PETALUMA VALLEY GROUNDWATER SUSTAINABILITY AGENCY

Water Year 2025 Fact Sheet

PETALUMA VALLEY GROUNDWATER ANNUAL REPORT

A YEAR OF ACTION IMPLEMENTING THE GROUNDWATER SUSTAINABILITY PLAN

The Petaluma Valley Groundwater Sustainability Agency (GSA) had an active Water Year 2025, advancing a broad range of monitoring programs, data-gathering efforts, and on-the-ground projects to protect the Basin's groundwater.

Learning More About the Basin

A big part of this year's work was simply getting more data about what's happening underground. That included:

- Continued Level Up!, a voluntary program where well owners help the GSA track groundwater levels twice a year
- Launched Flow Smart, a new voluntary flow-metering program; meters were installed at seven well sites in 2025 with automated reporting to the GSA initiated
- Installed three shallow and four deep multi-level monitoring wells to fill gaps in the monitoring network
- Conducted geophysical surveys along the Baylands and northern basin boundary, collecting over six miles of subsurface imaging data
- Completed an updated inventory of water wells, integrating records from multiple state, county, and federal sources
- Studied how streams, wetlands, and native vegetation depend on groundwater, using monitoring clusters, streamflow seepage runs, and aerial vegetation imagery to track plant health
- Sampled twelve wells in the Baylands to establish baseline salinity data and assess seawater intrusion potential
- Updated the Basin's integrated hydrologic model through Water Year 2024 to guide future planning

Projects Making a Difference

Alongside data gathering, the GSA pushed forward on projects designed to improve long-term water conditions:

- Completed an aquifer storage and recovery pilot test at the City of Petaluma's Del Oro wellsite, exploring underground banking of treated water during wet periods
- Launched the Well Aware water-use efficiency pilot program, including the Well Aware Toolkit, on-site consultations and leak checks, and a demonstration site
- Funded construction of the Maria Drive recycled water pipeline to offset a portion of the City's groundwater use during dry years
- Completed a Policy and Programs Options Study, surveying groundwater users to develop a prioritized list of future management tools
- Partnered with the Community Alliance with Family Farmers, Sonoma County Resource Conservation District, Daily Acts, and others to engage farmers and rural well owners on monitoring, metering, and efficiency

Together, these efforts represent a significant investment in the science, infrastructure, and partnerships needed to keep the Petaluma Valley groundwater basin healthy and resilient. Funding from a California Department of Water Resources Implementation Grant has been instrumental in making this volume and pace of work possible.

TO READ THE FULL PETALUMA VALLEY GSA ANNUAL REPORT VISIT:
PETALUMAVALLEYGROUNDWATER.ORG/ANNUAL-REPORTS

Funding for the projects and programs in this report have been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

SUSTAINABILITY INDICATORS

GROUNDWATER LEVELS

Groundwater levels across most of the Basin stayed about the same in 2025 compared to 2024, dropping less than one foot. Spring and fall measurements at monitoring sites showed that water levels stayed within acceptable ranges, meaning no critical thresholds were crossed this year.

However, one monitoring site east of Adobe Road near Lynch Creek has shown a gradual, ongoing decline. While still within safe levels, this area is being closely watched and is a priority for further study to better understand what's happening there.

GROUNDWATER STORAGE

To estimate how much water is stored underground, scientists track changes in groundwater levels across the Basin, a reliable approach based on the well-established principle that the amount of water stored in an aquifer is directly proportional to the water level measured in wells. This data is combined with information about the aquifer's size and water-holding properties.

