

How are Western water districts managing groundwater basins?

A study of 18 districts finds that common groundwater management approaches that minimize economic impacts to agricultural users include low-cost monitoring and a flexible combination of supply augmentation and demand management.

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Abstract

Making the transition from open-access groundwater rights to sustainable groundwater management is a formidable task for newly formed groundwater sustainability agencies in California. As agencies begin to decide how to make equitable water allocations, how to monitor groundwater use and what mix of supply- and demand-side mechanisms to adopt to satisfy sustainability criteria, the groundwater management strategies in place across other basins in the western United States are worth studying. We surveyed 18 groundwater districts in California and other Western states to identify the management approaches and practices they have instituted. The conclusions we draw suggest a correlative rights framework of water allocation with phase-ins for heavy users; metered pumping; flexible arrangements for trading and carrying over allocations for multiple years; and incentivizing groundwater recharge, including recharge from deep percolation from crops. Rigid formulas for significantly reducing groundwater use in medium- and high-priority basins are likely to have significant negative effects on the regional economy.

California's Sustainable Groundwater Management Act of 2014 (SGMA) overhauls groundwater management in California. Currently, most California groundwater basins are unmanaged and extractions from basins are unmeasured. SGMA requires the formation of local groundwater agencies (GSAs) to provide management (DWR 2016a) for all basins designed by the state as medium- or high-priority. The GSAs have the unenviable task of unifying and managing a set of water users, many of whom have different objectives. The law also requires medium- and high-priority groundwater basins in a state of critical overdraft to adopt a groundwater sustainability plan (GSP) by Jan. 31, 2020, and medium- and high-priority basins not in a state of critical overdraft to adopt GSPs by Jan. 31, 2022.

If GSAs fail to meet these deadlines (or a GSA has not been formed), the law has provisions to designate a basin as probationary and subject to regulation by

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An engineering geologist with the California Department of Water Resources measures the water depth at an agricultural well in Colusa County. Periodic measurements at wells around the state feed into databases that track changes in groundwater levels.

