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California Legislature

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FACT SHEET: SB 758 (Block)
Atmospheric Rivers: Research

Summary:
SB 758 creates the Atmospheric Rivers Research and Mitigation Program (program) under the Department of Water Resources (DWR). SB 758 requires DWR to research the causes and effects of atmospheric rivers, take all actions within its existing authority to capture water generated by atmospheric rivers in order to increase the water supply and reliability of water resources in the state, and to operate reservoirs in a manner that improves flood protection in the state.

Background:
California has the most variable precipitation annually of any location in the U.S., ranging from severe drought to major floods. Research has shown that this variability is largely due to a weather condition known as an "atmospheric river" (AR). ARs are narrow regions in the atmosphere that are responsible for most of the horizontal transport of water vapor outside of the tropics. ARs are responsible for 30-50% of California's precipitation and water supply in just a handful of days each year. Pineapple Express storms are a common example of an AR. Research aircraft observations have shown that a strong AR transports an amount of water vapor roughly equivalent to 10 to 20 times the average flow of water at the mouth of the Mississippi River. In California, ARs are also closely tied with flood risks. However, despite the significant role ARs play in California's water supply, the state lacks sufficient research to accurately forecast and track ARs for purposes of precipitation collection or flood control.

The current operation of flood control dams is based on models of historic weather and runoff patterns and the potential economic loss due to flooding, from the first half of the 20th century and do not take into consideration weather forecasts. Better forecasting of ARs (from hours, to days, weeks, and seasons) has the potential to create additional water resources and better flood protection through the use of "Forecast-Informed Reservoir Operations" (FIRO). A pilot project to test the feasibility of FIRO is being planned by an expert committee on a vital reservoir on the Russian River, Lake Mendocino. It is led by researchers at the Center for Western Weather and Water Extremes at the University of California San Diego and the Sonoma County Water Agency. This pilot project has the potential to predict AR patterns to make intelligent water management decisions regarding collection of additional water supplies and flood protection. SB 758 begins the overdue state development of a program to study ARs and the effective application of that science.

Solution:
California's continued drought adds urgency to the need for accurate AR information to help state leaders make better research-based water management decisions. SB 758 would create the Atmospheric Rivers Research and Mitigation Program under DWR. The bill would require DWR to research the causes and effects of ARs. SB 758 would also require DWR to undertake capture of water generated by ARs and operate reservoirs to increase water supply, reliability, and improve flood protection as allowed within the existing authority of the department. This bill would help close key knowledge gaps in weather observation, models, and forecasting and assist in more effective state water collection and flood protection policies.

Support: Sonoma County Water Agency, Orange County Water District, and the Bay Area Flood Protection Association.

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