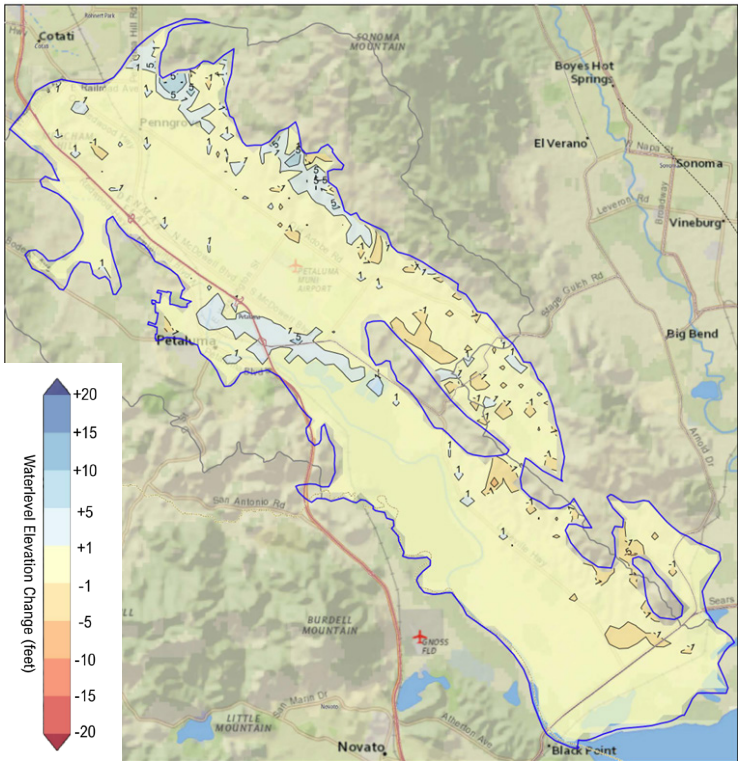
From 2024 to 2025, the aquifer gained roughly 1,310 acre-feet of water storage — a positive sign. However, since 2012 the Basin has undergone two significant drought periods (2014 to 2016 and 2021 to 2022) and the aquifer has lost nearly 4,490 acre-feet overall, highlighting the Basin's sensitivity to drought conditions. While the estimation methods aren't perfect and carry some uncertainty, they represent the best tools currently available and will be used to guide future groundwater planning and monitoring improvements.

LAND SUBSIDENCE

Land subsidence — the gradual sinking of the ground surface — can sometimes occur when too much groundwater is pumped from an aquifer. In the Petaluma Valley Basin, this is monitored using satellite-based radar technology that can detect very small changes in ground elevation.

Measurements from October 2024 to October 2025 show no meaningful sinking of the land surface, with changes falling within the normal margin of measurement error. Looking back over the past five years, no areas in the Basin have exceeded the threshold that would signal a cause for concern.

GROUNDWATER LEVEL CHANGE FALL 2024-FALL 2025



PERIODIC EVALUATION DEVELOPMENT

At least every five years following the adoption of the Groundwater Sustainability Plan (GSP), the GSA is required to prepare and submit a Periodic Evaluation of the GSP, which is due to Department of Water Resources in January 2027. The Periodic Evaluation is intended to be a thorough assessment of how a GSP is performing and whether modifications or an amendment are needed. Information gained through the data gathering and project planning activities is being evaluated and incorporated into the Periodic Evaluation.

In Water Year 2025 the GSA began work on the Periodic Evaluation including:

- Evaluation of ongoing and recent data collection programs and project and management action planning
- Initial updates to the monitoring networks for the Basin
- Update of the groundwater flow model for the Basin
- Initial work on addressing the Department of Water Resource's recommended corrective actions.

SEAWATER INTRUSION

Data collected over three monitoring events were used to establish baseline salinity conditions in areas of the Basin that may be influenced by seawater. Results show that salinity levels in inland wells are generally low. Slightly elevated salinity was detected in two wells located within the Baylands — a naturally brackish wetland area near the tidal Petaluma River — but these readings are expected for that area and do not represent a threshold exceedance. One inland well near the City of Petaluma showed elevated mineral content, though the low salt levels there suggest the source is something other than seawater.

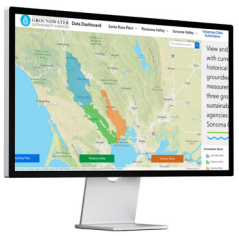
Overall, salinity conditions across the Basin are consistent with historical data and have remained relatively stable since 2000, with seawater influence appearing to be limited to the Baylands area. Because the Baylands are not a significant source of drinking water and are naturally saline, elevated readings there do not constitute an undesirable result for the Basin.

