



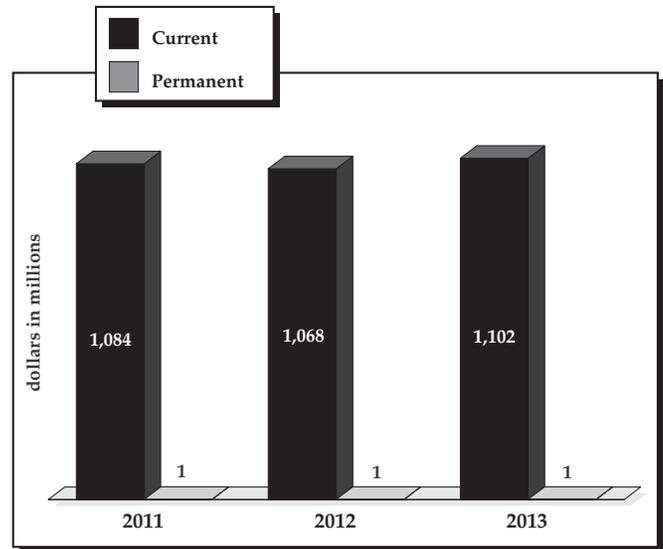
U.S. GEOLOGICAL SURVEY

Mission – The mission of the U.S. Geological Survey is to provide reliable scientific information to describe and understand the Earth, minimize loss of life and property from natural disasters, manage water, biological, energy, and mineral resources, and enhance and protect the quality of life.

Budget Overview – The 2013 USGS budget request is \$1.1 billion, which is \$34.5 million above the 2012 enacted level. The USGS estimates staffing will equal 8,512 full time equivalents in 2013. Recognizing constrained fiscal resources, the 2013 budget reflects careful and tough decisions regarding the targeted reduction of programs to invest in priority science to support a robust and growing economy and strong and resilient Nation. The budget prioritizes programs that are unique to USGS, have national impact, and reduces or redirects funding to support these activities. Highlights of the budget request include strong support for science-based resource management, ecosystem restoration, invasive species control, and the National Ocean Policy. Increases are proposed to establish a National Groundwater Monitoring Network, to improve responses to disasters and natural hazards, and to meet the legislative mandate for both biologic and geologic carbon sequestration assessments. A hydraulic fracturing research and development effort with the Department of Energy and the Environmental Protection Agency will focus efforts to understand and minimize potential adverse environmental, health, and safety impacts of shale gas development through hydraulic fracturing.

New Energy Frontier – The 2013 budget provides \$44.0 million for the Secretary’s New Energy Frontier initiative, \$13.2 million above the 2012 enacted level. The USGS will use a program increase of \$1.0 million in wind energy to work closely with Interior bureaus to provide the scientific information they need to make informed decisions concerning the permitting, implementation, and operation of wind power generation facilities on public lands. In 2013, USGS will report on the results of studies on the impacts associated with the development of wind energy. Included in the request is a program increase of \$13.0 million to address priority science issues related

USGS Funding



to hydraulic fracturing. Funding for other conventional energy programs totals \$18.4 million in 2013 and includes a program reduction of \$1.0 million from 2012 enacted for grants to States for coal resource assessments.

Water Challenges – The 2013 budget provides \$21.0 million for USGS activities in support of the Water Challenges initiative, \$13.0 million above the 2012 enacted level. The increase will be used to enhance the implementation of the WaterSMART Availability and Use Assessment by creating predictive models of water availability through regional studies; exploring methods for integrating and disseminating data through science platforms; and establishing a National Groundwater Monitoring Network.

