PETALUMA VALLEY GROUNDWATER SUSTAINABILITY AGENCY

2024 fact sheet

PETALUMA VALLEY GROUNDWATER ANNUAL REPORT

PETALUMA VALLEY BASIN GROUNDWATER LEVELS REMAIN STABLE

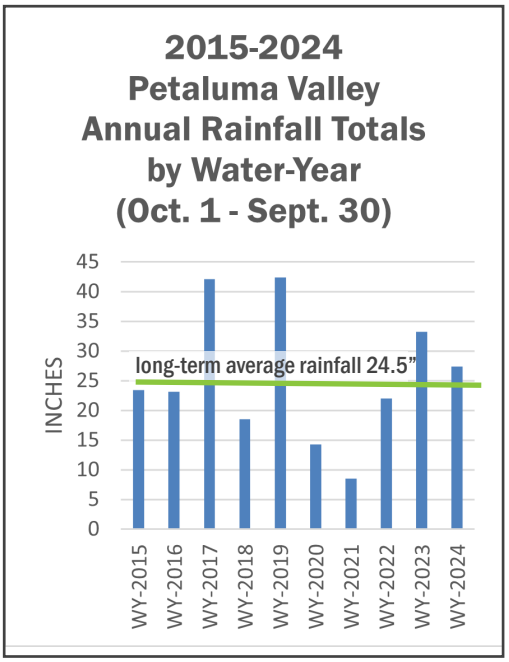
Conditions in the basin were generally stable in Water Year 2024 and the GSA made progress on implementing its Groundwater Sustainability Plan, including several projects with the City of Petaluma and other community partners.

Generally, groundwater levels measured throughout the basin dropped by less than one foot, although one monitoring point in the eastside of the basin continues to decline. After a big increase of groundwater in storage of 3,300 acre-feet in Water Year 2023, groundwater in storage declined by an estimated 3,800 acre-feet in Water Year 2024.

People used less groundwater in Water Year 2024, compared to the most recent drought years in the early part of the decade. Total groundwater use in the basin was estimated to be 2,701 acre-feet (AF) in Water Year 2024, compared to average estimated annual groundwater use of 3,002 AF in Water Years 2020-2022.

This relatively positive news should be received with caution for a couple of reasons. First, between 2012 and 2023, there has been a cumulative decrease in groundwater in storage of about 5,300 AF (an average of 442-acre-foot decrease annually). Second, climate change modeling for the basin predicts longer, more frequent droughts and less frequent but more intense storms.

To reverse the trend of declining storage and to prepare for the changing climate, the groundwater sustainability plan includes several projects, programs and actions. In Water Year 2024, the GSA worked on many of these initiatives, including several community-based programs.



The 2024 Annual Report of the Petaluma Valley Groundwater Sustainability Agency (GSA) provides a snapshot of groundwater conditions from the previous Water Year (October 1, 2023, through September 30, 2024). The Annual Report measures the basin’s progress towards meeting the goals defined in the Petaluma Valley Groundwater Sustainability Plan, including the projects and programs the GSA and its partners are implementing.

VISIT OUR WEBSITE FOR THE FULL PETALUMA VALLEY GROUNDWATER ANNUAL REPORT
PETALUMAVALLEYGROUNDWATER.ORG/ANNUAL-REPORTS

SUSTAINABILITY INDICATORS

GROUNDWATER LEVELS

Groundwater levels were generally stable in 2024, showing less than a one-foot decline throughout much of the basin, and meeting the management criteria established in the Groundwater Sustainability Plan. While still within the goals established in the plan, water levels at one of the monitoring locations continued to drop, despite wetter Water Years in both 2023 and 2024. Water levels at this well, located east of Adobe Road near Lynch Creek, have been steadily declining. This area will continue to be closely monitored and is being prioritized in the GSA's plan to fill data gaps.

Monitoring results for Water Year 2024 didn't reveal a cause for concern for groundwater levels.