DEPLETION FROM CREEKS, STREAMS AND OTHER SURFACE WATER

Because surface water depletion cannot be measured directly, groundwater levels at three shallow monitoring wells near local streams are used as a proxy indicator. Direct measurement is not feasible, and the effects of pumping are often masked by other influencing factors such as precipitation, runoff, surface water diversions, evapotranspiration, and natural groundwater-surface water interactions. Initial sustainability criteria are focused on keeping streamflow depletion within historical levels, with an adaptive management plan in place to improve data and refine these criteria over time. For Water Year 2025, groundwater levels at all monitoring locations remained above established thresholds, meaning the Basin is not experiencing undesirable results for this indicator.

GROUNDWATER QUALITY

The GSA monitors the basin for arsenic, nitrates, and total dissolved solids to determine if GSA projects or groundwater pumping is degrading water quality. In Water Year 2025, the concentration levels for these substances didn't exceed the thresholds for groundwater quality in the basin.



EXPLORE MORE WITH THE SONOMA COUNTY GROUNDWATER DATA DASHBOARD

The Sonoma County Groundwater Data Dashboard makes it easy for well owners, residents, and anyone curious about local water to explore what's happening underground. Whether you want to understand trends, see groundwater conditions in your area, view hydrographs for individual wells, explore surface water–groundwater interaction or understand wet and dry year impacts, the Dashboard puts reliable information at your fingertips. Watch a short orientation, explore FAQs, and dive into the data that supports a sustainable water future for Sonoma County.

VISIT: PETALUMAVALLEYGROUNDWATER.ORG/DATA-DASHBOARD

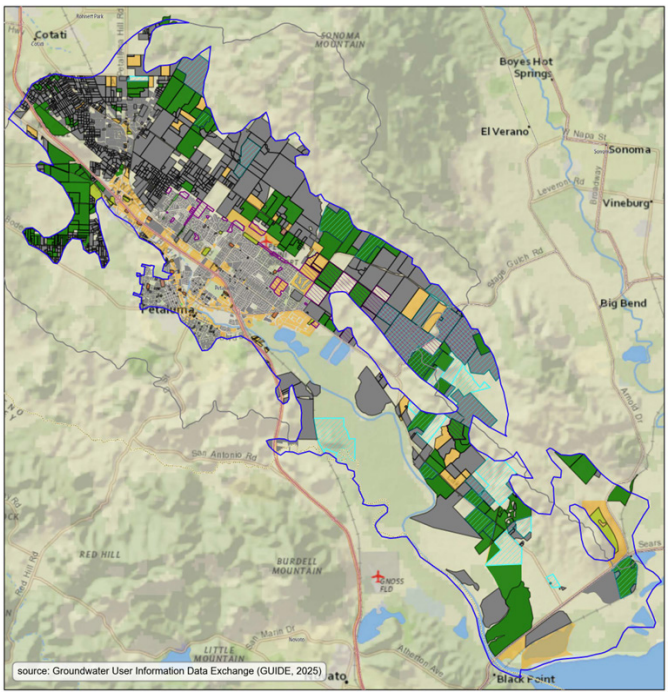
CLIMATE CONDITIONS IN THE BASIN IN WATER YEAR 2025

A third consecutive wet year
Water Year 2025 marked the third year in a row of above-average rainfall in the Petaluma Valley. The local climate station recorded 29.34 inches of rainfall, compared to the long-term average of 24.5 inches — roughly 20% more rain than a typical year.

What does this mean for groundwater?
Water managers use a rolling three-year average of rainfall to track how precipitation translates into groundwater recharge, since it takes time for water to soak through the soil and reach underground aquifers. By that measure, Water Year 2025 is classified as a wet year, and importantly, it does not meet the threshold for drought conditions under the basin's Groundwater Sustainability Plan.

In short, Water Year 2025 was a positive year for the water supply outlook in the Petaluma Valley, continuing a trend of recovery after a difficult dry period.

