25 educators from 14 states for the pilot year. Participants include educators from K-12 schools, community colleges, broadcast meteorologists, and informal institutions. NOAA education programs from all line offices have provided planning and financial support for web seminars, conference symposia, online classes, mini-grants, and workshops to help participating educators understand climate science and implement stewardship action plans. An electronic library and multiple professional development opportunities were made available for the Climate Stewards and other educators through a partnership with the National Science Teachers Association.

NOS and National Marine Fisheries Service (NMFS) co-produced and launched the second online educational game in the WaterLife series, "Sea Turtles and the Quest to Nest" (http://games.noaa.gov/seaturtle/welcome.html) in early 2010. The Web-based game encourages loggerhead sea turtle conservation through a series of animations aimed at 4th–7th grade students, asks the player to take the role of six stakeholders to better understand the threats to sea turtles in the ocean and on the land, and provides students with ideas on how their behavior can have a positive impact on the nesting success of loggerheads.

For more information on NOS Education please visit: http://games.noaa.gov

Boy Scouts and NWS Meteorologist participate in Weather Merit Badge Training at the 2010 BSA Jamboree, Fort A.P. Hill, VA.

NATIONAL WEATHER SERVICE EDUCATION

A goal of National Weather Service (NWS) education is to minimize fatalities and injuries from severe weather. NWS educates different segments of the American population. The NWS public education programs include the Storm Spotter and StormReady programs, support to the FEMA Citizens Corps Program, and school visits and public awareness campaigns such as Hurricane and Lightning Awareness Weeks. For FY 2012, NOAA estimates investing approximately $2.9 million for NWS education activities.

FY 2010 Accomplishments:

In FY 2010 the NWS conducted 2,500 school visits engaging students in weather and safety information. Adult education is accomplished through the Storm Spotter Program. There are over 250,000 storm spotters in the country. The Storm Spotter Program trains local citizens to recognize severe weather in their local community and report those events to the local NWS Forecast Office.

The American Meteorological Society (AMS) NWS partnership trained over 900 new science teachers in weather forecasting, hydrology, climate, and NWS operations. Over 870 were trained through the DataStreme Atmosphere and Ocean teacher-enhancement courses conducted in fall semester 2009 and spring semester 2010, and 45 were trained at the summer 2010 Project Atmosphere and Maury Project workshops. The trained teachers share their atmospheric training with other science teachers (Teacher In-Service Days) in their school districts, assist education officials within their community on weather safety procedures and teach fundamentals of meteorology to their students.

At the 2010 Boy Scout Jamboree, the NWS awarded 228 Weather Merit Badges during the event. In addition, Boy Scouts participated in the daily launching and tracking of a weather instrument package which collects weather information during its ascent.

For more information about the NWS please visit: http://www.weather.gov/

Leesha Saunders of NOAA NESS explains how satellite data impacts daily weather forecasting and environmental monitoring at the Girl Scout's Linking Girls to the Land Eco-Expo, Ft. Wash., MD, April 18, 2010.

NATIONAL ENVIRONMENTAL SATELLITE SERVICE EDUCATION

NOAA's National Environmental Satellite Service (NESS) provides timely access to global environmental data to promote, protect, and enhance the Nation's economy, environment, and quality of life. NESS promotes cultural understanding and public awareness of NOAA sciences through nine offices and four data centers. For FY 2012, NOAA estimates investing approximately $1.9 million for NESS education activities.

FY 2010 Accomplishments:

In FY 2010, NESS conducted 115 presentations and 2 environmental literacy webinars reaching approximately 8,000 students (including Girl Scouts) and 2,500 teachers via tours, camps, fairs, conferences, public events, and developmental workshops. These presentations were given on Careers in STEM; Satellites; Climate; Satellite Resources and Opportunities for Educators; New Satellite Educational Products; and Using Data Visualization in the Classroom. Both educational sessions were hands-on in the subject areas of atmospheric, environmental and climate activities. The Girl Scouts were given briefings, demonstrations, and materials to support several badge requirements.

Partnerships with NASA, National Science Teachers Association, Federation of Earth Science Information Partners, and the Institute for Disabilities Research and Training, Inc., in FY 2010 resulted in the creation of six educational hands-on tools on hurricane, climate, sea surface temperature, and satellites. These specific subject matter handouts or kits included imagery, frequently asked questions, activities, posters, CDs or DVDs, and lists of resources.

NESDIS also produced two new environmental education resources in English, Spanish and American Sign Language; one new atmospheric science (K-12) activity book and over 45,000 STEM materials distributed to constituents. These products introduce, reinforce, and validate the learning and information that was taught and provides students a continued learning experience doing down time in the classroom.

For more information on NESDIS please visit: http://www.nesdis.noaa.gov

B-WET California student participates in sand dune restoration with the Beach Garden Dune Project in 2010.

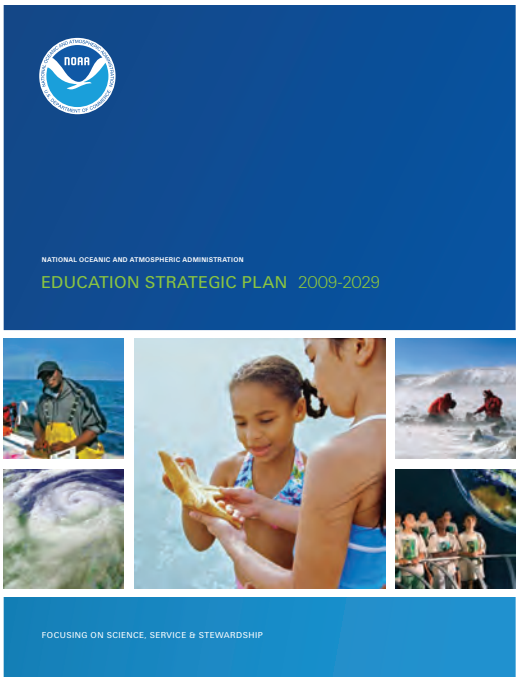
CONGRESSIONALLY DIRECTED NOAA EDUCATION PROJECTS

NOAA's education program has also received additional funds provided by Congress to increase environmental and ocean literacy. The Bay Watershed Education and Training Program (B-WET) and the Global Learning and Observations to Benefit the Environment (GLOBE) Program are two examples of NOAA's Congressionally-directed projects in FY 2010.

In FY 2012, NOAA is requesting a decrease of $17,870,000 for NOAA Education. This includes congressionally directed projects in the NOAA Education Initiative ($713,000), Competitive Education Grants ($6,957,000), B-WET ($7,200,000), and GLOBE ($3,000,000). The FY 2012 President's Request provides funds for NOAA's broader Competitive Education Grants Program.

For more information about the B-WET Program please visit: http://www.oesd.noaa.gov/BWET/

For more information about the GLOBE Program please visit: www.globe.gov



NOAA's *Education Strategic Plan (2009-2029)* is directly tied to NOAA's mission: "Science, Service and Stewardship - To understand and predict changes in climate, weather, oceans, and coasts, to share that knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources."

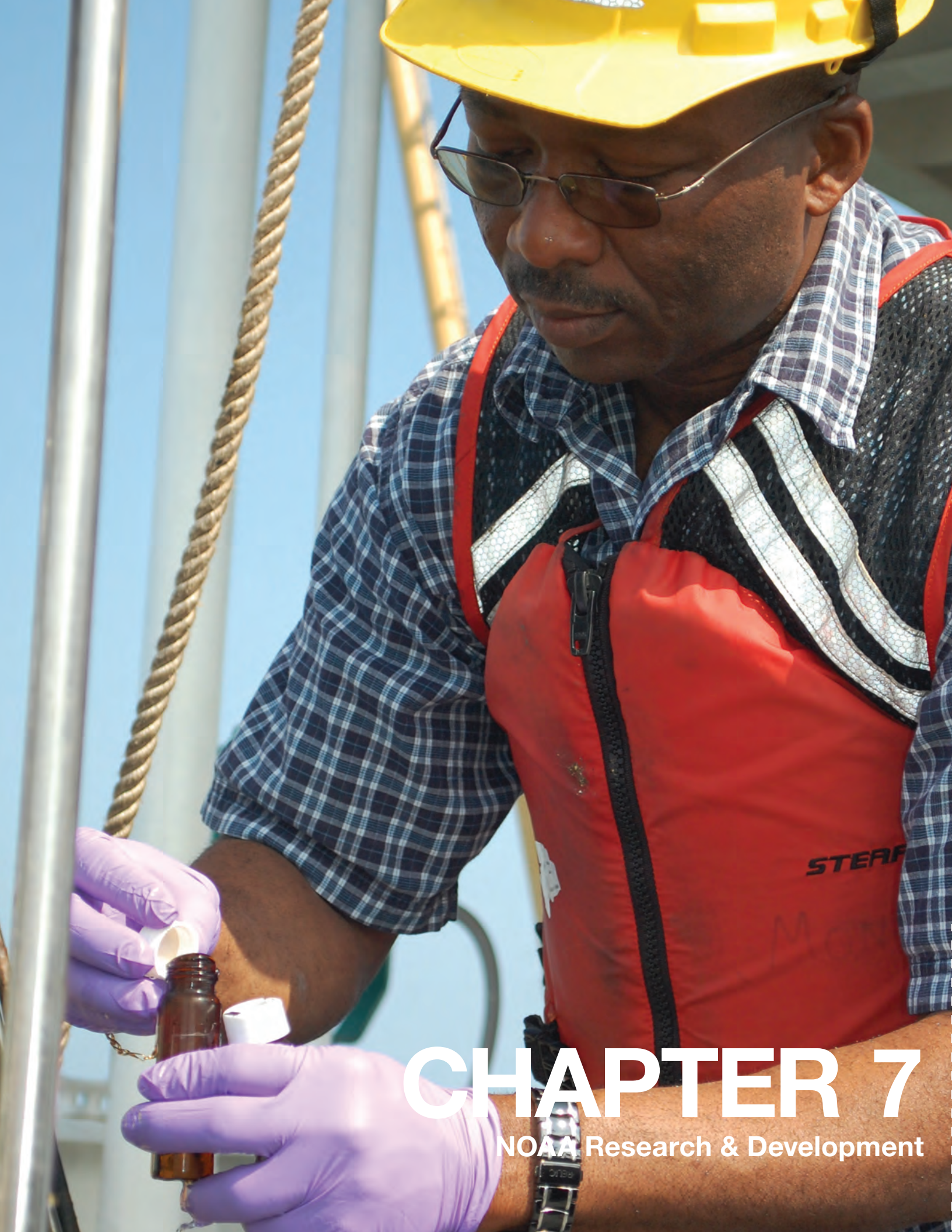
LOOKING AHEAD INTO FY 2012

NOAA's new strategic plan places a strong emphasis on education. Many of the challenges that NOAA helps address do not stem from a lack of information, but from an uneven distribution of information. NOAA's new mission statement includes sharing knowledge and information as a core part of what needs to be done. This strong agency endorsement of education at NOAA provides a vibrant foundation for enhancing education activities across the board and for increasing the coherence of the overall education program.

In FY 2011 and beyond, NOAA will continue to support K-12, informal and higher education programs across the country and in support of each of NOAA's mission goals and enterprises. The Education Council will continue to implement the 2009-2029 Education Strategic Plan (http://www.education.noaa.gov/). This plan provides a framework for NOAA's Education Programs to work collectively and collaboratively with external partners to advance environmental literacy and promote a diverse workforce in ocean, coastal, Great Lakes, weather, and climate sciences, encouraging stewardship and increasing informed decision making for the Nation.

NOAA will also work to address and incorporate recommendations from the NRC report "NOAA's Education Program: Review and Critique".

For more information on NOAA's Education Programs, please visit the NOAA Education Website: http://www.education.noaa.gov/



CHAPTER 7

NOAA Research & Development

NOAA RESEARCH & DEVELOPMENT

NOAA is the single federal agency with operational responsibility to protect and conserve ocean, coastal, and Great Lakes resources and to provide critical and accurate weather, climate, and ecosystem forecasts to support national safety and commerce. NOAA seeks to accomplish this mission by addressing the grand environmental challenges facing our nation today and in the decades to come.

The NOAA Research Council, an internal body composed of senior scientific personnel from every line office in the agency, developed the current NOAA 5-Year Research Plan for 2008-2012, which provides corporate oversight to ensure that NOAA's research activities are of the highest quality, meet long-range societal needs, take advantage of emerging scientific and technological opportunities, and shape a forward-looking research agenda. NOAA has identified the most pressing of these challenges as a set of six overarching questions in the NOAA 5-Year Research Plan. NOAA's research and development portfolio is structured around finding answers to these questions and providing the public and policy makers the understanding needed to make well-informed decisions now and in the future.

What factors, human and otherwise, influence ecosystem processes and impact our ability to manage marine ecosystems and forecast their future state?

MONITORING AND PREDICTING HARMFUL ALGAE EVENTS PROTECTS SHELLFISH INDUSTRY AND CONSUMERS

NOAA is working to establish a national harmful algal bloom (HAB) monitoring and forecasting system to protect shellfish consumers around the country and the recreational and commercial economies that depend on them. This year, NOAA completed a HAB forecast system in the western Gulf of Mexico which provided Texas shellfish managers with algal toxins warnings, preventing potential threats to consumers' health. In the Northeast, NOAA offices teamed up to warn remote Maine shellfish harvesters over NOAA Weather Radio for the first time. In Oregon, a two-pronged HAB monitoring effort warned Oregon's recreational shellfishery of elevated toxin levels faster than ever. Blooms of toxic or unsightly algae are responsible for nearly $82 million in lost income each year to communities around the country.[1] Predicting

[1] Hoagland, P., Scatasta, S. 2006. *The economic effects of harmful algal blooms.* In E. Graneli and J. Turner, eds., Ecology of Harmful Algae. Ecology Studies Series. Dordrecht, The Netherlands: Springer-Verlag, Chap. 29.

where and when these blooms arrive can save money and keep consumers safe.

ECOLOGICAL SEA NETTLE FORECASTING

With the aid of NOAA's National Weather and Oceans Services, the National Environmental Satellite Service's (NESS) Center for Satellite Applications and Research (STAR) led a project to make experimental ecological sea nettle forecasts for the Chesapeake Bay operational. High concentrations of sea nettles, a type of stinging jellyfish, seasonally inhabit the Chesapeake Bay from late spring to early autumn. Their sting is painful, and knowing where and when to expect these jellyfish helps people avoid them. Daily and three-day forecasts are now generated by using real-time and forecast data that predicts the probability of encountering sea nettles. This prediction system can also be easily modified to predict other important ecological variables in the Bay, such as the likelihood of waterborne pathogens. Knowing this type of information will provide direct benefits to the many people who live and play on and around the Chesapeake Bay.

COLLABORATIVE MULTI-AGENCY MONITORING OF REEF FISH IN THE FLORIDA KEYS

Coral reef fish are conspicuous and important components of coral reef ecosystems in south Florida and the Caribbean; however, populations of many of these species have been declining in recent decades. Solid quantitative information on the status and trends of coral reef fish populations is needed to better understand the factors leading to species declines and to suggest management strategies to reverse these trends.

To generate this information, NOAA and a wide array of other local organizations have been monitoring coral reef fish populations for many years. NOAA and its partners in the Florida Keys have been developing a standardized coral reef fish monitoring protocol to better coordinate these efforts to reduce costs and improve sampling efficiency. In 2010, a first-of-its-kind, multi-agency, collaborative, standardized reef fish monitoring protocol was published, representing an unprecedented collaboration between federal and state agencies including NOAA's Southeast Fisheries Science Center, the U.S. National Park Service, the Fish and Wildlife Research Institute of the Florida Fish and Wildlife Conservation Commission, and the University of Miami's Rosenstiel School of Marine and Atmospheric Science. The program is fully scalable as management priorities may change in the future. This coral reef fish monitoring program will serve as the model for how to conduct essential science-based ecosystem monitoring that integrates the needs and resources of a variety of federal, state, and academic partners.

What is the current state of biodiversity in the oceans, and what impacts will external forces have on this diversity and how we use our oceans and coasts?

