

June 30, 2004 NOAA Stewardship Reporting

Attachment II

Stewardship reporting provides information on resources entrusted to NOAA and the related responsibilities assumed by NOAA. These resources include stewardship property, plant, and equipment (PP&E) and stewardship investments. NOAA does not manage a significant amount of stewardship assets; however, its stewardship assets do provide a significant benefit to the Nation. NOAA's stewardship resources range from marine sanctuaries to historic laboratory buildings. These resources do not meet the criteria for assets which are required to be in the consolidated financial statements, but they are important for understanding the operations and financial condition of NOAA and the Federal government.

Stewardship Property, Plant, and Equipment

Heritage Assets

Heritage assets are PP&E that are unique because of their historical or natural significance; cultural, educational or artistic importance; or significant architectural characteristics. Heritage assets are expected to be preserved indefinitely. Although these assets would not be disclosed under traditional financial reporting requirements, the disclosure of heritage assets is essential to assess the overall performance of NOAA and the Federal government.

NOAA's heritage assets are comprised primarily of books, publications, manuscripts, records and nautical chart plates. These heritage assets are collection-type assets. NOAA's asset condition assessment is based on a five-point scale as follows: Condition 1 - Excellent; Condition 2 - Good; Condition 3 - Fair; Condition 4 - Poor; Condition 5 - Very Poor. Assets with the condition assessment level of between 1 through 3 are defined as being suitable for public display. The books, publications and manuscripts which make up two-thirds of the assets are in Condition 4 - Poor and Condition 5 - Very Poor. NOAA has established condition 2 - Good as the acceptable operating condition code for heritage assets. FY2004 additions to heritage assets are items found during FY2004 which were not previously reported.

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Heritage Assets						
Reporting Entity	Description of Assets	FY 2003 Quantity of Items Held	FY 2004 Additions	FY 2004 Withdrawals	FY2004 Quantity of Items Transferred	FY 2004 Quantity of Items Held
National Environmental Satellite, Data and Information Service (NESDIS)	Publications, books, manuscripts, photographs and maps	150,477				
Manuscript Map Collection					9	9
Black & White Photograph Collection						40,000
Bruce Heezen Collection						2,500
Coast Survey Collection						35,000
Rare Book Collection				2		2,975
Weather Bureau Collection						70,000
NESDIS Library	Litho Plates		2			2
NESDIS WASC Fairbanks, AK	Artifacts		2			2
NESDIS Total		150,477	4	2	9	150,488
National Ocean Service (NOS)						
NOS CASC Beaufort Laboratory–Rice Library	Artifacts, rare historical books, home movies, manuscript maps and furniture		18			18
Leather Bound Rare Book Collection			4			4
Rare Book Collection			83			83
Dr. Herbert Prytherch Collection			3	3		0
Manuscript Map Collection			9		(9)	0
Historical Serial Collection			93			93
Wooden Card Catalog Table w/50 Drawers(includes cards)			1			1
NOS CASC Total		-0-	211	3	(9)	199
NOS EASC Atlantic Hydrographic Branch (AHB)	Artifacts		23			23
NOS EASC Coast Survey 11 Warehouse Corbin, VA	Surveying artifacts	-0-	71			71
NOS EASC Florida Keys National Marine Sanctuary (FKNMS) Submerged Cultural Resources (SCR) Collection	Recovered artifacts from the FKNMS	119	55			174
NOS EASC USS Monitor National Marine Sanctuary	Artifacts from USS Monitor	527	500			1,027
NOS EASC Total		646	649			1,295

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Heritage Assets						
Reporting Entity	Description of Assets	FY 2003 Quantity of Items Held	FY 2004 Additions	FY 2004 Withdrawals	FY2004 Quantity of Items Transferred	FY 2004 Quantity of Items Held
<i>NOS WASC</i> Pacific Hydrographic Branch (PHB)	Artifacts		11			11
<i>NOS Headquarters-</i> History of Ocean Service established by Thomas Jefferson	Navigational & surveying artifacts, art objects, models, Oceanic artifacts, Copperplates, & documents	46			(46)	0
<i>NOS Hydrographic Survey Division(HSD)</i>		-0-	9			9
<i>NOS National Geodetic Survey(NGS)</i>		199		1	(73)	125
<i>NOS Oceanographic Products Services(OPS)</i>		-0-	18			18
<i>NOS Office of Coast Survey(CS)</i>		510	4		119	633
NOS Total			1,401	902	4	(9)
National Weather Service (NWS)	Historic films, books, records and artifacts					
NWS Headquarters		2	2			4
NWS Alaska Region			1			1
NWS WR WFO Billings, MT			1			1
NWS WR WFO Boise, ID			1			1
NWS WR WFO Elko, NV			3			1
NWS WR WFO Eureka, CA			3			3
NWS WR WFO Las Vegas, NV			2			3
NWS WR WFO Medford, OR			5			2
NWS WR WFO Oxnard, CA			8			5
NWS WR WFO Portland, OR			1			8
NWS WR WFO Sacramento, CA			1			1
NWS WR WFO San Diego, CA			1			1
NWS WR WFO Pendleton, OR			1			1
Weather Forecast Office (WFO) Museum, Charleston, WV		43		7		36
NWS Historical Film Collection		9	2			11
Automated Forecast Office System - AFOS Collection		18				18
NWS Total		72	32	7	-0-	97

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Heritage Assets						
Reporting Entity	Description of Assets	FY 2003 Quantity of Items Held	FY 2004 Additions	FY 2004 Withdrawals	FY2004 Quantity of Items Transferred	FY 2004 Quantity of Items Held
NOAA Marine and Aviation Operations (NMAO)	Art objects, ship models, instruments and artifacts					
NMAO Headquarters		31	3			34
NOAA Fleet Collection		14		3	7	18
NMAO Total		45	3	3	7	52
NOAA Finance and Administration (NFA)	Historic artifacts and instrument	2	9		(2)	9
Oceanic and Atmospheric Research (OAR)	Instruments, records and ship models	13	5	11	(7)	0
Under Secretary (USEC)	Lithographic nautical chart plates	5	6		2	13
National Marine Fisheries Service (NMFS)	Historical pre-NOAA artwork and artifacts and art works					
NMFS Headquarters Bob Hines Collection		24				24
NMFS WASC Fisheries Enforcement 5, NW Seattle, WA COPS Collection			285			
NMFS Total		24	285	-0-	-0-	309
NOAA TOTAL		152,039	1246	27	-0-	153,258

Multi-Use Heritage Assets

In some cases, heritage assets may be used to serve two purposes – in a heritage function and for use in government operations. In cases where a heritage asset serves both these purposes and has a predominant use in general government operations, the asset is considered a multi-use heritage asset. Multi-use heritage assets are capitalized as general PP&E and are depreciated over the useful life of the asset.

