CALIFORNIA DEPARTMENT OF WATER RESOURCES

California's Groundwater Semi-Annual Update

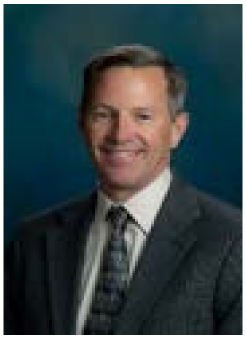
MAY 2026

SPRING BULLETIN 118 INFORMATION UPDATE

CALIFORNIA DEPARTMENT OF WATER RESOURCES

California's Groundwater
Semi-Annual Update: May 2026

Message from DWR Deputy Director of Sustainable Water Management



Paul Gosselin, DWR Director of Sustainable Water Management

Beneath the feet of millions of Californians, lays one of the most critical pieces of our state's water supply – groundwater. This hidden resource is responsible for about 40% of California's total annual water supply and serves as an important buffer during dry periods, supplying up to 60% of the state's water in drought years. As California's hydrology becomes more variable, long-term sustainability will require adaptive management, including improving recharge during high-flow periods, better coordinating surface water and groundwater use, managing demand, and consistently tracking progress. In a future increasingly defined by swings between intense wet and dry years, managing this largely unseen resource will require strong science, reliable data, enhanced monitoring and forecasting tools, and continued collaboration across local, regional, and state partners.

Data transparency is the key to sustainable groundwater management because of its ability to tell California's groundwater story. From monitoring wells to aerial surveys to GPS monitoring stations tracking subsidence, state and local agencies are working hard to expand our state's groundwater data network to help water managers make better informed decisions.

Earlier this spring, the Department released California's Groundwater: Bulletin 118 – Update 2025, the State's official and most comprehensive report of groundwater monitoring, conditions, and management across California. The report builds upon the previous update in 2020 and contains critical information about the state's groundwater supplies from 2020 to 2024, a period marked by record-setting dry and wet weather events and increasing ambient temperatures. Overall, the report shows considerable progress made by California and local agencies towards reaching the goals of groundwater sustainability outlined in the Sustainable Groundwater Management Act (SGMA).

Moving forward, Bulletin 118 will be released every 10 years and in between reports, local agencies, groundwater professionals, academia, and any other interested parties can find the most up-to-date information using two tools: California's Groundwater Live and the California's Groundwater Semi-Annual Update. Together, these resources paired with DWR's financial and technical assistance services help local groundwater sustainability agencies monitor conditions in their region.

We are pleased to share the Spring 2026 edition of DWR's Semi-Annual Groundwater Update, which includes information on statewide groundwater levels, groundwater storage, recharge, land subsidence, well infrastructure and the status of California's groundwater basins.

As local and state efforts bring us closer to achieving sustainability goals set by SGMA, California will continue to grow our data collection to protect and manage our precious hidden resource and the communities, industries, and environments that rely on it.

Paul Gosselin

Deputy Director, Sustainable Water Management, California Department of Water Resources

Executive Summary

Reporting on California's groundwater conditions continues to evolve. With the publication of *California's Groundwater Update 2025 (Bulletin 118)* this spring, DWR provides California's most comprehensive statewide synthesis of groundwater conditions, use, and management – establishing a foundation for assessing progress under the Sustainable Groundwater Management Act (SGMA) and identifying the challenges that remain. Until the next full update of Bulletin 118 scheduled for 2035, the responsibility for conveying current conditions, emerging trends, and management insights will rely on a coordinated suite of information tools including California's Groundwater Semi-Annual Update, the California's Groundwater Live website, and other data portals. Together, these efforts strengthen the connection between data, interpretation, and decision-making, help inform long-term planning such as the California Water Plan, and provide a consistent and accessible "pulse" on groundwater conditions.

Groundwater conditions in California during Water Year (WY) 2025 and early WY 2026 reflect more hydrologic volatility. WY 2025 followed two wet years but was characterized by below-average precipitation, uneven storm timing, and regional differences in precipitation and snowpack. Early WY 2026 conditions further highlight this variability, with a warm, dry late winter reducing snowpack to near historic lows and limiting sustained spring runoff.

Groundwater levels showed mixed responses across timescales. Over the past year, most water levels remained relatively stable, and many are higher than 2015 levels. However, 20-year trends indicate water levels in majority of wells continue to decline. These patterns show that while short-term improvements occur during wetter periods, long-term declines persist. Groundwater storage estimates support this, showing depletion during droughts and partial recovery during wet years, though cumulative losses remain significant, particularly in the Central Valley. Land subsidence remains a key concern, increasing in WY 2025 compared to the previous two wetter years, primarily in the San Joaquin Valley. This pattern highlights the sensitivity of aquifer systems to renewed groundwater pumping, even as subsidence rates in WY 2025 remain lower than those observed during the 2020–2022 drought.

SGMA Annual Reports indicate that groundwater extraction continues to exceed managed recharge in many areas, contributing to ongoing stress on groundwater resources. SGMA implementation is progressing statewide, with nearly 2,000 projects and management actions identified across supply augmentation, recharge, demand management, and monitoring. However, many efforts remain in the early stages of implementation, and measurable benefits are not yet consistently reflected. Improvements in data availability and transparency are supporting more responsive groundwater management. Expanded use of telemetry and near real-time data is enhancing groundwater level monitoring, reducing data latency, and improving the ability to track changing conditions and evaluate management actions.

Overall, groundwater conditions in California reflect progress in management with limited improvement in underlying conditions. While recent hydrologic conditions have provided temporary relief, long-term declines in groundwater levels, storage loss, and land subsidence persist. Achieving sustainable groundwater management will depend on continued SGMA implementation, improved data-driven decision-making, and adaptive strategies that plan for and respond to increasing climate variability.

Key Findings

Water Years 2025 and 2026

- Water Year (WY) 2025 (October 2024 – September 2025) followed two wetter years but was characterized by below-average precipitation statewide, uneven storm timing, and strong north-to-south regional differences in rainfall and snowpack. Northern California generally received average to above-average precipitation, while much of Southern California remained drier than average.
- Early WY 2026 further highlighted increasing hydrologic volatility. Near- to above-average precipitation through February was followed by a warm, dry March that sharply reduced snowpack. Statewide April 1 snow water equivalent fell to approximately 18 percent of average, limiting sustained spring runoff and groundwater recharge opportunities.

Groundwater Levels

- The one-year comparison of groundwater levels from fall 2024 to fall 2025 shows that 71% of monitored wells remained relatively stable, 13% increased by more than five feet, and 15% declined by more than five feet.
- The ten-year comparison from fall 2015 to fall 2025 indicates continued recovery from the 2012–2016 drought: 48% of wells increased by five feet or more, 37% remained similar, and 14% declined by more than five feet.
- Despite recent improvements, long-term trends remain concerning. Over the 20-year period from 2005 to 2025, 45% of monitored wells showed declining groundwater levels, while only about 10% showed increasing trends. Declines were most pronounced in the Tulare Lake and San Joaquin regions.
- Fall 2025 percentile analysis shows that 39% of wells were within the normal historical range, 37% were above normal, and 25% were below normal.
- Three percent of wells recorded their lowest groundwater levels on record, while seven percent recorded their highest. Groundwater conditions showed the greatest improvements in coastal and northern regions, while the San Joaquin and Tulare regions continued to show elevated stress.

Groundwater Storage

- DWR and GRACE-FO data highlight the severity of depletion, while GSP-reported data provide a valuable link between local management actions and observed trends, underscoring the need for accurate monitoring and adaptive management under SGMA.
- Groundwater storage in the Central Valley area remains highly responsive to drought and wet periods. In WY 2025, cumulative groundwater storage estimates declined by approximately 1.7 million acre-feet.
- Since WY 2019, cumulative groundwater storage change in the Central Valley remains negative at approximately 8.1 million acre-feet, indicating that wet-year recovery has only partially offset drought-period losses.
- The Tulare reporting area experienced the greatest cumulative losses (4.1 million acre-feet) since 2019, underscoring persistent overdraft pressure in the southern Central Valley.

Land Subsidence

- Land subsidence in WY 2025 increased compared to the previous two wetter years. Approximately 3,100 square miles subsided by more than 0.1 feet, compared to about 2,200 square miles in WY 2024. Maximum subsidence reached 0.6 feet over WY 2025 and was concentrated in the Tulare Lake region.
- Subsidence remained concentrated in the Tulare Lake and southern San Joaquin regions, demonstrating continued aquifer stress and the delayed impacts of groundwater declines.

Groundwater Management: Extraction, Recharge, and Change in Storage

- Groundwater Extraction, Recharge, and Change in Storage was submitted by GSAs in Annual Reports across 101 basins for WY 2025.
- In WY 2025, approximately 12.8 million acre-feet of groundwater extraction was reported, up from 11.5 million acre-feet in WY 2024. About 83% of reported pumping occurred in the Central Valley.
- Managed aquifer recharge totaled approximately 1.1 million acre-feet in WY 2025, down from 1.9 million acre-feet in WY 2024 and 4.6 million acre-feet in WY 2023.
- Reported basin storage change in WY 2025 was a net decline of approximately 1.5 million acre-feet statewide, reflecting that extraction continued to exceed replenishment in many areas.
- Nearly 2,000 projects and management actions have now been identified statewide under SGMA implementation, though many remain in early or ongoing stages.

Well Infrastructure and Data Reporting

- New well construction activity remained subdued in recent years, reflecting changing groundwater demand, local management actions, rising drilling and construction costs, evolving basin conditions, and greater coordination between local permitting agencies and groundwater managers in some regions.
- Dry well reports remain below peak drought-year levels, but continued occurrences show that domestic well vulnerability persists even after wetter years, particularly in areas with shallow groundwater levels or localized declines.
- The state continues to work with local agencies and the public by increasing telemetered sites from 100 to close to 300 between WY 2022 and 2025 to expand the collection and availability of real-time, publicly available data through telemetered sites.

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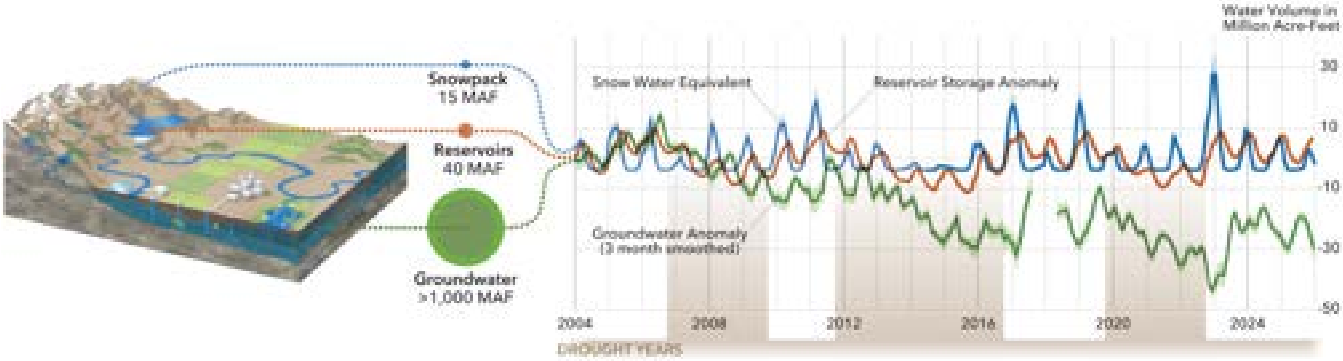
Introduction

California's hydrologic conditions are becoming more variable and extreme, driven by both short-term weather patterns and long-term climate change, and these changes are driving how water users manage supplies and adapt to increasing uncertainty. Following two years of above average precipitation, groundwater conditions in Water Year (WY) 2025 shifted back to drier and more variable conditions, with below-average precipitation, uneven storm timing, and strong regional variability in precipitation and snowpack, affecting runoff, surface water availability, and groundwater recharge. Over halfway through WY 2026, during the most important portion of the wet season, conditions have already highlighted California's increasingly unpredictable weather, beginning with above average rain and snow followed by record high temperatures that melted much of the snowpack, ranking as the second worst on record. While conditions have since moderated, with precipitation returning and reservoirs above historical averages, the snowpack has been substantially diminished. Together, these conditions underscore the need to maximize the use of California's natural infrastructure by capturing water during short periods of availability and storing it for future use. Groundwater basins serve as the state's most flexible and resilient form of long-term storage, a role that is becoming increasingly important under these changing conditions.

While surface reservoirs often provide the most visible signs of water abundance or scarcity, a more complete measure of California's water resilience lies underground within the state's 515 groundwater basins. California's water system (**Figure 1**) functions as a connected system of three primary water storage sources—snowpack, reservoirs, and groundwater—that respond to precipitation with increasing delay over the course of the year. Snowpack provides the earliest form of storage, accumulating during winter gradually releases water to downstream reservoirs through spring and early summer. Reservoirs capture this runoff and help regulate water supply through the drier months. Groundwater, with a storage capacity greater than snowpack and reservoirs combined, responds more slowly, recharging over longer timeframes and serving as a long-term storage reserve. Illustrated in **Figure 1** is the delayed response, or lag, between the peaks of these three storage sources. This sequence demonstrates how water moves through California's interconnected system, with snowpack and reservoirs storing and releasing water on a seasonal schedule, while groundwater responds more gradually through recharge and longer-term changes in storage. As a result, highlighting how early-season conditions in snowpack and runoff can strongly influence reservoir storage, groundwater recharge, and water availability later in the year.

Figure 1: Conceptual comparison of relative water storage volumes in California's three primary storage components—snowpack, surface reservoirs, and groundwater aquifers—alongside statewide time series of snow water equivalent, reservoir storage anomaly, and groundwater storage anomaly. Snowpack data were derived from SNODAS, reservoir data from the California Data Exchange Center (CDEC), and groundwater storage anomaly data from the NASA Gravity Recovery and Climate Experiment (GRACE) and GRACE Follow-On (GRACE-FO) satellite missions.



Climate change is reshaping how California's water system stores and delivers water by altering the timing, form, and distribution of precipitation. Rising temperatures are increasing the elevation of the snowline, causing more precipitation to fall as rain rather than snow and reducing the amount of water stored as snowpack for gradual release later in the year. At the same time, greater climate variability is producing more frequent cycles of intense storms followed by prolonged dry periods, leading to earlier runoff, more episodic streamflow, and reduced spring and summer snowmelt contributions. These changing precipitation patterns also have important implications for groundwater recharge. High-intensity storm events can generate substantial surface runoff but may provide limited opportunity for infiltration and recharge, particularly when soils are already saturated or when flows exceed the capacity of recharge facilities. Conversely, longer dry periods between storms reduce soil moisture, so that water from smaller precipitation events is often only sufficient to re-saturate the soil rather than percolate downward to recharge the aquifer. As a result, recharge becomes more episodic and increasingly dependent on larger storm events. Collectively, these changes lessen the reliability of snowpack as a natural storage source, increase pressure on surface reservoirs, and heighten reliance on groundwater as a critical buffer during extended dry periods.

Groundwater storage in California's Central Valley experienced substantial cumulative losses from 2006 to 2026 (**Figure 1**), with the sharpest declines occurring during drought periods and recoveries during wetter years that often did not return storage to prior levels. This pattern suggests a long-term downward ratcheting effect, where repeated drought-driven pumping created persistent storage deficits over time. Following the 2022 drought, however, groundwater storage rebounded to approximately pre-drought levels, although remaining below the long-term baseline. While additional data are needed to evaluate long-term significance, this more recent response may be consistent with improving hydrologic conditions, changing pumping patterns, and the early effects of groundwater sustainability efforts under SGMA.

Current hydrologic conditions further illustrate these long-term shifts and the growing disconnect between short-term surface water conditions and overall system reliability. As documented in the April 2026 California Hydrology Update, reservoir storage was near to above average statewide (121 percent of average), while snowpack had declined to well below normal (17 percent of normal) and melted earlier than typical in the season. This contrast reflects a system increasingly dominated by rainfall-driven runoff rather than delayed snowmelt storage. While reservoirs may temporarily capture increased runoff, operational constraints such as flood control requirements can limit the ability to retain this water for later use. As a result, water supply conditions may appear favorable in the short term, even as underlying storage trends indicate reduced resilience to extended dry periods and continued pressure on groundwater resources.