EXPLORING BIODIVERSITY: AN EXPANDED BOTTOM TRAWL SURVEY IN THE BERING SEA

In the summer of 2010, the Alaska Fisheries Science Center completed the most comprehensive bottom trawl survey ever conducted in the Bering Sea. Three commercial fishing vessels were chartered to scientifically sample a standard set of stations ranging in bottom depth from 30 to 4,000 feet (1200 m) in an area about the size of the state of Texas. The vast survey area extended from the Alaska Peninsula in the south to the Bering Strait and to the U.S.-Russia Convention Line in the north. The primary purpose for conducting scientific bottom trawl surveys in the Bering Sea is to gather information for managing and conserving some of the United States' most valuable commercial fish stocks; such as, walleye pollock and red king crab. Scientists also use data from scientific bottom trawl surveys to learn about the marine communities within the Bering Sea. Basic questions asked by scientists are: What is the biodiversity within the different types of marine communities? How do the various members of a community interact? How do marine communities as a whole respond to varying environmental conditions such as climate change?

Scientists collected biological specimens in order to develop a comprehensive list of all species residing in the Bering Sea, along with information about their geographic range and what bottom depths they prefer. During the survey, biologists documented 233 different fish species and 529 different invertebrate species, some of which are very uncommon and unnamed. The diversity of species encountered demonstrates the diverse habitats that stretch across the Bering Sea including deep water canyons, islands, shallow coastal bays, and a gently sloping shelf. Each of these habitats can be affected by a variety of environmental forces that can fluctuate from season to season, year to year, and decade to decade. Examples of some of these environmental forces are oceanic and tidal currents, meteorological events, winter ice cover, and a subsurface layer of cold water (<2°C) running down the middle shelf during the summer called the "cold pool" (Fig. 1). Fishes like the Arctic cod and Alaska plaice have an antifreeze substance in their blood that allow them to live in subzero water temperatures; however, temperate fishes, like walleye pollock, that lack an antifreeze substance appear to avoid the extremely cold temperatures. Fluctuations in the size of the cold pool each year can affect the species distribution of the marine community and thus, the interactions among them. The expanded survey effort in 2010 provided a valuable snapshot of the biological communities in the Bering Sea as they exist today. This snapshot will be useful for monitoring and compar-

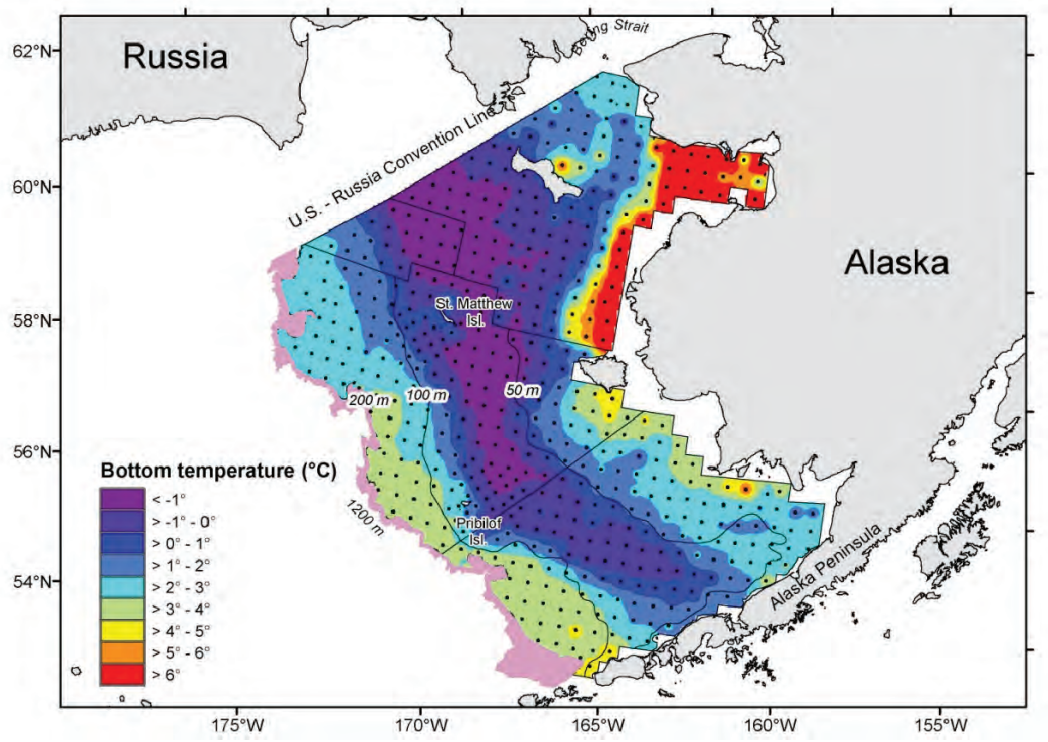
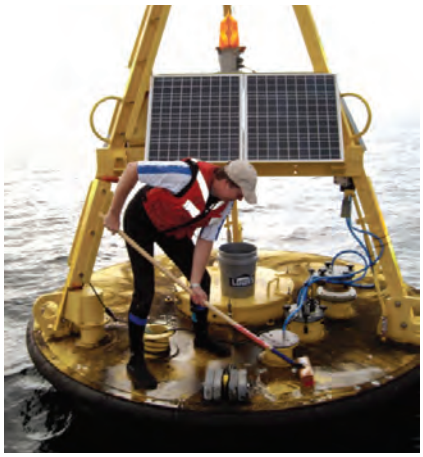


Figure 1: Map of the expanded 2010 bottom trawl survey in the Bering Sea showing stations sampled and mean bottom temperatures.

ing with future surveys to determine what changes have taken place, and suggesting possible reasons as to why.

GRAY'S REEF SEAFLOOR OBSERVATORY TRACKS OCEAN ACIDIFICATION

In an ongoing effort to better understand and monitor the effects of ocean acidification throughout the National Marine Sanctuary System, researchers at Gray's Reef National Marine Sanctuary partnered with the University of Georgia in 2010 to develop and install a scientific "observatory" on the sea-floor of the sanctuary. Sensors on the remote station record measurements like seawater pH, temperature, salt content and dissolved oxygen levels, helping create a baseline for tracking changes in the ocean conditions in the sanctuary. Along with data collected by the National Data Buoy Center and the Pacific Marine Environmental Lab, scientists will be able to use this information to learn more about how ocean acidification and other climate-related shifts affect marine ecosystems over time.



Researcher from the University of Georgia services the NOAA buoy and censors currently deployed to document many environmental parameters including CO_2 in the water column at Gray's Reef National Marine Sanctuary.
Photo Credit: Gray's Reef National Marine Sanctuary

DIVERS RETURN TO CORDELL BANK AFTER 30 YEARS

A technical dive team from NOAA's National Marine Sanctuaries and the Cooperative Institute for Ocean Exploration, Research and Technology completed a series of deep dives in rigorous conditions on Cordell Bank, just off Northern California. Working from the NOAA research vessel FULMAR, the team completed a series of dives down to 190 feet in strong current. This was the first dive expedition to Cordell Bank since Cordell Expedition divers

Technical divers from the Office of national Marine Sanctuaries document biological communities on Cordell Bank for the first time in 30 years. Photo Credit: Joe Hoyt/NOAA/CBNMS

explored the Bank between 1977 and 1985. Divers returned to the boat astonished at the pristine nature and spectacular diversity of life covering the Bank's upper reef areas. The team was able to accomplish all the mission's science objectives including photo and video documentation and sample collection. This information will allow sanctuary staff to evaluate changes that have occurred on the Bank since the original survey 30 years ago, and establish species composition and reef conditions in 2010. The 2010 data will also provide sanctuary staff the opportunity to analyze future changes that may be associated with climate, in particular affects of ocean acidification on deep corals.

What are the causes and consequences of climate variability and change?

MONITORING SEA ICE THICKNESS USING CRYOSAT-2 SATELLITE ALTIMETRY: THE FIRST VALIDATION

The NESS Center for Satellite Applications and Research Laboratory for Satellite Altimetry, Sea Ice Team organized a critically important aircraft flight close to the North Pole and directly under the path of the European Space Agency's CryoSat-2 satellite on April 20, 2010, just 12 days after launch. This flight was an early opportunity to validate CryoSat-2's new radar technique for measuring the thinning of Arctic sea ice, a trend which is believed to be an early indicator of climate change. This activity provided support for the CryoSat mission through the efforts of three agencies, thereby setting an excellent example of what can be accomplished through international collaboration.

NEW STUDY SHOWS SOME CLIMATE CHANGE IMPACTS LARGELY IRREVERSIBLE

Jeremy Potter sampling the water during the 2005 NOAA-sponsored "Hidden Ocean" cruise to study marine life in all realms of the Canada Basin, one of the deepest parts of the Arctic Ocean.

A study led by NOAA's Earth System Research Laboratory in Boulder, CO, published in the *Proceedings of the National Academy of Sciences* shows that changes in surface temperature, rainfall, and sea level are largely irreversible for more than 1,000 years after carbon dioxide (CO_2) emissions are completely stopped. If atmospheric CO_2 concentrations rise to 450-600 parts per million from the current value of 385 parts per million, the results would include persistent decreases in rainfall comparable to the 1930s North American "Dust Bowl" in zones including southern Europe, northern Africa, southwestern North America, southern Africa, and western Australia. The scientists emphasized that increases in CO_2 that occur in this century essentially "lock in" the sea level rise that would slowly follow over the next 1,000 years. Support for these findings was robust enough to quantify some irreversible climate impacts, including rainfall changes in certain key regions, and global sea level rise. This study demonstrates that some climate change impacts resulting from increases in atmospheric CO_2 concentrations are largely irreversible, and will have large consequences for agriculture, ecosystems, and coastal environments.

What improvements to observing systems, analysis approaches, and models will allow us to better analyze and predict the atmosphere, ocean, and hydrological land processes?

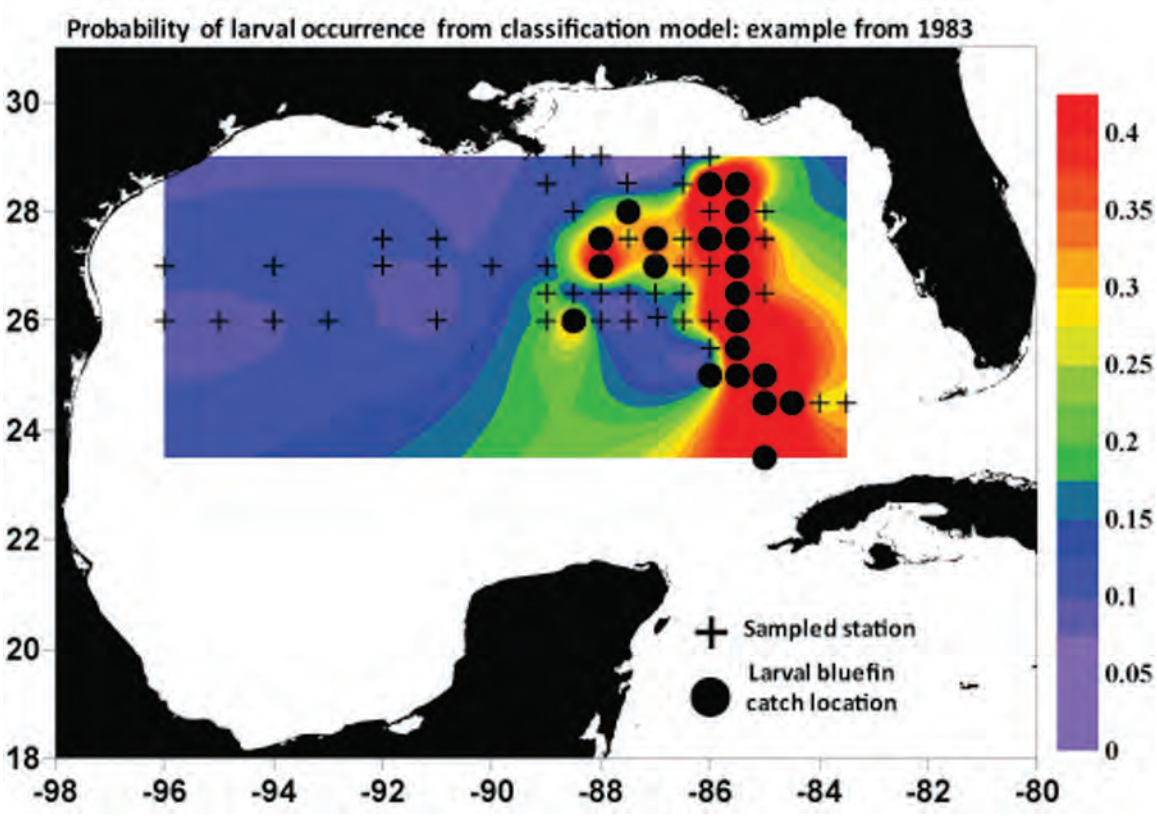
DIRECT ASSIMILATION OF GOES IMAGER RADIANCES TO IMPROVE COASTAL PRECIPITATION FORECASTS

NESS developed a fast radiative transfer model, which is an efficient method for calculating the transfer of electromagnetic radiation through the Earth's atmosphere. The model will allow imager data from NOAA's next generation of geostationary weather satellites (GOES-R) to be used directly in numerical weather prediction systems for the first time. This data assimilation technique has the potential to improve forecasts of heavy precipitation near the coasts, thus protecting lives and property.

MAPPING BLUEFIN TUNA SPAWNING SITES IN THE NORTHERN GULF OF MEXICO

Atlantic bluefin tuna is one of the most valuable and sought-after fish species, capable of fetching thousands of dollars per pound on the Japanese sushi market. The National Marine Fisheries Service (NMFS) has surveyed the northern Gulf of Mexico bluefin spawning sites each spring since the late 1970s, recording abundances and distributions of bluefin tuna larvae which are only days to weeks old. These abundances are formulated into a larval index, which is currently the only fishery-independent input to the bluefin tuna stock assessment. Surveys have shown spatial distributions for bluefin larvae vary markedly from year to year; however, scientists do not fully understand the processes driving these spawning behaviors. To address this knowledge gap, scientists from the NMFS Southeast Fisheries Science Center developed a habitat model to predict spawning behavior. The model uses data collected both at the time of sampling, from oceanographic instrumentation, and data collected remotely from earth-orbiting satellites. Results from the model showed that bluefin tuna larvae were found within low-productivity waters of a defined temperature range, and outside of the warm Loop Current and large warm-core rings.

In the short term, these real-time model predictions will be used to improve the accuracy of the larval bluefin tuna index. Predictions of larval distributions during spring 2010 will also contribute to a better understanding of the potential impacts of the Deepwater Horizon oil spill on eggs and larvae of bluefin tuna. In the longer term, defined temperature tolerances of adults and larvae will be combined with climate models, to predict future changes in bluefin tuna spawning behaviors under climate change conditions, through the end of the 21st century. The products will provide valuable information to stock



A habitat model using eight temporal and spatial variables, collected over 25 years of cruises. Results for each year were displayed as a map of predicted suitable habitat, with bluefin tuna larvae catch locations overlaid.

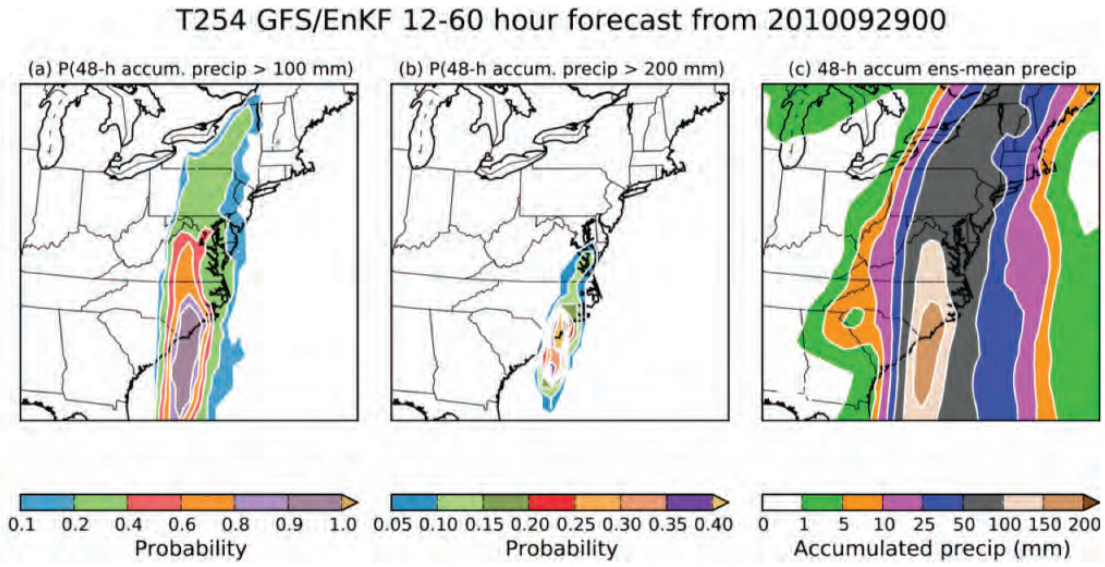
assessment scientists, and to the national and international management communities.

