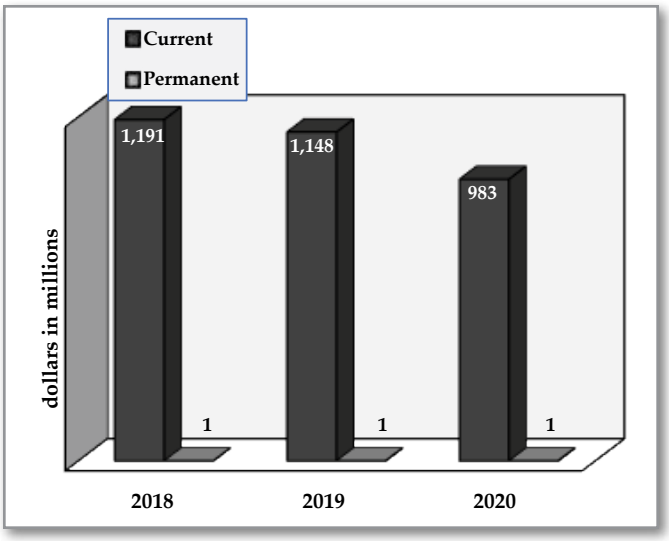
U.S. Geological Survey

Mission—The U.S. Geological Survey (USGS) delivers integrated scientific understanding and forecasts of natural systems to improve the Nation's economic well-being, reduce societal risks to hazards, and inform natural resource stewardship.

Budget Overview—The 2020 current budget is $983.5 million. The budget supports the Department of the Interior's priorities of energy security, critical mineral independence and security, hazard monitoring, and science to support informed decisions by resource managers and policy makers. The budget supports nationwide networks of more than 8,000 streamgages and more than 3,000 earthquake sensors. It also funds Landsat 9 ground systems development to replace the Landsat 7 satellite. USGS estimates the budget will support staffing of 6,937 full-time equivalents. The budget proposes structure changes discussed in more detail below.

Program Overview—USGS delivers information to classify energy and mineral resources, identify hazards and predict damage from those hazards, guide transportation planning, inform managers of natural resources, and improve quality of life and economic vitality. The USGS is responsible for monitoring and notification of earthquakes, volcanic activity, and landslides in the United States and collaborates with partners to improve hazard monitoring, explore vulnerable interdependencies, and speed disaster response. Research USGS conducts on minerals, energy resources, and global mineral commodity reports supports national security, provides information to manage energy resources, and informs the understanding of international trade issues. USGS provides essential information for stewardship of the Nation's lands and protection from biological threats. Through remote sensing, USGS provides information to support adaptation and development activities, including those related to infrastructure and energy supply. The USGS provides digital land-surface images for research, monitoring, and management of forest health, water supply, agricultural production, and benchmarking commercial geospatial products and services. USGS Water Science Centers, as well as three major research centers, characterize the Nation's water resources, develop tools to improve water management, and provide information to minimize loss from natural or man-made hazards.

USGS Funding



The investments in the 2020 budget, highlighted below, reflect the alignment of science and tools needed to address complex challenges and deliver critical services, while reducing overall program costs. The budget does not request funding for programs more appropriately funded by USGS partners.

U.S. Geological Survey Facts

- **Founded by an Act of Congress in 1879.**
- **Is the Nation's largest water, earth, and biological science and civilian mapping agency.**
- **Employs over 8,000 scientists, technicians, and support staff working in more than 400 locations throughout the United States.**
- **USGS is a primary Federal source of science-based information on ecosystem science, land resources, energy and mineral resources, natural hazards, water use and availability, and updated maps and images for the Earth's features available to the public.**
- **In 2018, the public downloaded over 33 million Landsat satellite scenes; an increase of nearly 50 percent over 2017 downloads.**
- **USGS archives provide direct access to air photos dating to 1939 and over 100 other satellite, cartographic, and topographic datasets characterizing the Earth's surface at no cost to the user.**

