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NOAA Annual Guidance Memorandum for FY 2009 – 2013

The National Oceanic and Atmospheric Administration (NOAA) Strategic Plan articulates NOAA's long term vision and establishes the overarching goals and strategies required to realize that vision.[1] Each year, NOAA's planning processes provide an opportunity to assess our strategic direction, accommodate new trends and challenges within and outside NOAA, and adjust our corporate priorities to ensure progress toward our strategic goals. This Annual Guidance Memorandum (AGM) identifies the most urgent and compelling NOAA-wide programmatic and managerial priorities for FY 2009 – 2013, reflecting input from NOAA's stakeholders as well as our own assessment of external trends and drivers, mission requirements and program capabilities, and strategic imperatives facing each of NOAA's strategic goal teams and the organization as a whole.

By its nature, the AGM does not and cannot refer to all significant program and managerial efforts NOAA will need to pursue over the planning period to successfully execute its mission requirements. Instead, this AGM identifies a limited number of high-level programmatic and managerial priorities that are NOAA-wide in nature (e.g. interdisciplinary, inter-organizational challenges), require significant and sustained financial or managerial resources and effort, and have a singular impact on NOAA's ability to achieve its long term strategic goals. These priorities respond to strategic trends and challenges that can be met only through the concerted efforts of NOAA's Goal Teams, Programs, Line Offices, and Councils.

Introduction

During recent planning cycles NOAA's Goals and Programs have rigorously specified their requirements drivers and have detailed the significant and generally increasing gaps between current program resources and those required to fully address all programmatic

[1] *New Priorities for the 21st Century – NOAA's Strategic Plan for FY 2006 – 2011*, available at: http://www.spo.noaa.gov/

Introduction

During recent planning cycles NOAA's Goals and Programs have rigorously specified their requirements drivers and have detailed the significant and generally increasing gaps between current program resources and those required to fully address all programmatic requirements. As these requirements gaps continue to grow, the overall federal fiscal and policy environment has become increasingly constrained. Arguably, the central planning challenge for NOAA is to select the most urgent programmatic priorities to pursue in the context of systemic fiscal and policy constraints.

While new challenges continue to emerge, a dominant message from recent internal planning discussions and stakeholder input is to generally preserve the priorities and direction outlined in the FY 2008 – 2012 AGM.[2] At the same time, NOAA management and staff recognize that the priority set identified for FY 2008 – 2012 is far too broad, and lacks the programmatic focus required to galvanize internal collaboration and build a more strategic approach to addressing NOAA's requirements gaps.

In this context, NOAA's planning priorities must balance pressures to change with the imperatives of continuously managing a broad array of current research, operational, and partnership commitments. This need is abundantly clear in NOAA's near and long term responses to the most significant environmental events of 2005: hurricanes Katrina and Rita.

One of NOAA's deepest commitments is help guard the nation against loss of life and property from forces in the natural world. Hurricane Katrina took approximately 1,300 lives to become the deadliest hurricane to hit the US since 1928. In terms of financial loss, seven of the ten most expensive hurricanes in US history occurred in the 14 months from August 2004 to October 2005, including Katrina ($40.0 billion insured losses), Rita ($4.7 billion), and Wilma ($6.1 billion).[3] Hurricane Katrina affected the entire states of Mississippi and Louisiana, plus twenty two counties in Alabama and nine in Florida. Rita affected all of Louisiana plus twenty six counties in Texas. The coastal zone counties of the four states comprise nearly a quarter of employment and wages in the four states.[4] One hundred percent of Gulf oil production (~1.5 million barrels per day) and 94 percent of gas production (~10 billion cubic feet per day) were disrupted during Hurricane Katrina.[5]

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[2] PPI obtained extensive internal input from NOAA's Goal Teams, Line Offices, and Councils. PPI collected stakeholder input through a combination of internal and external solicitations for input on stakeholder views on NOAA's priorities; a document summarizing the data collection and analysis methodology, plus a synopsis of the input received, is available on NOAA's internal PPBS website (https://www.ppbs.noaa.gov/PDFs/StakeholderComments_040406.pdf). This stakeholder analysis was used to inform the ratings on the "stakeholder input" component of the decision matrix for NOAA-wide program priorities (see Appendix).