Galveston Laboratory: NOAA’s Galveston Laboratory is comprised of seven buildings which were originally part of Fort Crockett, an Army coastal defense facility built shortly after 1900. These buildings are listed by the Texas State Historical Society and are eligible for placement on

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the National Register. Due to their historic significance, exterior architectural features, and predominant use in government operations, this facility is undergoing a renovation in three phases. Phase I and II are complete, and Phase III has been funded and renovation work is scheduled to begin in the fourth quarter of FY 2004. As of June 30, 2004, the renovations are 60 percent complete.

NMFS Aquarium: The National Marine Fisheries Service (NMFS) Aquarium, which is located in Woods Hole, Massachusetts, is used to educate the public, raise public awareness of NMFS activities, and to accommodate in-house research for the Northeast Fisheries Science Center. The aquarium houses 16 exhibition tanks which hold more than 30 species of fish. The tanks are stand-alone and range from 75 to 2,800 gallons. The aquarium is deemed to be in good condition. By definition the aquarium is a heritage asset because it is primarily used to educate the public about the NMFS. However, the aquarium is classified as a multi-use heritage asset because it also is used for scientific research, which is part of NOAA's mission, and because two-thirds of the building it occupies is classified as General PP&E.

Stewardship Land

Stewardship land represents land not acquired in connection with items of general PP&E, including land and land rights. During the period from 1781 through 1867, the United States acquired approximately 1.8 billion acres of public land; but in the course of expansion and development, public land was sold or deeded by the Federal government to the states and their local governments. Although NOAA does not manage vast amounts of stewardship land, the importance of these holdings to NOAA's mission warrants disclosure.

NOAA manages a number of national marine sanctuaries. The Federal Accounting Standards Advisory Board (FASAB) declared sanctuaries are reportable as stewardship land due to their resemblance to underwater national parks.

National Marine Sanctuaries (NMS): In 1972, in response to a growing awareness of the intrinsic environmental and cultural value of our coastal waters, Congress passed the Marine Protection, Research and Sanctuaries Act. The Act authorized the Secretary of Commerce to designate discrete areas as national marine sanctuaries. These protected waters provide a secure habitat for species close to extinction, and protect historically significant shipwrecks and prehistoric artifacts. Sanctuaries are also cherished recreational spots for diving and sport fishing, and support valuable commercial industries such as fishing and kelp harvesting. As of June 30, 2004 the Nation designated 1 coral reef reserve and 13 national marine sanctuaries, which include near-shore coral reefs and open ocean. The number of square miles protected by the coral reef reserve increased by 131,800 square miles during FY 2003 and marine sanctuaries increased by 430 square miles during FY 2002, with additions in protected areas for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve and the Hawaiian Island Humpback Whale and the Thunder Bay Sanctuaries.

The waters and resources of the NMS are generally in good condition though some specific resources (e.g. coral reefs, some commercial and recreational fisheries, and some benthic

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habitats) are threatened. Each individual site conducts research and monitoring activities to characterize existing resources and document changes.

Approximately 70 percent of all coral reefs located in U. S. waters surround the Northwestern Hawaiian Islands (NWHI). The NWHI Coral Reef Ecosystem Reserve is our nation's largest marine protected area, and was established by Executive Orders 132178 and 13196 (hereafter "Executive Order") to provide protection for the coral reef ecosystem and related marine resources of the NWHI. This designation was made under authority provided to the President under the National Marine Sanctuaries Amendments Act of 2000 (P.L. 106-513). NOAA is presently developing an operations plan for the Reserve and also undergoing the process to designate the Reserve as a NMS.

Information on the 13 designated sanctuaries and coral reef reserve under NOAA's control as of June 30, 2004 are as follows:

<i>National Marine Sanctuaries</i>			
Name	Location	Protected Area Square Miles	Date Designated
Channel Island	25 miles off the coast of Santa Barbara, California	1,658	September 1980
Cordell Bank	60 miles northwest of San Francisco	526	May 1989
Fagatele Bay	Southwest shore of Tutuila Island, American Samoa	.25	April 1986
Florida Keys	Water surrounding the archipelago formed by the Florida Keys	3,674	November 1990
Flower Garden Banks	Approximately 110 miles south of the Texas-Louisiana border	56	January 1992
Gray's Reef	17 miles east of Sapelo Island, Georgia	23	January 1981
Gulf of the Farallones	Along the coast of California and northwest of San Francisco	1,255	January 1981
Hawaiian Islands Humpback Whale	Four Island area of Maui, Penguin Bank, and Kauai	1,370	November 1992

<i>National Marine Sanctuaries</i>			
Name	Location	Protected Area Square Miles	Date Designated
Monitor	16 miles southeast of Cape Hatteras, North Carolina	1	January 1975
Monterey Bay	Central California Coast	5,328	September 1992
Olympic Coast	Washington's outer coast	3,310	July 1994
Stellwagen Bank	25 miles east of Boston	842	November 1992
Thunder Bay	East of Alpena, Michigan	808	October 2000
Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve	Leeward Hawaiian Islands	131,800	December 2000 and January 2001

Stewardship Investments

Stewardship investments are substantial investments made by the Federal government for the benefit of the Nation. NOAA engages in activities which qualify as stewardship investments. When the related costs are incurred, they are treated as expenses in determining the net cost of operations. However, traditional financial measures and reporting do not provide for disclosure of the special responsibilities, activities, and benefits for which NOAA and the Federal government are accountable. Because NOAA is entrusted with and made accountable for resources which fund activities such as human capital, they are reported here to satisfy the stewardship objective and help readers assess the impact of NOAA's operations and investments. The investments represent expenses incurred for items such as education and training programs (human capital); Federally financed research and development; and Federally financed but not Federally owned property (non-Federal physical property). NOAA participates in all three types of stewardship investments, as detailed below.

Non-Federal Physical Property

Non-Federal physical property represents properties financed by NOAA but owned by state and local governments.

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National Estuarine Research Reserves: Estuarine reserves are the areas where freshwater from rivers meet the ocean. These areas are known as bays, swamps, sloughs and sounds. They are all critical links in the Nation's coastal environment. These important coastal habitats are used as spawning grounds and nurseries for at least two-thirds of the nation's commercial fish and shellfish. In addition, estuaries filter much of the polluted runoff from rivers and streams that would otherwise contaminate oceans. Established by the Coastal Zone Management Act of 1972, the National Estuarine Research Reserves System (NERRS) is a network of Federal, state, and local partnerships, which work toward protecting and preserving the Nation's estuaries. The NERRS helps to fulfill NOAA's stewardship mission to sustain healthy coasts by improving the nations' understanding and stewardship of estuaries. Research funds are available from the Office of Ocean and Coastal Resource Management, Estuarine Reserve Division, on a competitive basis. Approximately \$800,000 per year in research funds has been obligated to support management-related research that will enhance scientific understanding of research environments, provide information needed by reserve managers and coastal zone decision makers, and improve public awareness of estuaries and estuarine management issues. The primary research objective is the study of natural and other induced change in the ecology of estuarine and estuarine-like ecosystems that comprise the NERRS. There are currently 26 designated estuarine reserves have been designated, encompassing 1,137,846 acres of estuarine waters, wetlands, and uplands. Most of the estuaries are operated and managed by the applicable state in cooperation with NOAA. Two additional reserves are in the process of development, St. Lawrence River Reserve in New York, and a proposed NERR in Texas.

