USGS Director's Annual Bureau Guidance for Fiscal Year 2018

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Memorandum

To: All U.S. Geological Survey Employees

From: William H. Werkheiser *(signed)*

Acting Director

Subject: USGS Director's Annual Bureau Guidance for Fiscal Year 2018

Introduction

 The USGS faces a significant challenge heading into fiscal year (FY) 2018. We must deliver on our mission despite a proposed 15% decrease in our appropriated resources in the President's budget request. Given this fiscal environment, I felt it was important to provide an overall context for what the USGS as a whole will undertake, a set of priorities that reflect what we will invest in during the coming year even in the face of constrained finances.

In the coming month, more detailed science planning guidance will be issued at the mission area level to allow time for centers to develop BASIS proposals ahead of the new fiscal year. In addition to the bureau and mission area science planning guidance, the Office of Administration has issued more operational guidance needed by cost centers to set assessment rates based on the President's budget request. Specific spending control guidance (e.g., travel and conference restrictions) may be promulgated later in the summer once we have a better sense of likely appropriation levels.

As we saw last month with congressional passage of an omnibus appropriations package for FY 2017, there can be significant differences between what the President proposes and what Congress ultimately provides (and the President signs). For FY 2017, the previous Administration had proposed an increase of $83 million to the USGS above what was ultimately provided. This year's experience also underscores that it may be well into FY 2018 before we know what we will have to invest. That makes budget planning difficult. Dealing with the possible range of outcomes means that we will all need to plan for several different levels. We hope to at least receive the President's requested level and recognize that Congress may restore some of the proposed reductions or identify other funding priorities. Flexibility will be key.

The President has requested $922 million, a reduction of $163 million below the recently enacted FY 2017 level of $1.085 billion. The programmatic reductions required to meet this proposed target are larger than these numbers suggest due to the need to absorb increases for the Landsat 9 ground system and for buying down future Facilities costs, in particular the move from Menlo Park to Moffett Field.

 This budget guidance -- and the mission-level guidance that will follow -- is the result of extensive deliberations between the mission area and regional leadership who came together for a planning session. The mission area associate directors brought perspectives from national stakeholders, the recent Council on Senior Science Advisors workshop, the Innovation Working Group, and program plans. The regional directors brought the outcomes from their center reviews and regional stakeholder meetings.

 The priorities identified in this guidance are binned into three broad categories that reflect key aspects of the overall bureau mission. Nested below those are priorities, some cross-mission and some within missions, for which we should invest the funds proposed by the President and ultimately received from Congress. These high-level priorities are derived from the bureau science strategy, *Facing Tomorrow's Challenges*, which covers the decade from 2007 to 2017. Although much has been accomplished to advance that strategy in the intervening decade, there is still much work left to be done. The mission areas that were defined in that document have all benefited from follow-on science plans that flowed from that strategy and are still very much in force. For that reason, I do not feel a pressing need to develop an entirely new science strategy at this time, recognizing that the next permanent Director may very well wish to take that on. Instead, I've asked the mission area associate directors to lead the development of a high-level Vision and Priorities document that can serve as a bridge to the next science strategy. That document will be available for review later this summer. In the interim, the priorities reflected in this document will be broadly consistent with the multi-year Vision and Priorities planning document, and both documents will feed into the next iteration of the Department of the Interior's strategic plan.

 This Bureau Guidance document focuses specifically on the body of work that should be undertaken in FY 2018. There are also sections that address technology opportunities and operational priorities. In a challenging budget environment, much of the impact – and the uncertainty – falls on the shoulders of our most valuable resource: our people. I wish that were not the case, and on behalf of our entire Executive Leadership Team, I pledge that we will do what we can to avoid unnecessary job losses, and where they are needed we will seek to identify appropriate incentives to minimize the impact to the affected individuals.

A word about reimbursable funding: The USGS is fortunate to have a wide array of partners that directly support our work through reimbursable agreements. With the appropriations looking tight, there will be a natural tendency to seek to fill the gap with other sources. In doing so, however, we need to be certain that the extra work will be consistent with mission priorities. Otherwise, we run the risk of competing for work that should appropriately go to the private sector.

USGS Science Priority Areas for FY 2018

1. **1.   Science for Natural Resources Decision-Making.** The USGS studies and assesses the Nation's energy, minerals, and water resources to support economic growth, environmental protection, and national security. The USGS conducts research on these resources, produces geologic and hydrologic maps, monitors surface and groundwater, and undertakes geophysical and geochemical surveys to produce resource assessments that inform management and economic decisions.