[3] *Hurricane Season of 2005: Impacts on US P/C Insurance Markets in 2006 and Beyond*, Insurance Information Institute, NY, NY, December 7, 2005. Available at: http://www.disasterinformation.org/disaster2/facts/presentation

[4] Colgan, C. and Adkins, J., *2005 Hurricane Damage to the Gulf of Mexico Ocean Economy*, February, 2006, Monthly Labor Review, forthcoming.

[5] Mineral Management Service, U.S. Department of the Interior, Press Release, January 19, 2006. Available at: http://www.mms.gov/ooc/press/2006/press0119.htm

Resilience: the capacity of a system, community, or society potentially exposed to hazards to adapt, by resisting or changing, in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.[10]

Following in the wake of the devastating Indian Ocean tsunami, this year's Gulf Coast hurricanes illustrate how challenging and how critical it is to ensure the safety and resilience of coastal communities in the face of environmental hazards. With only a quarter of the nation's total land area, coastal watershed counties account for half of the nation's population and economic output.[6] Coastal states also are among the most prone to flooding, with its associated economic and societal costs.[7] Further, recent economic analysis suggests that given the unrelenting pace in both population and property values, it is quite possible that coastal areas will experience recurring losses of hundreds of billions of dollars per season.[8]

Yet the coasts are not the only section of our nation vulnerable to natural disasters. The Midwest, for instance, routinely faces violent tornadoes that rip through communities. Over the last decade, improvements in NOAA's forecast and warning efforts have begun to reduce the losses that tornadoes bring with them. Between 1992 and 2004, the NOAA NWS NEXRAD radar system prevented over 330 fatalities and 7800 injuries from tornadoes.[9]

Moreover, the hazards that we must guard against are not always episodic natural events; often they result from the complexities of human interaction with the environment over long time periods. From an ecosystem perspective, resilience represents the ability of a population or ecosystem to recover from stresses that can occur from specific events or from the cumulative impacts of long term changes, often but not always associated with human activity (such as climate change, fishing, pollution, and invasive species). Ultimately, many of NOAA's ecosystem-based management actions are designed to improve the long term resilience of populations and ecosystem conditions, balancing near-term resource use with long term sustainability. Healthy ecosystems, in turn, pay dividends for coastal communities. For example, vibrant reefs and wetlands provide essential buffers against storm surge.

Whether the hazards are coastal or inland, or the losses felt immediately or gradually over time, NOAA's primary responsibility is to mitigate the escalating economic, societal, and

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[6] National Ocean Economics Project. Available at: www.oceaneconomics.org.

[7] The top 10 states for repeat loss claims on flood insurance are coastal, and account for 78% of these claims nationally. Congressional Research Service, "Federal Flood Insurance: The Repetitive Loss Problem," 30 June 2005.

[8] Pielke and Landsea, in press.

[9] Sutter, D., and Simmons, K., *The Value of Tornado Warnings and Improvements in Warnings*, presentations at the American Economics Association annual meeting (Boston, January, 2006), and the American Meteorological Society annual meeting (February, 2006). The study estimates monetized benefits from the NEXRAD systems of over $3 billion, compared with a total capital investment of less than $1.7 billion (calculated in 2004 dollars).

[10] "Grand Challenges for Disaster Reduction," National Science and Technology Council, Committee on Environmental and Natural Resources, Subcommittee on Disaster Reduction, June 2005. For additional definitional interpretations, see W. Neil Adger, et al. "Social-ecological resilience to Coastal Disasters," *Science* 309, 1036-1039, 12 August 2005.

environmental costs associated with environmental hazards. NOAA already has taken many near-term measures to further enhance the high levels of performance exhibited by NOAA's current monitoring, forecasting, and response services during 2005. However, the longer term challenge of improving resilience also requires a strategic approach to the full set of capabilities that NOAA can bring to bear on this challenge, including a broad array of environmental information services and ecosystem management practices that contribute substantially to long term hazard mitigation strategies. With this overarching strategic imperative in mind, NOAA has included "contribution to resilience" as a key criterion in its decision matrix for FY 2009 – 2013 program priorities (see Appendix).

The following sections of this document convey NOAA-wide priorities for its mission goals and mission-support sub-goals over the FY 2009 – 2013 planning period. In keeping with both stakeholder and internal NOAA views, these priorities reflect NOAA's commitment to maintaining a high degree of continuity with existing priorities and strategies; providing more focused and cohesive guidance to NOAA's goals and programs; and demonstrating responsiveness to critical external trends, particularly the overarching strategic imperative of hazard resilient communities.

