U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

HEARING CHARTER

An Overview of the National Oceanic and Atmospheric Administration and the Environmental Protection Agency Budgets for Fiscal Year 2013

Tuesday, March 6, 2012
2:00 p.m. to 4:00 p.m.
2318 Rayburn House Office Building

PURPOSE

On Tuesday, March 6, 2012 at 2:00 p.m. the Subcommittee on Energy and Environment of the House Committee on Science, Space, and Technology will hold a hearing to examine the Administration's Fiscal Year 2013 budget requests for the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency's (EPA) Science and Technology (S&T) Programs.

WITNESSES

Panel I
Dr. Jane Lubchenco, Administrator**,** National Oceanic and Atmospheric Administration

Panel II
Mr. Lek Kadeli, Acting Assistant Administrator, Office of Research and Development (ORD), U.S. Environmental Protection Agency

BACKGROUND

National Oceanic and Atmospheric Administration

The President's fiscal year (FY) 2013 budget request for the National Oceanic and Atmospheric Administration (NOAA) is $5.06 billion, a 3.1 percent increase above the FY 2012 levels.

NOAA's core mission and activities include weather forecasting, climate prediction, and management of fisheries, coastal and ocean resources, as well as cross-cutting research to support and advance these operational areas. NOAA carries out this mission through five major line offices:

- National Ocean Service (NOS), responsible for mapping and charting coastal areas and providing other navigation support services.
- National Weather Service (NWS), responsible for weather forecasts and warnings.
- National Environmental Satellite, Data and Information Service (NESDIS), responsible for development and operation of satellites that monitor and transmit data for weather forecasting, climate prediction, space weather forecasting, and earth and ocean science research.
- Office of Oceanic and Atmospheric Research (OAR), responsible for research in support of most NOAA missions including atmospheric, coastal, and oceanic sciences, climate and air quality research, ecosystem research, and fisheries and marine mammal research.
- National Marine Fisheries Service, responsible for stewardship of living marine resources through the conservation, management, and promotion of healthy ecosystems.

Table 1 shows the primary accounts or line offices of the agency's budget. The FY 2013 budget request includes increases above FY 2012 enacted levels for the Office of Oceanic and Atmospheric Research (OAR), the National Environmental Satellite, Data and Information Service (NESDIS) and Program Support (PS).

The Administration's budget proposes to decrease funding for National Ocean Service (NOS), the National Weather Service (NWS), and the National Marine Fisheries Service (NMFS).

Table 1: NOAA FY 2012 Budget Request (dollars in millions)

Account	FY11 Enacted	FY12 Enacted	FY13 Request	FY13 Request versus FY12 Enacted	
				$	%
National Ocean Service*	550.2	490.0	478.1	(11.9)	(2.4)
Oceanic and Atmospheric Research	427.0	384.7	413.8	29.1	7.6
National Weather Service	976.5	991.9	972.2	(19.7)	(2.0)
National Environmental Satellite Data Information Service	1,444.1	1,877.8	2,041.4	163.6	8.7
National Marine Fisheries Service**	967.5	895.0	880.3	(14.7)	(1.6)
Program Support	490.2	467.1	476.8	9.7	2.1
Totals:	**4,596.9**	**4,906.6**	**5,060.5**	**153.9**	**3.1**

* Jurisdiction of the NOS line office is shared with the Natural Resources Committee.
** NMFS is solely in the jurisdiction of the Natural Resources Committee.

NOTE: As of March 5, 2012, NOAA had not delivered its detailed congressional budget justifications to the Committee. The figures in this charter are taken primarily from the NOAA "Blue Book" chapters of the request. As a result, baseline funding and program percentage increases and decreases are not available for many activities.

National Weather Service (NWS)

NWS provides weather, hydrologic, and climate forecasts and warnings for the United States, adjacent waters, and ocean areas, and maintains a national infrastructure of observing systems that gather and process data worldwide from the land, sea, and air.

