



Water Science for the 21st Century

FY 2016 President's Proposed Budget

Total requested increase \$14,521,000

For more than 135 years, the USGS has earned a sterling reputation for providing decision-makers with objective, reliable scientific results and technical excellence. The USGS Fiscal Year 2016 budget request represents a balanced focus on monitoring, research, and assessments while maintaining the diverse expertise necessary to respond to evolving science needs. It reflects careful water science investments that support a resilient and robust economy, while also protecting the health and environment of the Nation and its people.

Water is essential for life. As policy makers, resource managers, and the public balance competing demands for agricultural irrigation, drinking water, energy production, and other needs, they are turning to science to provide the solid foundation for policy decisions. And, when a natural hazard such as a flood or drought strikes, science helps emergency managers make life-saving decisions. The U.S. Geological Survey (USGS) is the primary Federal science agency for water information. The USGS monitors and assesses the amount and characteristics of the Nation's freshwater resources, assesses sources and behavior of contaminants in water, develops tools to improve management and understanding of water resources, and provides information about the water level and flow of rivers and streams. This information is especially critical during floods to get people out of harm's way and during droughts when managers have to decide on complex tradeoffs among water users.



The USGS requests \$14.5 million for Water Science for the 21st Century, which includes funding for the WaterSMART initiative, to support improved streamflow information, drought, water use information and research, and understanding of ecological flows.

WaterSMART

The USGS provides the science to help water managers understand and address competing demands for water through an initiative called WaterSMART. The primary focus of this initiative includes developing a National Water Census, improving our understanding of water budgets, and supporting sustainable and environmentally sound water management. Leveraging expertise and resources across multiple USGS mission areas enables a broader focus to address these challenging issues in a time of growing competition for water resources. Through the combined efforts of the Bureau of Reclamation and the USGS, WaterSMART provides the foundation for a sustainable water strategy for the nation.



Streamflow Information

For more information, visit: www.usgs.gov/budget

Funding is requested to increase the number of streamgages, estimate streamflow at inaccessible areas using remote sensing, and estimate monthly streamflow statistics. The USGS measures water levels at more than more than 8,130 streamgages nationwide; those data are converted to streamflow information by sophisticated software and stream-geometry data collected by hydrographers. The streamflow information is available to everyone, including the public and emergency responders, in real time. These data are used, for example, to minimize loss of life and property from water hazards, including floods, droughts, and debris or mud flows. Additionally, consistent, long-term, high-quality streamflow information is essential for design of water infrastructure such as dams, irrigation systems, water and wastewater-treatment plants, culverts and bridges; the establishment of jurisdictional floodplains; and the regulation of water quality.

Science to Support Drought

Given the persistent drought in multiple regions of the United States, the USGS proposes to quantify streamflow for all areas of the country, make precipitation data readily available, and determine groundwater availability under drought conditions. Funding is requested to develop actionable science approaches, focused on drought, by convening regionally based working groups of scientists, decision-makers, and natural resource managers to develop coordinated adaptive management plans to address severe and prolonged drought. This work would provide tools for fish and wildlife managers as well as water resource managers.



Water Use Information and Research

When it comes to water availability, you cannot manage what you do not measure. Recently, the USGS issued a report, *Progress Toward Establishing a National Assessment of Water Availability and Use*, which fulfilled a Congressional requirement for the Secretary of the Interior to report on progress made in implementing the national water availability and use assessment program, also referred to as the National Water Census. Growing populations, increased energy development, and the uncertain effects of a changing climate magnify the need for an improved understanding of water use and water availability. However, no comprehensive and current national assessment of water resources exists. Funding is requested to continue to provide grants to State Water Resource Agencies to improve their ability to provide the base data at the necessary resolution for effective decision-making. The Water Census will quantify water supply and demand consistently across the entire country, fill in gaps in existing data, and make that information available to anyone who needs it. In addition, funding would allow the USGS to participate in a new, multi-agency Open Water Data Initiative to compile water information that is now fragmented among multiple bureaus into a national water data framework on a geospatial platform, a place-based database.

Ecological Flows

Decisions made every day by Federal, State, and local managers affect the quantity, quality, and timing of water flows required to sustain freshwater and marshland environments and the human livelihoods and well-being that depend on these ecosystems. Funding is requested to develop Decision Support Systems that have the capacity to provide a diverse set of management options—both monetary and non-monetary—to water regulators and stakeholders for making decisions that balance human and ecosystem needs. These include maintenance of important species, minimizing adverse impacts and vulnerabilities in floodplains or flood-prone areas, and protecting and restoring the functions of natural systems.