



FY 2017 USGS Budget Request

Observing, understanding, and enhancing Water Resources

The FY 2017 Budget Request for the Water Resources Mission Area is \$227,992,000, a net change of +\$17,305,000 from the 2016 Enacted level.

USGS water science and information improves our safety, economy, and quality of life.

Dollars in Thousands	2015	2016	2017			
	Base	Enacted	Fixed Costs	Program Changes	Request	Change from 2016 Enacted
Water Resources	\$211,267	\$210,687	\$957	\$16,348	\$227,992	\$17,305
Water Availability and Use Science Program	\$40,919	\$42,052	\$236	\$12,100	\$54,388	\$12,336
<i>WaterSMART: Near Real Time Assessment of Water Use During Drought</i>	<i>[\$0]</i>	<i>[\$0]</i>		<i>[\$4,000]</i>	<i>[\$4,000]</i>	<i>[\$4,000]</i>
<i>WaterSMART: Water Use Information</i>	<i>[\$0]</i>	<i>[\$0]</i>		<i>[\$3,000]</i>	<i>[\$3,000]</i>	<i>[\$3,000]</i>
<i>WaterSMART: Water Use Research</i>	<i>[\$0]</i>	<i>[\$0]</i>		<i>[\$1,000]</i>	<i>[\$1,000]</i>	<i>[\$1,000]</i>
<i>WaterSMART: Drought</i>	<i>[\$500]</i>	<i>[\$801]</i>		<i>[\$1,000]</i>	<i>[\$1,801]</i>	<i>[\$1,000]</i>
<i>WaterSMART: Streamflow Information</i>	<i>[\$675]</i>	<i>[\$675]</i>		<i>[\$400]</i>	<i>[\$1,075]</i>	<i>[\$400]</i>
<i>WaterSMART: National Hydrologic Model</i>	<i>[\$300]</i>	<i>[\$300]</i>		<i>[\$750]</i>	<i>[\$1,050]</i>	<i>[\$750]</i>
<i>Critical Landscapes: Arctic</i>	<i>[\$250]</i>	<i>[\$250]</i>		<i>[\$1,950]</i>	<i>[\$2,200]</i>	<i>[\$1,950]</i>
Groundwater and Streamflow Information Program	\$69,707	\$71,535	\$222	\$1,200	\$72,957	\$1,422
<i>Tribes</i>	<i>[\$2,000]</i>	<i>[\$2,000]</i>		<i>[\$500]</i>	<i>[\$2,500]</i>	<i>[\$500]</i>
<i>Expand Use of Flood Inundation Mapping and Rapid Deployable Streamgages</i>	<i>[\$2,560]</i>	<i>[\$2,560]</i>		<i>[\$700]</i>	<i>[\$3,260]</i>	<i>[\$700]</i>
National Water Quality Program	\$94,141	\$90,600	\$499	\$3,048	\$94,147	\$3,547
<i>Support NAWQA Cycle 3</i>	<i>[\$62,000]</i>	<i>[\$62,000]</i>		<i>[\$1,881]</i>	<i>[\$63,881]</i>	<i>[\$1,881]</i>
<i>Enhanced Cooperative Activities and Urban Waters</i>	<i>[\$0]</i>	<i>[\$0]</i>		<i>[\$717]</i>	<i>[\$717]</i>	<i>[\$717]</i>
<i>Unconventional Oil and Gas Research</i>	<i>[\$200]</i>	<i>[\$200]</i>		<i>[\$450]</i>	<i>[\$650]</i>	<i>[\$450]</i>
Water Resources Research Act Program	\$6,500	\$6,500	\$0	\$0	\$6,500	\$0

Since 1879, the U.S. Geological Survey (USGS) has addressed issues of water availability and quality, drought, and flood hazards. Today, hydrologic professionals and support staff located in all 50 States and Puerto Rico, continue this legacy of providing the Nation with critical water information. As the primary Federal science agency for water information, the USGS monitors and assesses the amount and characteristics of the Nation's water resources, assesses sources and behavior of contaminants in the water environment, and develops tools to improve management and understanding of water resources. The USGS is an important source of information during times of drought and floods. Information and tools allow first responders, the public, water managers and planners, and policymakers to—

- Minimize loss of life and property as a result of water-related natural hazards, such as floods, droughts, landslides, and chemical spills.
- Manage freshwater, both above and below the land surface, for domestic, public, agricultural, commercial, industrial, recreational, and ecological uses.
- Protect and enhance water resources for human health, aquatic health, and environmental quality.
- Contribute to wise use, development, and conservation of the Nation's water resources for the benefit of present and future generations.