NOAA-wide Mission Priorities for FY 2009 – 2013

The corporate priorities set forth in Table 1 set a context for Mission Goal and corresponding program planning for FY 2009 – 2013. In keeping with internal views and stakeholder input, these priorities build on those outlined in the FY 2008 – 2012 AGM. Within each of these priorities, more detailed focus areas were evaluated and ranked on the basis of potential impact; stakeholder and customer needs; the availability of NOAA's distinctive expertise and competencies (leveraged wherever possible by external partnerships); and fit to the cross-cutting strategic imperative of building hazard resilient communities (for details, see the Appendix). Subsequent sections of this document describe key trends and requirements specific to each programmatic priority area, and include tables that concisely describe NOAA's priorities and corresponding focus areas for FY 2009 – 2013.

Table 1: NOAA-wide Mission Priorities for FY 2009 – 2013

Function	Priorities	Focus Areas
Observation, data management and modeling systems	Globally integrated oceanic and atmospheric observations and data management	Developing a functional Integrated Ocean Observing System that serves internal and external user needs
		Integrated data assimilation and management: archived, interoperable, accessible, and readily usable observations and data products
	Capable and reliable observation infrastructure	Platform investments needed to meet high priority program requirements
	Ocean and Earth system modeling	Operational atmospheric, ocean and coastal modeling capabilities integrating physical, chemical, and biological systems
Environmental data and information services	Forecast accuracy for high-impact weather	Accurate short-term hurricane intensity forecasts
	Science-based climate information service	Understanding the links between climate and regional impacts, including drought, hurricanes, fires, floods, and weather extremes
		New regional information products for climate extremes, coastal climatologies, coastal inundation and erosion, sea level rise, sea ice, and wind / extratropical storms
	Water information services	New analytical tools and predictive capabilities that link forecast models of water resources, hydrology, weather events, climate, and oceans
		New hydrologic forecasting information services for drought and water management
	Information services for aviation, marine, and surface transportation systems	Extensive, fast, and accurate information and forecasting tools and services to improve aviation, marine, and surface transportation efficiency
Ocean and coastal ecosystem management	Regional, science-based approaches to ecosystem assessments and management	Region-specific collaborative approaches to ecosystem-based management to improve ecosystem health, productivity, and sustainability
		Integrated assessments and forecasts of ecosystem health and productivity, including socioeconomic impacts and the effects of ecological factors on living marine resource sustainability
	Climate variability and ecosystem predictions	Improved monitoring and forecasting of ecosystem conditions based on climate observations and models
	Environmental information on oceans and human health	Ecological monitoring, forecasting and environmental modeling

Given NOAA's ongoing mission commitments and the priorities outlined in Table 1, our strategic goal teams must collaboratively develop interlinked strategies for meeting the complex, multidisciplinary challenges facing NOAA now and for the foreseeable future.

In addition, NOAA's mission goals and programs must address several critical cross-cutting corporate needs and objectives:

- **Research**: NOAA's research capabilities undergird virtually all of NOAA's programmatic priorities. In planning for the FY 2009 – 2013 periods, NOAA's mission goals should address the 3-5 year research milestones outlined in NOAA's Five-Year Research Plan.
- **Observations**: NOAA's priorities related to integrated observation systems and data management will require close coordination with the Observing System Council and the NEC-approved NOAA integrated observation and data management system target architecture and architecture development process.
- **International Leadership**: While a national agency, NOAA's mission is inherently international in nature. NOAA must embrace the international scale of scientific collaboration and resource management, ranging from atmospheric and climate science and observations to ecosystem research and natural resource management.
- **Environmental Literacy**: All of NOAA's programmatic priorities ultimately depend on the public's capacity to understand and react to Earth system science and ecosystem conditions. In planning for the delivery and effective utilization of NOAA's products and services, our mission goals and programs should seek to improve the public's understanding and responsiveness to warnings about oceanic and atmospheric phenomena; improve public stewardship of environmental resources; and improve information for the public's use in making decisions about natural resources. A better informed public will provide improved environmental stewardship and will acquire, use, and respond to NOAA's information services and forecasts in more predictable and effective ways.
- **Finance**: Over time, increases in fixed operational costs can have a substantial bearing on resources available for programmatic activities. Given the importance of these functions to operational efficiency and capacity, NOAA's programmatic plans must be developed in the context of prudent estimates of NOAA's fixed operational costs over the planning period. NOAA's program plans also must closely assess and accommodate the anticipated costs of improving NOAA's physical infrastructure assets, such as satellites, fleet, and facilities.