Ecosystems – The 2013 budget includes \$177.9 million for the Ecosystems activity, which is \$16.6 million above the 2012 enacted level. Through the Ecosystems activity, the USGS conducts research and monitoring focused on understanding how ecosystems are structured and function. Information generated by the Ecosystems activity helps improve management of the Nation’s natural resources and hazards that threaten its land, coastlines, and population. The budget includes a program increase of \$3.0

U.S. GEOLOGICAL SURVEY FACTS

- **Founded by an Act of Congress in 1879.**
- **The Nation's largest water, earth, and biological science and civilian mapping agency.**
- **Employs over 8,500 scientists, technicians, and support staff working in more than 400 locations throughout the United States.**
- **With over 2,000 strategic partnerships, USGS is a primary Federal source of science-based information on ecosystem science, climate and land use change, energy and mineral resources, environmental impacts, natural hazards, water resource use and availability, and updated maps and images for the Earth's features available to the public.**
- **Generates and maintains data from over 7,600 streamgages and over 2,200 earthquake sensors that are available to the public.**
- **In addition to over three million Landsat images, USGS offers over 170 digital land-surface data sets online at no charge, including more than 20 million aerial photos and satellite images.**

million for research on new methods to eradicate, control, and manage Asian carp in the Upper Mississippi River Basin and prevent their entry into the Great Lakes. Within this budget activity, program increases are provided for the following priority ecosystem restoration initiatives: \$1.3 million for ecosystem restoration in the Chesapeake Bay, \$1.0 million for the California Bay-Delta, \$901,000 to support fish health and water quality studies for the Klamath Basin Restoration Agreement, and \$1.0 million for research to control and manage invasive species in the Everglades such as the Burmese python. Additional program increases totaling \$2.8 million are provided to address brown tree snakes, white-nose syndrome in bats, coral reef health, and ecosystem restoration in the Puget Sound and Columbia River. A program increase of \$2.0 million is also included for science to support the Administration's priorities in assessing the social and economic value of ecosystem services and protecting and sustaining environmental capital.

Climate and Land Use Change – The 2013 budget provides a total of \$153.7 million for Climate and Land Use Change that provides practical, user-focused scientific information to facilitate Interior land management bureaus in creating adaptation strategies for changes in various landscapes. The proposed budget for the Climate Variability subactivity is \$67.7 million, an increase of \$8.8 million above the 2012 enacted level. The eight Department of the Interior Climate Science Centers are fully funded and operational at \$26.2 million, providing scientific tools to inform regional land, water, and resource management decisions to adapt to a changing climate. The budget also includes an increase of \$6.6 million to the Science Support for DOI Bureaus subactivity, which will be used to conduct research and develop tools and protocols for assessing and monitoring changes on the landscape and to maintain partnerships with other Interior bureaus, universities, and stakeholders in building an

understanding of climate impacts and adaptation strategies. The budget also includes a \$1.2 million increase for the Climate Research and Development program to support priority climate research in areas such as paleoclimatological studies of the impacts of sea level rise on ecosystems such as mountains, deserts, coastal wetlands, estuaries, and marine ecosystems. The Carbon Sequestration program is funded at \$9.4 million, an increase of \$398,000 over 2012.

The 2013 request for the Land Use Change subactivity is \$86.0 million, \$839,000 above the 2012 enacted level. This subactivity ensures Earth observation imagery collected via satellite is available and accessible to users and provides analyses of these data to quantify rates of land use change, identify key driving forces, and forecast future trends of landscape change. The Landsat Missions program remains in this subactivity, funded at \$53.3 million, and includes funding to complete the Landsat Data Continuity Mission/Landsat 8 Ground System. There is a \$2.0 million program reduction from 2012 for Landsat 9 mission development; however, USGS will continue to work closely with the Office of Management and Budget, Office of Science and Technology Policy, National Aeronautics and Space Administration, and National Oceanic and Atmospheric Administration to examine alternatives for providing land remote sensing data in a cost effective manner in the future. The budget also includes a program increase of \$750,000 within the Geographic Analysis and Monitoring program to support the Rapid Disaster Response effort and a program increase of \$1.5 million for research to support ecosystem restoration.

