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BEFORE THE HOUSE COMMITTEE ON NATURAL RESOURCES
SUBCOMMITTEE ON WATER, OCEANS AND WILDLIFE
ON THE 2022 PRESIDENT'S BUDGET REQUEST

July 21, 2021

Chairman Huffman, Ranking Member Bentz, and members of the Subcommittee, thank you for the invitation to deliver this testimony regarding the Fiscal Year (FY) 2022 budget request for the Water Resources Mission Area (WMA) of the U.S. Geological Survey (USGS).

The FY 2022 budget requests $1.6 billion for the USGS. This request recognizes the important role that the Nation's largest water, earth, and biological science and civilian mapping agency can play in tackling the climate crisis while also supporting economic growth and security and informing resource management decisions across the U.S. These investments in USGS science span a range of activities focused on climate adaptation, land change science, carbon sequestration and greenhouse gas monitoring, critical minerals, mine waste reclamation and reuse, hazards monitoring, and water prediction.

The budget also includes $60.0 million in USGS collaborative research with the new Advanced Research Projects Agency for Climate (ARPA-C) within the Department of Energy. This high-risk, accelerated research can achieve transformational advancement in climate adaptation and resilience in areas in which industry by itself is not likely to invest due to technical and financial uncertainty. USGS investment will focus on work in five areas critically important to Interior's mission and to tackling the climate crisis:

- Planning tools to support habitat health and biodiversity,
- Improved models for prediction of drought and its impacts,
- Predictive tools for wildfire and post-wildfire risk management,
- Coastal change and vulnerability forecasts for planning and support of disaster response and recovery, and,
- Models to assess the potential, and risks, for geologic storage of hydrogen created using renewable energy.

Many of these activities will also support the management responsibilities of Interior bureaus such as the Fish and Wildlife Service and Bureau of Reclamation (BOR), as well as other federal agencies, such as the National Oceanic and Atmospheric Administration, Department of Agriculture, and Department of Defense, and States, Tribes, local water resource management agencies, and the International Boundary and Water Commission.

Water Resources Mission Area

The WMA works with partners to monitor, assess, conduct targeted research, and deliver information on a wide range of water resources and conditions, including streamflow, groundwater, water quality, and water use and availability. These activities support an overarching science strategy for the USGS to observe, understand, predict, and deliver water science to the Nation. The information and tools provided by the USGS allow first responders, the public, water managers and planners, policy makers, and other decision makers to: 1) minimize loss of life and property as a result of water-related hazards, such as floods, droughts, landslides, and chemical spills; 2) manage freshwater for domestic, public, agricultural, commercial, industrial, recreational, and ecological uses; 3) protect and enhance water resources for human health, aquatic health, and environmental quality; 4) and contribute to the effective development and conservation of the Nation's water resources for the benefit of present and future generations.

The FY 2022 budget request for the WMA is $288.4 million. This includes a total of $64.5 million for cooperative matching funds, which would allow the USGS to partner with nearly 1,600 local, State, regional, and Tribal agencies to monitor and assess water in every State, protectorate, and territory. The budget sustains USGS national water monitoring networks (including the National Streamgaging Network), provides capacity to research quantity and quality limits on water availability, and supports the development of regional and National-scale water models and model-based decision support tools.

In FY 2022, the WMA would focus on: delivering integrated water availability assessments (IWAAs) at national and regional scales; advancing USGS water observing systems; modernizing the National Water Information System (NWIS); and building integrated water prediction capabilities. These activities would be advanced through both USGS work nationwide as well as targeted plans to intensively monitor and study select Integrated Water Science basins. These basins are medium-sized watersheds that represent a wide range of environmental, hydrologic, and landscape settings and human stressors on water resources to improve understanding of water availability across the Nation. In each basin, the USGS will be developing assessment and predictive methodologies and tools that can be expanded from the basin to the larger surrounding region and ultimately the Nation. The USGS will deploy multiple water science efforts, such as the Next Generation Water Observing System (high-density monitoring networks designed to provide high temporal and spatial resolution data on water quantity, quality, and use), IWAAs, and Integrated Water Prediction to better understand and predict water challenges. Three Integrated Water Science basins have already been selected – the Delaware River Basin, the Upper Colorado River Basin, and the Illinois River Basin – and a fourth basin in the Pacific Northwest is to be selected at the beginning of FY 2022.

Water Availability and Use Science Program

The Water Availability and Use Science Program (WAUSP) fulfills the goals established by Congress in the SECURE Water Act (Public Law 111-11, Section 9508) by investing

in research and assessments that improve the Nation's understanding of water availability (defined as the spatial and temporal distribution of water quantity and quality, as related to human and ecosystem needs, as affected by human and natural influences). Specifically, the WAUSP supports the National Water Census, a USGS activity designed to systematically provide information that will allow resource managers to assess the quantity, quality, and use of the Nation's water. The WAUSP focuses on conducting national and regional water availability assessments; developing methods to estimate water budgets (i.e., the natural and human-influenced inputs and outputs of water for a given watershed or basin); and evaluating trends in water availability.

