

NOAA

National Oceanic & Atmospheric Administration Strategic Plan

FY 2009 – 2014





NOAA MISSION

To understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs

NOAA VISION

An informed society that uses a comprehensive understanding of the role of the oceans, coasts, and atmosphere in the global ecosystem to make the best social and economic decisions



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LETTER FROM THE ADMINISTRATOR

Every day, NOAA supplies the nation with weather forecasts and nautical charts, conserves and manages marine species, restores and enables state and local partners to restore degraded coastal habitats, and conducts the research necessary to improve these and a host of other products and services.

NOAA's environmental information products and resource management services are essential public goods used in households across the nation; in sectors such as agriculture, transportation, and energy; in federal agencies such as EPA and FEMA; in state and local governments; and in science institutions around the world. 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.

NOAA comprises the world's leading experts in Earth science, equipped with the world's most advanced technology for environmental observation and prediction, and is supported by a world-class workforce. NOAA employees and team members serve at facilities across the country and aboard ships and aircraft across the globe. Their efforts ensure NOAA's observing and modeling systems provide high-quality information for public use 24 hours a day, 7 days a week. Yet NOAA's success as an agency has always depended upon interaction and integration with other organizations. NOAA capitalizes on the vast expertise of its partners in the private, academic, not-for-profit, and public sectors and partners with government agencies at the federal, state, local, tribal, and international levels.

NOAA has adopted strategies and priorities that allow it to use its capacities as innovatively and effectively as possible, while balancing the immediate pressures to change with the continuing imperatives to maintain NOAA's enduring functions. Strategic planning is central to NOAA in performing its mission and achieving its vision because it defines the agency's long-term path to integrate current requirements with emerging societal needs. Through strategic planning, NOAA directs resources to maximize benefits to the user community and the nation at large.

This Strategic Plan establishes the goals for NOAA and the approaches it takes to ensure accountability for results. The NOAA Strategic Plan is an important link between budget and performance. It is a critical tool for putting the agency on the best course for the future and to help design and create stronger programs, allocate resources more wisely, and perform with better accountability. It is through this plan that NOAA moves forward to achieve its goals and serve society in the best possible way.

Conrad Lautenbacher



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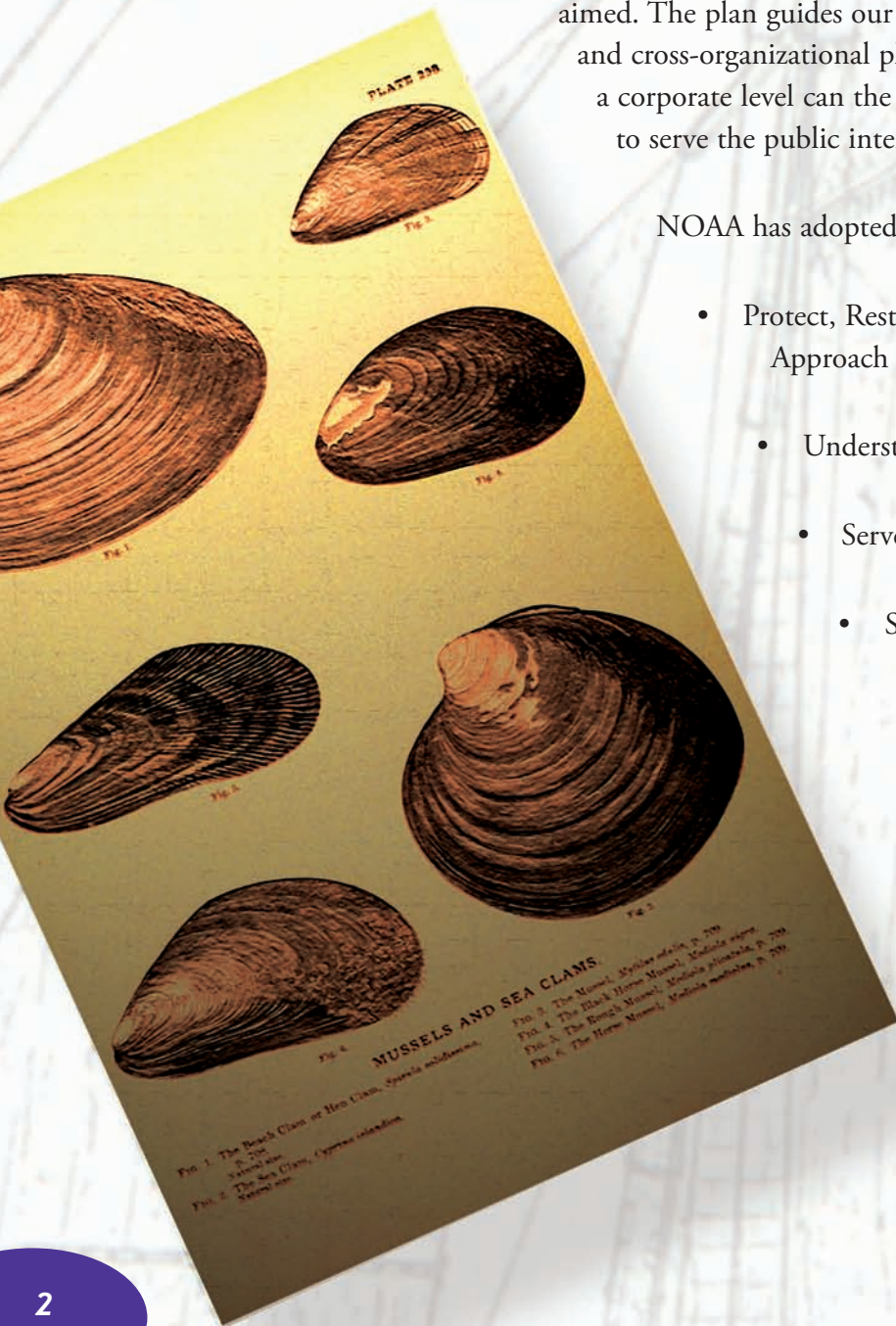
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NOAA'S STRATEGIC ORGANIZATION

This Strategic Plan establishes NOAA's vision, its mission, and the strategic goals toward which all agency functions are aimed. The plan guides our management decisions by providing a consistent framework for Line Office, Staff Office, and cross-organizational plans, initiatives, and performance measures. Only by first establishing the agency's goals at a corporate level can the many lines of NOAA's business work together, as an integrated and accountable whole, to serve the public interest effectively and efficiently.

NOAA has adopted a structure of four Mission Goals and one Mission Support Goal. NOAA's goals are to

- Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management
- Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond
- Serve Society's Needs for Weather and Water Information
- Support the Nation's Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation
- Provide Critical Support for NOAA's Mission.





All goals are rooted in NOAA's mission and vision statements. Each goal has defined high-level outcomes that detail the intended purpose of all efforts related to that goal. Each outcome is further defined by objectives that provide further detail on how to evaluate the achievement of that outcome. All NOAA work is planned and organized with respect to this hierarchical framework.

