Order Code RL31567

Report for Congress
Received through the CRS Web

The National Oceanic and Atmospheric Administration (NOAA): The President's Budget Request and Congressional Appropriations for FY2003

Updated December 6, 2002

Wayne A. Morrissey
Science and Technology Information Analyst
Resources, Science, and Industry Division

The National Oceanic and Atmospheric Administration (NOAA): The President's Budget Request and Congressional Appropriations for FY2003

Summary

The National Oceanic and Atmospheric Administration (NOAA) is funded in the Commerce, Justice, and State, the Judiciary and Related Agencies (CJS) annual appropriations. NOAA is the largest agency in the Department of Commerce (DOC) and accounts for 56% of DOC's total budget request for FY2003. NOAA does not have a single organic act that requires the agency budget, as a whole, to be authorized on an annual basis; many NOAA programs are authorized under different public laws and committees of jurisdiction. Congress mandated changes in NOAA's budget reporting structure for FY2003 that are more closely aligned with how the CJS appropriations subcommittees report funding for NOAA's line offices. NOAA also reports its annual budget request in terms of seven strategic goals for results-based management, and for reporting financial information to DOC, in compliance with the 1993 Government Performance and Results Act (GPRA).

For FY2003, President Bush requested a total of $3.21 billion in appropriations for NOAA. Of this amount, $2.28 billion would be for Operations, Research, and Facilities (ORF); $811.4 million for Procurement, Acquisitions, and Construction (PAC); and $114.1 million for NOAA's Other Accounts. Total budget authority requested by the President for FY2003, including mandatory spending ($123.9 million), would be $3.33 billion, which is $50 million, or 1.5%, less than FY2002 appropriations of $3.38 billion. NOAA also received $2.8 million in emergency supplemental appropriations for satellite security, as approved in the Department of Defense Appropriations Act of FY2002 (P.L. 107-17).

Major highlights of the President's budget request for FY2003 included: 1) a proposal to transfer the National Sea Grant College Program to the National Science Foundation, which would account for a $62.5 million decrease in funding for NOAA's Oceans, Coastal, and Great Lakes Research Programs; 2) $45.9 million for NOAA's Fleet Replacement account to procure the second of five congressionally authorized fishery research vessels; 3) $26.4 million for homeland security-related activities; and 4) $8.6 million for an Energy Initiative at NOAA. The President requested a total of $348.5 million for Coastal Conservation activities authorized by Congress in FY2001. R&D funding for FY2003 at NOAA would be $575 million. The President's budget also proposed that NOAA, and other federal agencies, take on financial management responsibilities for its retirees under the Civil Service Retirement System (CSRS) and all NOAA retirees' health benefits. Adjustments to base funding for NOAA line offices would offset these mandatory expenditures.

On July 19, 2002, the Senate Appropriations Committee reported S. 2778 (S.Rept. 107-218), proposing a total of $3.35 billion in appropriations for NOAA. P.L. 107-206, the Emergency Supplemental Appropriations Act for 2002, provided NOAA with $33.5 million in funding for homeland security and other emergency-related expenditures, and rescinded $8.1 million from FY2002 appropriations. No House appropriations bill has been introduced to date.

Contents

List of Tables

The National Oceanic and Atmospheric Administration (NOAA): The President's Budget Request and Congressional Appropriations for FY2003

Major Issues for Congress

The National Oceanic and Atmospheric Administration (NOAA) is the federal agency responsible for observation and research of the Earth's oceans and atmosphere, assessments of marine resources, long- and short-term environmental predictions, and public forecast and warning about weather and climate. NOAA's two overarching missions are: 1) environmental assessment and prediction and 2) environmental stewardship. NOAA was created in 1970, under President Nixon's Executive Reorganization Plan No. 4, and is the largest agency in the U.S. Department of Commerce (DOC). NOAA is funded in the annual Commerce, Justice, and State, the Judiciary and Related Agencies (CJS) Appropriations bill. The NOAA request accounted for about 56% of the President's request for the entire Department of Commerce (DOC) for FY2003. NOAA receives the largest amount of DOC funding authorized for federal research and development.

A number of potential budget issues for Congress came out of President Bush's FY2003 budget request for NOAA. (See **FY2003 President's Budget Request for NOAA**, below.) These include proposals: 1) to transfer the National Sea Grant Program to the National Science Foundation; 2) to accelerate deployment of the National Polar Orbiting Environmental Satellite System Program; 3) to transfer to NOAA and other federal agencies responsibilities for managing and funding retirement benefits for their employees who are currently under the older Civil Service Retirement System (CSRS); 4) to enhance security at NOAA's satellite facilities and to create redundancy in the agency's major telecommunications and computing systems; and 5) to implement the President's "Clear Skies" Climate Change Research Initiative in NOAA.

National Sea Grant College Program

Many view the President's proposal to transfer the National Sea Grant College Program–currently under NOAA's Ocean, Coastal, Great Lakes Research Programs (OCGLRP)–to the National Science Foundation (NSF) as the primary issue for Congress in the FY2003 NOAA budget. This proposal would reduce OCGLRP funding by $65.2 million. The proposal was prompted by the Administration's concerns about whether federal formula grants given by NOAA to state Sea Grant programs were being distributed fairly, competitively and meritoriously. In FY2002,

NSF received the Administration's distinction as being one of the best managed agencies in the federal government. It appeared to the Administration that NSF was already funding grants for similar research as that performed under NOAA's Sea Grant Program. Thus, the President, with the support of the newly-appointed Administrator of NOAA, decided the Sea Grant program might operate more effectively and fairly within an agency whose statutory mission was managing federal funding for "basic research" and, therefore, the transfer was proposed.

Resistance to the transfer was soon met by some Members of Congress, state Sea Grant program representatives, and university and industry participants in the Sea Grant Program. Many of these challenged the President's decision to transfer Sea Grant because it did not take into consideration the intrinsic nature of the NOAA program, which is marine resources-based and tied to U.S. commerce, such as the fishing, recreation, and tourism industries. Others cited the hidden cost to NSF of maintaining a research infrastructure, including managing marine research vessels and laboratories, and providing the oceanographic expertise NOAA provides. Officials at NOAA have long pointed out the synergy and trust developed between state Sea Grant programs and NOAA, which opponents of the transfer say has benefitted local economies that are marine resources-based. Still others argued that unlike NSF, the nature of much of the research being performed with Sea Grant funding has tended to be more "applied" than basic in nature.

In recent legislation to reauthorize NOAA's Sea Grant College Program for FY2003 through FY2007 (H.R.3389/S. 2428), attempts have been made to address the Administration's primary concerns about fair, competitive, and merit-based allotment of Sea Grant funding. Authorizing language contained in both House and Senate bills stipulates that portions of funding extended to state Sea Grant programs in excess of FY2003 levels is to be set aside solely for competitive, merit-based grants, and not be used for administration of the National Sea Grant College Program. Further, the bill encourages coordinated grant program planning between the NOAA Sea Grant and NOS Coastal Ocean Programs, and NSF, which may be conducting related research activities.

Supporters of this legislation believe the Sea Grant program would operate most effectively in its current status under Ocean, Coastal, and Great Lakes Research Programs in NOAA. There appears to be strong opposition to the President's transfer proposal and strong support for the Sea Grant authorizing legislation among the academic research community and commercial fishing industries which currently operate in the Pacific, Atlantic, Gulf of Mexico, and the Great Lakes where there are active state Sea Grant programs. Marine environmental research sponsored under Sea Grant programs, in part, underpins many local marine resources-based economies. For example, these grants fund research on non-indigenous species, marine diseases and health, and the impact of such phenomenon on local fishing and shell fish industries, sport and recreational fishing, and coastal recreational activities.

For some state Sea Grant program administrators, however, language in both the President's budget and in pending reauthorization bills might be construed as undermining their authority as to how they decide federal grants should be awarded. However, proponents of the reauthorization bills, who also agree with Administration concerns, have pointed out that congressional direction would attempt to distribute

more equitably both formula and competitive research grants to participating state Sea Grant programs. Further, there are provisions in the reauthorization legislation to review the progress in expanding the program to new eligible Sea Grant consortia, such as the Pacific U.S. territories. Many who support keeping the National Sea Grant College in NOAA have posited that it will not be transferred out of the agency because of corrective actions taken by congressional authorizing committees to address many of the Administration's concerns about fairness in grant allocations.

The National Polar Orbiting Environmental Satellite System

President Bush requested $237.3 million for the NPOESS program under NESDIS, which is now scheduled to be operating by FY2008, when the last of the POES satellites is planned to be launched. NOAA says the goal of NPOESS is two-fold: 1) it will merge NOAA's polar orbiting satellite program and the DOD Defense Meteorological Satellite Program (DMSP) for the sake of economic and operational efficiency; and 2) it will put in place state-of-the-art environmental monitoring technology and incorporate data processing and management systems for improving weather forecasting and producing other environmental data products. NASA, the third partner in NPOESS, would provide launch and maintenance services for the program.

Officials at NESDIS claim that full deployment of NPOESS is of importance to NOAA's National Weather Service so that it can continue to provide near-real-time weather forecasting. NESDIS also claims it will aid in the development of future "climate-related services," such as regional climate assessments and extended-range climate forecasts. While NOAA officials have testified in Congress as to the exigency of fully implementing this program ever since plans were unveiled during the Clinton Administration, recent events which have challenged homeland security have led Bush Administration officials to state that a fully-deployed NPOESS would also play a critical role in national defense.

Although many Members of the 107th Congress support the concept of NPOESS, some have questioned the $6.2 billion spent to date on this program *vis-a-vis* its progress and achievements to date. H.R. 4775 (P.L. 107-206), which provided supplemental emergency appropriations to NOAA for FY2002, originally contained directions to rescind $8.1 million provided for NPOESS in FY2002, because of slow implementation of the program. The Act instead rescinded that same amount of funding from other NOAA appropriations.

Other congressional concerns have been raised about the ability of NOAA to collect, process, and manage future data that will be needed to support the National Weather Service as well as NESDIS's capacity to provide environmental data products many NOAA data users rely on. NOAA has reported that it is already challenged trying to manage the Earth Observing System (EOS) data it had agreed to for NASA. In addition, the agency has identified significant shortfalls in delivery of environmental data products it provides to the National Weather Service. Many NOAA data users have expressed discontent about perceived deficiencies in processing and distribution of environmental satellite data products for which NESDIS is responsible.

The President's FY2003 budget request for NPOESS would increase funding for various agency efforts aimed at expediting the compilation, assimilation, and processing of its environmental data. NOAA has promised to honor its data management responsibilities to NASA, and reports that a significant part of the funding request for NPOESS would help to prepare the agency for the "deluge of data" expected within the next decade from the NPOESS mission and other satellite data programs. NOAA is currently demonstrating a dedicated data integration unit for NPOESS, which would aid in compiling and processing data streams from a number and variety of future environmental satellite missions. In addition, NOAA has been demonstrating a prototype satellite command and control system developed as part of the NPOESS Preparatory Project (NPP). Part of these activities include testing telecommunications systems, sighting antennae which support NPOESS's data acquisition system, and ground-truthing NPP functions and operations in preliminary testing phases with existing satellites.

NPOESS system architects and engineers seem confident that the funding currently proposed by the President for many of these proposed data management efforts would appear to be adequate at the present time and can go a long way to stimulate further development of the infrastructure necessary to meet the future data management and distribution needs of NESDIS. Successful operation, however, may depend on the performance of contractors who are currently building the systems and hardware for the program and their ability to keep to NOAA's timetable for NPOESS deployment. NOAA asserts that those components of NPP currently in demonstration phase, including the command and control and data integration units for NPOESS, will have to become fully operational by FY2005, when the first NPP satellite is scheduled to be launched. If this goal can be met, then NOAA will be able to give the go-ahead order to shift from research to deployment, implementation, and full-scale operation of NPOESS by FY2008.

The Civil Service Retirement System

Under the President's FY2003 budget, NOAA, like many other federal agencies, is faced with funding and managing mandatory benefits for its employees and retirees under the old Civil Service Retirement System (CSRS). A number of federal agency officials have charged that these proposed obligations come at a time when many of them are hard pressed to fund traditional discretionary programs.

The FY2003 NOAA budget requested by the President contains adjustments to base funding to accommodate $129 million in proposed CSRS and NOAA Corps retirement funding. CSRS funding would be apportioned across all NOAA budget line offices. For NOAA, providing for new mandatory funding has come at the expense of rolling some programs that were previously funded as line items into base funding, which results in even greater competition for discretionary funding for those programs. At this stage of the FY2003 budget process it appears that the CSRS proposal is under active consideration by Congress. The Administration has urged federal agencies to consider that there are relatively few remaining federal employees who are covered by CSRS, and to consider the minimal adjustments to base funding as percentage of total budget authority in the annual request.

That may be the reason why federal agencies seem to be putting up little, if any, resistance to OPM's divestiture of those financial responsibilities. As an example, NOAA's obligations would account for less than 1/3 of 1% percent of the total budget authority requested for the agency for FY2003. In addition, NOAA has administered health benefits and mandatory retirement funding for retired NOAA Corps officers for a number of years, and for FY2003 NOAA would obligate some $37 million of mandatory funding. Of late, however, those entitlements have been transferred to the U.S. Coast Guard for disbursement to retirees. As a consequence, financial officers at NOAA foresee little hardship in taking on additional responsibilities for administering another $90 million in CSRS retirement pay.

Homeland Security

In the current heightened state of alert for possible future terrorist attacks on the United States, Congress could determine that funding for homeland security initiatives needs to assume a higher priority than that for some traditional scientific research programs in NOAA. Many who perform scientific research in the agency are concerned about possible changes in budget priorities, and redirection of human and fiscal resources to a proposed Department of Homeland Security. (See CRS Current Legislative Issues: Creating A Department of Homeland Security website at [http://www.congress.gov/erp/legissues/html/isdhs2.html]

For many federal agencies, the FY2003 budget brings with it additional financial responsibilities for improving homeland security and reducing vulnerability to possible terrorists attacks. In NOAA's case, this means funding redundant operational systems so that critical agency functions would not be interrupted during and after a possible terrorist attack on its federal facilities. The President has requested $26.4 million for NOAA for a Critical Infrastructure Protection Initiative being coordinated by the Department of Commerce. This funding would provide back-up for NOAA's telecommunications, satellites systems and command and control centers, and weather/ climate supercomputing facilities. NOAA identifies those infrastructure components as possible critical points of failure and, in the case of potential disruption of satellite products and services to NOAA's data users, a single point of failure. In some cases, added physical security has elicited a need for improving structural integrity of NOAA facilities.