Annual investment in Non-Federal Property related to NERRS:
(Property financed by NOAA, but owned by state and local government)

This is for the acquisition of lands and development or construction of facilities, auxiliary structures, and public access routes for NERR sites.

FY 2004 Actual Investment (YTD Expenditures) - \$115,669.78

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National Estuarine Research Reserves (NERRS)									
Name	General Location	Size in Acres	Year Established	Annual Investment (in thousands)					Primary Managing Entities
				FY 2004	FY 2003	FY 2002	FY 2001	FY 2000	
Ace Basin	45 miles south of Charleston, SC	134,710	1992	\$9,000	\$4,471	\$13,605	\$9,872	\$500	South Carolina
Apalachicola	55 miles southeast of Panama City, FL	246,000	1979	0	0	0	205	300	Florida
Chesapeake Bay, Maryland	<u>Jug Bay</u> - P.G. and Anne Arundel Counties, MD <u>Monie Bay</u> - 20 miles outside Salisbury, MD <u>Otter Point Creek</u> - Harford County MD	4,820	1985 and 1990	0	0	0	300	150	Maryland
Chesapeake Bay, Virginia	Chesapeake Bay, York River region	4,435	1991	0	438	0	105	750	State of Virginia and College of William and Mary
Delaware	<u>St. Jones River</u> - Kent County, DE <u>Blackbird Creek</u> - New Castle, DE	4,930	1993	9,100	818	0	225	50	Delaware
Elkhorn Slough	Between Santa Cruz and Monterey, CA	1,400	1979	0	130	650	660	0	California
Grand Bay	Jackson County, MS	18,400	1999	0	5,961	0	0	90	Mississippi
Great Bay	Inland from the coast of New Hampshire and Maine border	5,280	1989	22,372	5,961	6,089	7,897	4,000	New Hampshire
Guana Tolomato Mantanzas	Flagler and St. John's Counties, FL	55,000	1999	0	1,050	1,200	625	90	Florida
Hudson River	Columbia, Dutchess, and Rockland Counties, NY	4,838	1982	0	0	650	88	0	New York
Jabos Bay	Southern coast of Puerto Rico	2,883	1981	0	100	300	400	0	Puerto Rico
Jacques Cousteau	East Coast, NJ	114,665	1998	0	85	428	492	741	New Jersey
Kachemak Bay	Homer, AK	365,000	1999	0	60	500	2,958	1,766	Alaska
Naragansett Bay	12 miles from Newport, RI	4,259	1980	41,364	468	490	555	290	Rhode Island

National Estuarine Research Reserves (NERRS)

Name	General Location	Size in Acres	Year Established	Annual Investment (in thousands)					Primary Managing Entities
				FY 2004	FY 2003	FY 2002	FY 2001	FY 2000	
North Inlet-Winyah Bay	Near Georgetown, SC	12,327	1992	0	0	27	2,503	0	State of South Carolina and University of South Carolina
North Carolina	Carrituck, New Hanover, Carteret, and Brunswick Counties, NC	10,000	1985 and 1991	0	0	0	0	0	North Carolina
Old Woman Creek	Erie County, OH	571	1980	0	0	0	270	0	Ohio
Padilla Bay	Mount Vernon, WA	11,000	1980	0	595	1000	1090	950	Washington State
Rookery Bay	Southwest coast of Florida-Collier County	110,000	1978	8,422	280	600	907	950	Florida
San Francisco Bay	Marin County & Solano County, CA	3,710	2003	0	0				San Francisco State University, California
Sapelo Island	Northeast of Darien, GA	6,110	1976	0	1,490	0	400	0	Georgia
South Slough	Cape Mendocino, CA to the Washington border	4,779	1974	5,000	330	285	364	283	Oregon
Tijuana River	International border between California and Mexico	2,513	1982	0	250	125	95	95	California
Waquoit Bay	Southeast coast of Cape Cod, MA	2,600	1988	20,412	1,490	768	229	0	Massachusetts
Weeks Bay	Baldwin County, 30 miles southeast of Mobile, AL	6,016	1986	0	0	250	1,150	100	Alabama
Wells	30 miles north of the New Hampshire border	1,600	1986	0	0	547	167	400	Maine
Total		1,137,846		\$115,670					

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Coastal Zone Management Fund: The Coastal Zone Management Program (CZMP) is authorized by the Coastal Zone Management Act of 1972 and administered at the Federal level by the Coastal Programs Division (CPD) within the Office of Ocean and Coastal Resource Management (OCRM). CPD is a federal-state partnership dedicated to comprehensive management of the nation's coastal resources ensuring their protection for future generations, while balancing competing national economic, cultural and environmental interests. The CPD is responsible for advancing national coastal management objectives and maintaining and strengthening state and territorial coastal management capabilities. It supports states through financial assistance, mediation, technical services and information, and participation in priority state, regional, and local forums. Investment activities of the Coastal Zone Management Program include incidental expenses of land acquisition and low-cost construction on behalf of various state and local governments for the purpose of preservation or restoration of coastal resources and habitats. Activities include redevelopment of deteriorating and urbanized waterfronts and ports, and providing public access to beaches and coastal areas.

FY 2004 Actual Investment (YTD Expenditures) - \$0

Coastal and Estuarine Land Conservation Program: The Department of Commerce, Justice, and State Appropriations Act of 2002 (Public Law 107_77), directed the Secretary of Commerce to establish a Coastal and Estuarine Land Conservation Program “for the purpose of protecting important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses.” Since FY 2002, matching grants were directed to 36 specific projects in coastal and estuarine areas, to be awarded to state, local and private nonprofit entities for land acquisition.

FY 2004 Actual Investment (YTD Expenditures) PAC - \$21,013,077

Human Capital

Human capital investments are expenses included in net cost for education and training programs that are intended to increase or maintain national economic productive capacity and that produce outputs and outcomes that provide evidence of maintaining or increasing national productive capacity. Human capital excludes education and training expenses for Federal civilian and military personnel.

