

# NOAA FY 2003 BUDGET REQUEST

## Advanced Hydrologic Prediction Service

### Water Information For a Stronger and Safer America

Each year, floods kill more people than any other form of severe weather, and cause damages in excess of \$3.5 billion. Three-quarters of all presidentially declared disasters are the result of flooding. Clearly, hydrologic forecasting is critical to public safety and the Nation's economic security.

National implementation of the Advanced Hydrologic Prediction Service (AHPS) will save lives and an estimated \$240 million per year in flood losses, and will contribute an additional \$520 million per year in economic benefits to water resource users, according to the National Hydrologic Warning Council.

AHPS will significantly improve river forecasts and water resource management in the United States by providing new forecast products, including visual displays, with lead times of an hour to a season. The service is provided by using a combination of software and hardware tools to analyze data and create graphical displays of probability forecasts.

### AHPS Helps the General Public

AHPS provides the public with more river forecast information such as:

- how high the river will rise
- when the river will reach its peak
- where property will be flooded
- how long flooding will continue
- how long a drought will last
- how confident we are in each forecast

### AHPS Helps Water Managers and Local Officials

AHPS provides better information to water managers and local officials, helping them make decisions such as:

- when and where to evacuate people from potential flood areas, thus saving more lives;
- when to move goods and industrial property from flooded areas, thus contributing to economic savings;
- how to utilize reservoir storage capacity to reduce flood impacts on people and businesses;
- when to reinforce levees and at what level, to help reduce damage to areas nearby

Using AHPS and by coordinating hydrologic forecast capabilities with advances in climate prediction, NWS forecasters can provide water managers with statistical data useful in making difficult decisions about water allocation and economics when there is drought potential, such as:

- whether to release water from reservoirs in the spring or hold it for anticipated agricultural and industrial needs;
- how much water to release to agriculture needs during marginal precipitation years;
- how to price and manage water in the most cost effective manner;
- assessment of risks and potential economic impacts, when used in conjunction with sophisticated economic models.

AHPS applies new science which provides more accurate forecasts for flow conditions ranging from droughts to floods. AHPS provides more information in a timely and user-friendly manner, including visual products which can be posted on the web. The initiative, once it is broadly implemented, will help save lives and money.

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Within the President's budget request for NOAA for FY 2003 is an increase of \$4,500,000 for AHPS. The increase provides a total of \$6,218,000 to accelerate nationwide implementation of improved flood and river forecast services in the Northeast, Middle Atlantic, and Southeast, including the states of New Hampshire, Vermont, Virginia, North Carolina, and South Carolina. The funding will also support continuing AHPS implementation in the Upper Mississippi and Ohio river basins. ☺

**Related web sites:**

Advanced Hydrologic Prediction Service Home Page <http://www.nws.noaa.gov/oh/ahps>

NWS Office of Hydrologic Development  
<http://www.nws.noaa.gov/oh/>



# NOAA FY 2003 BUDGET REQUEST

## Critical Infrastructure Protection for NOAA Weather Warnings

### What is requested?

NOAA weather forecasts and watches and warnings are critical to our Nation's response to crises. Development and distribution of these forecasts require four steps: collection and dissemination of observations; running and disseminating the forecast models; creation of forecasts, watches and warnings; and dissemination of the watches and warnings, forecasts and model data. NOAA has invested billions of dollars in the architecture and infrastructure for this process. Funding is requested to acquire, install, operate and maintain backups of two critical systems which are single points of failure in NOAA's weather forecast process/architecture: the system for the collection and dissemination of satellite observations; and the system which runs the numerical forecast models.

Also, in fiscal year 2002, Congress authorized the development and installation of a CIP backup for the National Weather Service (NWS) Telecommunications Gateway. Recurring funds are requested to operate and maintain the Telecommunications Gateway CIP backup

### Why do we need it?

In addition to providing required data to NWS forecasters, these systems provide data, forecasts, watches, and warnings to the public, to the private sector (including commercial sector weather forecasting companies), and other weather information providers. These data, forecasts, and warnings are especially critical to Federal, state, and local emergency managers during a preparedness, response, and/or recovery situation resulting from a weather event or requiring weather information. Commercial companies rely on NOAA data and models

to tailor products for specific sectors of the economy such as agriculture and transportation. Without the NOAA systems for collecting and disseminating satellite observations, running the forecast models, or disseminating watches and warnings, the NWS forecasts and watches and warnings would be severely degraded.

The NWS Telecommunications Gateway backup is intended to ensure uninterrupted delivery of critical meteorological data necessary for the protection of life and property, and the economic well being of the Nation. This system must be operated and maintained after it is installed.

The NWS weather and climate supercomputer is the foundation for all NWS weather and climate forecasts and is a single point of failure in the NOAA/NWS forecast process. Without a backup, elimination of the operational system running the forecast models would degrade the forecasts. For example, the accuracy of the hurricane track forecast would degrade and could result in a larger area of coast line being placed under a hurricane warning. In the event of a land fall hurricane, emergency managers might therefore unnecessarily evacuate a larger area of the coast line. Coast line evacuation coast continue to rise and average approximately \$1 million per mile (higher in the most densely populated urban coast line areas/cities). Also NOAA's private sector partners would not be able to produce many of their products and likely lose revenue. First responders and emergency managers would be left without adequate forecasts and warnings of developing dangerous weather conditions.

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The NESDIS CIP The Central Environmental Satellite Computer System (CEMSCS) and the Satellite Data Distribution System (SDDS) of the National Environmental Data Information Service (NESDIS) provide a unique capability to ingest, process, distribute, and archive environmental satellite data and information received from all of NOAA's satellites, several foreign country's satellites and the Department of Defense's satellites and pass it along to the National Weather Service's National Centers for Environmental Prediction (NCEP), field offices, the US Navy and the US Air Force primary forecast centers, other international forecast centers, the private sector and the general public. CEMSCS and SDDS are single points of failure and currently have no backup capabilities. This satellite collection and dissemination system provides approximately 85% of the data used in the numerical forecast models and 100 percent of the geostationary satellite imagery used by NWS forecasters and most all other commercial businesses and Federal agencies requiring weather satellite imagery. Elimination of this system would result in a degradation of forecast model accuracy. NOAA could not provide a critical ROI for the billions of dollars invested by NOAA in weather satellites.

**What will we do with it?**

**National Weather Service Telecommunications Gateway CIP (backup):** The requested funds will be used to operate and maintain the backup system for this critical system for collecting and disseminating observation data, watches and warnings for NOAA and the Nation.

**Weather and Climate Supercomputer CIP (backup):** The requested funds will be used to acquire/lease, install, operate, and maintain a backup

computer. This system is planned to provide a transparent "switch" to NOAA customers. That is, the computer is planned to be capable of running all operational weather forecast models and deliver the forecast model data to all customers, on schedule.

NESDIS CIP CEMSCS Backup data collection and processing capabilities will be provided with these funds, and will be built incrementally, by prioritizing the most critical functions and at the end of three years, the complete functional system will be replicated in geographically dispersed facility.

**What are the benefits?**

Recent events have demonstrated that the loss of government facilities or supporting infrastructure such as power or communications is now a significant possibility for which we must prepare. In disasters, first responders rely on National Weather Service forecasts as the basis for assessing atmospheric transport of hazardous materials and for identifying dangerous weather including thunderstorms, tornados, hurricanes, flash flooding, or lightning which may endanger the public as well as rescue and recovery personnel. It is critical to the safety of the public and the responding personnel that the best possible weather information be available when they need it. Elimination of the operational systems or denial of the services they provide as a result of a catastrophic event (without a backup system) would severely impact the job/results of Federal, State local emergency managers and personnel and subsequently impact the citizens of the country.

NoAA has invested billions of dollars in the architecture and infrastructure for this process. Failure to provide CIP for these systems halts most of the ROI the Nation expects to realize. ☹

(in millions)	FY 2002 Enacted Amount	FY 2003 Base Amount	FY 2003 Requested Change Amount	FY 2003 President's Requested Amount (Full Funding)
NOAA NWS Weather and Climate Supercomputer CIP backup	0	0	7.2	7.2
NESDIS CIP	0	0	2.8	2.8
NOAA NWS Telecommunications Gateway CIP backup	7.4	3	0	3



# NOAA FY 2003 BUDGET REQUEST

## Climate Change Research Initiative

NOAA requests an increase of \$18 million and three FTE in the Climate Observations and Services line item to begin working towards the goals of the Climate Change Research Initiative (CCRI). By announcing the establishment of the CCRI in June, President Bush addressed the administration's commitments to study areas of scientific uncertainty in climate change and address priority areas where investments can make a difference in reducing this uncertainty.

The potential economic impact of actions to mitigate human-induced climate change is vast. Ongoing international negotiation must be based on the very best science and the most up-to-date decision tools. The National Academy of Science identified fundamental areas of scientific uncertainty, and this request is specifically targeted for these areas. The increase will provide a broad-scale look at the climate system, help us to figure out the uncertainties in predicting system behavior, and reveal the regional impacts of climate change.

This request will support improvement of our predictive and observational capabilities in a number of key areas. NOAA will establish a Climate Modeling Center within the Geophysical Fluid Dynamics Laboratory to provide a suite of climate products for decision support by policy makers. NOAA will support enhancement of a benchmark upper-air network, with cooperation from other developed nations, emphasizing areas in developing countries where these climate observations are faltering. NOAA will establish new Global Atmosphere Watch stations in priority sites to measure pollutant emissions, aerosols, and ozone. NOAA will continue building an ocean observing system that can accurately document climate-scale

changes in ocean heat, carbon, and sea level. To do this, NOAA will enhance the arrays of drifting floats at the surface, profiling instruments at depth and moored arrays for temperature, salinity and currents.

NOAA will also establish ocean station time series at key locations to monitor physical and chemical sea-water properties and meteorology. NOAA will expand its participation in the interagency National Aerosol-Climate Interactions Program currently under development. Specifically, NOAA will establish new and augment existing in-situ monitoring sites, including aircraft sampling, in and down wind of major pollution areas (e.g., Asia, Eastern North America and South America). NOAA also will develop integrated chemistry and climate models to predict the effects of ozone and fine particles. Field campaigns will be necessary, as they will be needed to fulfill NOAA's request to augment the carbon monitoring capabilities in North America.