NOAA's goals have been derived from stakeholder input and internal assessments of our mandates and mission. Each goal is a key component of the federal government's business structure for the benefit and protection of the nation's general population. NOAA's Line and Staff Offices execute activities required to achieve these goals through NOAA programs. These programs may involve the activities of more than one Line or Staff Office as they endeavor to realize the outcomes and objectives of their respective goals.

Also within this edition of the NOAA Strategic Plan is an account of NOAA's enduring functions, which provides a common understanding of how NOAA works and what it produces. NOAA's functions are the things that the agency does—and will continue to do—irrespective of the organizational structure. It is essential for the agency's planners to think in terms of the enduring, typical functions that are conducted within the agency and how they relate to each other, what tangible outputs they realize, and how they create value for the nation.

NOAA'S MISSION GOALS

As part of the Department of Commerce (DOC), NOAA's work is planned and organized strategically with respect to four Mission Goals and a Mission Support Goal. This strategic structure was adopted based on internal assessments of the agency's mandates and its mission, and was refined with formal stakeholder input. NOAA's goals exist with traditional Line and Staff Offices in a matrix organizational structure. NOAA's strategic planning is done in the framework of the goals described in this plan, while execution of the plan is carried out by NOAA's Line and Staff Offices.

The domains of each goal are distinct yet interrelated, often sharing common science and technology challenges, partners, and stakeholder interest. For example, an ecosystem approach to management requires information on weather, water, and climate and must take into consideration commerce and transportation interests. Each Mission Goal must consider its relationship with the others in developing and implementing plans and programs. Similarly, the Mission Support Goal (and its respective subgoals) provides vital NOAA-wide services in support of all Mission Goals.

NOAA'S ORGANIZATION

Line Offices execute the programs required to achieve the agency's Mission Goals; these programs often involve the execution of activities across NOAA. NOAA's Line Offices are the National Weather Service; the National Marine Fisheries Service; the National Ocean Service; the National Environmental Satellite, Data, and Information Service; the Office of Oceanic and Atmospheric Research; and the Office of Program Planning and Integration.

NOAA's mission is also supported by the activities of NOAA Headquarters and Staff Offices, which provide leadership to NOAA and execute programs required to achieve the agency's mission. These offices direct and conduct the cross-agency functions that are essential to accomplishing that support mission—and that are customary for most large government agencies—such as legislative affairs, international affairs, general counsel, communications, acquisition and grants, financial services, facilities, information technology (IT), and workforce management. Other offices perform functions that uniquely and directly apply to NOAA's mission, such as NOAA's Office of Marine and Aviation Operations and Office of Education.

The leadership of Line and Staff Offices comes together to make corporate-level executive decisions for the agency through a system of councils. These include councils for Oceans, Research, Observing Systems, Project Management, Facilities Investment, Education, Fleet Services, Human Capital, International Affairs, IT, and Finances and Administration. Based on recommendations from these councils, the NOAA Executive Panel and Executive Council make the highest-level executive decisions for the agency.

NOAA's Goals Stem from Its Mission and Cut Across Line Offices

NOAA Mission: To understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs

NOAA Vision: An informed society that uses a comprehensive understanding of the role of the oceans, coasts, and atmosphere in the global ecosystem to make the best social and economic decisions

Ecosystems Goal: Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management **EC**

Climate Goal: Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond **CL**

Weather & Water Goal: Serve Society's Needs for Weather and Water Information **WW**

Commerce & Transportation Goal: Support the Nation's Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation **CT**

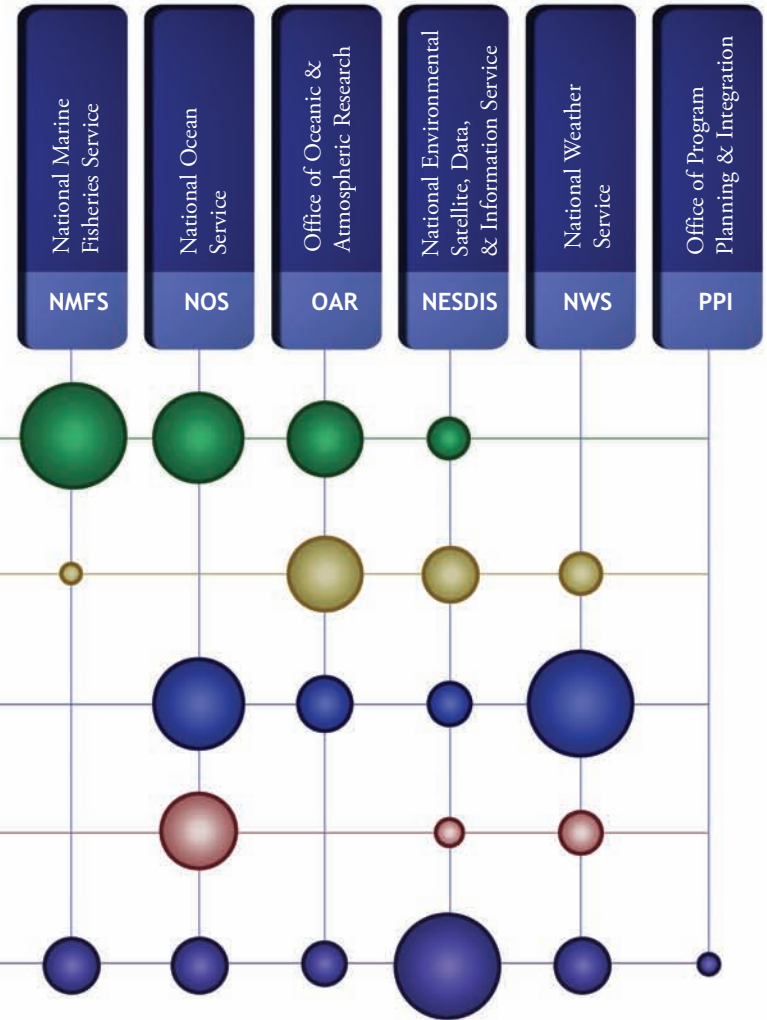
Mission Support Goal: Provide Critical Support for NOAA's Mission **MS**

Satellite Subgoal

Fleet Services Subgoal

Modeling & Observing Infrastructure Subgoal

Leadership & Corporate Services Subgoal



Bubble size indicates the approximate, relative funding of NOAA's Line Offices.

ECOSYSTEMS GOAL

Protect, Restore, and Manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management

NOAA's goal to protect, restore, and manage the use of living marine and coastal and ocean resources is critical to public health and the vitality of the U.S. economy. With its Exclusive Economic Zone of 3.4 million square miles, the United States manages the largest marine territory of any nation in the world. The value of the ocean economy to the United States is more than \$138 billion. The value added annually to the national economy by the commercial and recreational fishing industry alone is over \$47 billion. U.S. aquaculture sales total almost \$1 billion annually. To achieve balance among ecological, environmental, and social influences, NOAA has adopted an ecosystem approach to management, a concept that is central to the recommendations of the 2004 report of the U.S. Commission on Ocean Policy and the Administration's response to it, the U.S. Ocean Action Plan. NOAA's Ecosystems Goal responds to a specific mandate from Congress for NOAA to be a lead federal agency in this conservation, management, and restoration effort. Recent statutory revisions (e.g., the Magnuson-Stevens Reauthorization Act and the Marine Debris Research, Prevention and Reduction Act) and emerging legislative changes are broadening this mission for NOAA, opening a new chapter in NOAA's stewardship of the nation's living marine resources and management of the coasts.