Energy, Minerals, and Environmental Health – The 2013 budget includes \$97.1 million for Energy, Minerals, and Environmental Health, \$914,000 above the 2012 enacted level. This activity includes programs that conduct research and assessments on the location, quantity, and

quality of the Nation's mineral and energy resources. The activity also conducts research on the environmental impacts of human activities that introduce chemical and pathogenic contaminants into the environment and threaten human, animal, and ecological health. In addition to the program increases for WaterSMART, wind energy research, and hydraulic fracturing research, the 2013 budget includes increases of \$1.0 million to support research on rare earth elements that are critical to American manufacturing and \$400,000 for the Chesapeake Bay and Columbia River ecosystem restoration efforts. Program reductions include \$5.3 million in the Minerals Resources Program.

Natural Hazards – The 2013 budget provides \$144.8 million for Natural Hazards, \$10.3 million above the 2012 enacted level. This activity provides the scientific information and knowledge necessary to reduce fatalities, injuries, and economic loss from volcanoes, earthquakes, and earthquake-induced tsunamis, landslides, and liquefaction. The budget includes an increase of \$2.4 million for improving rapid disaster response and \$1.6 million for earthquake hazards research along the east coast of the United States. These increases are partially offset by program reductions of \$1.0 million in volcano hazards research and \$600,000 in coastal and marine geology. The 2013 budget also provides an increase of \$6.8 million to support a new initiative on Science for Coastal and Ocean Stewardship to support priority objectives of the National Ocean Policy in the areas of marine and coastal science, resource and vulnerability assessments, ecosystem-based management, adaptation to climate change, and providing science-based tools to inform policy and management.

Water Resources – The 2013 budget includes \$209.8 million for Water Resources, \$4.8 million below the 2012 enacted level. This activity includes programs for the collection, management, and dissemination of hydrologic data, modeling and analyses of hydrologic systems, and research and development leading to new understandings of and methods for gathering data. Funds support a national network of streamgages, wells, and monitoring sites that support the activities of and are leveraged by funds from State, tribal, and local partners. In addition to program increases to support WaterSMART and hydraulic fracturing research, a program increase of \$5.5 million for stream flow information will enhance rapid disaster response efforts related to natural hazards such as flooding and hurricanes. The budget request also includes program increases totaling \$2.1 million for ecosystem restoration efforts in the Chesapeake Bay, California Bay-Delta, Columbia River, Puget Sound, and the Upper Mississippi River. The USGS includes program reductions of \$5.0 million in the Cooperative Water program, \$6.5 million in the Water Resources Research Act, and

\$3.7 million from Hydrologic Networks and Analysis.

Core Science Systems – The 2013 budget provides \$120.4 million for Core Science Systems, \$13.7 million above the 2012 enacted level. This activity provides the Nation with access to science information through geospatial frameworks that are used in managing natural resources and planning for and responding to natural hazards. Data archives for biology and geology and the spatial data in The National Map are accessible to both scientists and the public and provide critical data about the Earth, its complex processes, and its natural resources. In addition to program increases for WaterSMART and hydraulic fracturing research, the budget includes an increase of \$1.0 million to support coastal and marine science and \$1.7 million for ecosystem restoration in Columbia River, Puget Sound, and other ecosystems. The request includes the merging of the Biological Information Management and Delivery subactivity and the National Geological and Geophysical Data Preservation subactivity into a single subactivity called Science Synthesis, Analysis, and Research and adding \$8.1 million from the realignment of Information Resources. The proposed realignment will consolidate complementary functions and resources that provide fundamental science and data critical to research activities across USGS. This completes a portion of the alignment of USGS programs to match the Science Strategy that began in 2011.

Administration and Enterprise Information – The 2013 budget includes \$99.1 million for Administration and Enterprise Information which is a \$11.2 million decrease from the 2012 enacted level. This activity funds the executive, managerial, and accountability activities, and the information technology and bureau support services of USGS. This activity includes \$2.2 million to provide education, training, and workshop opportunities through coursework and internships for high school and college students. This science center-based activity provides opportunities for youth to work with USGS scientists and staff in research. The request includes a realignment of the funding and services of Information Resources to three budget subactivities: the newly created Science Synthesis, Analysis, and Research subactivity under the Core Science Systems activity; and the Science Support subactivity and the Security and Technology subactivity in the Administration and Enterprise Information activity.