As such, NOAA will participate in an integrated North American Carbon Study, which will be an intensive focus on North American land and adjacent ocean carbon sources and sinks. This would involve improved monitoring, documenting carbon storage, and determining the key processes regulating carbon fluxes between the land and ocean. Finally, working with NSF, NOAA will augment its research capability in Regional Integrated Science Assessments by using research on decision making in the face of uncertainties. This effort will provide these regional projects with the ability to look across regions to consider national priorities in water management, disaster management, fire management, health, and agriculture.

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With some of the specific benefits outlined above, more generally, NOAA will be in a position to reduce uncertainties in climate change projections with major advances in understanding and modeling of greenhouse gases and aerosols; to ensure the existence of a long-term observing system that provides a more definitive observational foundation to evaluate decadal-to-centennial scale changes; to enhance research by coupling physical, chemical, biological, and human systems; and to improve the effectiveness of decision support systems and analysis of the response of human and natural systems to multiple stresses. It will provide us with a suite of decision tools to better address the issue of climate change. ☺



# NOAA FY 2003 BUDGET REQUEST

## Energy Security Program

### What is requested?

NOAA requests an increase of \$6,100,000 to improve the accuracy and reliability of forecast models of weather, hydrology (e.g. precipitation and water flow), and climate conditions. By improving NOAA observing and modeling capabilities in these areas, more accurate temperature and precipitation forecasts will be available. The forecast information can be used by the energy industry to increase efficiency, reducing energy generating costs as well as minimize risks of insufficient energy availability.

In FY2003, NOAA will install observing equipment and forecast technology to improve forecasts, the positive impacts of which will then begin to accrue by FY2004. This joint effort between NOAA Oceanic and Atmospheric Research and NOAA National Weather Service will begin with a demonstration project to build on an existing Forecasting Pilot Program in New England and to accelerate operational implementation of forecast technology in the Southeastern U.S. The pilot is expected to bring savings of more than \$10 million annually to the public in the pilot regions alone through improved industry efficiency.

### Why do we need it?

Energy demands rise and fall with changes in weather, especially temperature, but also with the distribution of rainfall through space and time. Power outages occur when the energy supply cannot meet the demand under varying conditions, such as heat waves, cold spells, droughts and floods. Thus, more accurate daily to five-day temperature forecasts can lead to improved energy demand forecasts resulting in more efficient energy generation and transmission.

Further, more accurate river flow forecasts can enhance the efficiency of water resource management and hydroelectric power generation.

The ability of the energy sector to efficiently and safely provide power, a necessity in our modern society, depends on accurate and reliable forecast information beyond that currently available so that citizens can expect reliable service and savings. An investment in model development and new observing technologies and networks ensures continued success in measuring and predicting these natural fluctuations. New predictive tools can then be implemented and used to anticipate energy demands and manage energy resources and operations with a higher degree of efficiency.

### What will we do?

NOAA will create new and improve existing forecast products and services in the areas of weather, hydrology and climate through the Energy Security Program. The goal of the NOAA Energy Security Program is to make new service capabilities available to the energy industry within 18 months from the start of the program by implementing real-time observations and higher resolution numerical weather prediction models. With the demonstration project, NOAA will:

- Install temperature and precipitation observing equipment at up to 200 new sites
- Develop and install higher resolution weather prediction models at approximately 12 National Weather Service offices
- Implement the Advanced Hydrologic Prediction Service Program

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- Conduct education and outreach as well as provide planning assistance to the energy sector

### **What are the benefits?**

Improvements to NOAA forecasting services are expected to directly benefit the country through the energy industry. NOAA's Energy Security Program will produce a 2 degree Fahrenheit improvement in 24-hour temperature forecasting as well as new short- and long-range probabilistic predictions of water flow into major reservoirs generating hydroelectric power. Incremental improvements in forecasts can have a tremendous impact on economic efficiencies in the Energy sector, thus increasing the overall security of the U.S. economy. A recent study by the Tennessee Valley Authority estimated that the annual cost of electricity could decrease by \$1 billion nationally if temperature forecasting is improved by one degree Fahrenheit. Conservative estimates suggest that temperature forecasting improvements in the pilot region alone could save utility companies and customers more than \$10 million annually, not to mention the significant savings that can be gener-

ated from efficient water resource management, particularly in drought prone regions of US. The energy industry can utilize the new information and capitalize on economic savings to ensure reliable service so that residents will experience fewer brown and blackouts.

Also, NOAA Fisheries requests \$2.0 million to support establishment and implementation of a streamlined energy permit review process. This proposal responds to an Executive Order directing Federal agencies to expedite permits and coordinate Federal, state, and local actions needed for energy-related project approvals on a national basis and in an environmentally sound manner. The goal of this request is to reduce, by 25 percent, the time required to adjust the permits of licensed energy projects/facilities. It is anticipated that the combination of regular re-licensing and permit adjustments to implement the new National Energy Policy will result in thousands of new actions for NOAA nationally, thereby demanding additional staffing and resources to meet the challenge of increased energy independence while conserving our Nation's natural resources. ☺





# NOAA FY 2003 BUDGET REQUEST

## Homeland Security Initiative: \$26.3 million

On September 11, 2001, the Nation experienced an unprecedented attack on the World Trade Center and the Pentagon. NOAA immediately implemented its agency-wide Incident Response Plan, and was able to rapidly deploy critical assets, capabilities, and expertise to support response and recovery efforts. NOAA personnel in weather offices, satellite and remote sensing teams, hazardous materials units, marine transportation and geodesy offices, and fisheries enforcement teams provided a wide range of products and services. NOAA's response to the September 11 attacks was rapid and focused. However, the attack fundamentally altered the context of the agency's incident response planning. The threats resulting from attacks on the nation may be different in nature, and larger in scale and scope. Thus, NOAA's Homeland Security efforts are focused on enhancing its response capabilities and improving internal safety and preparedness.

In FY 2003, \$26.4 million is requested to address the most immediately recognized areas of programmatic vulnerabilities to ensure the continuity of the most critical of NOAA's services and information products in the event of natural or man-made emergencies.

### **NOS Vessel Time Charter: \$9.85 million**

NOAA requests an increase of \$9.85 million and 6 FTE for a Vessel Time Charter. NOAA will initiate a vessel time charter to expand its hydrographic surveying capacity. The charter partner will supply operating personnel and a vessel with two launches equipped to perform multi-beam and side scan sonar surveys to NOAA standards. NOAA will provide supervisory technical expertise. Initial emphasis in FY 2003 will be in the Gulf of Mexico as it has 4 of the top 7 port areas. Ninety five percent of America's

non-NAFTA economic trade moves through the marine transportation system. Any interruption in the flow of goods through our nation's marine transport system yields an immediate and dire impact to the national economy. The combination of high traffic, hazardous cargo and vessels operating close to the ocean bottom make waterways and ports particularly vulnerable to terrorist activities, including the use of low technology mines. With this funding, NOAA will be able to complete essential baseline surveys and accelerate the completion of the critical backlog from 20 to about 10 years.

### **NWS Gateway Critical Infrastructure Protection: \$3.0 million**

NOAA requests a total of \$3.0 million for the NWS Telecommunications Gateway Backup. This funding will enable the NWS to complete the establishment of the NWS Telecommunications Gateway facility at the Federal Emergency Management Agency's Mt. Weather Emergency Assistance Center in Berryville, VA. The current primary facility has no backup. After scheduled deployment in FY04, the \$3.0 million will cover recurring costs and ensure uninterrupted delivery of critical meteorological data necessary for the protection of life and property, and the economic well being of the Nation.

### **NESDIS Commercial Remote Sensing License: \$1.2 million**

NOAA requests an increase of \$0.75 million for a total request of \$1.2 million for the Commercial Remote Sensing Licensing and Enforcement Program to ensure the timely review and processing of satellite license applications. These funds will support staff for application reviews, monitoring and compliance activities, and license violation

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enforcement. The funds will also support implementation of shutter control over commercial systems so national security issues can be responded to.

**NESDIS Single Point of Failure: \$2.8 million**

NOAA requests \$2.8 million to provide backup capability for all critical satellite products and services. This effort supports the continuity of critical operational satellite products and services during a catastrophic outage. In FY 2003, NOAA will begin the first phase of hardware, software, and telecommunications purchases; and perform initial testing of all capabilities for this backup system. The requested funding also supports installing additional communications links to connect the backup location to the NOAA Science Center in Camp Springs, Maryland.

**NESDIS Satellite Facilities Security: \$2.25 million**

NOAA requests an increase of \$2.25 million to enhance security at the Fairbanks, Alaska and Wallops, Virginia satellite Command and Data Acquisi-

tion ground stations. NOAA requires these funds to enhance the systems that protect these stations, reducing the risk to satellite and ground systems assets due to breaches in security. These satellite stations represent the backbone of the ground systems that support NOAA spacecraft programs—commanding, controlling and acquiring data from orbit satellites with an estimated value of \$4.5 billion.

**NWS Weather & Climate Supercomputing Backup: \$7.15 million**

NOAA requests a total of \$7.15 million to implement an operational backup system for the NWS weather and climate supercomputer. The NWS weather and climate supercomputer is a critical component of NOAA’s mission and is currently a single point of failure. Many of the data, products and services provided directly contribute to the issuance of life saving NWS watches and warnings to the public. The funds will be used to acquire the necessary backup system hardware capability, conduct site selection, and installation. ☺

<b>Operations, Research &amp; Facilities</b>	<b>(millions)</b>	
Vessel Time Charter	\$9.85	NOS/Navigation Services / Mapping & Charting
Gateway Operations & Maintenance	\$3.00	NWS/Systems Operations & Maintenance
Commercial Remote Sensing Licensing	\$1.20	NESDIS Environmental. Satellite Observing Systems / Satellite Command & Control
<b>Procurement, Acquisition &amp; Construction</b>		
NESDIS Single Point of Failure	\$2.80	NESDIS Construction
Satellite Facilities Security	\$2.25	NESDIS Construction
Climate Supercomputing Backup	\$7.15	NWS Systems Acquisition
<b>Total Request</b>	<b>\$26.3</b>	



# NOAA FY 2003 BUDGET REQUEST

## Coastal Component of Ocean Observations

There is a national need and growing interest in a sustained and integrated coastal ocean observation system to improve the physical, chemical, and biological understanding of coastal oceans and ecosystems.

Interest in a Global Ocean Observation System (GOOS) has been driven primarily as part of an international effort to improve understanding of the oceans role in regulating climate. Interest in what is called the "coastal module" of GOOS, commonly referred to as an Integrated Coastal Ocean Observation System (ICOOS), has also been driven internationally. Major U.S. players include the U.S. GOOS Steering Committee, academia, the private sector, the federal interagency National Ocean Research Leadership Council, and the National Oceanographic Partnership Program and Ocean.US, which are both overseen by the Council. Council members include NOAA, NASA, U.S. Navy, National Science Foundation, EPA, and other offices in the Interior Department and Executive Office of the President.