Another national security-related concern of the President is ensuring that energy continues to be provided by power utilities in times of crisis. For FY2003, the President has requested $6.1 million for a pilot program aimed at long-term protection of the nation's energy supplies. The President has charged NOAA to become more involved in national energy planning, to ensure that plans are sensitive to possible climatic change, and fluctuating average weather conditions over extended periods of time. For example, long term regional drought could potentially diminish or even interrupt services at some hydropower facilities. Moreover, a particularly severe winter could tax reserves of heating fuels as well as increase demands on the Nation's electricity supply. Other concerns that would be addressed in NOAA's Energy Initiative are economic ones, and relate to development of intelligent energy conservation technologies and systems.

Climate Change Research Initiative

Some Members of Congress and Bush Administration officials are concerned about the United States becoming party to the 1997 Kyoto Protocol that would regulate some international greenhouse gas emissions to slow climate change.[1] In response, President Bush proposed a domestic Climate Change Research Initiative. CCRI is aimed at providing incentives for U.S. industry to reduce greenhouse gases on a voluntary basis. This initiative is part of a wider Administration effort known as "Clear Skies," intended to set out to reduce a suite of atmospheric pollutants, but which stops short of identifying atmospheric emissions of CO_2 as a pollutant. Also, as the name suggests, CCRI would fund a number of climate-related scientific research activities and, in effect, supersede federal climate change research activities currently organized under the U.S. Global Change Research Program created in 1989 by P.L. 101-606. For FY2003, the President requested $18 million for NOAA's part of the CCRI, and one of the agency's major charges would be to establish a weather-climate "supercomputer modeling center of excellence," housed at NOAA's Geophysical Fluid Dynamics Laboratory in Princeton, NJ.

A number of climate scientists are applauding the effort of the Administration to provide the technological capability needed to assess further the scientific basis of global climate change. Atmospheric scientists in NOAA claim that investing in better computing powers and capabilities may be exactly what is needed to resolve many of the uncertainties about the scientific evidence of global climate change that have been plaguing policymakers for many years now. This initiative is also aimed at criticism about the effectiveness of the U.S. Global Change Research Program in coordinating interagency activities and setting research priorities. For more information on science in the global climate change debate see CRS Issue Brief IB89005, *Global Climate Change*. Other information on U.S. domestic regulatory policy and international negotiations on greenhouse gases may be found in the CRS *Global Climate Change Electronic Briefing Book.*

FY2003 President's Budget Request for NOAA

For FY2003, President Bush requested a total of $3.21 billion in appropriations for NOAA (see Table 1, below). Of this amount, $2.28 billion was requested for the Operations, Research, and Facilities (ORF) account, which funds NOAA's budget line offices; $811.4 million for Procurement, Acquisitions, and Construction (PAC); and $114.1 million for NOAA's "Other Accounts." The request is 1.9% greater than the President's FY2002 request of $3.15 million, and 5% less than FY2002 appropriations of $3.38 billion. Total budget authority requested for NOAA for

---

[1] Under the terms of the 1997 U.N. Kyoto Protocol on Climate Change, the United States would be committed to reduce its greenhouse gas emissions, consisting primarily of carbon dioxide, 8% below 1990 levels by the year 2003. The United States has signed but has not ratified the treaty. See CRS Report RL30692, *Global climate change: the Kyoto Protocol*.

FY2003 would be $3.33 billion.[2] All funding tables below were created by CRS and are organized according to the House and Senate Appropriations Committees' CJS budget reporting structure.

Table 1. NOAA Funding Request and Appropriations for FY2003

($ Millions)

	FY'02 Request	FY'02 Actual[1]	FY'03 Request[2]	S. 2778 S.Rept.[3]
Operations, Research, and Facilities (ORF)				
NOS	364.5	413.9	385.3	403.5
NMFS	598.0	579.2	603.5	587.9
OAR	330.2	356.1	296.9	395.7[4]
NWS	658.5	672.4	725.3	682.0
NESDIS	131.7	142.4[5]	151.9	133.8
Program Support	182.5	180.5	213.2[6]	202.9
Total ORF[7]	**2,177.4**	**2,256.5**	**2,281.1**	**2,336.8**
deoblig./transfers	(88)	(88)	(95)	(69.0)
Non-ORF				
PAC	764.9	836.6	811.4	903.4
Other	123.7	158.8	114.1	110.1
Total Non-ORF	**888.6**	**995.4**	**925.5**	**1,013.5**
Total Approp.[8]	**3,066.6**	**3,251.9**	**3,206.6**	**3,350.3**
Mandatory Funds[9]	**95.7**	**113.0**	**123.9**	**52.0**
Total BA FY2003	**$3,161.7**	**$3,364.9**	**$3,330.5**	**$3,402.3**

***Numbers may not add due to rounding**.

Table notes:

1. FY2002 amounts (actual) included in the conference report on H.R. 2500 (H.Rept. 107-278). H.R. 2500 became P.L. 107-77, November 28, 2001.

2. NOAA request totals as summarized in NOAA FY2003 *Budget in Brief*, at [http://www.noaa.gov].

---

[2] NOAA appropriations for FY2003 are tracked in CRS Report RL31309, *Appropriations for FY2003 for Commerce, Justice, and State, the Judiciary and Related Agencies*. The agency's Office of Legislative Affairs also provides organizational, budgetary, legislative, and programmatic information at [http://www.legislative.noaa.gov/].

3. Amounts included in S.Rept. 107-218, July 24, 2002. The Senate bill is included here for comparison with the President's request for FY2003 because it was the first CJS appropriations bill for FY2003 to be acted upon. Constitutionally, appropriations bills originate in the House, but no House CJS appropriations bill has been introduced as of the date of this report.

4. Reflects restoration of $63.5 million to maintain the Sea Grant Program within NOAA.

5. The NESDIS FY2002 total includes $2.75 million for NOAA homeland defense-related activities provided in the Defense Appropriation Bill for FY2002 (S.Rept. 107-109).

6. For FY2003, PS funding request includes three subcategories: 1) Corporate Services (CS) – $79.8 million for ORF and $16.1 million for PAC; 2) FAC – $24.6 million for Facilities (FAC) for ORF funding only; and Office of Marine and Aviation Operation (OMAO) – $108.8 million for ORF and $62.5 million for PAC. The Senate Appropriations Committee approved $89.5 million and $10 million respectively for CS; $95.9 and $74.5 million for OMAO; and $17.5 million for FAC (S.Rept. 107-218).

7. Totals for ORF include mandatory transfers within NOAA and funding provided by other federal agencies. For FY2003, the Senate recommended that NOAA establish a "Business Management Fund" to manage overhead costs (S.Rept. 107-218, July 24, 2002)

8. The President requested $284 million in "Conservation Spending" for FY2002, which was authorized in Title VIII of P.L. 106-552, Department of the Interior Appropriations for FY2001. Conferees approved a total of $223.3 million for this activity for FY2002 (H.Rept. 107-278). For FY2003, the President requested a total of $348.5 million in conservation spending, including: $184.5 million for NOS; $52.8 million for NMFS; $1.2 for OAR and NESDIS; $90 million for the Pacific Coastal Salmon Recovery Fund; and $20 million for the Pacific Salmon Treaty. The Senate Appropriations Committee approved a total of $480 million for conservation, of which $264.5 million would be for ORF, $100.5 million for PAC (including $60 million for Coastal and Estuarine Land Conservation Program (CELCP)), and $115 million in Other Accounts funding for Pacific coastal salmon conservation (S.Rept. 107-218).

9. For FY2003, the President proposed adjustments in NOAA discretionary base funding to offset mandatory spending of $129 million. Of this amount, $92.2 million would be used to pay retired NOAA employees and their health benefits under CSRS; $37 million would be for NOAA Corps retirees' pay (OMAO). Those mandatory obligations are now funded by OPM. The President noted that offsets in discretionary spending would be accommodated across all NOAA line offices. The Senate Appropriations Committee did not provide such funding when it reported S. 2778, and the Committee's appropriations do not reflect the President's request (S.Rept. 107-218, pp. 4-5).

Highlights of the FY2003 President budget request for NOAA include:

- A proposal to transfer the National Sea Grant College Program to the National Science Foundation (NSF), which would result in a $62.4 million reduction in base funding of for Ocean and Great Lakes Research Programs in OAR.

- A request of $419 million to be divided equally between NOAA and the Department of Defense (DOD) to fund NPOESS, NESDIS's polar satellite convergence program.
- A request of $348.5 million for ongoing "coastal conservation spending" as authorized by Title VIII of P.L. 106-552, Department of the Interior Appropriations Act for FY2001.
- A request of $26.4 million for DOC's Homeland Security Critical Infrastructure Protection (CIP) initiative, and an additional $8.7 million for a NOAA "Energy Initiative."
- A request of $18 million for the President's Clear Skies/Climate Change Research Initiative to create a "supercomputer modeling center of excellence" at NOAA's Geophysical Fluid Dynamics Lab (GFDL) in Princeton, N.J.
- A request for Congress to authorize funding of $2.8 million for NESDIS satellite command and control security, and oversight and enforcement of licencing for satellite data and imagery.
- A request of $0.8 million for 15 new hires for the Corps of Commissioned Officers (NOAA Corps).
- A proposal to establish a "Business Management Fund" to administer agency–wide overhead costs, and consolidate and centralize those functions externally from NOAA line offices.
- An expected legislative proposal to Congress to authorize funding for all NOAA line offices, and other departments and agencies, to cover Civil Service Retirement System (CSRS) expenses. New mandatory obligations would total $92 million, an amount which is currently funded by the Office of Personnel Management. Another $36.7 million in mandatory funding is requested for NOAA's Corps of Commissioned Officers' military retirement pay, which is disbursed by the U.S. Coast Guard.

Operations, Research, and Facilities (ORF)

NOAA's ORF account funds a number of atmospheric and oceanic research and operational programs that primarily support NOAA's mission, and which are carried out under NOAA's six budget line offices: NOS, NMFS, OAR, NWS, NESDIS and Program Support (PS). These offices are discussed in the order presented in the NOAA budget request and the order is not intended to indicate relative importance. Many of these programs also contribute to federal agency crosscutting research activities coordinated by the White House National Science and Technology Council (NSTC), including the U.S. Global Change Research Program and the Interagency High Performance Computing Initiative. NOAA also provides funding for the DOC's Minority Serving Institutions Initiative (MSI). This section of the report

includes detailed information on NOAA's ORF budget line offices, information on the President's FY2003 budget request for ORF, and actions taken by Congress on FY2003 CJS appropriations. General information on funding for PAC and NOAA's Other Accounts may be included in the ORF budget line office entries; however, more detailed information on PAC and Other Accounts funding follows the ORF section.

Annual budget authority for ORF in NOAA is tallied after adding 1) all appropriations authorized by Congress to be carried over from previous fiscal years (deobligations), 2) financing credits from debt payments, 3) funding transfers made to ORF from Other Accounts, and 4) revenue from authorized offsetting collections. In general, the above are scored as adjustments to base funding and serve as a starting point for the upcoming fiscal year budget request (see Table 1, above). Inflation rates and salary and benefit increases are also included in base funding. However, budget surpluses realized by NOAA are viewed by congressional appropriation committees as unauthorized budget authority and, therefore, are subject to congressional approval pursuant to Title II, §605 of "General Provisions," of the CJS appropriations act.

Examples of ORF adjustments to base include mandatory funds transferred from NOAA's Other Accounts such as the Coastal Zone Management Fund transfer (see p. 33), or from other federal agencies such as the U.S. Department of Agriculture, which are transfers of funding to the Promote and Develop American Fishery Products (PDAF)–Saltonstall-Kennedy Funds in NOAA's Other Accounts. Most of the latter funding in turn is transferred to the NMFS budget line in ORF. Such funding provides additional spending authority for ORF but is revenue neutral and, consequently, does not increase annual appropriations requested for ORF.

NOAA is authorized to collect various user fees and accept voluntary monetary donations, which in some cases may provide additional spending authority for ORF. However, this "income" is scored as offsetting collections, which do not increase ORF appropriations. Amounts in offsetting collections that exceed congressionally authorized levels are deducted from annual base funding and deposited in the U.S. Treasury as general revenue. Other reductions in base funding may be realized when long-term financing debts are payed off in the current fiscal year, which is known as a deobligation. Congress may include other budget directives for NOAA in CJS appropriations bill reports under Title II §206 of "general provisions."

National Ocean Service (NOS)

The primary mission of NOS is to ensure safe navigation for commercial and recreational marine vessels through production and update of nautical maps and charts, and monitoring tide and water levels in U.S. water ways. In addition, NOS's Office of Response and Restoration aids in recovery and restoration of marine ecosystem health. NOS also conducts coastal and oceanic scientific research, administers the Coastal Zone Management Act of 1972, and manages programs which aim to protect the coastal and estuarine environments.

For FY2003, President Bush requested $385.3 million in ORF funding for NOS, and $20 million for NOS PAC (see Table 2, below). Further, the President requested $5.6 million in budget offsets for NOS that would be derived from the Environmental

Improvement and Restoration Fund (EIRF); and another $3 million from the Coastal Zone Management Fund (CZMF) would be transferred to NOS. Both of these funds are found under NOAA's Other Accounts.

Table 2. National Ocean Service Request and Appropriations

($ Millions)

	FY'01 Actual	FY'02 Est.	FY'03 Request	S. 2778 Approp.
Navigation Services	**115.4**	**120.2**	**122.2**	**125.2**
Mapping & Charting	58.8	74.7	78.5	80.5
Geodesy	22.3	25.1	25.4	26.5
Tide & Current Data	15.1	13.3	18.3	18.2
Ocean Resources Conservation and Assessment/Management	**124.6**	**154.8**	**122.6**	**150.8**
Ocean Assessment Program	72.8	94.8	75.0	96.1
Response & Restoration	24.0	28.4	18.4	19.4
Oceanic & Coastal Research	9.5	10.1	10.5	14.6
Coastal Ocean Science/COP	18.2	21.6	18.8	20.6
Ocean and Coastal Management	**150.2**	**138.9**	**140.5**	**127.5**
Ocean Management	32.4	34.2	35.6	34.7
Costal Management	117.8	104.7	105.0	92.8
ORF Total	**390.2**	**413.9**	**385.3**	**403.5**
PAC/Construction	**53.9**	**87.8**	**20.0**	**102.4**
Other (EIRF)	**152.9**	**5.0**	**5.6**	–
NOS Total	**597.0**	**506.7**	**410.9**	**505.9**

The total FY2003 ORF funding requested for NOS of $385.3 million is $28.6 million, or 6.9%, less than FY2002 appropriations of $413.9 million, and 5.7% greater than the $364.5 million requested by the President for FY2002. The FY2003 request also proposed terminating $131.1 million in funding from a number of NOS programs. Some $12.4 million adjustment to NOS base funding would accommodate the hire of new personnel and increased rent payments to the General Services Administration (GSA). The President also requested $6.9 million for CSRS retirees' pay and benefits.