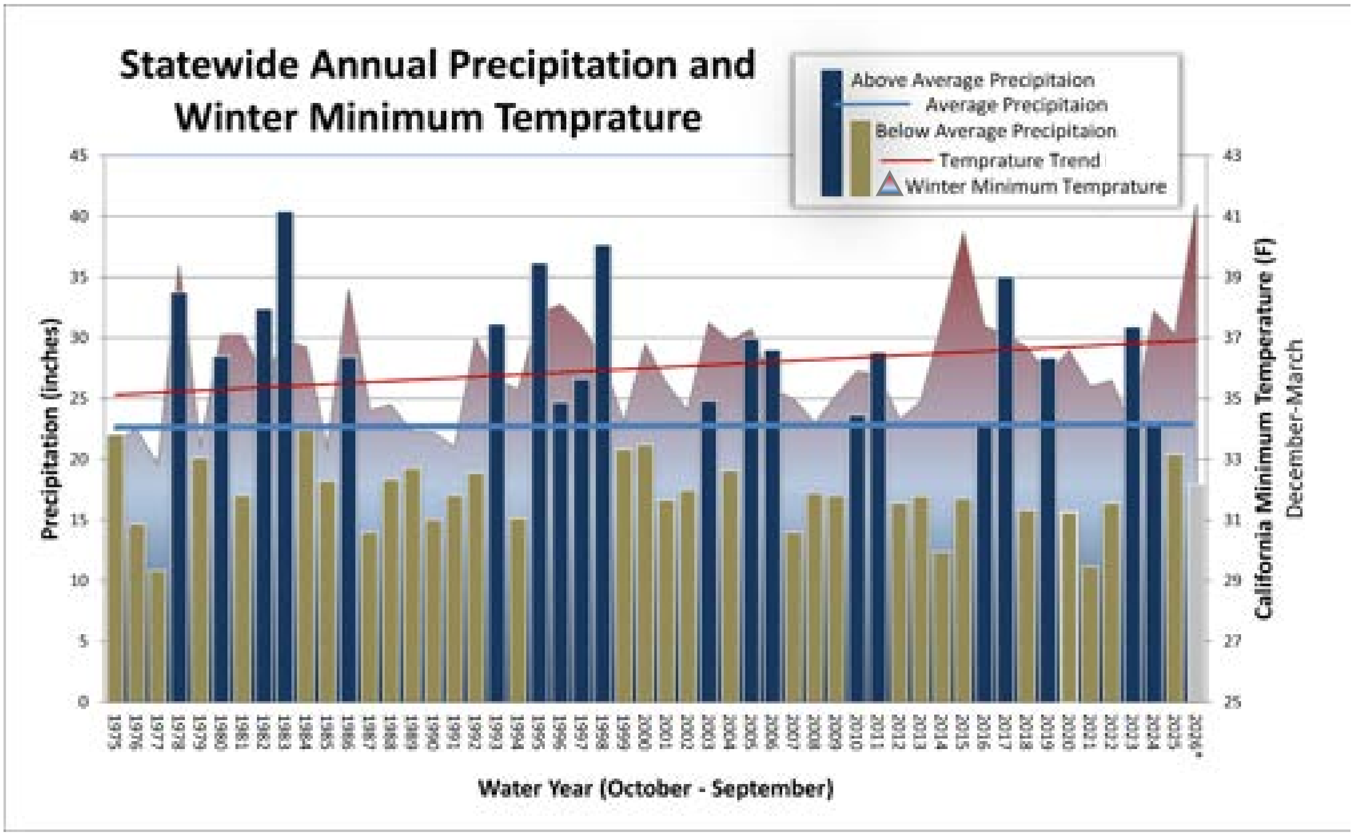
Declining groundwater levels are closely linked to land subsidence in susceptible aquifer systems, especially in the Central Valley. As groundwater is extracted, compaction of sediments in the aquifer can result in subsidence and a permanent loss of aquifer storage capacity. In areas where groundwater levels remain below critical head thresholds, subsidence may continue even during wetter periods, indicating that some impacts persist beyond short-term improvements in hydrologic conditions. These evolving conditions underscore the need for more active and adaptive groundwater management. Recent policy direction, including Senate Bill 72 and Senate Bill 659, along with the modernization of the California Water Plan, reinforces this shift by emphasizing integrated water management, improved accounting, and expanded use of groundwater recharge as a core strategy for long term resilience. As reliance on groundwater increases and recharge becomes less consistent, long-term sustainability will depend on strategies such as managed aquifer recharge during high-flow periods, improved coordination with surface water operations, demand management, and infrastructure that enables rapid capture and infiltration of stormwater when it is available. A wide range of projects and management actions are being implemented by Groundwater Sustainability Agencies (GSAs) in close coordination with landowners, farmers, and community-based organizations. Supported by DWR through grants, technical assistance and outreach, these efforts aim to benefit groundwater users, including domestic well users and underserved communities. As of April 2026, nearly 2,000 projects and management actions have been identified statewide, reflecting both the scale of implementation and the reality that many efforts remain in early or ongoing phases.

With GSAs transitioning further into full implementation of their SGMA Groundwater Sustainability Plans (GSPs), the need for accessible, consistent, and timely data becomes even more critical. Robust and publicly available data supports informed decision-making, enables coordination across regions, and builds public trust in the management of a resource that is largely invisible but fundamentally essential. Because groundwater levels fluctuate seasonally and respond to changing hydrologic conditions, high-frequency and accessible data are essential for accurately tracking seasonal variability and trends, and evaluating management actions. Continued improvements in data collection, reporting, and accessibility are enabling more responsive, data-driven groundwater management, especially through telemetry and near real-time data.

Water Year 2025 Climate and Groundwater

Water Year 2025 (October 2024 to September 2025) highlights how climate change is increasingly shaping California's water conditions through warmer winters, more variable precipitation, and less reliable snowpack storage. **Figure 2** shows that while statewide annual precipitation from 1975–2025 has remained relatively stable at about 23 inches on average, year-to-year variability has increased, with sharper swings between wet and dry years. Over this period, 30 years were below average and 20 were above average, reflecting the continued dominance of drier conditions despite intermittent wet years. At the same time, winter minimum temperatures have risen substantially. Warmer winters reduce the share of precipitation falling as snow, diminish snowpack persistence, and contribute to earlier snowmelt, increasing volatility in the timing of water supply even when annual precipitation totals are near or above average.

Figure 2: **Statewide Annual Precipitation** - NOAA National Centers for Environmental Information, (Climate at a Glance: U.S. Time Series, Precipitation). *WY 2026 Precipitation (grey) through March 2026.



Against this backdrop, Water Year 2025 was characterized by below-average precipitation statewide following two consecutive wetter years. Conditions also varied sharply across the state, with Northern California generally receiving average to above-average precipitation while much of Southern California remained below average (**Figure 3**). Precipitation was unevenly distributed through the wet season, occurring largely through a series of discrete storm events rather than sustained rainfall. **Figure 4** shows that significant storms in mid-November 2024 were followed by a notably dry mid-winter period, including January, which is typically one of California's wettest months. Additional storms in February, mid-March, and April improved totals in the Northern Sierra, but precipitation remained below average in the San Joaquin and Tulare regions.

Snowpack conditions in WY 2025 reflected both the warming climate and the uneven distribution of precipitation. Despite a dry mid-winter, late-season storms increased snow accumulation, and statewide snowpack measured 96 percent of normal on April 1, 2025, after being only 69 percent of normal on February 1. As shown in **Figure 5**, conditions were strongest in the Northern Sierra/Trinity Region, where peak snow water equivalent reached about 121 percent of average, compared to 95 percent in the Central Sierra and 85 percent in the Southern Sierra. This north-to-south gradient favored stronger runoff and surface water supplies in northern watersheds, while reduced snowmelt contributions in the Central and Southern Sierra limited runoff to portions of the Central Valley more dependent on southern Sierra supplies. In these areas, tighter surface water conditions likely increased groundwater pumping, reduced recharge opportunities, and contributed to continued pressure on aquifer systems.

Conditions in the first half of WY 2026 further illustrate these emerging trends. As shown in **Figure 4**, precipitation through February was near to above average across the state, yet a warm and exceptionally dry March reduced water year totals to below average across the Northern Sierra, San Joaquin, and Tulare Basin indices. At the same time, **Figure 5** shows snowpack declined rapidly, with statewide April 1 snow water equivalent falling to approximately 18 percent of average. In the Northern Sierra – home to several of California's largest water supply reservoirs – snowpack was only 6 percent of normal for the date. The April 1 snow survey at Phillips Station recorded no measurable snow, the second-lowest April reading on record. Despite several large storms in April, snowpack remains well below average. These conditions point to reduced sustained spring runoff, tighter surface water supplies, and fewer opportunities for groundwater recharge compared to a typical year.

Figure 3: Precipitation Percentiles - 2025 and 2026 Water Year Precipitation NOAA National Centers for Environmental Information ([Climate at a Glance: Precipitation]())

Figure 4: **Water 2025 Year Snow Water Content** - CDEC (Snowpack Conditions Snow Water Content).

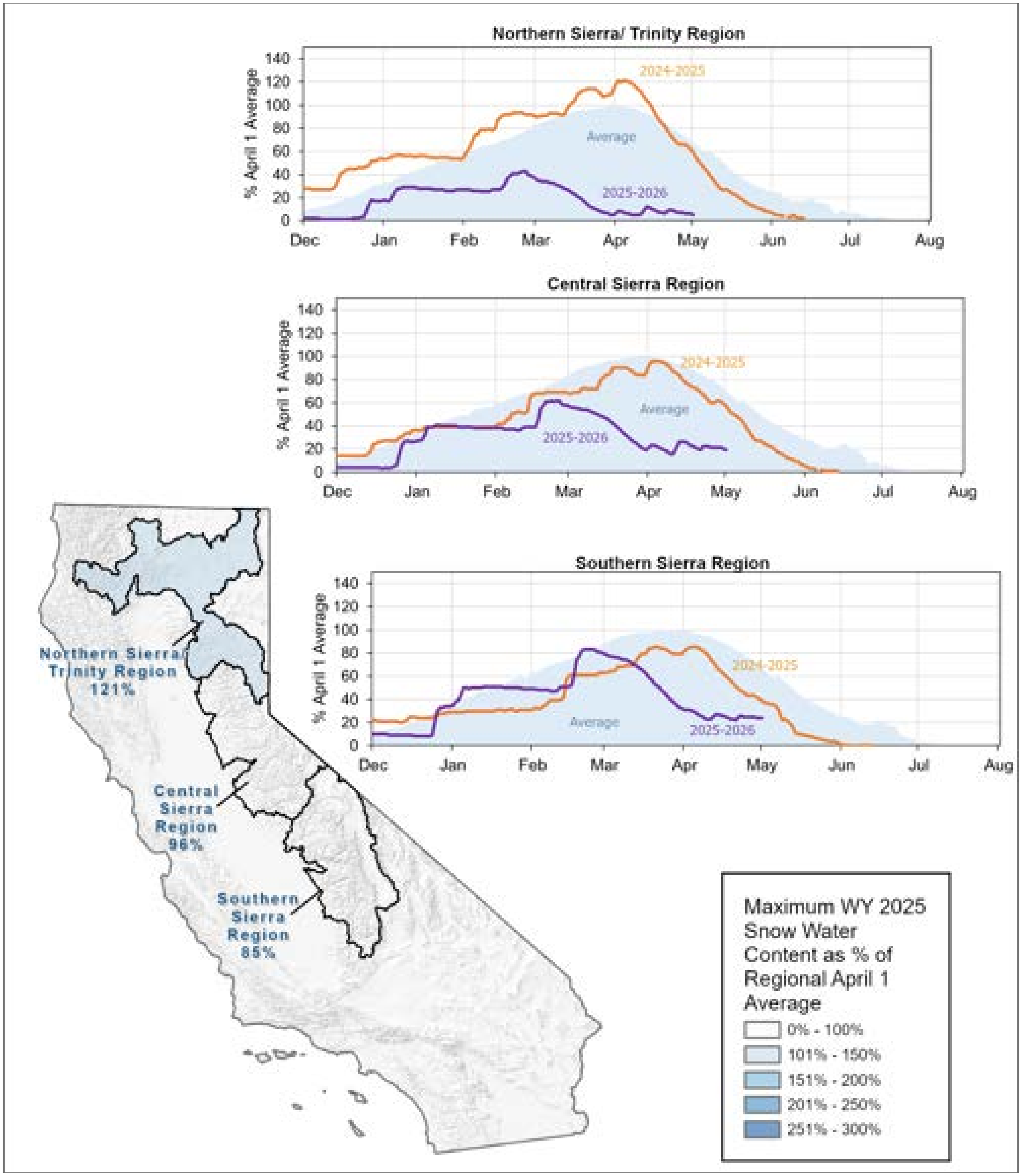
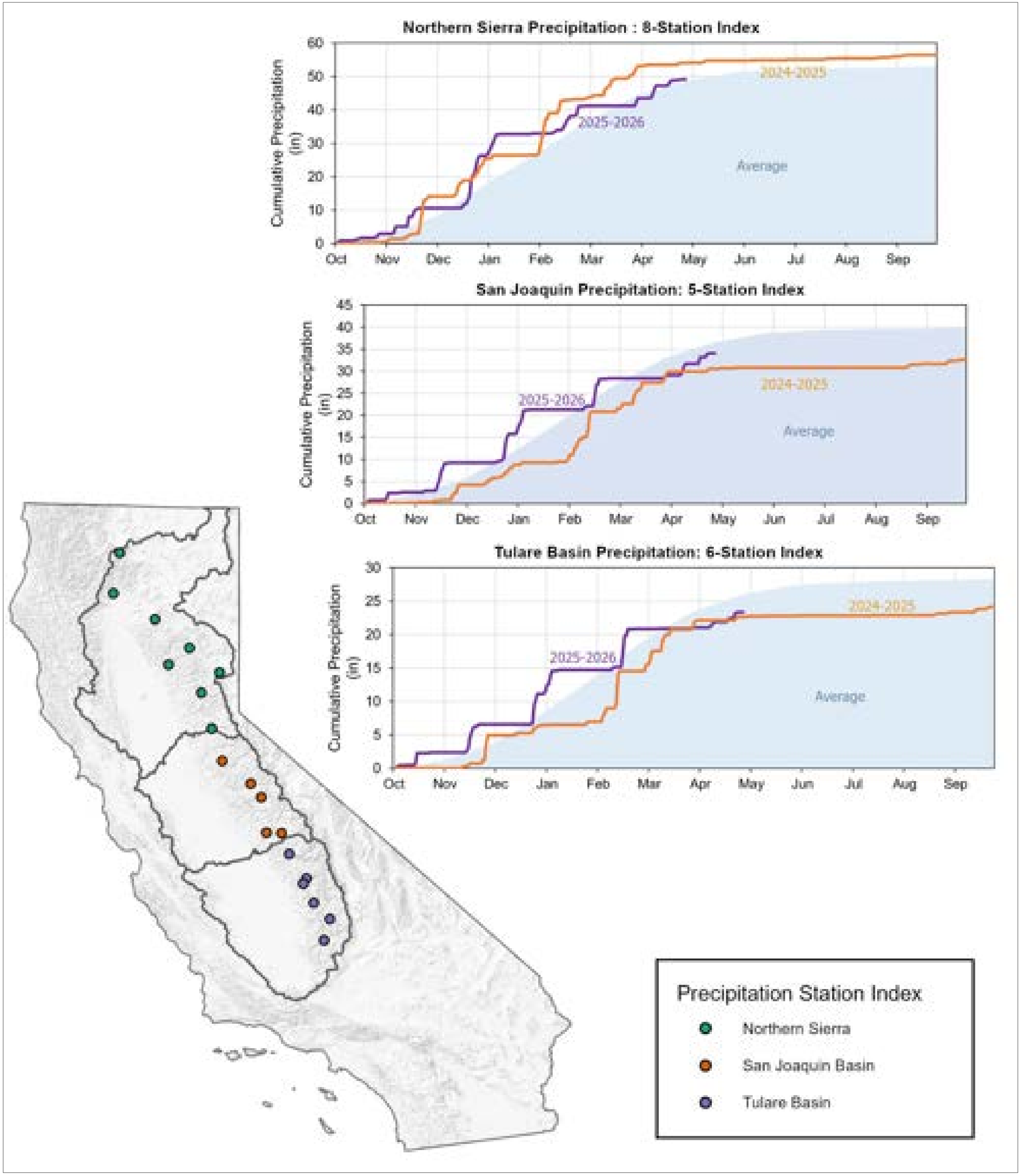


Figure 5: **Northern Sierra, San Joaquin, and Tulare Basin Precipitation Index** - CDEC (CDEC Precipitation Index).



Status of California’s Groundwater Conditions

Groundwater conditions in California are evaluated using multiple indicators that together provide insight into the health, availability, and long-term sustainability of the state’s groundwater resources. These indicators include groundwater level measurements, long-term water level trends, estimates of changes in groundwater storage, and land subsidence caused by aquifer compaction. Considered together, they help describe how groundwater systems respond to precipitation, pumping demands, recharge, and long-term management actions across California’s diverse hydrologic regions.

Groundwater levels are regularly measured across a statewide network of wells, with late summer and early fall readings typically representing seasonal low points following peak irrigation demand and before the primary winter recharge period begins. These measurements are useful for evaluating both recent changes in groundwater conditions and longer-term trends. In many areas, when groundwater extraction consistently exceeds recharge, groundwater levels decline over time and may contribute to groundwater storage loss and land subsidence. Conversely, wetter periods and reduced pumping can allow groundwater levels and storage to recover.

Short Term Groundwater Levels

Recent groundwater level conditions provide an important indicator of how aquifer systems responded to recent precipitation, groundwater pumping, and seasonal recharge patterns. Fall groundwater measurements are particularly useful because they are typically collected near seasonal low points after peak irrigation demand and before the primary winter recharge period begins. The one-year change in groundwater levels from fall 2024 to fall 2025 shows that most monitored wells remained relatively stable. These results reflect generally moderate conditions following the wetter years of WY 2023 and WY 2024, and a slightly drier but still less severe WY 2025 compared to recent drought years. Relative stability at most wells suggests that widespread short-term stress was limited, though localized declines remain evident. Regionally, the Sacramento River and Tulare Lake hydrologic regions had the highest percentages of wells with rising groundwater levels, while the Tulare Lake and South Coast regions had the greatest proportions of declines. These short-term patterns illustrate how groundwater systems continue to respond differently across the state depending on precipitation, surface water availability, pumping demand, and basin conditions.

The one-year change in groundwater levels from fall 2024 to fall 2025 (**Table 1; Figure 6**) shows that most wells (71%) remained relatively stable compared to the previous year. Among the remaining wells, 13% experienced increases greater than five feet, while 15% showed declines exceeding five feet. Regionally, the highest percentages of wells with rising groundwater levels occurred in the Sacramento River and Tulare Lake hydrologic regions. The greatest proportions of declines were observed in the Tulare Lake and South Coast regions.

Table 1: Summary of Groundwater Level (GWL) Changes Compared to fall 2024 and fall 2015 (as shown in **Figure 6, Figure 9**). Table based on available data from the DWR Water Data Library as of 04/01/2026.

Period (Water Year Types)	Total Well Count	Decrease > 25 ft	Decrease 5 to 25 ft	No Significant Change	Increase 5 to 25 ft	Increase >25 ft
1-Year GWL Change Fall 2024 to Fall 2025	6,432	2%	13%	71%	12%	2%
10-Year GWL Change Fall 2015 to Fall 2025	4,259	4%	10%	37%	32%	16%

Figure 7 depicts groundwater conditions using percentile statistics to describe how a measurement collected in fall 2025 (August, September, October) compares to other fall measurements collected in wells with a long period of fall measurements. The fall 2025 measurement is classified into one of five percentile categories, or statistical bins, based on all fall measurements for that well. A more detailed description of percentile class analysis is provided in the Semi-Annual Groundwater Conditions Update: October 2023 report.