National Sea Grant: The National Sea Grant is a partnership between the Nation's universities and NOAA that began in 1966, when Congress passed the National Sea Grant College Program Act. Currently, the 30 Sea Grant Colleges are focused on making the United States the world leader in marine research and the sustainable development of marine resources. The National Sea Grant meets national needs by producing and making available a wealth of information on marine topics. The National Sea Grant funds high-quality research that is responsive to user needs by focusing the talents of University scientists, educators and outreach specialists on special projects such as solving marine and Great Lakes resource management, development, and conservation issues. The National Sea Grant transfers new knowledge to coastal businesses, marine industries, government, and the public. National Sea Grant research projects are funded on the basis of rigorous, highly competitive peer reviews. To date the program has supported

approximately 13,700 graduate research assistants while they worked on cutting-edge marine and Great Lakes science.

The National Sea Grant College Program's investment in Human Capital Programs amounted to (in thousands) \$220, \$21,105, \$20,500 and \$19,536 for FY 2004, 2003, 2002 and 2001 respectively. The total FY 2003 investment included \$4,615 for education, which provided for pre-college and teacher training, formal university programs, undergraduate and graduate student research, and Marine Policy and industrial fellowships; and \$16,490 for extension education, such as informal education programs designed to transfer science-based information to industrial and environmental resource managers.

National Estuarine Research Reserve Program: The National Estuarine Research Reserves Program supports activities designed to increase public awareness of estuary issues, to provide information to improve management decisions in estuarine areas, and to train graduate students in estuarine science. The National Estuarine Research Reserve System's Graduate Research Fellowship (GRF) Program offers qualified master's and doctoral students the opportunity to address scientific questions of local, regional and national significance. The result is high-quality research focused on improving coastal management issues. All GRF projects must be conducted in a National Estuarine Research Reserve and enhance the scientific understanding of the reserve's ecosystem. These projects are based on the reserves' local needs, the reserve system's national priorities and the students' interest.

Strategic Plan Goal: Protect, restore, and manage the use of coastal and ocean resources through ecosystem-based management.

Objective: Protect, restore and manage the use of coastal, ocean and Great Lakes Resources.

Performance Measures/Outcomes:

Number of Graduate Research Fellowships Awarded in FY2004 to date: 50

FY 2004 obligation of funds for Graduate Research Fellowships: \$1,000,000.00

FY 2004 Actual Investment (YTD Expenditures) ORF - \$591,432.95

National Research Council Research Associateship Program: The National Research Council, through its Associateship Programs office, awards outstanding scientists and engineers at recent postdoctoral and experienced senior levels with tenure as guest researchers at participating laboratories. The participants interact with NOAA scientists and learn new approaches, methods, and ideas, which increase their capacity as scientific researchers. The participants publish the results of their research in scientific journals and by other means, which make the results of their research available for the public.

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The following summarizes NOAA's investment in human capital for FY2004, FY 2003, FY 2002, FY 2001 and FY 2000:

Program	Annual Investment (in thousands)				
	FY 2004	FY 2003	FY 2002	FY 2001	FY 2000
National Sea Grant	\$220	\$21,105	\$20,500	\$19,536	\$14,496
National Estuarine Research Reserve Program	591	94	810	759	709
National Research Council Research Associateship Program	-0-	1,499	364	2,993	1,676

Sea Grant universities contributed matching funds to NOAA's National Sea Grant programs, in thousands, of \$10,963, \$11,477, \$11,131, \$8,462 and \$8,529 for FY 2003, FY 2002, FY 2001, FY 2000, and FY 1999, respectively. The National Sea Grant Program also received, in thousands, \$90,976, \$1,075, \$1,912, \$1,614, and \$800, in FY 2004, FY 2003, FY 2002, FY2001 and FY 2000, respectively, on a pass-through basis from other Federal agencies.

Research and Development

Research and development includes expenses incurred for programs intended to increase or maintain national economic productive capacity or yield other future benefits. NOAA conducts a substantial program of environmental research and development in support of its mission. Much of the research is performed to improve understanding of environmental phenomena and the ability to predict environmental phenomena as part of NOAA's operations. The scope of research in support of operations includes:

- Improvement of the prediction and warnings associated with the weather on time scales ranging from minutes to weeks;
- Improving the prediction of climate for periods of months to centuries; and
- Understanding relationships to better predict and manage renewable marine resources and coastal and ocean ecosystems.

NOAA also conducts research that is intended to provide a solid scientific basis for use by government decision makers in environmental policy. Examples of that work include determining the stratospheric ozone depleting potential of proposed substitutes for chlorofluorocarbons (CFC's) and identifying the causes of high episodes of rural ozone which significantly damage crops and forests.

Most of NOAA's research program is conducted in-house, while the majority of the systems development is performed under contract. NOAA also supports external research, the majority of which is undertaken by the National Sea Grant Program, the Cooperative Institutes of the Environmental Research Laboratories, the Climate and Global Change Program, and the Coastal Ocean Program.

The following narrative describes the major research and development programs of NOAA by line offices:

National Ocean Service (NOS)

As a national lead for coastal stewardship, NOS promotes a wide range of research activities to create the strong science foundation required to advance the sustainable use of our precious coastal systems. Understanding the coastal environment is enhanced through coastal ocean activities which support science and resource management programs.

NOS research and development programs focus on estuaries, coral reefs, national marine sanctuaries and national estuarine research, as well as coastal ecosystems. Through NOS' National Centers for Coastal Ocean Science (NCCOS), NOS conducts and supports research, monitoring, assessment, and technical assistance for managing coastal ecosystems and society's use of them. There are five NCCOS centers, each with research labs. Research activities range from understanding the causes and consequences of harmful algal blooms, predicting how climate change impacts our lives and determining the complex factors which affect fish habitats. To this end, our goal is to improve the scientific basis upon which coastal managers make decisions.

National Marine Fisheries Service (NMFS)

The Manguson-Stevens Fishery Conservation and Management Act ("The Act") mandates strong action to conserve and manage fishery resources that contribute to the food supply, economy, and health of the Nation. The Act's provisions require NMFS to end overfishing, rebuild all overfished stocks, and conserve essential fish habitat through research and consultations on Federal and state actions that may adversely affect habitats.