Observation, Data Management and Modeling Systems

The Strategic Plan for the U.S. Integrated Earth Observation System focuses and coordinates federal efforts to integrate the Nation's Earth observation and data management capabilities and link them with observation systems in other countries, ultimately resulting in a Global Earth Observation System of Systems (GEOSS). Globally integrated observations are required to build U.S. scientific and resource management capacity to develop and deliver new monitoring capabilities, improved modeling and prediction capabilities, and more effective resource management practices—including NOAA's own capabilities in environmental data and information services and ecosystem management (as outlined further in this Guidance). Key development and deployment requirements include:

- Data gaps, inadequate integration, and interoperability problems limit the range and utility of existing observing systems for NOAA's information service and resource management needs as well as for the research and management needs of external users. Data gaps and integration challenges are particularly pronounced and urgent in oceanic observing systems, including systems supporting living marine resources sciences, ocean and coastal mapping, and related areas. The breadth of NOAA's commitment to GEOSS also requires a concentrated effort to improve integration and close critical gaps in upper air and surface observing systems.
- To achieve the interoperability envisioned in GEOSS, NOAA's mission goals must consider appropriate resources to achieve compatibility with GEO-IDE standards for all new observing systems proposed during the FY 2009 – 2013 planning cycle. Where possible, planning for existing systems and systems to be developed in the nearer term also must consider conformance to GEO-IDE standards.
- Recent extreme weather events have made it clear that NOAA must maintain good baselines for seafood and other living marine resources to better determine ecosystem impacts and restoration strategies for such events. Beyond the short-term extreme events, NOAA is planning to construct regular integrated ecosystem assessments to better understand the effects of fluctuating environments on productivity and the relationships among ecological components. NOAA should accelerate the design and implementation of the coastal component of IOOS to achieve more significant functionality sooner. Improvements should be made in concert with the IOOS conceptual design and the GEO-IDE. Plans should emphasize the integration of physical, chemical, and biological observations contributing to the advancement of modeling and analysis capabilities within this planning horizon. This work will bring NOAA closer to a fully functional IOOS when it is combined with existing and relatively more mature efforts in the global and DMAC components of IOOS.

> "...Sensors and observing systems for biological parameters lag far behind physical and chemical sensors, yet it is the biological parameters that are so critical to ecosystem-based management. Clearly, extra development effort is needed for these biological sensors."
> — Donald M. Anderson
> Director, Coastal Ocean Institute, WHOI

- As the range and utility of observation systems increases, NOAA must simultaneously expand its capacity to use and apply observational data. In this respect, modeling is a critical enabling technology: it will drive NOAA's ability to extract usable knowledge from its observation systems, and will improve the quality and explanatory power of NOAA's information services, forecasts, and predictions. Requirements are particularly urgent for operational atmospheric, ocean and coastal modeling capabilities integrating physical, chemical, and biological systems. At the same time, NOAA also must use advanced models to optimize the design and integration of its own observing systems.
- NOAA must efficiently deploy and operate high capacity, reliable observations platforms—including satellites, ships, aircraft, and in situ systems—in order to maximize NOAA's observational capacity and provide optimal support for NOAA's entire product and service portfolio, including its ecosystem management needs.

Table 1.A: Priorities for Observation, Data Management and Modeling Systems

Priorities	Focus Areas
Globally integrated oceanic and atmospheric observations and data management	Developing a functional Integrated Ocean Observing System that serves internal and external user needs Integrated data assimilation and management: archived, interoperable, accessible, and readily usable observations and data products
Capable and reliable observations infrastructure	Platform investments needed to meet high priority program requirements
Ocean and Earth system modeling	Operational atmospheric, ocean and coastal modeling capabilities integrating physical, chemical, and biological systems

Environmental Data and Information Services

Significant environmental events during 2005 underscore the premium society places on accurate and timely environmental data and information services. Diverse events—including frequent and intense hurricanes and other extreme weather events—have elevated societal demands for improved environmental data, monitoring, and forecasting tools for public safety and resource stewardship on a national and international scale, as well as better climate information for use in long term planning and mitigation strategies.