Fiscal Year 2018 Science Priorities

- Continue to conduct energy and mineral resources assessments and research that underpins them. The assessments will enable understanding, modeling, and prediction of natural resource availability, development, and sustainability and will present the results for stakeholders in formats that enable informed decision- making. Resource assessments in FY 2018 will focus on unconventional energy resources and critical minerals. Maintain activities that provide regional and national-scale assessments of the current status and temporal trends of water availability and quality for both surface and groundwater, and deliver new tools to water managers to help them understand and use these assessments in their area.
- Working with partners, provide daily water budget components nationally at the basin scale, and develop the basis for improved national forecasting of the availability of water for future consumption.

1. **2.   Science to Inform Land and Water Management.** One of USGS' greatest strengths is the ability to bring together the breadth of scientific disciplines to produce high-impact, societally relevant integrated science that allow stewards of our lands and waters to make informed decisions in a complex and uncertain environment. In particular, the USGS serves as the science arm of the Department of the Interior, providing a broad suite of tools and capabilities needed for public land management and fulfillment of trust responsibilities such as species of management concern. Nation-wide the USGS provides a broad array of tools such as change detection, scenarios, forecasts, and risk assessments to provide information for decision-makers who seek to balance multiple uses and conservation with economic trade-offs. This science provides the tools for managers to make fully informed decisions about development and conservation. The result is science to support multiple uses of our lands. Reduced uncertainty and greater precision will also support streamlining of decision-making process like siting decisions and permitting.

Fiscal Year 2018 Science Priorities

- **Land Management**
    - Continue to provide science to inform decisions on protecting and conserving our Nation's fish and wildlife and outdoor recreation heritage, as well as tools and technologies to assist managers and decision makers on public lands to balance resource development with conservation.
    - Provide science and tools for prevention or control of invasive species and wildlife disease outbreaks.
    - For species of management concern, undertake research on fish and wildlife biology and habitat requirements on species for which little information exists. Provide science to support pre-listing conservation and recovery of listed and at-risk species.
    - Continue interdisciplinary science for protection and rehabilitation of healthy watersheds, estuaries and other landscapes for multiples uses.
    - Conduct land resource assessments and deliver tools that enable users across the Nation to track land condition, land cover, and land use at scales relevant to decision making.
    - Continue to provide science to support the needs of land managers to understand and adapt to climate change. Work in FY 2018 will focus on the needs of tribes and Federal and State resource management agencies and will include new efforts to quantify and model key drivers, rates of change and future conditions in the Arctic.

- **Water Management**
    - Maintain collection, management and dissemination of consistently high quality and reliable hydrologic information in real time, including the National Streamgage Network, the Groundwater Monitoring Network, and the USGS network of interdisciplinary "Super Gages."
    - Continue to support long-term, nationally consistent monitoring of sediment, nutrients, and pesticides at stream monitoring sites and groundwater wells.
    - Continue to modernize the delivery of water information to the Nation and improve water management decision support tools.
    - Working with Federal partners, begin efforts that lead to a unified approach to physical modeling across multiple hydrologic sub-disciplines; blending physical and stochastic modeling approaches into a unified, integrated system; and linking this system with ecosystem processes, land use information, and observational data sets.
    - Complete a USGS strategy for harmful algal blooms (HABS) to understand potential health hazards posed by HABs to humans and other organisms, and reduce the occurrence of HABs.
    - Continue to invest in integrated drought science focused on complex interactions that determine drought and drought effects; develop robust models to predict drought risk and vulnerability for planning and mitigation purposes; advance efforts in coordinated drought monitoring systems; and deliver decision-support science to help Federal, State, Tribal, regional, and local stakeholders.

1. **3.   Science to protect public safety, health, and property.** USGS hazard science supports the safety and security of the Nation by enabling well-informed decisions to safeguard communities against a wide range of natural hazards including floods, earthquakes, volcanic eruptions, landslides, coastal change hazards, and wildfires. Primary goals include improving hazard assessments that inform decisions to minimize risk, and delivering enhanced situational awareness products that improve emergency response, inform the public, and minimize disruption during

hazard events. USGS science also helps decision-makers better safeguard the health of humans and other organisms from natural- and human-sourced disruptions, contaminants, and pathogens in the environment.

Fiscal Year 2018 Science Priorities

Maintain core monitoring, hazard assessment and research activities, focusing on the key data, assessment and situational awareness products, and forecasts and warnings that support preparedness, hazard mitigation, emergency response and other loss-reduction uses.

Maintain activities that develop and apply advanced new analytical technologies and laboratory and field methods to monitor, map, predict, and help understand health hazards of contaminants and pathogens in: tap and drinking waters; disaster materials; environmental media such as surface waters, soils, and dusts; and biological media.

Focus these efforts on the areas of highest hazard and risk, and maintain strong support for key partnerships, such as partnerships with emergency managers and planners, decision-makers in communities at risk, and public health experts.

Integrate observations, assessments and research to address multi-hazard risk, advance risk reduction application, and improve risk communications for all hazards.