The FY 2013 request for NWS is $972.2 million, a decrease of $19.7 million, or 2.0 percent, below FY 2012 levels. The Administration is requesting a $36.1 million decrease for the NWS Operations, Research and Facilities (ORF) accounts and $6.3 million increase for the NWS Procurement, Acquisitions and Construction (PAC) accounts.

A substantial amount of the decrease is attributed to the Local Warnings and Forecast account. The Administration is proposing to implement efficiencies by establishing regional Information Technology (IT) collaboration units. According to the budget, these regional support teams would reduce the number of Information Technology Officers (ITO) from 122 (one ITO in every forecast office) to a total of 24 across all NWS regions. With technological improvements such as the Advanced Weather Interactive Processing Systems (AWIPS), NWS hopes to fulfill many of the responsibilities assigned to ITOs remotely.

There are several other programs proposed for elimination or substantial reductions. The Administration is zeroing out funding for the National Air Quality Forecasting Capability (NAQFC). This program provides air quality forecasts for ozone and particulate matter, and is used by the Environmental Protection Agency, State and local agencies to provide air quality health alerts to the public. Despite this reduction of $3.1 million, NWS will maintain the on-demand, operational forecasts for volcanic ash, smoke transport and emergency releases.

The budget request also includes a decrease of $2.4 million for the NOAA Profiler Network program. This program consists of 35 unmanned Doppler Radar sites that provide hourly vertical wind profile data. Although considered cutting edge technology in the late 1980s and early 1990s, these profilers would require substantial investment to upgrade and keep current. NOAA is proposing to retire these sites and develop new technology to generate data similar to the information provided by these profilers.

The FY13 budget request includes a decrease of $4.6 million to terminate partner funding for education and awareness programs to the National Tsunami Hazard Mitigation Program and reduce the operations and maintenance for the Deep-ocean Assessment and Report Tsunamis (DART) buoys. The FY13 budget request includes an increase of $2.4 million for the Tropical Atmosphere Ocean (TAO) Array. The TAO Array is a network of buoys that provide data that directly contributes to the prediction of El Niño and La Niña climate events. El Niño and La Niña events are disruptions of normal ocean-atmosphere systems and can lead to changing weather patterns including shifts in temperature, flooding and drought. The requested increase will go towards additional costs associated with the operations and maintenance of the network and a technology upgrade to the buoys to provide real-time transmission of the data. Another requested increase includes $7.0 million for the NWS Telecommunications Gateway. The gateway is the telecommunications hub for the collection and transmission of data and products, how NWS takes in and distributes the large amount of data generated every day. The request is to support the design and implementation of a new system architecture to support the increasing volume of observational information and weather forecast and warning information.

The budget proposes a decrease of $11 million for the "congressionally directed use of funds for the National Mesonet Network," program intended to integrate commercial and government meteorological data to improve forecasting. The budget notes that this cut is requested because "NWS receives a portion of observations from private sector networks free of charge and incorporates these data into operational weather forecast models. NOAA will collaborate with the private sector to continue such agreements." Despite NOAA's intent to work with the private sector to receive such information free of charge, it is unlikely that this arrangement will continue.

National Environmental Satellite, Data, and Information Service (NESDIS)

The President's budget request for the National Environmental Satellite, Data, and Information Service (NESDIS) is $2.041 billion, an 8.7 percent increase over FY 2012 enacted levels. The majority of this request is for procurement and acquisition under two satellite programs, the Joint Polar Satellite System (JPSS)[1] and the Geostationary Operational Environmental Satellite R-Series (GOES-R).

NESDIS Operations, Research and Facilities (ORF) Account

The ORF budget for NESDIS contains programmatic funding for management and processing of data received from all of NOAA's ground- and space-based weather monitoring equipment and is separated into three separate functions: Environmental Satellite Observing Systems; Archive, Access and Assessments; and Data Centers and Information Services. The net requested increase is $8.4 million over the FY2012 appropriation for operations.