Navigation Services. For FY2003, the President requested a total of $122 million for navigation services, $2.0 million more than FY2002 appropriations. NOAA has perennially urged Congress to provide increased funding to help NOS reduce a backlog of nautical chart updates. NOS also operates state-of-the-art hydrographic equipment used for sea floor mapping, and has developed navigational charts which can be transmitted and displayed electronically on navigation systems.

Mapping and Charting. The President requested a total of $78.5 million for nautical mapping and charting, $3.7 million more than FY2002 appropriations. Much of the increase would be used for digital conversion of many hand-drafted nautical charts which have served the commercial shipping and recreational boating communities to date. Digital conversion would make those available electronically and available on such media as the Internet, or capable of being transmitted by radio signals via the satellite Global Positioning System (GPS) to onboard marine navigation systems. NOS also conducts R&D to develop new marine cartographic data products for scientific research, commercial use of marine resources, and military, commercial and recreational navigation.

NOAA's hydrographic data collection activities aid in the production of digital bathymetric (sea floor) maps for previously unmapped sections of the ocean bottom. Data are collected using both side- and height-ranging radar on NOAA and other government and privately owned marine-going vessels. NOS proposes to have many of its bathymetric maps and electronic nautical charts available on the Internet as part of a federally sponsored National Geospatial Data "One-Stop, E-Gov" Initiative. The President also requested $9.9 million for additional "Vessel Lease/Time Charter" on non-NOAA marine vessels to further expand NOAA's hydrographic surveying capacity. The President's budget stated, "[hydrographic] funding would provide critical survey data to directly enhance safety of mariners, passengers and the national economy from threats both natural or human in origin."

Geodesy. NOS's operational Geodesy programs validate geodetic measurement of the Earth's surface produced by land surveyors, aid marine navigational guidance, and to a limited degree aid in aeronautical navigation. The President requested $24.4 million for NOS geodesy programs, including funding for operations of the NOS National Spatial Reference System (NSRS). NSRS is a nation-wide network of 35 radio-transmitter towers known as Continuously Operating Reference Stations (CORS), which provides geodetic data and information predominantly used by marine transportation operations. NSRS can pinpoint a marine vessel's location and measure distances traveled with accuracy. Further, map makers and surveyors may use these reference beacons to measure elevation above sea level.

Other NOS geodesy programs use the Global Positioning Satellites (GPS) with traditional surveying methods to ground-truth CORS data to certify geodetic measurements of both horizontal and vertical components on marine maps and nautical charts. To a limited extent, NSRS is used by the aviation industry for navigational guidance and altitude checks. Still another aspect of NOS geodesy is to perfect and validate an accurate Earth model, or "geoid," which NOAA claims could have implications for energy savings such as marine transportation fuel costs. NOS envisions future, remotely piloted, computer-controlled marine navigational guidance systems.

Marine Tide and Current Data. For FY2003, $18.3 million was requested to fund NOAA's PORTS program, which provides real-time port information services such as weather, channel depth soundings, and tide-level monitoring. Funding would also be provided for certain components of the NOS Coastal Storms program, which

was established in FY2002 to provide education and outreach to coastal communities about coastal storms and flooding.

Ocean Resources Conservation and Assessment. Total funding of $122.6 million was requested for Ocean Resources Conservation and Assessment (ORCA), $32.2 million less than FY2002 appropriations. The President suggested those reductions would come from terminating some programs and rolling others into NOS base funding. Prospective rollovers would include funds for the Coastal Storms Program, part of which would be rolled into Tide and Current Data, part into Mapping and Charting base funding, and part into ORCA's Ocean Assessment Program (OAP).

Estuarine and Coastal Assessment. For FY2003, the President requested $75 million, $19.8 million less than FY2002 appropriations. That amount would include base funding of $48.8 million for OAP. NOS scientists assist in local, regional, and state recovery and restoration efforts in the marine environment. NOS's Office of Response and Restoration aids in the recovery and restoration of marine ecosystems after environmental catastrophes such as marine oil spills; for FY2003, $18.4 million was requested. In addition, a portion of ORCA funding supports six NOS science centers which conduct coastal ocean science and marine health research. For FY2003, $10.5 million was requested for Oceanic and Coastal Research programs for research on *Pfisteria*, fish and shellfish toxins, and forensic sciences for fish kills.

Coastal Ocean Science. COS is conducted by NOS's Coastal Ocean Program (COP), whose activities have been ongoing since 1992. For FY2003, $18.8 million was requested for COP. COS programs encompass a wide range of marine scientific research and support operational and maintenance activities which range from monitoring the health of coastal and estuarine environments to helping protect coastal communities from marine or nonpoint source pollution.[3] Research is performed on a wide variety of marine ecosystems and habitats, and includes studies on hypoxia (oxygen deficiency in marine environments), and restoration of the South Florida ecosystem.

Ocean and Coastal Management. For FY2003, $105.0 million was requested for Coastal Management funding to help states pay for programs authorized by the Coastal Zone Reauthorization Amendments of 1990 (P.L. 104-450, expired Sept. 30, 1999). The President stated this funding would be used to "ensure sustainable use of the coastal areas." Some Coastal Management funding is used to preserve marine and estuarine areas which NOAA considers to be ecologically unique and nationally significant. NOS administers Coastal Zone Management Act (CZMA) grants for which $69 million was requested for FY2003; an additional $6.6 million was requested for CZMA administrative expenses. In addition, $10 million was requested for implementation grants for the non-point pollution program.

---

[3] See also CRS Report RS20810, *Marine Protected Areas: An Overview* and CRS Report RS20232, *Coastal Nonpoint Pollution Program: Status and Legislative Issues*.

NOS operates the National Estuarine Research and Reserves System (NERRS) and manages some marine protected areas under the Coastal Management funding line. NERRS is comprised of a number of what NOAA characterizes as "key" estuarine habitats, which have been acquired through matching federal-state conservation grants. For FY2003, $16.4 million was requested for NERRS, the same amount appropriated for FY2002. The PAC funding request was $10.1 million for NERRS construction/land acquisition, which is a reduction of $17.9 million below FY2002 appropriations.

One explanation for the decreased funding request is that NERRS land acquisition funding nearly doubled in FY2001, as part of President Clinton's Land Legacy Initiative. The proposed cut for FY2003 would return land acquisition funding for NERRS to historic levels of about $10 million annually. In addition, the President requested $3 million for NOAA marine protected areas (MPAs), established by the Endangered Species Act of 1972, reflecting little change from FY2002 funding levels.

The President requested $35.6 million under NOS's Ocean Management funding line for National Marine Sanctuaries (NMS) program, a system of marine biological conservation parks. This amount is almost 2% more than the $34.9 appropriated for FY2002. The NMS program seeks to improve protection of important marine resources, including coral reefs, endangered marine mammals, sensitive marine habitats, and significant cultural resources. In addition, the President requested $10 million in PAC funding for construction, $4.8 million less than FY2002 appropriations. These funds would be used to upgrade or construct marine research and education centers on NMS sites. The budget request states that the President will propose authorizing legislation for NOAA to accept gifts and donations for the NMS program which would help to offset some maintenance costs at these facilities.

National Marine Fisheries Service (NMFS)

NMFS is responsible for conservation and management of fisheries, and enforcement of fishery regulations authorized primarily under the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, the Sustainable Fisheries Act, and the Endangered Species Act (ESA) (see NOAA Authorization, p. 36). Scientific research and conservation efforts that support federal regulations required by these laws is conducted at NMFS fishery research centers and laboratories, and fishery research operations at sea.[4]

---

[4] For additional information on NMFS conservation, research, and management programs refer to: CRS Issue Brief IB10074, *Fishery, Aquaculture, and Marine Mammal Legislation in the 107th Congress*; CRS Report RL30120, *The Marine Mammal Protection Act: Reauthorization Issues for the 107th Congress*; CRS Issue Brief IB10072, *Endangered Species: Different Choices*; CRS Report RS20810, *Marine Protected Areas: an Overview*; and CRS Report RL30215, *The Magnuson-Stevens Fishery Conservation and Management Act: Reauthorization Issues for the 107th Congress*.

For FY2003, President Bush requested $603.5 million in ORF funding for NMFS, and $17 million for NMFS PAC (see Table 3).

Table 3. National Marine Fisheries Service Request and Appropriations

($ Millions)

	FY'01 Actual	FY'02 Est.	FY'03 Request	S. 2778 Approp.
Fisheries Research and Management	**376.9**	**342.7**	**348.8**	**277.0**
Science & Technology	225.1	230.5	237.7	176.3
Conservation & Management	151.8	112.2	111.1	100.7
Protected Resources Research and Management	**143.6**	**150.7**	**157.2**	**111.3**
Science & Technology	96.8	109.1	103.9	77.4
Conservation & Management	46.8	41.5	53.3	33.9
Habitat Conservation Research and Management	**48.2**	**44.5**	**46.4**	*40.2
Sustainable Habitat Management	27.2	26.5	33.2	–
Fisheries Habitat Restoration	21.0	18.1	13.2	–
Enforcement and Surveillance /Partnerships	**38.5**	**41.3**	**51.0**	**47.1**
ORF Total	**634.1	**579.2**	**603.4**	***587.8**
PAC Construction /Fleet Replacement	**62.5**	**37.2**	**17.0**	**24.0**
Other (PCSRF and Fishery Accounts)	**119.1**	**175.0**	**120.8**	**110.1**
NMFS Total	**815.6**	**791.4**	**741.2**	**721.9**

Table notes:

* Sustainable Habitat Management and Fisheries Habitat Restoration not broken out in Senate appropriation tables (S.Rept. 107-218).

** FY2001 ORF total includes $26.8 million for Data Acquisition (OMAO after FY2001).

*** Includes $112.2 million in base funding for NMFS overhead costs.

An additional $120.8 million would be provided for NMFS activities from Other Accounts. The ORF funding request for NMFS was $24.3 million, or 4.2%, greater than FY2002 appropriation of $579.2 million, and $5.5 million, or 0.9%, more than the President's FY2002 request of $598 million. NMFS research programs and fishery information and assessment activities are a prime example of how R&D funding is tied to the missions of NOAA and the Department of Commerce. NMFS operational responsibilities are directly linked with American commerce, and mostly with the U.S. fishing industry. Since FY1994, NMFS funding has grown significantly. FY2002 ORF appropriations for NMFS, while about $36 million less

than FY2001 appropriations, are still two and a half times greater than FY1994 appropriations of $224 million.

Fisheries Research and Management Services. For FY2003, the President requested $348.8 million for activities performed under this budget line. The request includes $237.7 million for supporting science and technology, and $111.1 million for conservation and management activities. Science and technology activities include programs for stock assessments, data collection, and assessment of the impact of incidental taking of marine mammals and endangered species in fishery operations. NMFS also conducts R&D on instrumentation and systems which assist these programs. For example, NMFS has developed forecast models to predict the sizes of populations of marine resources species in marine ecosystems and fisheries. Further, NMFS collects scientific data about living marine resources and their habitats. Funding provided for fishery conservation and management activities at NMFS also aids in implementing the National Environmental Protection Act (NEPA) and development of federal regulations for fisheries. NMFS oversees operations of the Regional Fishery Management Councils, which are coordinating bodies responsible for developing fishery management plans and recommending fishery regulations. NMFS also represents the United States at meetings directed at developing cooperative measures to enforce international fishing agreements.

Protected Resources Research and Management Services. The President requested $157.2 million for these NMFS activities, of which $103.9 million and $53.3 million would be provided for supporting science and conservation activities, respectively. Programs under this budget line include what NOAA calls accurate and timely analysis on the biological and ecological aspects of conservation of the nation's living resources to produce policies that support NOAA's goal to recover protected species. Science and technology and conservation and management of protected species, the President's requested stated, "together support research on and management programs focused on protection, recovery and conservation of protected living marine resources and the environment upon which they depend."

Science and technology funding requested for FY2003, which would be cut 25% under the Senate Appropriations Committee mark (S. 2778), would include funding for recovery of endangered large whales, protection of sea turtles and Stellar sea lions and other marine mammals, and for the Columbia River Biological Opinions program. Nearly $1 million would be specifically targeted for Alaskan marine mammals research. Further, $2.4 million would be provided for Atlantic and Pacific salmon science activities, and $10.5 million for Antarctic Research.

The amounts requested for conservation programs, which would be cut 36%, under S. 2778, would be used to fund conservation of Atlantic salmon, Pacific coastal salmon, California sea lions, and Atlantic right whales, as well as cooperative conservation programs with Alaska natives for marine mammals, and the further expansion of the Marine Mammal Stranding Information Network. Funding of $90 million from NOAA's Other Accounts was requested for NMFS for its Pacific Coastal Salmon Recovery Fund (PCSRF), and $20 million would be for U.S. Pacific Salmon treaty obligations.

Habitat Conservation Research and Management Services. Funding of $46.4 million was requested for habitat conservation programs in NMFS. Of this amount, $34 million was requested for Sustainable Habitat Management, which included $11 million for coral reefs programs. Further, $13.2 million was requested for Fisheries Habitat Restoration programs.

Enforcement and Surveillance Services Funding. Increases of $9.7 million were proposed for enforcement of fisheries, which would amount to a total request of $51 million for these activities for FY2003. Of this amount, $5.4 million was requested to continue implementing a Vessel Management System (VMS) that would allow NMFS to monitor catch from as many as 1,500 fishing vessels at a time.

PAC funding of $15 million was requested by the President for construction of a fishery facility in Honolulu, HI, and $2 million was requested for renovation of a Galveston, TX, fishery laboratory.

Oceanic and Atmospheric Research (OAR)

All of OAR's research programs are tied directly to NOAA's operational responsibilities. For FY2003, about 15% of annual OAR funding was proposed for extramural grants. These grants are extended to individuals, universities, and research centers that participate in NOAA research activities, and are provided for oceanic and atmospheric research that is deemed to benefit the NOAA mission. All research, including extramural research, is performed at NOAA's 12 Environmental Research Laboratories (ERLs), other NOAA research facilities, or Joint Institutes, which are programs and facilities shared by one or more NOAA line offices, and other federal agencies and academic institutions performing similar research.