How can the accuracy and warning times for severe weather and other high-impact environmental events be increased significantly?

THE NOAA HURRICANE FORECAST IMPROVEMENT PROGRAM

In 2008, NOAA established the Hurricane Forecasting Improvement Project (HFIP), a 10-year project designed to accelerate improvements in one to five day forecasts for hurricane track, intensity, storm surge and to reduce forecast uncertainty, with an emphasis on rapid intensification of storms. In 2010, the project posted a series of impressive accomplishments that improved understanding of hurricane track and intensity, which include the following:

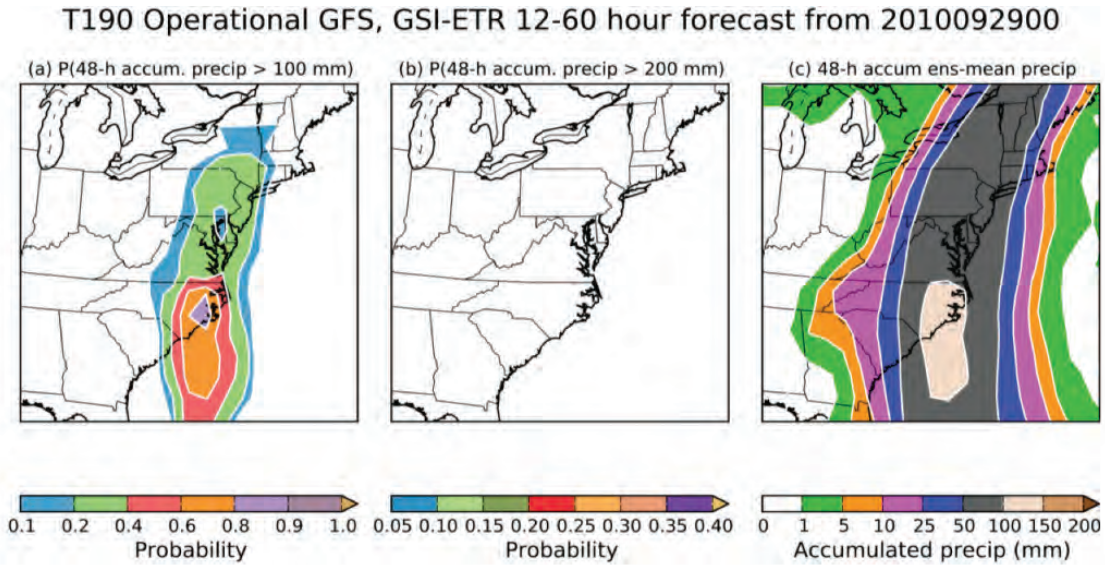
The Developmental Testbed Center (DTC), a facility for the weather prediction community to test and evaluate new models and forecasting techniques, developed a free, shared resource called the Hurricane Weather Research and Forecast (WRF) Model. Significant effort in the last year has also been



(Figure 2) Experimental Forecast: 12-60 h precipitation forecasts from the experimental Global Forecast System/Ensemble Kalman Filter (GFS/EnKF) system (a) Probability of greater than 100 mm total precipitation during the period. (b) Probability of greater than 200 mm. (c) Ensemble-mean precipitation amount.

focused on transitioning to operation, testing, and preparing the National Centers for Environmental Prediction (NCEP) HWRF modeling system for release to the community. In addition to offering tutorials, the DTC provides support to the research community through online scientific documentation, a users' guide, and a virtual help desk.

Along with the above research, NOAA made multiple upgrades to NCEP's operational models that showed promising results of a 20 percent improve-



(Figure 3) Operational Forecast: the current National Centers for Environmental Prediction Global Forecast System ensemble results for the same period. The results in the experimental system (Figure 7) show more refined data than the current NCEP system. Scientists hope these experimental systems will eventually lead to dramatic improvements in hurricane track forecasts in the future.

ment in hurricane track forecasting. Scientists at NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) have been experimenting with a model ensemble for hurricane prediction that makes multiple predictions from the same hurricane start time, using different initial conditions. The model accounts for the uncertainties in the initial state of the atmosphere, often producing a more skillful forecast than any individual ensemble member.

During 2009 and 2010, Earth System Research Laboratory (ESRL) scientists designed a tropical cyclone experiment that showed a dramatic reduction in mean track errors (Figures 2 and 3) as compared to the NCEP operational forecast system. Researchers believe the improvements were due to better analyses of the steering wind environment around the tropical cyclone, resulting in better track forecasts.

NEW USER-FRIENDLY WIND WAVE FORECASTING TOOL MADE OPERATIONAL

Understanding waves associated with storms is essential to forecasting damage to coastal shorelines, which impacts coastal communities and marine habitats. NOAA's Wave Exposure Model is a free and easy-to-use tool that helps coastal managers, ecologists, and physical hydrologists alike by forecasting wave heights, wave energy and sediment erosion. Unlike more complicated, larger ocean-focused models, this tool was designed for use in smaller, more enclosed waterways where no similar tools have been made available – and where ever-increasing numbers of people are living and working. By placing the model on the popular Coastal Service Center's Digital Coast website, it is readily accessible to people worldwide. Furthermore, the tool is under evaluation for use by the National Weather Service for forecasting wave effects on shores of inland waters.

How are uncertainties in our analysis and predictions best estimated and communicated?

NWS DELIVERS IMPROVED WEATHER DATA TO THE FAA FOR MORE EFFICIENT MANAGEMENT OF THE NATIONAL AIR SPACE

Participants integrating cube data at FAA Tech Center Weather Laboratory.

The Next Generation Air Transportation System (NextGen) is a multi-agency effort to improve the efficiency and effectiveness of air traffic in the National Air Space System and ground traffic management at major airports. In 2008, a U.S. Congressional Economic Committee Report predicted that even a low-level implementation of improvements to air space management (~15 percent of recommended implementations) could reduce carbon loadings to the atmosphere by 1.15 million tons annually and have a $2.7 billion positive impact on the U.S. economy. Because weather causes 70 percent of all air traffic delays, improved weather products and their use in managing the National Air Space is critical to achieve these goals.

In an effort to enable the reduction of aircraft delays, and improvements to the efficiency of air travel, NOAA's NextGen Weather Program in the National Weather Service's (NWS) Office of Science and Technology has designed, developed, installed, and currently operates a prototype for improved transfer of weather data and delivery of aviation weather products to the Federal Aviation Administration (FAA). This prototype, called the NextGen Environment for Testing (NET), is a system that takes legacy weather products from diverse locations across the United States, converts them to net-ready format, and expedites their delivery by making them automatically available through a single point of access. Expansion of these capabilities is expected to continue through the next several years as the NWS develops and deploys an initial operational capability for NextGen based on the concepts developed for this demonstration in the NET.

NOAA'S NATIONAL AIR QUALITY PREDICTION CAPABILITY

NOAA scientists extended smoke and ozone predictions for Hawaii and ozone predictions for Alaska in 2010. NOAA scientists also developed a new satellite observation product that delineates smoke aerosols in the atmospheric column for routine near-real time verification of smoke predictions. The new smoke predictions leverage wildfire emission information provided by the U.S. Forest Service (USFS). The new ozone predictions leverage efforts of NOAA's partners at the Environmental Protection Agency (EPA), in providing emission inventories, monitoring observations for near-real time verification, and coordinating with state and local air quality forecasters. Ozone and fine particle pollution are currently responsible for an estimated 60,000 premature deaths in the United States.[2] Improved forecasts and warnings are essential for protecting public health, especially for individuals who are at high risk of complications due to poor air quality.

[2] Kaiser, J., "Evidence Mounts That Tiny Particles Can Kill" Science 289, 22-23. 2000

The Office of Management and Budget (OMB) defines the conduct of Research and Development (R&D) as "…creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications." NOAA tracks the conduct of R&D as well as assets which support R&D, including equipment and facilities. Those assets include vessels that support research missions and high performance computing infrastructure.

The following charts display the scope and nature of R&D at NOAA:

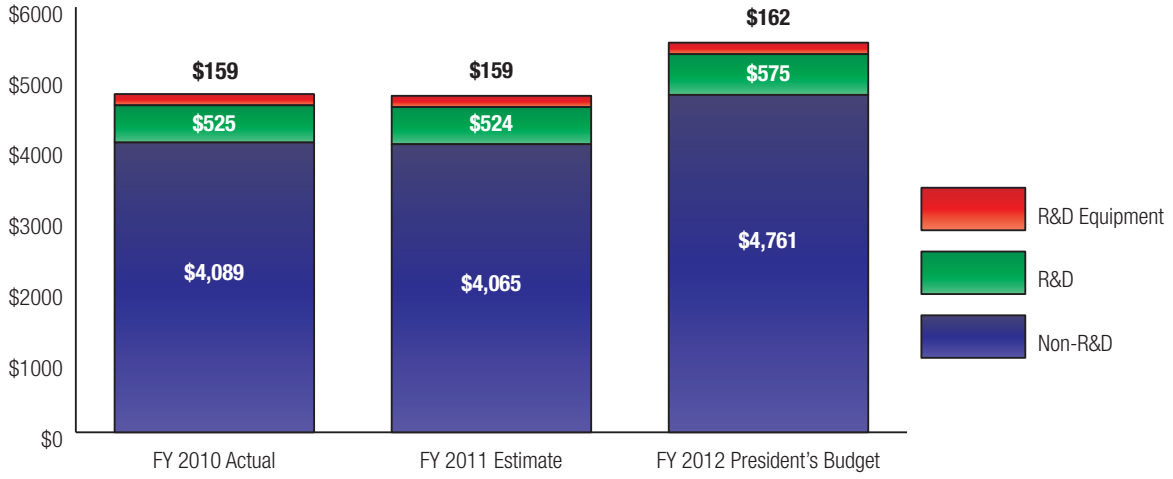
- NOAA requests a total of $737 million for R&D in FY 2012.
- R&D represents 13.4 percent of total NOAA funding for FY 2012. Of that, R&D equipment accounts for 2.9 percent of NOAA's total FY 2012 request.
- 72 percent of NOAA's R&D, excluding equipment, is intramural and 28 percent is extramural
- NOAA's R&D budget, excluding equipment, is 85 percent research and 15 percent development
- NOAA's Office of Oceanic & Atmospheric Research (OAR) manages 24 percent of NOAA's R&D. The remainder of R&D is distributed among the operational Line Offices. The proposed Climate Service will manage 35 percent of NOAA's R&D budget, much of which was transferred from OAR.
- NOAA's FY 2012 request includes $162 million for Research and Development Equipment.

DEFINITIONS

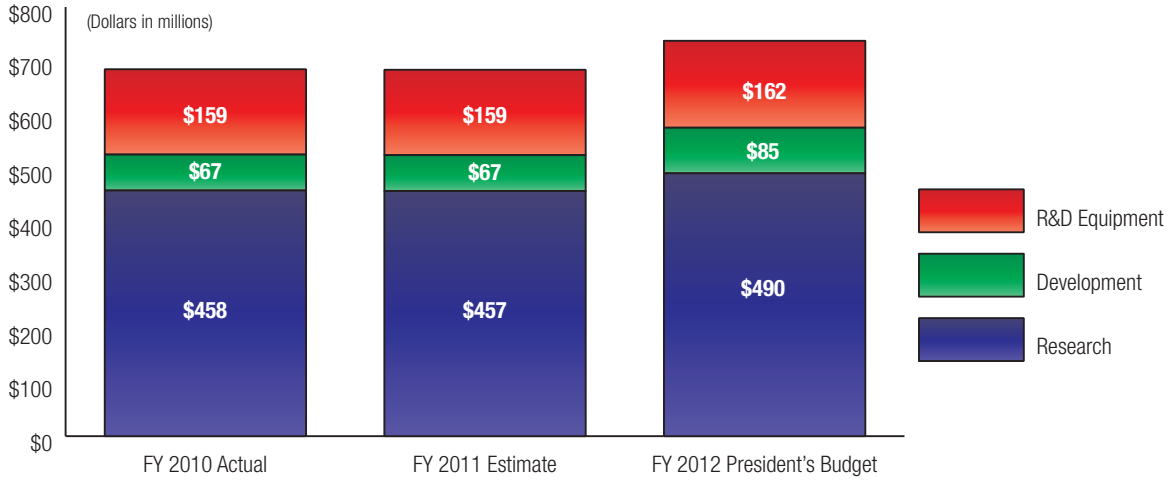
- Research and Development includes those activities aimed at broadening general knowledge about scientific topics, applied investigations on specific topics, and development of new technologies.
- Research is defined as systematic study to gain knowledge or understanding about a topic.
- Development is defined as systematic application of knowledge or understanding, directed toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.
- Equipment includes infrastructure to support Research & Development such as OMAO's research vessels, High Performance Computers, and laboratory equipment.

- Extramural research is that which is ultimately performed by non-Federal entities and may include private companies, academia, non-profits, state and local governments, etc.
- Intramural research is that which is performed by Federal Agencies

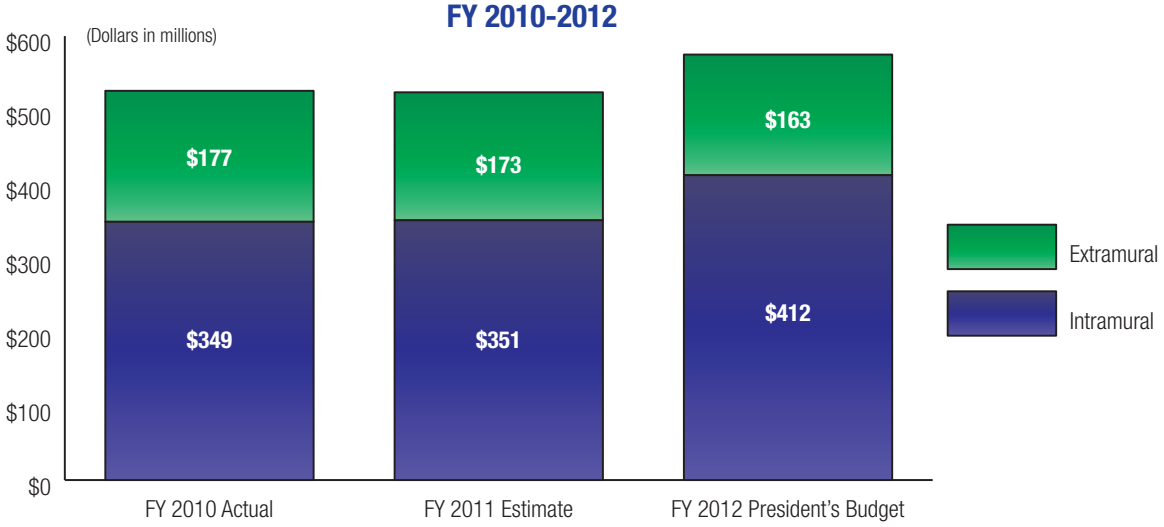
NOAA R & D APPROPRIATION FUNDING FY 2010-2012



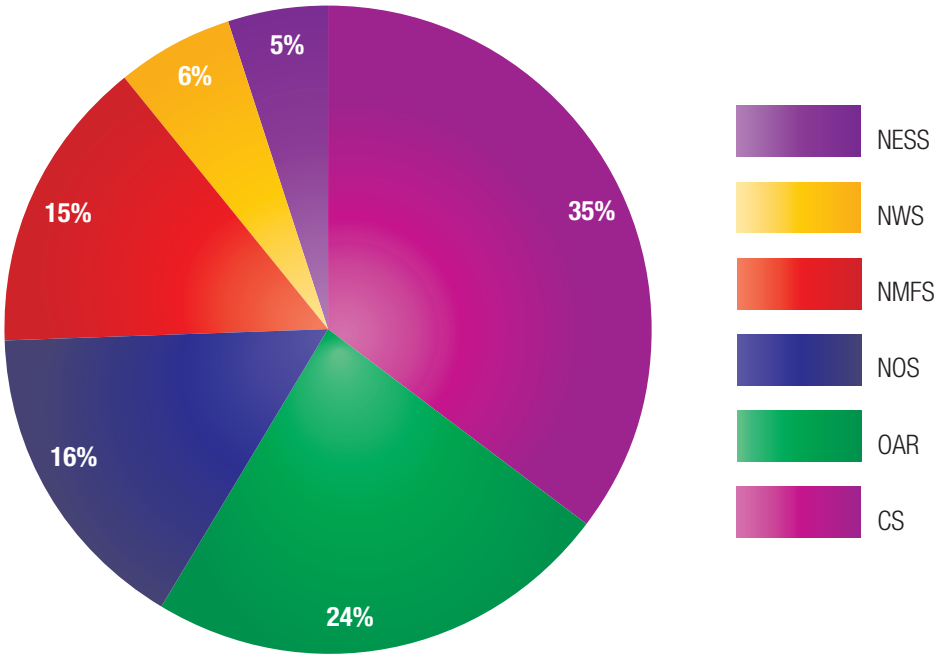
RESEARCH & DEVELOPMENT APPROPRIATION FUNDING FY 2010-2012