The Administration is requesting $9.4 million to process and distribute environmental data from the Suomi NPOESS Preparatory Project (NPP) satellite mission. Suomi NPP is the first of the next generation of polar satellites launched in October 2011. Initially a research satellite intended to be a proof of concept, NPP was re-tasked as an operational satellite as continued delays and problems in the almost 20-year old polar satellite program did not yield a viable replacement for the existing polar satellites currently in orbit.

[1] This program was previously the National Polar-orbiting Operational Environmental Satellite System (NPOESS), a tri-agency program with the National Aeronautical and Space Administration (NASA) and the Department of Defense (DoD). As part of the FY2011 budget request, the Administration split NPOESS into two programs. NOAA and NASA have responsibility for the JPSS program to cover the afternoon satellite orbit. DoD has already canceled its separate polar weather satellite program for the early morning orbit.

NOAA's Data Centers have started to transition from their legacy archive storage systems to new Enterprise Archive system. This will allow data centers to deal with expanding volumes of data from satellites, weather radars, high resolution weather, ocean, and climate models, and other large data sets. The FY13 budget requests an increase of $5.8 million for the National Climatic Data Center to provide operations and maintenance of the Enterprise Archive and Access system and increase communications bandwidth to deliver large volumes of data. To offset this increase, the budget includes a decrease of $3.8 million for the National Oceanographic Data Center. The request also includes a reduction of $2 million for the Climate Database Modernization Program. This program digitizes climate and temperature data currently stored on paper and microfilm. Although paper records will be maintained, they will no longer be made accessible in a digital format. The Administration is also proposing to reduce Regional Climate Centers (RCCs) and the Regional Climate Service Directors (RCSDs) by $1.0 million. These six centers funded in partnership with the States have been providing information and products to governments and private entities for more than two decades. The proposal would have the RCSDs directly manage the NOAA contract for each of the RCCs, thereby reducing management overhead costs.

NESDIS Procurement, Acquisitions, and Construction (PAC) Account

The budget for NESDIS is dominated by acquisitions for NOAA's two weather satellite systems: the Polar-Orbiting Environmental Satellites (POES), which orbit the earth and provide information for medium to long-range weather forecasts; and the geostationary satellites (GOES), which gather data above a fixed position on the earth's surface and provide information for short-range warnings and current weather conditions. To maintain the continuity of weather forecasting data as older satellites retire, a new series of satellites are under development for both systems. The net requested increase is $153.7 million above the FY2012 appropriation for operations.

Increases and decreases in the PAC account reflect different phases of satellite acquisition. For example, there is a proposed increase of $186.4 million above the FY2012 appropriated level for the current series of GOES satellites, GOES-R, due to continued spacecraft and ground system development, and support integration, testing and delivery of the first Flight Units. The funding increase will also allow a scaling up of ground system integration and test activities. Originally scheduled for launch in 2014, GOES-R has been delayed until late-2015, and its projected cost has grown by $4.7 billion from the original estimate of $6.2 billion. The Administration now estimates the cost of the new GOES series at $10.9 billion through 2036.

The PAC account also reflects the $33.5 million requested decrease for the Joint Polar Satellite System (JPSS). The JPSS total request of $916.4 million includes funding for continuing the development of the ground system, spacecraft and instruments for JPSS-1. JPSS evolved from a tri-agency effort to develop a satellite system known as NPOESS[2]. The data and products from polar satellites are considered "mission-critical" for both civilian and military weather forecasting and climatology needs; however, the NPOESS program had major problems throughout its existence. Since 2002, oversight by Congressional committees, Government Accountability Office (GAO) reports, and independent review teams had documented problems with satellite instrumentation, cooperation among the agencies involved, and the program's life-cycle cost. GAO's most recent testimony to the S&T Committee indicated that total cost estimates for the polar satellite program had grown to more than $14 billion. However, NOAA is calculating the total life-cycle costs for JPSS to be $12.9 billion through 2024.