The goals of ICOOS are more diverse than those of GOOS and are linked to national requirements for:

- enhancing safe and efficient marine transportation,
  - improving weather/storm warnings and predictions,
  - understanding the influences of climate change on coastal communities, economies and environments
  - monitoring water quality and predicting harmful algal blooms
  - monitoring sea level rise, coastal erosion, and the impacts of climate change on coastal ecologies and communities
- monitoring the health of living marine resources, and
  - other purposes.

NOAA has a strong interest in ICOOS because the ICOOS goals listed above mirror many core agency missions as outlined in NOAA's strategic plan and statutory responsibilities. NOAA has long-standing operational programs and expertise in national coastal observation systems, data management and quality control, and data delivery and products. Examples include coastal water level and weather buoy systems; satellite and remote sensing oceanography; national data centers (NOAA manages the largest environmental data archives in the world); fishery and living marine resource assessments and monitoring; and navigation, mapping, positioning and geographic information systems.

In many cases, NOAA conducts these activities in partnership with other agencies, state and local governments, academia, and the private sector. In other cases, these sub-national entities have initiated complementary regional systems to meet specific local needs. A primary goal of ICOOS is building upon these partnerships and systems and integrating them into a coordinated and sustained national system. Key roles for NOAA include promoting the development of new technologies, fostering partnerships and integration, providing quality control and assurance, supporting the development of uniform standards for technologies and data management, providing long-term data archiving, and working to ensure the system meets national requirements and provides national benefits.

Legislation authorizing a coastal ocean observing system has been introduced in the  
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Senate during the 107<sup>th</sup> Congress as part of climate change and energy legislation. In addition, federal agencies, in partnership with academic, commercial and non-governmental organizations, are developing an implementation plan for GOOS as required by Congress in FY2002 appropriations. The Commission on Ocean Policy has also expressed a strong interest in ocean observation systems, although it is too early to tell what findings and recommendations it might make on this topic. ☺



# NOAA FY 2003 BUDGET REQUEST

## IT Security in NOAA

### What is requested?

NOAA is an information agency. Collection, analysis and dissemination of information are at the heart of most of what NOAA does for the Nation. NOAA has grown almost totally dependent on its IT systems to accomplish its many missions, including dissemination of weather watches and warnings for the protection of life and property, dissemination of critical information on the status and navigability of ports, and support for response to the release of hazardous materials. Today this is done primarily through electronic means, much of it on networks connected, directly or indirectly, to the public, worldwide Internet. In FY 2003, new funding of \$4.0M is requested to secure NOAA's information technology resources from viruses, hackers, and cyber terrorism.

### Why do we need it?

While NOAA recognized the need and developed this program well before September 11, the tragic events of that day coupled

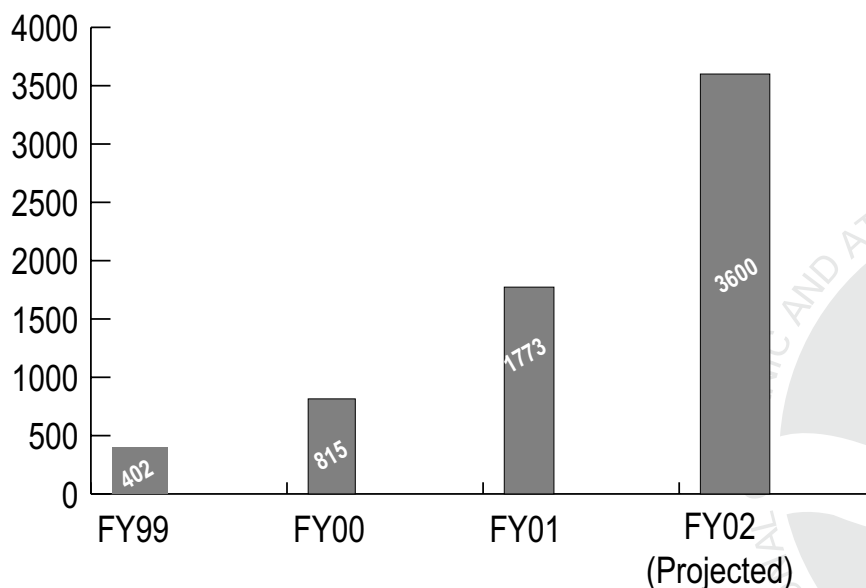
with an increasing number of attempted intrusions, some from the Middle East and southern Asia, make this requirement even more urgent. In response to the Clinger-Cohen act of 1996 (P.L. 104-106), NOAA developed an IT Architecture. One of the most significant gaps identified was in enterprise-level security. This initiative is designed to provide the required robust, extensive enterprise-level protection in an integrated agency-wide program that is more efficient and effective than individual program solutions. This initiative supports the Government Information Security Reform Act (GISRA) that requires agencies to improve, plan and manage security better and Presidential Decision Directive 63, *Protecting America's Critical Infrastructures*.

### What will we do with it?

This initiative funds critical gaps in NOAA's IT infrastructure and will:

- Improve security through advanced technical means
- Improve NOAA's IT Security Program Management by providing the resources to plan, implement, and test IT security "best practices" at the enterprise level.
- Expand Training by providing specialized IT security training for network/system

### NOAA IT Security Incidents



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administrators and security staff, and by providing updated security awareness training for all NOAA personnel.

- Extend NOAA's Computer Incident Response Team capabilities to meet increasing threats to our systems.

### **What are the benefits?**

Recent events have demonstrated that the loss of government infrastructure is now a significant possibility for which we must prepare. Cyberterrorism has become a very real threat as well. In disasters, first responders rely on NOAA forecasts as the basis for assessing atmospheric transport of hazardous materials and for identifying dangerous weather including thunderstorms, tornados, hurricanes, flash flooding or lightening which may endanger the public as well as rescue and recovery personnel. It is critical to the safety of the public and the responding personnel that we assure the integrity and availability of this valuable and time-sensitive information even under hostile conditions. ☹



# NOAA FY 2003 BUDGET REQUEST

## Fisheries Research Vessels

In FY 2002, NOAA Fisheries received \$5.4M to initiate the second ship of series of new, state-of-the-art fisheries research vessels (FRVs). NOAA Fisheries is seeking a continuation of the \$5.4 million base funding and an increase to base of \$45.5M for an FY2003 proposed total available of \$56.3M to fully finance the second ship in the series to replace the aging *Albatross IV*. Timing of the start of construction of the new ship is critical as the *Albatross IV* may not continue in service long enough to bring into service the new vessel.

Should the *Albatross IV* fail and there is no replacement, critical fisheries data would be permanently lost. Because vessels are required to conduct essential stock assessment surveys, monitor fish and marine mammals species, and provide the best available data to rebuild and sustain our fisheries, a loss of this data would cause harm to the economic viability of the fishing and related industries and our Nation's economy.

### Why New Vessels are Needed

Since passage of the Sustainable Fisheries Act in 1996, the demand for fisheries and marine resource data has escalated dramatically, in terms of quality and quantity. The ships targeted for replacement have exceeded their useful lifetimes and are technologically obsolete.

Operating without this budget increase for a new replacement fisheries research vessel will require NOAA to continue its reliance on the 40 year old obsolete and increasingly unreliable *Albatross IV*. It is likely that NOAA will lose data critical to the management of the valuable New England groundfish fisheries. Besides being unreliable, the *Albatross IV* may require substantial additional funds just to keep its marginally serviceable until the target date of 2006 for

bringing the new vessel into service. Any delay in starting construction significantly increases this sizable risk.

The *Albatross IV* has collected a 38-year time series of groundfish data that is judged to be the most comprehensive in the world. Fisheries for which the *Albatross IV* provides critical measures of abundance account for nearly \$1 billion per year to fishermen, worth many times that value to the U.S. economy when appropriate multipliers are applied. A major system failure of the *Albatross IV* will cause serious and unrecoverable gaps in this data set.

In FY 2002 NMFS received \$5.4 million to initiate the second ship of series of new, state-of-the-art fisheries research vessels (FRVs). NMFS is seeking an additional \$50.9M to fully fund the second ship in the series to replace the aging *Albatross IV*. These new vessels are required to conduct essential stock assessment surveys, monitor fish and marine mammals species, assess ecological changes, and provide the best available data to rebuild and sustain our fisheries.

### Meeting the Challenge

Replacing the aging fleet will provide research platforms capable of conducting both biological and oceanographic missions simultaneously, an important capability for implementing an ecosystem approach toward fisheries management. The FRVs are designed to meet modern safety standards. Special design features will result in acoustically quiet ships that meet international standards for conducting research on fisheries and protected marine resources.®<sup>^</sup> Quiet ships will reduce behavioral responses of target species during surveys and minimize interference with the hydroacoustic signals, improving data quality.

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Continued success in meeting NOAA's stewardship mission depends on a reliable flow of high quality data into the analysis and management process. Investing in NOAA's fisheries research fleet is critical to ensuring that the economic viability of commercial fishing, which contributed \$27.8 billion to our Nation's Gross Domestic Product (GDP) and recreational fishing which contributed another \$25 billion to GDP. ☺

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### Key Features of the New Ships

#### *Super Quiet*

- Minimizes species' avoidance behavior
- Reduces acoustic signal interference
- Maximizes acoustic survey swath width
- Diesel electric, single screw

#### *Centerboard Mounted Transducers*

- Enhanced survey data quality

#### *Modern Safety Requirements*

#### *Multi-Mission Capability*

- Improves survey efficiency

#### *Compact and Efficient Size*

- Length: 208 feet
- Draft: 19.5 feet
- Cruising Speed: 14 knots
- Acoustic Survey Speed: 11 knots
- Complement (crew and scientists): 38

#### *FRV Commission Schedule*

FY01: FRV1

FY02: –

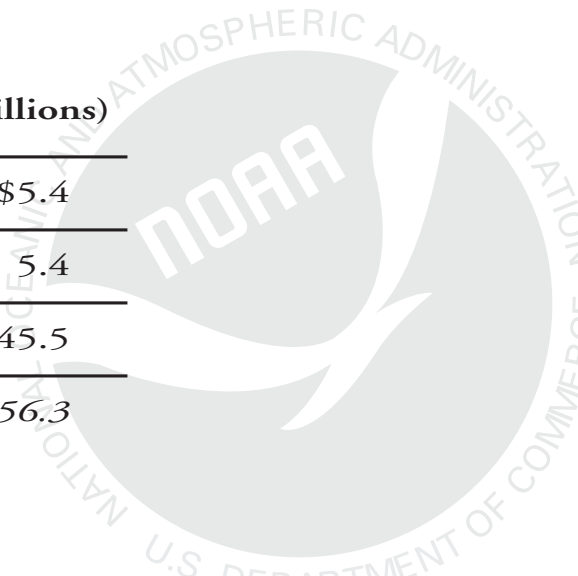
FY03: FRV2

FY04: FRV3

FY05: FRV4

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<b>Second Fisheries Research Vessel Funding</b>	<b>(in millions)</b>
FY 2002	\$5.4
FY 2003 Base	5.4
FY 2003 Increase	45.5
<i>Total Financing</i>	<i>\$56.3</i>





# NOAA FY 2003 BUDGET REQUEST

## National Estuarine Research Reserve Construction: \$1.6 million increase

### The Challenge of Providing Quality Research, Education and Stewardship

NOAA requests an increase of \$1.6 million, for a total of \$10.0 million, to address construction and land acquisition needs of the National Estuarine Research Reserve System—a national network of 25 protected areas managed through a Federal/state partnership. NOAA's challenge, and our directive from Congress, is to protect designated estuarine areas for long-term research and education.