Over the past year NOAA contributed to the rising tide of scientific findings on long term increases in oceanic and atmospheric temperatures, loss of sea ice, sea level rise, and other climate-related trends. While the trend evidence mounts, causal patterns remain poorly understood. For example, research indicates that global warming can increase hurricane intensities; however, there is less evidence linking global warming to the frequency of hurricanes and the duration of active hurricane periods. Similarly, the linkages between climate and ecosystem conditions also are poorly understood. For example, climate change may be contributing to rising sea surface temperatures and thus to the extensive bleaching of corals in the Caribbean this year, endangering the foundation of Caribbean marine ecosystems and, in turn, fishing and recreational activities and businesses from Florida to Panama.

Given the monumental consequences of climate change—for human health, safety and security (e.g. storm intensity, flooding & disease vectors, drought and conflicts over water resources), and for the economy (e.g. energy consumption trends and technologies, coastal inundation)—it is imperative that NOAA work as aggressively as possible to produce the high quality data, sophisticated models, and scientific knowledge required to reduce uncertainty about the processes of climate change and its primary and secondary effects on weather and water conditions.

While NOAA strives to continuously improve the quality and effectiveness of existing information services, it also must develop new capabilities in response to growth and change in the complexion of customer demands and societal needs. Key trends and requirements include:

- The economic and societal costs of high-impact weather require NOAA to develop new tools and techniques for understanding and forecasting hurricane intensity and improving forecasts of the intensity of tropical storms (including those in and near hurricane stage).
- Gaps in our understanding of climatic variations hinder efforts to address important economic and societal issues including drought, hurricanes, fires, floods, and weather extremes. The U.S. Climate Change Science Program, which integrates all federal research on global climate change, and other sources of national and international attention to climate change continue to elevate the need for improved climate predictions and more robust climate data and information tools.
- The persistence and impact of the prolonged drought in the western United States has elevated regional and national attention to water forecasting and management needs. The National Research Council has identified hydrologic forecasting as one of eight "grand challenges" in environmental science, and the NSTC is coordinating a long term, multi-agency plan to increase the Nation's ability to measure, monitor, and forecast U.S. and global supplies of fresh water. To meet this requirement, NOAA needs to expand its capability to provide analytical tools, predictive capabilities, and water information services in the broader context of water resources.
- As the pace and intensity of international trade and commerce continues to accelerate, U.S. competitiveness in global markets will be shaped by the efficiency and safety of all major modes of transportation. Increasingly dense transportation networks require more extensive, fast, and accurate information and forecasting tools and services for aviation, marine, and surface transportation systems. Fast, safe, and environmentally sound transportation networks will contribute to the nation's competitive advantage in trade-intensive, global markets.

Table 1.B: Priorities for Environmental Data and Information Services

Priorities	Focus Areas
Forecast accuracy for high-impact weather	Accurate short-term hurricane intensity forecasts
Science-based climate information services	Understanding the links between climate and regional impacts, including drought, hurricanes, fires, floods, air quality and weather extremes New regional information products for climate extremes, coastal climatologies, coastal inundation and erosion, sea level rise, sea ice, and wind / extratropical storms
Water information services	New analytical tools and predictive capabilities that link forecast models of water resources, hydrology, weather events, climate, and oceans New hydrologic forecasting information services for drought and water management
Information services for aviation, marine, and surface transportation systems	Extensive, fast, and accurate information and forecasting tools and services to improve aviation, marine, and surface transportation efficiency

Ocean and Coastal Ecosystem Management

Over the planning period, NOAA's approach to ocean and coastal ecosystem management will continue to reflect a core principle expressed in the U.S. Ocean Action Plan: understanding and solving complex ocean and coastal resource management problems requires approaches that are specific to regional and local conditions and center on effective partnerships that are driven by local and state authorities but draw extensively on support from NOAA, its federal partners, and others. The Ocean Action Plan combines inter-agency scientific and technical collaboration (through JSOST, the Joint Subcommittee on Ocean Science and Technology) with comprehensive and effective inter-agency approaches to resource management (through SIMOR, the Subcommittee on Integrated Marine and Ocean Resources). Through these interagency mechanisms, NOAA will continue to advance integrated priority setting and planning to meet the extensive, multidisciplinary challenges facing the entire U.S. ocean policy community.