The percentiles observed across the state for fall 2025 (August, September, October) are summarized in **Table 2**. This table shows that 39% of the 5,359 wells in the analysis are in the normal percentile class, 37% are higher than normal, and 25% are lower than normal water levels. The data further indicates that measurements from three percent of wells have the lowest groundwater levels on record for that well and seven percent have the highest groundwater levels on record. Percentages vary within each hydrologic region (see **Figure 7** inset). For example, San Francisco Bay, Central Coast, and Colorado River Hydrologic Regions all show that a majority of groundwater level measurements are higher than normal, while the San Joaquin River and Tulare Lake Hydrologic Regions have a majority of groundwater levels that are lower than normal.

Table 2: Statistical Summary of percentile classes for September, October, November 2025 (as shown in **Figure 7**). Table based on available data from the DWR Water Data Library as of 04/03/2026.

Percentile Class	Total Well Count	Lowest on Record	Less than 10%	10-25%	25-75% (Normal)	75-90%	Greater than 90%	Highest on Record
Statewide Percentile Class for August, September, October 2025	5,359	3%	7%	15%	39%	16%	14%	7%

Figure 6: **One Year Groundwater Level Change** - Statewide and hydrologic region groundwater level change map for one-year period between fall 2024 and 2025. See **Table 1** for specific groundwater level statistics. Map and charts based on available data from the DWR Water Data Library as of 04/01/2026.

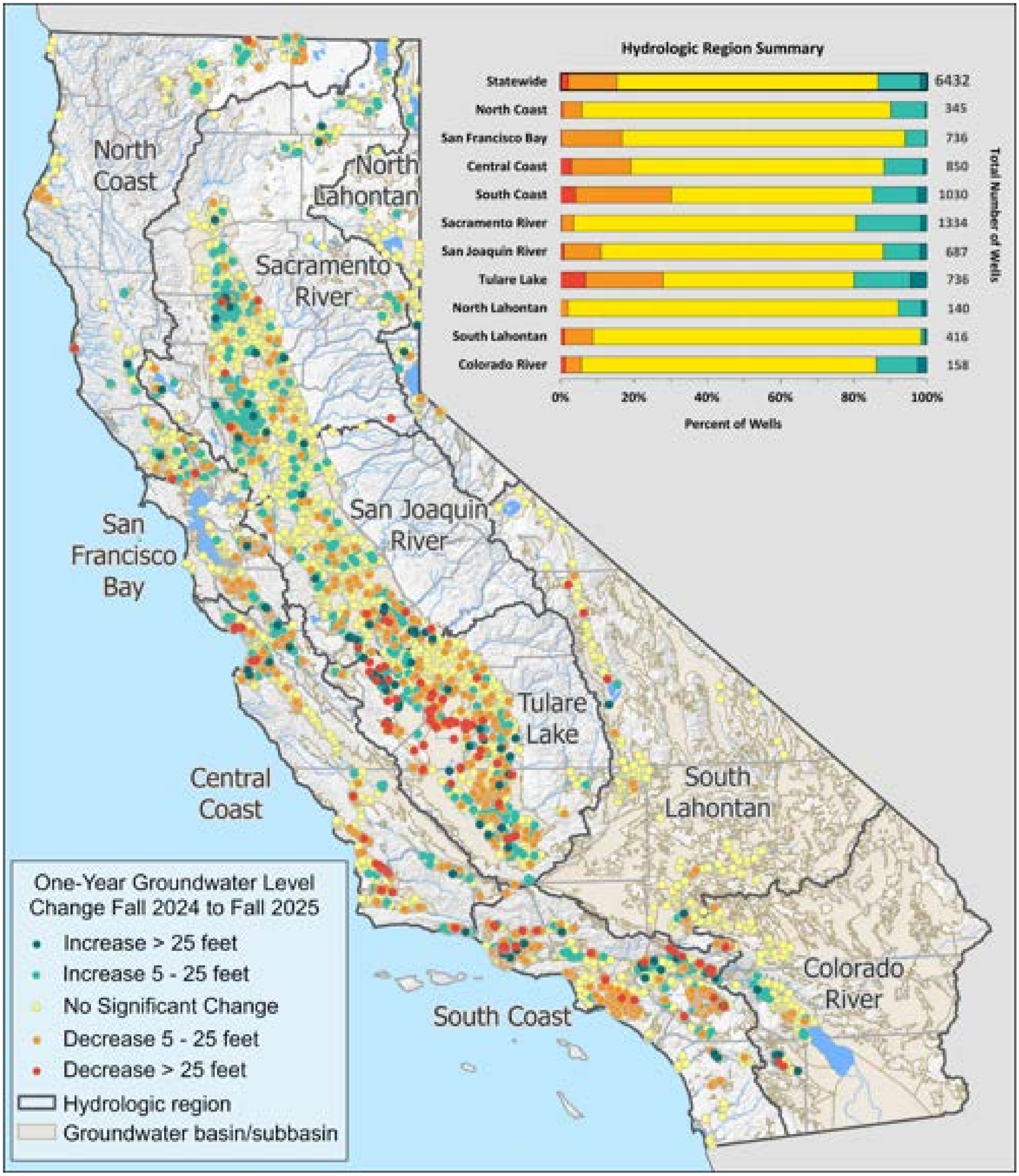


Figure 7: **Fall Groundwater Conditions -** Statewide and hydrologic region groundwater level percentile map for groundwater wells in the months of September, October, and November 2025. See **Table 2** for specific groundwater level statistics. Map and chart are based on available data from the [DWR Water Data Library]() as of 04/03/2026.

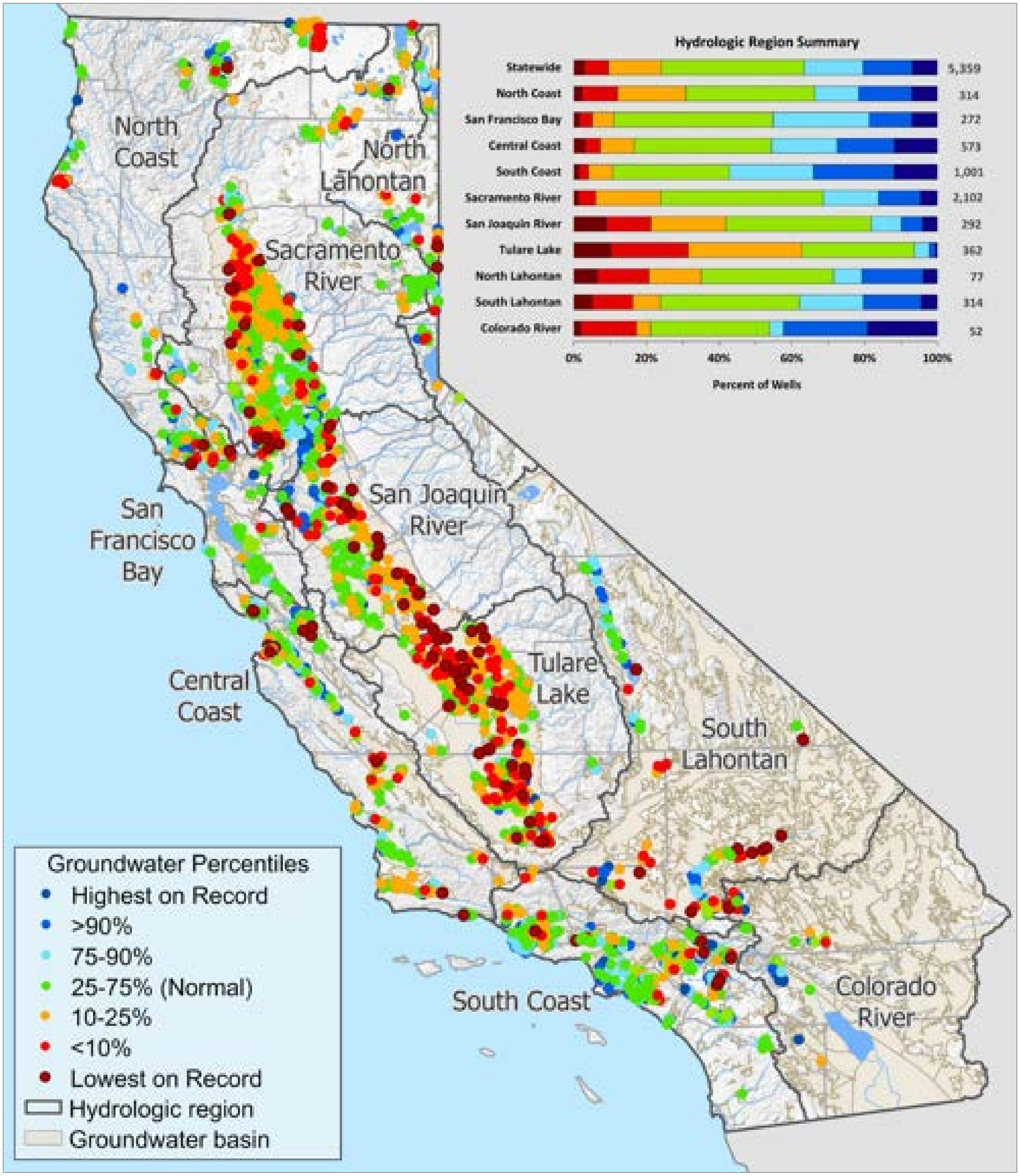
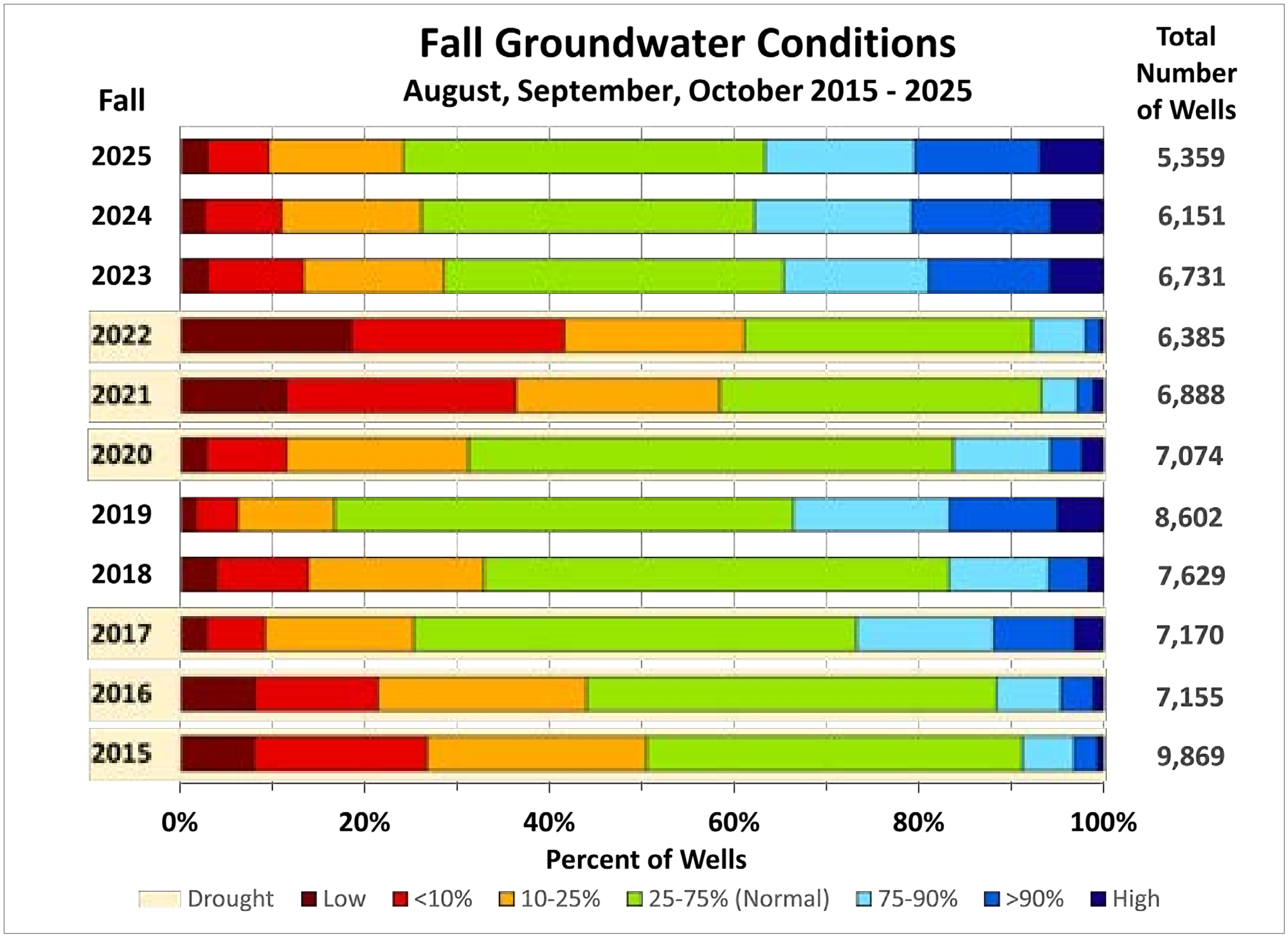


Figure 8 builds on this analysis by showing a multi-year comparison of groundwater level percentiles for fall measurements from 2015 through 2025. It illustrates how conditions have changed over time, highlighting contrasts between drought-period lows (2015, 2021, and 2022) and more recent years influenced by wetter conditions. While recent years show a higher proportion of wells in the normal and above-normal categories, the figure also reflects continued variability and uneven recovery across regions. This pattern suggests that improvements during wetter periods may not fully offset longer-term declines. Recovery is driven by a combination of increased recharge in wet years and reduced groundwater extraction due to greater reliance on surface water supplies.

Figure 8: **10-Year Fall Groundwater Conditions** - Statewide groundwater level graph for groundwater wells in the months of September, October, and November for years 2015 to 2025. Chart are based on available data from the [DWR Water Data Library]() as of 04/03/2026.



Long-Term Groundwater Level Trends

Long-term groundwater level trends provide a broader measure of whether groundwater use is occurring sustainably over time. Unlike short-term changes that may reflect seasonal or annual hydrologic variability, long-term comparisons help identify persistent overdraft, recovery, or stabilization. A statewide comparison of fall 2025 groundwater levels to fall

2015 conditions shows that nearly half of wells increased by five feet or more. These results indicate substantial recovery in many areas since the midpoint of the 2012–2016 drought. However, a separate 20-year trend analysis from 2005 through 2025 shows that 45 percent of wells continue to exhibit declining groundwater levels, while only about 10 percent show increasing trends. The most significant long-term declines were concentrated in the Tulare Lake, San Joaquin River, and Sacramento River hydrologic regions. In contrast, the Colorado River and South Coast regions had the highest percentages of increasing trends. These findings suggest that while wetter periods can produce meaningful short- and medium-term recovery, they do not fully offset persistent long-term groundwater stress in some basins.

A statewide comparison of fall 2025 groundwater levels to 2015 conditions, during the midpoint of the 2012–2016 drought (**Table 1; Figure 9**) shows that 48% of wells have increased by five feet or more, indicating some rebound from drought conditions. Groundwater levels in 37% of wells are similar to 2015 levels. Regionally, the Tulare Lake and San Joaquin River hydrologic regions have the highest proportions of wells with declines exceeding five feet over the ten-year period. In contrast, most hydrologic regions show a predominance of wells with groundwater level increases of five feet or more.

Figure 10 illustrates the 20-year trend in groundwater level changes, showing the magnitude of increasing or decreasing trends in wells from WY 2005 to WY 2025 (**Table 3**). This period includes the droughts of 2007–2009, 2012–2016, and 2020-2022. During this 20-year span marked by water resource stress and increased groundwater use, 45% of wells statewide showed a decreasing trend in groundwater levels, which is 4% lower than previous 20-year trend analyses. Approximately 10% of the wells showed an increasing trend.

Figure 10 also highlights several clusters of wells with sharply declining groundwater level trends across the state during this period. These declining trends were most significant in the Tulare Lake Hydrologic Region, the San Joaquin River Hydrologic Region, and the Sacramento River Hydrologic Region. In contrast, the Colorado River and South Coast Hydrologic Regions had the highest percentage of wells with increasing trends of more than 2.5 feet per year.

Table 3: Statistical Summary of 20-Year Groundwater Level Trend Map **(Figure 10)**. Table based on available data from the DWR Water Data Library as of 04/01/2026.

Period	Total Well Count	Decrease > 2.5 ft/yr	Decrease 0.01 - 2.5 ft/yr	No Significant Trend	Increase 0.01 - 2.5 ft/yr	Increase > 2.5 ft/yr
20-Year Trend: 2005 to 2025	4,634	13%	32%	45%	8%	2%

Figure 9: **Ten-Year Groundwater Level Change** - Statewide and hydrologic region groundwater level change map for the ten-year period between fall 2015 and fall 2025. See **Table 1** for specific groundwater level statistics. Map and charts based on available data from the DWR Water Data Library as of 04/01/2026.