Ecosystems Programs—The 2020 budget includes $141.0 million for Ecosystems programs focused on nationally significant priorities, including detecting and responding to invasive species and wildlife disease, research supporting the conservation and recovery of species at-risk or protected by law, and science supporting biological resource management. The request includes $44.4 million for Species Management Research programs, including science support to inform Flyway Council harvest allocations; deep-water monitoring to understand fisheries stocks in the Great Lakes; conflict reduction between wildlife and energy development, including migration corridors and wintering grounds; and species recovery. The budget provides $29.0 million for Biological Threats Research, which includes $5.6 million for Asian Carp research. It includes $43.8 million for Land Management Research programs to help Interior and other land managers better understand species and habitats to improve their management. The budget includes $23.9 million for the Climate Adaptation Science Center subactivity for research supporting land-use decisions with application to natural resource management, community safety, and economic development.

Energy and Mineral Resources Programs—The 2020 budget includes $86.1 million for Energy and Mineral Resources research and assessments on the occurrence, quality, supply, and use of national and global mineral and energy resources. The budget provides $60.2 million in Mineral Resources to collect data and conduct research on a wide variety of non-fuel mineral resources, including research on critical minerals important to the economic stability and national security of the United States. Critical mineral commodities are those with important strategic uses particularly in manufacturing and technology. These critical minerals are primarily developed outside of the United States and have no viable substitutes, leaving the United States vulnerable to potential disruptions in supplies. The 2020 budget supports the advanced topographic, geologic, and geophysical data collection needed to locate critical mineral resources in the U.S. and to inform management of private-sector domestic development. The Mineral Resources Program also includes funding to continue a magnetotelluric survey of the contiguous United States, providing insights useful for energy and mineral resource development, groundwater management, and electrical grid resiliency. The budget includes $25.9 million for Energy Resources, to provide new and updated assessments of undiscovered, technically recoverable domestic and international oil and gas resources, and to understand the potential to diversify the national energy portfolio.

Natural Hazards Programs—The 2020 budget includes $145.0 million for Natural Hazards for scientific information and tools to better understand and respond to hazards such as volcanoes, earthquakes, tsunamis, and landslides to ultimately reduce potential fatalities, injuries, and property damage. The Earthquake Hazards program is

funded at $64.3 million and prioritizes funding to maintain robust national earthquake monitoring and reporting capabilities, including $8.2 million for operations and maintenance of existing ShakeAlert Earthquake Early Warning systems in conjunction with State and local partners. The Volcano Hazards program is funded at $28.1 million to monitor the Nation's volcanoes to issue alerts and information about eruptions, supporting decisions about evacuations and aircraft diversions for volcanic ash. Additionally, the budget provides $6.7 million to operate and maintain the Global Seismic Network, $1.9 million to support geomagnetic monitoring and research, and $3.6 million for the Landslide Hazards program, which supports postfire debris-flow hazard assessments in response to major wildfires, as well as research and early warning capabilities. The Coastal/Marine Hazards and Resources program is funded at $40.5 million to improve assessments of hazard sources, such as submarine landslides and coastal storms, and potential impacts on offshore operations, coastal communities, and infrastructure.

Water Resources Programs—The 2020 budget includes $179.9 million for Water Resources to collect and deliver hydrologic data; model and analyze hydrologic systems; and conduct research to better understand and identify new methods to gather water data. The request supports water use and water availability studies, maintains support for Federal priority streamgages, and regional-scale water quality models and model-based decision support tools. The Water Observing Systems program is funded at $105.1 million, supporting the monitoring and analysis of water quality samples from the Nation's streams and rivers, maintaining the national streamgage networks to provide long-term data, and continuing to develop and improve data collection and analysis tools. The budget also includes $74.9 million for the Water Resources Availability program to assess water availability and use, develop water models, and examine how water quality affects water availability. This includes $2.9 million to conduct research addressing Harmful Algal Blooms. Within both of these programs, the budget provides $57.7 million in cooperative matching funds.