Facilities – The 2013 budget provides \$99.7 million for Facilities, which is \$704,000 below the 2012 enacted level. This activity provides safe, functional workspace, laboratories, and other facilities needed to accomplish the Bureau's scientific mission.

Fixed Costs and Related Changes – Fixed costs of \$10.8 million are fully funded in the budget.

SUMMARY OF BUREAU APPROPRIATIONS

(all dollar amounts in thousands)

Comparison of 2013 Request with 2012 Enacted

	2012 Enacted		2013 Request		Change	
	FTE	Amount	FTE	Amount	FTE	Amount
Current						
Surveys, Investigations, and Research.....	5,466	1,068,032	5,460	1,102,492	-6	+34,460
Subtotal, Current.....	5,466	1,068,032	5,460	1,102,492	-6	+34,460
Permanent						
Operations and Maintenance of Quarters.....	0	25	0	35	0	+10
Contributed Funds.....	11	572	11	629	0	+57
Subtotal, Permanent.....	11	597	11	664	0	+67
Reimbursable, Allocation, and Other						
Reimbursable.....	2,823	0	2,823	0	0	0
Allocation.....	14	0	14	0	0	0
Working Capital Fund.....	204	0	204	0	0	0
Subtotal, Reimbursable, Allocation, Other.....	3,041	0	3,041	0	0	0
TOTAL, U. S. GEOLOGICAL SURVEY.....	8,518	1,068,629	8,512	1,103,156	-6	+34,527

HIGHLIGHTS OF BUDGET CHANGES

By Appropriation Activity/Subactivity

APPROPRIATION: Surveys, Investigations, and Research

	2011 Actual	2012 Enacted	2013 Request	Change
Ecosystems				
Status and Trends	22,403	21,999	22,170	+171
Fisheries: Aquatic and				
Endangered Resources	23,693	22,576	27,111	+4,535
Wildlife: Terrestrial and				
Endangered Resources	49,078	48,169	49,414	+1,245
Terrestrial, Freshwater and				
Marine Environments	35,763	36,735	42,561	+5,826
Invasive Species	10,795	13,043	17,675	+4,632
Cooperative Research Units	19,105	18,756	18,921	+165
Subtotal, Ecosystems	160,837	161,278	177,852	+16,574
Climate and Land Use Change				
Climate Variability	64,334	58,921	67,741	+8,820
Land Use Change	73,807	85,169	86,008	+839
Subtotal, Climate/Land Use Change	138,141	144,090	153,749	+9,659
Energy, Minerals, and Environmental Health				
Mineral Resources	52,168	49,231	45,271	-3,960
Energy Resources	27,750	27,292	30,492	+3,200
Contaminants	9,216	9,062	9,900	+838
Toxic Substances Hydrology	10,778	10,628	11,464	+836
Subtotal, Energy, Minerals, and				
Environmental Health	99,912	96,213	97,127	+914
Natural Hazards				
Earthquake Hazards	55,979	55,125	58,917	+3,792
Volcano Hazards	24,464	24,770	24,968	+198
Landslide Hazards	3,318	3,266	3,908	+642
Global Seismographic Network	5,379	5,312	5,451	+139
Geomagnetism	2,097	2,066	2,205	+139
Coastal and Marine Geology	44,727	43,941	49,329	+5,388
Subtotal, Natural Hazards	135,964	134,480	144,778	+10,298
Water Resources				
Groundwater Resources	8,481	8,916	11,657	+2,741
National Water Quality Assessment	64,234	62,909	62,178	-731
National Streamflow Info Program	27,100	29,358	32,470	+3,112
Hydrologic Research/Development	11,932	11,665	15,493	+3,828
Hydrologic Networks and Analysis	30,719	31,329	28,730	-2,599
Cooperative Water Program	63,471	63,985	59,300	-4,685
Water Resources Research Act Prog	6,486	6,490	0	-6,490
Subtotal, Water Resources	212,423	214,652	209,828	-4,824
Core Science Systems				
Science Synthesis, Analysis, Research..	18,563	15,052	26,325	+11,273
National Geological and Geophysical..				
Data Preservation Program	998	996	0	-996
Nat'l Cooperative Geologic Mapping ..	27,713	26,300	27,991	+1,691
National Geospatial Program	65,755	64,330	66,074	+1,744
Subtotal, Core Science Systems	113,029	106,678	120,390	+13,712