For FY2003, President Bush requested $296.9 million in ORF funding for OAR, and $10.6 million in PAC funding (see Table 4, below).

The ORF amount is $59.2 million, or 16.6%, less than FY2002 ORF appropriations of $356.1 million, and 10.1% less than the President's request of $330.2 million for FY2002. For FY2003, ORF funding for OAR would be divided in a ratio of about 4:1 between NOAA's so-called "dry" and "wet" research programs. Dry research programs focus mainly on 1) climate research and atmospheric research, 2) climate and observation services research, 3) weather and air quality research, and 4) information technology, R&D, and science education. Wet research programs are focused on Oceans, Coastal, and Great Lakes Research Programs, and include the National Sea Grant College Program and the National Undersea Research Program.

The President proposed eliminating $28.9 million in OAR programs that were funded in FY2002 by Congress, but not requested by the President. Also proposed was a transfer of the $2.3 million National Tsunami Hazard Mitigation Program from OAR to NWS, because tsunami detection is operational. A total of $11.1 million was requested for mandatory pay and inflationary costs in OAR, $6.1 million of which was for CSRS retiree pay.

Table 4. Oceanic and Atmospheric Research Request and Appropriations

($ Millions)

	FY'01 Actual	FY'02 Est.	FY'03 Request	S. 2778 Approp.
Climate & Atmospheric Research	**133.7**	**150.2**	**171.0**	**159.2**
OAR Labs & Joint Institutes	46.3	49.1	54.6	49.1
Climate & Global Change Program	72.2	73.7	72.8	74.7
Climate Observations & Services	11.0	23.6	41.6	30.6
Climate Partnership Programs	4.2	3.8	2.0	4.8
Weather & Air Quality Research	**44.8**	**55.5**	**59.1**	**57.4**
Laboratories & Joint Institutions	41.9	43.9	48.1	43.9
U.S. Weather Research Program	2.5	10.3	10.0	4.8
Weather & Air Partnership Programs	0.3	1.3	1.0	8.8
Ocean, Coastal, Great Lakes Research	**120.4**	**137.6**	**54.2**	**166.3**
Laboratories & Joint Institutes	17.4	19.3	20.9	19.3
National Sea Grant Program	62.1	62.4	*0.0	63.4
National Undersea Research Program	13.8	16.3	13.9	30.8
Ocean Exploration	4.0	14.0	14.2	20.0
Ocean & Coastal Partnership Program	23.1	25.7	5.1	32.9
Information Technology/ R&D/Science Education	**15.7**	**12.8**	**12.8**	**12.8**
ORF Total	**327.4	**356.1**	**297.1**	**395.7**
PAC Systems Acquisition/Construction	**22.9**	**27.7**	**10.6**	**17.1**
Total OAR/NOAA Research	**350.4**	**383.8**	**307.7**	**412.8**

Table notes:

***** Reflects President's proposal to transfer the National Sea Grant College Program to NSF.

****** FY01 ORF total includes $12.9 million for Data Collection, under OMAO after FY01.

Climate and Atmospheric Research. This research is divided between short-term, inter-annual, and long-term climate research. For example, the first two activities study the *El Niño* and *La Niña* phenomena, while the last includes research on longer term phenomena such as the North Atlantic and Pacific Ocean Decadal Oscillations, sunspot cycles, and other climate fluctuations that may occur over decades to centuries. NOAA participates in the interagency U.S. Global Climate Change Research Program (USGCRP) through its Office of Global Programs (OGP). For FY2003, $171 million was requested for climate research, which is NOAA's largest "dry" research component. The request is 12.2% greater than the appropriation for FY2002. Of that amount, $54.6 million was requested for various atmospheric research programs conducted at OAR laboratories and joint institutes. In addition, $72.8 million was requested for NOAA's Climate and Global Change Program. (Information on NOAA's and other federal agencies' climate change research programs may be found in CRS's Electronic Briefing Book on Climate Change at [http://www.congress.gov/brbk/html/ebgcc1.html].)

For FY2003, the President requested $41.6 million for climate observations and services, $18 million more than FY2002 appropriations. This increase would be for programs recommended under the President's U.S. Climate Change Research Initiative (CCRI), and would include $5 million for a climate modeling center for research, assessment, and policy applications to be located at NOAA's Geophysical Fluid Dynamics Lab (GFDL). Related programs include research with NASA, DOE, and NSF on aerosol/climate interactions, a carbon monitoring program with DOE, and a regional integrated science program with NSF. Another aspect of Climate Services would involve building both ocean and atmospheric observing systems to address scientific research questions, such as the connections between climate and weather. The President's request states that the increase would aid in establishing an operational monitoring program for forecasting climate-related information of importance to various U.S. economic sectors. Prospective climate services operations would be jointly managed by OAR, NESDIS, and NWS.

Weather and Air Quality Research. The President requested a total of $52.9 million for weather and air quality research programs conducted at dedicated OAR laboratories and joint institutes. Most ($48.1 million) would be for Weather and Air Quality Research Labs. One of those is the Space Environment Center (SEC), which is engaged in solar weather research for the U.S. Space Program. SEC researchers also investigate how solar activity affects sectors of U.S. commerce, such as telecommunications and electric power industries. Some $8.2 million was requested for SEC for FY2003. NOAA's Forecast Systems Lab (FSL) maintains a network of 35 National Wind Profilers, which collect wind, temperature, and precipitation data used in real-time models of local weather conditions at sea. FSL research and modeling provides nationwide guidance for issuing storm forecasts, including severe weather watches and warnings. Funding of $11.9 million was requested for FSL, for its continued operation and maintenance.

U.S. Weather Research program (USWRP). The President requested $10 million for the USWRP, an amount slightly less than that appropriated for FY2002. This amount would include $3.9 million in base funding for improving prediction of hurricane landfall and quantitative precipitation forecasts. Other USWRP activities include research on weather modification, and the launch of an Energy Security Initiative to assist the operations of the U.S. energy sector, improve aviation weather services, and enhance extended range weather forecasting.

NOAA claims the USWRP has increased NWS forecasters' knowledge about severe storms and improved their skills for forecasting severe weather events. New for FY2003, the President proposed, as part of a broader agency-wide energy initiative, an Energy Security Initiative to be conducted by the USWRP, which would aid the energy industry in improving electrical load forecasting and hydropower facility management; $6.1 million was requested for that effort. In addition, $1 million was requested to establish a joint partnership between NOAA, DOD, and FAA to conduct Tornado/Severe Storm Research at NOAA's Severe Storm Lab (NSSL), in Norman, OK, and to develop technological improvements for severe storm detection beyond current NEXRAD weather radar's abilities.

Oceans, Coastal, and Great Lakes Research. OCGLR is the "wet" research component of OAR and investigates ways to protect marine, coastal, and estuarine environments from pollution, hypoxia (marine oxygen deprivation), and harmful algae blooms and to control non-indigenous species such as the zebra mussel. These programs support research and development of non-fishery marine resources of benefit to U.S. commerce. OCGLR research is conducted at a number of dedicated NOAA laboratories throughout the United States, and is conducted by NOAA scientists in partnership with state, regional, and local economic development agencies. While much of this research is focused on coastal and ocean ecosystems, another major focus is the U.S. Great Lakes region.

For FY2003, the President requested $54.2 million for OCGLR, a decrease of $83.5 million below FY2002 appropriations. Some $62.4 million (75%) of that decrease reflects the President's proposal to transfer the National Sea Grant College Program to NSF. A total of $33.2 million was requested for ocean research programs. Of this, $13.9 million was requested for the National Undersea Research Program (NURP), which develops sea floor observatories and subaquatic marine technologies. Also, NURP has operational responsibilities to promote healthy coasts, foster marine stewardship, and sponsor public education and outreach programs about the marine environment. Further, $14.2 million was requested for the Ocean Exploration Initiative, which is a joint OAR/NOS/NMFS effort to promote undersea exploration, research, and technology in the deep ocean and, "areas of special concern, such as the U.S. Exclusive Economic Zone (EEZ) and National Marine Sanctuaries."

Some $20.9 million was requested to fund OCGLR's dedicated Laboratories and Joint Institutes where most "wet" OAR research is conducted, including the Pacific Marine Environmental Laboratory (PMEL) in Seattle, WA; the Atlantic Oceanographic and Meteorological Lab (AOML) in Florida, and the Great Lakes Environmental Research Lab in Michigan (GLERL). Despite the President's proposal to transfer the National Sea Grant College program to NSF, many traditional Great Lakes programs would continue to be conducted at NOAA's GLERL, for which $9.1 million was requested for FY2003. Although this funding is used to support scientific research operations at OCGLR facilities, funding would also be used, in part, to guide NOAA management decisions and policies aimed at developing coastal and marine resources, increasing knowledge about coastal marine processes and their relationship with environmental change, and developing marine technology and marine resources for U.S. commerce.

Information Technology/R&D/Science Education. Other "dry" OAR programs include the OSTP High Performance Computing and Communications (HPCC) Initiative, for which $12.8 million was requested for FY2003. NOAA is working to improve its computing capabilities to produce extended weather forecasts and to predict climatic fluctuation and change, which NOAA scientists claim can only come about with more computational power and greater processing speed. A portion of HPCC funding would be used to develop new computer applications and algorithms for enhancing climate supercomputing within the agency. This effort will likely benefit others in the field of climate research.

The President also requested $7 million in PAC funding to upgrade the supercomputer at NOAA's Geophysical Fluid Dynamics Lab in Princeton, NJ.

Another $3.6 million in PAC funding was requested to continue developing a Comprehensive Large-Array [data] Stewardship System (CLASS), which NOAA claims might more efficiently manage large volumes of oceanic, atmospheric, and environmental data across the agency, as well as provide additional capacity for managing NASA Earth Observing Satellite (EOS) data which NOAA archives.

National Weather Service (NWS)

For FY2003, President Bush requested $725.3 million in ORF funding and $75.6 million in PAC funding for NWS to sustain what NOAA has coined as America's "no surprise" weather service (see Table 5). The ORF request is $52.9 million, or 7.9%, greater than FY2002 funding of $672.4 million, and $64.8 million, or 10.1% greater than the $658.5 million requested for NWS in FY2002. In addition, the President requested $52.3 million in adjustments to base funding, $28.4 million of which would fund NOAA CSRS retirees' pay. Further, an increase of $2.3 million was requested for NWS to accept transfer of the National Tsunami Hazard Mitigation Program and warning systems from OAR, and put them into operational service. Some $18.7 million in terminations were also proposed.

Table 5. National Weather Service Request and Appropriations

($ Millions)

	FY'01 Actual	FY'02 Est.	FY'03 Request	S. 2778 Approp.
Operations & Research	**548.0**	**581.1**	**632.0**	**587.7**
Local Warnings & Forecasts	510.5	539.2	586.5	544.2
Central Forecast Guidance	37.4	41.9	45.5	43.5
Systems Operation & Maintenance	**81.4**	**91.2**	**93.3**	**94.3**
ORF Total	**629.4**	**672.3**	**725.3**	**682.0**
PAC Systems Acquisition/ Construction	**63.4**	**70.7**	**75.6**	**66.8**
NWS Total	**692.8**	**743.0**	**800.9**	**748.8**

Local Warnings and Forecasts. Of the ORF total for NWS, $568.1 million was requested for local warnings and forecasts which is $11.4 million more than FY2002 appropriations. Some $7.4 million of that would be slated for upgrade and maintenance at existing Weather Forecast Offices (WFOs). Funding of $1.9 million was requested to modernize the Cooperative [weather] Observer Program Network, which provides NWS with highly detailed real-time weather observations by individuals in local communities. In addition, $1.7 million was requested for deployment of weather data buoys in Alaska.

Owing to severe weather in the spring of 2002, public attention was drawn to NOAA Weather Radio (NWR), and the critical role it can play in alerting the public to weather emergencies. Congress has already authorized funding for many areas where the demand for expansion of NWR has been the greatest. Primarily this effort

has consisted of building more NWR transmitting towers (repeaters), so that severe weather forecasts and weather warnings can reach more people. Meanwhile, other local governments that are newly affected by severe weather have also asked their congressional representatives to assist them in building repeaters. For FY2003, considering demand is expected to subside, the President requested $2.3 million for NWR, which was funded at $4.4 million in FY2002.

On the other hand, the President requested a tripling of funds ($4.5 million) for the NWS Advanced Hydrological Prediction Service (AHPS), which was funded at $1.5 million for FY2002. The AHPS develops and operate models which forecast flooding on major streams and waterways using real-time weather data in flood-prone areas. Those results are relayed to regional NOAA's River Forecast Centers (RFCs), which in turn project river stages and relay that information to WFOs and local emergency managers for community-based warnings and emergency actions. Several states across the nation that have been afflicted by severe inland flooding are already participating in the program, and many newcomers wishing to participate are requesting federal funding or grants through their states so they can take advantage of AHPS.[5]

Also new for FY2003, the President proposed $2.5 million for an Aviation Weather Initiative to improve U.S. aviation safety and enhance the economic efficiencies of commercial, private, and military air transport. NOAA claims this joint DOT, DOC, NASA initiative would improve NWS aviation weather services by "increasing the total number of quality aviation weather observations; transferring applied research data and products for operational use; and developing and implementing training for forecasters, pilots, and air traffic controllers." The goal of this initiative, NOAA reported would be to "improve awareness of aviation weather hazards."

Central Forecast Guidance. For FY2003, $45.5 million was requested for CFG, which coordinates and processes weather observations from WFOs across the nation. In turn, CFG issues short-term warning and severe weather forecasts to all potentially affected WFO areas. The primary component of CFG is the National Centers for Environmental Prediction (NCEP), which is composed of six science-based, service-oriented centers whose function is to produce environmental prediction products in near-real time.[6] NCEP Central Operations at NWS's Central Computer

---

[5] Legislation to address problems and concerns about inland flooding was introduced on July 12, 2001, and referred to the House Committee on Science. H.R. 2486 would authorize $1.15 million annually for FY2003-FY2007 for NWS to conduct research and modeling to forecast accurately inland flooding associated with tropical cyclones and to develop an index that defines risks and dangers associated with inland flooding. That bill was reported on June 5, 2002 (H.Rept. 107-495); however, it may be superseded by H.R. 4791, which proposes a total of $3.6 million for FY2003-FY2005 for those activities under U.S. Weather Research program in OAR. (See **NOAA Authorization** below.)

[6] Those include the Storm Prediction Center in Norman, OK; the Tropical Prediction Center/National Hurricane Center in Miami, FL; the Aviation Weather Center in Kansas City, MO; and the Hydrometeorological Prediction Center, Marine Prediction Center, and MD Climate Prediction Center in Camp Springs, MD.