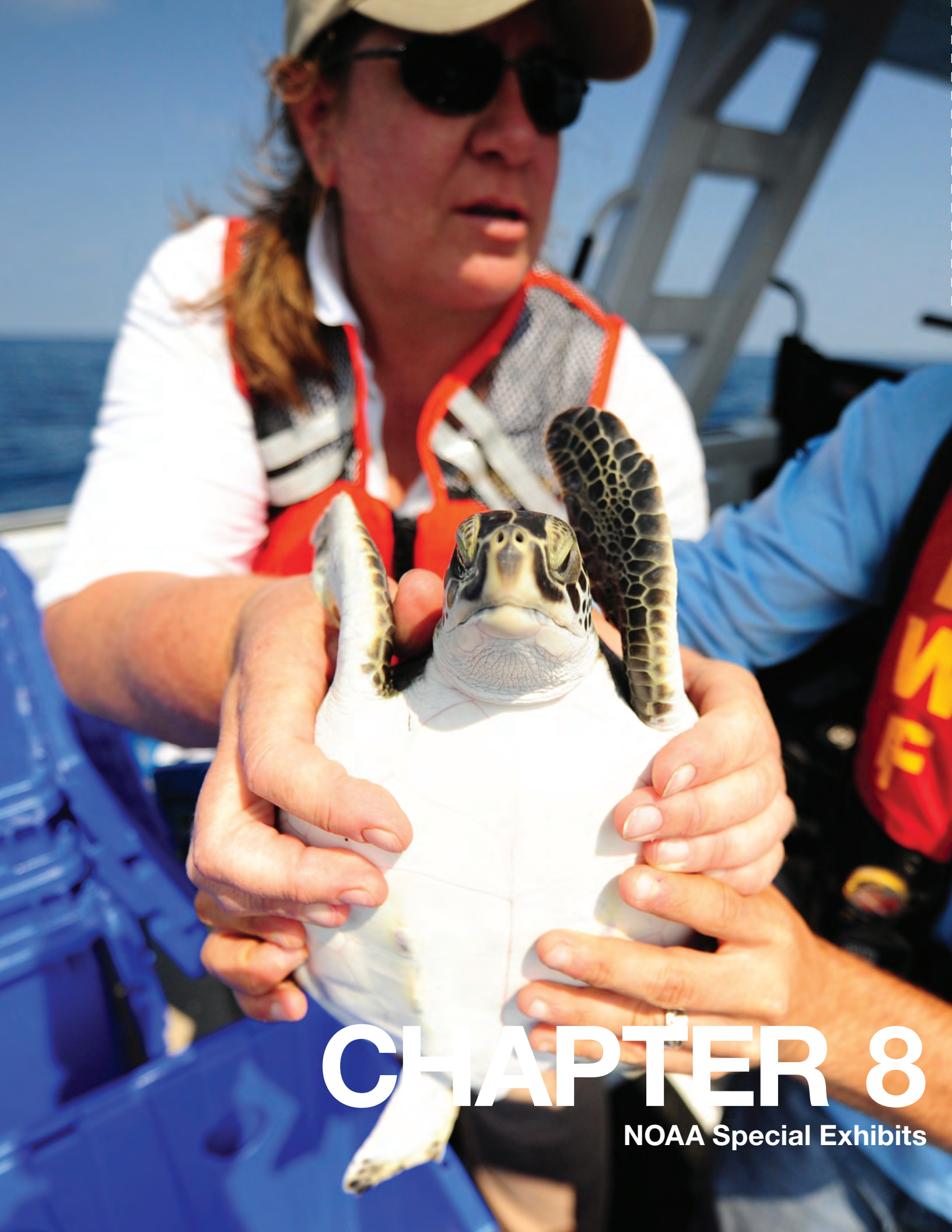


EXTRAMURAL & INTRAMURAL APPROPRIATION FUNDING FY 2010-2012



FY 2012 R & D APPROPRIATION BUDGET BY LINE OFFICE





CHAPTER 8

NOAA Special Exhibits

TERMINOLOGY

The reader should be aware of the specific meaning of several terms as they are used throughout this budget summary:

FY 2010 Enacted
Fiscal Year (FY) 2010 Appropriations (P.L. 111-117)

FY 2011 Annualized CR
An annualized version of P.L. 111-322, this represents NOAA's estimated funding levels throughout FY 2011.

Climate Reorg
In the FY 2012 President's Request, NOAA proposes consolidating climate related activities into a new line office the Climate Service.As part of this process, technical adjustments are made to the budget, transferring funds and FTEs from the OAR, NWS, and NESDIS line offices to the proposed line office, the Climate Service.

Adjustments-to-Base
Program totals will provide inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from GSA. In addition, ATBs include unique/technical adjustments to the base program, for example transfers of base resources between budget lines

FY 2012 Base
Fiscal year (FY) 2011 Annualized CR plus Adjustments-To-Base including those related to the proposed Climate Reorganization and other Adjustments

Program Change
Requested increases/decreases over the FY 2012 base

FY 2012 Request
FY 2012 Base, plus Program Changes

ADMINISTRATIVE COST SAVING

The Administration is pursuing an aggressive government-wide effort to curb non-essential administrative spending called the Administrative Efficiency Initiative (AEI). In order to be good stewards of taxpayer money the Federal Government should continue to seek ways to improve the efficiency of programs without reducing their effectiveness. As such, the President directed each agency to analyze its administrative costs and identify savings where possible.

NOAA continues to be as efficient as possible in performing its mission and is committed to controlling administrative costs. In the President's FY 2012 Budget, NOAA has reduced administrative costs by $67.7 million in several areas including NOAA corporate offices and line office headquarters operations. These reductions are a key component of the President's Administrative Efficiency Initiative. Savings were identified by focusing on top priorities, consolidating activities, identifying more efficient acquisition vehicles, and cutting back on travel, among other reductions. Additional details are located in the NOAA FY 2012 Congressional Justification.

BUDGET SUMMARY (DOLLARS IN THOUSANDS):

ADMINISTRATIVE EFFICIENCY INITIATIVE – FY12 SAVINGS PER LINE OFFICE	ORF	PAC	TOTAL
NOS	8,872	451	9,323
NMFS	16,271		16,271
OAR	3,235		3,235
CS	4,564		4,564
NWS	13,055	230	13,285
NESS	1,856	10,092	11,948
Program Support/Corporate Services	3,274		5,598
OMAO	3,526		3,526
Total	**54,653**	**10,773**	**67,750**

Within the headquarters administrative costs of the $67.7M, $15.7M is directly from the line offices and Corporate HQ as shown in the table below:

BUDGET SUMMARY (DOLLARS IN THOUSANDS):

	AEI REDUCTION
NOAA Corporate Offices	**$5,598**
Line Office HQs:	
NOS	$880
NMFS	$2,720.1
OAR	$670
Climate Service	0
NWS	$1,850
NESS	$2,031.6
OMAO	$1,967
Subtotal, Line Offices	**10,118.7**
Total	**15,680.7**

HEADQUARTERS ADMINISTRATIVE COSTS

In FY2012, NOAA's Line Office Headquarters will use $117.7M, after instituting planned savings as a result of the AEI mentioned above, in funds to support general management activities, financial and budgeting, and IT related expenses, as well as supporting facilities and other general operating costs. These funds also include support for service contracts, utilities, and rent charges from the General Services Administration. As part of the AEI, NOAA has reviewed its Line Office Headquarters costs and will be able to reduce previously planned costs by $10.1M. Specifically, NOAA's Line Office Headquarters will use administrative funds to support the following:

Headquarters Program Support Type	NOS Amount	NOS FTEs	NMFS Amount	NMFS FTEs	OAR Amount	OAR FTEs	CS Amount	CS FTEs	NWS Amount	NWS FTEs	NESS Amount	NESS FTEs	OMAO Amount	OMAO FTEs	Line Office Total Amount	Line Office Total FTEs
General Management & Direction	$13.10	57.0	$9.51	28.0	$2.17	10.4	$5.40	32.5	$7.47	30.0	$8.23	32.9	$1.86	8.4	$47.74	199.2
CFO Operations	$4.78	25.9	$3.83	22.0	$1.50	14.0	$1.58	10.0	$6.23	25.0	$2.98	9.1	$5.02	15.0	$25.92	121.0
CIO Operations	$7.85	14.0	$3.97	15.0	$0.74	5.8	$1.05	7.0	$2.42	17.0	$9.50	9.6	$1.71	5.0	$27.24	73.4
CAO Operations	$1.77	1.1	$6.43	6.5	$0.80	0.0	$0.45	0.0	$4.23	10.0	$1.76	0.0	$0.95	0.0	$16.39	17.6
Human Resources	$0.74	4.0	$2.79	14.0	$0.86	14.3	$0.09	0.5	$2.40	14.0	$1.98	11.5	$0.14	1.0	$8.99	59.3
Procurement services, Acquisitions, and Grants Management Operations	$0.14	1.0	$0.25	3.0	$0.70	6.0	$0.43	0.0	$0.00	0.0	$0.00	0.0	$0.00	0.0	$1.52	10.0
Sub-total	**$28.38**	**103.0**	**$26.78**	**88.5**	**$6.77**	**50.5**	**$8.99**	**50.0**	**$22.75**	**96.0**	**$24.45**	**63.1**	**$9.68**	**29.4**	**$127.80**	**480.5**
AEI Savings	*($0.88)*	-	*($2.72)*	-	*($0.67)*	-	-	-	*($1.85)*	-	*($2.03)*	-	*($1.97)*	-	*$10.12*	
Total	**$27.50**	**103.0**	**$24.06**	**88.5**	**$6.10**	**50.5**	**$8.99**	**50.0**	**$20.90**	**96.0**	**$22.42**	**63.1**	**$7.71**	**29.4**	**$117.68**	**480.5**

Descriptions:

General Mgmt & Direction - includes Assistant Administrator's office, Public Affairs, Information Services
CFO Operations - includes Budget, Finance and Accounting
CIO Operations - includes IT-related expenses and other CIO related activities
CAO Operations - includes Facilities and Security costs, as well as other CAO related activities
Human Resources - all HR services, including EEO

ADJUSTMENTS TO CURRENT PROGRAMS (ADJUSTMENTS TO BASE) - REQUESTED $75,437,000

Adjustments to Base (ATBs) are defined as increases or decreases to specific objects classes that: represent the same level of effort as the current budget year, are outside of the agency's management's control, are supported by specific documentation, and are a known cost (or fixed cost of doing business).

NOAA has requested the following increases for labor-related and non-labor ATBs:

ORF & PAC	SALARY & BENEFITS	OTHER OBJECT CLASSES	TOTAL
National Ocean Service	—	4.1	4.1
National Marine Fisheries Service	—	8.3	8.3
Oceans and Atmospheric Research	—	1.3	1.3
Climate Service	—	3.1	3.0
National Weather Service	—	7.5	7.5
National Environment Satellite Service	—	1.1	1.1
Program Support	—	1.3	1.3
Office of Marine and Aviation Operations	597	6.0	6.6
FY 2012 Total Discretionary-ATBs (Budget Authority)	**597**	**32.7**	**33.3**
Restoration of FY 2011 Discretionary ATBs	—	41.8	41.8
Total Requested ATBs	**597**	**74.8**	**75.1**

These increases for ATBs will help fund the agency's overall anticipated adjustments to the current programs. In addition, program totals will also fund inflationary increases for non-labor activities, including service contracts, utilities, field office lease payments, and rent charges from the General Services Administration.

NATIONAL OCEAN SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	"FY 2010 ENACTED"	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Navigation Services							
Mapping & Charting							
Mapping & Charting Base	49,487	48,964		1,955	250	51,692	2,205
Hydrographic Research & Technology Development	7,424	7,346		0	0	7,424	0
Electronic Navigational Charts	6,128	6,063		0	0	6,128	0
Shoreline Mapping	2,424	2,398		0	0	2,424	0
Address Survey Backlog/Contracts	31,173	30,844		0	0	31,173	0
California Seafloor Mapping, CA	300	0		0		0	(300)
Extended Continental Shelf Mapping, AK	300	0		0		0	(300)
Subtotal, Mapping and Charting	**97,236**	**95,615**	**0**	**1,955**	**250**	**98,841**	**1,605**
Geodesy							
Geodesy Base	26,417	26,138		584	0	27,001	584
National Height Modernization	2,541	2,514		0	0	2,541	0
Regional Geospatial Modeling Grants	5,500	5,442		0	(5,500)	0	(5,500)
Geodesy/Height Modernization - IL	800	0		0		0	(800)
Louisiana Geodetic Spatial Reference Center, LA	700	0		0		0	(700)
Wisconsin Height Modernization Program, WI	1,000	0		0		0	(1,000)
Texas Height Modernization	300	0		0		0	(300)
Subtotal, Geodesy	**37,258**	**34,094**	**0**	**584**	**(5,500)**	**29,542**	**(7,716)**

NATIONAL OCEAN SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	"FY 2010 ENACTED"	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Tide & Current Data							
Tide & Current Data Base	33,078	32,729		701	(4,800)	28,979	(4,099)
Coastal Tidal Gauges	600	0		0		0	(600)
Subtotal, Tide & Current Data	**33,678**	**32,729**	**0**	**701**	**(4,800)**	**28,979**	**(4,699)**
Total, Navigation Services	**168,172**	**162,438**	**0**	**3,240**	**(10,050)**	**157,362**	**(10,810)**
Ocean Resources Conservation and Assessment							
Ocean Assessment Program (OAP)							
Coastal and Marine Spatial Planning	0	0		0	6,770	6,770	6,770
Ocean Research Priorities Plan Implementation	6,000	5,937		(6,000)	0	0	(6,000)
IOOS Regional Observations	27,000	26,715		3,000	1,055	31,055	4,055
NOAA IOOS	6,555	6,486		147	0	6,702	147
Gulf of Mexico Regional Collaboration	4,750	4,700		0	(4,750)	0	(4,750)
Alliance for Coastal Technologies	500	0		0	0	0	(500)
Coastal Storms	2,800	2,770		0	74	2,874	74
Coastal Services Center (CSC)	26,643	26,362		3,656	0	30,299	3,656
Ocean Health Initiative	4,000	3,958		(4,000)	0	0	(4,000)
Coral Reef Program	29,000	28,694		332	(2,273)	27,059	(1,941)
Hawaii Coral Reef Initiative	1,000	0		0		0	(1,000)
Florida Coral Reef	200	0		0		0	(200)
Coral Reef - Puerto Rico	100	0		0		0	(100)
Resilient Coastal Urban Community and Ecosystem (RESCUE) Initiative	250	0		0		0	(250)

NATIONAL OCEAN SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	"FY 2010 ENACTED"	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Northeast Coastal Monitoring Collaborative	550	0		0		0	(550)
Aquarius Reef Base Program	150	0		0		0	(150)
West Coast Governor's Agreement on Ocean Health	500	0		0		0	(500)
International Pacific Research Center	1,500	0		0		0	(1,500)
Engineering Feasibility Study, Dauphin Island, AL	1,500	0		0		0	(1,500)
Subtotal, Ocean Assessment Program (OAP)	**112,998**	**105,622**	**0**	**(2,865)**	**876**	**104,759**	**(8,239)**
Response and Restoration							
Response and Restoration Base	10,834	10,720		9,836	1,900	22,570	11,736
Estuary Restoration Program	3,000	2,968		0	(1,812)	1,188	(1,812)
Damage Assessment Program	9,300	9,202		(9,300)		0	(9,300)
Marine Debris	4,000	3,958		0	0	4,000	0
Eastern Kentucky PRIDE, Inc	1,000	0		0		0	(1,000)
Subtotal, Response and Restoration	**28,134**	**26,848**	**0**	**536**	**88**	**27,758**	**(376)**
National Centers for Coastal Ocean Science (NCCOS)							
Nat'l Ctrs for Coastal Ocean Science (NCCOS)		0		43,522	(3,312)	40,210	40,210
Competitive Research	16,000	15,831		0	(199)	15,801	(199)
Ctr for Coastal Environ Health & Bimolecular Rsch	11,300	11,181		(11,300)		0	(11,300)
Oxford, MD	4,500	4,452		(4,500)		0	(4,500)