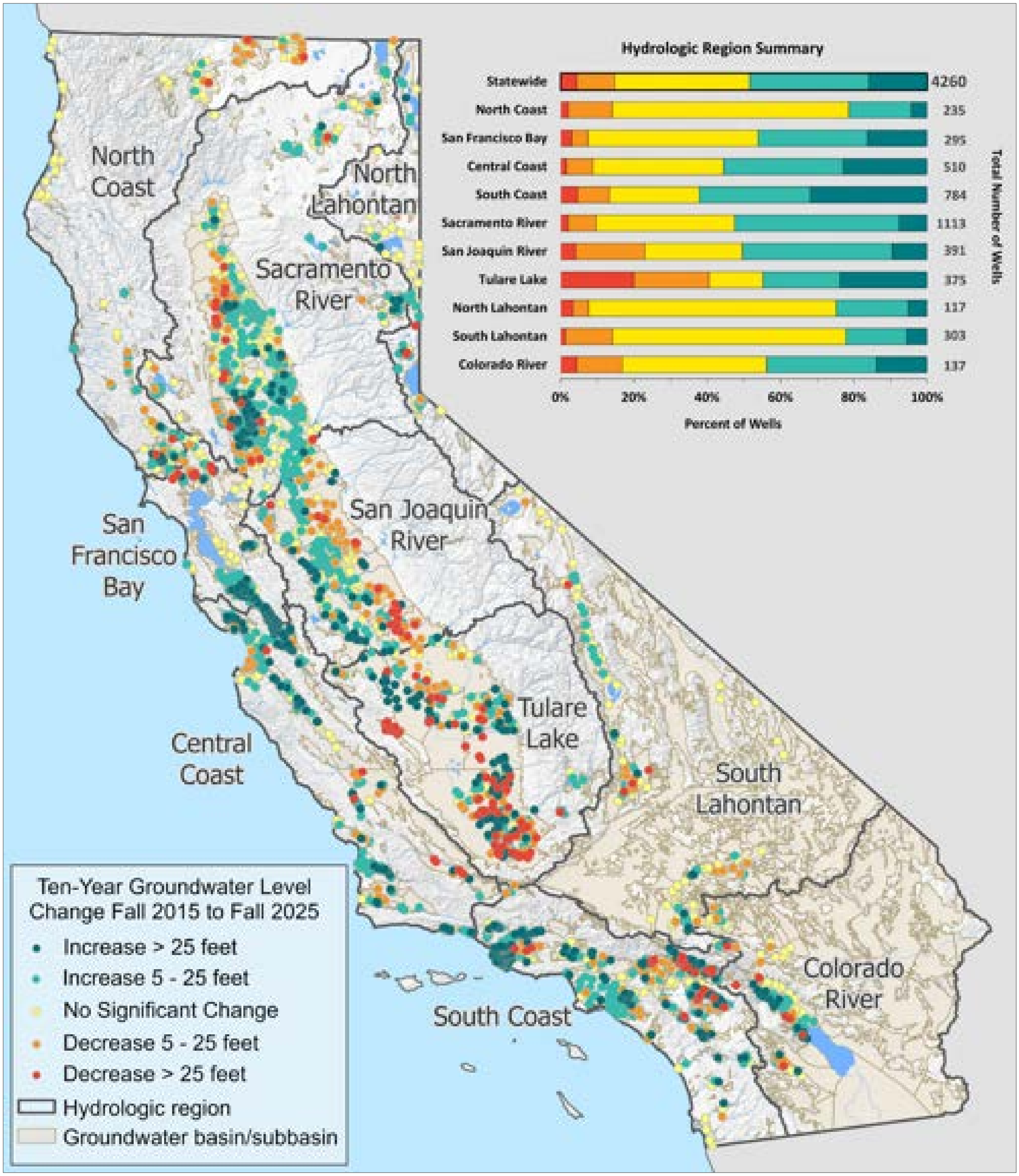
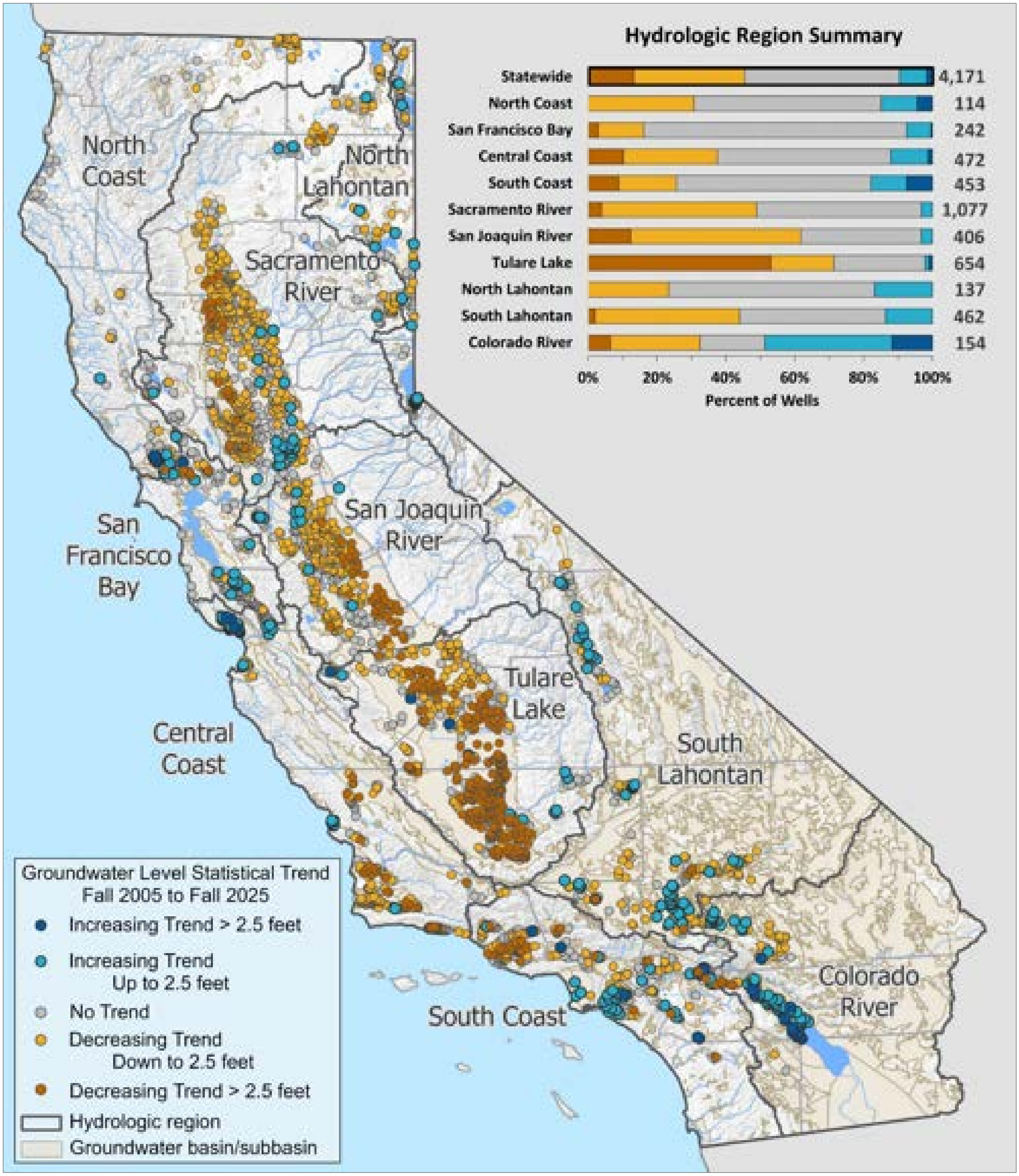


Figure 10: **Twenty-Year Groundwater Level Trend** - Statewide and hydrologic region groundwater level trend analysis map for the 20-year period between fall 2005 and fall 2025. See **Table 3** for specific groundwater level statistics. Map and charts based on available data from the DWR Water Data Library as of 04/01/2026.



Change in Groundwater Storage

Groundwater storage change provides an important statewide indicator because it reflects changes in the total volume of water stored underground rather than water levels at individual wells. Storage estimates help evaluate cumulative drought impacts, recharge benefits during wet years, and broader basin-scale water supply resilience.

Four methods and sources for estimating the change in groundwater storage are presented in this report: GSP Annual Report change in storage estimates (GSP AR), analysis of groundwater level measurements (DWR GWL), the NASA Gravity Recovery and Climate Experiment and Follow-On satellite missions (NASA GRACE-FO), and the DWR Central Valley numerical model (C2VSim). The areas covered in the analysis are described as "Reporting Areas" (**Figure 12**). Each reporting area is designed to cover the Central Valley groundwater basins within the Sacramento, San Joaquin, and Tulare River Basin areas; however, the NASA GRACE-FO reporting area extends to include the full extent of these three river basins. The estimated change in groundwater storage from each of these analyses varies due to differences in methodology, timing, and reporting area; however, the overall trend in groundwater storage change among these methods is similar. The maximum, minimum, and median values were used to simplify the discussion and summarize the results of the various change in storage analyses in this report. More detailed information describing these methods and reporting areas is provided in the California Groundwater Update 2025.

Annual changes in groundwater storage for WY 2019 through 2025 were estimated using multiple methods across groundwater basins within the Central Valley and associated river basins. Among these methods, the median change in storage ranged from a decrease of 6,619 TAF in WY 2021 to an increase of 5,399 thousand acre-feet (TAF) in WY 2023 (**Figure 11**). The greatest declines in groundwater storage since 2019 occurred during the 2020-2022 dry/drought period with an estimated decrease of 13,985 TAF across the 3 years. Groundwater storage partially rebounded during WY 2022 and 2023, recovering an estimated 7,017 TAF.

The cumulative change in groundwater storage between WY 2019 and 2025 shows a net decline in median groundwater storage estimates of 7,812 TAF. This over the 7-year period reflects the lingering impacts of the intense dry/drought period from 2020 to 2022, despite the substantial recovery during wet WY 2023 and 2024 period.

Figure 11: Estimated annual change in groundwater storage - using various methods and sources showing median/ max/min range of values and cumulative change, WY 2019 through WY 2025 – Change in groundwater storage estimates from four sources (GSP Annual Reports, DWR Groundwater Level Analysis, NASA GRACE-FO Mission, DWR C2VSIM model).

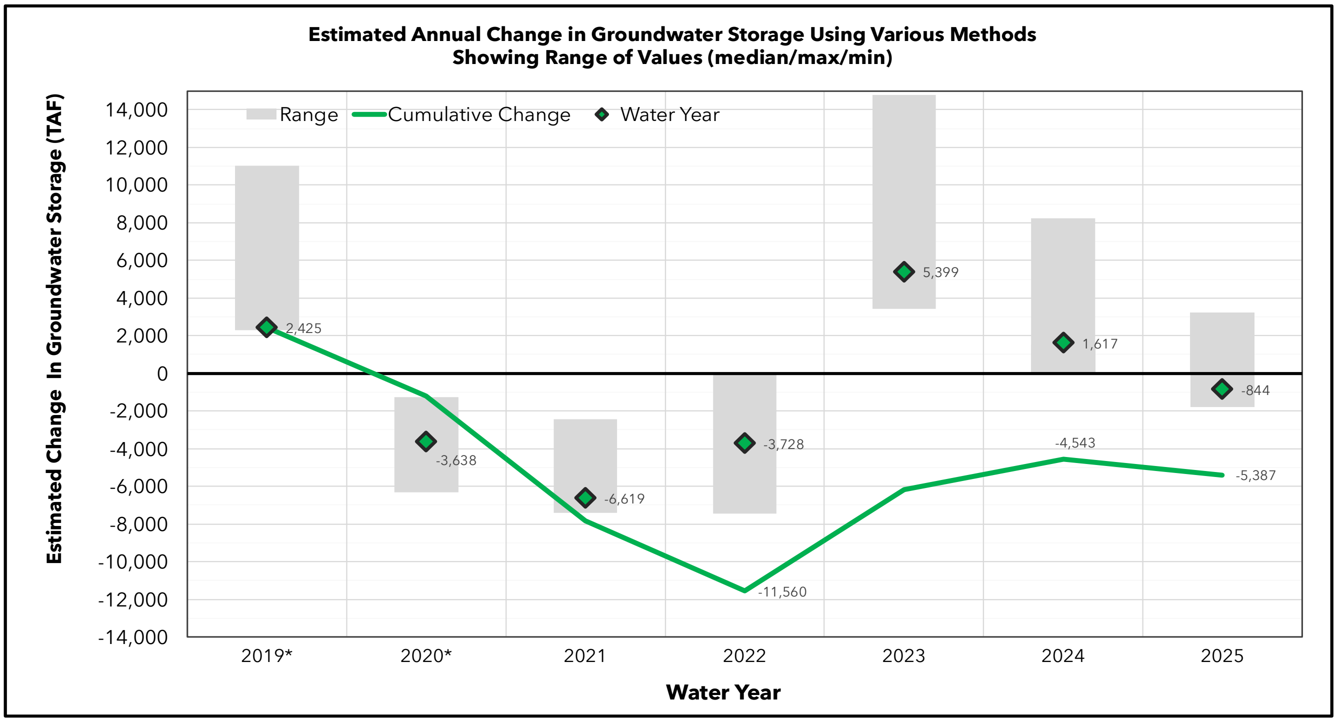


Table 4: Estimated annual change in groundwater storage (TAF) – using various methods and sources showing median/max/min range of values and cumulative change, WY 2019 through WY 2025 – Change in groundwater storage estimates from four sources (GSP Annual Reports, DWR Groundwater Level Analysis, NASA GRACE-FO Mission, DWR C2VSimFG model). Table provides annual values for each method, and cumulative change based on median values.

Water Year	*GSP AR	DWR GWL C2VSim param	**NASA GRACE-FO	C2VSim Model	Median	Cumulative
2019*	*1,510*	**2,311**	**11,006**	2,425	2,425	2,425
2020*	*-2,502*	**-1,275**	**-6,326**	-3,638	-3,638	-1,213
2021	-7,102	-6,135	**-2,453**	**-7,401**	-6,619	-7,831
2022	-5,818	**-7,438**	**-1,638**		-3,728	-11,560
2023	7,385	**3,414**	**14,762**		5,399	-6,160
2024	1,720	**8,238**	**1,515**		1,617	-4,543
2025	-1,689	**-1,801**	**3,237**		-844	-5,387

* SGMA annual report estimates for WY 2019–2020 reflect partial data, covering groundwater storage data for critically overdrafted basins and the North Yuba and South Yuba subbasins only.
** Estimates based on change in groundwater storage for River Basin Reporting areas.

The change in groundwater storage for the Central Valley is shown in **Figure 12** and is divided into three reporting areas. These reporting areas are defined by the analysis method and correspond to the three river basins: Sacramento, San Joaquin, and Tulare. GRACE-FO-based estimates represent changes across the full extent of each river basin, whereas the other methods are limited to the Central Valley groundwater portions within those basins (**Figure 12**).

The estimated annual median change in groundwater storage for all three reporting areas shows decreases from WY 2020 through WY 2022, and increases in WY 2019, 2023, and 2024. The Sacramento reporting area shows an increase in groundwater storage in WY 2025, while the San Joaquin and Tulare reporting areas show decreases. The widest variability in estimates, when comparing methods for a given water year, is in the Sacramento reporting area with ranges of more than 6.5 million acre-feet (MAF) in two of the seven reported water years. The wide variation is likely due to the large Sacramento Reporting Area, which extends well beyond the Central Valley groundwater basin, required for the GRACE-FO analysis.

The Tulare Reporting Area had the greatest variation in annual median storage values since 2019. With 3,890 TAF of storage declines in WY 2021, and 4,332 TAF of storage increase in 2023. The WY 2020–2022 cumulative storage loss of 7,894 TAF was not fully replenished in the WY 2023–2024 net storage gain of 4,995 TAF. The cumulative WY 2019–2025 median change in storage for the Tulare Reporting Area is -4,218 TAF.

The Sacramento and San Joaquin Reporting Areas responded similarly to the drought with WY 2020–2022 cumulative storage declines of 3,766 TAF and 3,621 TAF respectively. The cumulative WY 2019–2025 median change in storage for the Sacramento Reporting Area is -1,624 TAF and is -2,108 TAF for the San Joaquin Reporting Area.

Figure 12: Sacramento, San Joaquin, and Tulare Reporting Areas - Estimated annual change in groundwater storage - using various methods, WY 2019 through WY 2025 – Change in groundwater storage estimates from four sources (GSP Annual Reports WY 21-25, DWR Groundwater Level Analysis and NASA GRACE-FO Mission WY 19-25, DWR C2VSim model WY 19-21). Charts provide annual median/max/min values, values for each method, and cumulative change based on median values in thousand acre-feet (TAF).

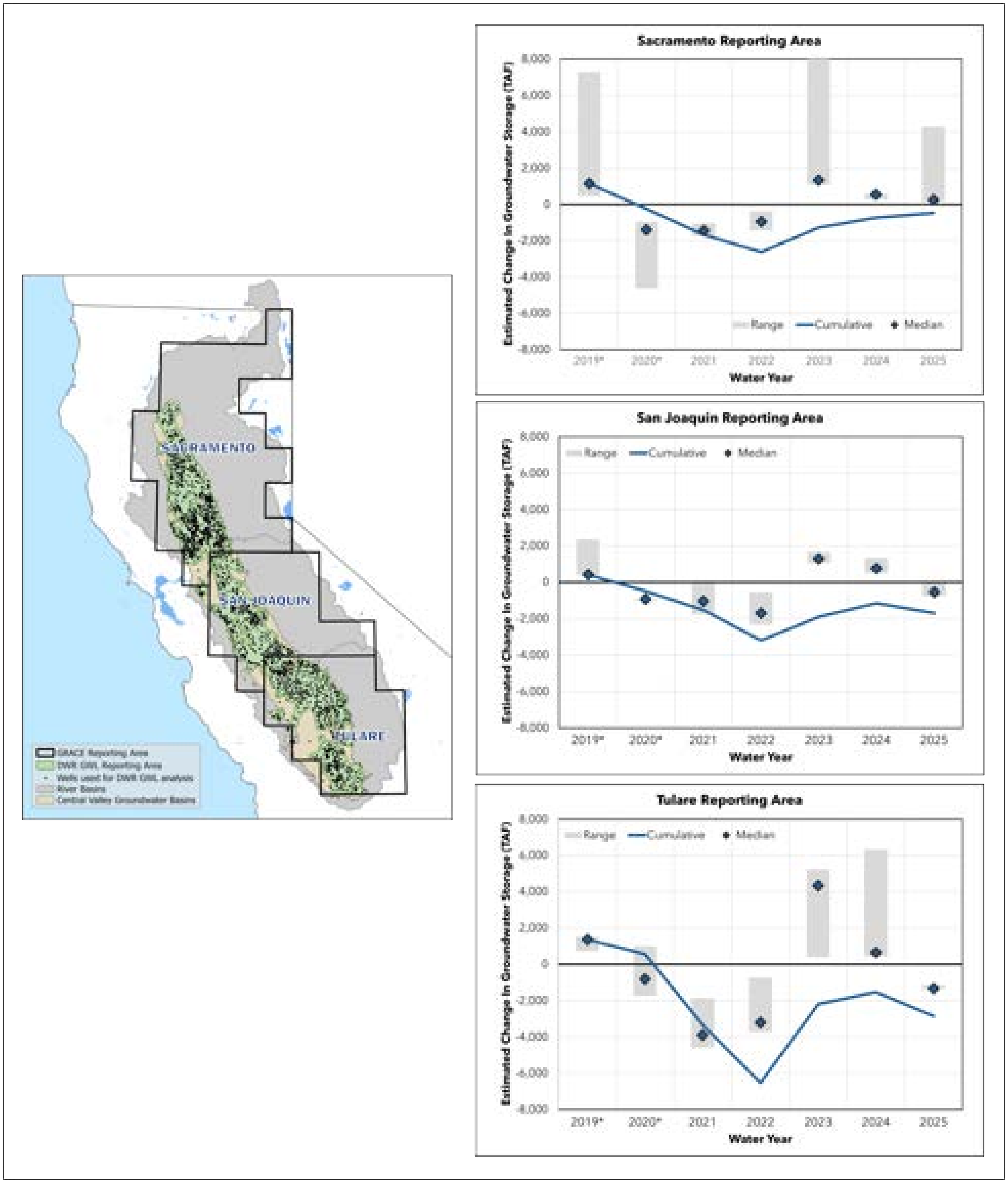


Table 5: Sacramento Reporting Areas - Estimated annual change in groundwater storage - using various methods, WY 2019 through WY 2025 – Change in groundwater storage estimates from four sources (GSP Annual Reports WY 21-25, DWR Groundwater Level Analysis and NASA GRACE-FO Mission WY 19-25, DWR C2VSim model WY 19-21). Table provides annual median/max/min values, values for each method, and cumulative change based on median values in thousand acre-feet (TAF).