NMFS has four major research priorities:

- Research to support fishery conservation and management. NMFS scientists are actively engaged in collaborative research to protect and enhance fishery resources. These research efforts include mapping, spatial analyses, geographic information systems (GISs), and fishery and ocean habitat modeling and characterization, as well as an evaluation of ecosystem approaches focusing on spatially-explicit models and further research into trophic relationships. Additionally, with the increasing need to seek new management approaches to enhance and conserve essential fish habitat (EFH), NMFS is conducting studies on adaptive/management techniques through the identification and use of potential areas of refugia (i.e., using areas closed to fishing activities for both recovery and research) and experiments on no-take and limited take zones and time-area closures. NMFS is also exploring the research potential of MPAs to facilitate important experiments in marine ecology and to support recommendations made by the NRC (NRC, 2001). Further, NMFS is evaluating the potential negative/ positive impact of fishing gear on habitat and fisheries production.
- Conservation Engineering Research. Conservation engineering research is intended to make fishing gear more efficient by decreasing fishing costs, bycatch mortality, and habitat destruction. It is also intended to improve the data provided by scientific surveys of fish populations. This area includes research on gear performance and fish behavior used in the development of selective fishing gear to reduce bycatch. Bycatch is

responsible for the death of millions of juvenile finfish, including red drum, red snapper, weakfish, Spanish mackerel, and king mackerel. For example, prior to the implementation of bycatch reduction devices (BRDs), it has been estimated that between 15 to 50 million red snapper were annually taken and discarded in the offshore shrimp fishery in the Gulf of Mexico. The Food and Agriculture Organization (FAO) estimates that one-third of the world's 16 billion lbs. of bycatch comes from shrimp fishing. The most recent studies of bycatch estimate that the ratio of bycatch to shrimp landed is 4:1 in the Gulf of Mexico. The worldwide bycatch ratio for all fisheries is 0.35 lb to 1 lb. of target species.

- Research on the Fisheries. In its fifth edition, *Our Living Oceans* (NMFS, 1999) reported (from 1995-97 data) that of 160 U.S. Exclusive Economic Zone (EEZ) fisheries whose biological status could be assessed, 34% were classified as overutilized and 47% were fully utilized. Nationwide an additional 43 fishery stocks were characterized as having "unknown" status. New management measures, based on the Sustainable Fisheries Act (Public Law 104-297), have been implemented to halt the decline in stock levels in many of these fisheries. Causes typically cited for the declines include overfishing, deteriorating environmental conditions, loss of habitat, and changing oceanographic conditions. Research areas include social and economic research in fishery conservation and management issues, seafood safety research, and marine aquaculture.
- Information Management Research. The Act required the Secretary of Commerce to deliver a proposal to Congress that recommended an implementation strategy for the creation of a "...standardized fishing vessel registration and fisheries information system." This report was completed and delivered to Congress in December 1998, and outlined an approach that integrated all fisheries information required under all applicable National Marine Fisheries Service (NMFS) statutory and regulatory requirements, including but not limited to MSFCMA, the Marine Mammal Protection Act, the Endangered Species Act, and the Atlantic Coastal Fisheries Cooperative Management Act (NMFS, 1998b). It also includes all data collected under state authority for those states willing to participate. This report was developed in consultation with the U.S. Coast Guard, the states, the regional FMCs, the interstate Marine Fisheries Commissions, other key governmental and non-governmental organizations, and interested stakeholders. Drafts of the proposal were published in the Federal Register for public comment.

The proposed fisheries information system included information from both commercial and recreational fisheries (the vessel registration component was recommended to apply to only commercial vessels). The current development of the fisheries information system is based on integrating data collection and data management systems required by NMFS, and linking them with existing state/Federal cooperative statistics programs around the country (i.e., the Atlantic Coast Cooperative Statistics Program (ACCSP); Gulf coast (GulfFIN); Pacific coast (Pacific RecFIN and PacFIN); Hawaii and Pacific islands (WestPacFin). Linking regional systems will identify and satisfy mutual information needs for states and the Federal government. In addition, gaps in information needs not yet met by these programs will be identified through consultation with industry and policy makers.

Office of Oceanic and Atmospheric Research (OAR)

The Office of Oceanic and Atmospheric Research (OAR) — or “NOAA Research” — works in partnership with NOAA’s National Weather Service, National Ocean Service, National Environmental Satellite Data Information Service and National Marine Fisheries Service as the research and development organization of the agency. It is through NOAA Research that our work results in better weather forecasts, longer warnings for natural disasters and an overall greater understanding of our oceans, climate and atmosphere.

OAR has three major research foci:

- Climate Research. NOAA's research laboratories, Office of Global Programs, and research partners conduct a wide range of research into complex climate systems and how they work. These scientists want to improve their ability to predict climate variation in both the shorter term, like cold spells or periods of drought, and over longer terms like centuries and beyond.

NOAA researchers will continue their consistent and uninterrupted monitoring of the Earth's atmosphere that can give us clues about long-term changes in the global climate. The data collected worldwide by NOAA researchers aids our understanding of, and ability to forecast changes in, complex climatic systems.

Using ever more powerful and sophisticated computer systems, NOAA researchers are working on numeric modeling of climate systems that will help improve the accuracy of climate forecasts.

- Atmospheric Research. People have been observing the weather for thousands of years. Yet little was understood about the complex atmospheric phenomena that create weather until fairly recently. Every day, NOAA scientists and their research partners are expanding the atmospheric body of knowledge, shedding new light on the processes that contribute to the world’s weather and developing new tools for predicting it. No one can prevent the weather, but greater understanding of it can help save lives and property throughout the world.

NOAA Research organizations conduct basic and applied research on the upper and lower atmosphere as well as the space environment. Their findings form the basis for NOAA’s contributions to major national and international environmental programs and agreements. For instance, the recent National Weather Service modernization is making use of NOAA research as evidenced by improvements in numerical modeling, information received from satellites and Doppler weather radars (NEXRAD) and sophisticated weather warning and display systems, all leading to improved severe weather forecasts and warnings.

Other research programs focus on observation and study of the chemical and physical processes of the atmosphere, detecting the effects of pollution on those processes and monitoring and forecasting the phenomena affecting the Sun-Earth environment.

Defying Benjamin Franklin’s statement that everyone complains about the weather but no one does anything about it, NOAA scientists are revolutionizing our understanding of the restless ocean of air surrounding our planet.

- Ocean and Coastal Research: NOAA Research, in cooperation with its research partners, explores and investigates ocean habitats and resources. We provide scientific results to help manage and understand fisheries, conserve and protect our coasts, and build a stronger economy through marine products and businesses, such as biotechnology and aquaculture. We also look for changes in the oceans due to natural and human activities.

"We all need and use the ocean. Whether we live in Maine or Montana, New York or Nevada, the ocean has a vital influence in everyday life. Not only does the ocean contribute an estimated 70% of our oxygen but it also removes a significant amount of carbon dioxide from our atmosphere. Two-thirds of the world's human inhabitants live within 40 miles of the ocean. Fish from the ocean provide the principal source of protein for one-sixth of the people on Earth. The rain that falls, the waters we drink and bathe in -- all are inextricably linked to the ocean." (from "Danger At Sea: Our Changing Ocean" by B. McKay et al.)

National Weather Service (NWS):

The NWS conducts applied research and development, building upon the more basic research conducted by NOAA laboratories and the academic community. Applied meteorological and hydrological research is integral to providing more timely and accurate weather, water, and climate services to the public.