GROUNDWATER STORAGE

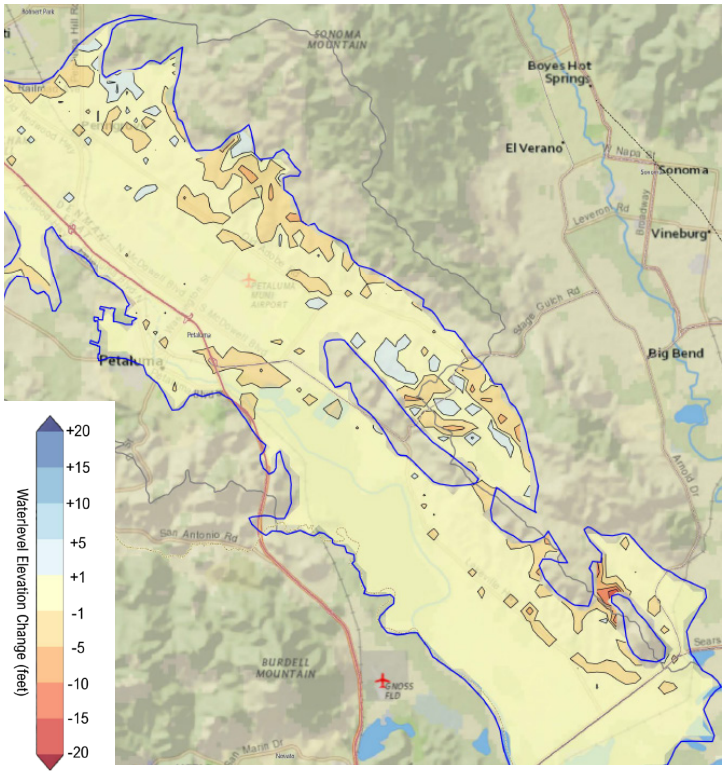
In Water Year 2024, the amount of groundwater in storage in declined by an estimated 3,800 AF – offsetting the gains experienced in Water Year 2023. In total, it is estimated that groundwater in storage has declined by a total of 5,300 acre-feet since 2011.

In the Groundwater Sustainability Plan, the minimum threshold for groundwater in storage is evaluated using groundwater levels as a proxy. Therefore, similar to the chronic lowering of groundwater levels, there is no cause for concern in groundwater storage.

LAND SUBSIDENCE

In some parts of California, particularly the Central Valley, the land surface is dropping (known as subsidence) due to groundwater pumping. Excessive groundwater pumping has the potential to shift the land surface which can damage roads, bridges, and other infrastructure. The Groundwater Sustainability Plan found that there is no evidence of subsidence in the basin, and Water Year 2024 monitoring also found no evidence of subsidence.

GROUNDWATER LEVEL CHANGE FALL 2023-FALL 2024



WHAT THE GSA IS DOING ABOUT GROUNDWATER LEVELS AND STORAGE

To ensure that groundwater levels and groundwater in storage remain stable and don't decline as demands increase in the future due to predicted longer, more frequent droughts, the GSA:

- Worked with the city of Petaluma on planning an aquifer storage and recovery pilot test;
- Assisted the city in a project to expand its recycled water supply to help offset groundwater pumping;
- Coordinated with land use agencies on both land use and well permitting issues;
- Planned for new monitoring wells to provide better information about groundwater levels in areas of the basin where information is sparse. Wells will be constructed in 2025; and
- Kicked off several grant-funded programs to better understand and reduce groundwater use.

SEAWATER INTRUSION

Groundwater pumping near the coast or bays has the potential to lower groundwater levels below sea level allowing seawater to migrate inland. Seawater intrusion can contaminate groundwater wells and is difficult and expensive to reverse. As indicated in the Groundwater Sustainability Plan, the limited data we have does not indicate that seawater intrusion has occurred -- although it has the potential to occur due to declining groundwater levels, which have dropped below sea level in areas of the southern part of the subbasin.

WHAT THE GSA IS DOING ABOUT SEAWATER INTRUSION

Prior to Water Year 2024, the GSA did not have the data to adequately map and characterize a baseline salinity measurement for the basin. Thanks to a voluntary monitoring program in fall of 2024 and winter 2025, the GSA worked with landowners to monitor 12 wells. The data that was collected will be used to compare future changes and the potential for seawater intrusion.

In addition, in Water Year 2024 the GSA planned new multi-level monitoring wells in the southern area of the basin. The GSA will construct the wells in 2025.

DEPLETION FROM CREEKS, STREAMS AND OTHER SURFACE WATER

When developing the Groundwater Sustainability Plan, the GSA worked with a group of scientists to determine if, when and where groundwater pumping is depleting creeks, streams and other surface water. In Water Year 2024, surface water depletion was within the sustainability range.

WHAT THE GSA IS DOING ABOUT SURFACE WATER DEPLETION

To more accurately assess the impact of groundwater pumping on surface water, in September 2024, the GSA reestablished the scientific practitioner work group. The group will guide GSA efforts to update and refine the mapping of interconnected surface water and groundwater-dependent ecosystems and will consider revisions to sustainable management criteria.