Water Year	*GSP AR	DWR GWL C2VSim param	**NASA GRACE-FO	C2VSIM Model	Median	Cumulative
2019*	*81*	1,156	**7,285**	**480**	**1,156**	1,156
2020*	*-83*	-1,392	**-4,606**	**-947**	**-1,392**	-236
2021	-1,730	**-1,029**	-1,155	-1,721	**-1,438**	-1,675
2022	**-936**	**-1,418**	**-366**	-	**-936**	-2,611
2023	**1,082**	1,340	**9,133**	-	**1,340**	-1,271
2024	546	**573**	**311**	-	**546**	-725
2025	**181**	256	**4,307**	-	**256**	-468

* SGMA annual report estimates for WY 2019–2020 reflect partial data, covering groundwater storage data for North Yuba and South Yuba subbasins only.
** Estimates based on change in groundwater storage for River Basin Reporting areas.

Table 6: San Joaquin Reporting Areas - Estimated annual change in groundwater storage - using various methods, WY 2019 through WY 2025 – Change in groundwater storage estimates from four sources (GSP Annual Reports WY 21-25, DWR Groundwater Level Analysis and NASA GRACE-FO Mission WY 19-25, DWR C2VSim model WY 19-21). Table provides annual median/max/min values, values for each method, and cumulative change based on median values in thousand acre-feet (TAF).

Water Year	*GSP AR	DWR GWL C2VSim param	**NASA GRACE-FO	C2VSIM Model	Median	Cumulative
2019*	*81*	**417**	**2,348**	424	**424**	424
2020*	*-527*	**-894**	-913	-966	**-913**	-489
2021	-1,513	-532	**560**	**-1,758**	**-1,023**	-1,511
2022	-1,685	**-2,312**	**-550**	-	**-1,685**	-3,197
2023	1,061	**1,669**	1,297	-	**1,297**	-1,899
2024	510	**1,345**	759	-	**759**	-1,141
2025	-543	**-738**	**78**	-	**-543**	-1,684

* SGMA annual report estimates for WY 2019–2020 reflect partial data, covering groundwater storage data for critically overdrafted subbasins only.
** Estimates based on change in groundwater storage for River Basin Reporting areas.

Table 7: Tulare Reporting Areas - Estimated annual change in groundwater storage - using various methods, WY 2019 through WY 2025 – Change in groundwater storage estimates from four sources (GSP Annual Reports WY 21-25, DWR Groundwater Level Analysis and NASA GRACE-FO Mission WY 19-25, DWR C2VSim model WY 19-21). Table provides annual median/max/min values, values for each method, and cumulative change based on median values in thousand acre-feet (TAF).

Water Year	*GSP AR	DWR GWL C2VSim param	**NASA GRACE-FO	C2VSIM Model	Median	Cumulative
2019*	*1,349*	**739**	1,373	**1,520**	**1,373**	1,373
2020*	*-1,893*	**1,011**	-807	-1,724	**-807**	566
2021	-3,859	**-4,574**	**-1,858**	-3,921	**-3,890**	-3,324
2022	-3,196	**-3,708**	**-722**		**-3,196**	-6,521
2023	**5,242**	**405**	4,332		**4,332**	-2,188
2024	663	**6,320**	**445**		**663**	-1,525
2025	-1,326	**-1,319**	**-1,147**		**-1,319**	-2,845

* SGMA annual report estimates for WY 2019–2020 reflect partial data, covering groundwater storage data for critically overdrafted subbasins only.
** Estimates based on change in groundwater storage for River Basin Reporting areas.

Land Subsidence

Land subsidence has occurred in many areas of the state for over a century, with some areas experiencing over 30 feet of vertical displacement or "sinking." This has damaged water conveyance systems, reduced groundwater storage, and impacted other infrastructure. Irreversible (inelastic) subsidence happens when falling groundwater levels cause clay layers or interbeds to collapse (compact) beyond an elastic range. Clay layer compaction is a delayed reaction to groundwater level declines and takes longer for thicker layers. The groundwater level to which clay layers have already partially compacted to is called the critical head. Critical head varies by regional lithology and historical changes in groundwater levels and is generally above historical groundwater level lows. Clay layer compaction increases the farther and longer groundwater levels in the aquifer stay below the critical head. The continuing subsidence after groundwater levels have stabilized is called residual subsidence. Subsidence, including residual subsidence, is diminished when groundwater levels rise above the critical head. Estimates of critical head elevations are provided for 50 sites in the Central Valley in Bulletin 118 - Update 2025 (CalGW Update 2025) Appendix I: Update on Land Subsidence in California.

Since 2015, subsidence monitoring has improved significantly, especially through the use of satellite-based InSAR data, which now provides monthly updates across more than 150 groundwater basins covering about 40,000 square miles. In 2022, DWR began reporting InSAR data quarterly instead of annually to enhance data timeliness.

Subsidence in WY 2025 (**Figure 14**) was concentrated in the San Joaquin Valley, with two-thirds of the affected area located within the Tulare Lake Hydrologic Region. Nearly all the remaining areas of subsidence were located in the southern part of the San Joaquin River Hydrologic Region. One percent of the statewide area showing subsidence was in the Sacramento River Hydrologic Region, where small amounts of subsidence were scattered throughout the region.

Land subsidence in WY 2025 increased compared to the two preceding water years, which had the lowest levels of subsidence in the past decade. Increased precipitation during WY 2023 and WY 2024 temporarily reduced groundwater extractions, allowing groundwater levels to recover in some parts of the State and decreasing the area exhibiting more than 0.1 feet of subsidence to about 2,400 square miles and 2,200 square miles, respectively. In some areas, the ground surface was able to rebound and show uplift of more than 0.1 feet, totaling about 800 square miles in WY 2023 and 300 square miles in WY 2024. In contrast, WY 2025 had about 3,100 square miles of subsidence greater than 0.1 feet and very little uplift. Although this represents an increase from the previous water years, subsidence remains significantly less than the area observed during the drought from WY 2020 through WY 2022, which ranged from about 4,400 to 5,400 square miles.

Figure 13: Statewide Subsiding Land Area (in square miles) by Annual Vertical Displacement Rate for Water Years 2016 through 2025.

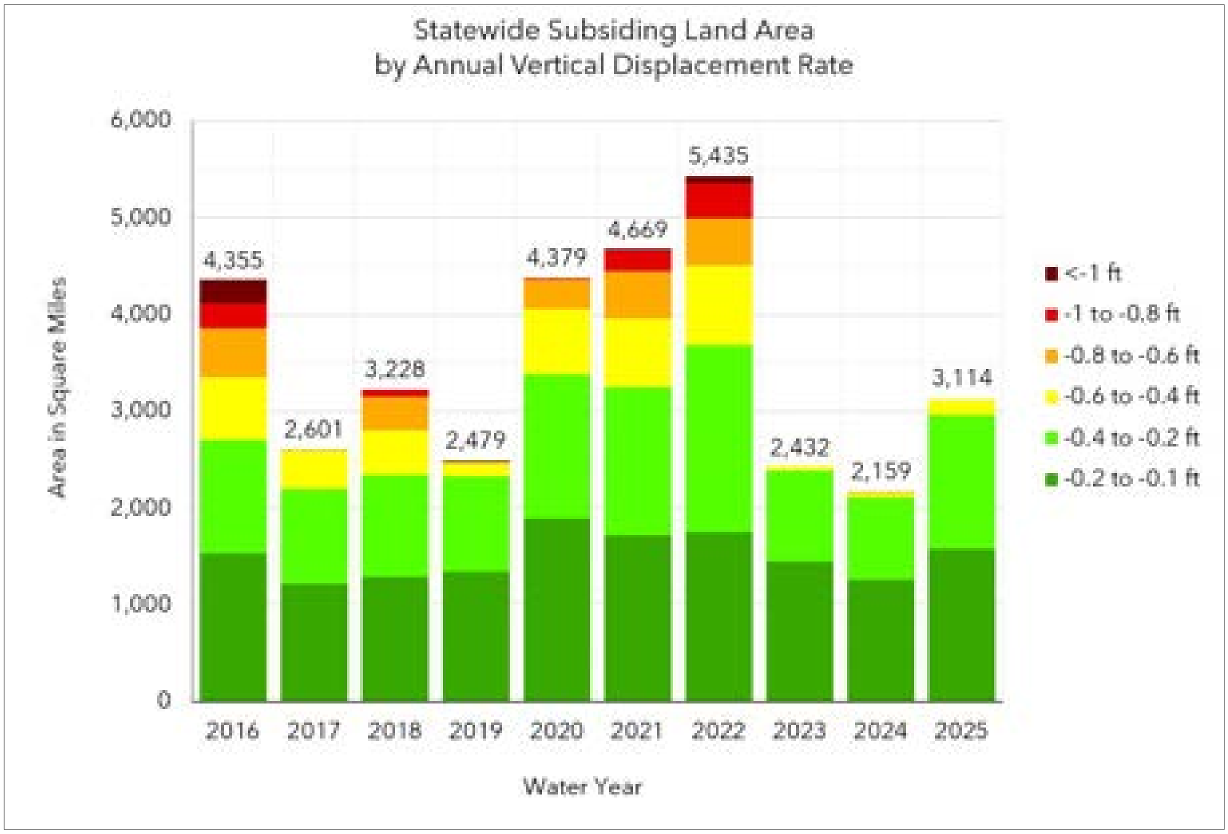


Table 8: Total Area (in square miles) of Subsidence (Subs.) and Uplift Corresponding to Displacement Rate (feet/year) for one-year (**Figure 14**), five-year (**Figure 15**), and ten-year (**Figure 16**) periods. Table based on available data from the DWR Water Data Library as of 4/1/2025.

Period	Uplift >0.1 ft/yr	Subs. >0.1 ft/yr	Subs. >0.2 ft/yr	Subs. >0.4 ft/yr	Subs. >0.6 ft/yr	Subs. >0.8 ft/yr	Subs. >1 ft/yr
One Year October 2024 - October 2025	18	3,114	1,543	158	0	0	0
Five Year October 2020 - October 2025	0	3,585	1,949	609	25	0	0
Ten Year October 2015 - October 2025	2	3,430	1,946	739	80	0	0

The subsidence observed in WY 2025 (**Figure 14**) occurred over less area and was less intense than the average subsidence observed during the previous five-year (**Figure 15**) and ten-year periods (**Figure 16**). The total area showing an annual average rate of more than 0.1 feet in WY 2025 is about 3,100 square miles, which is less than the total area of about 3,600 square miles subsiding at the same average rates since WY 2020 and about 3,400 square miles since WY 2015. Areas of annual average subsidence rate of more than 0.4 feet have decreased to about 160 square miles in WY 2025 compared to about 610 square miles over the five-year and 740 square miles over the ten-year periods. The areas experiencing the highest rates of subsidence in the Tulare Lake and southern San Joaquin River Hydrologic Regions are visible in the same locations over every time period, while exhibiting varying intensities. The areas of subsidence in the Sacramento River Hydrologic Region are less concentrated and intense in WY 2025 compared to the five-year and ten-year averages.

In WY 2025, the Tulare Lake and San Joaquin River Hydrologic Regions had the highest percentages statewide of wells with record-low groundwater levels, as shown in **Figure 14**. Subsidence will continue at significant rates in those regions where groundwater levels remain below critical head levels.

Figure 114: **One-Year Subsidence Rate** - Statewide annual subsidence map for October 2024 to October 2025. See **Table 4** for specific subsidence level statistics. Map and charts based on available data from the CNRA Open Data as of 4/1/2026.

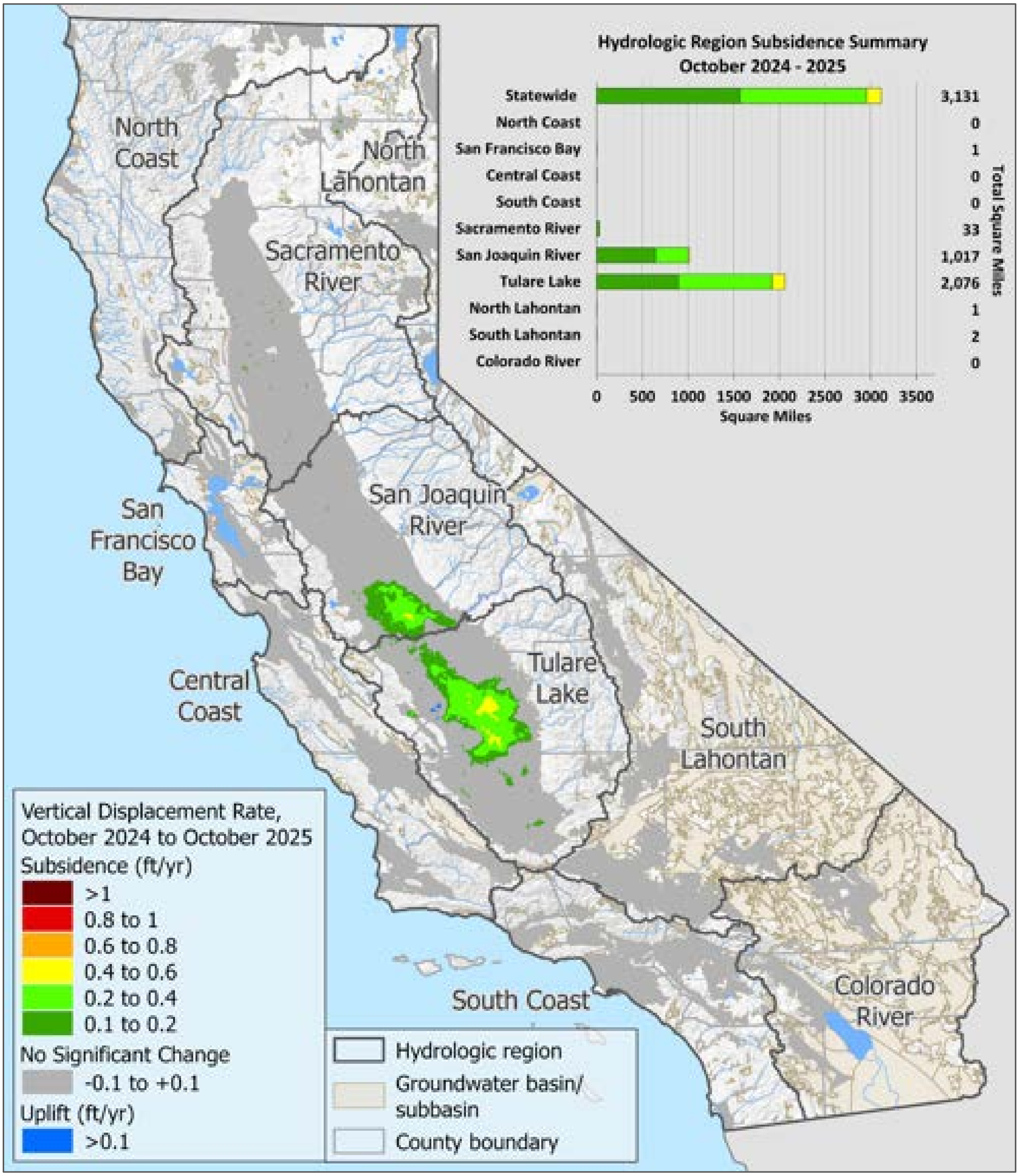


Figure 215: **Five-Year Average Subsidence Rate** - Statewide average annual subsidence map for October 2020 to October 2025. See **Table 4** for specific subsidence level statistics. Map and charts based on available data from the CNRA Open Data as of 4/1/2026.