PERFORMANCE TO PLAN

Provided national leadership in ocean and coastal management. Among other things, NOAA focused on improving regional governance, rebuilding fisheries, and increasing capacity to improve food security, increase economic benefits, and improve stability of marine ecosystems.

Established the federal portion of the marine reserves and conservation area network within the Channel Islands National Marine Sanctuary. This action will help to maintain the natural biological communities and to protect, restore, and enhance natural habitats, populations, and ecological processes.

Supported a tremendous volunteer effort to identify and remove nearly 100 pieces of marine debris in Calcasieu Lake, La. This lake is a vital shipping channel and significant estuary in the southwestern Louisiana economy.

Completed the first assessment of the status of 207 U.S. Marine Protected Areas (MPAs), which are managed by state and territory governments. NOAA also identified major challenges to effective MPA management and recommended actions that could be taken at the national and local levels to improve MPA success.

PROGRAMS

Aquaculture—promotes environmentally sound aquaculture practices and technologies to increase seafood production and replenish depleted species.

Coastal and Marine Resources—collaboratively manages societal uses of coastal and marine areas to protect ecosystems and to reduce vulnerability of coastal communities.

Coral Reef Conservation—works to reduce the impacts of key threats to coral reef ecosystems and to help implement conservation actions in response to threats.

Ecosystem Observations—monitors and assesses the long-term health, quality, and sustainability of living coastal and marine resource populations and their habitats.

Ecosystem Research—develops the science for ocean and coastal management and transfers technology, assessments, and conservation strategies to resource managers.

Enforcement—ensures compliance with federal laws to manage and provide stewardship of living marine resources.

Fisheries Management—ensures maintenance of fisheries at productive levels for supporting sustainability and the ecosystems to which they contribute.

Habitat—protects and restores coastal, marine, and Great Lakes habitats that support NOAA trust resources and advances supporting science and technology.

Protected Species—protects and works to recover species at risk of extinction through planning, regulation, partnerships, direct action, and outreach and education.

OUTCOMES

Healthy and productive coastal and marine ecosystems that benefit society

A well-informed public that acts as a steward of coastal and marine ecosystems

OBJECTIVES

Increase the number of fish stocks managed at sustainable levels

Increase the number of protected species with stable or increasing populations

Improve ecosystem health through conservation and restoration of habitat

Increase environmentally sound aquaculture production

Advance understanding and characterization of coastal, marine, and Great Lakes ecosystem health and associated socioeconomic benefits, and develop forecasting capabilities to meet management needs

Provide tools, technologies, and information services that are effectively used by NOAA partners and customers to improve ecosystem-based management

Improve public understanding and stewardship so that ecosystem and sustainable development principles are incorporated into planning, management, and use of coastal and marine resources

CLIMATE GOAL

Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond

Climate variability and change influence the well-being of society, the environment, and the economy. Numerous long-term changes in climate already have been observed. The changes include those in arctic surface temperatures and sea ice, ocean salinity and carbonate chemistry, and frequency and intensity of extreme weather such as heat and cold waves, droughts, and floods. Decision makers are challenged with addressing major climatic events compounded by issues such as population growth, economic growth, public health concerns, changes in geographic distribution of marine species, loss of habitat, and changes in land-use practices. They require a new generation of climate services. Through legislation, executive orders, and international agreements, NOAA has a long-standing commitment to provide reliable and timely climate research and information. To meet the demand for expanded services, the Climate Goal will focus research to improve understanding of complex climate processes and to enhance the predictive capacity of the global climate system. The Climate Goal's priority is to focus on the development and delivery of climate information and services that assist decision makers with national and international policy decision making, and assessing risks to ecosystems and the U.S. economy in sectors and areas that are sensitive to impacts from climate variability and change.

PERFORMANCE TO PLAN

Took a leadership role in the effort of the Intergovernmental Panel on Climate Change to prepare a report on the international state of climate science. NOAA provided observations, data, model simulations, analysis, authors, and review editors.

Unveiled a new U.S. Drought Portal. The new web-based portal provides comprehensive information on U.S. drought conditions, forecasts, effects of drought on local communities, and mitigation measures. The unprecedented access to key operational drought resources will help answer the most pressing questions facing policy-makers, emergency planners, businesses, and the public.

Released *Scientific Assessment of Ozone Depletion: 2006*. This report is prepared every 4 years for more than 190 nations. The ozone assessment also is a key input to another product that focuses on trends in ozone-depleting gases and the ozone layer.

Launched a new tool, CarbonTracker, to monitor changes in atmospheric carbon dioxide and other greenhouse gases by region and source. CarbonTracker enables its users to evaluate the effectiveness of their efforts to reduce or store carbon emissions.

PROGRAMS

Climate Observations and Monitoring—integrates atmospheric, oceanic, and arctic observations and maintains consistent, long-term access to historical climate data.

Climate Research and Modeling—assimilates observation data and runs models to attribute causal forces to climate effects and to make predictions and projections.

Climate Service Development—assesses climate impacts, supports regional adaptation strategies, and develops new products appropriate to evolving user needs.

OUTCOMES

A predictive understanding of the global climate system on time scales of weeks to decades to a century with quantified uncertainties sufficient for making informed and reasoned decisions

Use of NOAA's climate products by climate-sensitive sectors and the climate-literate public to support their plans and decisions

OBJECTIVES

Describe and understand the state of the climate system through integrated observations, monitoring, and data management

Understand and predict climate variability and change from weeks to decades to a century

Improve the ability of society to plan for and respond to climate variability and change

WEATHER AND WATER GOAL

Serve Society's Needs for Weather and Water Information

Floods, droughts, hurricanes, tornadoes, tsunamis, wildfires, and other severe weather events cause \$11.4 billion in damage each year in the United States. Weather is directly linked to public health and safety, and nearly one-third of the U.S. economy (approximately \$4 trillion, in 2005 dollars) is sensitive to weather and climate. With so much at stake, NOAA's role in understanding, observing, forecasting, and warning of environmental events is expanding. NOAA will continue to collect and analyze environmental data and to issue forecasts and warnings that help protect health, life, and property and enhance the U.S. economy. Future needs can be better met by exploring new concepts and applications through robust weather and water research. A commitment to public benefits shapes NOAA's role within the U.S. weather enterprise, including its partners in the private sector, academia, and government. These partners add value to NOAA services and help disseminate critical environmental information. We will work more closely with our partners and will develop new partnerships so that the public understands and is satisfied with our information. Together, NOAA and its partners will continuously improve existing service and expand to support evolving national needs, including space weather, freshwater and coastal ecosystems, and air quality prediction services.