GROUNDWATER USE AND SOURCES WY 2025



GROUNDWATER USE TYPES AND SOURCES

- Agriculture
- Rural Residential
- Commercial
- Turf
- Urban/Municipal
- Recycled Water
- Surface Water
- Parcels with Groundwater Use

TOTAL WATER-USE IN BASIN FROM ALL SOURCES (ACRE-FEET) COMPARED OVER THREE WATER YEARS

Total water use within the basin is based on the estimated and metered uses of groundwater, surface water and recycled water. The majority of water use is estimated using our best available information. The Groundwater Sustainability Plan outlines strategies to fill this data gap.

WATER-USE SECTOR	Total water use from groundwater extraction			Total water use from **all sources** (groundwater, imported and local surface water, recycled water)		
Color corresponds to areas shaded on map	WY 2023	WY 2024	WY 2025	WY 2023	WY 2024	WY 2025
Agriculture	1,090 (41%)	1,104 (40%)	1,082 (39%)	2,802 (24%)	2,736 (23%)	2,745 (22%)
Rural Residential	650 (25%)	661 (24%)	662 (24%)	650 (6%)	661 (5%)	662 (5%)
Non-municipal public water system: industrial and commercial	724 (27%)	790 (29%)	790 (28%)	724 (6%)	790 (7%)	790 (6%)
Turf-golf courses and schools	177 (7%)	165 (6%)	159 (6%)	418 (4%)	394 (3%)	412 (3%)
Urban: municipal public water systems, urban irrigation and urban private wells	11 (0%)	11 (0%)	98 (4%)	7,014 (60%)	7,496 (62%)	7,710 (63%)
Total	2,652	2,731	2,791	11,608	12,077	12,319

The total groundwater extraction for the subbasin over the last three years has been below, and has not exceeded, the estimated sustainable yield for the basin.

The full Petaluma Valley GSA Annual Report for Water Year 2025, with detailed information, data, graphs, maps and more can be found on our website:

PETALUMAVALLEYGROUNDWATER.ORG/ANNUAL-REPORTS

TOTAL BASIN WATER-USE BY SOURCE (ACRE-FEET) COMPARED OVER SIX WATER YEARS

	2020	2021	2022	2023	2024	2025
Groundwater Extraction	2,660 (22%)	3,013 (25%)	3,334 (28%)	2,657 (23%)	2,701 (22%)	2,791 (23%)
Imported Surface Water	7,328 (61%)	7,086 (58%)	6,211 (53%)	6,833 (59%)	7,314 (61%)	7,423 (60%)
Local Surface Water	156 (1%)	84 (1%)	547 (5%)	929 (8%)	888 (7%)	841 (7%)
Recycled Water	1,834 (15%)	1944 (16%)	1,661 (14%)	1,834 (10%)	1,144 (9%)	1,264 (10%)
TOTAL	11,978	12,127	11,753	11,623	12,047	12,319

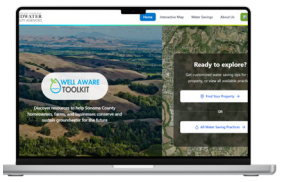
GROUNDWATER SUSTAINABILITY IS A COMMUNITY-WIDE EFFORT

In Water Year 2025, the GSA continued its active commitment to community engagement by holding regular public meetings of the GSA Board, Advisory Committee, community meetings and workshops, and maintaining the online GUIDE (Groundwater User Information and Data Exchange) portal where groundwater users can access water use information specific to their property. The GSA also conducted extensive direct outreach to local growers and rural well owners to encourage participation in voluntary monitoring and metering programs, water-use efficiency initiatives, and groundwater recharge efforts.

RESOURCES FOR GROUNDWATER USERS: THE WELL AWARE TOOLKIT

Sonoma County GSAs are working together to connect well users with practical tools and resources to help with groundwater management and sustainability and have developed the Well Aware Program, including the Well Aware Toolkit,a new, interactive resource designed to help groundwater users make smart, well-informed decisions about groundwater use on their property. The Well Aware Toolkit offers personalized groundwater savings practices based on a parcel's land use. This interactive tool allows people to explore water saving practices, funding opportunities, or determine experts that can assist.

WELL AWARE
Tools for building local groundwater sustainability



WELLAWARETOOLKIT.ORG