Highlights of the 2017 President's Budget for Water Resources include:

The Water Resources Mission Area is requesting a total of \$60,185,000 for use in matching States, municipalities, and Tribes contributions for cooperative water efforts.

WaterSMART: + \$10,150,000 for a total of \$24,664,000 (USGS Total: \$37,064,000): Meeting the water resource needs of the Nation is an increasing challenge because of rapidly changing drivers of water availability, such as climate change, population increases, and water use and land use changes. This 2017 budget request includes increases that will develop methods to assess regional and national water use trends during drought periods for a Near Real Time Assessment of Water Use during drought; integrate water information that is fragmented among multiple agencies into a national water data framework on a geospatial platform; support water use research; conduct a more comprehensive evaluation of data needs and model capabilities for quantifying water budgets across U.S. snow-dominated regions; implement StreamStats (a Web-based Geographic Information System (GIS) application which allows users to easily obtain streamflow statistics and basic characteristics for USGS gaged and ungaged sites) in three additional States; and enhance the National Hydrologic Model to improve decision making. Coordination between the Bureau of Reclamation and the USGS which has been going on from the very beginning of WaterSMART will continue in 2017.

Arctic: +\$1,950,000 for a total of \$2,950,000 (Total USGS: \$38,991,000): Rapid coastal erosion threatens villages and critical infrastructure, greenhouse gas emissions from thawing permafrost are increasing, invasive species are a growing threat in the Arctic. This 2017 increase would address interactions among water-mediated processes in a warming Arctic, assess system feedbacks (e.g., effects of warming on hydrology and biogeochemical cycling which subsequently affects climate and hydrology), and better anticipate future system change via these assessments of the cryosphere. This work would include monitoring of hydrologic (groundwater, surface water, thermos-karst features) and related biogeochemical (particularly carbon, nutrient, and mercury) cycles and monitoring of sentinels of change including permafrost temperature, streamflow, biogeochemical and other materials exported from watersheds, and carbon dioxide and methane exchange between land and water surfaces and the atmosphere.

Expand Use of Flood Inundation Mapping and Rapid Deployable Streamgages: +\$700,000 for a total of \$3,260,000: The USGS promotes the development and application of information and tools to minimize the loss of life and property due to hazards, including, for example, support for flood forecasting, storm surge monitoring during hurricanes and floods (through storm tide sensors and Rapidly Deployable Streamgages, RDGs), drought, debris flows, and fires. This 2017 increase would expand the use of flood inundation mapping and RDGs. RDGs, which are temporary water-stage sensors with autonomous data-transmission capacity, are set up in advance of an event to provide short-term water-level and meteorological data during the event for areas that are particularly vulnerable to the effects of storm surge. RDGs can be installed, rated, and ready to broadcast data within hours to monitor flood heights and approximate flood flows, especially as the water levels approach elevations requiring careful management of reservoir releases or close scrutiny of levee performance. In river settings, the RDGs provide temporary real-time information to flood-threatened communities that lack permanent USGS streamgages. Flood Inundation Maps provide geospatial visualizations, block by block, and street by street, of forecasted or current flooding, information vital for emergency response planning by communities and other decision makers to help guide the placement of emergency resources during a flood event.

Support National Water Quality Assessment (NAWQA) Project Cycle 3 +1,881,000 for a total of \$63,881,000: Water-quality of streams, lakes and estuaries remains a concern for human use and ecosystem health. Restoring and enhancing water-quality monitoring networks, analysis of long-term trends in water quality, and the development of new regional and national water-quality models are three high priorities for the surface-water component of the National Water Quality Project. Two-thirds, or \$1.262 million of the 2017 increase will be used to restore and enhance long-term surface water-quality monitoring networks and expand development of modeling tools that are a priority of stakeholders for Cycle 3. One-third, or \$620,730 will be used to restore and enhance long-term groundwater water-quality monitoring networks and expand development of modeling tools that are a priority of stakeholders for the Cycle 3.