PERFORMANCE TO PLAN

Expanded its sources of observational data, advanced numerical models, and improved the accuracy of its forecasts and warnings. In addition, NOAA responded to society's evolving needs for forecast services by leveraging its partnerships in the public, private, and academic sector.

Completed a 3-year effort to strengthen the U.S. Tsunami Warning System. Now, NOAA is better equipped to detect a tsunami and alert communities of the impending danger.

Added 17 broadcast stations to the Weather Radio All Hazards network and upgraded technology at 62 stations. NOAA now has 100 percent coverage of high-risk areas and significantly improved reliability and availability for the nation's weather and all-hazard warning system.

Made available three databases—Global Historical Tsunami, Significant Earthquake, and Volcano—through the World Wide Web. Eventually, NOAA will provide these data to the Global Earth Observation (GEO) community through the GEO Web Portal

PROGRAMS

Air Quality—produces air quality information, predictions, and decision support tools for the development of policies and emissions management.

Coast, Estuaries, and Oceans—provides information, products, tools, forecasts, and services for coastal and maritime users for risk and vulnerability mitigation.

Hydrology—monitors and analyzes our water resources and issues predictions and warnings of all hydroclimatic conditions from floods to droughts.

Local Forecasts and Warnings—delivers climate, water, and weather information, forecasts, and warnings through a network of field offices and national centers.

Science, Technology, and Infusion—fosters weather and water research and technological advances as they are transitioned into operational service improvements.

Space Weather—delivers alerts, warnings, forecasts, nowcasts, and data to customers worldwide to protect technological systems and human health.

Tsunami—detects and forecasts tsunami events, delivers timely warnings and advisories, and manages and promotes community preparedness and public education.

OUTCOMES

Reduced loss of life, injury, and damage to the economy

Better, quicker, and more valuable weather and water information to support improved decisions

Increased customer satisfaction with weather and water information and services

OBJECTIVES

Increase lead-time and accuracy for weather and water warnings and forecasts

Improve predictability of the onset, duration, and impact of hazardous and severe weather and water events

Increase application and accessibility of weather and water information as the foundation for creating and leveraging public (federal, state, local, tribal), private, and academic partnerships

Increase development, application, and transition of advanced science and technology to operations and services

Integrate local, regional, and global observation systems into NOAA's weather and water services to increase the collaboration between NOAA and external environmental partners

Reduce uncertainty associated with weather and water forecasts and assessments

Enhance environmental literacy and improve understanding, value, and use of weather and water information and services

COMMERCE AND TRANSPORTATION GOAL

Support the Nation's Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation

NOAA responds to the specific demands of air, sea, and surface transportation with consistent, timely, and accurate information to aid sound and routine operational decision making. All modes of transportation are affected by significant challenges as they operate in the elements of nature. The natural environment is, in turn, affected by our transportation systems. Safe, efficient, and environmentally sound transportation systems are crucial to the nation's commerce, and thus to the nation's economy. For example, more than 78 percent of U.S. overseas trade by weight and 38 percent by value comes and goes by ship. Nine million barrels of oil come through U.S. ports daily, and 8,000 foreign vessels make 50,000 port calls annually. Vessel traffic in the U.S. Marine Transportation System, which ships over 95 percent of foreign trade by tonnage, will double by 2020 and contribute roughly \$2 trillion annually to the U.S. economy. NOAA provides information products for transportation systems, including marine and surface weather forecasts, navigational charts, real-time oceanographic information, and Global Positioning System augmentation. NOAA works with the Federal Aviation Administration and industry to improve the weather resilience of aviation systems. NOAA also provides emergency response services to save lives and money and to protect the coastal environment, including hazardous material spill response and search and rescue functions. NOAA works with federal, state, and local partners to ensure the efficient and environmentally sound operation and development of ports.

PERFORMANCE TO PLAN

Marked the 200th anniversary of the U.S. Coast and Geodetic Survey, the nation's first federal science agency. Created in 1807 to implement Thomas Jefferson's vision for a stable maritime economy, the Survey has a long history of service mapping U.S. shores and waterways and establishing the positioning infrastructure across the United States.

Used the Search and Rescue Satellite Aided Tracking System to rescue 353 people in the United States: 235 people were rescued at sea, 30 people were rescued in aviation incidents, and 88 people were rescued in other incidents.

After Hurricanes Katrina and Rita, supported rebuilding and restoration efforts in Louisiana by promoting the integration of observations and providing baseline data. NOAA's work helped researchers differentiate between potential causes of relative sea-level change in coastal areas, including subsidence, accretion, erosion, and local sea level.

Worked with the Port of Mobile, Ala., to install the Physical Oceanographic Real-Time System. This system, developed and operated by NOAA to provide accurate real-time oceanographic and meteorological data to mariners, can significantly reduce the risk of vessel groundings and increase the amount of cargo moved through the port.

Developed a new metric to determine the impact of weather on the nation's air transportation system. The metric will help produce more reliable forecasts of the impact of weather on the National Airspace System.

PROGRAMS

Aviation Weather—provides weather information to the Federal Aviation Administration.

Emergency Response—provides prevention, preparedness, response, and recovery services needed to deal with natural and man-made disasters.

Geodesy—defines, maintains, and provides access to the National Spatial Reference System, the foundation for safe and efficient commerce and transportation.

Marine Transportation System—provides hydrographic and oceanographic information to mariners and facilitates environmentally sound port development.

Marine Weather—monitors and analyzes maritime weather data, issues maritime forecasts and warnings, and provides guidance.

Surface Weather—mitigates the adverse impacts of rain, wind, snow, and ice along the nation's roads and highways with localized weather observations and advisories.

OUTCOMES

Safe, secure, efficient, and seamless movement of goods and people in the U.S. transportation system

Environmentally sound development and use of the U.S. transportation system

OBJECTIVES

Support decisions in aviation, marine, and surface navigation

Research, develop, and deploy more accurate and timely information products

Research, develop, and deploy advanced monitoring and observing systems, new models, prediction techniques, and assessments

Support decisions in coastal resource management

Build public understanding of the scientific, technological, and environmental factors of commerce and transportation

NOAA



MISSION SUPPORT GOAL

Provide Critical Support for NOAA's Mission

Satellite Subgoal

Fleet Services Subgoal

Modeling and Observing Infrastructure (MOI) Subgoal

Leadership and Corporate Services Subgoal

SATELLITE SUBGOAL

Provide a Continuous Stream of Satellite Data and Information with the Quality and Accuracy to Meet Users' Requirements for Spatial and Temporal Sampling and Timeliness of Delivery

Environmental satellites are a major component of NOAA's global efforts to better observe, understand, and predict various environmental phenomena. The backbone of the NOAA satellites includes the Geostationary Operational Environmental Satellite (GOES) and Polar-orbiting Operational Environmental Satellite (POES) programs. GOES and POES are operated to provide critical atmospheric, oceanic, climatic, solar, and space data to protect life and property across the United States. The satellites carry scientific instruments and communications equipment to support the delivery of weather information and aid search and rescue operations. NOAA is acquiring the new generation of each satellite system, including ground processing systems. In concert with the National Aeronautics and Space Administration (NASA), acquisition of the next-generation geostationary satellite (GOES-R) series is underway. The Department of Defense (DoD), NASA, and NOAA are joined with industry partners to build the follow-on series of polar orbiting satellites, the National Polar-orbiting Operational Environmental Satellite System. NOAA's satellite systems support other NOAA offices in the delivery of improved severe storm warnings, weather forecasts, climate predictions, oceanic and ecosystems research and analyses, and satellite-aided search and rescue services.