Facilities at the reserves enable researchers and the public to study and better understand estuarine ecosystems. Reserves are living laboratories conducting long-term estuarine research and monitoring. They serve as outdoor classrooms for ecological activities for local schools and colleges, community groups, and coastal decision-makers. On-site facilities include research and teaching labs, interpretive centers, education exhibits, administrative offices, public meeting space, dormitories, docks and trails.

Each reserve consists of publicly owned estuarine lands and waters. Land acquisition funds allow each reserve to incorporate key parcels that contribute to or protect the integrity of its ecosystem. In some cases, a reserve can acquire properties that enable them to fulfill its research and education objectives. In other cases, funds provide a construction site for a new reserve facility.

### NOAA Responds to the Challenge

Since 1993, the reserve system has completed 149 facilities construction and land acquisition projects through a combination of Federal and state funding. Through the Coastal Zone Management Act, the

reserve system's Federal dollars are matched by state dollars in a ratio of 70:30 for construction funds and 50:50 for land acquisition funds.

In 1998, the reserve system updated its facilities plan and identified remaining needs to upgrade existing facilities and build new facilities for the 25 designated reserves. The requested increase will address the backlog of construction and land acquisition needs at some of the older reserves and will provide facilities for newly designated reserves, including the proposed San Francisco Bay Reserve that will be designated in 2002. This year, NOAA will complete an inventory of future system-wide land acquisition needs.

### Capitalizing on NOAA's Expertise

NOAA is uniquely qualified to serve the combined mission of research, education and stewardship at the nation's 25 National Estuarine Research Reserves. NOAA implements the Coastal Zone Management Act, which created the unique Federal/state partnership under which the reserve system operates. Through this framework, NOAA and the reserve system is positioned not only to advance the long-term scientific understanding of estuarine areas, but to deliver the results of that research to coastal decision-makers and the public. NOAA also encourages reserve facilities to serve as a model for sustainable design by using low-impact construction, alternative energy sources, and recycled materials in their construction.

Reserve facilities bring programs to people. Over one million people visit the reserves annually and that number is growing. By providing adequate funding for acquisition and construction, NOAA will

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guarantee that our reserves can acquire treasured acreage in their watersheds and build the facilities required to enhance the system's growing reputation for high caliber research, education and stewardship. ☺

NOS (PAC)	FY2003 Change in millions
NOS Construction	
NERRS Land Acquisition and Construction	\$1.6

**part of NOAA's Coastal Conservation Activities Initiative**



# NOAA FY 2003 BUDGET REQUEST

## NOAA Fisheries Modernization

The National Marine Fisheries Service's Fiscal Year 2003 budget request totals \$741.2 million, including \$603.5 million for research, management, and enforcement programs and \$137.7 million in other accounts. The requested funding provides important new enhancements critical to the long-term stewardship of the Nation's living marine resources. \$90.9 million in new resources are provided for the NOAA Fisheries Modernization Initiative, including \$74.8 million in science, \$6.4 million for management and \$ 9.7 million for enforcement. Included in the science increase is \$45.5 million for the new Fisheries Research Vessel, which appears in the Office of Marine and Aviation Operations budget request.

NOAA Fisheries also requests increases of \$42.2 million for investments in People and Infrastructure, \$2.0 million for Energy Security and \$1.0 million for Coastal Conservation.

The NOAA Fisheries Modernization Initiative represents a commitment to improve the agency's structure, processes, and business approaches. Through this Initiative, NOAA Fisheries is taking a fresh approach to meet its living marine resource stewardship mandates, and to maintain and enhance the economic viability and jobs that commercial and recreational fishing and other industries provide to the Nation. U. S. commercial fishing landed 9.1 billion pounds contributing \$27.8 billion to the Gross National Product in 2000. Recreational fishing harvested another 254.2 million pounds contributing another \$25 billion to GNP. To meet its goals, NOAA Fisheries proposes new programmatic investments to modernize its research, management, and enforcement programs.

### Modernizing Science and Research Programs

An increase of \$74.8 million is requested to modernize research capabilities. As NOAA Fisheries implements measures to rebuild and sustain marine fisheries, conserve essential fish habitat, reduce bycatch, and improve the economic viability and job record of fishing and other uses of marine resources, the demands on current scientific resources are enormous. The collection of comprehensive biological data on an increasing number of species and the environmental factors that influence their health and abundance is essential for the sustainable use of living marine resources.

The request includes a sizable increase to expand stock assessments to more adequately assess fish stocks around the country, thereby reducing the number of stocks with unknown status. As part of this request, funds are included to support the Fisheries and the Environment program designed to improve stock predictions by determining the effects of decadal-scale climate variability on those stocks. NOAA also is requesting funds to build a new Fisheries Research Vessel to replace the 40-year old *Albatross IV* in the North Atlantic. Funds are also included for improved consideration of the social and economic impacts of fishery management decisions, which is critical to the long-term sustainability of living marine resources and the economic health of our coastal communities.

An additional \$3.2 million is proposed to expand observer programs around the country to monitor catches, bycatch, and discard rates. Also, funds are provided to conduct additional research on the recovery of highly endangered sea turtles. Funds are provided to improve implementation of  
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research, monitoring and evaluation requirements set forth in the Columbia River Biological Opinion. Funds are provided to scientifically assess the recovery of endangered large whales and determine whether their populations are in decline or could be delisted.

### Modernizing to Manage the Future

An additional \$6.4 million is requested to modernize NOAA Fisheries' management programs. Foremost, the request includes funding to expand the operations of the eight regional fishery management councils to ensure that they can improve implementation of the many requirements of the Sustainable Fisheries Act. Additional funding is required to address improvements necessary to address National

Environmental Policy Act requirements which have been the basis of much of this litigation. Funds are provided to expand the agency's ability to meet statutory and regulatory requirements and to improve recovery of protected species, through better assessments of environmental and socioeconomic impacts and costs and benefits of implementing various conservation programs for protected species.

### Enforcing the Future

The request includes \$ 9.7 million to improve enforcement activities essential to ensuring that regulations are effective and as a result the stocks are able to provide the long-term benefits of sustained yields. Funding for innovative programs such as

community oriented policing and problem solving and other state and local partnerships is needed. New resources of to expand vessel management systems around the country will provide additional, more effective enforcement capabilities by utilizing the latest satellite technologies.

### Investing in People, Modernizing Our Infrastructure and Other Priority Initiatives

The request includes \$12.7 million for adjustments-to-base that are critical to preserve and develop our greatest asset—NOAA Fisheries' human capital. Enhancing our scientific understanding of the Nation's living marine resources also requires an investment in the maintenance, repair, and replacement of our laboratories and fisheries research vessels. This request also includes \$15.5 million for the proposed CSRS legislation that is a transfer from the Office of Personnel Management central account to all agency accounts. Adjustments to base and CSRS transfers are also shown under Enforcement and Regional Councils under the Fisheries Modernization Initiative. The request seeks \$2.0 million for the rehabilitation of critically needed research facilities in Galveston, Texas. An additional \$12.0 million is requested for the development of replacement research facilities in Honolulu, Hawaii. The request also seeks \$1.0 million for cooperative agreements with states under ESA Section 6 to enhance the state roll under ESA. In addition, \$2.0 million is requested for the Energy Permit Rapid Response initiative to address the need for advancing national energy self-sufficiency while conserving critically important natural resources. ☺

#### NOAA Fisheries Modernization – FY 2003 Increases

##### Science

Fisheries Research Vessel	\$45.5M
Expand Stock Assessment	\$ 9.9M
National Observer Program	\$ 2.9M
Columbia River Biological Opinion	\$12.0M
Recovery of Endangered Large Whales	\$ 1.0M
Sea Turtle Research	\$ 2.0M
Socioeconomics	<u>\$ 1.5M</u>
<b>Total Science</b>	<b>\$74.8M</b>

##### Management

NMFS NEPA compliance	\$ 3.0M
Regional Fishery Management Councils	\$ 1.9M
Protected Species Requirements	<u>\$ 1.5M</u>
<b>Total Management</b>	<b>\$ 6.4M</b>

##### Enforcement

Additional enforcement activities	\$ 4.3M
Expansion of vessel management system	<u>\$ 5.4M</u>
<b>Total Enforcement</b>	<b>\$ 9.7M</b>

##### People and Infrastructure Increases & Transfers – FY 2003

Adjustments to Base	\$12.7M
Legislative Proposal –CSRS Transfer	\$15.5M
Honolulu, HI facility replacement and enhancement	\$12.0M
Galveston, Texas Laboratory Rehabilitation	<u>\$ 2.0M</u>
<b>Total People and Infrastructure</b>	<b>\$42.2M</b>

##### Other Priority Initiatives:

Energy Security	\$ 2.0M
Coastal Conservation	<u>\$ 1.0M</u>
<b>Total of Other Initiatives</b>	<b>\$ 3.0M</b>