NATIONAL OCEAN SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	"FY 2010 ENACTED"	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Ctr for Coastal Fisheries Habitat Research	5,000	4,947		(5,000)		0	(5,000)
Center for Coastal Monitoring & Assessment	7,000	6,926		(7,000)		0	(7,000)
Center for Sponsored Coastal Ocean Research	2,700	2,671		(2,700)		0	(2,700)
NCCOS Headquarters	4,000	3,958		(4,000)		0	(4,000)
Center for Human Health Risk (Marine Env Health Research Lab - MEHRL)	4,000	3,958		(4,000)		0	(4,000)
Ocean and Human Healh		0		0		0	0
Western Pacific Coral Reef Ecosystems Studies Program (CSCOR), Guam	300	0		0		0	(300)
Subtotal, NCCOS	**54,800**	**53,924**	**0**	**5,022**	**(3,511)**	**56,011**	**1,211**
Total, Ocean Resources Conservation & Assessment	**195,932**	**186,394**	**0**	**2,693**	**(2,547)**	**188,528**	**(7,404)**
Ocean and Coastal Management							
Coastal Management							
CZM Grants	68,146	67,426		0	(2,000)	66,146	(2,000)
CZM and Stewardship	8,500	8,410		365		8,865	365
Regional Ocean Partnership Grants		0		0	20,000	20,000	20,000
Working Waterfronts		0		0	8,000	8,000	8,000
Nat'l Estuarine Rsrch Reserve Sys - NERRS	23,500	23,252		0	(1,174)	22,326	(1,174)
Marine Protected Areas	3,000	2,968		0	(872)	2,128	(872)
Energy Licensing and Appeals	1,900	1,880		0	(1,200)	700	(1,200)
Subtotal,Coastal Management	**105,046**	**103,936**	**0**	**365**	**22,754**	**128,165**	**23,119**

NATIONAL OCEAN SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	"FY 2010 ENACTED"	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Ocean Management							
Marine Sanctuary Program							
Marine Sanctuary Program Base (Nancy Foster Scholarship 1% of base)	49,000	48,482		1,087	(4,051)	46,036	(2,964)
Northwest Straits Citizens Advisory Commission	1,600	0		0		0	(1,600)
Hawaii Inst. Of Marine Biology Coral Research, HI	2,250	0		0		0	(2,250)
Mariana Islands Sanctuary Scoping and Outreach	220	0		0		0	(220)
Subtotal, Ocean Management	**53,070**	**48,482**	**0**	**1,087**	**(4,051)**	**46,036**	**(7,034)**
Total, Ocean and Coastal Management	**158,116**	**152,418**	**0**	**1,452**	**18,703**	**174,201**	**16,085**
Congressionally Directed Projects		**15,455**			**(15,620)**	**0**	**0**
Administrative Efficiency Initiative					**(8,872)**	**(8,872)**	**(8,872)**
Total, National Ocean Service - ORF	**522,220**	**516,705**	**0**	**7,385**	**(18,386)**	**511,219**	**(11,001)**
Other National Ocean Service Accounts							
Total, National Ocean Service - PAC	40,890	40,890	0	0	(9,156)	31,734	(9,156)
Total, National Ocean Service - Other	15,600	55,326	0	(38,726)	0	16,600	1,000
GRAND TOTAL NOS	**578,710**	**612,921**	**0**	**(31,341)**	**(27,542)**	**559,553**	**(19,157)**

NATIONAL MARINE FISHERIES SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Protected Species Research and Management							
Protected Species Research and Management Programs Base	39,850	39,429		1,278	5,500	46,628	6,778
Species Recovery Grants	15,623	15,458		194	8,000	23,817	8,194
Marine Mammals	49,653	49,128		1,075	(2,302)	48,426	(1,227)
Marine Turtles	14,576	14,422		351	(4,348)	10,579	(3,997)
Other Protected Species (Marine Fish, Plants, and Invertebrates)	8,375	8,287		153	0	8,528	153
Atlantic Salmon	8,500	8,410		102	(500)	8,102	(398)
Pacific Salmon (for Salmon Management Activities, see FRM)	65,000	64,313		1,833	3,668	70,501	5,501
Alaska Sea Otter and Steller Sea Lion Commission, AK	300	0				0	(300)
Hawaiian Monk Seals, HI	275	0				0	(275)
Emergency Response and Health Investigations for Endangered/ Threatened Pinniped in Pacific	300	0				0	(300)
Center for Marine Education and Research Ocean Expo-Learning Center	1,000	0				0	(1,000)
Marine Mammal Research, AK	500	0				0	(500)
Subtotal, Protected Species Research and Management	**203,952**	**199,447**	**0**	**4,986**	**10,018**	**216,581**	**12,629**

NATIONAL MARINE FISHERIES SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Fisheries Research and Management							
Fisheries Research and Management Programs	190,883	188,866		(5,835)	(750)	184,298	(6,585)
National Catch Share Program		0		17,402	36,600	54,002	54,002
Expand Annual Stock Assessments - Improve Data Collection	50,995	50,456		1,125	15,000	67,120	16,125
Economics & Social Sciences Research	10,744	10,630		300	0	11,044	300
Salmon Management Activities	50,942	50,404		150	(23,500)	27,592	(23,350)
Regional Councils and Fisheries Commissions	31,855	31,518		845	0	32,700	845
Fisheries Statistics	21,068	20,845		378	3,000	24,446	3,378
Fish Information Networks	22,066	21,833		174	0	22,240	174
Survey and Monitoring Projects	23,759	23,508		444	0	24,203	444
Fisheries Oceanography	1,999	1,978		175	5,400	7,574	5,575
American Fisheries Act	5,503	5,445		106	0	5,609	106
Interjurisdictional Fisheries Grants	2,574	2,547		3	0	2,577	3
National Standard 8	1,060	1,049		26	0	1,086	26
Reduce Fishing Impacts on Essential Fish Habitat (EFH)	529	523		10	0	539	10
Reducing Bycatch	3,398	3,362		84	0	3,482	84
Product Quality and Safety	7,342	7,264		170	0	7,512	170
Oyster Hatchery Economic Pilot Program, Morgan State University, MD	200	0		0		0	(200)
Hawaii Seafood Safety and Inspections, HI	1,500	0		0		0	(1,500)
Scallop Fishery Assessment, MA	1,000	0		0		0	(1,000)

NATIONAL MARINE FISHERIES SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Maine Groundfish Industry Emergency Economic Assistance, ME	1,000	0		0		0	(1,000)
Disease Reduction in Klamath River Salmon, OR	600	0		0		0	(600)
Shrimp Industry Fishing Effort Research Continuation, MD	700	0		0		0	(700)
Virginia Trawl Survey, VA	300	0		0		0	(300)
Ecosystem Based Fisheries Management, AL	750	0		0		0	(750)
Hawaii Fisheries Development, HI	400	0		0		0	(400)
NH Commercial Fisherman Sustainability Initiative	825	0		0		0	(825)
Institute for Seafood Studies	325	0		0		0	(325)
Gulf of Mexico Recreational Fishery Electronic Logbook Pilot	50	0		0		0	(50)
Herring Monitoring Research	300	0		0		0	(300)
Turtle Protection Funding/Gulf of Mexico Grouper Fishery	250	0		0		0	(250)
Subtotal, Fisheries Research and Management	**432,917**	**420,228**	**0**	**15,557**	**35,750**	**476,024**	**43,107**
Enforcement & Observers/Training							
Enforcement	65,673	64,979		1,953	(600)	67,026	1,353
Observers/Training	41,074	40,640		1,122	(3,015)	39,181	(1,893)
Subtotal, Enforcement & Observers/Training	**106,747**	**105,619**	**0**	**3,075**	**(3,615)**	**106,207**	**(540)**

NATIONAL MARINE FISHERIES SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Habitat Conservation & Restoration							
Sustainable Habitat Management	22,376	22,140		418	0	22,794	418
Fisheries Habitat Restoration (CBRP & Open Rivers)	27,967	27,672		295	2,544	30,806	2,839
Bronx River Restoration, NY	1,000	0		0		0	(1,000)
Chesapeake Bay Oyster Restoration, MD	3,000	0		0		0	(3,000)
Merrimack River Fish Habitat, NH	300	0		0		0	(300)
Natural Stream Restoration Program, WV	1,500	0		0		0	(1,500)
Pontchartrain Basin Restoration	250	0		0		0	(250)
Narragansett Bay Shellfish Restoration	500	0		0		0	(500)
Protected Species Habitat at Kure Atoll (HI)	100	0		0		0	(100)
Hawaii Marine Fund	1,000	0		0		0	(1,000)
Ecosystem Vitality Through Habitat Restoration	200	0		0		0	(200)
Subtotal, Habitat Conservation & Restoration	**58,193**	**49,812**	**0**	**713**	**2,544**	**53,600**	**(4,593)**
Other Activities Supporting Fisheries							
Antarctic Research	2,718	2,689		61	0	2,779	61
Aquaculture	6,000	5,937		125	2,352	8,477	2,477
Climate Regimes & Ecosystem Productivity	4,811	4,760		(1,363)	0	3,448	(1,363)
Computer Hardware and Software - FY 2004 Omnibus Funded in PAC	3,460	3,423		81	0	3,541	81
Cooperative Research	17,567	17,381		(5,763)	(4,565)	7,239	(10,328)

NATIONAL MARINE FISHERIES SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Information Analyses & Dissemination	19,905	19,695		432	0	20,337	432
Marine Resources Monitoring, Assessment & Prediction Prgm (MarMap)	842	833		0	0	842	0
National Environmental Policy Act (NEPA)	8,336	8,248		157	0	8,493	157
NMFS Facilities Maintenance	6,535	6,466		191	0	6,726	191
Southwest Fisheries Science Center	1,000	989		0	(1,000)	0	(1,000)
Regional Studies	7,206	7,130		183	5,000	12,389	5,183
New England Fisheries Assistance	9,000	8,905		0	(9,000)	0	(9,000)
Yukon River Drainage Association	100	0		0		0	(100)
New England Multi-Species Survey	3,000	0		0		0	(3,000)
Science Consortium for Ocean Replenishment at Mote marine Lab	1,500	0		0		0	(1,500)
Maine Lobster Research	200	0		0		0	(200)
Consortium for Wildlife Bycatch Reduction MA & NH	1,250	0		0		0	(1,250)
Joint Institute for Marine and Atmospheric Research, HI	1,250	0		0		0	(1,250)
Continuation of Protected Species Bycatch Reduction Maine Groundline Exchange Program	550	0		0		0	(550)
Western and Central Pacific Fisheries Commission (WCPFC) Big Eye Tuna Quotas	3,000	0		0		0	(3,000)
Cooperative Research and Technical Assistance, RI	600	0		0		0	(600)

NATIONAL MARINE FISHERIES SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Emergency Plan to Save Oyster Production on the West Coast	500	0		0		0	(500)
US/Canada Yukon River Salmon Agreement Studies	500	0		0		0	(500)
Western Pacific Integrated Ecosystem Assessments	500	0		0		0	(500)
Partnership for Mid-Atlantic Fisheries Science (PMAFS) Fish Stock Improvement Initiative	1,000	0		0		0	(1,000)
Bering Sea Crab Management and Research	300	0		0		0	(300)
Metagenomic Analysis of Chesapeake Bay	100	0		0		0	(100)
Magnuson-Stevens: Marine Education and Training	1,000	0		0		0	(1,000)
Subtotal, Other Activities Supporting Fisheries	**102,730**	**86,456**	**0**	**(5,896)**	**(7,213)**	**74,271**	**(28,459)**
Congressionally Directed Projects		**33,418**		**0**	**(33,775)**	**0**	**0**
Administrative Efficiency Initiative				**0**	**(16,271)**	**(16,271)**	**(16,271)**
Total, National Marine Fisheries Service - ORF	**904,539**	**894,980**	**0**	**18,435**	**(12,562)**	**910,412**	**5,873**
Other National Marine Fisheries Service Accounts							
Total, National Marine Fisheries Service - PAC	0	0	0	0	0	0	0
Total, National Marine Fisheries Service - Other	103,642	122,420	0	(17,078)	(14,650)	90,692	(12,950)
GRAND TOTAL NMFS	**1,008,181**	**1,017,400**	**0**	**1,357**	**(27,212)**	**1,001,104**	**(7,077)**

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Climate Research							
Laboratories & Cooperative Institutes							
Laboratories & Cooperative Institutes	54,848	54,269	(33,312)	646	0	22,182	(32,666)
Subtotal, Laboratories & Cooperative Institutions	**54,848**	**54,269**	**(33,312)**	**646**	**0**	**22,182**	**(32,666)**
Climate Data & Information							
Climate Data & Information	12,080	11,952	(12,080)	0	0	0	(12,080)
Subtotal, Climate Data & Information	**12,080**	**11,952**	**(12,080)**	**0**	**0**	**0**	**(12,080)**
Competitive Research Program							
Competitive Research Program (incl. NIDIS)	144,199	142,676	(140,199)	(4,000)	0	0	(144,199)
Regional Climate Assessments	9,000	8,905	(9,000)	0	0	0	(9,000)
Subtotal, Competitive Research Program	**153,199**	**151,581**	**(149,199)**	**(4,000)**	**0**	**0**	**(153,199)**
Climate Operations							
Climate Operations	913	903	(913)	0	0	0	(913)
Subtotal, Climate Operations	**913**	**903**	**(913)**	**0**	**0**	**0**	**(913)**

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Other Partnership Programs							
Climate System Research Center	495	0		0	0	0	(495)
Climate Change and Air Pollutant Impacts to NE's Rare Alpine Zone, NH	350	0		0	0	0	(350)
Integrating Climate Change Into the Restoration of the Chesapeake Bay Watershed, MD	3,000	0		0	0	0	(3,000)
Development of Earth System Information, MD	150	0		0	0	0	(150)
Carbon Sequestration and Climate Change Models for NY State Forests	100	0		0	0	0	(100)
Subtotal, Other Partnership Programs	**4,095**	**0**	**0**	**0**	**0**	**0**	**(4,095)**
Total, Climate Research	**225,135**	**218,705**	**(195,504)**	**(3,354)**	**0**	**22,182**	**(202,953)**
Weather & Air Quality Research							
Laboratories & Cooperative Institutes							
Laboratories & Cooperative Institutes	54,425	53,850	(14,921)	883	(975)	39,412	(15,013)
Nutrient & Mercury Speciation Measurement Stations	650	643		0	(650)	0	(650)
Subtotal, Laboratories & Cooperative Institutes	**55,075**	**54,493**	**(14,921)**	**883**	**(1,625)**	**39,412**	**(15,663)**

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Weather & Air Quality Research Programs							
U.S. Weather Research Program (USWRP) (THORPEX)	5,500	5,442		73	(1,300)	4,273	(1,227)
Tornado Severe Storm Research / Phased Array Radar	3,972	3,930		65	6,000	10,037	6,065
Subtotal, Weather & Air Quality Research Programs	**9,472**	**9,372**	**0**	**138**	**4,700**	**14,310**	**4,838**
Other Partnership Programs							
National Weather Radar Testbed Phased Array Radar, OK	2,000			0		0	(2,000)
Redstone UAS Development for Weather and Atmospheric Research, AL	300			0		0	(300)
AIRMAP at Univ. of New Hampshire, NH	500			0		0	(500)
Boise Center Aerospace Laboratory (BCAL) Watershed Modeling Utilizing LiDAR, ID	500			0		0	(500)
Univ of Tennessee - Atmospheric Science Research, TN	1,000			0		0	(1,000)
Southeastern Mercury Consortium, FL	500			0		0	(500)
Aviation and Hurricane Research Utilizing Unmanned Aerial Systems, FL	300			0		0	(300)