PERFORMANCE TO PLAN

Deployed the Advanced Very High Resolution Radiometer onboard the European polar-orbiting satellite. The global data collected are used extensively in NOAA's weather and climate prediction numerical models.

Repositioned NOAA's GOES-10 spacecraft, a move intended to improve weather forecasts and, thereby, to lessen the effects of natural disasters in the region.

PROGRAMS

Commercial Space Services—helps develop a competitive U.S. commercial space and remote sensing industry and ensures compliance with federal regulations.

Geostationary Acquisition—develops and acquires geostationary-orbiting satellites, associated sensors, and supporting ground systems.

Polar Acquisition—develops and acquires polar-orbiting satellites, associated sensors, and supporting ground systems.

Satellite Services—researches, develops, and operates satellites to collect, calibrate, and distribute the data necessary to monitor land, sea, atmosphere, and space.

OUTCOMES

A continuous stream of satellite data and information with the quality and accuracy to meet users' requirements for spatial and temporal sampling and timeliness of delivery

OBJECTIVES

Increase the quantity, quality, and accuracy of satellite data that are processed and distributed within targeted time

Increase government procurement of NOAA-licensed remote sensing systems

FLEET SERVICES SUBGOAL

Provide the Number of Ship Operating Days and Aircraft Flight Hours Needed to Meet NOAA's Data Collection Requirements with High Customer Satisfaction

NOAA operates a fleet of 20 ships and 10 aircraft to ensure continuous observation of critical environmental conditions. The Fleet Services Subgoal manages these platforms to increase the number of ship operating days and aircraft flight hours to meet NOAA's data collection requirements. It provides ship and aircraft support for NOAA's four Mission Goals, upgrades NOAA's fleet of ships and aircraft, and partners with the programs to facilitate the development, demonstration, and deployment of new observation platforms, such as Autonomous Underwater Vehicles and Unmanned Aerial Systems.

PERFORMANCE TO PLAN

Deployed its high-altitude Gulfstream-IV jet from a temporary base in Honolulu, Hawaii, in an effort to improve forecasts released 24 to 96 hours before a winter storm. The jet acquired atmospheric data from severe winter storms originating over the Pacific Ocean that affect the continental United States, Hawaii, and Alaska.

PROGRAMS

Aircraft Replacement—manages the equipment, modernization, and operation of the aircraft required to meet NOAA's data collections.

Aircraft Services—operates and maintains a fleet of aircraft to meet the airborne data collection requirements of NOAA's Mission Goals.

Fleet Replacement—develops the requirements, acquisition strategies, funding profiles, and contracts to design, build, equip, deploy, and modernize NOAA ships.

Marine Operations and Maintenance—operates, maintains, and charters ships to collect in situ ocean data.

OUTCOMES

Provision of the number of ship operating days and aircraft flight hours needed to meet NOAA's data collection requirements with high customer satisfaction

OBJECTIVES

Increase the number of ship operating days and aircraft flight hours that safely, reliably, and successfully meet NOAA's data collection requirements with high customer satisfaction.



MODELING AND OBSERVING INFRASTRUCTURE (MOBI) SUBGOAL

Integrate Observing System Architectures, Data Management Architectures, and Computing and Modeling Capabilities to Better Enable NOAA's Mission

The MOBI Subgoal's analyses and operational capabilities provide critical infrastructure and support for the integrated monitoring and improved understanding of the Earth's environment. The subgoal enables NOAA's operational forecast products and services and provides NOAA a strategic investment portfolio recommendation encompassing observing, modeling, and high-performance computing capabilities. NOAA's internal forecasting, assessment, and stewardship capabilities—as well as the capabilities of partners and customers—require integrated oceanic and atmospheric data. Furthermore, NOAA's operations require modeling support, high-performance computing, observing system design and analysis, research and development of improved modeling and data assimilation, and guidance on the architecture of observation and data management systems. MOBI also manages the integration of NOAA's observing systems and associated data with those of other federal agencies and nations under the GEO System of Systems framework.

PERFORMANCE TO PLAN

Implemented the Weather Research and Forecast model and North American Ensemble Forecast System. Both models help to increase lead-time and accuracy for weather and water warnings and forecasts.

Published Global Earth Observation Integrated Data Environment (GEO IDE) Concept of Operations, which contains standards and protocols for all observation and data management activities. The adoption of common standards and protocols will facilitate the worldwide exchange of data on all aspects of the environment.

PROGRAMS

Environmental Modeling—provides high-performance computing, data assimilation, and modeling tools to monitor the Earth's environment and predict future states.

Integrated Ocean Observing System (IOOS)—works closely with public and private partners to process and disseminate data, information, and models on coastal waters, Great Lakes, and oceans.

Technology, Planning, and Integration—designs an integrated observation and data management system and manages DOC radio frequencies.

OUTCOMES

Integration of observing system architectures, data management architectures, and computing and modeling capabilities to better enable NOAA's mission

OBJECTIVES

Ensure a strategic, integrated, and balanced observing system investment portfolio for NOAA through the use of quantitative analysis

Integrate national and regional efforts to optimize ocean observations, data management, and understanding

Provide for research, development, and operational capabilities that improve, maintain, and operate models and provide guidance for environmental forecasts at all temporal and spatial scales

Ensure computational infrastructure and high-performance computing strategies needed to sustain computational workloads of NOAA's research and operational modeling enterprise and support NOAA's data management and stewardship capabilities

LEADERSHIP AND CORPORATE SERVICES SUBGOAL

Support NOAA's Mission through Cost-Effective, Value-Added Solutions to Its Financial, Facilities, Workforce, and Information Technology Needs

The Leadership and Corporate Services Subgoal strives to produce cost-effective, value-added solutions in the cross-cutting areas of Line Office and Headquarters management, workforce management, acquisition and grants, facilities, financial services, homeland security, IT, and administrative services. This is accomplished by effective and strategic leadership at corporate and Line Office levels that optimize agency performance and mission accomplishment through streamlined, results-oriented processes. The development of long-range facility and IT modernization plans provides the investment framework to ensure that NOAA's facility and IT portfolio will continue to support a safe, secure, and state-of-the-art work environment. The development of streamlined acquisition and workforce management processes will enable NOAA to effectively fulfill its research and operational missions with a competent workforce and effective third-party partnerships. The public demand for financial stewardship and accountability requires NOAA to maintain an effective financial and internal control program. The national dependence on NOAA's services and information products compels effective continuity of operations planning and all-hazards incident management.