# NOAA FY 2003 BUDGET REQUEST

## Marine Sanctuary Construction: \$10 million

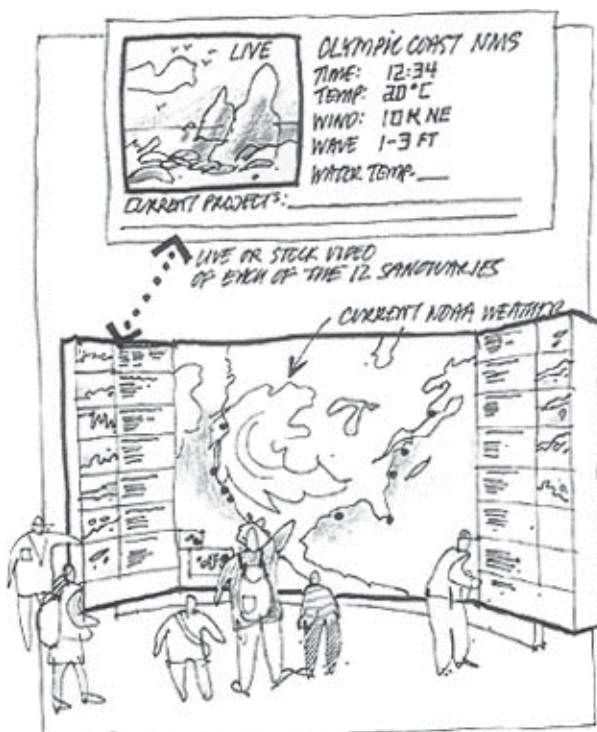
### The Challenge of Offshore Treasures

NOAA is requesting a total of \$10.0 million to build facilities supporting the National Marine Sanctuary System (NMSS). This request does not propose to continue congressionally designated projects for which NOAA received funding in FY 2002 Appropriations. These facilities will help to educate the public about critical ocean resources and the role of National Marine Sanctuaries – crown jewels of the oceans. Visitor interpretive opportunities are greatly needed to educate the American public on the marine environment by bringing the National Marine Sanctuaries (NMS) to life. Most NMS are offshore and not easily accessible by the public. Even when Sanctuaries are adjacent to the shoreline and visible to coastal observers, the resources are mostly submerged in the ocean depths.

NOAA's challenge, and our directive from Congress, is to further educate the American public on the significance of ocean resources and NOAA's efforts to promote their sustainable use. Facilities that support Sanctuary operations and house staff also must be safe, efficient buildings. Funds received in FY 2002 were directed to facilities construction at specific sanctuary sites. The focus in FY 2003 will be on interpretive projects to benefit all 13 NMS sites, and facility improvements at selected sites. One example in FY 2003 will be implementing the full suite of interpretive opportunities at Channel Islands NMS—signs, kiosks, telepresence technology; and expanded exhibits through local partnership efforts. Facility improvements to the sanctuary's operational offices at Channel Islands NMS, for example, will enhance the program's function and efficiency.

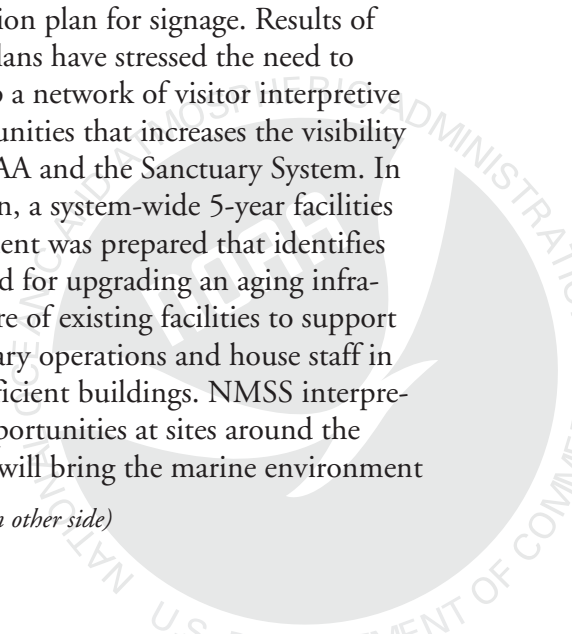
### Strategy For Bringing National Marine Sanctuaries to Life

The National Marine Sanctuary System (NMSS) has completed a comprehensive long-term interpretive concept and design plan, a site-by-site market analysis and 5-year interpretive strategy, and in FY 2002 will complete an implementation plan for signage. Results of these plans have stressed the need to develop a network of visitor interpretive opportunities that increases the visibility of NOAA and the Sanctuary System. In addition, a system-wide 5-year facilities assessment was prepared that identifies the need for upgrading an aging infrastructure of existing facilities to support Sanctuary operations and house staff in safe, efficient buildings. NMSS interpretive opportunities at sites around the nation will bring the marine environment



A sketch for new exhibits at the Channel Islands National Marine Sanctuary

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to the visitor through exhibits, real-time ocean images and virtual dive experiences that feature interactive modules, allowing visitors to operate underwater cameras and explore a variety of marine communities.

Through this network NOAA will broaden its education opportunities for the public, as well as educators, students and resource professionals, on the importance of ocean and atmospheric science, encourage minority participation in the marine sciences, and expose audiences to innovative technology. The NMSS has identified several potential programmatic and funding partnerships with other organizations with related objectives; funding is needed for these partnerships to progress through the planning stage into the construction phase.

Current education/exhibit/outreach partnerships or developing visitor center- related activities are evolving at:

- Stellwagen Bank National Marine Sanctuary (with New England Aquarium)
- Monitor (with Mariner’s Museum in Newport News)
- Gray’s Reef (interpretive center with local partners)
- Florida Keys (Nancy Foster Center)
- Flower Garden Banks (with Aquarium of the Americas in New Orleans, LA, and the Moody Gardens in Galveston, TX)

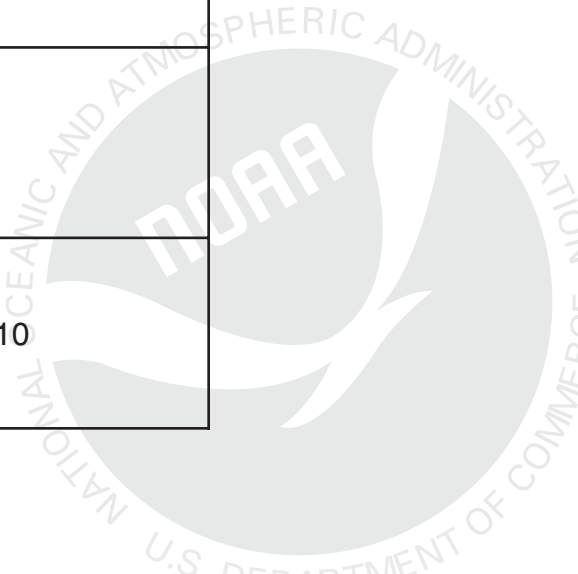
- Olympic Coast (with Olympic National Park)
- Channel Islands (with the Santa Barbara Maritime Museum)
- Monterey Bay (with the State of California)
- Thunder Bay (with the State of Michigan on a Maritime Heritage Center in Alpena)
- Hawaiian Islands (with a proposed aquarium in Honolulu).

**Capitalizing on NOAA’s Expertise**

NOAA is uniquely qualified to serve as the primary messenger of the value of marine conservation, merging years of experience in ocean management and marine education. In the National Marine Sanctuaries Act, Congress directed NOAA’s NMSS to use education to further our knowledge of the ocean, and encouraged NOAA to develop interpretive facilities that emphasize the conservation goals and sustainable public uses of marine sanctuaries. Since the inception of the NMSS, the sanctuary sites have focused on educating local communities on the value of the ocean, its role in the everyday life of many Americans, and the need to protect ocean resources.

This funding will allow NOAA to take that marine education expertise to the next level. NOAA will capitalize on the unique resources of the marine sanctuaries and our strong partnerships with museums, aquaria and other marine exhibition facilities, to bring the world of ocean exploration, marine protected areas and the significant resources of the NMSS to the American public. ☺

NOS (PAC)	FY2003 Total in millions
NOS Construction	
Marine Sanctuary Construction	\$10



# NOAA FY 2003 BUDGET REQUEST

## National Weather Service Aviation Initiative

### Delivering Improved Forecast Products for Commercial and General Aviation

NOAA's National Weather Service has developed a seven year plan to improve U.S. aviation safety and economic efficiencies by providing state-of-the-art weather observation and forecast products responsive to aviation user needs. Weather is the largest contributing factor in disrupting the normal flow of U.S. aviation services. Seventy percent of all air traffic delays within the National Airspace System (NAS) are weather related, creating billions in annual losses to the U.S. economy. Additionally, hundreds of aviation related injuries and fatalities are attributed to weather annually.

In response to these trends, a joint Government (Department of Commerce, Department of Transportation, NASA) and industry team on aviation safety recommended the following improvements: developing pilot-friendly, real-time depictions of weather hazards; reducing forecast errors while increasing the precision of aviation parameters; and improving weather training for controllers and pilots. The NWS initiative will address the referenced aviation safety team recommendations through 3 major components designed to improve NWS aviation weather forecast services:

- increase the number and quality of aviation weather observations;
- transition applied research to operational products; and
- develop and implement new training programs for forecasters, pilots, and air traffic controllers.

This initiative capitalizes on the research efforts of the Federal Aviation Administration's Aviation Weather Research

Program and NASA's aviation safety programs. The primary goals of this initiative are to reduce NAS weather-related air traffic delays by 10 percent, saving an estimated \$600M annually in potential economic losses, and to reduce general aviation weather related fatalities by 25 percent.

### Better Availability and Use of Weather Observations

The NWS, in partnership with major and regional U.S. air carriers, will collect additional in-flight atmospheric measurements for use in numerical weather prediction models to improve prediction of in flight hazards. NOAA will also develop new and enhanced satellite derived cloud, fog, and volcanic ash forecast and warning products. Weather data from FAA radars will be collected and added to NWS databases to create a better real-time picture of the atmosphere.

### Aviation Specific Forecast Products

The NWS currently provides over 560 Terminal Aerodrome Forecasts (TAFS) across the U.S. and its territories. These forecasts, which provide detailed forecasts of aviation parameters for a 5 mile circle around airports, are among the most difficult forecasts a meteorologist can create. The FAA and aviation industry have requested future NWS production for over 3,500 TAF locations to provide better weather forecast and warning coverage to smaller airports used by general aviation. This initiative will enable the NWS to expand its TAF production, improve TAF accuracy and enhance Airport Weather Warning services, resulting in millions of dollars saved by air carriers and airport authorities in fuel and ground operation costs each year.