Core Science Systems Programs—The 2020 budget provides $207.2 million for Core Science Systems, which includes $89.0 million for the National Land Imaging program. Funding for the National Land Imaging program includes $73.4 million for satellite operations, of which $32.0 million will continue development of the Landsat 9 ground system in collaboration with the National Aeronautics and Space Administration (NASA). Landsat 9 will continue to provide land imaging data used to support agriculture, forestry, land use, water resources, and natural resource management. The budget includes $67.9 million for the National Geospatial Program for high-quality topographic, geologic, and hydrographic data needed to manage energy resources, plan transportation and other infrastructure projects, as well as improve flood prediction, emergency response, and hazard mitigation. The request continues the collection of high-resolution elevation and hydrography data for the Nation, including modernization of maps for Alaska, and achieving complete national lidar coverage by 2026. The budget includes $24.4 million for geologic mapping activities, in partnership with States, needed to support infrastructure development, resource management, and hazard mitigation; and $26.0 million to support other activities, including land cover monitoring and assessments, high performance computing, libraries, and analytics.

Science Support—The 2020 budget request includes $102.9 million for Science Support activities. This funding supports the USGS executive, managerial, and accounting activities; information management and technology; and support services. Funding includes $81.0 million for administration and management and $21.9 million for information services. Within administration and management, the budget includes $6.2 million for USGS support of Department-wide reorganization efforts to stand up the 12 unified regions, relocate resources closer to customers, and support implementation of shared service solutions.

Facilities—The 2020 budget includes $121.3 million for Facilities. This funding is needed to meet General Services Administration rent requirements and enables USGS to relocate some or all the Menlo

Park activities to Moffett Field, a part of the NASA Ames Research Center. Relocation will facilitate collaborative work with NASA and other tenants at Moffett Field and mitigate or avoid rent increases experienced recently at Menlo Park.

Budget Structure Changes—The budget proposes structure changes that reflect stakeholder-focused realignment of program priorities.

A restructure of the Ecosystems activity consolidates research spread across five existing Ecosystem programs into three programs, aligns similar disciplines of research, and focuses resources on the most pressing resource management issues of Interior and other Federal, State, and Tribal resource management agencies. It consolidates research from two Land Resources programs into the Climate Adaptation Science Center within Ecosystems. The Species Management Research program focuses on recovery of threatened and endangered species, trust species, and species of management concern to support decisions. The Land Management Research program focuses on place-based research to support management options across geographic areas of management concern. The Biological Threats Research program provides research to combat invasive species, fish diseases, and wildlife diseases.

A restructure of the Water Resources activity aligns resources to achieve integrated observation, understanding, prediction, and delivery of water science and information to the Nation. The proposed Water Resources Availability Program will conduct water availability assessments, measure and estimate water budgets, develop models, and conduct interpretive studies related to the water quality aspects of water availability. The proposed Water Observing Systems Program will include groundwater and streamflow monitoring that monitors water quantity, and observational networks that monitor sediment, nutrients, and other contaminants that contribute to water quality.

The budget also proposes to shift the National Land Imaging subactivity, including operation and development of Landsat satellites and ground systems to the Core Science System mission area. It also moves land cover monitoring and assessment activities of the Land Change Science subactivity into the Core Science System mission area's Science Synthesis, Analysis, and Research subactivity.

Fixed Costs—Fixed costs of $11.8 million are fully funded.

SUMMARY OF BUREAU APPROPRIATIONS
(all dollar amounts in thousands)

Comparison of 2020 Request with 2019 CR

	2019 CR		2020 Request		Change	
	FTE	Amount	FTE	Amount	FTE	Amount
Current						
Surveys, Investigations, and Research	4,623	1,148,457	3,873	983,467	-750	-164,990
Subtotal, Current	4,623	1,148,457	3,873	983,467	-750	-164,990
Permanent						
Surveys, Investigations, and Research	0	55	0	57	0	+2
Contributed Funds	5	862	5	819	0	-43
Subtotal, Permanent	5	917	5	876	0	-41
Allocation and Reimbursable						
Allocation	29	0	29	0	0	0
Reimbursable	3,030	0	3,030	0	0	0
Subtotal, Reimbursable, Allocation, and Other	3,059	0	3,059	0	0	0
Total, U.S. Geological Survey	**7,687**	**1,149,374**	**6,937**	**984,343**	**-750**	**-165,031**

