

GROUNDWATER RECHARGE



WORKING TOGETHER TO LEAD THE CHARGE ON GROUNDWATER RECHARGE

By JIM PEIFER

IS THE DROUGHT OVER IN CALIFORNIA? That was the question on a million minds after nature delivered nine soaking-wet atmospheric river storms to the Golden State for three weeks after Christmas. ▼

The short answer is no. Those storms didn't end the drought, and a real end could be decades away. The reason is groundwater depletion. When we get that kind of deluge, it does help recharge groundwater, but only incrementally. In fact, decades of over-pumping groundwater exacerbated by the dry climate hydrology has left many of the state's groundwater basins in a condition of overdraft that will take years to overcome.

To end the drought, we need to start treating our groundwater aquifers as the water infrastructure of the climate change era. To do this, we must transform how we manage storm runoff to recharge groundwater on a much bigger scale.

Cities and agricultural irrigation districts are starting to figure it out, and the state is taking steps to help. So, while stormwater capture is happening, we have relied on surface reservoirs to meet our

water needs too long. Surface reservoirs remain essential but adding to the natural recharge of our groundwater basins and thereby increasing the amount of underground water storage will be needed to meet the demands of today's fickle winter storms.

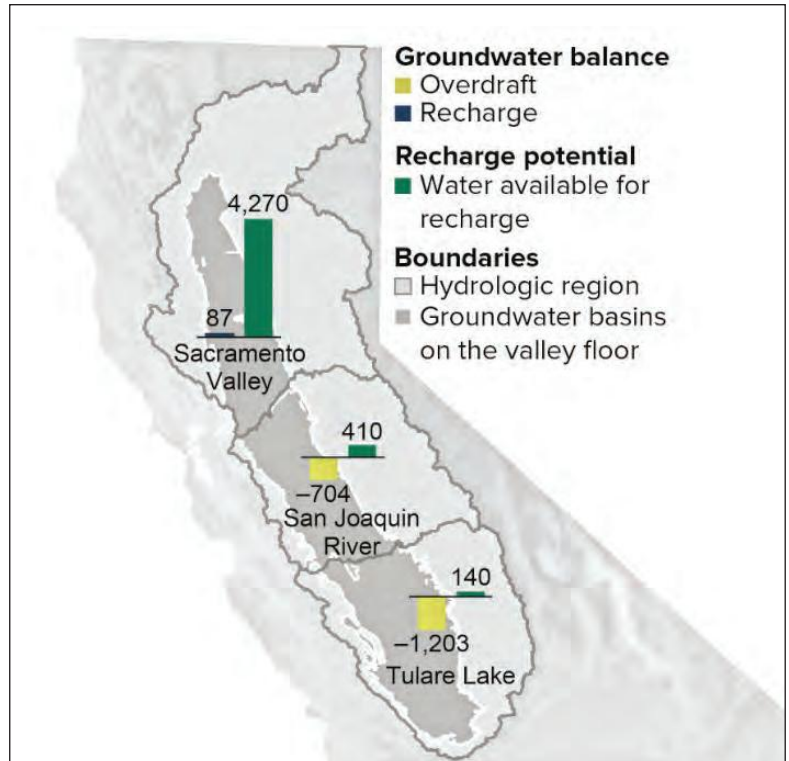
It's been estimated that the State Water Project and federal Central Valley Project will lose 10 percent of their capacity by 2040 due to shrinking Sierra Nevada snowpack

and warmer storms that challenge dam operations. This amounts to a loss of six to nine million acre-feet annually. That's equivalent to losing two Shasta reservoirs!

It's time to focus on an even bigger water storage solution: the aquifers beneath our feet. The State Department of Water Resources estimates that California's groundwater aquifers have capacity for between 850 million and 1.3 billion acre-feet of water. That's extraordinary compared to the 50 million acre-feet held by all existing surface reservoirs in the state.

Unfortunately, much of that aquifer capacity sits unused. For the past century, in many cases, we've done nothing but extract groundwater, drastically depleting aquifers that took eons to fill. Only in recent years have we begun to focus on reversing that trend, spurred in part by the Sustainable Groundwater Management Act passed by the state in 2014.

In the Sacramento metro area, a coalition of local agencies working through the Regional Water Authority has developed the Sacramento Regional Water Bank. This interconnected network allows agencies entirely dependent on groundwater to obtain surface water from neighboring agencies during periods of high stormwater flow, allowing their wells to rest and refill naturally. This is what's known as "in lieu" recharge, a strategic method of refilling aquifers the old-fashioned way—by leaving



NEED OPERATORS ?



OTS has your SOLUTION!

OTS provides qualified Temp, Temp-to-Hire, Direct Hire, Emergency on call certified water and wastewater professionals

Contact us to simplify your hiring process

Need help finding a position?

We are looking for candidates to fill roles across California, Arizona, Texas and Nevada

Check out our current openings on our website



CALL US AT 424-285-0051 OR EMAIL US AT INFO@GETOTS.COM

www.getots.com

them alone. We also operate a handful of aquifer storage and recovery (ASR) wells, which allow storm runoff to be pumped directly into aquifers.