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Improved en route aviation weather products planned by the NWS will include specific aviation forecasts of thunderstorms, icing, turbulence, cloud ceiling height, and visibility. These products will be available for real-time “in-the-cockpit” display to assist the FAA in its Air Traffic Management mission and promote better proactive planning for weather events by both air traffic controllers and pilots.

**What Will Occur?**

NOAA requests a total of \$2.5 million in FY 2003 for the Aviation Weather Initiative. NOAA will focus on three major components of this initiative, which include:

- Increasing the number and quality of aviation weather observations;
- Transitioning applied research efforts to operational products; and
- Developing and implementing new training programs for forecasters, pilots, and controllers.

**Aviation Weather Training**

Training for forecasters, controllers, and pilots is critical to ensure the most effective interpretation and use of the forecast products by end-users. Although the end-user aviation community is “weather-savvy,” a slight misinterpretation of a forecast product may result in poor operational decisions. In partnership with the major air carrier and general aviation pilot associations, the NWS will develop structured weather product awareness presentations for the aviation community. ☺





# NOAA FY 2003 BUDGET REQUEST

## Pribilof Islands Environmental Restoration

### Project: \$4.0 Million increase

NOAA requests an increase of \$4.0 million over the FY 2002 enacted level, for a total of \$10.0 million, to significantly advance the environmental restoration efforts on the Pribilof Islands, Alaska. At current funding levels, it will take NOAA 15 to 20 years to complete its responsibilities in the clean up of contaminated Federal property, which must be done prior to the transfer of lands back to local control. The request does not include continuation of directed funding of \$2.0 million for the State of Alaska to begin planning and construction of new landfills.

#### The Challenge

The Pribilofs, located in the Bering Sea west of the Alaskan mainland, are the breeding grounds for the northern fur seal, and also provide vital habitat for numerous other species of marine mammals and birds. In the late 1700s, Russian fur hunters brought Alaskan Aleut natives to the islands to harvest seals. Following the U.S. purchase of Alaska from Russia, various Federal agencies controlled and managed the islands over the years. When NOAA was created in 1970, it inherited responsibility for the islands.

The 1971 Alaska Native Claims Settlement Act provided for the transfer of lands not needed for Federal purposes to the natives. In 1983, most federally controlled lands on the islands were designated for transfer to the Aleuts. Conditions for property transfer called for the U.S. to restore the islands' environmental integrity by removing all debris and contamination associated with government management activities, whether by NOAA or its predecessor agencies. Significant cleanup work remains from past Federal use, including removal of debris from facilities and structures, disposal of barrels

containing hazardous materials, treatment of large volumes of petroleum contaminated soils, and monitoring for and addressing groundwater contamination. Work is complicated due to the weather constraints and the remoteness of the islands, and the difficulty in retaining consistent personnel to monitor and oversee cleanup activities.

Working with several contractors and grantees, including Aleut native entities, NOAA has made significant progress on restoration. To date, NOAA has closed 12 sites and acquired information needed to close 5 others, including one community landfill. NOAA has shipped over 700 tons of debris and 750 barrels of used oil and hazardous materials off-island, and treated 12,000 cubic yards of petroleum contaminated soils. NOAA has completed site characterization on St. George, but further site characterization is needed on St. Paul. During 2002, NOAA plans to restore five primary sites on St. George, and potentially, two primary and two sub-sites on St. Paul.

#### The Solution

NOAA is making every effort to meet its restoration obligations at the earliest feasible date, to enable NOAA to conclude transfers of lands to the Aleut natives. However, at the FY 2002 funding level, completion of restoration will require an estimated 15-20 years, since worst-case cost projections for completing the project are on the order of \$60.0 million, not counting any funds needed to address sites not yet fully characterized. Also, various administrative costs (salaries, travel, State of Alaska regulatory oversight, public meetings, equipment maintenance, training, etc.) must be taken

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into account each year, so the total project cost can be minimized by reducing the time required for completion.

With FY 2003 restoration funding at the full authorized level of \$10.0 million, NOAA will be able to make significant advances in restoration.

- On St. Paul, NOAA will focus its remedial activities on the industrial harbor area and the landfill that must be closed. The harbor area cleanup is necessary to enable the community to undertake economic development activities requiring construction of new facilities, and the current landfill is intended to become a solid waste transfer facility, equipment storage site, and interim storage area for scrap metal and other solid wastes. Harbor and landfill remedial activities will include excavation of additional petroleum-contaminated soils requiring treatment, which also will be done during FY 2003.
- On St. George, NOAA will direct most activity to the community's industrial area, and expects to

close out four sites. Treatment of petroleum contaminated soils will continue.

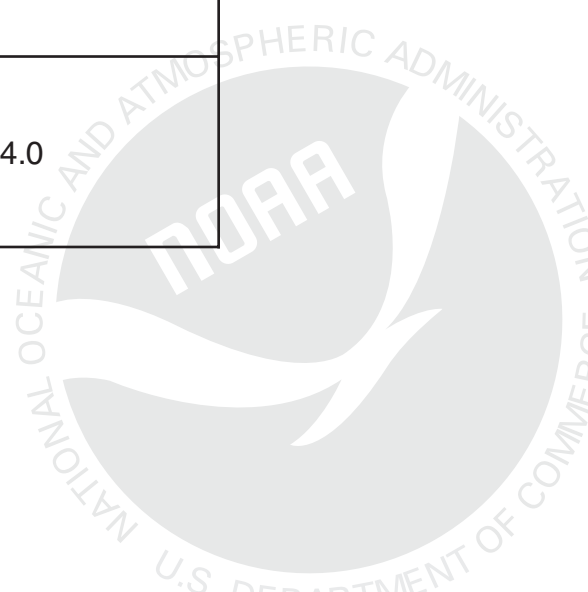
- On both islands, NOAA will carry on a ground-water monitoring program, sampling and analyzing water from numerous wells to identify any contaminants.

**Why NOAA?**

Public Law 104-91, enacted in 1996, established requirements for NOAA to carry out cleanup activities on the islands, and the "Two Party Agreement" gave the State of Alaska oversight responsibility for the restoration. The Agreement identified 40 primary sites requiring cleanup, and subsequent events have increased the number of primary sites to 47, including a myriad of sub-sites.

In December 2000, the Pribilof Islands Transition Act (P.L. 106-562) was enacted, authorizing an additional \$50.0 million (\$10.0 million per year for each of Fiscal Years 2001-2005) for restoration. The Act also authorized up to \$10.0 million for grants to the State of Alaska to construct new solid waste management facilities, and up to \$28.0 million to support economic development on the islands. ☺

NOS (OR&F)	FY2003 Change in millions
Project Planning and Execution	
Pribilof Islands Cleanup	\$4.0



# NOAA FY 2003 BUDGET REQUEST

## Coastal Response & Restoration: \$2m increase

NOAA requests an increase of \$2.0 million, for a total of \$17.2 million, to promote and improve the restoration of degraded coastal habitats. NOAA's response and restoration programs will build upon local and regional partnerships, maximize benefits through regional coordination, provide incentives for voluntary restoration, and improve response and restoration techniques. These investments will yield greater returns for the Nation's coastal areas. Expanded, more effective restoration will maintain environmental and economic prosperity in the coastal zone, improving the quality of life for Americans living and visiting there.

### **The Challenge: Environmental Quality and Economic Prosperity**

The coastal environment is highly valued for the services and quality of life it provides. More than half of the U.S. population lives in coastal counties, and coastal populations continue to grow at a rapid rate. Healthy, productive coastal ecosystems make the coast a desirable place to live and work. Maritime commerce, fishing, recreation, and other coast-dependent activities are integral to the quality of life in our coastal areas.

But coastal resources are vulnerable to degradation. Economic activities can harm sensitive coastal resources. Oil and chemical spills from marine transportation activities reduce port efficiency, compromise the coastal ecosystem, and threaten human health. Port development and dredging, critical to a safe and efficient maritime economy, often require offsetting mitigation and restoration. However, restoration is often costly and difficult. Every effort must be made to encourage restoration and to maximize the value of the restoration investment.

### **The Solution**

NOAA's response and restoration programs have demonstrated effective, integrated approaches to solving complex, problems in the coastal zone. This request will allow NOAA to work in more areas of the coastal zone to address critical development, habitat, and restoration challenges. In partnership with industry, states, tribes, and coastal communities, NOAA can help protect the integrity of coastal ecosystems, and support broader, more effective restoration.

### **More Restoration through Local and Regional Partnerships**

NOAA will expand partnerships with industry, states, coastal communities, and others to leverage restoration activities. This funding will allow NOAA to work locally and regionally to help communities address contamination, mitigation, and restoration issues related to port development, dredging, and "Brownfields" redevelopment. NOAA will provide technical assistance, training, and support to states and communities to strengthen local and regional capabilities to restore or redevelop contaminated sites. These stronger partnerships will allow for more restoration of coastal resources in key areas.

### **More Effective Regional Restoration Planning**

NOAA will support regional restoration planning efforts for selected areas. Through the Estuaries Restoration Act and in partnership with state coastal management programs, National Estuary Programs, and other on-going efforts, NOAA will: build consensus on restoration priorities; leverage ongoing restoration projects; and expedite restoration project implementation. Many development

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projects, for example, require mitigation. Mitigation is most effective when it is coordinated with other restoration efforts. Working with industry, local communities, and state and Federal agencies, NOAA will help link mitigation projects with larger regional and watershed restoration plans. Greater coordination among restoration, mitigation, and improvement projects will yield greater benefits for coastal resources across regions.

### **Incentives for Voluntary Restoration**

NOAA will offer new incentives for industry to voluntarily restore coastal environments contaminated by hazardous substances. Industry will be encouraged to work cooperatively with NOAA in the damage assessment process to expedite restoration. This effort will encourage corporate initiative in restoration to resolve liability for harmed coastal resources and satisfy NOAA's natural resource trustee responsibilities. The result will be more effective and timely restoration of coastal resources.