Due in large part to these serious management issues, schedule slips, and cost over-runs, a major restructuring of NPOESS occurred in 2010. The decision dissolved the integrated program into two separate programs: a military program managed by the Department of Defense (DoD), and a civilian program managed by NOAA/NASA. The NOAA/NASA program known as JPSS is responsible for satellites flying in the afternoon orbits while DoD satellites are responsible for the morning orbits. The DoD program, the Defense Weather Satellite System (DWSS) was cancelled in FY 2012. DoD has not announced its plans for replacing DWSS. Whatever the follow-on DoD program will be, it is expected to deliver data to the same NOAA ground system, and NOAA will

[2] NOAA, the National Aeronautics and Space Administration (NASA), and the Department of Defense (DoD) collaborated to develop NPOESS. This tri-agency effort was split into two separate programs in February 2010.

continue to operate all satellites while in orbit[3]. The United States will rely on European satellites for operational weather observations for the remaining late-morning orbit.

In addition to procuring these satellite systems, the Administration's request for JPSS includes $9.5 million to restore high priority climate sensors that were de-manifested from the NPOESS program in 2006 as a result of the Nunn-McCurdy mandated restructuring of the program.

NOAA oversees several satellite systems in addition to GOES and POES. The Deep Space Climate Observatory (DSCOVR), formerly known as Triana, requests $22.9 million, a decrease of $6.9 million, to continue refurbishment of the satellite and develop a Coronal Mass Imager (CME) to maintain continuity of solar wind data used for geomagnetic storm warnings. DSCOVR is a joint program with NASA, and NOAA has partnered with the U.S. Air Force to provide the launch vehicle and services. The JASON satellite series is managed in partnership with the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT). The JASON-3 satellite FY 2013 budget request is a $10.3 million increase over the FY 2012 level of $20 million to continue the development of this altimetry satellite that will provide data for ocean climatology and hurricane intensity forecasting. The launch of JASON-3 is scheduled for 2014, however, a launch vehicle has not yet been selected.

Oceanic and Atmospheric Research (OAR)

The office of Oceanic and Atmospheric Research (OAR) is the primary research arm of NOAA, conducting the scientific research, environmental studies, and technology development necessary to improve NOAA operations. OAR activities are carried out at NOAA and via extramural research activities at 30 National Sea Grant colleges and universities. The Administration's FY2013 budget request for OAR is $413.8 million, a $29.1 million increase above the FY2012 level. The requested increase is primarily for climate research.

Climate Research

The President's FY2013 budget request for climate research at NOAA is for $212.7 million, a $28.2 million increase above FY2012 appropriated levels. The Administration's proposal includes a request for an increase of $0.5 million for the NOAA climate portal. Another requested increase in the FY2013 budget is $1.7 million for the Climate Model Data Archive. This program is intended to develop and implement an archiving capability for next generation climate analyses currently running on supercomputers in NOAA, the National Science Foundation and the Department of Energy.

The Administration is proposing an increase of $8.0 million for Earth System Modeling for Urgent Climate Issues. This request will continue funding for the development of Earth System Models that specifically explore uncertainties in sea-level rise projections, examine the terrestrial carbon cycle and address gaps in the understanding of the Arctic climate system. The FY2013 budget request also includes an increase of $2.6 million to create a permanent ability to produce national and regional climate assessments. The Global Change Research Act of 1990[4] requires a scientific assessment not less than every 4 years.

The FY2013 request includes an increase of $4.6 million for the Global Ocean Observing System (GOOS) to support critical ocean observations and analysis, progress in observational efforts in the Arctic, and develop technology to improve understanding of the deep ocean. Another requested increase includes $1.5 million for the National Integrated Drought Information System (NIDIS). The funding for competitive research grants and contracts will help progress the Regional Drought Early Warning Information System by providing focused drought impacts research.