PERFORMANCE TO PLAN

Opened a new NOAA Satellite Operations Facility. Each day, the facility processes more than 16 billion bytes of environmental satellite data. The National Weather Service uses these data as inputs into models for medium- to long-range weather forecasts and for tracking severe weather and climate change.

Converted three Great Lakes research vessels from petroleum-based fuels and lubricants to bio-based products.

Obtained Google Earth and Google Maps geospatial software. NOAA's programs can now deliver views of related weather, climate, ecosystems, coasts, surveys, and ocean missions and can better assist other federal agencies (e.g., U.S. Forest Service) that require improved situational awareness.

PROGRAMS

Acquisition and Grants—purchases goods and services from external vendors and administers financial assistance awards to qualified recipients.

Administrative Services—oversees NOAA management of logistics, civil rights, competitive sourcing, deemed exports, and other program support activities.

Facilities—manages the construction, renovation, operations, maintenance, and disposition of real property, ensuring both physical security and environmental compliance.

Financial Services—identifies, acquires, defends, and monitors NOAA's budgetary resources and provides accounting services for the agency.

Homeland Security—coordinates and develops all plans, programs, and policies regarding NOAA homeland security and executes emergency response operations.

Information Technology Services—supports IT planning processes and ensures that IT resources are acquired, managed, secured, and used per federal law.

Line Office Headquarters—coordinates the headquarters management functions of NOAA's Line Offices and NOAA's Central Library.

NOAA Headquarters—provides management and support across the agency for the corporate leadership and external liaison functions.

Workforce Management—facilitates the recruitment, development, and retention of NOAA's workforce.

OUTCOMES

One NOAA working together—guided by a clear strategic vision for planning, programming, and execution—to achieve NOAA's goals

Secure, reliable, and robust information flows within NOAA and out to the public

Modern and sustainable facilities providing safe and effective work environment

Efficient and effective financial, administrative, and acquisition management services

Workforce management processes that support a diverse and competent workforce

Integrated Homeland Security and emergency response capabilities

OBJECTIVES

Improve collaborative decision making based on knowledge of corporate goals, programmatic performance, and stakeholder demand

Increase internal and external availability, reliability, security, and use of NOAA IT and services

Increase number of facilities with improved collocation of NOAA services and partners

Improve efficiency and performance of financial, administrative, workforce management, acquisition, and other support transactions and services

Increase the levels of diversity and expertise appropriate to the conduct of NOAA functions

Enhance contribution of NOAA services to all-hazards Homeland Security efforts

NOAA'S CROSS-AGENCY PRIORITIES

Particularly integral to accomplishing NOAA's mission is sound management toward five priorities that cross the agency: a world-class workforce, integrated Earth observations data, state-of-the-art research, an environmentally literate public, and strong national and international relationships. These serve as the fundamental means for performing all work at NOAA.

A World-Class Workforce

People are NOAA's most critical asset. As society evolves, it is imperative that NOAA maintain scientific, technical, and administrative expertise and leadership. Accomplishing NOAA's challenging goals requires an inclusive, diverse, highly skilled, motivated, and effective workforce that reflects the communities it serves. NOAA must keep and promote expertise in skills that support collaboration, communication, and partnerships.

Integrated Earth Observations Data

Earth observations are intrinsic to NOAA's mission. The agency depends on observing systems for virtually every activity—from foundational research, to operational forecasting and warnings of immediate hazards, to regulatory decisions. NOAA is developing an integrated Earth observation and data management system to bring together all aspects of environmental and ecological monitoring and to provide better information, products, and services to the nation. NOAA will integrate its observing systems and associated data with efforts of other nations through participation in the development of the GEO System of Systems.

State-of-the-Art Research

NOAA is a science-based agency with responsibilities to direct and maintain a vigorous and forward-looking research enterprise internally and externally in the academic community. Moreover, continuing and improved success in NOAA's operational services depends on how well it understands the complex behavior of the atmosphere, the oceans, ecosystems, and associated social and economic systems. Short-term research increases the effectiveness of existing activities. Long-term, visionary research is critical to recognizing emerging issues and opportunities; managing future environmental, ecological, and societal needs; and building the foundation for tomorrow's innovative products and services.

The background of the page is a deep blue underwater scene. On the right side, a diver is visible in profile, wearing a black wetsuit and a yellow and black scuba mask. Bubbles are rising from the diver's regulator. On the left side, there is a large, semi-transparent silhouette of a whale shark, showing its characteristic white underbelly and dark dorsal side. The overall lighting is dim, typical of an underwater environment.

An Environmentally Literate Public

NOAA's mission is dependent upon an informed public that is aware of NOAA's services and understands how scientific observations, forecasts, and regulatory activities affect their personal, business, and community decisions. NOAA's success depends on the ability of our constituents to understand, use, and act upon the information provided. Further, ensuring the world-class workforce of tomorrow requires NOAA to inspire the youth of today to pursue scientific and technical careers. Through the America COMPETES Act, for example, NOAA has been given a mandate "to conduct, develop, support, promote, and coordinate formal and informal education at all levels to increase public awareness about ocean, coastal, Great Lakes and atmospheric science and stewardship." NOAA partners with educational institutions, government agencies at all levels, and private industry to build environmental literacy. The result is a public better able to make informed decisions and take appropriate action on environmental and ecological matters.

Strong National and International Relationships

At home and abroad, NOAA provides leadership, supports policies and programs, and engages with counterparts in support of ecosystem-based management, climate science, Earth observations, water management, weather forecasting, and more. Phenomena of the Earth's oceans and atmosphere naturally extend across political boundaries. Consequently, NOAA recognizes the need to establish strong and lasting relationships with its domestic and international partners, bring international expertise and resources to bear in achieving NOAA's mission, and benefit from the experience of working together on common issues. NOAA leads the development of U.S. policies, engages in international environmental programs, and leverages multilateral and bilateral relationships to maximize the benefits of research, observations, environmental science, and ecosystems management.





PERFORMANCE MANAGEMENT IN NOAA

Performance management is the formal title given to the evaluation of the progress toward and achievement of outcomes and objectives. The use of performance measures for assessment and evaluation supports NOAA's continued success by ensuring that the agency learns from its experience, strategically directs resources, and operates results-oriented programs. NOAA's performance measures, including those required under the Government Performance and Results Act, are published annually in the NOAA Annual Performance Plan and *Performance and Accountability Report*.

Performance measurement is integrated into the implementation of the NOAA Strategic Plan through NOAA's Planning, Programming, Budgeting, and Execution System (PPBES). The PPBES process guides NOAA's Goal Teams, Programs, Line Offices, and Staff Offices toward achieving the outcomes and objectives of NOAA's Mission Goals. PPBES is designed to implement a logical progression from the NOAA Strategic Plan to the NOAA budget formulation, to Line and Staff Office execution. Annual Operating Plans detail the agency's performance from the office and program levels to the individual employee.