Meteorological Research. The NWS conducts meteorological research to develop, test, evaluate, and improve numerical models and analysis/forecast techniques for weather and climate prediction including:

- Techniques for predicting mesoscale phenomena (e.g., heavy precipitation, tornadoes, and severe thunderstorms).
- Models to improve hurricane tracking, hurricane probability estimates, and tropical analyses.
- Storm surge models to assist in developing hurricane evacuation plans for additional coastal basins.
- Techniques to improve prediction of seasonal to interannual climate variability and their impacts on weather variability

Hydrologic Research. The NWS develops, implements and operationally supports improved hydrologic, hydraulic and hydrometeorological models and manages hydrologic data and enhanced quality control procedure to support national flood and water resources forecasting. Research encompasses the following areas:

- Improvements to the Ensemble Streamflow Prediction (ESP) system and its complimentary models in the NWS River Forecasting System. Research, development and implementation of improved ESP procedures which improve forecast accuracy and quantify uncertainty at all time scales.

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- Specialized flood and flash flood forecasting procedures using linked hydrologic, hydraulic and meteorological models. Major research areas include developing distributed hydrologic models that use high resolution precipitation data from the NWS radar network, improvement of cold region processes in watershed models, and assimilation of data to improve initial conditions. Highly specialized hydraulic models for routing river flows will also provide information for generating maps of inundated areas.
- Development of improved multi-sensor precipitation estimates for input estimates for input into operational hydrologic and atmospheric models. Radar, rain gauge and satellite rainfall estimates are merged to produce optimum rainfall analyses.
- Development of verification methods to assess the added-value of new science and technology to the customer.

Space Weather Research. Applied research improves the specification and forecast of conditions in the space environment by developing and implementing models and indices, as well as by obtaining and processing new observations.

- Developing of the first dynamic, global ionospheric model to use ensemble Kalman filter techniques to assimilate data every 15 minutes. Disparate data from widely dispersed sources will enable the model output to be useful to radio-communicators and GPS and LORAN users.
- Developing of models to characterize and predict geomagnetic storm intensity development, spatially and temporally.

Support for Collaborative Research with the Academic Community and Other Partners.

The Collaborative Science, Technology, and Applied Research (CSTAR) program was established to bring NWS-supported collaborative activities with the academic community into a structured program and to create a cost-effective transition from basic and applied research to operations and services. The CSTAR Program issues a yearly request for proposals through which colleges and universities compete for 1-3 years of research funding. CSTAR supports short-term research activities with colleges and universities through the NWS/Cooperative Program for Operational Meteorology, Education, and Training (COMET) Outreach Program. The NWS also funds specific applied research grants and cooperative agreements directly in support of hydrology and meteorology research needs.

National Environmental Satellite Data and Information Service (NESDIS):

NESDIS, through its Office of Research and Applications (ORA) conducts atmospheric, climatological, and oceanic research into the use of satellite data for monitoring environmental characteristics and their change. It also provides guidance for the development and evolution of spacecraft and sensors to meet future needs.

NESIDS three principal areas of focus in research and development are:

- Atmospheric Research: NESDIS develops and improves methods for the remote sensing of satellite data, makes assessments of the accuracy of satellite observations and derived products, and transfers technology to operations.

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- Climate Research: NESDIS develops products and applications of satellite operations for weather and climate monitoring and prediction. It also develops calibration procedures for all NOAA satellite sensors and guides the development of new satellite instruments.
- Oceanic Research: NESDIS provides the primary research and development support for oceanic remote sensing within NOAA. Scientific programs include sea-surface temperature algorithms and analyses, ocean color, marine bio-optics, sea-surface wind measurements, satellite altimetry, oceanic rainfall measurements, search and rescue satellite applications, and coastal monitoring tools in such programs as CoastWatch and coral bleaching research.

NOAA Marine and Aviation Operations (NMAO)

NMAO operates a wide variety of specialized aircraft and ships to complete NOAA's environmental and scientific missions.

NOAA's Aircraft Operations Center (AOC), located at the MacDill Air Force Base in Tampa, Florida, is home to NOAA's fleet of aircraft. These fixed-wing and rotary aircraft operate in some of the world's most remote and demanding flight regimes--over open ocean, mountains, coastal wetlands, Arctic pack ice, and in and around hurricanes and other severe weather--with an exemplary safety record. There are no comparable aircraft in the commercial fleet to support NOAA's atmospheric and hurricane surveillance/research programs. AOC provides unique specialized platforms to NOAA's scientists. The hard-working versatile aircraft collect the environmental and geographic data essential to NOAA hurricane and other weather and atmospheric research; conduct aerial surveys for hydrologic research to help predict flooding potential from snow melt, and provide support to NOAA's fishery research and marine mammal assessment programs.

NOAA's ship fleet provides oceanographic and atmospheric research and fisheries research vessels to support NOAA's strategic plan elements and mission. The vessels are located in various locations around the United States. The ships are managed by the Marine Operations Center, which has offices in Norfolk, Virginia and Seattle, Washington. Logistic support for these vessels is provided by the Marine Operations Center offices or, for vessels in Woods Hole, Massachusetts; Charleston, South Carolina; Pascagoula, Mississippi; San Diego, California; and Honolulu, Hawaii; by Port Captains located in those ports.

Research and Development by Program

NOAA's programs for research and development include: Environmental and Climate, Fisheries, Fleet Maintenance and Aircraft Services and Weather Service.

Environmental and Climate: The Office of Ocean and Atmospheric Research (OAR) is NOAA's primary research and development office. The OAR conducts research in five major areas: interannual and seasonal climate, global change, weather, marine environment, and the undersea.

Fisheries: NOAA's National Marine Fisheries Service is responsible for the collection and analysis of information on the status of fishery resources and protected species, and for conducting programs that develop fisheries for economic growth.

Fleet Maintenance and Aircraft Services: These expenditures support infrastructure.

Weather Service: NOAA is funding the development of a new weather service system, the Advance Weather Interactive Processing System (AWIPS), for the modernization of its weather service.