### **Linking Response with Restoration**

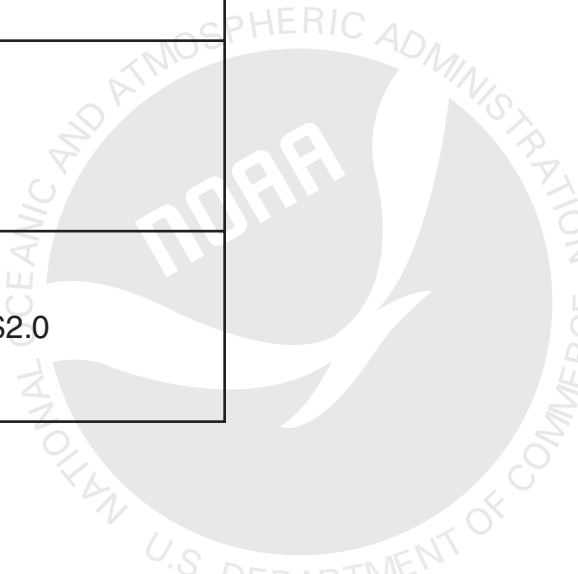
Spill response has traditionally been viewed as distinct from environmental restoration, yet the two are closely linked. NOAA will investigate the scien-

tific, policy and legal issues involved with developing a spill response framework that integrates response and cleanup decisions with restoration options. NOAA will examine the existing data on response methods, expand monitoring efforts to focus on the recovery of habitat function, and support targeted research to address gaps in understanding. The result will be improved response techniques leading to more rapid, and therefore less costly, environmental recovery.

### **Why NOAA?**

NOAA's statutory mandates position the agency to respond to environmental threats such as oil and hazardous material spills, hazardous substance releases, and contaminated sediments. NOAA fulfills the Secretary of Commerce's stewardship mandate to protect and restore coastal natural resources by countering and responding to environmental threats and promoting sound decision-making in the coastal zone. NOAA promotes restoration of degraded coastal resources, mitigates the effects of vessel groundings in marine sanctuaries, reduces the impacts of coastal storms that mobilize contamination, and assesses the impact of port infrastructure development and maintenance activities on the health of coastal environments. ☺

NOS (OR&F)	FY2003 Change in millions
Ocean Resources Conservation and Assessment	
Response and Restoration	\$2.0



# NOAA FY 2003 BUDGET REQUEST

## Vessel Lease/Time Charter: \$9.9 Million increase

NOAA requests an increase of \$9.9 million and 6 FTE to initiate a vessel/lease time charter to expand its hydrographic surveying capacity. The charter partner will supply operating personnel and a vessel with two launches equipped to perform multi-beam and side scan sonar surveys to NOAA standards and NOAA will provide the supervisory technical expertise.

Initial emphasis in FY 2003 will be in the Gulf of Mexico. In future years, this vessel will also operate in Alaska, which has the largest remaining area of the critical survey backlog. With this funding, NOAA will be able to complete essential baseline surveys for homeland defense and accelerate the completion of the critical survey backlog from 20 to about 10 years. The estimate for the leased vessel at full performance in FY 2004 in the Gulf is approximately 330 days at sea and 500 square nautical miles per year. The requested funding will provide survey data to directly enhance the safety of mariners, passengers and the national economy from both natural and human threats from accidents and possible terrorist strikes.

### The Challenge

Maritime commerce has escalated since the 1950s and is projected to double within

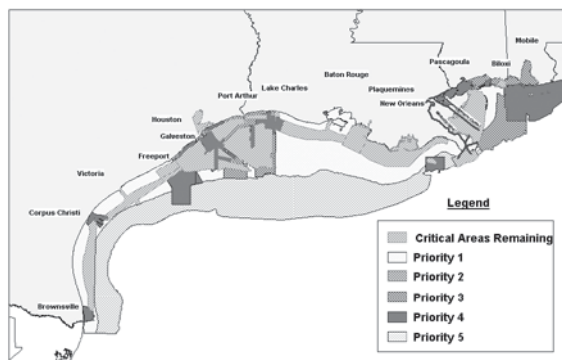
the next 20 years. This increase in commerce accompanies expansion of the length, width, and draft of ships carrying cargo; 1000-foot long, 120-foot wide, 50-foot draft vessels are not uncommon on our Nation's waterways. Ninety five percent of America's non-NAFTA economic trade moves through the marine transportation system. Any interruption in the flow of goods through our nation's marine transport system yields an immediate and dire impact to the national economy. Approximately one half of seaborne cargo is petroleum or hazardous materials. Safe and efficient movement of goods through U.S. ports require high-accuracy nautical charts to support a safe and profitable waterways system, and these charts depend on the availability of up-to-date, reliable hydrographic survey data.

The Gulf of Mexico has several factors that contribute to NOAA's need to collect more hydrographic survey data. Four of the top seven port areas are found on the Gulf of Mexico, including:

- New Orleans and south Louisiana,
- Houston/Galveston,
- Port Arthur, TX and Lake Charles, LA; and
- Corpus Christi, TX.

Ships in many critical Gulf areas carry heavy commercial and passenger traffic. Commercial cargo includes oil, liquid natural gas (LNG), and other chemicals and hazardous materials. The combination of high traffic, hazardous cargos and vessels operating close to the ocean bottom make waterways and ports particularly vulnerable to both accidents, obstructions to navigation, and terrorist activities.

Gulf of Mexico National Survey Plan  
West  
November, 2000



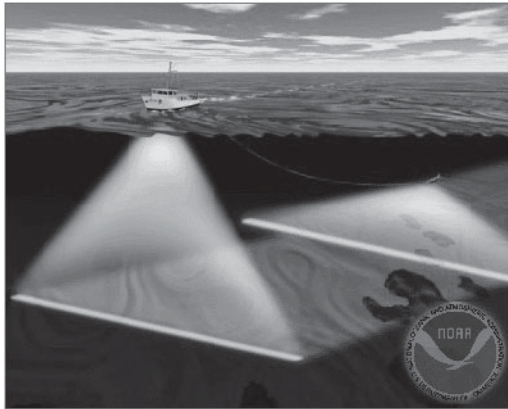
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### The Solution

Safe navigation is achieved through the combination of baseline surveys enabling automatic detection of mine-like objects by the U.S. Navy and the acceleration of the schedule for completing the backlog of hydrographic surveys. Survey data and resulting improved accuracy to nautical charts will enhance detection, protection, and prevention efforts by enabling NOAA to provide critical data to ensure these ports remain fully functional.

Ship operators require the precise location of minimum depths on dangers to navigation and depths significant to surface navigation. NOAA conducts detailed hydrographic surveys to determine the water depth and the nature of the sea floor material (i.e. sand, mud, rock). Hydrographic surveys also support a variety of other activities: port

and harbor maintenance (dredging), coastal engi-



Hull-mounted multi-beam sonar (left) and towed side scan sonar (right)

neering (beach erosion and replenishment studies), coastal zone management, and resource development.

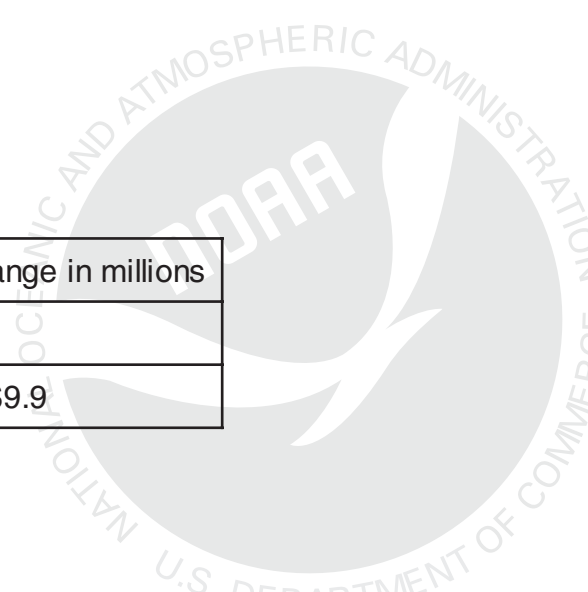
Side scan sonar is a specialized sonar (Sound Navigation and Ranging) system for searching and detecting objects on the sea floor, providing a “picture” of the ocean bottom. Multi-beam sonar systems provide full coverage of the sea floor similar to side scan sonars, but the output is in the form of depths rather than images. The charter partner will supply a vessel equipped to perform both multi-beam and side scan sonar surveys to NOAA standards

### Why NOAA?

The statutory mandate of NOAA authorizes the agency to provide nautical charts and related hydrographic information for the safe navigation of maritime commerce as well as provide basic data for engineering, scientific and other commercial and industrial activities. This mandate applies to the U.S. Exclusive Economic Zone (EEZ), an area of 3.4 million square nautical miles which extends 200 nautical miles offshore from the Nation’s coastline.

In the FY 2002 appropriations for NOAA, the Congress recognized that NOAA should “consider a long-term lease or charter of a U.S. purpose-built, U.S. flag hydrographic survey vessel which is capable of performing the full scope of necessary hydrographic services.” A model based on a combination of end-to-end surveys by private contractors, surveys done by NOAA ships, and leased vessels will allow NOAA to sustain its goal of maintaining accurate and timely charts of the Nation’s waters. ☺

NOS (OR&F)	FY2003 Change in millions
Navigation Services	
Mapping and Charting	\$9.9



# NOAA FY 2003 BUDGET REQUEST

## Modernize and Expand Stock Assessments

The Fiscal Year 2003 budget request for the National Marine Fisheries Service Expand Stock Assessments initiative is \$9.9 million. This initiative puts forth a multi-year framework for the improvement of NOAA stock assessments through new national standards of quality and scope.

New in FY 2003 is the programmatic integration of closely allied fishery science activities comprising days-at-sea, advanced technology, and fisheries oceanography. In combination, these efforts assure a well-coordinated and fiscally leveraged strategy to strengthen the information basis for fisheries management. These programs contribute to maintaining and enhancing the economic viability and jobs that commercial and recreational fishing and other related industries provide to the Nation. U.S. commercial fishing landed 9.1 billion pounds in 2000 contributing \$27.8 billion to the Gross Domestic Product (GDP). Recreational fishing harvested another 254.2 million pounds contributing another \$25 billion to GDP.

### Improving Stock Assessments: \$8.4 million

FY 2003 continues priority investments in the NMFS Stock Assessment Improvement Plan (SAIP). Tier 1 of the SAIP will improve stock assessments using existing data, thereby elevating “unknown” stocks to “known” status. Tier 2 will elevate stock assessment to new national standards for all core species, including the establishment of adequate baseline monitoring for all federally-managed species. Out-year funding will

address Tier 3, which will develop next generation assessments that explicitly incorporate ecosystem considerations into stock analyses. Funds for charter days-at-sea are requested to obtain field data on specific species and/or fish stocks and related oceanographic characteristics. The innovative use of technologies and the application of a suite of new and advanced sampling systems and approaches will be used to address data collection and information needs for improved stock assessment products. Increased staff resources are requested to perform the increased workload associated with processing biological samples, data entry and management, data synthesis, improving methodological research, and transfer of those results to fisheries managers.