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Observing, Modeling, and Visualizing Storm Surge Inundation, FL	100			0		0	(100)
New England Weather Technology and Research Initiative, NH	250			0		0	(250)
Subtotal, Other Partnership Programs	**5,450**	**0**	**0**	**0**	**0**	**0**	**(5,450)**
Total, Weather & Air Quality Research	**69,997**	**63,865**	**(14,921)**	**1,021**	**3,075**	**53,722**	**(16,275)**
Ocean, Coastal, and Great Lakes Research							
Laboratories & Cooperative Institutes							
Laboratories & Cooperative Institutes	21,840	21,609		569		22,409	569
Subtotal, Laboratories & Cooperative Institutes	**21,840**	**21,609**	**0**	**569**	**0**	**22,409**	**569**
National Sea Grant College Program							
National Sea Grant College Program Base	56,200	55,606		136	885	57,221	1,021
Aquatic Invasive Species Program	2,000	1,979		3	(1,001)	1,002	(998)
Marine Aquaculture Program	4,800	4,749		1	(478)	4,323	(477)
Subtotal, National Sea Grant College Program	**63,000**	**62,334**	**0**	**140**	**(594)**	**62,546**	**(454)**
Ocean Exploration and Research							
Ocean Exp & Rsrch (NURP moved in FY08)		30,391		207	(1,400)	29,523	29,523
Ocean Exploration	21,816	0		0		0	(21,816)
National Undersea Research Program	8,900	0		0		0	(8,900)
Subtotal, Ocean Exploration and Research	**30,716**	**30,391**	**0**	**207**	**(1,400)**	**29,523**	**(1,193)**

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Other Ecosystems Programs							
Integrated Ocean Acidification	0			5,500	6,100	11,600	11,600
Subtotal, Other Ecosystems Programs	**0**	**0**	**0**	**5,500**	**6,100**	**11,600**	**11,600**
Invasive Species & Partnership Programs							
National Institute of Undersea Science and Technology, MS	5,000			0		0	(5,000)
National Sea Grant Law Center, MS	750			0		0	(750)
NOAA Northern Gulf Institute	4,500			0		0	(4,500)
Hyperspectral Remote Sensing and Sci Based Mgmt of Invasive Species in the Detroit River Int'l Wildlife Refuge, MI	500			0		0	(500)
Marine Aquaculture Lab Operations, MS	3,700			0		0	(3,700)
Lake Erie Hydrological & Climate Modeling, OH	100			0		0	(100)
Monitoring of Lake Erie Water Quality with Remote Sensing, OH	500			0		0	(500)
Subtotal, Other Partnership Programs	**15,050**	**0**	**0**	**0**	**0**	**0**	**(15,050)**
Total, Ocean, Coastal, & Great Lakes Rsrch	**130,606**	**114,334**	**0**	**6,416**	**4,106**	**126,078**	**(4,528)**

OFFICE OF OCEANIC AND ATMOSPHERIC RESEARCH ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Info Tech R&D,							
High Performance Computing Initiatives	13,028	12,890		185	53	13,266	238
Total, Info Tech R&D	**13,028**	**12,890**	**0**	**185**	**53**	**13,266**	**238**
Congressionally Directed Projects		**24,335**	**(5,095)**		**(19,500)**	**0**	**0**
Administrative Efficiency Initiative					**(3,235)**	**(3,235)**	**(3,235)**
Total, Office of Oceanic and Atmospheric Research - ORF	**438,766**	**434,129**	**(215,520)**	**4,268**	**(15,501)**	**212,013**	**(226,753)**
Other Office of Oceanic and Atmospheric Research Accounts							
Total, Office of Ocean and Atmospheric Research - PAC	10,379	10,379	(10,379)	0	0	0	(10,379)
Total, Office of Oceanic and Atmospheric Research - Other	0						
GRAND TOTAL OAR	**449,145**	**444,508**	**(225,899)**	**4,268**	**(15,501)**	**212,013**	**(237,132)**

CLIMATE SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Climate Research							
Modeling		0	23,484	761	6,980	31,225	31,225
Physical Sciences		0	10,767	171	7,672	18,610	18,610
Chemical Sciences		0	17,831	218	(2,200)	15,849	15,849
Global Monitorng and Research		0	13,797	387	12,700	26,884	26,884
Competitive Research Program		0	69,729	352	(6,060)	64,021	64,021
Subtotal, Climate Research	**0**	**0**	**135,608**	**1,889**	**19,092**	**156,589**	**156,589**
Integrated Climate Services							
NIDIS		0	13,514	77	0	13,591	13,591
Regional Services		0	4,881	7	(461)	4,427	4,427
Assessment Services		0	9,000	0	1,000	10,000	10,000
Communication & Education		0	1,400	138	1,500	3,038	3,038
Subtotal, Integrated Climate Service	**0**	**0**	**28,795**	**222**	**2,039**	**31,056**	**31,056**

CLIMATE SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Observations and Monitoring							
Ocean Observations		0	44,678	509	4,384	49,571	49,571
Climate Data and Information Services		0	52,777	1,032	(7,116)	46,693	46,693
Ocean Data and Informtion Services		0	13,890	94	38	14,022	14,022
Geophysical Data and Information Services		0	5,946	104	0	6,050	6,050
Environmental Services		0	9,994	89	0	10,083	10,083
Atmospheric Observations		0	5,240	44	0	5,284	5,284
Observations, Monitoring and Prediction for CPC		0	6,930	113	0	7,043	7,043
Subtotal, Observations & Monitoring	**0**	**0**	**139,455**	**1,985**	**(2,694)**	**138,746**	**138,746**
Congressionally Directed Projects			**8,945**		**(8,945)**	**0**	**0**
Administrative Efficiency Initiative					**(4,564)**	**(4,564)**	**(4,564)**
Total, Climate Service - ORF	**0**	**0**	**312,803**	**4,096**	**4,928**	**321,827**	**321,827**
Other Climate Service Accounts							
Total, Climate Service - PAC			36,425	0	(12,034)	24,391	24,391
Total, Climate Service - Other							
GRAND TOTAL CS	**0**	**0**	**349,228**	**4,096**	**(7,106)**	**346,218**	**346,218**

NATIONAL WEATHER SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Operations and Research							
Local Warnings and Forecasts							
Local Warnings and Forecasts Base	617,842	611,314	(4,300)	16,862	6,639	637,043	19,201
Air Quality Forecasting	5,445	5,387		0	0	5,445	0
Alaska Data Buoys	1,683	1,665		0	0	1,683	0
Sustain Cooperative Observer Network	1,871	1,851		0	0	1,871	0
NOAA Profiler Network	4,756	4,706		85	0	4,841	85
Strengthen U.S. Tsunami Warning Network	23,264	23,018		277	0	23,541	277
Pacific Island Compact	3,515	3,478		200	0	3,715	200
National Mesonet Network	19,000	18,799		0	(19,000)	0	(19,000)
Susquehanna River Basin Flood System	2,400	0		0		0	(2,400)
Upper Spring River Flood Warning System	125	0		0		0	(125)
Subtotal, Local Warnings and Forecasts	**679,901**	**670,218**	**(4,300)**	**17,424**	**(12,361)**	**678,139**	**(1,762)**
Advanced Hydrological Prediction Services	6,037	5,973		82	0	6,119	82
Aviation Weather	11,363	11,243		286	26,944	38,593	27,230
WFO Maintenance	7,316	7,239		130	0	7,446	130
Remote Infrasonic Monitoring of Natural Hazards, MS	2,000	0		0	0	0	(2,000)
Regional Ensembling Sys for Atmosph Dispersion, MS	1,000	0		0	0	0	(1,000)
Joint Center for Hurricane Research, FL	500	0		0	0	0	(500)

NATIONAL WEATHER SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Weather Radio Transmitters							
Weather Radio Transmitters Base	2,297	2,273		0	0	2,297	0
Delaware River Enhanced Flood Warning System	200	0		0	0	0	(200)
Subtotal, Weather Radio Transmitters	**2,497**	**2,273**	**0**	**0**	**0**	**2,297**	**(200)**
Subtotal,Local Warnings and Forecasts	**710,614**	**696,946**	**(4,300)**	**17,922**	**14,583**	**732,594**	**21,980**
Central Forecast Guidance							
Central Forecast Guidance	79,525	78,685	(6,930)	1,246		73,841	(5,684)
Subtotal,Central Forecast Guidance	**79,525**	**78,685**	**(6,930)**	**1,246**	**0**	**73,841**	**(5,684)**
Total, Operations and Research	**790,139**	**775,631**	**(11,230)**	**19,168**	**14,583**	**806,435**	**16,296**
Systems Operation & Maintenance (O&M)							
NEXRAD	46,121	45,634		500	127	46,748	627
ASOS	11,000	10,884		100	202	11,302	302
AWIPS	39,346	38,930		500	0	39,846	500
NWSTG Backup - CIP	5,512	5,454		0	0	5,512	0
Total, Systems Operation & Maintenance (O&M)	**101,979**	**100,902**	**0**	**1,100**	**329**	**103,408**	**1,429**
Congressionally Directed Projects		**6,159**			**(6,225)**	**0**	**0**
Administrative Efficiency Initiative					**(13,055)**	**(13,055)**	**(13,055)**
Total, National Weather Service - ORF	**892,118**	**882,692**	**(11,230)**	**20,268**	**(4,368)**	**896,788**	**4,670**

NATIONAL WEATHER SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Other National Weather Service Accounts							
Total, National Weather Service - PAC	107,727	107,727	(3,734)	(3,504)	(9,299)	91,190	(16,537)
Total, National Weather Service - Other	0						
GRAND TOTAL NWS	**999,845**	**990,419**	**(14,964)**	**16,764**	**(13,667)**	**987,978**	**(11,867)**

NATIONAL ENVIRONMENTAL SATELLITE SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Environmental Satellite Observing Systems							
Satellite Command and Control	39,562	39,144		919		40,481	919
NSOF Operations	7,810	7,727		303		8,113	303
Subtotal, Satellite Command and Control	**47,372**	**46,871**	**0**	**1,222**	**0**	**48,594**	**1,222**
Product Processing and Distribution							
Product Processing and Distribution	32,698	32,353		609	6,919	40,226	7,528
Subtotal, Product Processing and Distribution	**32,698**	**32,353**	**0**	**609**	**6,919**	**40,226**	**7,528**
Product Development, Readiness & Application							
Product Development, Readiness & Application	20,671	20,453		292	0	20,963	292
Prod Devel, Read & App(Ocean Remote Sensing)	3,979	3,937		89	0	4,068	89
Joint Center/Accelerate Use of Satellites	3,320	3,285		84	0	3,404	84
Subtotal, Product Development, Readiness & Application	**27,970**	**27,675**	**0**	**465**	**0**	**28,435**	**465**
Commercial Remote Sensing Licensing & Enforcement	1,301	1,287		23	0	1,324	23
Office of Space Commercialization	649	642		12	0	661	12
Group on Earth Observations (GEO)	500	495		6	0	506	6
Total, Environmental Satellite Observing Sys	**110,490**	**109,323**	**0**	**2,337**	**6,919**	**119,746**	**9,256**

NATIONAL ENVIRONMENTAL SATELLITE SERVICE ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Data Centers & Information Services							
Archive, Access & Assessment	67,255	66,544	(67,255)	0		0	(67,255)
Subtotal, Archive, Access & Assessment	**67,255**	**66,544**	**(67,255)**	**0**	**0**	**0**	**(67,255)**
Coastal Data Development	4,559	4,511	(4,559)	0		0	(4,559)
Regional Climate Centers	3,500	3,463	(3,500)	0		0	(3,500)
Environmental Data Systems Modernization	9,511	9,411	(9,511)	0		0	(9,511)
Integrated Environ Applications & Info Ctr	3,000	0		0		0	(3,000)
NOAA Regional Climate Center program	850			0		0	(850)
Total, Data Centers & Information Services	**88,675**	**83,929**	**(84,825)**	**0**	**0**	**0**	**(88,675)**
Congressionally Directed Projects		**3,809**	**(3,850)**				**0**
Administrative Efficiency Initiative					**(1,856)**	**(1,856)**	**(1,856)**
Total, NESS - ORF	**199,165**	**197,061**	**(88,675)**	**2,337**	**5,063**	**117,890**	**(81,275)**
Other NESS Accounts							
Total, NESS - PAC	1,199,357	1,199,357	(22,312)	(810)	721,301	1,897,536	698,179
Total, NESS - Other	0						
GRAND TOTAL NESS	**1,398,522**	**1,396,418**	**(110,987)**	**1,527**	**726,364**	**2,015,426**	**616,904**

PROGRAM SUPPORT ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Corporate Services							
Under Secretary and Associate Offices							
Under Secretary and Associate Offices Base	28,438	28,138		417	65	28,920	482
Subtotal, Under Secretary and Associate Offices	**28,438**	**28,138**	**0**	**417**	**65**	**28,920**	**482**
NOAA Wide Corporate Services & Agency Management							
NOAA Wide Corporate Services & Agency Management Base	115,561	114,341	2,622	3,510	6,253	127,946	12,385
DOC Accounting System	10,171	10,064		354	5,000	15,525	5,354
Payment tothe DOC Working Capital Fund	41,944	41,501		3,923	(1,389)	44,478	2,534
Subtotal, NOAA Wide Corporate Srvcs & Agency Mgmt	**167,676**	**165,906**	**2,622**	**7,787**	**9,864**	**187,949**	**20,273**
Office of Chief Information Officer							
IT Security	9,089	8,993		243	9,100	18,432	9,343
Subtotal, Office of Chief Information Officer	**9,089**	**8,993**	**0**	**243**	**9,100**	**18,432**	**9,343**
Total, Corporate Services	**205,203**	**203,037**	**2,622**	**8,447**	**19,029**	**235,301**	**30,098**

PROGRAM SUPPORT ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
NOAA Education Program							
Education Program / Initiative	2,000	1,979		(1,287)	(713)	0	(2,000)
JASON Education and Outreach	8,300			0		0	(8,300)
BWET California	2,500			0		0	(2,500)
BWET Regional Programs	7,200	7,124		0	(7,200)	0	(7,200)
Educ Partnership Prog/Minority Serving Institutions (EPPMSI)	14,323	14,172		(14,323)		0	(14,323)
Chesapeake Bay Interpretive Buoys	500			0		0	(500)
Narragansett Bay Marine Education (Save the Bay)	1,000			0		0	(1,000)
Training Next Generation Weather Forecasters - San Jose State Unv.	180			0		0	(180)
Competitive Educational Grants and Programs	12,000	11,873		15,797	(6,957)	20,840	8,840
GLOBE	3,000	2,968		0	(3,000)	0	(3,000)
Hawaii Education Program, HI	1,750			0		0	(1,750)
Coastal Environmental Education Outreach	500			0		0	(500)
Chesapeake Bay Environmental Center	250			0		0	(250)
Great Lakes Water Project	250			0		0	(250)
Total, NOAA Education Program	**53,753**	**38,116**	**0**	**187**	**(17,870)**	**20,840**	**(32,913)**
Facilities							
NOAA Facilities Management & Construction and Safety	30,346	30,025		659	10,758	41,763	11,417
Subtotal, NOAA Fac Mgmt, Const& Maint	**30,346**	**30,025**	**0**	**659**	**10,758**	**41,763**	**11,417**

PROGRAM SUPPORT ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Total, Facilities	**30,346**	**30,025**	**0**	**659**	**10,758**	**41,763**	**11,417**
Congressionally Directed Projects - Program Support		**15,069**			**(15,230)**	**0**	**0**
Administrative Efficiency Initiative					**(3,274)**	**(3,274)**	**(3,274)**
Total, Program Support - ORF	**289,302**	**286,247**	**2,622**	**9,293**	**(6,587)**	**294,630**	**5,328**
Total, Program Support - PAC		**0**	**0**	**0**	**900**	**900**	**900**
Total, Program Support - ORF and PAC		**286,247**	**2,622**	**9,293**	**(5,687)**	**295,530**	**6,228**
Marine Operations & Maintenance							
Marine Services							
Data Acquisition	120,125	118,856		11,844	192	132,161	12,036
Subtotal, Marine Operations & Maintenance	**120,125**	**118,856**	**0**	**11,844**	**192**	**132,161**	**12,036**
Fleet Planning and Maintenance							
Fleet Planning and Maintenance	17,034	16,854		436	9,565	27,035	10,001
Subtotal, Fleet Planning and Maintenance	**17,034**	**16,854**	**0**	**436**	**9,565**	**27,035**	**10,001**
Total, Marine Operations & Maintenance	**137,159**	**135,710**	**0**	**12,280**	**9,757**	**159,196**	**22,037**