The Administration requests an increase of $6.5 million for climate science on the global carbon cycle, aerosols and atmospheric chemistry. Funding will support NOAA labs and Cooperative Institutes to advance the understanding of the global carbon cycle and the role of aerosols and greenhouse gases in the global climate

[3] NOAA has been operating the Defense Meteorological Satellites for DoD since May 1998.
[4] P.L. 101-606

system. Finally, the FY2013 budget request includes an increase of $3.1 million for Regional Integrated Sciences and Assessments (RISAs). This funding will support external research teams who work with stakeholders to develop and utilize new information about the impacts of climate on communities, natural and managed resources, infrastructure, transportation and health.

Weather and Air Chemistry Research

The Administration is requesting $69.5 million for weather and air chemistry research. Within this account, the budget highlights an increase of almost $1.0 million for wind boundary layer research. This funding supports improved forecasts of wind at mid-altitudes, at heights where wind turbines are deployed. In particular, the request calls for funding to "deploy regional wind test beds designed to determine the optimal mix of instrumentation needed for wind resource characterization and forecast improvement within the region."

Ocean, Coastal, and Great Lakes Research

The Administration is requesting $108.8 million for FY2013, a $6.8 million decrease below FY2012 appropriated levels. Within this request, the Administration is proposing a $1.7 million decrease for the Great Lakes Environmental Research Laboratory (GLERL). According to the budget, this decrease is possible through realizing efficiencies and relying more on partner agencies such as the Environmental Protection Agency. Another proposal in the FY2013 budget includes a decrease of $1.0 million for aquatic invasive species research and outreach within the NOAA Sea Grant program. NOAA is also proposing to eliminate the National Undersea Research Program (NURP) for a reduction of $3.9 million.

National Ocean Service (NOS)

The National Ocean Service (NOS) protects the National Marine Sanctuaries and advocates coastal and ocean stewardship. The NOS also introduced electronic nautical charts that interface with Global Positioning Systems (GPS) to enhance the safety and efficiency of navigation of U.S. waterways. The President's FY 2013 request of $478.1 million would reduce overall funding for NOS programs by $11.9 million, or 2.4 percent, compared to the FY 2012 enacted level.

The Administration proposes a reduction of $2.3 million to eliminate the Navigation Response Team (NRT) program in FY2013. NRT's provide emergency hydrographic survey support to the U.S. Coast Guard, port officials and other first responders following accidents or natural events that create navigation hazards, and help to recommence safe and efficient marine transportation and commerce. The FY2013 budget request includes a $1.2 million increase for the Tide and Current Data Program. This funding will enable the inspection of an additional 60 National Water Level Observation Network (NWLON) Stations per year. This data is critical for navigation safety, oil spill response, National Weather Service storm surge and tsunami warnings, and long-term sea level change planning.

The budget request for the Ocean Assessment Program includes an increase in funding for the Integrated Ocean Observing System (IOOS) regional observations of $6.6 million to develop and improve marine sensors that monitor changing conditions in the oceans, coasts and Great Lakes. The Administration also proposes to reallocate an additional $3.4 million from funds available to the regional association and a cooperative institute specifically for marine sensor development, demonstration, testing and evaluation.

The FY 2013 budget request includes a $1.6 million increase for the National Centers for Coastal Ocean Science (NCCOS), for the competitive research program to focus on harmful algal blooms, hypoxia, and coastal ecosystem research. The NOS Procurement, Acquisition and Construction (PAC) account is also reduced by $8 million. The Administration is not requesting any PAC funding for NOS for FY2013.

Program Support

The Program Support line office supports corporate services and agency management. This includes the Under Secretary's office, the office of the Chief Financial Officer, the Program, Planning and Integration Office, and the NOAA Education Program. Overall, the Administration requests an increase in the Program Support account of $9.7 million, for a total of $476.8 million, a 2.1 percent increase over the FY12 enacted level.

Environmental Protection Agency

The President's FY 2013 budget request for the Environmental Protection Agency (EPA) is $8.34 billion, a reduction of 1.0 percent below FY 2012 levels. The Committee on Science, Space, and Technology has jurisdiction over the Science and Technology budget listed in Table 2 below.