Facility compiles data received from all of the six NCEP centers, performs numerical forecast modeling, and conveys those results to WFOs.

NCEP's Environmental Modeling Center (EMC) develops data assimilation techniques that are used to generate products used by meteorologists for making long-term weather forecasts. EMC also experimentally integrates numerical meteorological modeling R&D projects conducted at universities and OAR research labs into NWS forecast models, experimentally. EMC can assimilate environmental data collected from a variety of sources. These data can be used operationally to validate and check NESDIS environmental satellite-based instrumentation or NWS weather radar. Additionally, after cross-validating various environmental data, EMC can alert NESDIS satellite command and control centers to make orbital corrections, re-calibrate satellite sensors, or advise WFOs of possible weather instrument and radar errors.

Systems Operations and Maintenance. ORF funding of $93.3 million was requested for public warning and forecast systems and associated technology that support NWS operations. Those include NEXRAD Next Generation Doppler Weather Radar systems ($43.9 million requested); the Advanced Weather Interactive Processing System (AWIPS) ($37.1 million requested); and the Automated Surface Observation System (ASOS) ($8.7 million requested). Further, $3 million was requested for a NWS Telecommunications Gateway System backup to be built in Berryville, VA. That project would be part of the Department of Commerce's "Critical Infrastructure Protection (CIP)" homeland security initiative to "insure uninterrupted delivery of critical data necessary for the protection of life and property, and the economic well being of the Nation."

Systems Acquisition/Construction (PAC). For FY2003, the President requested $75.6 million in PAC funding for NWS. Of that amount, $64.9 million was to acquire and deploy new NWS systems. Some $5.1 million would be used for instrument upgrades for the ASOS network. NWS plans to add all-weather precipitation monitors in FY2003 to existing ASOS units and to install cloud ceiling height detection instruments (ceilometers) on all 346 proposed ASOS units by 2005. Further, the President requested $16.3 million to upgrade AWIPS hardware and to develop software that would better enable NEXRAD data integration at WFOs. AWIPS is the "brain" and centralized telecommunications component of NWS's latest generation of forecast and warning technologies that serve WFOs. Another $8.2 million was requested for NEXRAD products improvement to increase warning lead times for tornadoes and to improve forecast accuracy for severe thunderstorms and flash floods.

Another $7 million was requested to continue replacement of the old NWS Weather Balloon Radiosonde Network, which monitors meteorological conditions in the Earth's lower atmosphere/upper air and is the principal data source for weather forecast models. The request is $2 million greater than FY2002 appropriations. NWS plans to modernize the system by creating 21 radiosonde telemetry sites which can receive relayed weather conditions data measured by individual radiosonde units via satellite. Previously radiosonde units had to be physically retrieved before their data could be analyzed.

In addition, PAC funding of $10.6 million was requested for critical facility modernization, which entails renovation of an older WFO facility in Key West, FL, improved climate control engineering at other WFOs, and other construction-related expenses for a number of Alaskan WFOs. Further, the newly constructed Alaska Tsunami Warning Center is preparing to receive transfer of the program from OAR, and would begin full-scale operations for tsunami warnings.

NOAA's Weather and Climate Supercomputer Facility would continue to be upgraded, as party of the DOC's CIP initiative. For FY2003, $21.2 million was requested for operations and maintenance of NOAA's Class VIII Supercomputer at the Central Computer Systems, which also serves as the computational system for the National Centers for Environmental Prediction. This would also fund the transition of NWS to a new generation of weather and climate supercomputers which will become operational in FY2002. In addition, $7.1 million was proposed for an off-site emergency Weather and Climate Supercomputer backup system as part of DOC's CIP.

National Environmental Satellite Data and Information Service (NESDIS)

NESDIS funds the launch and deployment of NOAA polar orbiting environmental satellites (POES) and geostationary orbiting environmental satellites (GOES). POES circle the Earth from pole-to-pole providing continuous and regularly repeated environmental data. GOES, which can be "parked" in geostationary orbit, can observe any location in the northern mid-latitudes of the western hemisphere for extended periods of time. GOES are predominantly used for tracking and characterizing major storms, such as hurricanes, typhoons, and other large weather systems. Sensors onboard GOES satellites enable meteorologists to measure total moisture content of such storms, which is important for determining total possible amount, intensity and duration of precipitation, and potential for coastal and inland flooding.

NESDIS's other responsibilities are compiling and archiving environmental data, producing environmental information products, and developing data services for those clients requiring atmospheric, marine, solid earth, and solar-terrestrial sciences data collected by NOAA. NESDIS also preserves and makes available historical environmental data through NOAA Data Centers, which were developed to facilitate public access to archived environmental satellite data products.

For FY2003, the President requested $151.9 million in ORF funding for NESDIS, and $612.8 million for NESDIS PAC (see Table 6, below). The ORF request is $9.5 million, or 6.2% more than the $142.4 million appropriated by Congress for FY2002. Some $5 million in terminations were proposed, including $2 million for the GOES Data Archives project, and $3 million for the NESDIS Regional Climate Centers. In addition, a $10.7 million increase in base funding was requested for increased personnel costs and rental payments to GSA, of which $6.2 million would be provided for CSRS retirees' pay.

Table 6. National Environmental Satellite Data and Information Service Request and Appropriations

($ Millions)

	FY'01 Actual	FY'02 Est.	FY'03 Request	S. 2778 Approp.
Environmental Satellite Observing Systems	**60.2**	**77.9**	**91.8**	**75.2**
Satellite Command & Control	19.8	32.5	37.1	32.7
Product Processing & Distribution	19.7	21.0	27.7	18.2
Product Develop., Readiness & Application	20.7	23.3	25.8	24.3
Commercial Remote Sensing License/Enforce.	0.0	1.2	1.2	0.0
NOAA Data Centers & Information Services	**64.8**	**64.4**	**60.1**	**58.6**
Archive, Access, and Assessment	43.6	44.6	43.3	38.2
Coastal Data Development	6.0	4.5	4.5	4.5
Regional Climate Centers	2.9	3.0	0.0	3.6
Environmental Data Systems Modernization	12.3	12.3	12.3	12.3
ORF Total	**125.0**	**142.3**	**151.9**	**133.8**
PAC System Acquisition/Construction	**515.0**	**561.9**	**612.8**	**608.6**
NESDIS Total	**640.0**	**704.2**	**764.7**	**742.4**

Environmental Satellite Observing Services (ESOS). For FY2003, the President requested $91.8 million in ORF funding for ESOS. ESOS is comprised of three subactivities: Satellite Command and Control; Product Processing and Distribution; and Product Development, Readiness, and Application.

Satellite Command and Control (SCC). SCC is responsible for operating NESDIS satellite systems, for collecting and processing satellite data, and for developing new products that would ensure continuity of satellite operations. SCC services operate around the clock. Of the ORF total, the President requested $37.1 million for routine operations and maintenance of the NESDIS satellite system infrastructure.

The NESDIS satellite Command and Data Acquisition (CDA) station in Fairbanks, AK, collects and processes environmental satellite data, and aids in the development of new satellite data products which have applications for other NOAA operations. For FY2003, an increase of $2.2 million was requested for the CDA. Other SCC funding would provide for the acquisition and throughput of data from NOAA's and DOD's current polar orbiting satellites (POES) and the Defense Meteorological Satellite Program (DMSP), whose data are relayed to the NOAA Satellite Operations Control Center in Suitland, MD, and, in turn to NWS National Weather Centers. In addition, PAC funding of $0.3 million was requested to deter security breaches at SCC centers–a homeland security measure for NESDIS.

Product Processing and Distribution (PPD). The President requested $27.7 million for PPD, which are NESDIS operations that process and analyze data from

NOAA, DOD, and other earth-observing satellites (EOS). PPD staff also supply and interpret data, and consult with EOS data users. PPD supports NOAA's search and rescue operations, and supplies about 85% of the processed data that the NWS needs for weather forecasting. The President requested an increase of $3.1 million to ensure that PPD data management operations are sustained and improved; to increase data processing capacity to handle a growing data stream from 18 current earth observation satellites; and to ensure that a growing client base for NESDIS data and information products receives timely and improved services. Another $2.0 million was requested specifically to expedite delivery of satellite data products to NWS and DOD, 65% of which, NOAA claims, "currently cannot be supplied in a timely manner."

Product Development, Readiness, and Application. The President requested $25.8 million to fund continued development of the Joint Center for Satellite Data Assimilation, whose primary function will be to expedite data integration and develop various satellite data products for use in computer modeling projects which emulate weather and climate connections and improve the accuracy of extended, long-range weather forecasts. NESDIS, NWS, OAR, and NASA will jointly manage the data processing center, for which $3.4 million was requested for FY2003. Additionally, $0.5 million was requested for "Environmental Algorithm Development for Climate Monitoring and Hazards" which, NOAA claims, would maximize and exploit the information content of NESDIS satellite data as a medium for monitoring climate change, and serve as the foundation for national climate services operations. In addition, NESDIS would develop a new line of satellite data derived products that could be used for predicting fires, and assessing fire risk, desertification, ENSO (El Niño)-related drought, and insect-borne diseases.

NOAA Data Centers and Information Services. A total of $60.1 million was requested for NOAA Data Centers (NDCs), which is $4.3 million less than FY2002 appropriations. These operational centers archive, process, and classify substantial amounts and various types of environmental data provided by satellites and ground-based environmental monitoring stations. To make those post-processed data available to the public, NDCs process environmental data and operate product distribution services at the National Climatic (NCDC), Oceans (NODC), and Geophysical (NGDC) Data Centers. NDCs provide data sets, data products, and satellite imagery according to each center's scientific specialization. For example, GOES and POES satellite data are made available as visual images or digital data files on CDs from NGDC, or may be ordered on the Internet from NGDC. Most of these products may be obtained at the minimal cost of reproduction for scientific researchers, or at more competitive rates for commercial users. Many Members of Congress have continued to stress the importance of preserving historical satellite data, so those may be exploited to the fullest extent for scientific research.

Archive, Access, and Assessment. For FY2003, The President requested $43.3 million for satellite data processing, delivery, and assessment activities. Some $1.7 million of that would fund "Regional Climate Services and Assessments." NOAA claims regional climate assessments could be prepared using extant archived environmental data and could serve as the basis for a climate data and information delivery service that would be federally managed, but whose services would be distributed regionally. NESDIS plans to develop climate services of a national scale; regional and local climate services would be provided by state-managed climate

services programs. The President also proposed to terminate the current federally-operated Regional Climatic Data Centers. NESDIS officials envision a national climate service that would provide archived climate data, analytical information, and statistics serving U.S. economic sectors, including energy, agriculture, and natural resources-based commerce.

The President also requested funding of $1.3 million for NESDIS to update its World Ocean Database, which would enable it to distribute oceanographic data products. Another $0.5 million was requested for "Extending America's Climate Record," and making paleoclimatological databases available on the Internet. Some $0.3 million was requested for archiving Solar X-ray Imager data of solar activity for eventual public distribution. Funding of $4.5 million was requested for a proposed Coastal Data Development program. Further, $12.3 million was requested for the NESDIS Environmental Data Systems Modernization Program, the same amount as that appropriated for FY2002.

Satellite Observing Systems. For FY2003, $612.8 million in PAC funding was requested for NESDIS to maintain continuity of satellite observing systems (SOS) for monitoring severe weather. Some of that funding would be used to upgrade NOAA's satellite systems telecommunications infrastructure for homeland security. Some $587.6 million of PAC funding was an increase of $29.2 million above FY2002 enacted levels, requested to procure SOS hardware, which is either off-the-shelf technology or currently being developed. NOAA claims this funding would be critical for "ensuring continuity and seamless functioning of NESDIS satellite observing systems."

National Polar Orbiting Environmental Satellite System. Some $237.3 million of SOS funding was requested to complete NPOESS which is jointly funded by NOAA and the Department of Defense. NPOESS will soon support NOAA's statutory responsibility for operating U.S. civilian weather satellites and collecting and disseminating data to the NWS for public welfare and to protect property from severe weather.[7] Because of overlap in service between the time NPOESS would be deployed and the POES program terminated, NOAA claims the former would be available for emergency backup during that time in the event of POES service loss. The President requested $122.9 million to launch and deploy the remaining POES hardware, to fund supporting ground services, and to provide operations and maintenance funding for the remainder of the POES program.

GOES Satellite Program. For FY2003, $227.4 million in PAC funding was requested for post-launch operations and maintenance for GOES satellites. For the FY2003 budget, the GOES program underwent extensive internal review of its proposed delivery schedule. NOAA concluded delivery would be driven by five major factors: 1) satellite continuity; 2) launch/early orbit failure; 3) unpredicted, premature failure mitigation; 4) production, launch, and on-orbiting testing constraints; and 5) on-orbiting fuel reserves and storage. Consequently, a savings of $41.7 million would be realized by delaying the launch and deployment of GOES-N

---

[7] NESDIS is required to collect, archive, and distribute civilian weather data in the Land Remote Sensing and Commercialization Act of 1984 (P.L. 98-365, 15 U.S.C. 4201 *et seq*).

series, for which a total of $208.7 million was requested for FY2003. An increase of $14.6 million was requested for future planning and development for new instrumentation that would be used on the latest generation of GOES satellites. Of the total amount of PAC funding proposed for GOES, contingency funding would be requested for emergency backup launch services or emergency lease time on other international GOES satellite systems, such as the European Space Agency's meteorological satellite, EUMETSAT, in the event of a service loss.

In addition, the President requested $2.8 million for Homeland Security-"Critical Single Point of Failure" funding to provide backup of NESDIS satellite data, products, and services critical for NWS operations. Some $13.4 million in PAC funding was requested for Construction, which includes $4.6 million for Homeland Security-"Continuity of Critical Facilities for Satellite Operations" and would be provided for NESDIS's "Satellite Command and Data Acquisition (CDA) Infrastructure Program." These funds would be used to provide service backup capability and redundancy in the event of a catastrophe that might destroy the infrastructure and buildings of either CDA. This funding would ensure that NOAA is able to continue all of its critical satellite functions, products, and services provided by the two Satellite Operations and Control Centers. Funding was also requested to modernize and renovate the facilities of the two chief command and control centers for satellite operations. In addition, $8.9 million was requested to backup the NOAA Satellite Operations Facility in Suitland, MD, which NOAA claims is at risk of mission disruption and failure.