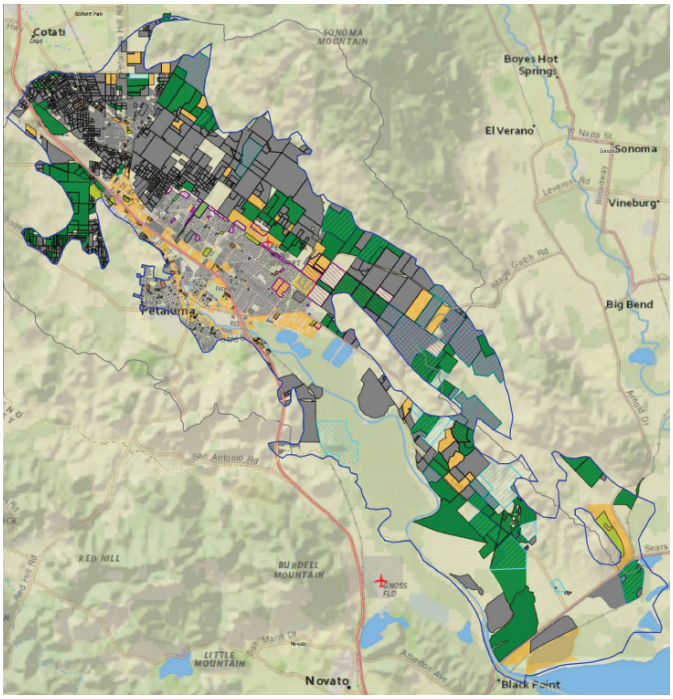
GROUNDWATER QUALITY

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 2024, the concentration levels for these substances didn't exceed the thresholds for groundwater quality in the basin.

CONNECTING WITH COMMUNITY

- In Water Year 2024, the GSA's Board and Advisory Committee met six times in meetings that are open to the public. Meeting information is posted on the GSA website, which was updated regularly with news and activities. Another great source of information is the GSA quarterly newsletter which was distributed four times in Water Year 2024.
- In Water Year 2024, the GSA partnered with local organizations including the Community Alliance with Family Farmers, Sonoma Resource Conservation District, Daily Acts and others to engage with groundwater users on several grant-funded programs, including voluntary monitoring and metering programs, voluntary water-use efficiency (WUE) measures, and groundwater recharge initiatives.
- Outreach activities for programs included direct mailings to groundwater users, email campaigns, social media postings, presentations at stakeholder specific forums, and one-on-one conversations with groundwater users.
- The GSA continues to receive information directly from groundwater users through its online GUIDE program.

GROUNDWATER USE AND SOURCES WY 2024



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 2022	WY 2023	WY 2024	WY 2022	WY 2023	WY 2024
Agriculture	1,406 (42%)	1,090 (41%)	1,104 (41%)	2,558 (23%)	2,802 (24%)	2,736 (23%)
Rural Residential	632 (19%)	650 (24%)	661 (24%)	632 (6%)	650 (6%)	661 (5%)
Non-municipal public water system: industrial and commercial	766 (23%)	729 (27%)	760 (28%)	777 (7%)	757 (7%)	760 (6%)
Turf-golf courses and schools	186 (6%)	177 (7%)	165 (6%)	518 (5%)	418 (3%)	394 (3%)
Urban: municipal public water systems, urban irrigation and urban private wells	344 (10%)	11 (0%)	11 (0%)	6,804 (60%)	7,014 (60%)	7,496 (62%)
Total	3,334	2,657	2,701	11,289	11,641	12,047

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 2024, 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 FIVE WATER YEARS

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

BE PART OF THE SOLUTION

LEVEL UP! Voluntary Well Monitoring Program

FLOW SMART Voluntary Flow-Metering Program

Know Your Water, Secure Your Future

WELL AWARE Tools for building local groundwater sustainability

- Join the Level Up! voluntary monitoring program to measure groundwater levels in the fall and spring. Landowners can track well levels and the GSA benefits by receiving important data about water levels in your area of the subbasin.
- Sign-up for the Flow Smart program and receive a professionally installed flow-meter at no cost (a $4,500 – $6,000 value). Water meters are one of the most useful tools for using water efficiently. They not only help you understand your water use, but also identify leaks quickly and easily.
- Through the Well Aware program, the Sonoma County GSAs are connecting well users with practical water-use efficiency tools and resources to help with groundwater management and sustainability. Using trusted partners, the GSA will be offering water saving tools available to all well users, rural residents, small and large farms, vineyards, wineries, and businesses.

Funding for the above community programs has been provided the Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources

DEPARTMENT OF WATER RESOURCES · STATE OF CALIFORNIA