HIGHLIGHTS OF BUDGET CHANGES

By Appropriation Activity/Subactivity

APPROPRIATION: Surveys, Investigations, and Research

	2018 Actual	2019 CR	2020 Request	Change
Ecosystems *(new structure)*				
Species Management Research	[64,111]	[64,111]	44,359	+44,359
Land Management Research	[62,473]	[62,473]	43,793	+43,793
Biological Threats Research	[28,999]	[28,999]	28,996	+28,996
Climate Adaptation Science Center	[44,488]	[44,488]	23,901	+23,901
Cooperative Research Units	[17,371]	[17,371]	0	0
Subtotal, Ecosystems	[217,442]	[217,442]	141,049	+141,049
Ecosystems *(old structure)*				
Status and Trends	20,473	20,473	0	-20,473
Fisheries Program	20,136	20,136	0	-20,136
Wildlife Program	46,007	46,007	0	-46,007
Environments Program	36,415	36,415	0	-36,415
Invasive Species	17,330	17,330	0	-17,330
Cooperative Research Units	17,371	17,371	0	-17,371
Subtotal, Ecosystems	157,732	157,732	0	-157,732
Land Resources *(old structure)*				
National Land Imaging	93,094	93,094	0	-93,094
Land Change Science	34,070	34,070	0	-34,070
National and Regional Climate Adaptation Science Centers	25,335	25,335	0	-25,335
Subtotal, Land Resources	152,499	152,499	0	-152,499
Energy and Mineral Resources, and Environmental Health				
Mineral and Energy Resources				
Mineral Resources	49,371	49,371	60,193	+10,822
Energy Resources	30,872	30,872	25,879	-4,993
Environmental Health *(old structure)*				
Contaminant Biology	10,197	10,197	0	-10,197
Toxic Substances Hydrology	12,398	12,398	0	-12,398
Subtotal, Energy and Mineral Resources, and Environ Health	102,838	102,838	86,072	-16,766
Natural Hazards				
Earthquake Hazards	83,403	83,403	64,303	-19,100
Volcano Hazards	42,621	42,621	28,121	-14,500
Landslide Hazards	3,538	3,538	3,554	+16
Global Seismographic Network	6,653	6,653	6,661	+8
Geomagnetism	1,888	1,888	1,888	0
Coastal/Marine Hazards and Resources	40,510	40,510	40,498	-12
Subtotal, Natural Hazards	178,613	178,613	145,025	-33,588
Water Resources *(new structure)*				
Water Resources Availability Program	[110,907]	[110,907]	74,858	+74,858
Water Observing Systems Program	[112,545]	[112,545]	105,064	+105,064
Water Resources Research Act Program	[6,500]	[6,500]	0	0
Subtotal, Water Resources	[229,952]	[229,952]	179,922	+179,922

APPROPRIATION: Surveys, Investigations, and Research *(continued)*

	2018 Actual	2019 CR	2020 Request	Change
Water Resources *(old structure)*				
Water Availability and Use Science Program	46,052	46,052	0	-46,052
Groundwater and Streamflow Information Program	74,173	74,173	0	-74,173
National Water Quality Program	90,829	90,829	0	-90,829
Water Resources Research Act Program	6,500	6,500	0	-6,500
Subtotal, Water Resources	217,554	217,554	0	-217,554
Core Science Systems				
National Land Imaging Program *(new structure)*	[101,065]	[101,065]	88,955	+88,955
Science Synthesis, Analysis, and Research Program	24,051	24,051	25,987	+1,936
National Cooperative Geological Mapping Program	24,397	24,397	24,397	0
National Geospatial Program	67,854	67,854	67,854	0
Subtotal, Core Science Systems	116,302	116,302	207,193	+90,891
Science Support				
Information Services	21,947	21,947	21,947	0
Administration and Management	80,881	80,881	80,963	+82
Subtotal, Science Support	102,828	102,828	102,910	+82
Facilities				
Rental Payments and Operations Maintenance	104,927	104,927	113,321	+8,394
Deferred Maintenance and Capital Improvements	15,164	15,164	7,975	-7,189
Subtotal, Facilities	120,091	120,091	121,296	+1,205
TOTAL APPROPRIATION *(w/o supplemental)*	1,148,457	1,148,457	983,467	-164,990
Supplemental	42,246	0	0	0
TOTAL APPROPRIATION *(w/ supplemental)*	1,190,703	1,148,457	983,467	-164,990