Coastal Remote Sensing. The President requested $6.0 million for what NOAA calls "long-standing requirements for an imagery capability for observation of coastal zones areas, hydrological phenomena, and certain atmospheric processes." NOAA and NASA would work together to develop satellite instrumentation which would continuously monitor coastal ocean areas for harmful algal booms, coral reef deterioration, and air pollution changes. Also, satellite sensors would serve NMFS's "Fisheries Oceanography and Habitat Characterization" studies and support marine navigational guidance systems.

EOS Data Archive and Access System Enhancement. Some $3 million was requested to address growing concerns of NOAA, NASA, and public data users about NESDIS's capacity to fully archive, develop, and make publically available NASA's EOS data, for which NOAA has a Memorandum of Agreement to provide services for NASA, as well as managing its own data.

Program Support (PS)

For FY2003, President Bush requested $213.2 million in ORF funding and $78.6 million PAC funding for NOAA Program Support. The ORF request is a net increase of $78.2 million, or 18.1% more than the $180.5 million appropriated by Congress for FY2002, and 16.8% greater than the President's request of $182.5 million for FY2002 (see Table 7, below). PS includes three funding subcategories: Corporate Services, NOAA Facilities, and Office of Marine and Aviation Operations. For FY2003, $36.7 in mandatory spending is proposed for NOAA Corps officers retirement pay, and $6 million was requested for civilian CSRS retirees' pay. Mandatory funding would be transferred from NOAA's Other Accounts on behalf of OMAO to the U.S. Coast

Guard, which manages disbursement of retirement pay for NOAA Corps commissioned officers.

Table 7. Program Support Request and Appropriations

($ Millions)

	FY'01 Actual	FY'02 Est.	FY'03 Request	S. 2778 Approp.
Corporate Services	**70.1**	**71.8**	**79.8**	**89.5**
Undersecretary & Assoc. Offices*	21.4	21.8	25.8	27.0
Policy Formulation & Direction**	48.7	50.0	54.0	62.5
Facilities	**11.2**	**19.1**	**24.6**	**17.5**
NOAA Maint., Repairs & Safety	9.2	11.1	12.0	9.5
Environmental Compliance	2.0	2.0	2.0	2.0
Project Planning & Execution	0.0	6.0	10.6	6.0
Office of Marine & Aviation Operations	**22.8**	**89.6**	***108.8	**95.9**
Marine Services O&M/Data Acq.	0.0	****63.9	74.0	68.5
Fleet Planning & Maintenance	11.0	11.1	12.0	11.9
Aviation Ops./Aircraft Services	11.8	14.7	16.8	15.5
ORF Total	**104.1**	**180.5**	**213.2**	**202.9**
PAC Systems Acquisition/ Fleet Replacement	**39.5**	**62.4**	**78.5**	**84.5**
Other	**15.4**	**16.2**	**1.0**	**0.0**
Program Support Total	**159.0**	**259.1**	**292.7**	**287.4**

Table notes:

* Includes funding for congressionally mandated studies.

** Includes Other/Ed. & Minority Serving Institutions.

*** Includes $6.0 million for NOAA Corps with respect to the President's CSRS proposal.

**** Beginning in FY2002 marine data acquisition funding transferred from NOS/NMFS.

Corporate Services. The President requested $79.8 million in ORF funding for Corporate Services, of which $25.8 million would be for the Undersecretary of Commerce for Oceans and Atmosphere and Associate Offices in Washington, DC, and $54 million would be for Policy Formulation and Direction. Adjustments to base funding requested include an increase of $0.5 million for personnel costs, $0.1 million of which would be for CSRS pay for NOAA retirees. Funding is also included for the Office of the Federal Coordinator for Meteorology. In addition, funding of $4 million was requested for a comprehensive enterprise-wide approach to information technology security at NOAA. Further, $15 million was requested for NOAA's participation in DOC's Educational Partnership Program with Minority Serving Institutions.

In addition, Some $16.1 million in PAC funding was requested for NOAA obligations for the Commerce Administrative Management System (CAMS). CAMS is the DOC's financial management and accounting system, which is currently being

implemented in NOAA, so that all of DOC's agencies meet statutory obligations under the Federal Managers' Financial Integrity and Chief Financial Officers Acts.

Facilities. For FY2003, the President requested $24.6 million in ORF funding for NOAA facilities, which is $5.5 million, or 28.8%, greater than FY2002 appropriations of $19.1 million.

Facilities Maintenance, Repairs, and Safety. Funding of $12.0 million would be used to improve the physical infrastructure of administrative buildings and facilities in which NOAA researchers and other employees work. This funding is slightly more than FY2002 appropriations of $11.9 million, and provides for repairs and rehabilitation of NOAA employee facilities, for land acquisition for NOAA-owned facilities, and rent for GSA-owned facilities. In addition, it is to be used to meet employee health and safety requirements at NOAA administrative buildings, specialized laboratories, and remote observatories that support the agency's mission. Specific project funding includes $0.7 million requested for NOAA's Western Regional Center in Seattle, WA, which NOAA claims is in a state of disrepair, and another $4.5 million was requested for Boulder [CO] facilities. A decrease of $3.4 million in FAC funding was requested because of a proposed transfer of the NOAA Columbia River Facilities to NMFS.

Environmental Compliance and Project Planning and Execution. The President requested $12.6 million for environmental compliance at NOAA facilities and facility operations and planning. Of this total, $2 million was requested for general environmental cleanup obligations at NOAA facilities. In addition, $10 million was requested under project planning for NOAA's responsibility for Pribilof Island Cleanup, which is required by P.L. 104-91. Funding for this arctic environmental restoration program is $4.0 million more than FY2002 appropriations. The President proposed to transfer the balance of funds for this activity from Program Support PAC account to the ORF account. Funding of $0.6 million was requested for an Energy Management program "to reduce NOAA facility operating costs through actively pursuing energy commodities at competitive prices, identifying and implementing energy-savings opportunities, and applying renewable-energy technologies and sustainable designs at NOAA-managed facilities." NOAA claims this program will pay for itself in 5 years.

The Office of Marine and Aviation Operations. OMAO provides NOAA with marine and aviation support services and manages its fleet of marine vessels and aircraft. For FY2003, the President requested a total of $108.8 million in ORF funding for OMAO, 21.3% more than FY2002 appropriations of $89.7 million. In addition, an adjustment to base funding of $30 million was requested for proposed increases in salaries, contracting fees, and rent payments. Of that amount, $5.9 million would be provided for CSRS retirees' pay. For FY2003, the President requested Congress to authorize expanded funding reserves in the "NOAA Corps Retirement Account." These extra reserves, NOAA claims, would be used to cover the growing costs of NOAA Corps retirees' benefits. A new accounting and financial management plan for this fund would also include mandatory health care benefits for retired officers, who are not old enough to receive Medicare benefits. This fund would also be used to administer retirement pay for civilian NOAA Corps personnel. In addition, the President requested nearly $37 million for retired NOAA Corps officer pay.

Marine Operations and Maintenance. ORF funding of $86 million was requested to operate and maintain NOAA's current fleet of 16 marine research vessels. Further, $0.8 million was requested to hire and train 15 additional NOAA Corps Officers, which pilot NOAA marine vessels and aircraft, to fill vacant positions and relieve active officers from extra duties and time at sea. That action would increase the number of active Corps officers to 254. The NOAA Corps also assists in search and rescue operations at sea, and the Secretary of Commerce can mandate the Corps to assist in DOD military operations in time of war.

Congress has directed NOAA to continue bidding for marine research ship time on vessels owned by the University National Oceanographic Laboratory System (UNOLS) fleet, and to form partnerships with the Office of Naval Research (ONR) and the National Science Foundation (NSF) to perform NOAA research on their marine vessels. Congress has also encouraged NOAA to acquire additional marine and hydrographic data collection services from the private sector. Currently, 50% of NOAA's marine data collection activities are outsourced. For FY2003, OMAO proposed a total of 8,216 operating days at sea, 4,440 of which would be on outsourced vessels. Total funding requested for Marine Services support for NOAA was $124 million; $67 million of that for in-house operations (O&M), and $57 million for outsourced services. Further, in-house funding would be divided between fleet O&M and Fleet Maintenance and Planning. Outsourced funding would be divided between contracts for private sector and UNOLS-hosted vessel time for research, and other contracts for hydrographic data collection.

Fleet Planning and Maintenance. A total of $12 million in ORF funding was requested for NOAA fleet planning and maintenance. Of that amount, $2.5 million was requested for additional UNOLS research ship time off the West Coast of the United States. Another $0.6 million was requested for operations of a retired Navy Vessel (AGATE PASS) that was converted by NOAA for a number of coastal research needs. Further, $4.1 million was requested to refurbish the NOAA ship FAIRWEATHER, which would collect hydrographic data needed for updating nautical charts in navigable waters of Alaska.

Aviation Operations. For NOAA, $16.8 million in ORF funding was requested to fund NOAA Aircraft Services, which entails operation and maintenance of a fleet of 13 aircraft. NOAA claims many of those aircraft are essential for 24-hour hurricane observations and severe winter storm predictions; others are used for research purposes and collection of atmospheric and environmental data. Further, $8.4 million in PAC Systems Acquisition funding was requested to upgrade remote-sensing instrumentation on one of the agency's hurricane-reconnaissance jet aircraft. NOAA claims this funding would provide new instrumentation that could generate composite maps that provide precipitation data associated with tropical storm systems and other information of importance to National Weather Service forecasters. Forecasters in turn would use that information to apprize local emergency managers about the severity of storms and flooding potential, to aid those managers in deciding whether to evacuate citizens.

Fleet Replacement. A total of $54.1 million in PAC funding was requested for fleet replacement, of which $45.5 million would be obligated to purchase the second of five new NOAA fisheries research vessels (FRV2) authorized by Congress in FY2001. FVR2 would soon replace the veteran ship ALBATROSS IV in the North

Atlantic. Another $3.2 million was requested for repair and upgrade of the NOAA ship WHITING, to extend its life 6-10 years. Terminations of $39.9 million from the PS PAC account were requested because of completed refurbishment or conversion of several NOAA ships in FY2002.

Procurement, Acquisitions, and Construction (PAC)

In FY1998, NOAA established an account to fund long-term, capital intensive expenditures called Procurement, Acquisitions, and Construction (PAC). Examples of items funded under PAC include acquiring hardware; deploying environmental satellites; developing and procuring new technologies–*e.g.*, NWS modernized weather systems; planning and constructing new NOAA facilities; and procuring new or refurbished aircraft and marine research or fishery research vessels (FRVs). PAC funding is allotted to all six NOAA line offices.

For FY2003, President Bush requested a total of $811.4 million for PAC, 3% less than the $836.6 million Congress appropriated for FY2002, and 6% greater than the $764.9 million requested by the President for FY2002 (see Table 1, p. 7.) The largest portion of PAC funding would be for Systems Acquisition, which includes funding for procurement and launch of NESDIS's satellite hardware, upgrades of "next generation" weather forecasting and warning technologies; emergency backup systems for NOAA's "critical" communications and computational infrastructure; advanced computing technology for weather and climate forecast modeling; marine research vessels and atmospheric research aircraft; and construction or major rehabilitation of various NOAA facilities, including WFOs and NOAA research labs. The President requested additional spending authority for PAC of $3.2 million for FY2003, to be derived from FY2002 fleet financing deobligations.

Systems Acquisition. For FY2003, the funding request for systems acquisition was $699.4 million, distributed among all NOAA line offices. The greatest proportion of PAC funding, $599.4 million, would be provided to NESDIS to acquire and launch POES and GOES satellite systems and to phase in the NPOESS program, for which $237 million of this funding was requested (see discussion, p. 3). Another $64.9 million was requested for NWS to develop "next generation" weather forecasting related technologies, and to engineer redundancy and physical backup of NWS systems to minimize disruption from catastrophic damages to primary telecommunications systems, losses of computational ability, or destruction of NWS Weather Forecast Offices. In addition, $10.6 million in PAC funding was requested to enhance OAR/NOAA Research data archival, management, and modeling activities.

Also, funding was included for developing NESDIS backup contingency plans, for engineering upgrades at NOAA satellite control facilities, and for developing a coastal remote sensing operations program. NESDIS proposed to develop an advanced data management system for NASA EOS data, and funding for processing, assimilating, and distributing NPOESS data. Another $24.5 million in PAC funding was requested for Program Support, including $16.1 million for Corporate Service to implement DOC's Administrative Management System within NOAA. Finally, $8.2

million was requested for OMAO for newly developed instruments for hurricane research aircraft.

Construction. Total PAC funding requested for construction was $61.1 million. Funding requested for major construction projects being planned or started in FY2003 included $20 million for construction of new NERRS and Marine Sanctuary Program (MSP) Visitors Centers. That amount includes conservation funding authorized for land acquisition to expand the reach of NERRS, MSPs, and NOAA marine protected areas. Some $17 million was requested to refurbish the Honolulu and Galveston fishery laboratory facilities. Another $10.6 million would upgrade heating and air conditioning systems at some NWS Weather Forecast Offices, and $13.4 million would be for building improvements at the Fairbanks, AK, satellite Command and Data Acquisition (CDA), and Suitland, MD, Satellite Command and Control facilities.

Fleet Replacement. Total PAC funding requested for updating the NOAA marine fleet for FY2003 was $54.1 million, $45.4 million of which would be used to purchase a new Fisheries Research Vessel. Other funding would be provided to commission a converted retired Navy vessel for NOAA research use.

NOAA's Other Accounts and Mandatory Funding

Additional spending authority for various NOAA programs and mandatory funding is provided from Other Accounts, which include the Pacific Coastal Salmon Recovery Fund (PCSR); the Coastal Zone Management Fund (CZMF); the Promote and Develop American Fisheries Products Fund (PDAF); and the Environmental Improvement and Restoration Fund (EIRF), as well as a number of additional fishery-related accounts. NOAA also has Mandatory Funding obligations such as paying retired NOAA Corps officers and, for FY2003, the President requested Congress to provide federal agencies with funding to manage CSRS retiree benefits.

For FY2003, the President requested $114.1 million for NOAA's Other Accounts. This total includes $75 million that would be transferred to ORF from NOAA's Promote and Develop American Fisheries Fund (PDAF), after which $4.1 million would remain in the PDAF for industry grants. Another $3 million would be transferred to NOS's ORF account from the Coastal Zone Management Fund to cover costs of implementing the 1972 Coastal Zone Management Act. The President also requested a total of $90 million for the Pacific Coastal Salmon Recovery Fund for FY2003,[8] and $20 million for NOAA obligations under the U.S.-Canada Pacific

---

[8] "Through FY '02, $258 million has been appropriated for the [PCSR] fund. It has funded 800 projects ... related to salmon habitat restoration, planning and assessment, research and monitoring, enhancement, outreach and education," testimony of Donald Knowles, Director, NOAA Office of Protected Resources, before the Senate Commerce Subcommittee on Oceans, Atmosphere and Fisheries, May 14, 2003, on legislation to authorize the Secretary of Commerce to provide funds to Northwest Pacific states and tribes for salmon habitat restoration.