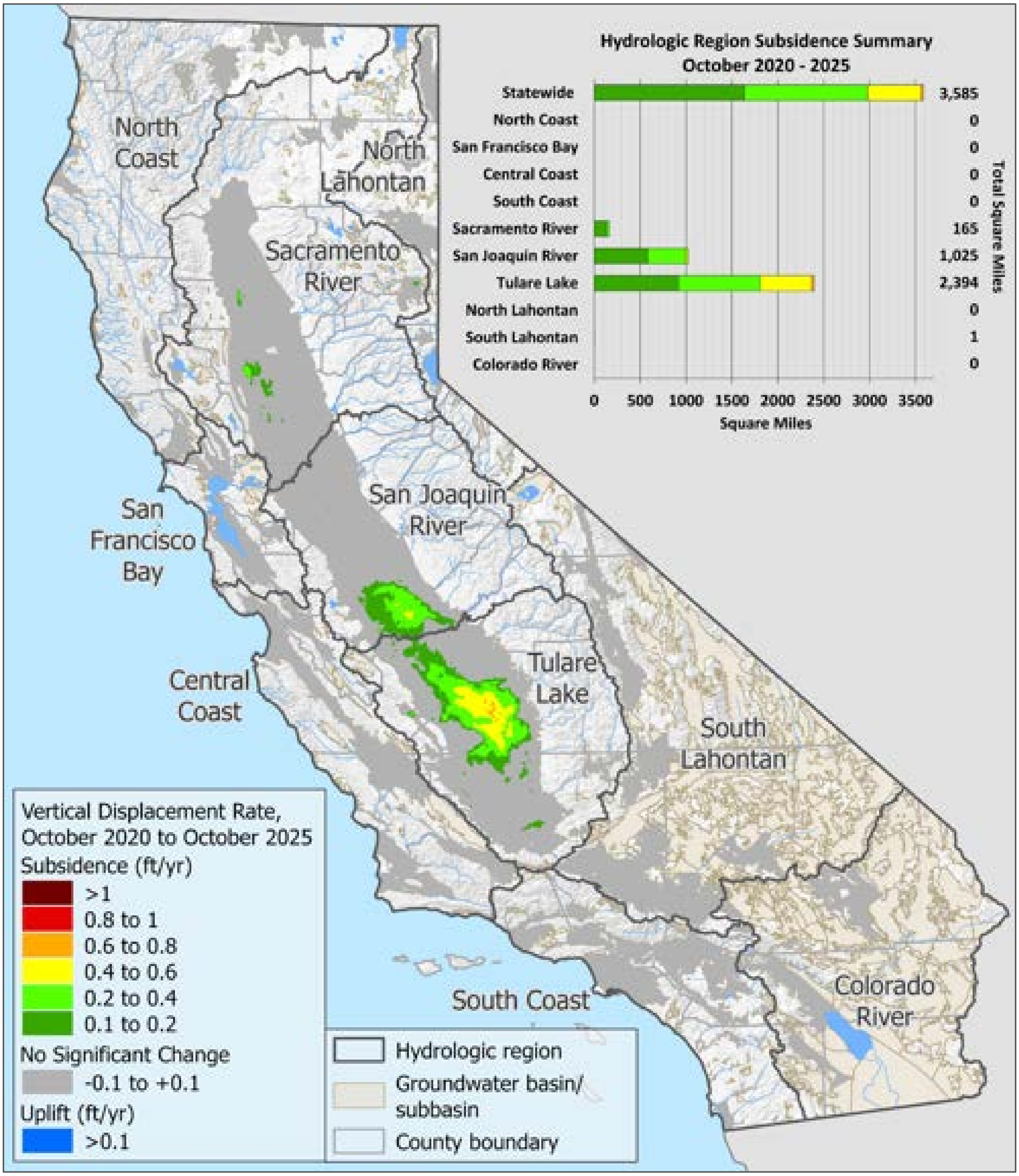
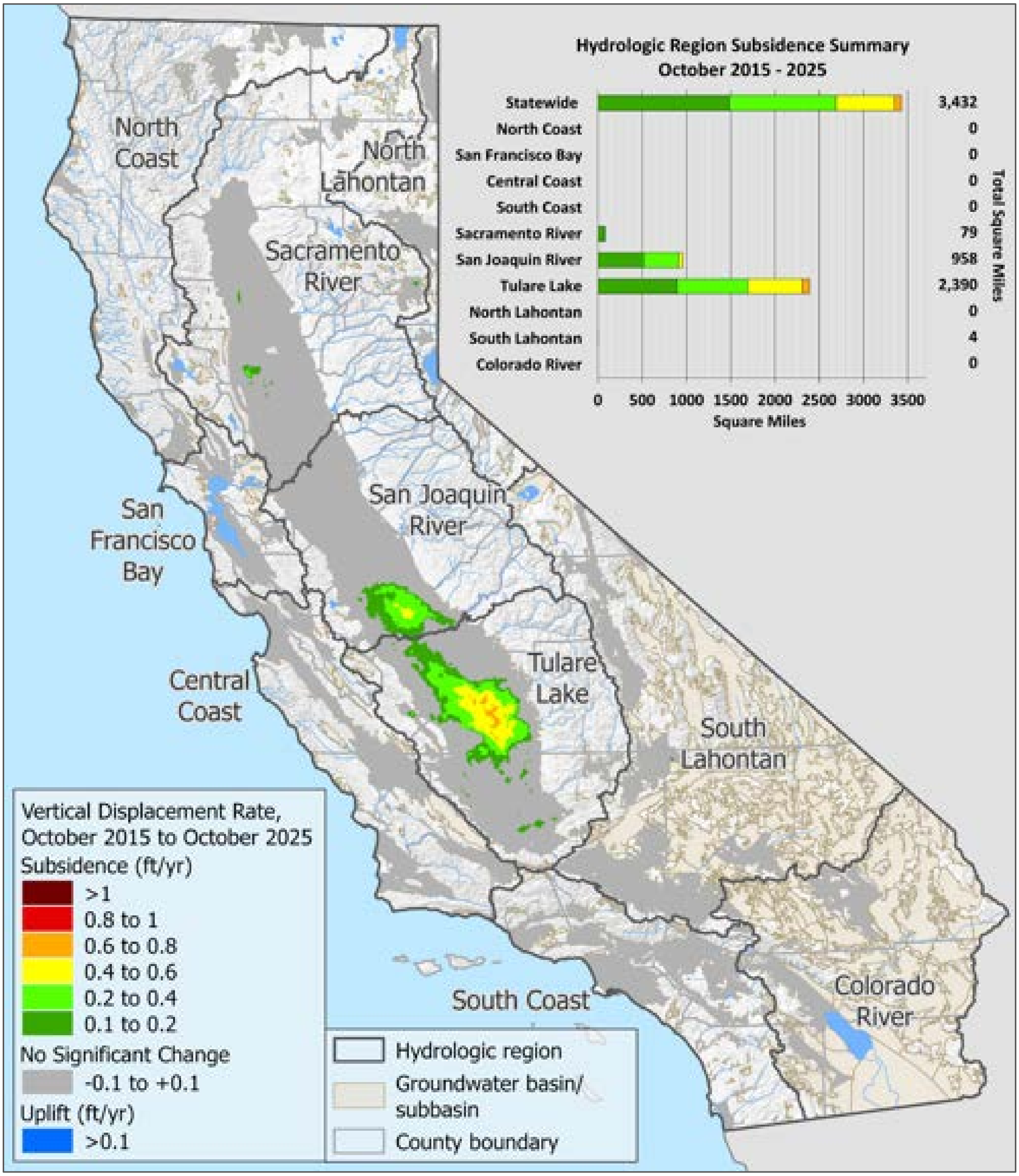


Figure 16: **Ten-Year Average Subsidence Rate** Statewide average annual subsidence map for October 2015 to October 2025. See **Table 4** for specific subsidence level statistics. Map and charts based on available data from the CNRA Open Data as of 4/1/2026.



GSP Annual Report Data: Extraction, Recharge, Change in Storage, and PMA Updates - WY 2025

As part of SGMA implementation, DWR receives Groundwater Sustainability Plan (GSP) and Alternative Plan Annual Report datasets from GSAs every year in April for the previous water year. These reports are publicly available on the SGMA Portal Submitted GSP Annual Reports Page. The information provided in these Annual Reports includes groundwater recharge, extraction, water use, and change in groundwater storage. This information provides insights into the balance between groundwater withdrawals and replenishment, helping to gauge the sustainability of a GSA's groundwater management practices and resources. Data for these and all other basins reporting recharge, extraction, water use, and storage data can be found on the CNRA Open Data portal.

The following data presented below illustrate a clear and consistent pattern across California: groundwater extraction remains concentrated and high in the Central Valley, managed aquifer recharge, while present and expanding, is smaller in scale and unevenly distributed, and the resulting changes in storage reflect this imbalance. Areas with the highest pumping, particularly in the San Joaquin and Tulare Lake regions, correspond closely with the most pronounced storage declines, while regions with more moderate extraction or greater recharge, such as parts of the Sacramento Valley, show more stable or improving conditions. Although targeted recharge efforts are evident and play an important role in mitigating impacts, their current magnitude is not sufficient to offset widespread groundwater demand. Overall, the comparison highlights the interconnected nature of groundwater use, recharge, and storage, reinforcing that long-term sustainability will depend on both reducing extraction and continuing to expand and strategically implement recharge efforts.

Groundwater Extraction Reported from WY 2025 GSP Annual Reports

During WY 2025, approximately 12.8 million acre-feet of groundwater extraction, or groundwater pumping, was reported across the 101 basins that submitted Annual Reports, up from the 11.5 million acre-feet reported in WY 2024 (California Groundwater Conditions Update – May 2025). For WY 2025, groundwater basins with the highest groundwater extraction per area (total groundwater pumped normalized by basin area, reported as AF/Acre) are listed in **Table 9**, and the basins with the highest total groundwater extraction (AF) are listed in **Table 10**.

Figure 17 depicts groundwater extractions (per area and total) for basins subject to SGMA for WY 2025. The Central Valley accounted for over 10.6 million acre-feet of pumping in WY 2025, about 83% of total groundwater extractions in California in that year. Although the highest extraction volumes of over 7.9 million acre-feet (62% of the state's total) occurred within the San Joaquin Valley, the highest extraction rates were found in smaller basins outside the region. The figure also highlights important differences between total extraction and extraction per acre, indicating that some basins experience high water demand relative to their size even if total volumes are lower. These patterns align with known areas of groundwater stress, reinforcing the role of sustained high extraction in contributing to long-term challenges such as overdraft and land subsidence.

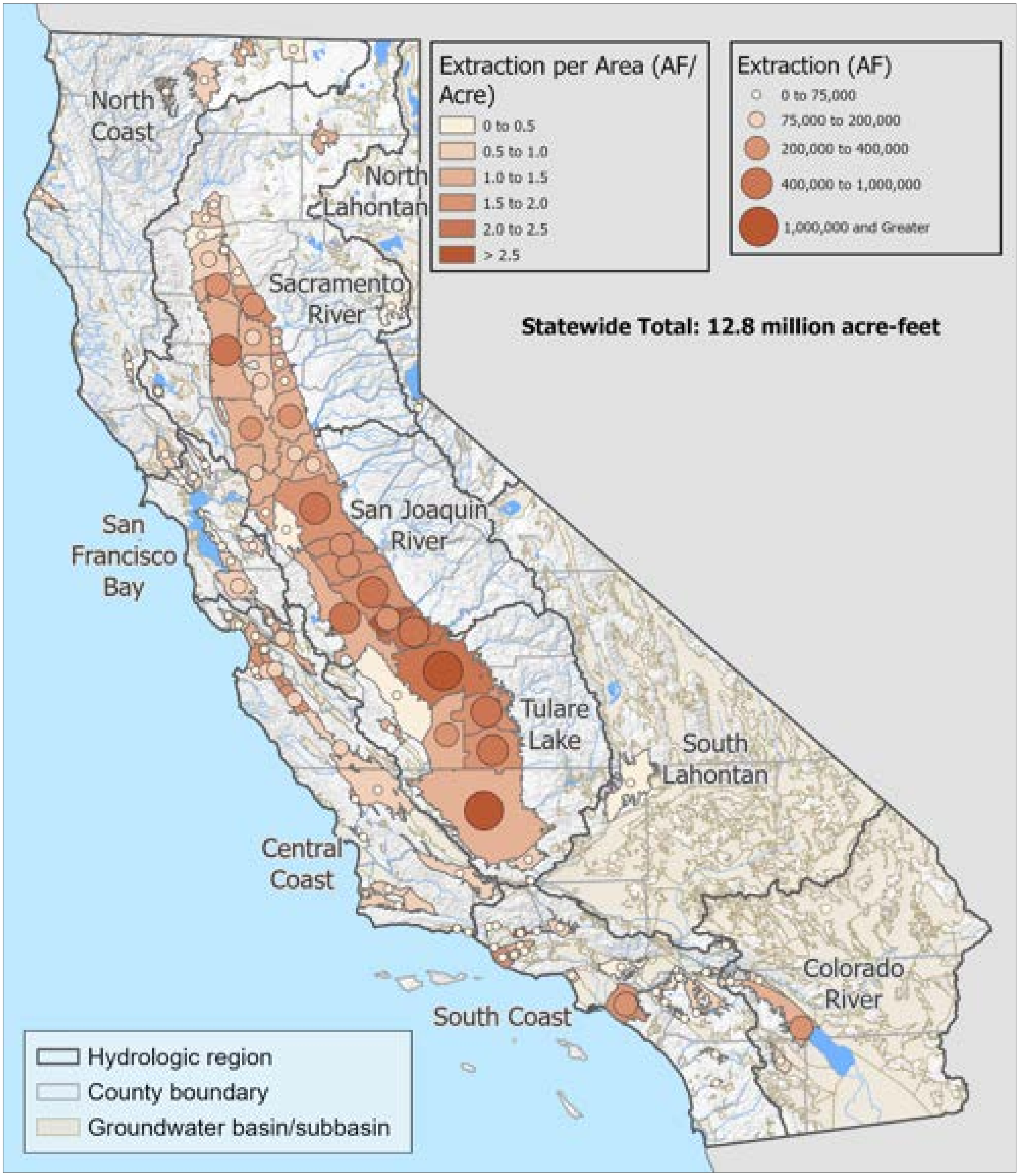
Table 9: WY 2025 Groundwater Extraction per Area by Basin. Top 10 basins ranked by volume per acre of basin area (as shown in **Figure 17**). Extraction values based on data reported through 2025 GSP/Alternative annual reports as of 4/2/2026.

Basin Name (Top 10 ranked by groundwater extraction per area)	Basin Number	**Groundwater Extraction per Area (AF/Acre)**	Total Groundwater Extraction (AF)	Basin Area (Acres)
Santa Clara River Valley – Fillmore	4-004.05	**2.18**	49,149	22,586
San Joaquin Valley - Chowchilla	5-022.05	**2.10**	305,800	145,574
San Pasqual Valley	9-010	**1.82**	6,359	3,498
San Joaquin Valley - Madera	5-022.06	**1.63**	567,900	347,667
San Joaquin Valley - Kings	5-022.08	**1.59**	1,555,781	981,323
San Joaquin Valley - Kaweah	5-022.11	**1.44**	635,000	441,048
Sacramento Valley - Vina	5-021.57	**1.41**	261,600	184,917
Salinas Valley - Forebay Aquifer	3-004.04	**1.35**	127,400	94,052
Salinas Valley - East Side Aquifer	3-004.02	**1.35**	77,730	57,474
Coastal Plain Of Orange County	8-001	**1.35**	302,823	224,226

Table 10: WY 2025 Groundwater Extraction by Basin. Top 10 basins ranked by total volume extracted (as shown in **Figure 17**. Extraction values based on data reported through 2025 GSP/Alternative annual reports as of 4/2/2026.

Basin Name (Top 10 ranked by groundwater extraction)	Basin Number	**Total Groundwater Extraction (AF)**	Groundwater Extraction Rates (AF/Acre)	Basin Area (Acres)
San Joaquin Valley - Kings	5-022.08	**1,555,781**	1.59	981,323
San Joaquin Valley - Kern County	5-022.14	**1,068,787**	0.60	1,782,318
San Joaquin Valley - Eastern San Joaquin	5-022.01	**804,113**	1.05	764,802
Sacramento Valley - Colusa	5-021.52	**679,800**	0.94	722,785
San Joaquin Valley - Merced	5-022.04	**652,306**	1.27	512,606
San Joaquin Valley - Kaweah	5-022.11	**635,000**	1.44	441,048
San Joaquin Valley - Madera	5-022.06	**567,900**	1.63	347,667
San Joaquin Valley - Tule	5-022.13	**527,820**	1.11	477,590
San Joaquin Valley - Delta-Mendota	5-022.07	**442,300**	0.58	764,964
San Joaquin Valley - Tulare Lake	5-022.12	**392,833**	0.73	535,907

Figure 17: **Groundwater Extraction** - Reported by Basin for Water Year 2025. See **Table 9** and **Table 10** for specific groundwater extraction statistics. Map and charts based on available data from GSP/Alternative annual reports as of 04/02/2026.



Groundwater Recharge Reported in WY 2025 GSP Annual Reports

In WY 2025, 26 of the 101 basins submitting Annual Report data reported a combined total of 1.1 million acre-feet of managed recharge, down from 1.9 million acre-feet in WY 2024 and 4.6 million acre-feet in WY 2023 (California Groundwater Conditions Update – May 2025). For WY 2025, groundwater basins with the highest groundwater recharge per area (total groundwater recharge normalized by basin area, reported as AF/Acre) are listed in **Table 11**, and the basins with the highest total groundwater recharge (AF) are listed in **Table 12**.

Figure 18 depicts groundwater recharge (per area and total) for basins subject to SGMA for WY 2025. The Central Valley accounted for approximately 677 thousand acre-feet of the state's 1.1 million acre-feet of recharge. However, the largest volume was recharged in the Coachella Valley – Indio subbasin. Despite this, the statewide total recharge (1.14 million acre-feet) is notably lower than total extraction, highlighting a persistent imbalance between groundwater use and replenishment. Spatial patterns also show that while some basins achieve relatively high recharge per acre, many areas—particularly outside the Central Valley—report little to no managed recharge. Localized high-volume recharge projects appear in both agricultural and urbanized regions, including parts of the South Coast and Colorado River areas, indicating targeted efforts where infrastructure and water availability allow.