Under this program, the FY 2022 budget would enable the USGS to continue work on Regional IWAAs in the Delaware River Basin and Upper Colorado River Basin, and allow the USGS to begin work in the Illinois River Basin. In addition, the USGS would continue to develop techniques to evaluate water availability, advance the models and infrastructure that support assessments, and deliver tools that resource managers can use to support resource planning. In FY 2022, efforts would focus on incorporating climate change and variability, land-use/land-cover change, and socio-economic drivers into USGS water availability prediction capabilities. The USGS would also enhance prediction capabilities related to the water availability impacts from climate-driven extreme events such as drought, wildfire, and hurricanes for incorporation into IWAAs and the National Water Census. In FY 2022, the USGS would work to better understand model uncertainty for each component of the water budget. This includes specific activities in understanding models that assess and predict snowpack as a driver of water availability in the Upper Colorado River Basin.

Groundwater and Streamflow Information Program

The Groundwater and Streamflow Information Program (GWSIP) focuses on the collection, management, and dissemination of high-quality and reliable water information in real-time and over the long-term, both of which are critical for managing the Nation's water resources and anticipating and responding to water hazards that can result in loss of life and property. Serving as one of the largest water data holders in the world, the USGS partners with more than 1,600 Federal, regional, State, Tribal, and local agencies to maintain and manage its water monitoring networks.

In addition to maintaining surface water and groundwater monitoring networks, the FY 2022 budget would allow the GWSIP to continue to enhance monitoring network infrastructure through the USGS Next Generation Water Observing System in: the Delaware River Basin, the Upper Colorado River Basin, the Illinois River Basin and a fourth basin in the Pacific Northwest to be selected at the beginning of FY 2022. The USGS would also continue advancements in storm tide sensors and Rapidly Deployable Gages to facilitate the availability of more data prior to, during, and after major water hazard events such as floods, storm-surge, harmful algal blooms (HABs), and spills. In FY 2022, the USGS would continue to modernize data infrastructure and data delivery components of NWIS. Data delivery efforts will directly benefit data users by enhancing the National

Water Dashboard (a mobile USGS tool that provides real-time information on water levels, weather and flood forecasts all in one place), adding new public search and data download functionality, and enhancing delivery of camera imagery, geospatial information, and discrete groundwater data. The long-term data supplied by the program are a critical component to sustaining the viability of industries such as agriculture, fishing, and outdoor recreation, and are used for decisions related to water-supply planning, aquifer storage and recovery, infrastructure design, floodplain and ecosystem management, energy development, and resolution of water disputes.

National Water Quality Program

The National Water Quality Program (NWQP) supports the data collection, assessments, modeling, and research needed to assess the quality of freshwater resources. Activities are focused on understanding the role that water quality plays in water availability. The long-term data, assessments, and models supported by the program are critical components to sustaining the viability of industries such as agriculture, fishing, and outdoor recreation, and are used for decisions related to water-supply planning, aquifer storage and recovery, infrastructure design, floodplain and ecosystem management, energy development, and resolution of water disputes.

The FY 2022 budget for NWQP would maintain USGS networks that monitor the water quality of both surface water and groundwater resources as well as wet atmospheric deposition (chemical constituents deposited via snow, sleet, rain). In addition, the NWQP would support activities across USGS Integrated Water Science basins to assess water-quality factors such as salinity and temperature in the Delaware River Basin, groundwater salinity and selenium in the Upper Colorado River Basin, and developing a framework for assessing the impacts of nutrients on water availability in the Illinois River Basin. These efforts are being developed in partnership with stakeholders to ensure they are informative at local and regional levels but can also be assimilated into national-scale products as part of the National IWAA.

The multi-scale prediction of water quality and availability will provide new tools for decisionmakers who manage freshwater resources. These capabilities will be advanced through Integrated Water Prediction activities designed to develop comprehensive and consistent hydrologic modeling frameworks for the U.S. Fundamental to this work will be USGS efforts to advance understanding of water quality processes and incorporate that knowledge into national and regional scale models. In FY 2022, the USGS is continuing efforts to understand the processes that influence both existing and emerging water-quality challenges such as HABs and per- and poly-fluorinated compounds (PFAS).

Water Resources Research Act Program

The Water Resources Research Act Program, authorized by Section 104 of the Water Resources Research Act (WRRA) of 1984, is a Federal–State partnership that plans, facilitates, and coordinates water resources research, education, and information transfer through a matching grant program. The WRRA authorized the establishment of State Water

Resources Research Institutes at land grant universities across the Nation. There are currently 54 Institutes: one in each State, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. Institutes are funded through annual base grants (Section 104b) that support about 250 undergraduate and graduate students annually. Additionally, the WRRA program, in cooperation with the Institutes, supports annual competitive grants (Section 104g) that fund research with a focus on water problems and issues that are of a regional or interstate importance and align with USGS priorities. In FY 2022, a subset of these competitive grants is offered for specific priority research areas, including an improved understanding of the impacts of aquatic invasive species on lakes and rivers in the Upper Mississippi River basin as well as the fate, persistence, and transport of PFAS nationally.

Conclusion

On behalf of the USGS, I thank the Committee for its interest in USGS water programs and appreciate the opportunity to testify today. I am happy to answer any questions you may have.