APPROPRIATION: Surveys, Investigations, and Research continued

	2011 Actual	2012 Enacted	2013 Request	Change
Administration and Enterprise Information				
Science Support	77,229	73,427	75,756	+2,329
Security and Technology	23,430	20,991	23,295	+2,304
Information Resources	17,988	15,802	0	-15,802
Subtotal, Administration and Enterprise Information	118,647	110,220	99,051	-11,169
Facilities				
Rental Payments and Operations and Maintenance	97,427	93,141	92,437	-704
Deferred Maintenance and Capital Improvement	7,292	7,280	7,280	0
Subtotal, Facilities	104,719	100,421	99,717	-704
TOTAL APPROPRIATION	1,083,672	1,068,032	1,102,492	+34,460

Detail of Budget Changes

	2013 Change from 2012 Enacted		2013 Change from 2012 Enacted
TOTAL APPROPRIATION	+34,460		
Ecosystems	+16,574	Science Support for DOI Bureaus.....	+6,450
Status and Trends	+171	Fixed Costs	+620
Fixed Costs	+171	Land Use Change	+839
Fisheries: Aquatic and Endangered Resources	+4,535	Rapid Disaster Response	+750
WaterSMART.....	+1,250	Ecosystem Restoration	
Ecosystem Restoration - Klamath Basin.....	+901	Chesapeake Bay	+500
Hydraulic Fracturing	+2,200	Land Use Science.....	+1,000
Fixed Costs	+184	National Land Imaging Development	-1,750
Wildlife: Terrestrial and Endangered Resources..	+1,245	Fixed Costs	+339
White Nose Syndrome	+1,000	Energy, Minerals, and Environmental Health	+914
Fixed Costs	+245	Mineral Resources	-3,960
Terrestrial, Freshwater and Marine Environ	+5,826	Rare Earth Elements.....	+1,000
Ecosystem Restoration		Minerals External Research Program	-250
California Bay-Delta.....	+1,000	Minerals Resources	-5,000
Chesapeake Bay	+1,300	Fixed Costs	+290
Columbia River.....	+300	Energy Resources	+3,200
Puget Sound	+500	New Energy Frontier - Wind Energy	+1,000
Sustaining Environmental Capital.....	+2,000	Hydraulic Fracturing	+3,000
Coral Reef	+500	Energy Resources - Conventional Energy.....	-1,000
Fixed Costs	+226	Fixed Costs	+200
Invasive Species.....	+4,632	Contaminants.....	+838
Ecosystem Restoration		WaterSMART.....	+1,000
Asian Carp Control Framework		Ecosystem Restoration	
Great Lakes and Upper Mississippi.....	+3,000	Chesapeake Bay	+100
Everglades	+1,000	Columbia River.....	+100
Brown Tree Snakes	+500	Impact of Environmental Contaminants.....	-500
Fixed Costs	+132	Fixed Costs	+138
Cooperative Research Units.....	+165	Toxic Substances Hydrology.....	+836
Fixed Costs	+165	WaterSMART.....	+2,500
Climate and Land Use Change	+9,659	Ecosystem Restoration	
Climate Variability	+8,820	Chesapeake Bay	+100
DOI Climate Science Centers - Tribes.....	+500	Columbia River.....	+100
Climate Research and Development	+1,000	Methods Development and Assessments	-2,000
Carbon Sequestration.....	+250	Fixed Costs	+136

Detail of Budget Changes
Surveys, Investigations, and Research (continued)