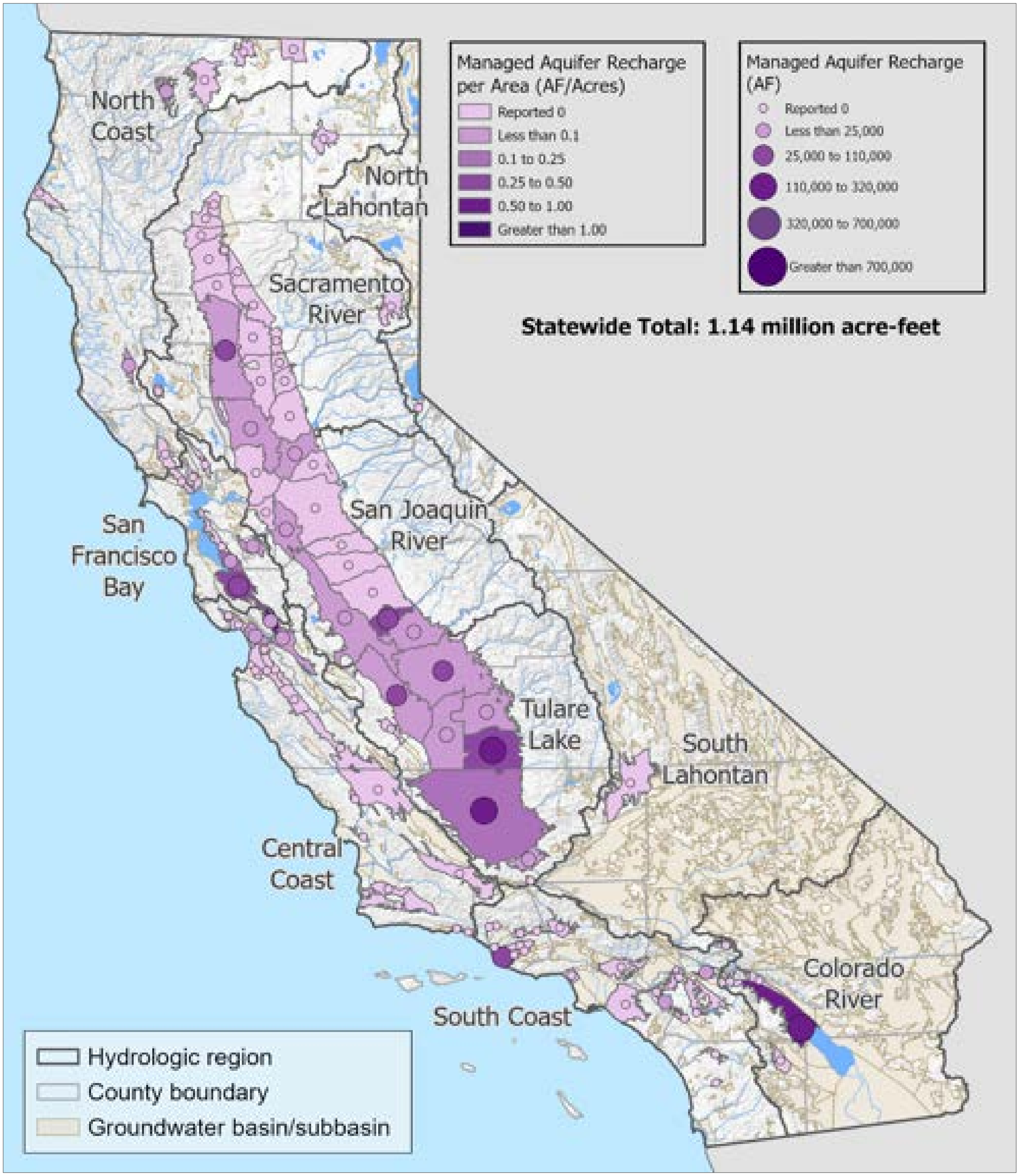
Table 11: WY 2025 Groundwater Recharge per Area by Basin. Top 10 basins ranked by volume per acre of basin area (as shown in **Figure 11**). Recharge values based on data reported through 2025 GSP/Alternative annual reports as of 4/2/2026.

Basin Name (Top 10 ranked by groundwater recharge per area)	Basin Number	**Groundwater Recharge per Area (AF/Acre)**	Total Groundwater Recharge (AF)	Basin Area (Acres)
Coachella Valley - Indio	7-021.01	**0.90**	267,370	297,156
Santa Clara River Valley - Oxnard	4-004.02	**0.62**	35,927	57,888
Gilroy-Hollister Valley - Llagas Area	3-003.01	**0.52**	24,700	47,371
Santa Clara Valley - Santa Clara	2-009.02	**0.42**	79,600	189,581
San Joaquin Valley - Chowchilla	5-022.05	**0.35**	50,500	145,574
San Joaquin Valley - Tule	5-022.13	**0.31**	147,290	477,590
Upper Santa Ana Valley - Yucaipa	8-002.07	**0.30**	6,774	22,219
Santa Clara Valley - Niles Cone	2-009.01	**0.19**	12,199	65,214
San Joaquin Valley - Kern County	5-022.14	**0.14**	244,174	1,782,318
San Joaquin Valley - Kings	5-022.08	**0.10**	96,701	981,323

Table 12: WY 2025 Groundwater Recharge by Basin. Top 10 basins ranked by total volume (as shown in **Figure 18**). Recharge values based on data reported through 2025 GSP/Alternative annual reports as of 4/2/2026.

Basin Name (Top 10 ranked by groundwater recharge)	Basin Number	**Total Groundwater Recharge (AF)**	Groundwater Recharge per Area (AF/Acre)	Basin Area (Acres)
Coachella Valley - Indio	7-021.01	**267,370**	0.90	297,156
San Joaquin Valley - Kern County	5-022.14	**244,174**	0.14	1,782,318
San Joaquin Valley - Tule	5-022.13	**147,290**	0.31	477,590
San Joaquin Valley - Kings	5-022.08	**96,701**	0.10	981,323
Santa Clara Valley - Santa Clara	2-009.02	**79,600**	0.42	189,581
San Joaquin Valley - Chowchilla	5-022.05	**50,500**	0.35	145,574
Sacramento Valley - Colusa	5-021.52	**46,100**	0.06	722,785
Santa Clara River Valley - Oxnard	4-004.02	**35,927**	0.62	57,888
San Joaquin Valley - Westside	5-022.09	**34,000**	0.05	622,208
Gilroy-Hollister Valley - Llagas Area	3-003.01	**24,700**	0.52	47,371

Figure 18: **Managed Groundwater Recharge** - Reported by Basin for Water Year 2025. See **Table 11** and **Table 12** for specific groundwater extraction statistics. Map and charts based on available data from 2025 GSP/Alternative annual reports as of 04/02/2026.



Change in Groundwater Storage Reported from WY 2025 GSP Annual Reports

This section expands on the groundwater storage analysis presented above in the Groundwater Conditions section, by providing change in storage by GSP Annual Reports providing a basin-scale, management-informed perspective. GSP-reported storage change reflects locally developed water budgets and offers insight into how management actions are influencing storage conditions within individual basins.

The change in groundwater storage for a basin reflects the difference between recharge (managed and natural) and groundwater discharge (extraction and natural). In WY 2025, 51 of the 101 basins submitting Annual Report data reported a negative annual change in groundwater storage, while 49 reported a positive change in storage. One basin did not calculate a change in storage for WY 2025. Changes in groundwater storage show a mixed but overall declining pattern across California, the total change in storage for the state was negative 1.5 million acre-feet.

Table 13 lists basins with the greatest negative change in groundwater in storage per area (change in groundwater in storage normalized by basin area, reported as AF/Acre) and **Table 14** provides a list of the basins with the greatest negative change in groundwater in storage volume (AF). **Figure 19** shows the reported change in storage for each of these basins for the same period.

The Central Valley again stands out, but here the pattern shifts: while the Sacramento Valley shows areas of stable to increasing storage (greens), much of the San Joaquin and Tulare Lake regions exhibit declines (yellows to browns), including some of the most significant losses in the southern Central Valley. This contrast suggests that wetter conditions and recharge in the north have supported localized recovery, where continued high pumping in the south is driving ongoing depletion. Coastal and southern regions display a patchwork of small gains and losses, indicating more localized or managed responses. Notably, areas with high groundwater extraction correspond closely with areas experiencing storage decline, reinforcing the imbalance between pumping and recharge. Overall, the map highlights the uneven nature of groundwater recovery in California and underscores that, despite periods of recharge, long-term storage deficits persist in key agricultural regions.

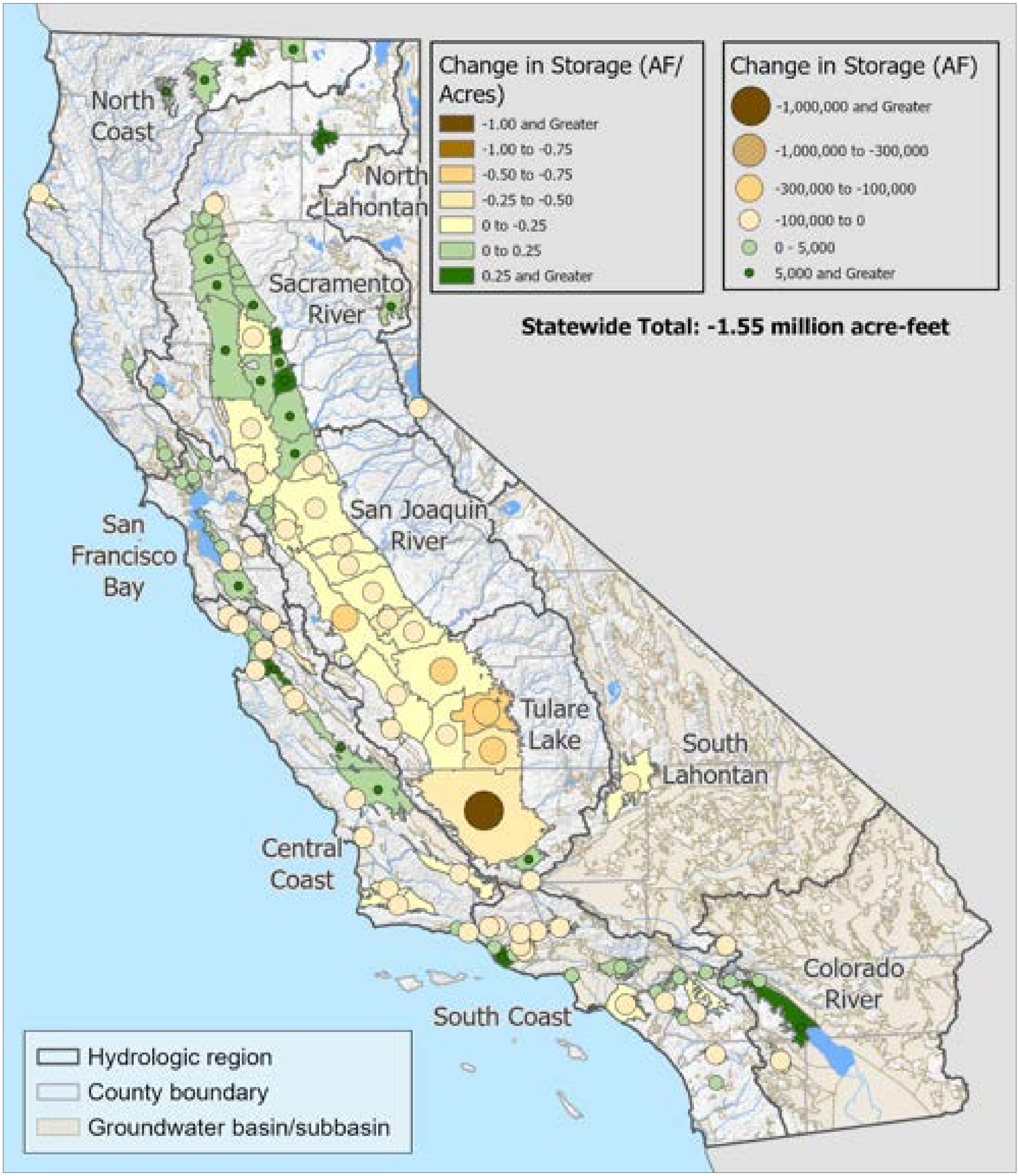
Table 13: WY 2025 Change in Storage per Area by Basin. Top 10 ranked by volume per acre of basin area (as shown in **Figure 19**). Change in storage values based on data reported through 2025 GSP/Alternative annual reports as of 4/2/2026.

Basin (Top 10 ranked by change in storage per area)	Basin Number	**Change in Storage per Area (AF/Acre)**	Total Change in Storage (AF)	Basin Area (Acres)
Ventura River Valley - Upper Ventura River	4-003.01	**-1.17**	-6,175	5,278
Ojai Valley	4-002	**-0.93**	-5,495	5,913
Santa Clara River Valley - Piru	4-004.06	**-0.77**	-8,416	10,897
Santa Clara River Valley - Fillmore	4-004.05	**-0.62**	-13,949	22,586
San Joaquin Valley - Kaweah	5-022.11	**-0.57**	-253,000	441,048
Santa Clara River Valley - Santa Clara River Valley East	4-004.07	**-0.49**	-33,190	67,687
Salinas Valley - Atascadero Area	3-004.11	**-0.48**	-9,400	19,735
San Joaquin Valley - Chowchilla	5-022.05	**-0.43**	-62,078	145,574
San Joaquin Valley - Pleasant Valley	5-022.10	**-0.41**	-19,700	48,195
San Luis Obispo Valley	3-009	**-0.36**	-4,558	12,721

Table 14: WY 2025 Change in Storage by Basin. Top 10 basins as a volume (as shown in **Figure 19**). Change in storage values based on data reported through 2025 GSP/Alternative annual reports as of 4/2/2026.

Basin (Top 10 ranked by total change in storage)	Basin Number	**Total Change in Storage (AF)**	Change in Storage Rates (AF/Acre)	Basin Area (Acres)
San Joaquin Valley - Kern County	5-022.14	**-636,929**	-0.36	1,782,318
San Joaquin Valley - Kaweah	5-022.11	**-253,000**	-0.57	441,048
San Joaquin Valley - Tule	5-022.13	**-168,000**	-0.35	477,590
San Joaquin Valley - Kings	5-022.08	**-160,000**	-0.16	981,323
San Joaquin Valley - Delta-Mendota	5-022.07	**-121,100**	-0.16	764,964
San Joaquin Valley - Merced	5-022.04	**-92,938**	-0.18	512,606
San Joaquin Valley - Eastern San Joaquin	5-022.01	**-84,100**	-0.11	764,802
San Joaquin Valley - Madera	5-022.06	**-73,362**	-0.21	347,667
San Joaquin Valley - Chowchilla	5-022.05	**-62,078**	-0.43	145,574
San Joaquin Valley - Tulare Lake	5-022.12	**-48,214**	-0.09	535,907

Figure 19: **Groundwater Change in Storage** - Reported by Basin for Water Year 2025. See **Table 13** and **Table 14** for specific groundwater storage statistics. Map and charts based on available data from GSP/Alternative annual reports as of 04/02/2026



Projects and Management Actions Update

Projects and Management Actions (PMAs) are a key measure of how groundwater sustainability planning is being translated into on-the-ground implementation under the Sustainable Groundwater Management Act (SGMA). While groundwater levels, storage, and subsidence reflect current resource conditions, PMAs provide insight into the actions local agencies are taking to improve water supply reliability, increase recharge, reduce demand, expand monitoring, and strengthen long-term groundwater management. Collectively, these projects represent the operational pathway through which sustainability goals are expected to be achieved over time.

Groundwater Sustainability Agencies (GSAs) report PMAs through the SGMA Projects and Management Actions Module as part of their Groundwater Sustainability Plans and Annual Reports. As of April 2026, the dataset included 1,963 identified PMAs spanning water supply augmentation, direct aquifer recharge, demand management, monitoring, coordination, and other implementation activities. Many projects also include reported or estimated water supply benefits, providing an indication of potential outcomes once fully implemented.

Although the statewide portfolio of PMAs reflects substantial progress in planning and implementation, reported status updates show that many projects remain in planning, design, funding, or early implementation phases. As a result, measurable benefits are currently concentrated among a smaller subset of actively advancing projects. The following sections summarize the scale, types, reported benefits, and implementation status of PMAs across California groundwater basins.

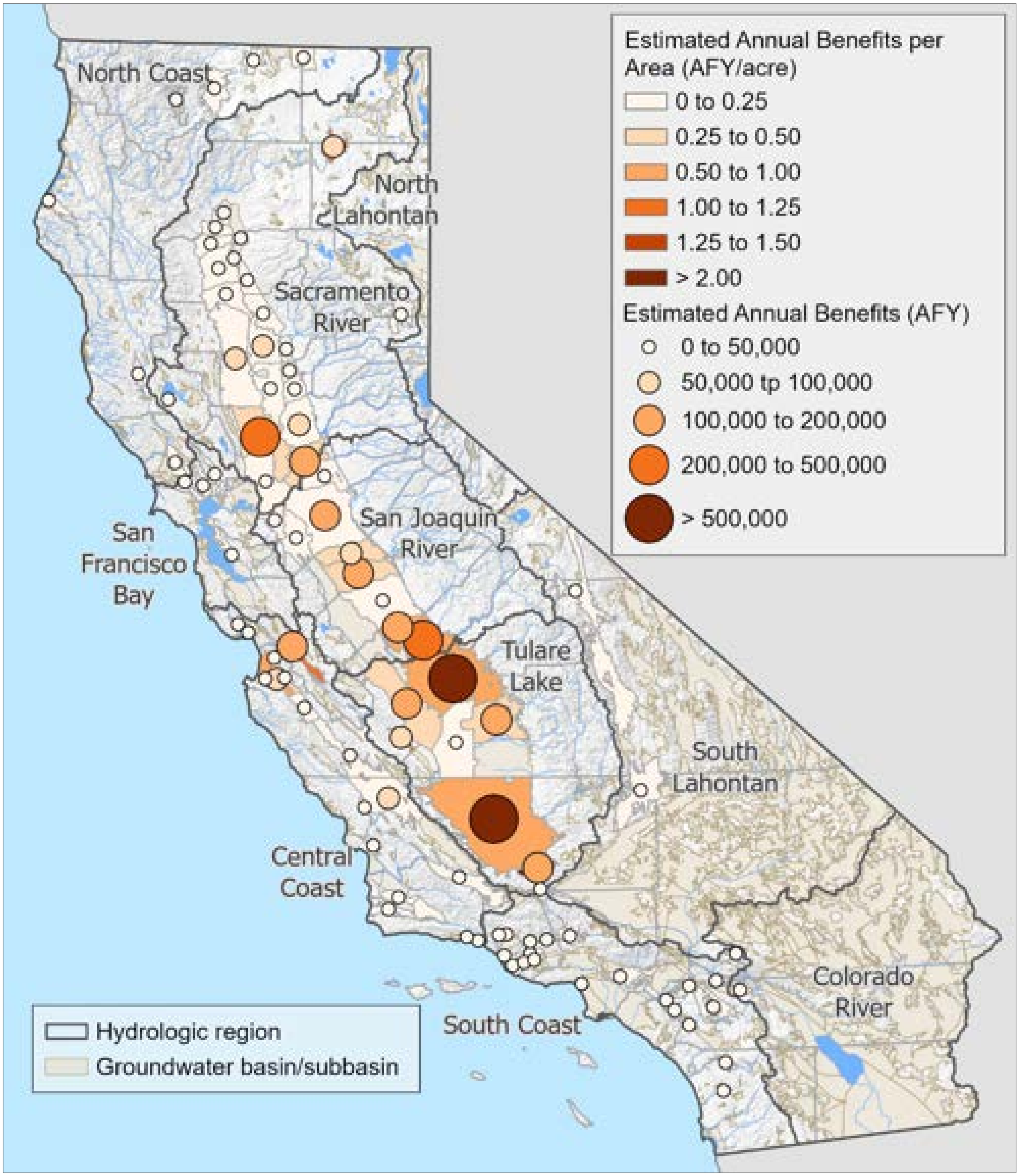
The SGMA Projects and Management Actions Module is a centralized place to view projects and management actions (PMAs) that are being implemented by GSAs as part of their GSPs. Of the total 1,963 PMAs identified, 962 reported some level of water supply benefit and 655 included an estimated annual average benefit in acre-feet per year (AFY). Of those with quantified water supply benefits, a total of approximately 4.3 MAF per year have been estimated, with the dominant types of PMA being Obtaining a New Water Supply or Augmenting Existing Supply, Direct Aquifer Recharge, and Multi-tagged Water Supply and Demand Management accounting for approximately 3 MAF per year (or approximately 72% of the total quantified benefits).

