

## Refilling California's Underground Reservoirs

California's groundwater basins are immense natural assets that allow communities, industries, and agriculture to prosper despite extreme swings in precipitation. These out-of-sight reservoirs also feed rivers and streams in ways crucial to fish and wildlife. Groundwater accounts for 41 percent of California's total water supply on an average annual basis – but as much as 58 percent in a critically dry year. California's groundwater basins can hold more than 850 million acre-feet, far more than the 50 million acre-feet of storage capacity in major reservoirs.

Groundwater basins can recharge naturally, through percolation of water into the land, but it happens slowly over time. Millions of acre-feet of water naturally collect in aquifers in years of abundant precipitation. Recharge also happens more directly, when people divert and convey water to specific areas, like percolation ponds. Managed recharge requires planning. Infrastructure must be built, and at times permits are needed to ensure that diversions from creeks and rivers do not harm fish and wildlife or other water users.

A pillar of the Governor's 2020 Water Resilience Portfolio is to help local water districts manage groundwater basins so that future generations enjoy reliable supplies. After experiencing whiplash between extreme drought and record-breaking bursts of precipitation in 2021 and 2022, the Newsom Administration charted a strategy to offset the 10 percent of water supplies California may lose by 2040 to hotter, drier conditions. A key component of that involves taking advantage of winter storms and snowpack melt to maximize the amount of water that gets stored underground. The Administration's *Water Supply Strategy: Adapting to a Hotter, Drier Future* includes a suite of actions to be taken by state agencies to expand average annual recharge by at least 500,000 acre-feet, enough to fill half of Folsom Lake.

Implementation of those actions is well underway since the August 2022 release of the strategy. The actions focus on giving local water districts technical assistance on permits and projects, incentivizing local recharge, and smoothing regulatory pathways. The state also continues to help fund local recharge projects, and the Governor has used his emergency authority in the

face of drought and flood to facilitate groundwater recharge. Recent state work to advance groundwater recharge includes:

- With Executive Order N-4-23, Governor Newsom set forth the conditions under which water users may divert water for recharge without state permits. The Executive Order suspends certain regulatory requirements under conditions of imminent risk of flooding.
- On March 9, to capitalize on strong flows resulting from larger-than-average snowpack, the State Water Resources Control Board (State Water Board) approved a petition by the U.S. Bureau of Reclamation to divert over 600,000 acre-feet of San Joaquin River floodwaters for wildlife refuges, underground storage, and recharge. With this approval, the State Water Board has authorized nearly 790,000 acre-feet in diversions for groundwater recharge and other purposes since late December 2022 – nearly as much water as Folsom Lake can hold.
- The State Water Board streamlined the permitting process for temporary groundwater storage permits to fast-track efforts to capture flood waters to recharge groundwater basins. So far this winter it has authorized recharge under those processes of 186,153 acre-feet.
- In 2021 and 2022, DWR awarded \$68 million to 42 groundwater recharge projects that provide nearly 117,000 acre-feet of potential recharge capacity. DWR will award additional grants in 2023 based on available funding. (Applications for this funding include 52 groundwater recharge projects totaling \$211 million in cost.)
- Since 2020, the State Water Board has provided a total of \$1 billion in support to 13 projects that will bring a total of 88,000 acre-feet per year to the state's water supplies. Five of these projects already are complete and adding 25,000 acre-feet per year, or enough to supply 75,000 households annually.
- DWR is investing to conduct electromagnetic scans of the earth's surface, via helicopter, to help local districts understand the most suitable locations for recharge.

# California Snowpack 2023: Flood Risk and Recharge Opportunity

The winter of 2022-23 has delivered massive amounts of snow to California. Urban and farm water supplies will come from the Sierra Nevada snowpack, once it melts this spring and flows to the Central

Valley. That melt brings the risk of flooding. Until that risk eases, downstream reservoirs, levees, weirs, and bypasses will be operated for public safety. The snowmelt also will help revitalize aquatic and riparian habitat for fish and wildlife and replenish water supplies. In a changed climate

marked by extremes, years of abundant precipitation like 2023 provide important opportunities to make progress on the state goal of expanding average annual groundwater recharge statewide by at least 500,000 acre-feet a year. Coordinated efforts can help maximize the diversion of high flows into existing groundwater recharge facilities. Communities with drinking water wells disrupted by drought and declining groundwater levels also will benefit from recharge.