### Fisheries oceanography: \$1.5 million

Fisheries and the Environment is an iterative research program that continually evaluates an expanding array of ecological and oceanographic products used for fishery stock assessments. Advanced technologies, environmental indicators, and modeling capabilities will be developed to better understand how large-scale regime shifts impact fisheries productivity in the North Pacific. The first generation of indicators will be of immediate benefit to stock analysts in evaluating the ocean-climate risk inherent in current year assessments, and harvest quotas. The requested funds will also support NMFS researchers collaborating in pilot projects having direct relevance to NMFS Stock Assessment Improvement Plan objectives [\$0.5 million] with the Census of Marine Life international research program. These actions will enhance the quality of the assessments as well as being a partner in the international effort to assess diversity distribution and abundance of marine organisms throughout the world's oceans. ☺

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### Modernize and Expand Stock Assessments FY2003 Increases:

Improving Stock Assessments	\$8.4 m
Fisheries Oceanography	\$1.5 m
Total	\$9.9 m

# NOAA FY 2003 BUDGET REQUEST

## Geostationary Operational Environmental Satellites

### The National Requirement

The Nation needs highly accurate, timely information on storm movements over North America in order to better predict severe weather events such as hurricane landfall, or to indicate where severe thunderstorms might develop. Knowledge of where such storms might develop helps forecasters to better predict flooding, providing ample time to warn residents of severe weather conditions.

### NOAA's Response

NOAA maintains a system of two environmental satellites in geostationary orbit to provide data for short-term weather warnings and forecasts. Two GOES satellites remain operational at all times, one over the eastern United States and the Atlantic Ocean and the other over the western United States and the Pacific Ocean. An additional satellite serves as an on-orbit spare for use in the event of a failure.

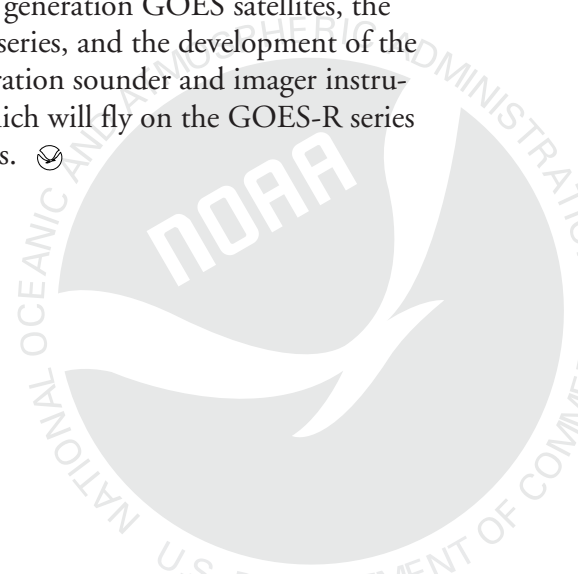
GOES provides images of the entire United States every 15 minutes. GOES images of clouds are a mainstay of television weather forecasts, allowing nearly every citizen access to GOES data. All National Weather Service Forecast Offices use these images to serve the public, industry, and Federal, state, and local governments with local weather forecasts and warnings of severe weather events. NOAA can acquire GOES

images as frequently as every minute to monitor severe weather development and track its movement. These sentinels also provide critical information on disasters, such as floods, fires, and volcanic eruptions, and they possess Search and Rescue transponders for the detection and relay of distress signals from downed aircraft, imperiled ships, and other sources helping to save lives.

### Financing

The FY 2003 Budget includes \$227.4 million for GOES systems. This request represents a decrease of \$35.1 million from the FY 2002 funding level. The funding decrease results from the successful launch of GOES-12 in 2001 and a recently completed intensive review of the entire GOES program. Given the status of the GOES constellation, the review showed that NOAA could move the launch date for GOES-R to 2012 versus 2010 as originally planned.

The FY 2003 funding will support the continued procurement of satellites, launch vehicles, and ground systems for the next generation GOES-N series of environmental satellites. The request also includes a small amount of funding for the development of the future generation GOES satellites, the GOES-R series, and the development of the next generation sounder and imager instruments, which will fly on the GOES-R series of satellites. ☺





# NOAA FY 2003 BUDGET REQUEST

## NESDIS Budget Request

### The National Requirement

The Nation requires a national system capable of providing timely and accurate remotely sensed environmental data from satellite systems. NESDIS satellites provide 85 percent of the data used by the National Weather Service for forecasting activities. Early warning of major weather events saves countless lives and prevents substantial property damage. Scientists researching long-term climatic, oceanographic, and geophysical effects on the environment depend on NESDIS data archives for their studies that describe and predict the state of the physical environment.

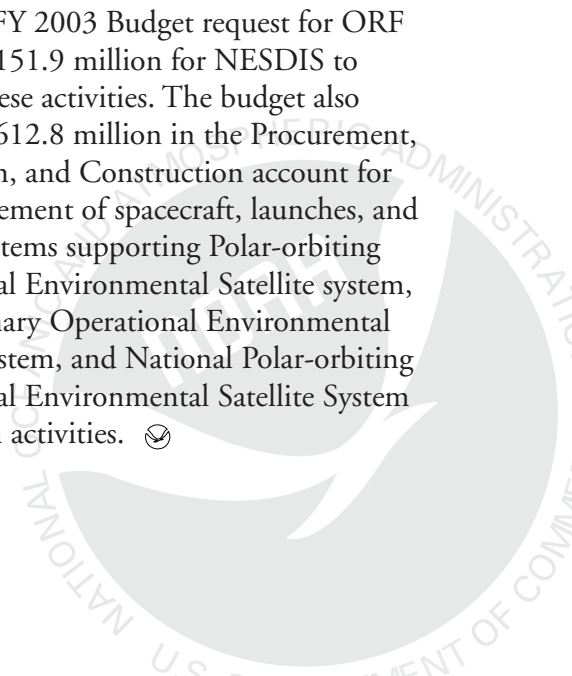
### NOAA's Response

NESDIS manages the U.S. operational environmental satellite systems and the global databases for meteorology, oceanography, solid-earth geophysics, and solar-terrestrial sciences. NOAA's polar-orbiting satellites that orbit continuously around the globe and its geostationary satellites stationed over the United States, work together to provide daily global data on weather conditions, atmospheric temperature structure, volcanoes, sea surface temperature, forest fires, ozone levels, hurricanes, and typhoons. These satellites monitor storms and provide advance warnings of emerging severe weather critical to providing early storm warnings. In support of environmental data needs, NESDIS gathers global data about the oceans, Earth, air, space, and sun and their interactions to describe and predict the state of the physical environment. NESDIS data centers archive the data to assist scientists in fully understanding Earth systems and long-term climatic, oceanographic, and geophysical effects on the environment.

The Environmental Observing Services (EOS) and the NOAA Data Centers & Information Services programs, financed in the Operations, Research and Facilities (ORF) appropriation, provide the foundation that protects the NOAA investment in observing systems and data. EOS supports activities associated with the operational control, and the health and safety of several billion dollars of on-orbit satellite equipment, 365 days per year, 24 hours per day. This line item also supports the production and distribution of satellite products and the development of new and improved applications and products from current and future satellites. The NOAA Data Centers & Information Services activity supports the National Climatic Data Center, the National Oceanographic Data Center, and the National Geophysical Data Center, which archive, and ensure accessibility to the Nation's historical environmental data. Scientists, insurance companies, lawyers, and academicians use these data to resolve issues related to commerce, business, agriculture, science, engineering, and public safety programs.

### Financing

The FY 2003 Budget request for ORF includes \$151.9 million for NESDIS to support these activities. The budget also includes \$612.8 million in the Procurement, Acquisition, and Construction account for the procurement of spacecraft, launches, and ground systems supporting Polar-orbiting Operational Environmental Satellite system, Geostationary Operational Environmental Satellite system, and National Polar-orbiting Operational Environmental Satellite System acquisition activities. ☺



# NOAA FY 2003 BUDGET REQUEST

## National Polar-orbiting Operational Environmental Satellite System

### The National Requirement

The Nation requires an improved and cost effective, single national system capable of satisfying both national security and civil requirements for space-based, remotely sensed environmental data. The U.S. government traditionally maintained two polar weather satellite systems, one each for civil purposes and military requirements. This converged system will cost \$1.8 billion less than maintaining and upgrading the current series of Defense Meteorological Satellite Program and Polar-orbiting Operational Environmental Satellite satellites.

### NOAA's Response

The National Polar-orbiting Operational Environmental Satellite System (NPOESS) program was created in 1994 to converge the two polar satellite efforts. NOAA, acting for the Department of Commerce, has lead agency responsibility for NPOESS and for satellite operations, while DoD leads system acquisition, and NASA is responsible for developing and inserting new technologies. NPOESS will provide real-time, global and regional environmental imagery, and meteorological, climatic, terrestrial, oceanic, and solar-geophysical data.

Highly advanced NPOESS instruments will deliver more accurate atmospheric and oceanographic data to support improved accuracy in medium to long-range weather forecasts and severe storm warnings, reducing loss of life and property, and advancing the national economy. The data are also critical for seasonal to inter annual forecasts, including the early forecasting of El Niño.

The aviation community will receive significant benefits in terms of more accurate

and timely forecasts and warnings. Improved fire monitoring, and enhanced frost, hail, and flood warnings will benefit the agriculture industry. A better understanding of ocean winds, waves, and currents, will lead to improved vessel routing for safety and fuel savings.

Weather significantly affects all aspects of military operations. NPOESS data will provide military leaders the situational awareness that is critical to combat planning, achieving air superiority, and winning war with minimum casualties. NPOESS data will help maximize combat effectiveness through improved anticipation and exploitation of atmospheric and space environmental conditions.

### Financing

The FY 2003 Budget includes \$474.5 million for the continued development of the NPOESS, split equally between NOAA and Department of the Air Force requests. The NOAA amount represents an increase of \$79.9 million over the FY 2002 funding level.

In FY 2003, funds will be required to continue the development and production of the NPOESS instruments and the first full year of the spacecraft Engineering and Manufacturing Development phase of the NPOESS program, including total system architecture trades and design of the four major NPOESS segments; Space; Interfaced Data Processor; Command, Control, and Communications; and Launch Support. Successful implementation of the NPOESS program in time to replace the last of the current spacecraft beginning in 2008 is critically dependent upon stable and sustained funding for both NOAA and DoD. ☺