According to NOAA, total Pacific salmon funding (including treaty funding) requested

(continued...)

Salmon Treaty. The President also requested $1.1 million for other fishery-related accounts used to fund different NOAA programs that support the U.S. fishing industry. Those include U.S. international fishery treaty obligations, industry insurance financing, and potential liabilities for damages incurred while on non-NOAA marine vessels, or damages to other non-NOAA property, such as fishing gear.

There are additional sources of spending authority for NOAA which are not scored as discretionary spending, but are mandatory obligations required by federal law. Those include the Environmental Improvement and Restoration Fund (EIRF) that collects user fees from petroleum industries operating offshore to offset the potential costs of oil and hazardous material releases. Those fees are used to offset costs of response, damage assessment, and restoration of marine natural resources and habitats. For FY2003, budget authority of $11.1 million would be provided from the EIRF and transferred to ORF for damage assessment activities conducted by NOS and NMFS. Other mandatory obligations include the Coastal Zone Management Fund (CZMF) offsetting collections, a portion of which is transferred to NOS; the USDA to NOAA PDAF transfer; the NOAA Corps Officers Retirement Fund, transferred to the U.S. Coast Guard; and a proposal to fund NOAA CSRS retirement pay. For FY2003, total mandatory spending requested for NOAA was $123.9 million.

Congressional Appropriations for FY2003

The House Appropriations Subcommittee on Commerce, State, Justice, the Judiciary, and Related Agencies held hearings on the President's FY2003 budget request for NOAA on March 14, 2002.[9] Constitutionally, all appropriations legislation is introduced by the House of Representatives; however, as of this date, no House appropriations bill for CJS appropriations has been filed.

The U.S. Government is currently operating under a 5th continuing resolution until January 11, 2003 (H.J.Res. 124). Some congressional officials have indicated the House Appropriations Committee may take up CJS Appropriations for FY2003, when the 108th Congress convenes. That not withstanding, on July 24, 2002, the Senate Committee on Appropriations reported S. 2778, its version of CJS Appropriations for FY2003 (S.Rept. 107-218). (See Table 1, p. 7.) The committee's recommendations include a total of $3.35 billion for NOAA, which is $216.7 million, or about 4.4%, more than the President's request of $3.21 billion for FY2002, and almost 7.0% more than the FY2002 funding level of $3.13 billion. FY2003 ORF funding levels approved

---

[8] (...continued)
for FY2003 is $195.9 million, 18.1% less than FY2002 appropriations of $231.3 million. The FY2003 amount includes $78.4 million in base funding for NMFS.

[9] Department of Commerce, Justice, and State, the Judiciary and Related Agencies Appropriations for FY2003: Hearings before a Subcommittee of the Committee on Appropriations. House of representatives. 107th Cong., 2nd Session. Subcommittee on the department of Commerce, Justice, and State, the Judiciary, and Related Agencies. Part 5, National oceanic and Atmospheric Administration. Washington, D.C., GPO: 2002. pp. 247-352.

by the Committee would be $2.337 billion, including $78.2 million in transfers from Other Accounts. ORF funding would be divided as follows:

- $403.5 million for NOS;
- $587.9 million for NMFS;
- $395.7 million for OAR;
- $682.0 million for NWS;
- $133.8 million for National Environmental Satellite Data and Information Service; and
- $202.9 million for Program Support, including $89.5 million for Corporate Services, $95.9 million for the Office of Marine Aviation Operations, and $17.5 million for Facilities.

Total appropriations recommended for PAC for FY2003 would be $903.4 million, and divided as follows:

- $102.4 million for NOS;
- $24.0 million for NMFS;
- $17.1 million for OAR;
- $66.8 million for NWS;
- $608.6 million for NESDIS; and
- $84.5 million for Program Support.

The Committee approved a total of $110.1 million for NOAA's Other Accounts including: 1) $95 million for the Pacific Coastal Salmon Recovery Fund ($5.0 million more than the President's FY2003 request); 2) $20 million for Pacific Salmon Treaty obligations; 3) $1.4 million for various fishery accounts; 4) a transfer of $3.0 million to ORF from CZMF; and 5) a $3.0 million cut for fisheries financing.

The reported version of S. 2778 requires the National Sea Grant College Program to remain in NOAA, funded at $63.4 million for FY2003. Conservation spending approved for FY2003 would be $480 million, with $264.5 million of that intended for ORF; $100.5 million for PAC, and $115 million for Pacific coastal salmon funding. In addition, the bill would provide $20.0 million for exploration of the world's oceans, $6.0 million more than FY2002 levels; create a new initiative, Ocean Health, funded at $10 million; provide $1 million to establish a NEPA office in NMFS, and encourage NOAA to improve its fisheries management capabilities; provide $4.0 million for NOAA responsibilities under the National Invasive Species Act; and to encourage NOAA to develop plans for a national system of ocean observation platforms, including a relocatable underwater laboratory/habitat to be deployed in the Florida Keys. The Committee further approved $2.0 million for Arctic Research; would provide $14 million for minority colleges and universities to train future scientists; provide $3.5 million for fisheries and shellfish restoration in the Chesapeake Bay; and establish a Business Management Fund in NOAA.

The Committee did not approve $18 million requested for NOAA's part in the President's Climate Change Research Initiative (CCRI), but instead it noted its support for climate research activities being conducted under the U.S. Global Change Research Program. The report did not address the proposed NOAA"Energy Initiative," but would provide a $23.2 million increase for homeland security programs, including

NWS weather and climate supercomputing backup, and for other programs in NESDIS recommended under the President's Critical Infrastructure Protection Initiative. Further, the report addresses the President's proposal to transfer financial responsibilities for CSRS and retiree health benefits for all civilian employees to federal agencies. The Senate Appropriations Committee noted that because the Senate Government Affairs Committee, which has authorizing jurisdiction over such matters, had not considered the proposal, funding tables in S.Rept. 107-218, exclude amounts proposed for those benefits. S. 2778 is under consideration of the full Senate.

P.L. 107-206–FY2002 Supplemental Appropriations

This law provides emergency supplemental appropriations for homeland security activities in NOAA and in other agencies. The President signed H.R. 4775 into law on August 2, 2002. The origins of this funding for NOAA were in S. 2551. However, no funding for NOAA had initially been included in the original House version of H.R.4775. On June 3, 2002, S. 2551 was incorporated into H.R. 4775 as an amendment in the nature of a substitute bill. On July 19, 2002, conferees reported out H.R. 4775, the *Homeland Security Emergency Supplemental Appropriations Act for FY2002* (H.Rept. 107-593).

Appropriations for NOAA under this Act totaled $33.5 million, including $4.8 million in ORF funding for homeland security expenses incurred by the agency in FY2002. Of the funding provided for ORF, $2.0 million was targeted for the National Ocean Service to address critical mapping and charting backlog requirements, and $2.8 million was targeted for the National Environmental Satellite Data and Information Service to develop a backup capability for NESDIS, so it could continue to provide critical satellite products and services of importance to the National Weather Service. Other funding of $2.5 million was provided to NOAA for a coral reef mapping program, and $25.1 million would be slated for various fishery programs in New England. In addition, the National Weather Service received $7.2 million for a supercomputer backup, for weather-climate interaction research to be funded under NOAA's Procurement, Acquisition, and Construction account. The original S. 2551 had proposed an $8.1 million rescission from funding provided for NPOESS in FY2002. Instead, when H.R. 4775 (amended) was enacted, the $8.1 million was rescinded from funding authorized under §817 of P.L. 106-78, the Norton Sound Fisheries Agriculture Transfer.

NOAA Authorization

NOAA does not have a single "organic act" that statutorily mandates funding for the agency as a whole be authorized on a regular basis. The National Weather Service, a line office of NOAA, does have an Organic Act (15 U.S.C. § 313) which dates back to the early 1800s. The closest thing to an agency-wide authorization for NOAA occurred in the National Oceanic and Atmospheric Administration Authorization Act

of 1992 (15 U.S.C. 313 note),[10] where funding for all of the agency's "dry" programs were reauthorized through FY1995. Title VI also included the specifics for implementing a "NWS Weather Modernization Initiative," and §108 created the U.S. Weather Research Program (USWRP).

While the President's annual request for NOAA funding is considered by both the House and Senate CJS Appropriations subcommittees, budget authority for various NOAA programs falls under the jurisdiction of the House Science and Resources Committees, and the Senate Committee on Commerce, Science, and Transportation. Historically, NOAA's "wet" and "dry" programs have been authorized under separate legislation.

In the House, funding for most of NOAA's dry programs are authorized by the Science Committee, whose jurisdiction includes NWS, NESDIS, and most atmospheric oceanic research programs under OAR. Jurisdiction over "wet" programs is divided between the House Committees on Science and Resources, which report separately on NOAA appropriations bills that fund ocean and coastal conservation programs, hydrographic (marine mapping and charting) data , marine science and fisheries.

This split jurisdiction has occasionally led to confusion and debate about which committee has legal authority over the budgets of what NOAA programs. In general, the House Resources Committee has claimed jurisdiction over: 1) most commercial fishery and marine resources-related programs, marine species conservation and protection (NMFS); 2) marine navigation-related programs, including hydrographic surveys, hydrographic data collection, and nautical charting (NOS); and 3) the Coastal Zone Management Act (NOS). The House Science Committee has claimed jurisdiction over Ocean, Coastal, and Great Lakes Research (OAR). The two committees have shared jurisdiction over the National Sea Grant College Program. The Commerce, Science, and Transportation Committee of the Senate has jurisdiction over legislation authorizing both NOAA "wet" and "dry" programs; however, legislation is considered by different subcommittees along the same lines as the House.

As a consequence of not having a single organic act governing the entire agency, several different public laws authorize funding for NOAA programs, and they may be reauthorized in different years. Table 8, below, lists those public laws whose authorizations and appropriations for NOAA programs are due to expire at the end of FY2002, or have already expired.

However, the original law which created the program does not itself expire; the most current act which authorizes funding for the program does. Congress may authorize funding annually for any government program in an appropriations bill. This commonly occurs after a particular reauthorizing act has expired and until a new one is passed.

Legislation that would reauthorize specific NOAA programs was enacted in the 107th Congress and is summarized briefly below. Additional details on these bills, including authorized funding levels, if any, may be found on Congress's Legislative Information System (LIS) website: [http://www.congress.gov/].

---

[10] Title VI, of P.L. 102-567, The NASA Authorization Act of 1992.

Table 8. NOAA Budget Authority Expired, or Expiring as of 9/30/2002.

Appropriations and FY'03 Request ($ millions)	FY2002 Enacted	FY2003 Request
NMFS – Endangered Species Act, P.L. 100-478 (expired 9/92)	101.5	110.8
Marine Mammal Protection Act, P.L. 103-238 (expired 9/99)	31.7	30.8
Magnuson-Stevens Fisheries Conservation and Mgmt. Act, P.L. 104-297 (expired 9/99)	251.6	277.4
NOAA Marine Fisheries Program Authorization Act	188.2	163.3
Interjurisdictional Fisheries Act	3.2	3.2
Anadromous Fishery Conservation and Management Act	3.1	2.4
CJS Appropriations FY2002, P.L. 107-77*	37.2	17.0
CSRS FY2003 Legislative Proposal**	–	15.5
NOS – Coastal Zone Management Act, P.L. 104-150	139.2	120.7
Harmful Algal Bloom and Hypoxia Research and Control Act of 1988, P.L.105-383	14.1	14.1
Hydrographic Services Improvement Act, P.L. 105-384	120.2	119.1
CJS Appropriations FY2002, P.L. 107-77*	79.1	2.5
CSRS	–	6.8
OAR – CJS Appropriations FY2002, P.L. 107-77*	53.2	32.4
CSRS		6.1
NWS – CJS Appropriations FY2002, P.L. 107-77*	70.7	75.6
CSRS	–	28.4
NESDIS – CSRS	–	6.2
PS/Corporate Services – CJS Appropriations FY2002, P.L. 107-77*	89.0	95.9
CSRS		0.1
Office of Marine and Aviation Operations	14.7	25.2
CSRS		9.0
Facilities – CJS Appropriations FY2002, P.L. 107-77*	13.1	14.1
CSRS	–	0.5
Grand Totals	**$1,209.8**	**$1,177.1**

Source: Table prepared by CRS with data from FY2003 NOAA *Budget in Brief*.
Table notes:
* FY2002 Commerce, Justice, State, and the Judiciary and Related Agencies Appropriations Act, congressional add-ons.
**Civil Service Retirement System – FY2003 legislative proposal to transfer obligations to federal agencies.

P.L. 107-299 (H.R. 3389), the National Sea Grant College Program Act Amendments of 2002. This legislation, as passed by the House, would retain the National Sea Grant College Program within NOAA, rather than transferring it to NSF as the President had proposed. The bill sets total authorization levels of $400 million for that program for FY2003-FY2008. It contains congressional direction about encouraging cooperative work among Sea Grant, NOS's Coastal Oceans Program (COP), and NSF. In addition, it authorizes funding for COP for FY2003, and directs that a portion of Sea Grant funding be awarded on a merit and competitive basis, for which total funding of $75 million would be authorized for FY2004-FY2008. Another $130 million would be authorized for "Coastal Ocean Research." In addition, the bill calls for a report on the progress of colleges/organizations applying for Sea Grant College Status.

H.R. 3389 was introduced on November 30, 1991, and was referred to the House Committees on Resources and Science. The bill was reported (amended) by the House Committee on Resources on March 7, 2002 (H.Rept. 107-369, part I), and was reported (amended) by the House Committee on Science on April 15, 2002 (H.Rept. 107-369, part II). The bill passed the House 407-2 on June 19, 2002 and was then sent to the Senate where it was read twice and placed on Senate Legislative Calendar No. 463. H.R. 3389 passed the Senate on October 11, 2002 (amended) by unanimous consent. The House agreed to the Senate amendment by voice vote on October 12, 2002, and the Act was cleared for the White House. The president signed the Act into law on October 26, 2002 as P.L. 107-299.