The Water Bank is possible thanks to two decades of investing in groundwater wells, pumps, and plumbing interties that link the region’s local water agencies. Today we can reliably pump and refill 60,000 acre-feet of groundwater every year—enough to meet the domestic needs of 180,000 families for a year. We have plans in place to boost our recharge capacity to 90,000 acre-feet, if funds can be secured to build more water interties and ASR wells. That would create a drought-resilient supply for 270,000 families annually—over a third of the region’s population.

The Sacramento region’s recharge system might look a bit different than programs in other parts of California, but the end goal is the same: turning aquifers into refillable reservoirs.

In Orange County, for example, tertiary-treated wastewater is allowed to refill its aquifers. In San Bernardino

County, stormwater from the Santa Ana River is diverted into settling basins on the surface, where it then gradually percolates underground. In the San Joaquin Valley, a few farms are experimentally flooding orchards and vineyards with stormwater when it’s available. They’re finding they can recharge groundwater without damaging crops.

The important point is that it’s all groundwater recharge.

In-lieu recharge in the Sacramento region is an obvious and simple replenishment solution that has been proven to work over the past two decades. But the fact is, it didn’t happen until water agencies started cooperating by sharing resources to move water around for the greatest benefit. This kind of cooperation is needed on a state-wide scale to solve California’s looming water supply crisis.

That’s why the Regional Water Authority is proposing legislation—the California Water Supply Solutions Act of 2023—requiring the state to develop a plan to achieve 10 million acre-feet of

groundwater recharge annually by 2035.

This plan would make groundwater recharge an official state goal, something not clearly embodied in the Sustainable Groundwater Management Act. It would also require state agencies to identify the resources they need—money, staff, and programs—to achieve a truly ambitious groundwater recharge goal.

Reforming California’s permit system for diverting surplus stormwater is another important step. Right now, it takes at least 10 days to get permits to divert stormwater for aquifer recharge from the State Water Resources Control Board and California Department of Fish and Wildlife. By the time those permits are approved, the storm pulse is gone.

State lawmakers have expressed strong support for groundwater replenishment. In fact, Governor Gavin Newsom’s new *Water Supply Strategy*, released last summer, sets a target to boost groundwater storage by 500,000 acre-feet by 2040.

That’s an encouraging goal, but we know first-hand that the potential is much

Solve DBPs
anywhere in
your system.

Contact us to learn more.

IXOM
WATERCARE

+1 866-437-8076

www.ixomwatercare.com



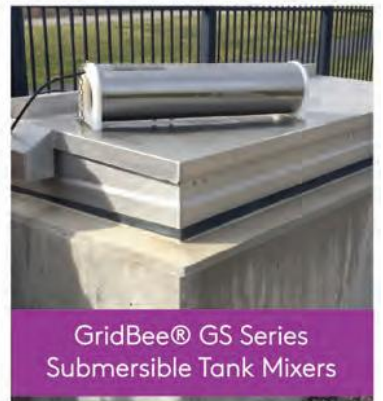
MIEX® Magnetic Ion Exchange Systems



GridBee® SN Series Spray Aeration Systems



ResidualHQ® Automated Disinfectant Control



GridBee® GS Series Submersible Tank Mixers

greater: The Sacramento region alone can readily contribute 30,000 acre-feet before the end of the decade and has the capacity to greatly expand moving forward. Statewide, the California Department of Water Resources estimates we have 13 million acre-feet of groundwater capacity available for recharge. About 2.5 million acre-feet of that—five times the Governor’s goal—is available for recharge using existing infrastructure.

Moreover, this expanded sustainable supply comes at a cost that will support the affordability goals included in the *Water Supply Strategy*.

Storms like the New Year’s event came fast and sudden: nine atmospheric rivers in three weeks. With climate change, these dramatic events might be most of the rain we get for years. We must do more to capture some of that precious stormwater for the next dry spell. We must and can work together so that our legislative and regulatory environment fits the hydrology we are experiencing. 💧



Jim Peifer is Executive Director of the Regional Water Authority, a coalition of two dozen municipal water agencies in the Sacramento region.



**SUSTAINABILITY.
RECYCLABILITY.
DURABILITY.**

**WHAT'S YOUR
PIPE'S ABILITY?**

AMERICAN

Made in America.
By AMERICAN.

THE MOST IMPORTANT THING IT CARRIES? PEACE OF MIND.

You have stringent specifications and even higher expectations. Decade after decade, AMERICAN is the dependable long-term choice. Materials come and materials go, but ductile iron pipe continues to be worthy of your trust. Specify AMERICAN. And specify resilience, superior life-cycle value, and environmental stewardship with every pipe we deliver.



AMERICAN

THE RIGHT WAY

AMERICAN-USA.COM • 1-205-325-7701

DUCTILE IRON PIPE

FLOW CONTROL

INTERNATIONAL

SPIRALWELD PIPE

STEEL PIPE