NOAA's Strategic Plan is also linked to the Annual Performance Plan of the Department of Commerce. There is a direct relationship between NOAA's goals, outcomes, and objectives and the goals and performance measures included in the annual budget submission to DOC. DOC uses this information for its Annual Performance Plan and *Performance and Accountability Report*, which integrate outcomes and performance measures across DOC.

The NOAA Strategic Plan supports the DOC Strategic Plan Goal—"Observe, protect, and manage the Earth's resources to promote environmental stewardship"—and the two objectives within the goal: "Advance understanding and predict changes in the Earth's environment to meet America's economic, social, and environmental needs" and "Enhance the conservation and management of coastal and marine resources to meet America's economic, social, and environmental needs."

NOAA'S ENDURING FUNCTIONS

The figure at right is a model of NOAA's enduring functions, how they relate to each other, and how they relate to the external realization of NOAA's four Mission Goals. NOAA's enduring functions are those that the agency must perform to fulfill mission mandates. Each function is a link within a value chain; each function employs inputs to yield higher-value outputs.

In the model, internal functions are in color, external functions are gray. Value is added as one moves clockwise through the model. Starting at the bottom, requirements and financial resources are provided (gray) to NOAA by Congress, the White House, and the Department of Commerce. The agency receives additional requirements and feedback from its partners and customers. As a science agency, NOAA also depends on partners in the public, private, and academic sectors for mission-specific resources, such as scientific data, information, knowledge, and expertise.

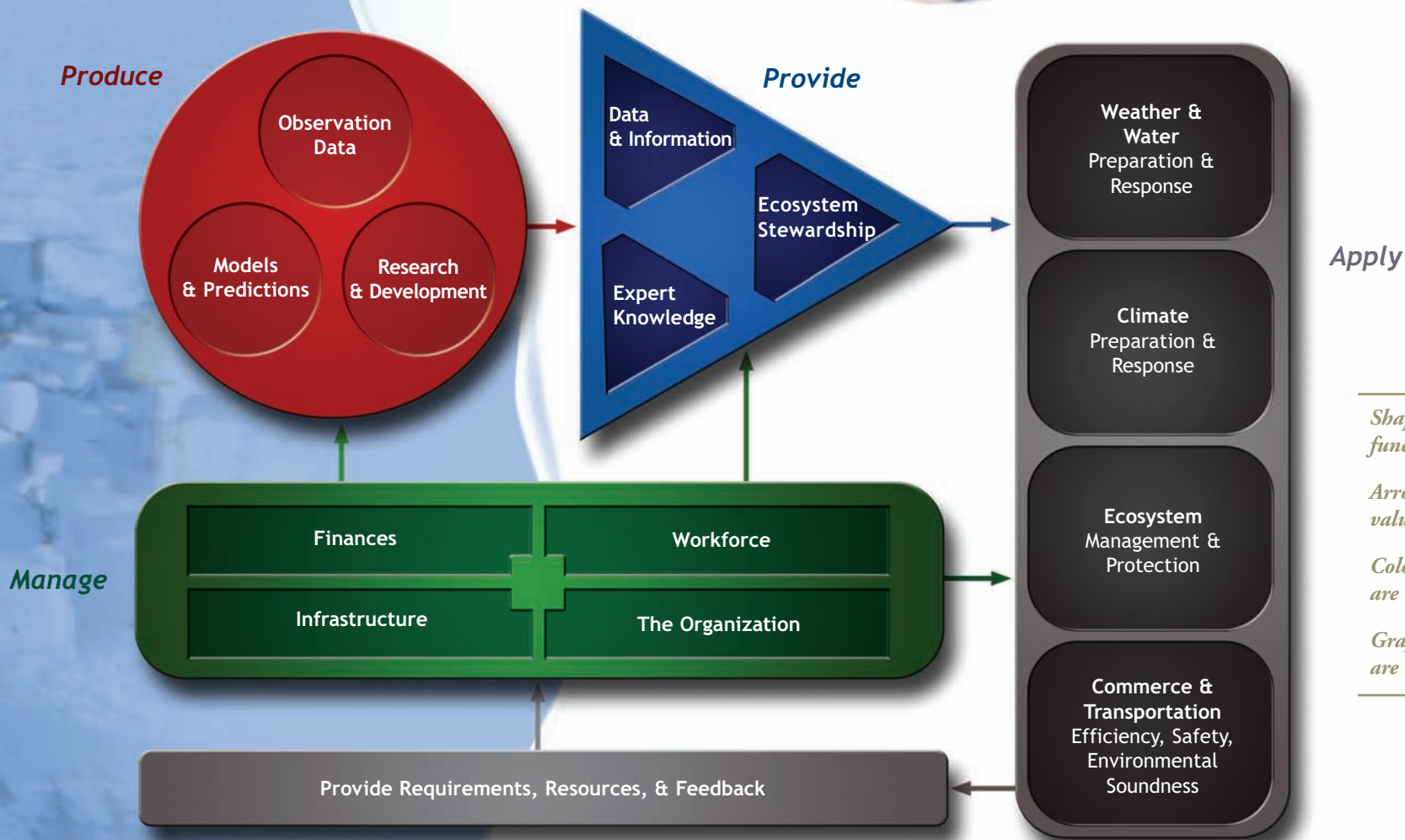
NOAA manages requirements and resources to produce its core scientific content and, ultimately, to provide final delivery of services. The “manage” functions (green) are akin to the management functions of any organization and relate to the majority of programs in NOAA's Mission Support Goal. The “produce” functions (red) are NOAA's core competencies: observing the environment, modeling it, and conducting research and development to improve these capabilities. The “provide” functions (blue) are those that directly serve partners and customers.

Providing environmental data and information (e.g., satellite data, weather forecasts, and nautical charts) informs decisions throughout the economy. Providing knowledge and expertise of the Earth system, its components, and its relation to human society (e.g., models, assessments, and consultations) establishes a coherent structure for the production and use of data and information products. Providing ecosystem stewardship (e.g., regulation, protection, and restoration of species and habitats and enforcement of laws) optimizes the benefits that humans derive from their ecosystem. Investing resources beyond NOAA (e.g., grants for research and coastal zone management) allows the agency and its partners to work more effectively by collaborating.

NOAA's outputs meet the agency's four Mission Goals and benefit the public as they are applied by external partners and customers. In particular, the Federal Emergency Management Administration uses NOAA forecasts to prepare for and respond to hurricanes; state governments use NOAA grant money to manage coastal zones and improve the hazard resilience of coastal communities; and the fishing, recreation, and tourism industries (and their customers) gain the long-term benefits of sustainable fisheries from NOAA's services of fishing quota enforcement and habitat protection.

In broad terms, these NOAA outputs generate benefits for society by ensuring the public health, safety, and security; informing operational decisions throughout the economy; generating new knowledge and understanding of the environment; optimizing the sustainable production of ecosystem services; enabling the productive endeavors of partners; and spawning spinoff technologies with positive externalities.