Detail of Budget Changes

	2020 Change from 2019 CR
TOTAL APPROPRIATION	-164,990
Ecosystems	-16,683
Species Management Research *(new structure)*	+44,359
Transfer from Environmental Health, Contaminant Biology	+10,197
Transfer from Environments	+5,166
Transfer from Fisheries	+10,250
Transfer from Status and Trends	+13,090
Transfer from Wildlife	+25,408
Museum Collections	-1,600
Species-Specific Research	-6,653
Toxicological and Pathogenic Diseases	
Individual Organisms	-5,099
Populations	-5,098
Whooping Crane Propagation	-1,500
Fixed Costs	+198
Land Management Research *(new structure)*	+43,793
Transfer from Environments	+31,249
Transfer from Fisheries	+6,540
Transfer from Land Resources, Land Change Science	+5,025
Transfer from Status and Trends	+7,383
Transfer from Wildlife	+12,276
Biological Carbon Sequestration	-5,025
Chesapeake Bay	-2,599
Contaminants Research	-1,000
Greater Everglades	-4,272
Habitat Research	-1,485
Land and Water Management Research	-4,462
Fixed Costs	+163

Detail of Budget Changes

	2020 Change from 2019 CR
Biological Threats Research *(new structure)*	+28,996
Transfer from Fisheries	+3,346
Transfer from Invasive Species	+17,330
Transfer from Wildlife	+8,323
White Nose Syndrome Research	-154
Fixed Costs	+151
Climate Adaptation Science Center *(new structure)*	+23,901
Transfer from Land Resources, Land Change Science	+19,153
Transfer from Land Resources, National & Regional Climate Adaptation Science Centers	+25,335
Arctic	-528
Climate Research and Development	-6,125
Landscape Science	-2,213
Realign Centers	-11,318
Tribal Climate Adaptation Science	-500
Fixed Costs	+97
Status and Trends *(old structure)*	-20,473
Transfer to Land Management Research	-7,383
Transfer to Species Management Research	-13,090
Fisheries Program *(old structure)*	-20,136
Transfer to Biological Threats Research	-3,346
Transfer to Land Management Research	-6,540
Transfer to Species Management Research	-10,250
Wildlife Program *(old structure)*	-46,007
Transfer to Biological Threats Research	-8,323
Transfer to Land Management Research	-12,276
Transfer to Species Management Research	-25,408
Environments Program *(old structure)*	-36,415
Transfer to Land Management Research	-31,249
Transfer to Species Management Research	-5,166
Invasive Species *(old structure)*	-17,330
Transfer to Biological Threats Research	-17,330
Cooperative Research Units	-17,371
Land Resources *(old structure)*	-152,499
National Land Imaging	-93,094
Transfer to Core Science Systems, National Land Imaging	-93,094
Land Change Science	-34,070
Transfer to Core Science Systems, National Land Imaging	-7,971
Transfer to Core Science Systems, Science Synthesis, Analysis, and Research	-1,921
Transfer to Ecosystems, Climate Adaptation Science Center	-19,153
Transfer to Ecosystems, Land Management Research	-5,025
National and Regional Climate Adaptation Science Centers	-25,335
Transfer to Ecosystems, Climate Adaptation Science Center	-25,335
Energy and Mineral Resources, and Environmental Health	-16,766
Mineral and Energy Resources	+5,829
Mineral Resources	+10,822
Continue Magnetotelluric Survey of the United States	+1,726
Critical Minerals	+10,598
Domestic Minerals Base Assessment	-1,000
Minerals Information	-371
Research and Assessment	-372
Fixed Costs	+241
Energy Resources	-4,993
Alaska North Slope Resource Assessments	-4,700
Coal and Uranium Resource Assessments	-1,519
Geologic Carbon Sequestration	-1,891
Modernize and Provide Multi-Resource Assessments	+2,992
Fixed Costs	+125
Environmental Health *(old structure)*	-22,595
Contaminant Biology	-10,197
Transfer to Ecosystems, Species Management Research	-10,197
Toxic Substance Hydrology	-12,398
Transfer to Water Resources, Water Resources Availability	-12,398
Natural Hazards	-33,588
Earthquake Hazards	-19,100
National Seismic Hazard Model Improvements and Alaska Update	+2,654
Advanced National Seismic System Deferred Maintenance	-5,000
Earthscope Stations	-1,400
Earthquake Early Warning Capacity	-14,700
Seismic Network Improvements	-826
Fixed Costs	+172
Volcano Hazards	-14,500
Completion of Instrument Upgrades and Repairs on High-Threat Volcanoes	-13,000
Hazards Assessments	-97
Next-Generation Lahar Detection System Equipment	-1,500
Fixed Costs	+97
Landslide Hazards	+16
Fixed Costs	+16
Global Seismographic Network	+8
Fixed Costs	+8
Coastal/Marine Hazards and Resources	-12