	2013 Change from 2012 Enacted		2013 Change from 2012 Enacted
Natural Hazards.....	+10,298	Water Resources Research Act Program	-6,490
Earthquake Hazards	+3,792	Water Resources Research Act.....	-6,490
Rapid Disaster Response	+851	Core Science Systems.....	+13,712
Hydraulic Fracturing	+1,100	Science Synthesis, Analysis, and Research	+11,273
Eastern US Earthquake Research / Assessment.	+1,600	Science for Coastal and Ocean Stewardship.....	+1,000
Fixed Costs	+241	Hydraulic Fracturing	+600
Volcano Hazards.....	+198	Ecosystem Restoration	
Rapid Disaster Response	+1,000	Information Synthesis and Management.....	+1,000
National Volcano Early Warning System.....	-700	Internal Transfer from Information Resources..	+8,591
Science Observatories	-300	Internal Transfer from National Geological	
Fixed Costs	+198	and Geophysical Data Preservation Prog	+996
Landslide Hazards	+642	Data Preservation	+4
Rapid Disaster Response	+500	Administrative Services.....	-446
Fixed Costs	+142	Data Management	-700
Global Seismographic Network.....	+139	Fixed Costs	+228
Fixed Costs	+139	National Geological and Geophysical	
Geomagnetism.....	+139	Data Preservation Program.....	-996
Fixed Costs	+139	Internal Transfer to	
Coastal and Marine Geology	+5,388	Science Synthesis, Analysis, and Research	-996
Science for Coastal and Ocean Stewardship.....	+5,750	National Cooperative Geologic Mapping.....	+1,691
Great Lakes Beach Health Study	-600	WaterSMART.....	+1,000
Fixed Costs	+238	Hydraulic Fracturing	+2,000
Water Resources	-4,824	National Cooperative Geologic Mapping	
Groundwater Resources.....	+2,741	Federal and State Partnerships.....	-1,500
WaterSMART.....	+2,500	Fixed Costs	+191
Hydraulic Fracturing	+2,100	National Geospatial Program.....	+1,744
Availability Studies	-2,000	WaterSMART.....	+750
Fixed Costs	+141	Ecosystem Restoration	
National Water Quality Assessment.....	-731	Columbia River.....	+500
WaterSMART.....	+3,500	Puget Sound	+200
Ecosystem Restoration		Fixed Costs	+294
California Bay-Delta.....	+1,000	Administration and Enterprise Information.....	-11,169
Chesapeake Bay	+500	Science Support	+2,329
Methods Development and Monitoring	-6,049	Internal Transfer from Information Resources..	+4,479
Fixed Costs	+318	Administrative Services.....	-2,369
National Streamflow Information Program	+3,112	Fixed Costs	+219
Ecosystem Restoration		Security and Technology	+2,304
Columbia River	+100	IT Transformation.....	+801
Upper Mississippi River.....	+200	Internal Transfer from Information Resources..	+2,732
Rapid Disaster Responses.....	+5,500	Administrative Services.....	-1,322
Federal Network Operations	-2,847	Fixed Costs	+93
Fixed Costs	+159	Information Resources.....	-15,802
Hydrologic Research and Development.....	+3,828	Internal Transfer to Science Synthesis,	
Ecosystem Restoration - Puget Sound.....	+300	Analysis, and Research	-8,591
Hydraulic Fracturing	+2,000	Internal Transfer to Science Support.....	-4,479
Water Research and Development.....	+1,300	Internal Transfer to Security and Technology ...	-2,732
Fixed Costs	+228	Facilities	-704
Hydrologic Networks and Analysis.....	-2,599	Rental Payments and Ops and Maintenance	-704
WaterSMART.....	+500	Rent and Operations and Maintenance Savings	-4,390
Information Management and Delivery	-3,300	Fixed Costs	+3,686
Fixed Costs	+201	Subtotal for Changes Across Multiple Subactivities	
Cooperative Water Program	-4,685	Fixed Costs	[+10,780]
Interpretive Studies.....	-4,963		
Fixed Costs	+278		