PROGRAM SUPPORT ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Aviation Operations							
Aircraft Services	29,509	29,197		1,011	(1,162)	29,358	(151)
Subtotal, Aviation Operations	**29,509**	**29,197**	**0**	**1,011**	**(1,162)**	**29,358**	**(151)**
Congressionally Directed Projects - OMAO							**0**
Administrative Efficiency Initiative					**(3,526)**	**(3,526)**	**(3,526)**
Total, OMAO - ORF	**166,668**	**164,907**	**0**	**13,291**	**5,069**	**185,028**	**18,360**
Total, OMAO - PAC		**2,000**	**0**	**0**	**12,026**	**14,026**	**12,026**
Total, OMAO - Other		**30,091**	**0**	**114**	**0**	**30,205**	**2,267**
Total OMAO - ORF, PAC and Other		**196,998**	**0**	**13,405**	**17,095**	**229,259**	**32,653**
Total, Program Support and OMAO - ORF	**455,970**	**451,154**	**2,622**	**22,584**	**(1,518)**	**479,658**	**23,688**
Other Program Support and OMAO Accounts							
Total, Program Support - PAC	2,000	2,000	0	0	12,926	14,926	12,926
Total, Program Support - Other	27,938	30,091	0	114	0	30,205	2,267
GRAND TOTAL PS	**485,908**	**483,245**	**2,622**	**22,698**	**11,408**	**524,789**	**38,881**

OPERATIONS, RESEARCH, & FACILITIES SUMMARY LINE OFFICE DIRECT OBLIGATIONS ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
National Ocean Service	522,220	516,705	0	7,385	(18,386)	511,219	(11,001)
National Marine Fisheries Service	904,539	894,980	0	18,435	(12,562)	910,412	5,873
Office of Oceanic and Atmospheric Research	438,766	434,129	(215,520)	4,268	(15,501)	212,013	(226,753)
Climate Service	0	0	312,803	4,096	4,928	321,827	321,827
National Weather Service	892,118	882,692	(11,230)	20,268	(4,368)	896,788	4,670
National Environmental Satellite Service	199,165	197,061	(88,675)	2,337	5,063	117,890	(81,275)
Program Support	455,970	451,154	2,622	22,584	(1,518)	479,658	23,688
SUBTOTAL LO DIRECT OBLIGATIONS	**3,412,778**	**3,376,721**	**0**	**79,373**	**(42,344)**	**3,449,807**	**37,029**

OPERATIONS, RESEARCH, & FACILITIES FINANCING ADJUSTMENTS ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
SUBTOTAL LO DIRECT OBLIGATIONS	**3,412,778**	**3,376,721**	**0**	**79,373**	**(42,344)**	**3,449,807**	**37,029**
FINANCING							
De-Obligations				(6,000)	0	(6,000)	(6,000)
Total ORF Financing	**0**	**(312)**	**0**	**(6,000)**	**0**	**(6,000)**	**(6,000)**
SUBTOTAL BUDGET AUTHORITY	**3,412,778**	**3,376,409**	**0**	**73,373**	**(42,344)**	**3,443,807**	**31,029**

OPERATIONS, RESEARCH, & FACILITIES FINANCING ADJUSTMENTS ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
TRANSFERS							
Transfer from P&D to ORF	(104,600)	(68,231)		2,031		(66,200)	38,400
Transfer from CZMF to ORF	(3,000)	(3,000)		0	3,000	0	3,000
Total ORF Transfers	**(107,600)**	**(71,231)**	**0**	**2,031**	**3,000**	**(66,200)**	**41,400**
SUBTOTAL APPROPRIATION	**3,305,178**	**3,305,178**	**0**	**75,404**	**(39,344)**	**3,377,607**	**72,429**

PROCUREMENT, ACQUISITION, & CONSTRUCTION ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
NOS							
CELCP Acquisition							
Coastal and Estuarine Land Conservation Program	20,000	20,000		0	5,000	25,000	5,000
Subtotal, NOS Acquisition	**20,000**	**20,000**	**0**	**0**	**5,000**	**25,000**	**5,000**
NERRS Construction:							
National Estuarine Rsrch Reserve Construction (NERRS)	3,890	3,890		0	(2,200)	1,690	(2,200)
Great Bay Partnership, NH	3,000	0		0		0	(3,000)
Subtotal, NERRS Construction	**6,890**	**3,890**	**0**	**0**	**(2,200)**	**1,690**	**(5,200)**

PROCUREMENT, ACQUISITION, & CONSTRUCTION ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Marine Sanctuaries Construction:							
Marine Sanctuaries Base (Nancy Foster Scholarship 1% of base)	13,000	13,000		0	(7,505)	5,495	(7,505)
Thunder Bay NMS Exhibit	1,000	0		0		0	(1,000)
Subtotal, Marine Sanctuary Construction	**14,000**	**13,000**	**0**	**0**	**(7,505)**	**5,495**	**(8,505)**
Subtotal, NOS Construction	**20,890**	**16,890**	**0**	**0**	**(9,705)**	**7,185**	**(13,705)**
Congressionally Directed Projects		**4,000**			**(4,000)**	**0**	**0**
Administrative Efficiency Initiative					**(451)**	**(451)**	**(451)**
Total NOS - PAC	**40,890**	**40,890**	**0**	**0**	**(9,156)**	**31,734**	**(9,156)**
Total, NMFS - PAC	**0**	**0**	**0**	**0**	**0**	**0**	**0**
OAR							
Systems Acquisition							
Research Supercomputing/ CCRI	10,379	10,379	(10,379)	0	0	0	(10,379)
Subtotal, OAR Systems Acquisition	**10,379**	**10,379**	**(10,379)**	**0**	**0**	**0**	**(10,379)**
Total, OAR - PAC	**10,379**	**10,379**	**(10,379)**	**0**	**0**	**0**	**(10,379)**

PROCUREMENT, ACQUISITION, & CONSTRUCTION ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
CS							
Climate Research							
Research Super-computing			10,379	0	0	10,379	10,379
Subtotal, NCS Climate Research	**0**	**0**	**10,379**	**0**	**0**	**10,379**	**10,379**
Observations and Monitoring							
Regional Historical Climatology Network Modernization			3,734	0	(34)	3,700	3,700
EOS & Advanced Polar Data Processing, Distribution, & Archiving Systems			990	0	0	990	990
Data Center Modernization			2,846	0	0	2,846	2,846
CLASS			18,476	0	(12,000)	6,476	6,476
Subtotal, NCS Observations and Monitoring	**0**	**0**	**26,046**	**0**	**(12,034)**	**14,012**	**14,012**
Total, NCS - PAC	**0**	**0**	**36,425**	**0**	**(12,034)**	**24,391**	**24,391**
NWS							
Systems Acquisition							
ASOS	1,635	1,635		0	0	1,635	0
AWIPS	24,000	24,000		0	364	24,364	364
NEXRAD	7,976	7,976		0	(2,157)	5,819	(2,157)
NWSTG Legacy Replacement	1,195	1,195		0	0	1,195	0
Radiosonde Network Replacement	4,014	4,014		0	0	4,014	0
Weather and Climate Supercomputing	29,169	29,169		0	11,000	40,169	11,000

PROCUREMENT, ACQUISITION, & CONSTRUCTION ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Cooperative Observer Network Modernization (NERON)	3,734	3,734	(3,734)	0	0	0	(3,734)
Complete and Sustain NOAA Weather Radio	11,000	11,000		0	(5,406)	5,594	(5,406)
NOAA Profiler Conversion	7,500	7,500		0	(2,020)	5,480	(2,020)
Subtotal, NWS Systems Acquisition	**90,223**	**90,223**	**(3,734)**	**0**	**1,781**	**88,270**	**(1,953)**
Construction							
WFO Construction	3,504	3,504		(3,504)	3,150	3,150	(354)
Cooperative Institute and Research Center for Southeast Weather, AL	14,000	0		0		0	(14,000)
Subtotal, NWS Construction	**17,504**	**3,504**	**0**	**(3,504)**	**3,150**	**3,150**	**(14,354)**
Congressionally Directed Projects		**14,000**			**(14,000)**	**0**	**0**
Administrative Efficiency Initiative					**(230)**	**(230)**	**(230)**
Total, NWS - PAC	**107,727**	**107,727**	**(3,734)**	**(3,504)**	**(9,299)**	**91,190**	**(16,537)**

PROCUREMENT, ACQUISITION, & CONSTRUCTION ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
NESS							
Systems Acquisition							
Geostationary Systems - N	57,601	57,601	(2,846)	(810)	(19,978)	33,967	(23,634)
Geostationary Systems - R	667,500	667,500		0	(50,110)	617,390	(50,110)
Polar Orbiting Systems - POES	43,135	43,135		0	(8,319)	34,816	(8,319)
JASON-3	20,000	20,000		0	33,000	53,000	33,000
Joint Polar Satellite System (formerly NPOESS)	382,200	382,200		0	687,800	1,070,000	687,800
DSCOVR	0	0		0	47,300	47,300	47,300
COSMIC-2	0	0		0	11,300	11,300	11,300
EOS & Advanced Polar Data Processing, Distribution & Archiving Systems	990	990	(990)	0	0	0	(990)
CIP - single point of failure	2,772	2,772		0	0	2,772	0
Comprehensive Large Array Data Stewardship Sys (CLASS)	18,476	18,476	(18,476)	0		0	(18,476)
NPOESS Preparatory Data Exploitation	4,455	4,455		0	0	4,455	0
Restoration of Climate Sensors	0	0		0	30,400	30,400	30,400
Subtotal, NESS Systems Acquisition	**1,197,129**	**1,197,129**	**(22,312)**	**(810)**	**731,393**	**1,905,400**	**708,271**

PROCUREMENT, ACQUISITION, & CONSTRUCTION ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Construction							
Satellite CDA Facility	2,228	2,228		0	0	2,228	0
Subtotal, NESS Construction	**2,228**	**2,228**	**0**	**0**	**0**	**2,228**	**0**
Administrative Efficiency Initiative					**(10,092)**	**(10,092)**	**(10,092)**
Total, NESS - PAC	**1,199,357**	**1,199,357**	**(22,312)**	**(810)**	**721,301**	**1,897,536**	**698,179**
Program Support							
Construction							
NOAA Construction	0			0	900	900	900
Subtotal, Construction	**0**	**0**	**0**	**0**	**900**	**900**	**900**
Total, Program Support - PAC	**0**	**0**	**0**	**0**	**900**	**900**	**900**
OMAO							
OMAO - Fleet Replacement							
Temporary Berthing	1,000	1,000		0	(1,000)	0	(1,000)
Fleet Capital Improvements & Tech Infusion (Vessel Equip & Techn Refresh)	1,000	1,000		0	11,626	12,626	11,626
New Vessel Construction	0			0	1,400	1,400	1,400
Subtotal, OMAO Fleet Replacement	**2,000**	**2,000**	**0**	**0**	**12,026**	**14,026**	**12,026**
Total, OMAO - PAC	**2,000**	**2,000**	**0**	**0**	**12,026**	**14,026**	**12,026**
GRAND TOTAL PAC	**1,360,353**	**1,360,353**	**0**	**(4,314)**	**703,738**	**2,059,777**	**699,424**

PROCUREMENT, ACQUISTION, & CONSTRUCTION FINANCING ADJUSTMENTS ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
SUBTOTAL DIRECT OBLIGATIONS	**1,360,353**	**1,360,353**	**0**	**(4,314)**	**703,738**	**2,059,777**	**699,424**
FINANCING							
Cash Refunds/ Recoveries from Prior Year				0			0
De-Obligations	(2,000)	(2,000)		(5,000)		(7,000)	(5,000)
Unobligated balance, Expiring end of year				0			0
Unobligated Balance Adj. SOY (start of year)				0			0
Unobligated Balance End of Year				0			0
Transfer to ORF				0			0
Total PAC Financing	**(2,000)**	**(2,000)**	**0**	**(5,000)**	**0**	**(7,000)**	**(5,000)**
SUBTOTAL BUDGET AUTHORITY	**1,358,353**	**1,358,353**	**0**	**(9,314)**	**703,738**	**2,052,777**	**694,424**
TRANSFERS/RESCISSIONS							
Transfer from ORF to PAC				0			0
Transfer from PAC to ORF				0			0
Unobligated balance, Rescission				0			0
Total PAC Transfers/ Rescissions	**0**	**0**	**0**	**0**	**0**	**0**	**0**
SUBTOTAL APPROPRIATION	**1,358,353**	**1,358,353**	**0**	**(9,314)**	**703,738**	**2,052,777**	**694,424**

GRAND TOTAL SUMMARY DISCRETIONARY APPROPRIATIONS ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Operations, Research and Facilities	3,305,178	3,305,178	0	75,404	(39,344)	3,377,607	72,429
Procurement, Acquisition and Construction	1,358,353	1,358,353	0	(9,314)	703,738	2,052,777	694,424
Coastal Zone Management Fund	3,000	3,000	0	0	(3,000)	0	(3,000)
Fisherman's Contingency Fund	0	0	0	0	350	350	350
Foreign Fishing Observer Fund	0	0	0	0	0	0	0
Fisheries Financing Program	0	0	0	0	0	0	0
Pacific Coastal Salmon Fund	80,000	80,000	0	0	(15,000)	65,000	(15,000)
Marine Mammal Unusual Mortality Event Fund	0	0	0	0	0	0	0
Medicare Eligible Retiree Health Care Fund	1,822	1,822	0	114	0	1,936	114
GRAND TOTAL DISCRETIONARY APPROPRIATION	**4,748,353**	**4,748,353**	**0**	**66,204**	**646,744**	**5,497,670**	**749,317**

OTHER ACCOUNTS (DISCRETIONARY) ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
NOS							
Coastal Zone Management Fund Obligations	0	0		0		0	0
Coastal Zone Management Fund Budget Authority	0	0		0		0	0
Coastal Zone Management Fund Appropriation	3,000	3,000		0	(3,000)	0	(3,000)
Subtotal, NOS 0th Disc Direct Obligation	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Subtotal, NOS 0th Disc Budget Authority	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Subtotal, NOS 0th Disc Appropriation	**3,000**	**3,000**	**0**	**0**	**(3,000)**	**0**	**(3,000)**
NMFS							
Fishermen's Contingency Fund Obligations	0	10		(10)	350	350	350
Fishermen's Contingency Fund Budget Authority	0	0		0	350	350	350
Fishermen's Contingency Fund Appropriations	0	0		0	350	350	350
Foreign Fishing Observer Fund Obligations	0	0		0	0	0	0
Foreign Fishing Observer Fund Budget Authority	0	0		0	(350)	(350)	(350)
Foreign Fishing Observer Fund Appropriation	0	0		0	0	0	0

OTHER ACCOUNTS (DISCRETIONARY) ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Promote and Develop Fisheries Obligations	0			0		0	0
Promote and Develop Fisheries Budget Authority	(104,600)	(68,231)		2,031		(66,200)	38,400
Promote and Develop Fisheries Appropriation	0	0		0		0	0
Pacific Coastal Salmon Fund Obligations	80,000	80,000		0	(15,000)	65,000	(15,000)
Pacific Coastal Salmon Fund Budget Authority	80,000	80,000		0	(15,000)	65,000	(15,000)
Pacific Coastal Salmon Fund Appropriation	80,000	80,000		0	(15,000)	65,000	(15,000)
Marine Mammal Unusual Mortality Event Fund Obligations	0	206		(6)		200	200
Marine Mammal Unusual Mortality Event Fund Budget Authority	0	0		0		0	0
Marine Mammal Unusual Mortality Event Fund Appropriations	0	0		0		0	0
Subtotal, NMFS Oth Disc Direct Obligation	**80,000**	**80,216**	**0**	**(16)**	**(14,650)**	**65,550**	**(14,450)**
Subtotal, NMFS Oth Disc Budget Authority	**(24,600)**	**11,769**	**0**	**2,031**	**(15,000)**	**(1,200)**	**23,400**
Subtotal, NMFS Oth Disc Appropriation	**80,000**	**80,000**	**0**	**0**	**(14,650)**	**65,350**	**(14,650)**

