

# *The Snow Water Supply Forecasting Program Authorization Act*

## **Background: Aerial Snowpack Observatory (ASO) and Snowpack Measurement Technologies**

ASO technology is an aerial snow monitoring tool that provides precise measurement of depth and water content for every square meter of snow in a watershed that, when combined with conventional snow surveys, provides a near-perfect picture of snow water content. The technology measures snow depth and water content using an airplane-mounted light detection (LiDAR) instrument coupled with an imaging spectrometer.

When the data obtained through ASO surveys are combined with computer-based snowmelt models, they can provide future runoff forecasts for entire seasons, expanding snowpack and runoff forecast accuracies from the current 50-90% to 96-99%. Expanding the use of ASO technology and other similar technologies will be critical to more accurately predict snowpack and runoff – modeling that will be especially important in better managing competing missions of Western water storage reservoirs for flood control and water supply amidst a changing climate and growing population.

### **By the numbers** Improves water reservoir management:

- Errors in water-storage management can cost hundreds of millions of dollars in unnecessary releases from reservoirs and extra groundwater pumping.
- ASO technology predicts seasonal runoff forecasts with 96 to 99% accuracy.
- Investment in additional ASO flights to better measure snowpack often has a high return on investment, as much as 40:1 for water supply benefits, and 80:1 for all benefits.

### **Need for Legislation**

After several years developing and refining the deployment of snowpack measurement technology, in December 2019, NASA concluded management of the Airborne Snow Observatory (ASO) program and transferred it to the private sector. While a beneficial step in effective deployment of the program as it is currently understood, such a step reduces the certainty for federal support of a program with significant public benefits, including improved water conservation, supply and delivery forecasts across the West.

### **Purpose**

The bill establishes a program within the Department of the Interior which will improve the understanding, management, and deployment of snowpack measurement technologies used for seasonal water forecasting and preserve key elements of the basic technology elements of the ASO program, thus allowing the federal government to remain a key partner in partnership based efforts to increase water supply storage, improve water management efficiencies, and enhance flood control measures.

In particular, formal establishment of the program would provide continued strong benefits across the West, including but not limited to: Sierra Nevada and Cascade Mountains; the front range of the Rocky Mountains of Colorado, Wyoming and New Mexico; the Colorado River tributaries in Utah and Arizona, and the Pacific Northwest.

\$15 million would be authorized for the program from fiscal years 2022 to 2026.