The NOAA Functional Model



Shapes represent functions.

Arrows represent value added.

Color functions are internal.

Gray functions are external.

BALANCING CONTINUITY AND CHANGE

Although economic and technological developments are integral to the nation's growth and prosperity, they do not occur independent of the forces of nature. No matter how successful the economy or how advanced our technology, society is inseparable from the natural systems of the Earth. Progress as a civilization is marked by improvements in the quality of life, but it is accompanied by increased sensitivity to the natural world and nature's increased sensitivity to us.

Human vulnerability to environmental forces is nothing new. Storms, floods, droughts, and tsunamis have always been with us, inspiring legends and shaping our histories. Modern scientific investigation increases our awareness of these and other phenomena, such as the El Niño Southern Oscillation, solar flares, and the impacts of a changing global climate. Yet learning to cope with these forces of nature is not the only reason to understand, predict, and forecast environmental conditions.

The natural environment provides us with food and medicine, purifies our air and water, mitigates floods and droughts, and partially stabilizes our climate. Ecosystem services (services afforded us by our ecosystem) are essential for human life today and for the lives of our children tomorrow, yet the scientific and economic understanding of the details of these ecosystem services is limited, and it lags greatly behind society's need to support strategic decisions.

What *is* well understood is that cumulative impacts of human activities on natural systems are significant; they present new and urgent challenges for scientists and policymakers alike. Over the coming decade, policymakers in the United States and throughout the world will be faced with very difficult decisions regarding the future of Earth's resources and supporting ecosystems.

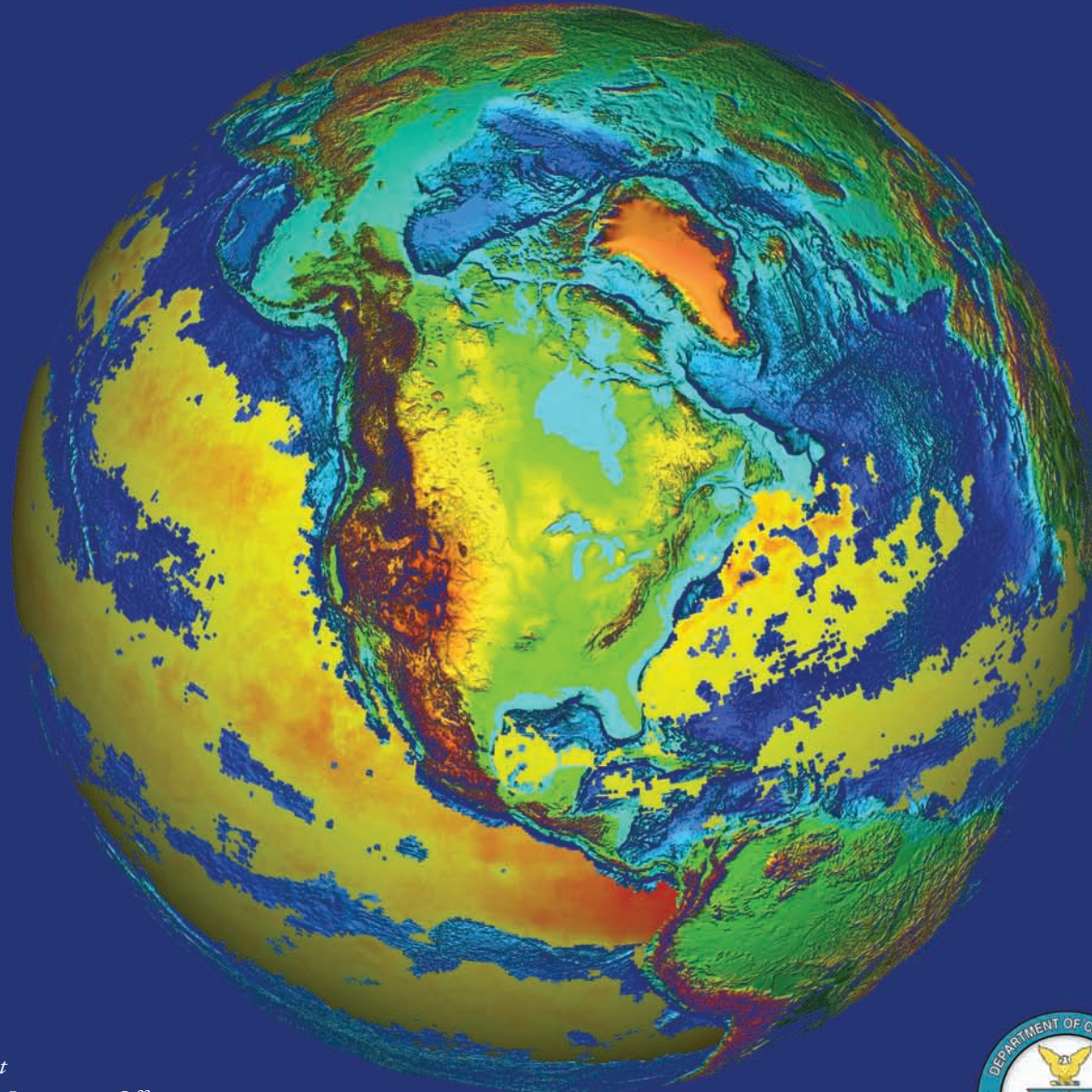
It's clear we need to be evermore mindful to define "progress" as those developments made in accord with the environment, rather than independent of it. The further we advance, the more we have to gain and lose from the environment, the larger our responsibilities are, and thus the greater is the need to base our decisions on a thorough understanding of the environment. The importance of NOAA products and services to the nation continues to grow; NOAA must develop strategies to meet emerging challenges and ensure that its contributions will continue to grow as well.

To this end, NOAA's strategic priorities must balance the immediate pressures to change with the continuing imperatives of maintaining NOAA's enduring functions. These strategic priorities also must offer a balanced response to existing as well as new legislative mandates. Thus, the NOAA Strategic Plan must define a long-term path to integrate existing requirements with emerging societal needs.

Some examples of NOAA's emerging challenges include responding effectively to new statutory requirements (e.g., Magnuson-Stevens Reauthorization Act), new executive directives (e.g., *U.S. Ocean Action Plan*), findings and recommendations of the greater scientific community (e.g., Intergovernmental Panel on Climate Change), internal execution challenges (e.g., continuity of satellite-based Earth observations), and mounting demands from stakeholders (e.g., improved operational forecasts of high-impact events).

The dependence of humans upon their natural environment is the reason why NOAA provides weather, water, climate, and coastal management services; why it manages and protects fisheries and sensitive marine ecosystems; why it conducts atmospheric, oceanic, and ecosystems research; why it enables efficient and environmentally safe commerce and transportation; and why it conducts emergency response and provides vital information in support of public safety. It is difficult to imagine the nation—and the international community—without these vital public services.





*For more information, please visit
the NOAA Program Planning & Integration Office
at www.ppi.noaa.gov*