OTHER ACCOUNTS (DISCRETIONARY) ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
OMAO							
Medicare Eligible Retiree Healthcare Fund Acct Obligations	1,822	1,822		114	0	1,936	114
Medicare Eligible Retiree Healthcare Fund Acct Budget Authority	1,822	1,822		114	0	1,936	114
Medicare Eligible Retiree Healthcare Fund Acct Appropriations	1,822	1,822		114	0	1,936	114
Subtotal, OMAO Oth Disc Direct Obligations	**1,822**	**1,822**	**0**	**114**	**0**	**1,936**	**114**
Subtotal, OMAO Oth Disc Budget Authority	**1,822**	**1,822**	**0**	**114**	**0**	**1,936**	**114**
Subtotal, OMAO Oth Disc Appropriation	**1,822**	**1,822**	**0**	**114**	**0**	**1,936**	**114**
TOTAL, OTHER DISC DIRECT OBLIGATIONS	**81,822**	**82,038**	**0**	**98**	**(14,650)**	**67,486**	**(14,336)**
TOTAL, OTHER DISC BUDGET AUTHORITY	**(22,778)**	**13,591**	**0**	**2,145**	**(15,000)**	**736**	**23,514**
TOTAL, OTHER DISC APPROPRIATION	**84,822**	**84,822**	**0**	**114**	**(17,650)**	**67,286**	**(17,536)**

SUMMARY OF DISCRETIONARY RESOURCES ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Discretionary Direct Obligations							
ORF Direct Obligations	3,412,778	3,376,721	0	79,373	(42,344)	3,449,807	37,029
PAC Direct Obligations	1,360,353	1,360,353	0	(4,314)	703,738	2,059,777	699,424
OTHER Direct Obligations	81,822	82,038	0	98	(14,650)	67,486	(14,336)
TOTAL Discretionary Direct Obligations	**4,854,953**	**4,819,112**	**0**	**75,157**	**646,744**	**5,577,070**	**722,117**
Discretionary Budget Authority							
ORF Budget Authority	3,412,778	3,376,409	0	73,373	(42,344)	3,443,807	31,029
PAC Budget Authority	1,358,353	1,358,353	0	(9,314)	703,738	2,052,777	694,424
OTHER Budget Authority	(22,778)	13,591	0	2,145	(15,000)	736	23,514
TOTAL Discretionary Budget Authority	**4,748,353**	**4,748,353**	**0**	**66,204**	**646,394**	**5,497,320**	**748,967**
Discretionary Appropriations							
ORF Appropriations	3,305,178	3,305,178	0	75,404	(39,344)	3,377,607	72,429
PAC Appropriations	1,358,353	1,358,353	0	(9,314)	703,738	2,052,777	694,424
OTHER Appropriations	84,822	84,822	0	114	(17,650)	67,286	(17,536)
TOTAL Discretionary Appropriation	**4,748,353**	**4,748,353**	**0**	**66,204**	**646,744**	**5,497,670**	**749,317**

OTHER ACCOUNTS (MANDATORY) ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
NOS							
Coastal Zone Management FundObligations	0	0		0		0	0
Coastal Zone Management Fund Budget Authority	(1,500)	(1,500)		0		(1,500)	0
Coastal Zone Management Fund Appropriation	(3,000)	(3,000)		0	3,000	0	3,000
Damage Assessment & Restoration Revolving Fund Obligations	15,600	55,326		(39,726)		15,600	0
Damage Assessment & Restoration Revolving Fund Budget Authority	3,000	3,300		(300)		3,000	0
Damage Assessment & Restoration Revolving Fund Appropriation	0	0		0		0	0
Subtotal, NOS Oth Mand Direct Obligations	**15,600**	**55,326**	**0**	**(39,726)**	**0**	**15,600**	**0**
Subtotal, NOS Oth Mand Budget Authority	**1,500**	**1,800**	**0**	**(300)**	**0**	**1,500**	**0**
Subtotal, NOS Oth Mand Appropriation	**(3,000)**	**(3,000)**	**0**	**0**	**3,000**	**0**	**3,000**
NMFS							
Promote and Develop Fisheries Obligations	8,771	0		5,000		5,000	(3,771)
Promote and Develop Fisheries Budget Authority	113,371	68,231		2,969		71,200	(42,171)
Promote and Develop Fisheries Appropriation	0	0		0		0	0

OTHER ACCOUNTS (MANDATORY) ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Fisheries Finance Program Account Obligations	5,777	9,910		(9,910)		0	(5,777)
Fisheries Finance Program AccountBudget Authority	5,777	9,910		(9,910)		0	(5,777)
Fisheries Finance Program Account Appropriation	5,777	9,910		(9,910)		0	(5,777)
Federal Ship Financing Obligations	260	0		0		0	(260)
Federal Ship Financing Budget Authority	(740)	0		0		0	740
Federal Ship Financing Appropriation	0	0		0		0	0
Environmental Improve & Restoration FundObligations	506	10,248		(8,781)		1,467	961
Environmental Improve & Restoration Fund Budget Authority	506	378		1,089		1,467	961
Environmental Improve & Restoration Fund Appropriation	506	378		1,089		1,467	961
Limited Access System Administration Fund Obligations	7,444	20,046		(10,371)		9,675	2,231
Limited Access System Administration Fund Budget Authority	7,444	8,576		1,099		9,675	2,231
Limited Access System Administration Fund Appropriation	7,444	8,576		1,099		9,675	2,231
Western Pacific Sustainable Fisheries Fund Obligations	884	2,000		(1,000)		1,000	116

OTHER ACCOUNTS (MANDATORY) ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Western Pacific Sustainable Fisheries Fund Budget Authority	0	1,000		0		1,000	1,000
Western Pacific Sustainable Fisheries Fund Appropriation	0	1,000		0		1,000	1,000
Subtotal, NMFS Oth Mand Direct Obligations	**23,642**	**42,204**	**0**	**(25,062)**	**0**	**17,142**	**(6,500)**
Subtotal, NMFS Oth Mand Budget Authority	**126,358**	**88,095**	**0**	**(4,753)**	**0**	**83,342**	**(43,016)**
Subtotal, NMFS Oth Mand Appropriation	**13,727**	**19,864**	**0**	**(7,722)**	**0**	**12,142**	**(1,585)**
OMAO							
NOAA Corp Commissioned Officers Retirement Obligations	26,116	28,269		0		28,269	2,153
NOAA Corp Commissioned Officers Retirement Budget Authority	26,116	28,269		0		28,269	2,153
NOAA Corp Commissioned Officers Retirement Budget Appropriation	26,116	28,269		0		28,269	2,153
Subtotal, OMAO Oth Mand Direct Obligations	**26,116**	**28,269**	**0**	**0**	**0**	**28,269**	**2,153**
Subtotal, OMAO Oth Mand Budget Authority	**26,116**	**28,269**	**0**	**0**	**0**	**28,269**	**2,153**
Subtotal, OMAO Oth Mand Appropriation	**26,116**	**28,269**	**0**	**0**	**0**	**28,269**	**2,153**
TOTAL, OTH MAND DIRECT OBLIGATIONS	**65,358**	**125,799**	**0**	**(64,788)**	**0**	**61,011**	**(4,347)**
TOTAL, OTH MAND BUDGET AUTHORITY	**153,974**	**118,164**	**0**	**(5,053)**	**0**	**113,111**	**(40,863)**
TOTAL, OTH MAND APPROPRIATION	**36,843**	**45,133**	**0**	**(7,722)**	**3,000**	**40,411**	**3,568**

OTHER ACCOUNTS (DISCRETIONARY REIMBURSABLE) ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
NOS							
Sanctuaries Asset Forefeiture Fund Obligations	0	0		1,000		1,000	1,000
Sanctuaries Asset Forefeiture Fund Budget Authority	0	0		1,000		1,000	1,000
Sanctuaries Asset Forefeiture Fund Appropriations	0	0		1,000		1,000	1,000
NMFS							
Fisheries Asset Forfeiture Fund Obligations	0	0		8,000		8,000	8,000
Fisheries Asset Forfeiture Fund Budget Authority	0	0		8,000		8,000	8,000
Fisheries Asset Forfeiture Fund Appropriations	0	0		5,000		5,000	5,000
TOTAL, OTH DISC REIMB DIRECT OBLIGATIONS	**0**	**0**	**0**	**9,000**	**0**	**9,000**	**9,000**
TOTAL, OTH DISC REIMB BUDGET AUTHORITY	**0**	**0**	**0**	**9,000**	**0**	**9,000**	**9,000**
TOTAL, OTH DISC REIMB APPROPRIATION	**0**	**0**	**0**	**6,000**	**0**	**6,000**	**6,000**

NOAA SUMMARY ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
TOTAL Direct Obligations (Discretion & Mand)	**4,920,311**	**4,944,911**	**0**	**19,369**	**646,744**	**5,647,081**	**726,770**
TOTAL Budget Authority (Discretion & Mand)	**4,902,327**	**4,866,517**	**0**	**70,151**	**646,394**	**5,619,431**	**717,104**
TOTAL Appropriation (Discretion & Mand)	**4,785,196**	**4,793,486**	**0**	**64,482**	**649,744**	**5,544,081**	**758,885**
Reimbursable Financing	242,000	242,000	0	0	(3,000)	239,000	(3,000)
TOTAL OBLIGATIONS (Direct & Reimbursable)	**5,162,311**	**5,186,911**	**0**	**19,369**	**643,744**	**5,886,081**	**723,770**
Offsetting Receipts	(6,929)	(8,611)	0		0	(15,831)	(8,902)
TOTAL OBLIGATIONS (Direct, Reimb & Offsetting Receipts)	**5,155,382**	**5,178,300**	**0**	**19,369**	**643,744**	**5,870,250**	**714,868**

LINE OFFICE SUMMARY ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
National Ocean Service							
ORF	522,220	516,705	0	7,385	(18,386)	511,219	(11,001)
PAC	40,890	40,890	0	0	(9,156)	31,734	(9,156)
OTHER	15,600	55,326	0	(38,726)	0	16,600	1,000
TOTAL, NOS	**578,710**	**612,921**	**0**	**(31,341)**	**(27,542)**	**559,553**	**(19,157)**
National Marine Fisheries Service							
ORF	904,539	894,980	0	18,435	(12,562)	910,412	5,873
PAC	0	0	0	0	0	0	0
OTHER	103,642	122,420	0	(17,078)	(14,650)	90,692	(12,950)
TOTAL,NMFS	**1,008,181**	**1,017,400**	**0**	**1,357**	**(27,212)**	**1,001,104**	**(7,077)**
Oceanic and Atmospheric Research							
ORF	438,766	434,129	(215,520)	4,268	(15,501)	212,013	(226,753)
PAC	10,379	10,379	(10,379)	0	0	0	(10,379)
OTHER	0	0	0	0	0	0	0
TOTAL, OAR	**449,145**	**444,508**	**(225,899)**	**4,268**	**(15,501)**	**212,013**	**(237,132)**
Climate Service							
ORF		0	312,803	4,096	4,928	321,827	321,827
PAC		0	36,425	0	(12,034)	24,391	24,391
OTHER		0	0	0	0	0	0
TOTAL, CS	**0**	**0**	**349,228**	**4,096**	**(7,106)**	**346,218**	**346,218**
National Weather Service							
ORF	892,118	882,692	(11,230)	20,268	(4,368)	896,788	4,670
PAC	107,727	107,727	(3,734)	(3,504)	(9,299)	91,190	(16,537)
OTHER	0	0	0	0	0	0	0
TOTAL, NWS	**999,845**	**990,419**	**(14,964)**	**16,764**	**(13,667)**	**987,978**	**(11,867)**

LINE OFFICE SUMMARY ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
NESS							
ORF	199,165	197,061	(88,675)	2,337	5,063	117,890	(81,275)
PAC	1,199,357	1,199,357	(22,312)	(810)	721,301	1,897,536	698,179
OTHER	0	0	0	0	0	0	0
TOTAL,NESS	**1,398,522**	**1,396,418**	**(110,987)**	**1,527**	**726,364**	**2,015,426**	**616,904**
Program Support / Corporate Services							
ORF	205,203	203,037	2,622	8,447	19,029	235,301	30,098
PAC	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0
SUBTOTAL, PS / Corporate Services	**205,203**	**203,037**	**2,622**	**8,447**	**19,029**	**235,301**	**30,098**
Program Support / NOAA Education Program							
ORF	53,753	38,116	0	187	(17,870)	20,840	(32,913)
PAC	0	0	0	0	0	0	0
OTHER	0	0	0	0	0	0	0
SUBTOTAL, PS / NOAA Education Program	**53,753**	**38,116**	**0**	**187**	**(17,870)**	**20,840**	**(32,913)**
Program Support / Facilities							
ORF	30,346	30,025	0	659	10,758	41,763	11,417
PAC	0	0	0	0	900	900	900
OTHER	0	0	0	0	0	0	0
SUBTOTAL, PS / Facilities	**30,346**	**30,025**	**0**	**659**	**11,658**	**42,663**	**12,317**
Program Support / Corp Srv, Edu, Fac							
ORF	289,302	286,247	2,622	9,293	(6,587)	294,630	5,328
PAC	0	0	0	0	900	900	900
OTHER	0	0	0	0	0	0	0
TOTAL,PS / Corp Srv, Edu, Fac	**289,302**	**286,247**	**2,622**	**9,293**	**(5,687)**	**295,530**	**6,228**

LINE OFFICE SUMMARY ($ IN THOUSANDS)							
FY 2012 PROPOSED OPERATING PLAN	FY 2010 ENACTED	FY 2011 Annualized Continuing Resolution	CLIMATE REORG	TOTAL ATBs	FY 2012 PROGRAM CHANGES	FY 2012 ESTIMATE	FY 2012 ESTIMATE VS FY 2010 ENACTED
Program Support / OMAO							
ORF	166,668	164,907	0	13,291	5,069	185,028	18,360
PAC	2,000	2,000	0	0	12,026	14,026	12,026
OTHER	27,938	30,091	0	114	0	30,205	2,267
TOTAL,PS / OMAO	**196,606**	**196,998**	**0**	**13,405**	**17,095**	**229,259**	**32,653**
Total PS ORF	**455,970**	**451,154**	**2,622**	**22,584**	**(1,518)**	**479,658**	**23,688**
Total PS PAC	**2,000**	**2,000**	**0**	**0**	**12,926**	**14,926**	**12,926**
Total PS Other	**27,938**	**30,091**	**0**	**114**	**0**	**30,205**	**2,267**
TOTAL,PS	**485,908**	**483,245**	**2,622**	**22,698**	**11,408**	**524,789**	**38,881**
DIRECT OBLIGATIONS							
ORF	3,412,778	3,376,721	0	79,373	(42,344)	3,449,807	37,029
PAC	1,360,353	1,360,353	0	(4,314)	703,738	2,059,777	699,424
OTHER	147,180	207,837	0	(55,690)	(14,650)	137,497	(9,683)
TOTAL,DIRECT OBLIGATIONS	**4,920,311**	**4,944,911**	**0**	**19,369**	**646,744**	**5,647,081**	**726,770**
ORF Adjustments (Deobligations / Rescissions)	0	(312)	0	(6,000)	0	(6,000)	(6,000)
ORF Transfers	(107,600)	(71,231)	0	2,031	3,000	(66,200)	41,400
PAC Adjustments (Deobligations / Rescissions)	(2,000)	(2,000)	0	(5,000)	0	(7,000)	(5,000)
PAC Transfers	0	0	0	0	0	0	0
OTHER Discretionary Adjustments	3,000	2,784	0	16	(3,000)	(200)	(3,200)
Mandatory Accounts Excluded	(65,358)	(125,799)	0	64,788	0	(61,011)	4,347
Discretionary Reimbursable Accounts Excluded		0	0	(9,000)	0	(9,000)	(9,000)
TOTAL, DISCRETIONARY APPROPRIATIONS	**4,748,353**	**4,748,353**	**0**	**66,204**	**646,744**	**5,497,670**	**749,317**

NOAA scientists release 23 rehabilitated Kemp's Ridley sea turtles off Cedar Key, FL. The 23 turtles were found between 40 and 60 nautical miles offshore Destin, FL and Venice, La.

National Ocean Service
www.nos.noaa.gov

National Marine Fisheries Service
www.nmfs.noaa.gov

Office of Oceanic and Atmospheric Research
www.oar.noaa.gov

National Weather Service
www.nws.noaa.gov

National Environmental Satellite,
Data and Information Service
www.nesdis.noaa.gov

Office of Marine and Aviation Operations
www.omao.noaa.gov

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