> "...Without a commensurate effort in actually engaging coastal communities, the proposed NOAA investments in assessment, forecasting, [and] monitoring will realize relatively few gains in improvements to coastal and ocean resources."
>
> — Dr. Chester L. Arnold, Jr.
> University of Connecticut

Building on this principle, NOAA must leverage its unique data collection systems by integrating physical, biological, and social sciences data at the regional large marine ecosystem scale.[11] This multidisciplinary integration effort will both require and reinforce collaborations with other agencies, academic institutions, regional observing

[11] As recommended by the External Ecosystem Task Team in its report to NOAA's Science Advisory Board.

associations, and private enterprise, resulting in a more productive observing system and corresponding synthetic analyses of regionally specific ecosystem management problems. Increased emphasis on marine ecosystem modeling (such as food web interactions, climate impacts on living resources, and habitat-resource relationships) will help to optimize the observing system and serve as a basis for complex decision-making for ecosystem management.[12] Key trends and requirements include:

> "Research is needed to improve our understanding of the extent of fishing effects on marine ecosystems and to promote the development of ecosystems, food-web, and species-interaction models for incorporation into management decisions."
>
> — NRC, 2006

- The effectiveness of ecosystem approaches to management will depend in large measure on the refinement and expansion of regionally integrated assessment and forecasting capabilities. For example, the health of specific marine populations, individual marine mammals, and certain fish species have emerged as important indicators of ecosystem health and living marine resource productivity. Using improved indicators of marine ecosystem status and greater modeling capabilities, scientists can provide more complete analyses of various threats and management proposals to mitigate them. Improvements in our ability to measure and forecast ecosystem health and productivity, including socioeconomic dimensions, will guide improvements in resource management strategies and practices.
- The long term health and productivity of marine ecosystems will be driven in part by climate regime changes. Scientists do not adequately understand the complex links over time between climate variation and regional ecosystem conditions and trends, such as the links between observed climate variations in the Arctic and Pacific marine ecosystems. To ensure successful long term ecosystem management, NOAA must work to improve our scientific understanding of the impact of climate variability and abrupt climate change on marine ecosystems.
- As we expand our scientific knowledge of the role humans play in complex ecosystems, NOAA also will need to address emerging requirements for measuring, monitoring, and predicting ocean and coastal ecosystem conditions that may have large impacts on human health.

[12] The National Research Council recently completed a study on marine ecosystems calling for more emphasis on research and modeling to better inform management. See: http://darwin.nap.edu/books/030910050X/html/

Table 1.C: Priorities for Ocean and Coastal Ecosystem Management

Priorities	Focus Areas
Regional, science-based approaches to ecosystem assessments and management	Region-specific collaborative approaches to ecosystem-based management to improve ecosystem health, productivity, and sustainability Integrated assessments and forecasts of ecosystem health and productivity, including socioeconomic impacts and the effects of ecological factors on living marine resource sustainability
Climate variability and ecosystem predictions	Improved monitoring and forecasting of ecosystem conditions based on climate observations and models
Environmental information on oceans and human health	Ecological monitoring, forecasting and environmental modeling

NOAA-wide Organizational Priorities for FY 2009 – 2013

In the context of financial and other resource constraints, NOAA's ability to pursue its mission priorities will depend heavily upon improving the efficiency and effectiveness of NOAA's existing high-value services and mission support functions.

As demands continually grow for scientific expertise, data, and information services, NOAA must develop new organizational approaches and technology-driven service delivery improvements to maximize the value of the public's investment in NOAA. At the same time, a wide range of external drivers will place a premium on the strategic use of information technology, including increasingly dense and information-intensive weather and climate models, massive increases in the volume of satellite data under NPOESS and GOES-R, geographically dispersed use of NOAA's high performance computers, and broad-based needs for greater integration and interoperability of observational data and information to support GEOSS and NOAA's own mission needs.

To maximize the value of its services for external customers, NOAA must:

- Maximize its efficiency and effectiveness in transitioning research results to operations and in delivering products and services;
- Continuously improve product and service quality and utility, in keeping with NOAA's on-going corporate commitment to service leadership; and
- Leverage information technologies and systems to improve product and service quality, enhance access to a wider range of integrated observational data and information services, and to lower internal operational costs.