Table 2: EPA FY 2013 Budget Request (dollars in millions)

Account	FY11 Enacted	FY12 Enacted	FY13 Request	FY13 Request Versus FY11 Enacted	
				$	%
Science and Technology	813.5	793.7	807.3	13.5	1.7
Office of Research and Development	581.7	568.0	575.6	7.6	1.3
Superfund R&D	26.8	23.0	23.2	0.2	1.0

FY 2013 Science & Technology Account: Office of Research and Development

The Administration's budget request for S&T is $807.3 million. This includes $575.6 million for the Office of Research and Development (ORD), S&T activities conducted by other program offices (e.g. Office of Air, Office of Water), as well as $23.2 million requested for S&T activities associated with the Superfund program. In the past, the Superfund S&T funds were drawn primarily from the Superfund trust that was funded by the dedicated Superfund tax. Since the expiration of the tax all funds must be appropriated from general revenues.

Approximately 74 percent of S&T funding is for EPA's ORD, which is the primary research arm of the agency. Most of the remaining S&T funds go to the Office of Air and Radiation, and a smaller amount to the Office of Water and to the other program offices.

ORD conducts and sponsors both fundamental research in environmental science and more targeted research to inform EPA's regulatory programs. For example, ORD provides scientific information to support and implement the Clean Water Act. ORD also develops the scientific risk information for the agency's Integrated Risk Information System (IRIS), a database of human health effects of certain chemicals. This program is used by EPA, individual states, and other government agencies to determine hazardous waste site clean-up, drinking water, and other health-based standards. ORD develops the scientific underpinning for EPA's air quality standards in areas such as particulate matter and ozone. ORD also investigates the environmental implications of emerging areas such as nanotechnology and endocrine disruptors.

ORD carries out these responsibilities by conducting intramural research at EPA's laboratories, awarding contracts, and supporting fellowships and research at colleges and universities through the Science to Achieve Results (STAR) grant program. The FY2013 budget request includes $81 million for the STAR grant program, a $5 million increase over FY2012 enacted levels, to invest in the next generation of environmental scientists and to leverage wider scientific community expertise on key issues.

EPA has identified five major goals of the Agency, and presents its budget broken down into funding for each of the five goals.

EPA's first goal is Taking Action on Climate Change and Improving Air Quality. The research program in ORD supporting this goal is the Air, Climate, and Energy Research Program. The Administration's FY2013 budget request for Air, Climate, and Energy is $105.9 million, a $7 million increase above FY2012 enacted levels. Within this program, the Agency plans to develop efficient, high-performing, and cost-effective air quality monitors. The program will also support the improvement of the Community Multiscale Air Quality (CMAQ)

modeling system, a major tool used to determine compliance with the National Ambient Air Quality Standards (NAAQS) levels. Improvements to this model will enhance the ability to accurately model changes in ozone, particulate matter, and hazardous air pollutant concentrations. The FY2013 budget request will also support study of the generation, fate, transport, and chemical transformation of air emission to identify individual and population health risks. The request also includes funding for research on hydraulic fracturing, specifically assessing the potential air, ecosystem and water quality impacts of hydraulic fracturing. This request is $45 million to be split among EPA, the Department of Energy, and the Department of the Interior. EPA's portion of this effort is $14 million, an $8 million increase above its individual hydraulic fracturing study effort undertaken in FY12.

EPA's second goal is Protecting America's Waters. The research program at ORD supporting this goal is the Safe and Sustainable Water Resources research program. The Administration's FY2013 request for this research program is $121.2 million, a $7.7 million increase above FY2012 enacted levels. This program will support research that helps decision-makers identify necessary actions to protect water resources, including information about complex tradeoffs, water contaminants and nutrient management on watershed, regional and national scales. This research will inform the Agency's National Wetlands Condition Report. The Safe and Sustainable Water Resources research program will continue to support the development and implementation of guidance on green infrastructure projects.