APPROPRIATION: Surveys, Investigations, and Research *(continued)*

Detail of Budget Changes

	2020 Change from 2019 CR
Coastal, Wetlands, and Estuarine Restoration Research	-158
Fixed Costs	+146
Water Resources	-37,632
Water Resources Availability *(new structure)*	+74,858
Transfer from Environmental Health, Toxic Substance Hydrology	+12,398
Transfer from National Water Quality Program	+52,457
Transfer from Water Availability and Use Science	+46,052
Aquifer Assessments	
Mississippi Alluvial Plain	-2,797
U.S.-Mexico Transboundary Aquifer	-1,000
Constituent and Contaminant Hydrology	-10,848
Cooperative Matching Funds	
Water Use Research	-1,000
Harmful Algal Blooms	-1,350
National Park Service Water-Quality Partnership	-1,743
Regional Water-Quality Assessments	-4,100
Shallow and Fractured Bedrock Groundwater Research	-300
Unconventional Oil and Gas Research	-250
Water Science Research and Development	-10,874
Water Use Data and Research	-1,500
Water-Quality Trends	-635
Fixed Costs	+348
Water Observing Systems *(new structure)*	+105,064
Transfer from Groundwater and Streamflow Information	+74,173
Transfer from National Water Quality Program	+38,372
Cooperative Matching Funds	
Tribal Water	-500
Urban Water Federal Partnership	-717
Groundwater Quality Monitoring Network	-1,094
National Atmospheric Deposition Program	-1,576
National Groundwater Monitoring Network	-2,395
Water Science Research and Development	-1,540
Fixed Costs	+341
Water Availability and Use Science *(old structure)*	-46,052
Transfer to Water Resources Availability	-46,052
Groundwater and Streamflow Information *(old structure)*	-74,173
Transfer to Water Observing Systems	-74,173
National Water Quality Program *(old structure)*	-90,829
Transfer to Water Observing Systems	-38,372
Transfer to Water Resources Availability	-52,457
Water Resources Research Act Program	-6,500
Core Science Systems	+90,891
National Land Imaging *(new structure)*	+88,955
Transfer from Land Resources, Land Change Science	+7,971
Transfer from Land Resources, National Land Imaging	+93,094
Landsat 9 Ground Systems Development	+5,800
Remote Sensing State Grants	-1,215
Research and Investigations	-5,949
Satellite Operations	-10,905
Fixed Costs	+159
Science Synthesis, Analysis, and Research	+1,936
Transfer from Land Resources, Land Change Science	+1,921
Program Operations	-59
Fixed Costs	+74
National Cooperative Geological Mapping	0
Program Operations	-71
Fixed Costs	+71
National Geospatial	0
Program Operations	-177
Fixed Costs	+177
Science Support	+82
Administration and Management	+82
Support for Interior Reorganization	+6,200
Program Operations	-6,690
Fixed Costs	+572
Information Services	0
Program Operations	-43
Fixed Costs	+43
Facilities	+1,205
Rental Payments and Operations Maintenance	+8,394
Menlo Park Relocation	+682
Program Operations	-890
Fixed Costs	+8,602
Deferred Maintenance and Capital Improvements	-7,189
Subtotal for Changes Across Multiple Subactivities	
Fixed Costs	[+11,801]