

GSP ANNUAL REPORT: WY23

Introduction

The California Department of Water Resources (DWR) has categorized the Sutter Groundwater Subbasin (Subbasin) as a medium priority groundwater basin under the Sustainable Groundwater Management Act (SGMA). As such, the Subbasin’s Groundwater Sustainability Agencies (GSAs) were required to submit a Groundwater Sustainability Plan (GSP) by January 31, 2022. GSPs are detailed plans to ensure long-term sustainable groundwater management in at-risk basins, measured by the status of six (6) key sustainability indicators. DWR requires Annual Reports on the status of GSP implementation to ensure basins are on track to meeting identified sustainability goals. Water Year 2023 (WY23) was the Subbasin’s second year of GSP implementation and its third annual reporting year. During WY 2023, the Subbasin continued to operate under sustainable conditions.

Sutter Subbasin Sustainability Goal

The Sutter Subbasin will maintain locally-managed groundwater resources for existing and future beneficial uses and users that are economically viable and sustainable by managing groundwater use within the sustainable yield, resulting in the avoidance of undesirable results.

SGMA Sustainability Indicator	Status
Groundwater Levels	Stable
Groundwater Storage	Increased
Water Quality	Stable
Land Subsidence	Stable
Interconnected Surface Water	Stable

Note: The Seawater Intrusion Sustainability Indicator is not applicable for the Sutter Subbasin.

Executive Summary

The Sutter Subbasin experienced a stable and productive Water Year (WY) 2023 (October 2022-September 2023). The Sutter Subbasin maintained stable groundwater levels and experienced an increase in total volume of groundwater in storage. Furthermore, indicators of water quality, land subsidence, and interconnected surface waters remained in sustainable condition. WY23 was the Subbasin’s second year of Groundwater Sustainability Plan (GSP) implementation, and the Subbasin operated within the Sustainable Management Criteria (SMC) established in its 2022 GSP.

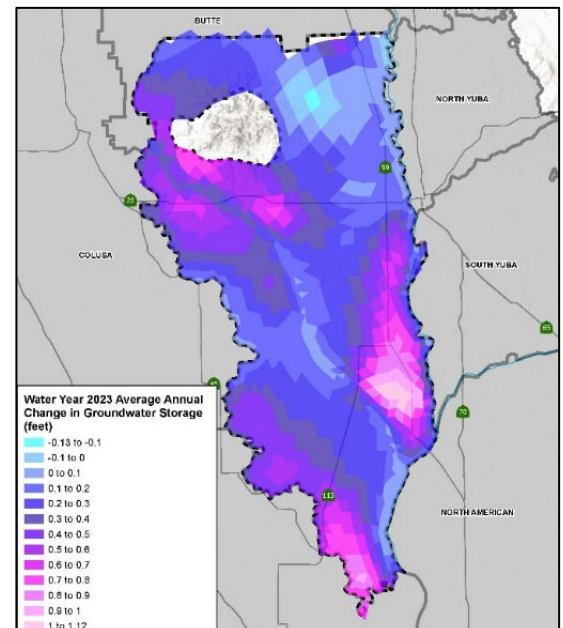
Water Use

Total WY23 water use in the Subbasin was 755,600 acre-feet (AF). Groundwater extraction was less than 20% of total water use, and more than 90% of groundwater extracted was for agriculture.

Groundwater Levels & Storage

The Sutter Subbasin experienced normal seasonal fluctuations in groundwater levels during WY23. Groundwater depths exceeded minimum thresholds at two wells, but no undesirable results were observed. Groundwater levels remain stable overall.

During WY23, groundwater storage increased in the Subbasin by 94,000 AF. To the right is a map of interpolated storage changes. Changes in groundwater storage were positive on average.



Groundwater Quality

Groundwater quality was monitored at 18 wells within the Sutter Subbasin. These wells were sampled for **total dissolved solids (TDS)** and **nitrate**, both of which are impacted by agricultural runoff. The **minimum thresholds (MTs)** for TDS and nitrate in groundwater are based on drinking water standards of the upper Secondary Maximum Contaminant Level (MCL) of 1,000 milligrams per liter (mg/L) for TDS and Primary MCL of 10 mg/L for nitrate as N. In WY23, all groundwater samples collected were less than the established MTs with the exception of one sample each for TDS and nitrate as N.

The Subbasin defines an undesirable result for degraded water quality as “a causal nexus between groundwater-related activities... and a degradation in groundwater quality that causes a significant and unreasonable reduction in long-term viability of domestic, agricultural, municipal, or environmental uses.” More than 50% of samples were below their minimum thresholds; therefore, the Subbasin did not observe an undesirable result.

Groundwater Pumping

Total groundwater extraction was 124,800 AF during WY23. 91% of groundwater pumped was for agricultural use (113,900 AF). Municipal and domestic groundwater use accounted for an estimated 9,100 AF (7%). A little over 1% of the total volume of groundwater extracted was applied to managed wetlands (1,600 AF), and less than 0.2% was used in local industry (200 AF). Below is a figure displaying average groundwater pumping interpolated across the Sutter Subbasin during WY23.

Up Next

In early 2024, the Sutter Subbasin entered into an agreement with DWR for Proposition 68 grant funding to further GSP implementation. These work efforts will be conducted in 2025 and 2026 and include Annual Reports, instrumenting wells, geophysical surveys, groundwater model updates, and a financing plan.

For more information, visit SutterSubbasin.org

Other Sustainability Indicators

Land Subsidence

Land subsidence was measured using public **Interferometric Synthetic Aperture Imagery (InSAR)**. Minor amounts of vertical displacement were observed in the Subbasin during WY23, ranging from -0.1 to 0.1 feet.

Depletion of Interconnected Surface Water

The Subbasin’s SMC for **interconnected surface waters** are established to maintain sustainable exchanges between groundwater and interconnected surface water courses, including the **Sacramento River, Feather River, and Sutter Bypass**. Groundwater/surface water exchange was measured using groundwater levels as proxy at 16 wells in WY23. Exchanges with interconnected surface waters were stable during WY23. Two wells briefly exceeded their MTs in October 2022 and January 2023, respectively, but no undesirable results were observed.

Ongoing Projects*	Agency
System Modernization: Upgrading local conveyance and SCADA infrastructure to improve system efficiency and reduce spillage.	Butte Water District
Dual-Source Irrigation Systems: Installing irrigation systems capable of using either surface or groundwater.	Butte Water District
Expanding Monitoring Well Network: Installation of additional shallow groundwater monitoring wells.	Multi-Agency/GSA
Groundwater Transfer/Well Permit Approval Processes: Optimizing application processes to ensure no impact to Subbasin sustainability.	Subbasin GSAs
Advanced Treatment and Water Recycling: Feasibility study for recycled water facility for direct and in-lieu recharge	City of Yuba City
Aquifer Storage & Recovery and Second Well: Feasibility of aquifer storage recovery well	City of Yuba City

*Additional ongoing project information can be found in the WY23 Annual Report, available at <http://suttersubbasin.org/assets/pdf/Sutter%20Subbasin%20WY%202023%20Annual%20Report.pdf>