To maximize operational efficiency and effectiveness, NOAA also must:

- Integrate data and information across all elements of NOAA's programs;
- Integrate facility planning and management with NOAA-wide program needs through a stable, long term, NOAA-wide facilities modernization strategy; and

- Maintain core competencies and meet new capability demands as the NOAA workforce changes in composition.

Table 2: NOAA-wide Organizational Priorities

Priorities	Focus Areas
Improve service delivery excellence and value to customers	Accelerated transition of research capabilities to new or improved operational products and services New service delivery models deployed that provide higher quality, higher value, fully integrated information services, forecasts, and predictions
Strategic use of information technology	Integrated HPC resources and data archival / retrieval capabilities, as needed to support GEOSS and NOAA's observation systems, data management, and modeling needs A single enterprise network, and IT security controls across all systems A comprehensive Management Information System for corporate NOAA
Modernized, safe, high quality facilities	Modernized, consolidated facilities portfolio, leveraged in collaboration with partners
Strategic workforce management	A more flexible, diverse, and mobile workforce with minimal skill gaps Ability to rapidly reconfigure or acquire new skills as technologies and program needs change

Conclusion

> ***NOAA's 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.*

The priorities identified in this Annual Guidance Memorandum embody NOAA's vision of the future and incorporate near-term adjustments needed for NOAA to achieve its long term strategic goals, in light of external developments and the needs and expectations of NOAA's stakeholders. In so doing, this document establishes a solid framework for Goal Team and Program-level planning, Council deliberations, and ultimately the Programming phase of NOAA's Planning, Programming, Budgeting, and Execution System.

Appendix

Decision Methodology for AGM Priorities

The methodology for choosing priorities in the FY2009 – 2013 Annual Guidance Memorandum builds upon the content and approach taken for last year's AGM, covering FY2008 – 2012. There is broad consensus throughout NOAA and among many stakeholders that the priorities described in the FY2008 – 2012 AGM remain valid. At the same time, there is general agreement that this priority set—particularly when viewed in conjunction with the extensive list of corresponding products and capabilities—is too large and is thus functionally equivalent to having no priorities at all. The challenge is to highlight the most urgent areas within NOAA's existing set of priorities, given expected fiscal constraints over the FY2009 – 2013 period and the growing external demands for NOAA services, particularly (in light of the most recent hurricane season) those that support the nation's resilience to environmental hazards.

Building upon the rating process used in developing the FY2008 – 2012 AGM, PPI evaluated and scored each of the potential focus areas with respect to four criteria: 1) potential impact on society and the economy; 2) importance according to NOAA stakeholders; 3) distinctiveness of NOAA's role, preferably leveraged through external partnerships; and 4) contribution to the cross-cutting strategic imperative of building hazard resilient communities (see the table below for details on the rating criteria and scoring). The sum of the scores across these four criteria yielded a net score for each focus area, producing a relative ranking within each priority. Focus areas with higher net scores warranted higher prioritization; those that scored in the top 30 percent were included in the FY 2009 – 2013 AGM.

After internal review, PPI made two adjustments to the results of this initial analysis: 1) Four separate focus areas under "information services for aviation, marine, and surface transportation systems" were combined into one focus area centered on transportation infrastructure efficiency; and 2) two focus areas under "environmental information for oceans and human health" were combined into a single focus area centered on environmental monitoring, forecasting, and modeling. These changes are reflected in the tables provided on pages 10 and 12, respectively.

Rating Criteria

	Low (1)	Medium (3)	High (5)
Potential impact	Modest, narrowly distributed (e.g. single or concentrated customer base with little or no spillover benefits)	Moderate, broadly distributed (e.g. broad customer base, with some spillover benefits)	Very high, with multiple impact paths (multi-sector customer base with broad spillover benefits)
Stakeholder input	Unspecified, unclear, or not urgent, with no direct validation from external stakeholders	Compelling and timely, with clear stakeholder validation	Compelling and urgent (e.g. high adverse impact if requirement is not met), with strong and broad stakeholder validation
NOAA role	Possible alternatives or substitutes for NOAA execution	Clear need for exclusive NOAA contribution	Compelling need for new NOAA contribution that is leveraged through external partnerships
Contribution to resilience	Marginal to no contribution	Moderate contribution	Critical element of NOAA-wide resilience effort