

MOTION BY SUPERVISOR HILDA L. SOLIS

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Exploration of Forecast Informed Reservoir Operations (FIRO) for Enhanced Water Management and Resilience in Los Angeles County

Due to climate change, Los Angeles County faces increasingly severe and variable weather. By 2050, LA County could endure up to six times more extreme heat days — reaching temperatures above 95°F — punctuated by intense, unpredictable rainstorms that heighten flooding. Particularly, the County faces increased risks of extreme flooding due to the growing frequency and intensity of atmospheric rivers (ARs) — long, narrow bands of moisture that can deliver heavy rains over concentrated areas. As global temperatures rise, the warmer atmosphere can store increasing amounts of moisture, which manifests as ARs. These ARs cause "weather whiplash," marked by swings between prolonged droughts and intense rainfall, which strains local water systems and leads to flash flooding. Research utilizing various model predictions have shown that damages from ARs in the western United States could increase from \$1 billion to upwards of \$3.2 billion.

During the 2022-2023 wet season, 16 ARs brought up to 74 inches of precipitation

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in some areas of LA County's watershed. Furthermore, ARs are responsible for over 90% of the County's flood damage. For instance, in early 2023, powerful AR events inundated areas in the County, such as Hacienda Heights and parts of East LA, leading to substantial flooding and debris flows that damaged homes and infrastructure. This extreme rainfall overwhelmed local drainage systems and caused road closures, underscoring the urgent need for improved water management.

Forecast Informed Reservoir Operations (FIRO), developed by the UC San Diego Center for Western Weather and Water Extremes (CW3E), is an advanced weather forecasting tool that can make real-time decisions on water retention and release from reservoirs. Other jurisdictions on the West Coast, including Orange County, have started using FIRO to mitigate flooding and improve water storage. FIRO can provide an average of 6,000 acre-feet of groundwater recharge and up to 23,000 acre-feet in a wet year — enough water for up to 48,000 and 180,000 people, respectively.

Currently, most weather forecasting models, including Los Angeles County Department of Public Works' (DPW) current model, use historical weather patterns to inform reservoir operations. While DPW's model has so far proven effective at preventing significant flooding, FIRO's flexible water management approach that uses data from watershed monitoring and modern weather and water forecasting may be a beneficial tool as climate change creates increasingly variable weather patterns. In November 2024, the Los Angeles Times released an article in anticipation of a severe AR slamming the Northwest, reminiscent of the "bomb cyclones" that are more often connected with the East Coast. This further emphasizes the need to continue identifying new, innovative mediums to address new and extreme fluctuating weather patterns.

I, THEREFORE, MOVE that the Board of Supervisors direct Los Angeles County Department of Public Works to report back in writing in 180 days on the feasibility of implementing the Forecast Informed Reservoir Operations (FIRO) model and potential impact on Los Angeles County water management, flood control, and drought resilience; and additionally include in the report comparisons to the existing model, any fiscal impact, and recommendations for next steps.

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