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The following summarizes NOAA's investment in research and development by program for FY2004, FY 2003, FY 2002, FY 2001 and FY 2000:

Annual Investment (in thousands)					
Program	FY2004*	FY 2003	FY 2002	FY 2001	FY 2000
Environmental and Climate	\$225,721	\$351,472	\$289,885	\$266,174	\$257,402
Fisheries	52,967	156,383	121,745	125,755	241,349
Fleet Maintenance and Aircraft Service	35,982	90,382	19,254	18,023	14,731
Weather Service	12,886	20,377	11,000	11,100	7,700
Other	79,227	83,321	132,353	112,922	65,932
Total R&D Investment	\$406,783	\$701,935	\$574,237	\$533,974	\$587,114

The following reports are NOAA's investment in research and development segregated by the components of basic research, applied research, and development costs for FY 2004, FY 2003, FY 2002, FY 2001 and FY 2000:

Annual Investment (in thousands)					
Research and Development	FY2004*	FY 2003	FY 2002	FY 2001	FY 2000
Basic Research	0	\$12,529	\$8,840	\$3,300	\$4,338
Applied Research	388,952	668,327	537,109	507,692	559,415
Development	17,831	21,079	28,288	22,982	23,361
Total Research and Development	\$406,783	\$701,935	\$574,237	\$533,974	\$587,114

*FY2004 data is based on actual expenses incurred through June 30, 2004 as required by SFFAS No. 8. Data for FY2000-2003 is reported as outlay estimates based on obligational data.

Targets and Performance Summary

Performance Goal 1: Build Sustainable Fisheries

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Actual	FY 2004 Target
Number of Overfished Major Stocks of Fish	56	46*	45	39	43
Number of major stocks with an "unknown" stock status	120	120	88	94****	84
Percentage of plans to rebuild overfished major stocks to sustainable levels	93%	93%	90%	90%	90%

*The original baseline was fifty-six of which ten were later reclassified as not being subject to overfishing requirements as defined in the associated Fisheries Management Plans.

**This number was originally reported as 55 in the FY 2003 Annual Performance Plan (APP). However, due to the reclassification of 10 major stocks as not being subject to overfishing requirements as defined in the Fisheries Management Plan, the target for FY 2003 was adjusted and reported in the FY 2004 APP to reflect a more accurate number.

***Preliminary estimates.

***The original figure reported in the FY 2003 APP was 118. NOAA is developing new outyear targets based on the result of FY 2002 actual number.

****Reflects technical changes in the reporting of data from the fisheries.

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report, which were based on estimates for the year.

Performance Goal 2: Sustain Healthy Coasts

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Actual	FY 2004 Target
Number of acres of coastal habitat restored (annual/cumulative)	New	1,520	4,300/5,820	5,200/11,020	3,760/14,780
Reduce introductions and effects of invasive species in a total of six regions within the United States	1	2	2	2	Discontinued
Percentage of U.S. shoreline and inland areas that have improved ability to reduce coastal hazard impacts	8%	8%	8%**	17%	17%

*Based on the Office of Inspector General (OIG) Audit Report, No. FSF-14998/November 2002, this performance measure will be replaced but will not be reported as an APP measure. The future measure will be more specific in terms of scope and regional areas covered by the work.

**This figure was reported as 6 percent in the FY 2003 APP. However, based on OIG Audit Report, "No. FSF-14998/November 2002," NOAA understated the results for FY 2000 and FY 2001 and should have reported 8% (instead of 6%) of shoreline as having improved ability to reduce impacts from coastal hazards.

***The change also resulted in an increase of the target for FY 2002 and 2003 from 15% to 17%.

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report, which were based on estimates for the year.

Performance Goal 3: Recover Protected Species

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Actual	FY 2004 Target
Increase in Number of Threatened Species with Lowered Risk of Extinction	New	2	7	7	7
Number of commercial fisheries that have insignificant marine mammal mortality	New	2	3	3	3
Increase in Number of Endangered Species with Lowered Risk of Extinction	New	3	5	5	5

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report, which were based on estimates for the year.

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Performance Goal 4: Advance Short-term Warnings and Forecasts

Measure		FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
		Actual	Actual	Actual	Actual	Target
Lead time (minutes), accuracy (%), and false alarm rate (FAR, %) for severe weather warnings for tornadoes	Lead Time	10	10	12	13	12
	Accuracy	63%	67%	76%	79%	72%
	FAR	76%	72%	73%	76%	70%
Lead time (min) and accuracy (%) for severe Weather Warnings for Flash Floods	Lead Time	43	46	52	41	50
	Accuracy	86%	86%	89%	89%	88%
Accuracy of hurricane track forecasts (48 hour)	Nautical miles (nm)	New	New	122	107	129
Accuracy (percent) (threat score) of day 1 precipitation forecasts		New	New	30	27	25
Lead time (hours) and accuracy (%) for winter storm warnings	Lead Time	9	13	13	14	14
	Accuracy	85%	90%	89%	90%	89%
Accuracy (%) and FAR (%) of forecasts of ceiling and visibility (3 miles/1,000 feet) (aviation forecasts)	Accuracy	New	New	45%	48%	46%
	FAR	New	New	71%	64%	70%
Accuracy (%) of forecast for winds and waves (marine forecasts)	Wind Speed	New	New	52%	57%	57%
	Wave Height	New	New	68%	71%	69%

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report, which were based on estimates for the year.

Performance Goal 5: Implement Seasonal to Interannual Climate Forecasts

Measure	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
	Actual	Actual	Actual	Actual	Target
U.S. temperature--skill score	27	20	18	17	21
New climate observations introduced	New	132*	192	182	275

*This number reflects the total number of climate observations (buoys) budgeted for the year as opposed to the numbers actually deployed. In FY 2001, twenty buoys were deployed.

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report, which were based on estimates for the year.

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Performance Goal 6: Predict and Assess Decadal to Centennial Climate Change

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Actual	FY 2004 Target
Assess and model carbon sources and sinks throughout the U.S.	New	New	Identified five pilot carbon profiling sites and four new oceanic carbon tracks	Reduce uncertainty of Atmospheric Estimates of U.S. Carbon Sink to +/- 0.6 Gt. Carbon per year	Improve model -data fusion techniques and reduce uncertainty of atmospheric measurement estimates of U.S. carbon source /sink to +/- 0.7 Gt. carbon per year
Assess and model carbon sources and sinks globally	New	New	Established three new global background sites as part of the Global Flask Network	Completed a working prototype of a coupled carbon-climate model	Develop carbon climate scenarios for input to assessment
Determine actual long-term changes in temperature and precipitation throughout the U.S.	New	New	Captured more than 85% of true contiguous U.S. temperature trend and captured more than 35% of true contiguous U.S. precipitation trend	Captured 95% of the true contiguous U.S. national annual temperature trend and captured 84% of the true contiguous U.S. national annual precipitation trend.	Capture more than 80% of true contiguous U.S. temperature trend and capture more than 55% of true contiguous U.S. precipitation trend

**Please refer to narrative section for explanation.*

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report, which were based on estimates for the year.

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Performance Goal 7: Promote Safe Navigation

Measure	FY 2000 Actual	FY 2001 Actual	FY 2002 Actual	FY 2003 Actual	FY 2004 Target
Reduce the hydrographic survey backlog within navigationally significant areas (in square nautical miles [snm] surveyed per year)*	1,557	2,963	1,514	1,762	2,290
Percentage of National Spatial Reference System (NSRS) completed (cumulative)	71%	75%	83%*	84%	89%

*Please refer to narrative section for explanation.

