Statement for the Record

Bureau of Reclamation

U.S. Department of the Interior

House Committee on Natural Resources

Subcommittee on Water, Wildlife, and Fisheries

H.R. 3857, Snow Water Supply Forecasting Program Reauthorization Act of 2025

June 24, 2025

Thank you for the opportunity to submit this statement for the record on H.R. 3857, the Snow Water Supply Forecasting Program Reauthorization Act of 2025. Snow plays an important role in water supplies managed by the Bureau of Reclamation (Reclamation). Snow in mountain watersheds acts as a natural reservoir, holding the water that gradually melts to release flows as the season progresses. Understanding snow conditions informs water supply forecasts relied upon by reservoir operations and broader water management in the Western United States.

Activities to monitor snow and other basin conditions have expanded to cover more areas in recent years, and technological advancements have made these measurements more precise. Snow monitoring informs a host of forecasts ranging from short-term streamflow to seasonal water supply forecasts, and advancements in monitoring can lead to forecast benefits. However, uncertainty about snow conditions as well as timing and magnitude of snowmelt runoff is still a challenge Reclamation reservoir managers tackle on a near-daily basis. The variable nature of snow and the extreme environments that often accompany snow can pose challenges for effective, reliable snow monitoring.

Snow measurement can be conducted from different platforms, ranging from ground-based tools to aircraft and satellite-based systems, or estimated using advanced modeling tools. Each platform and each specific snow monitoring technology has tradeoffs between cost, spatial coverage, temporal coverage, accuracy, precision, resolution, geographic suitability, and reliability. The best platform for one location is not necessarily the best option in another.

Multiple federal agencies have a role in developing, deploying, and applying snow measurement technologies. For example, the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) operates a network of approximately 900 snow measurement stations across the western United States. The National Atmospheric and Oceanic Administration (NOAA) conducts snow survey flights using gamma sensors mounted on aircraft.

NASA and the United States Geological Survey (USGS) support research activities that deploy snow monitoring technologies from ground, aircraft, and space-based platforms. The State of California Department of Water Resources (CA-DWR) also maintains a ground-based monitoring network. Reclamation partners with these agencies and others providing coordination and leadership to realize enhanced water supply forecasting and water management.

The Snow Water Supply Forecasting Program (SWSFP) was authorized in 2020. Reclamation implements SWSFP on behalf of the Secretary of the Interior to enhance snow monitoring and subsequent water supply forecasts to the benefit of water management. It achieves this in four ways: 1) Demonstrating and/or deploying emerging snow monitoring technologies; 2) Demonstrating and/or deploying improvements to existing snow monitoring technologies; 3) Deploying existing snow monitoring technologies in less covered areas; and 4) Improving the use of snow monitoring data to enhance water supply forecasts. SWSFP has awarded and worked with partners on a variety of projects using ground-based technologies, aircraft and satellite-based technologies, and advanced modeling. Reclamation has observed that multiple technologies can complement each other. For example, advanced modeling can be done across the west, but confidence in results is increased dramatically when paired with in-situ and remote measurements. Another example is airborne observations rely on ground-based measurements for validation and verification. Due to its role in managing water supply reservoirs, hydropower facilities, and water distribution systems, Reclamation has a strong interest in obtaining the most accurate snow monitoring and forecasting across the West.

H.R. 3857 would reauthorize and expand the program for fiscal years 2027 through 2031. The bill, as introduced, would direct the Secretary of the Interior, acting through the Commissioner of Reclamation, to incorporate to the greatest extent practicable the use of information from "commercially available technologies" including airborne snow surveys and associated modeling when determining water supply forecasts or allocations to Federal water contractors. We note the original authorization directs the use of "emerging technologies" for these purposes. The bill would also allow for consideration of other technologies as there is continued need for on-the-ground snow measurements and satellite-derived earth observations which complement other monitoring and modeling technologies.

The bill would increase the authorized level of appropriations from a total of $15 million for fiscal years 2022 through 2026 to a total of $75 million for fiscal years 2027 to 2031, at $15 million annually. If appropriated, this additional funding would expand Reclamation's role into the use of airborne snow surveys and associated modeling and technology investments in complementary technologies that enhance the understanding of snowpack volume and snowmelt timing.

The Department supports the intent of H.R. 3857 but notes the bill would increase authorized federal spending. Should the committee advance this legislation, we would like to work with the bill sponsor to address this concern as well as ensuring that Reclamation's role does not duplicate other Federal agency efforts.