P.L. 107-253 (H.R. 2486), the Inland Flood Forecasting and Warming System Act of 2002, authorizes appropriations for the Secretary of Commerce through the U.S. Weather Research Program (USWRP), established by §108 of the National Oceanic and Atmospheric Administration Authorization Act of 1992 (15 U.S.C. 313 note), for [flooding] research and modeling, and to develop, test, and deploy a new flood warning index. Total funding of $6.05 million would be authorized for FY2003 through FY2005, of which $4.5 million would be provided to develop "forecasting and warning systems for inland flooding related to tropical cyclones," and an inland flood warning index to characterize risks and dangers of potential flooding. In addition, $1.55 million would be provided for competitive grants to universities to aid in this effort. This bill also requires interagency planning and coordination of flooding research with the NSF, NASA, and other appropriate federal agencies. A Jackson-Lee amendment (H.Amdt. 526) agreed to July 11, 2002, provides $100,000 of total funding, "to assess through research and analysis long-term trends in frequency and severity of inland flooding; and how shifts in climate, development, and erosion patterns might make certain regions vulnerable to more continual damage in the future."

H.R. 2486 was referred to the House Committee on Science on July 12, 2001, and subsequently to the Subcommittee on Environment, Technology and Standards. On December 12, 2002, the subcommittee held a mark up session and forwarded the bill to the full Committee (amended) by voice vote. The House Committee on Science reported H.R. 2486 (amended) on June 5, 2002 (H.Rept. 107-495). On July 11, 2002, the title of the measure was amended, and the bill (amended) passed the House 413-3. It was then sent to the Senate Committee on Commerce, Science, and Transportation. On September 19, 2002 the committee ordered the measure reported favorably without amendment, with written report (S.Rept.107-310). On October 16, H.R. 2486 passed the Senate by

Unanimous Consent, and the measure was sent to the President. The President enacted H.R. 2486 as P.L. 107-253 on October 29, 2002.

H.R. 4883 (Young), the Hydrographic Services Improvement Act Amendments of 2002, including provisions of H.R. 4882, the National Oceanic and Atmospheric Administration Commissioned Officer Corps Act of 2002. Title I of this bill would reauthorize the Hydrographic Services Improvement Act of 1998 (33 U.S.C. 892), authorizing $885.5 million in total funding for FY2003- FY2007, including $50 million for homeland security-related projects. The bill would amend the original act to direct the Administrator of NOAA to "design, maintain, and operate real-time hydrographic monitoring to enhance navigation safety and efficiency." In addition, H.R. 4883 calls for a NOAA plan for contracting with the private sector for additional services including photogrammetry (aerial photography), remote sensing, geospatial reference services for marine navigation, and hydrographic surveys. Further, the bill would call for a cost effectiveness study comparing NOAA National Ocean Service hydrographic data collection and other hydrographic services with those of the private sector.

Title II of H.R. 4883 (originally H.R. 4882, a stand alone bill, later incorporated into H.R. 4883), would revise and modernize provisions of law governing NOAA's commissioned officer corps (NOAA Corps), and authorize the number and position of active Corps officers from FY2003-FY2008. Title II addresses personnel matters of the NOAA Corps including: 1) appointment and appropriation of officers, 2) separation and retirement of officers (computation of retired pay), 3) transfer of officers to active military duty in time of war or national emergency, 4) rights and benefits of NOAA Corps officers (veterans benefits and medical and dental care), and 5) repeal or amendment of previous laws affecting the NOAA Corps. If enacted, Title II would supercede the Coastal and Geodetic Survey Commissioned Officer Corps Act of 1948 (33 U.S.C. 853a *et seq*). No funding for the NOAA Corps is authorized under this title.

H.R. 4883 was introduced on June 6, 2002, and was referred to the House Committee on Resources, and was then referred to the Subcommittee on Fisheries Conservation, Wildlife and Oceans, which held a mark up session on June 20, 2002. The bill was forwarded to the full Committee by unanimous consent with provisions of H.R. 4882 incorporated into H.R. 4883 as Title II of that bill. The full Committee held a mark up session on H.R. 4883 on June 26, 2002, and reported the bill (amended) on July 26, 2002 (H.Rept. 107-621). On November 15, 2002, the measure was considered, and passed the House without objection. On November 20, 2002, the measure passed the Senate without amendment by unanimous consent; and was cleared for the White House. No further action has been reported to date.

NOAA Research and Development (R&D) Funding

Historically, the annual request for R&D funding for NOAA has not appeared as a line item in either the President's annual budget submission, NOAA budget justification documents, or congressional appropriations documents in any given fiscal year. In the FY2003 Budget in Brief, however, NOAA included a table of total R&D funding requested for each of its ORF line offices. Alternatively, an "R&D crosscut analysis" has been prepared annually as an internal document by NOAA's Office of Financial

Administration (OFA), and submitted to OMB prior to the President's annual budget release. That first R&D crosscut, referred to as "the Congressionals," is submitted to OMB when final congressional appropriations for the current fiscal year are known, usually by December. Request figures for the upcoming fiscal year are preliminary, however. Those will be updated after federal agencies receive budget "passbacks" from OMB, and final request amounts for NOAA are decided upon. For more information on federal R&D funding requested for FY2003, see CRS Issue Brief IB10083, *Research and Development Funding: Fiscal Year 2003.*

For FY2003, President Bush requested $574.8 million for NOAA R&D[11] (See Table 9, below). This is 18% of the $3.21 billion in total appropriations requested for the agency. The request was 27.4% less than FY2002 R&D appropriations of $792 million, and 15.9% less than FY2001 appropriations of $684 million.

Table 9. NOAA R&D Funding Requested for FY2003
($Millions)

	FY'01 Actual	FY'02 Request	FY'02 Approp.	FY'03 Request
NOS	56	64	61	55
NMFS	254	298	302	122
OAR	257	269	314	284
NWS	20	23	28	28
NESDIS	9	13	12	11
PS	8	9	66	66
OMAO (FM&P)	6	8	9	9
Total R&D*	**$610**	**$684**	**$792**	**$575**

Source: NOAA Office of Financial Administration (OFA), January 11, 2002.
Table note:
*After FY2000, R&D facilities funding is indistinguishable from other facilities funding and is included as part of the annual ORF and PAC totals for the agency.

Of NOAA's R&D funding requested for FY2003, 37% would go to Oceanic and Atmospheric Research (OAR), which conducts research at 12 environmental research labs (ERLs), other NOAA R&D facilities, and joint institutes that support NOAA operational programs in weather, climate, atmosphere, and oceanic, coastal and Great Lakes research. OAR also extends extramural grants for states, institutions, and individuals through the National Sea Grant College, the National Underwater Research (NURP), and the nascent Ocean Exploration program. NMFS would receive almost 40% of total R&D funding for fishery and endangered marine species research. OAR and

[11] NOAA-OFA estimated totals for R&D requested for FY2003 were provided 12/31/2001.

NMFS together would receive 77% of all NOAA R&D funding requested for FY2003, and extramural grants would account for 15% of that.

A reduction for R&D in the FY2003 request can primarily be attributed to three major factors: 1) The President proposed to transfer the Sea Grant Program to NSF, which would decrease R&D funds for Ocean, Coastal, and Great Lakes programs (OAR) by $34 million; 2) OFA required an actual accounting of R&D requested for NMFS; in prior years that request was estimated by use of a formula; and 3) a new accounting method for R&D expenditures, included in the FY2003 request, changes former practices as follows:

- Operations and maintenance at R&D facilities is funded by the ORF Facilities account;
- Planning and constructing new facilities at which R&D may be conducted is funded by the PAC Construction account;
- Procurement of major equipment and instrumentation that may be used in R&D programs is funded under PAC Systems Acquisitions;
- Instrumentation and equipment used by individuals performing R&D is funded by individual ORF research programs; and
- New aircraft and marine vessels used for NOAA research are procured with PAC funding under OMAO (Program Support).

The rationale behind these accounting changes stems from the NOAA budget office's determination that NOAA facilities, equipment, and vessels are used for more than R&D programs alone, support other NOAA-wide research missions, and are only incidental to the conduct of R&D at the agency. Consequently, for FY2003, NOAA's Office of Financial Administration (OFA) decided it would no longer score those functions as R&D expenditures, as it may have done in previous years. One exception, however, was marine data acquisition, which is funded under OMAO Marine Services (ORF), and whose funding is included in the R&D request total.

Highlights of the FY2003 R&D request included funding of $21 million proposed for NMFS fishery resource information, collection, and analysis; and slight increases for research grants to states for endangered species conservation and management programs (NMFS). Other R&D funding increases were requested for Climate and Observation Services (OAR); operations and research for Central Forecast Guidance (NWS); the U.S. Weather Research Program (OAR); the Ocean Exploration Initiative (OAR); and Aircraft Services (Program Support). A decrease in PAC funding for R&D on Satellite Observation Systems was proposed; however, the amount in question would be reprogrammed to ORF (NESDIS). Because no House CJS Appropriations bill for FY2003 has been introduced to date, and the U.S. Government is operating under a continuing resolution until January 11, 2003, it would be difficult for NOAA to assess how it would allocate funding for R&D for FY2003. Another factor is P.L. 107-299 which restores the National Sea Grant Program under the NOAA Research budget line (see Authorizations, p. 39). The President did not request funding for this program which constitutes a significant portion of NOAA Coastal, Ocean and Great Lakes research, for FY2003. Operating at FY2002 funding levels, the agency technically would have additional spending authority of $217 million, or 27.4%, for R&D, than that which was proposed by the President for FY2003.

Appendix: Acronyms

AHPS	Advanced Hydrological Prediction Service (NWS)[12]
ASOS	Automated Surface Observing System (NWS)
AOML	Atlantic Oceanographic and Meteorological Lab (OAR)
AWIPS	Advanced Weather Interactive Processing System (NWS)
CAMS	Commerce Administrative Management System (DOC)
CCRI	Climate Change Research Initiative (White House)
CDA	[Satellite] Command and Data Acquisition Facility (NESDIS)
CFG	Central Forecast Guidance (NWS)
CIP	Critical Infrastructure Protection/Homeland Security Initiative (DOC)
CJS	Commerce, Justice, State, the Judiciary, and Related Agencies Appropriations Act
CLASS	Comprehensive Large-Array [data] Stewardship System (OAR)
COP	Coastal Ocean Programs (NOS)
COS	Coastal Ocean Science (NOS)
CSRS	Civil Service Retirement System (White House–OPM)
CS	Corporate Services (Program Support for NOAA Headquarters)
CZMA	Coastal Zone Management Act of 1972
CZMF	Coastal Zone Management Fund–established by CZMA
DMSP	Defense Meteorological Satellite Program (DOD/NWS)
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
EEZ	U.S. Exclusive Economic Zone (DOC)
EIRF	Environmental Improvement and Restoration Fund (NOS/NMFS)
EMC	Environmental Modeling Center (NWS)
ENSO	El Niño-Southern Oscillation
EOS	Earth Observing System (NASA)
EPPMSI	Educational Partnership Program with Minority Serving Institutions
ERL	Environmental Research Lab system (OAR)
ESOS	Environmental Satellite Observing Systems (NESDIS)
EUMETSAT	European Space Agency Meteorological Satellite
FAC	NOAA Facilities Account (Program Support)
FRV	Fishery Research Vessel (NMFS)
FSL	Forecast Systems Lab for Numerical Meteorological Modeling (NWS)
GFDL	Geophysical Fluid Dynamics Lab for Climate Modeling (OAR)
GLERL	Great Lakes Environmental Research Lab (OAR)
GOES	Geostationary Orbiting Environmental Satellite (NESDIS)

[12] The acronyms in parentheses at the end of some entries indicate either NOAA line office or other executive agency.

GPRA	Government Performance and Results Act of 1993
GSA	General Services Administration
HPCC	High Performance Climate Computing Initiative (OAR)
MPA	Marine Protected Area (NOS)
MSP	Marine Sanctuaries Program (NOS)
NASA	National Aeronautics and Space Administration
NCDC	National Climatic Data Center (NESDIS)
NCEP	National Centers for Environmental Prediction (NWS)
NCO	NCEP Central Operations (NWS)
NDC	National Data Centers (NESDIS)
NEPA	National Environmental Policy Act of 1970
NERRS	National Estuarine Research Reserve System (NOS)
NESDIS	National Environmental Satellite Data and Information Service
NEXRAD	Next Generation Doppler Weather Radar (NWS)
NGDC	National Geophysical Data Center (NESDIS)
NMFS	National Marine Fisheries Service
NMS	National Marine Sanctuaries Program (NOS)
NOAA	National Oceanic and Atmospheric Administration
NOAA Corps	NOAA Commissioned Officer Corps (OMAO)
NODC	National Ocean Data Center (NESDIS)
NOS	National Ocean Service
NPOESS	National Polar Orbiting Environmental Satellite System (NESDIS)
NSF	National Science Foundation
NSRS	National Spatial Reference System (NOS)
NSSL	National Severe Storms Lab (OAR)
NSTC	National Science and Technology Council (White House–OSTP)
NURP	National Underwater Research Program (OAR)
NWR	NOAA Weather Radio (NWS)
NWS	National Weather Service
O&M	Operations and Management (NOAA-wide)
OAP	Oceans Assessment Program (NOS)
OAR	Oceanic and Atmospheric Research, also called “NOAA Research”
OCGLRP	Ocean, Coastal, and Great Lakes Research Program (OAR)
OGP	Office of Global Programs (OAR)
OMAO	Office of Marine and Aviation Operations (Program Support)
ONR	Office of Naval Research (U.S. Navy)
OPM	Office of Personnel Management (White House)
ORCA	Ocean Resources Conservation Assessment (NOS)
ORF	NOAA Operations, Research and Facilities Budget Account
OTHER	NOAA programs not directly funded under ORF or PAC
PAC	NOAA Procurement, Acquisition, and Construction Budget Account
PCSRF	Pacific Coastal Salmon Recovery Fund (Other Accounts)
PDAF	Promote and Develop American Fisheries /Saltonstall-Kennedy Funds
POES	Polar Orbiting Environmental Satellite (NESDIS)
PPD	[Satellite] Product Processing and Distribution (NESDIS)

PS	NOAA Program Support
R&D	Research and Development
RFC	River [stage] Forecast Center (NWS)
SCC	Satellite Command and Control facility (NESDIS)
SEC	Space Environment Center (OAR)
SOS	Satellite Observing Systems (NESDIS)
UNOLS	University National Oceanographic Laboratory System (NSF/NRL)
USDA	U.S. Department of Agriculture (See PDAF)
USGCRP	U.S. Global Change Research Program (NSTC)
USWRP	U.S. Weather Research Program (OAR)
VMS	Vessel Management System (NMFS)
WFO	Weather Forecast Office (NWS)