*This figure was reported as 81% in the FY 2002 PAR. As a result of OIG Audit Report No. FSD-14998-3-001 dated February 2003, the FY 2002 Actual reported previously has been revised to 83% in this document.

Note: Some of the actual figures may not reflect the numbers reported in the Performance and Accountability Report, which were based on estimates for the year.

Assess and model carbon sources and sinks globally	New	New	Established three new global background sites as part of the Global Flask Network	Completed a model that can look at effects of climate change on particular carbon sinks with feedback to the atmosphere	Develop carbon climate scenarios for input to assessment
Determine actual long-term changes in temperature and precipitation throughout the U.S.	New	New	Captured more than 85% of true contiguous U.S. temperature trend and captured more than 55% of true contiguous U.S. precipitation trend	Captured 95% of the true contiguous U.S. national annual temperature trend and captured 84% of the true contiguous U.S. national annual precipitation trend.	Capture more than 80% of true contiguous U.S. temperature trend and capture more than 55% of true contiguous U.S. precipitation trend

*Please refer to narrative section for explanation.

	1,557	2,963	1,514	1,762	2,700
	71%	75%	83%**	84%	89%

*Please refer to narrative section for explanation.

**This figure was reported as 81% in the FY 2002 PAR. As a result of OIG Audit Report No. FSD-14998-3-001 dated February 2003, the FY 2002 Actual reported previously has been revised to 83% in this document.

***This figure was reported as 82% in the FY 2004 APP.

Performance Goal 1: Build Sustainable Fisheries

	Research	Develop	Total R&D
National Ocean Service	14,420	0	14,420
National Marine Fisheries Service	44,345	317	44,662
Office of Oceanic and Atmospheric Research	41,824	50	41,874
National Weather Service	0	0	0
National Satellite Data & Information Service	0	0	0
NOAA Marine and Aviation Operations	540	540	1,080
TOTAL PERFORMANCE GOAL 1	101,129	907	102,036

Performance Goal 2: Sustain Healthy Coasts

	Research	Develop	Total R&D
National Ocean Service	26,947	2,019	28,966
National Marine Fisheries Service	4	0	4
Office of Oceanic and Atmospheric Research	28,374	0	28,374
National Weather Service	0	0	0
National Satellite Data & Information Service	377	0	377
NOAA Marine and Aviation Operations	-30	0	-30
TOTAL PERFORMANCE GOAL 2	55,672	2,019	57,691

Performance Goal 3: Recover Protected Species

	Research	Develop	Total R&D
National Ocean Service	0	0	0
National Marine Fisheries Service	7,866	435	8,301
Office of Oceanic and Atmospheric Research	0	0	0
National Weather Service	0	0	0
National Satellite Data & Information Service	0	0	0
NOAA Marine and Aviation Operations	62	98	160
TOTAL PERFORMANCE GOAL 3	7,928	533	8,461

Performance Goal 4: Advance Short-term Warnings and Forecasts

	Research	Develop	Total R&D
National Ocean Service	0	0	0
National Marine Fisheries Service	0	0	0
Office of Oceanic and Atmospheric Research	41,898	1,251	43,149
National Weather Service	10,523	2,363	12,886
National Satellite Data & Information Service	18,158	0	18,158
NOAA Marine and Aviation Operations	196	392	588
TOTAL PERFORMANCE GOAL 4	70,775	4,006	74,781

Performance Goal 5: Implement Seasonal to Interannual Climate Forecasts

	Research	Develop	Total R&D
National Ocean Service	0	0	0
National Marine Fisheries Service	0	0	0
Office of Oceanic and Atmospheric Research	15,337	0	15,337
National Weather Service	0	0	0
National Satellite Data & Information Service	0	0	0
NOAA Marine and Aviation Operations	0	0	0
TOTAL PERFORMANCE GOAL 5	15,337	0	15,337

Performance Goal 6: Predict and Assess Decadal to Centennial Climate Change

	Research	Develop	Total R&D
National Ocean Service	0	0	0
National Marine Fisheries Service	0	0	0
Office of Oceanic and Atmospheric Research	96,703	260	96,963
National Weather Service	0	0	0
National Satellite Data & Information Service	0	0	0
NOAA Marine and Aviation Operations	0	0	0
TOTAL PERFORMANCE GOAL 6	96,703	260	96,963

Performance Goal 7: Promote Safe Navigation

	Research	Develop	Total R&D
National Ocean Service	16,951	0	16,951
National Marine Fisheries Service	0	0	0
Office of Oceanic and Atmospheric Research	0	0	0
National Weather Service	0	0	0
National Satellite Data & Information Service	0	0	0
NOAA Marine and Aviation Operations	0	313	313
TOTAL PERFORMANCE GOAL 7	16,951	313	17,264

Infrastructure (Supports all Goals)

	Research	Develop	Total R&D
National Ocean Service	355	0	355
National Marine Fisheries Service	0	0	0
Office of Oceanic and Atmospheric Research	24	0	24
National Weather Service	0	0	0
National Satellite Data & Information Service	0	0	0
NOAA Marine and Aviation Operations	24,078	9,793	33,871
TOTAL INFRASTRUCTURE	24,457	9,793	34,250

Total NOAA

	Research	Develop	Total R&D
National Ocean Service	58,673	2,019	60,692
National Marine Fisheries Service	52,215	752	52,967
Office of Oceanic and Atmospheric Research	224,160	1,561	225,721
National Weather Service	10,523	2,363	12,886
National Satellite Data & Information Service	18,535	0	18,535
NOAA Marine and Aviation Operations	24,846	11,136	35,982
TOTAL ALL PERFORMANCE GOALS	388,952	17,831	406,783

Annual Investment By Program And Research And Development Type

	Environmental and Climate					Fisheries					Fleet Maintenance and Aircraft Service				
	FY2000	FY2001	FY2002	FY2003	FY2004	FY2000	FY2001	FY2002	FY2003	FY2004	FY2000	FY2001	FY2002	FY2003	FY2004
Basic Research				12,529	0				0	0				0	0
Applied Research				337,266	224,160				155,610	52,215				90,382	24,846
Development				1,677	1,561				773	752				0	11,136
Total				351,472	225,721				156,383	52,967				90,382	35,982

	Weather Service					Other					Totals				
	FY2000	FY2001	FY2002	FY2003	FY2004	FY2000	FY2001	FY2002	FY2003	FY2004	FY2000	FY2001	FY2002	FY2003	FY2004
Basic Research				0	0				0	0				12,529	0
Applied Research				5,209	10,523				79,860	77,208				668,327	388,952
Development				15,168	2,363				3,461	2,019				21,079	17,831
Total				20,377	12,886				83,321	79,227				701,935	406,783