Foundational Capacity for the Future

Integrated Predictive Science Capacity. In 2018 the USGS will begin efforts to design and pilot an integrated scientific capacity to deliver powerful new products and services that provide: 1) vulnerability detection and assessment, 2) prediction and forecasting, 3) early warning, and 4) decision support at the scale of decisions. Examples of what could be achieved include seasonal to real-time warnings of: biological threats such as disease, invasive species, or harmful algal blooms; natural hazards, such as earthquakes, landslides, volcanic eruptions, and flood inundation; impacts of both sudden and long-term coastal change on public safety, infrastructure and economies, and lands, waters and natural resources; health threats from environmental contaminants and pathogens; and water availability or quality prediction and forecasting.

This integrated capacity will span scientific boundaries and disciplines, and require investments in data integration, high performance computing, modeling, analytics, laboratory facilities, and visualization and decision support tools. This integration of science, facilities, data, models, and tools will provide enhanced and tangible value to the Nation, secure USGS leadership in earth and natural science, and simultaneously create the building blocks for a more fully-integrated science agency.

A specific focus in FY 2018 will be development of an integrated modeling capability in Alaska. The USGS has the unique expertise and capacity to deliver useful comprehensive information to decision-makers facing complex resource and infrastructure issues which are particular to a region or geographic area.   Given DOI's extensive land management responsibility in Alaska, the USGS will partner with many other Federal, State, and academic partners to develop and test methods for integrating biological and physical data and models to provide predictive information of socioeconomic importance throughout South Central Alaska. Potential areas of focus are fisheries health, water quality and availability, renewable and conventional energy potential, flood/erosion impacts to infrastructure and communities, and subsistence resources.

21st Century Mapping and Land Imaging. The USGS is leading national efforts to transform mapping and earth observations and to provide data and maps in the public domain from imagery, to elevation, hydrography and geologic mapping. In FY 2018, the USGS will continue to advance the 3D Elevation Program (3DEP) and provide for the development of the Nation's Sustainable Land Imaging (SLI) Program, which includes Landsat 9. Priorities for this aspect of foundational capacity include the following:

High-quality elevation data are essential for natural hazards assessments, flood risk management, infrastructure development, energy and mineral production, resource management, agriculture, aviation safety, and a host of other nationally significant applications. The USGS will continue towards the 3DEP goal to acquire, manage, and distribute high resolution 3D elevation data for the Nation and U.S. territories with an emphasis on Alaska.

Since 1972, Landsat satellites have provided the only continuous, authoritative global record of changes to the Earth's land surface at a scale needed to make water resource decisions, track forest health, manage agriculture and forecast famines. Under the new SLI agreement with NASA, the USGS will continue to develop ground and flight systems for the Landsat 9 mission with a target launch in late 2020. The USGS will also continue to lead the assessment of U.S. user requirements for future land remote sensing missions.

Continue geological mapping and geophysical surveying of the Nation with a focus on areas that may contain important energy and mineral resources such as Alaska.

USGS Operational Priorities for FY 2018

1. **1.   Facilities.** Even in constrained fiscal times, the USGS needs to continue to focus on and invest in our facilities, and ensure we are being strategic about the condition and most effective locations for our science, and doing what we can to consolidate space. The shortfall will still exist in FY 2018, so the USGS should continue its efforts to act upon opportunities to improve utilization across all types of space including downsizing warehouses, sharing laboratories, and consolidating offices.

1. **2. Information Technology Investment and Management.** In FY 2018 the Office of Enterprise Information's (OEI) priority is to establish Information Management and Technology (IMT) architecture and associated services to support integrated science. To do so OEI will work with mission programs to migrate applications and data to the USGS Cloud Hosting Solutions, upgrade network bandwidth at USGS offices, improve storage options for scientists, provide improved access to computing resources and software tools, secure our information through our cyber security program, and improve efficiencies of IMT investments through IMT Operating Plans.

1. **3. Laboratory Quality Management Systems.** Scientific integrity is the foundation of all USGS science. USGS is working to ensure that all USGS laboratories have a robust Quality Management System (QMS) in place. Information already collected and in-progress by the Strategic Laboratory Committee and the QMS Work Group will feed into a study committee on laboratory quality management being established by the National Academies. These activities are important to maintain the USGS reputation for high-quality data, to build a community of practice for all USGS labs, and to develop Bureau-wide Quality Management Systems for the long term.

Conclusion

As we plan for what we will undertake in FY 2018, I am not asking our scientists to do more with less, but we do need to ensure that the work we undertake and deliver does not represent a lesser effort. What we do, we must do well. That means focusing on accomplishing our mission and producing a body of prioritized work that meets the high standards of quality and integrity that the public expects from us.