EPA's third goal is Clean Up Communities and Advancing Sustainable Development. The research program at ORD supporting this goal is the Sustainable and Healthy Communities Research Program (SHCRP). The Administration's FY2013 request for this research program is $165.7 million, a decrease of $5.0 million below FY2012 enacted levels. This research program uses interactive social media and other means to assist communities and stakeholders in the planning, design, and implementation of data and tools that support sustainable community decisions. This program also conducts research in forecasting and assessing ecological and community health. SHCRP also assesses cutting edge sustainable practices for four community decision areas: waste and materials management; energy and water infrastructure; transportation; and planning and zoning for building and land use.

EPA's fourth goal is Ensuring the Safety of Chemicals and Preventing Pollution. The research program at ORD supporting this goal is the Chemical Safety and Sustainability Research Program (CSSRP). The Administration's FY2013 request for this research program is $94.2 million, an increase of $2.5 million above FY2012 enacted levels. CSSRP support research in developing enhanced chemical screening and testing techniques. This includes efforts to validate and use computational toxicology and high throughput screening methods.

EPA's fifth goal is Enforcing Environmental Laws. There are no research programs that directly support this goal.

Table 3: EPA ORD FY 2013 Budget Request (dollars in millions)

Account	Program/Project		FY11 Enacted	FY12 Enacted	FY13 Request	FY13 Request vs. FY12 Enacted	
						$	%
Science and Technology	Congressionally Mandated Projects		0.0	5.0	0.0	(5.0)	(100.0)
	Homeland Security: Preparedness, Response, and Recovery	Total Program	24.6	24.6	24.3	(0.4)	(1.6)
		Decontamination	15.5	15.6	15.4	(0.2)	(1.1)
		Safe Buildings	0.0	0.0	0.0	0.0	0.0
		Other Research	9.1	9.0	8.8	(0.2)	(2.5)
	Human Health Risk Assessment		43.0	39.6	40.5	1.0	2.4
	Research: Air, Climate, and Energy	Total Program	106.3	98.8	105.9	7.0	7.1
		Global Change Research	20.4	18.3	20.3	2.0	11.0
		Clean Air Research	81.6	78.5	82.9	4.3	5.5
		Other Research	4.2	2.0	2.8	0.7	35.1
	Research: Safe and Sustainable Water Resources	Total Program	117.3	113.5	121.2	7.7	6.8
		Drinking Water Research	50.9	50.2	51.7	1.5	2.9
		Water Quality Research	66.4	63.3	69.5	6.3	9.9
	Research: Sustainable and Healthy Communities	Total Program	173.8	170.7	165.7	(5.0)	(2.9)
		Human Health Research	46.4	45.3	44.5	(0.8)	(1.8)
		Ecosystems Research	62.3	60.8	60.2	(0.6)	(1.0)
		Other Research	65.2	64.6	61.1	(3.6)	(5.5)
	Research: Chemical Safety and Sustainability	Total Program	89.2	91.7	94.2	2.5	2.7
		Endocrine Disruptors Research	15.9	16.9	16.3	(0.6)	(3.6)
		Computational Toxicology Research	21.1	21.2	21.3	0.1	0.4
		Other Research	52.2	53.7	56.7	3.0	5.6
	S&T Appropriation Total		**554.3**	**544.0**	**551.8**	**7.8**	**1.4**
LUST*	Research: Sustainable and Healthy Communities		0.4	0.4	0.5	0.1	23.7
Inland Oil Spills	Research: Sustainable and Healthy Communities		0.7	0.6	0.6	0.0	0.8
Superfund	Homeland Security: Preparedness, Response, and Recovery		2.1	2.0	2.1	0.1	7.4
	Human Health Risk Assessment		4.0	3.3	3.3	0.0	(0.6)
	Research: Sustainable and Healthy Communities		20.6	17.7	17.8	0.1	0.7
	Superfund Appropriation Total		**26.8**	**23.0**	**23.2**	**0.2**	**1.1**
Grand Total			**582.2**	**568.0**	**576.1**	**8.2**	**1.4**

* Leaking Underground Storage Tank Program