The distribution of PMAs is dominated by water supply and demand management actions, particularly direct aquifer recharge, multi-tagged water supply management projects and new or augmented supply. However, a large number of PMAs are focused on data collection, monitoring, and administrative functions, which support implementation but do not directly produce measurable benefits. **Table 15** highlights the PMA type along with the number of PMAs falling in that category, the number of PMAs with water supply benefits, the number of PMAs with quantified benefits, and the estimate of those benefits in acre-feet per year. The distribution of PMAs (**Figure 20**) is dominated by water supply and demand management projects, particularly direct aquifer recharge (308), multi-tagged water supply management projects (256), and new or augmented water supply (229). However, there's a sizable proportion of PMAs that are dedicated to monitoring (180), study or investigation (93), and coordination (46).

Table 15: Summary of Projects and Management Actions in the PMA Module as of 4/2/2026.

PMA Type	Number of PMAs	PMAs with Benefits	PMAs with Benefits Quantified	Total AFY
Obtaining a New Water Supply or Augmenting Existing Water Supply	229	185	146	1,172,955
Direct Aquifer Recharge	308	270	210	1,000,704
Multiple Tags - Water Supply and Demand Management	256	223	159	913,390
Demand Management	194	84	51	625,271
New or Expanded Surface Water Reservoir	26	22	12	259,728
Water Conservation/Efficiency	127	60	27	93,771
Other	68	25	14	77,580
Environmental or Natural Resources	88	18	9	55,799
Monitoring	180	15	11	32,449
Conjunctive Use	26	16	8	21,800
Outreach and Engagement	40	6	4	13,820
Study or Investigation	93	8	1	6,700
Multiple Tags - Cross Categories	93	15	3	5,200
Administrative Activities	44	3	0	-
Multiple Tags - Monitoring and Research	47	3	0	-
Modeling	21	1	0	-
Mitigation	44	5	0	-
Coordination	46	3	0	-
Multiple Tags - Community and Admin	33	0	0	-
TOTALS	1,963	962	655	4,279,167

Figure 20: **Estimated Water Supply Benefits from PMAs** - based on data from PMA Module as of 04/02/2026.



Implementation Updates

As part of the Annual Report process, GSAs provide implementation updates on their PMAs. These updates describe progress during the reporting period, including the current phase of each PMA (e.g., planning, design, or construction), any new funding secured, and the quantifiable benefits achieved within a given water year. Of the 1,963 PMAs included in the dataset, 1,743 (89 percent) reported implementation updates for water year (WY) 2025.

Figure 21 illustrates the distribution of reported water supply benefits accrued in WY 2025 across project categories. In total, 689 thousand acre-feet (TAF) of water supply benefits were reported from 154 PMAs during WY 2025. The 689 TAF of water supply benefits are distributed across basins as shown in **Figure 22**.

Figure 21: **Reported Water Supply Benefits** - from PMAs for WY 2025 based on implementation updates in the PMA Module as of 04/02/2026.

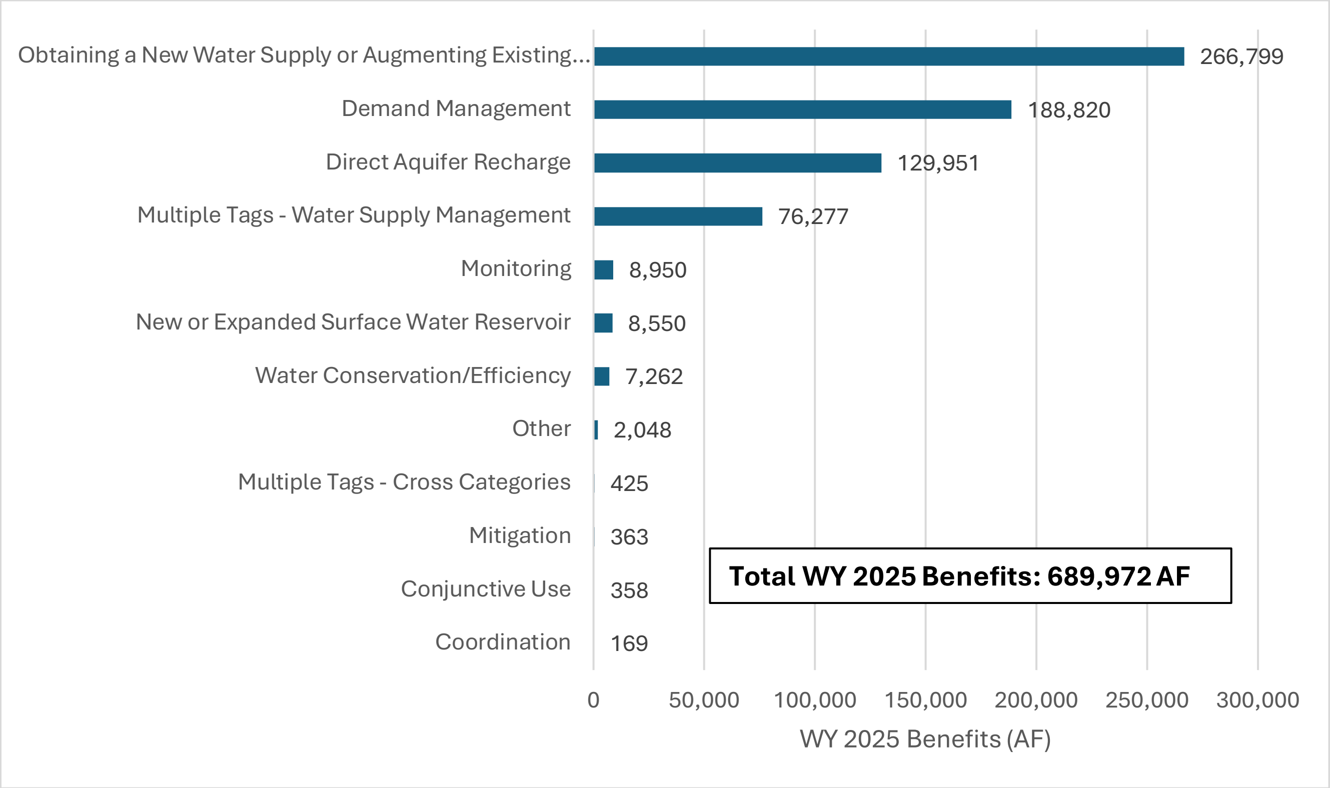
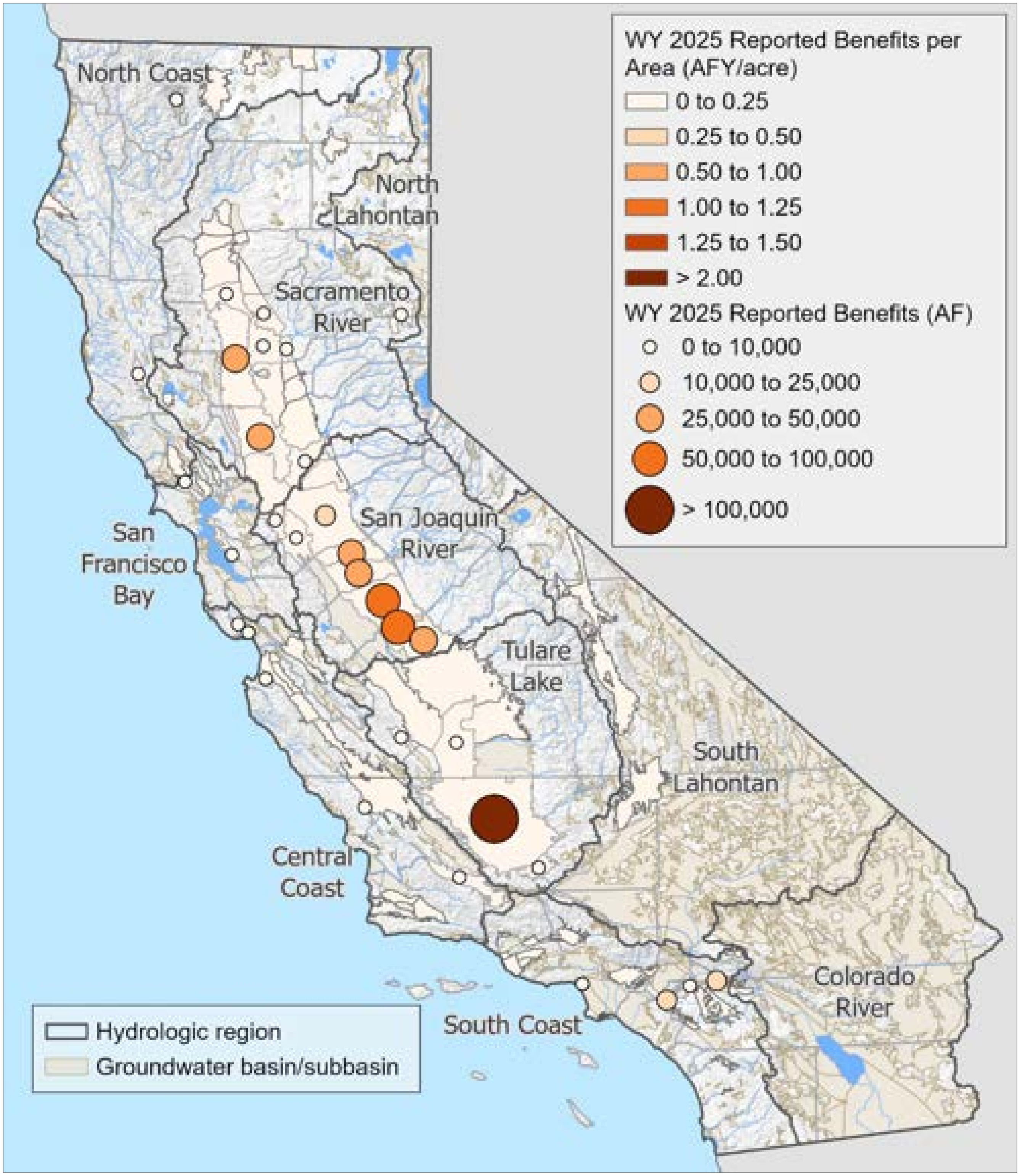


Figure 22: **Reported Water Supply Benefits** - from PMAs for WY 2025 by basin, based on implementation updates in the PMA Module as of 04/02/2026.



The project status of PMAs across different categories, as reported through the WY 2025 Annual Report updates, is shown in **Figure 23**. Across PMA types, a large proportion of projects were either not reported on in WY 2025 (dark blue band) or did not have a status update (orange band), indicating that implementation tracking and reporting completeness remain key limitations in evaluating progress. Among PMAs that had implementation updates for WY 2025, most are categorized as Ongoing (orange band), with relatively few projects in advanced stages such as Construction or Completion. This pattern is consistent across most PMA types and helps explain why reported benefits are concentrated among a limited subset of actively implemented projects. Overall, the distribution of implementation status across PMA types indicates that while a diverse portfolio of actions has been identified, many projects have not yet progressed to stages where outcomes can be consistently reported or quantified.

Figure 23: **Summary of PMA status** - by category, based on implementation updates in the PMA Module as of 04/02/2026.

Note: "Completed – Benefits Fully Realized" indicates no further implementation updates are required. "Completed – Accruing Benefits" indicates the project is complete, but ongoing benefits will continue to be reported in future updates.

Well Infrastructure

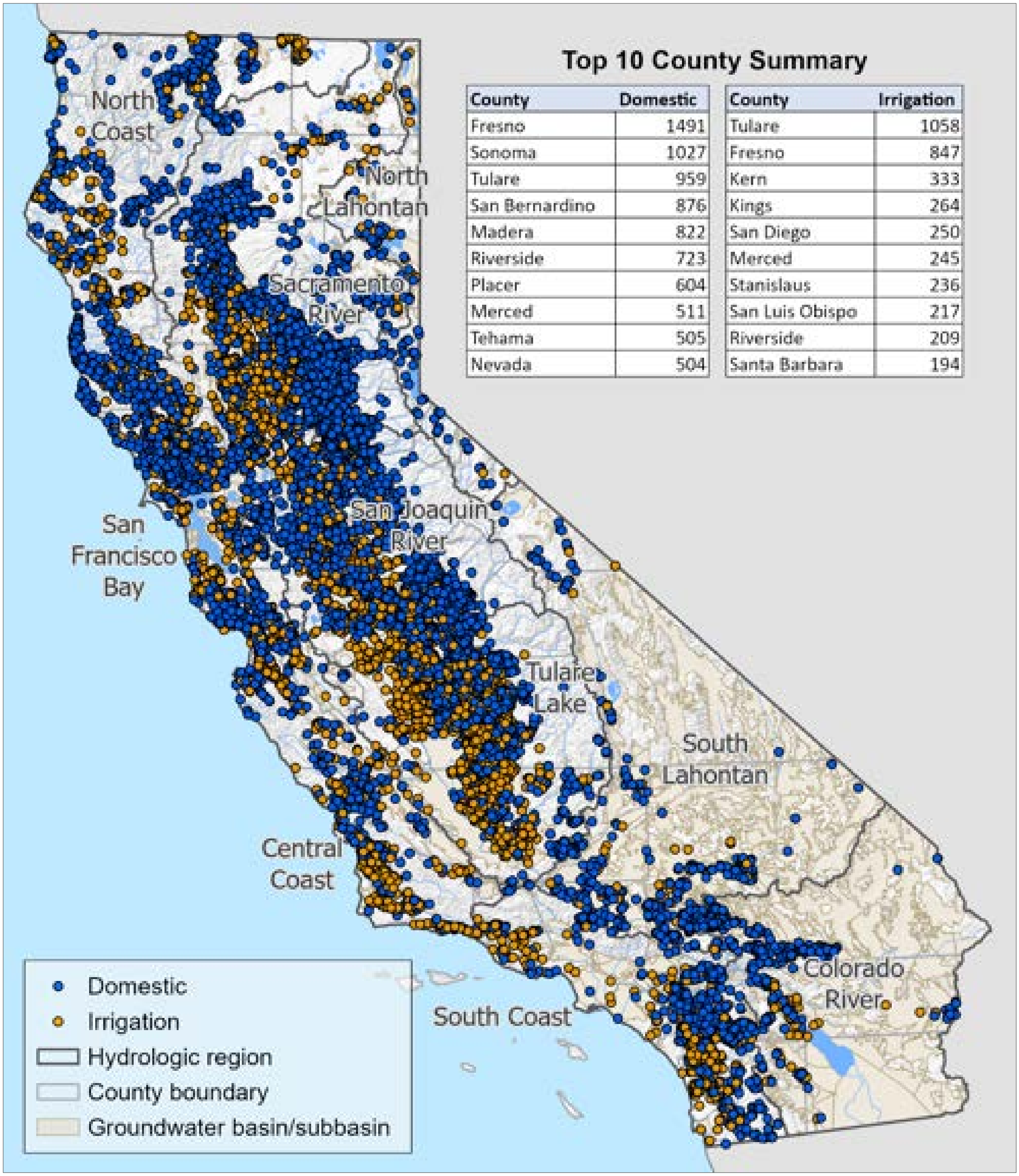
The construction of groundwater extraction wells in California is influenced by various factors, including climate conditions, surface water availability, groundwater level trends, legislative actions, well age, and other local conditions. Well completion reports (WCRs) must be submitted to DWR within 60 days of well installation, replacement, or destruction, as required by California Water Code Section 13751. These reports are submitted through the Online System for Well Completion Reports (OSWCR), and as a result, well construction data may be delayed by up to two months.

This section summarizes year-to-year statistics of domestic and irrigation wells submitted to OSWCR in recent years, along with data from DWR's Dry Well Reporting System. Dry well reports, which are submitted voluntarily by the public, likely underrepresent actual dry well occurrences or resolutions. Yearly statistics for domestic, irrigation, and dry wells since WY 2015, which captures the end of the 2012–2016 drought, are presented in **Figure 24**. **Table 16** provides cumulative totals of domestic and irrigation wells installed since 1977, and Figure 16 highlights installation trends over the past five water years (2021–2025).

Table 16: **Statewide Summary of Newly Installed Domestic and Irrigation Wells and Number of Reported Dry Wells**. *Dry Well Reporting started in 2013, whereas the database of WCRs for domestic and irrigation wells are considered complete since 1977. Drought years are highlighted tan.

Water Year	Number of New Domestic Wells	Number of New Irrigation Wells	*Dry Wells Reported
WY 2015	3,544	3,060	1441
WY 2016	4,444	2,876	544
WY 2017	3,165	1,482	166
WY 2018	2,743	1,179	97
WY 2019	2,785	1,353	59
WY 2020	3,053	1,361	139
WY 2021	3,728	1,863	1063
WY 2022	4,107	1,760	1383
WY 2023	3,368	1,278	382
WY 2024	2,494	731	166
WY 2025	2,108	643	106
WY 2026 through March 31, 2026	752	220	33
5 Year Total (WY 2021 - 2025)	16,750	6,993	3,100
11 Year Total (WY 2015 - 2024)	35,539	17,587	5,546
Total since 1977*	287,931	64,113	6,113

Figure 24: **Five-Year Domestic and Irrigation Well Installation** - Statewide newly installed domestic and irrigation wells map for 5-year period from WY 2021 through 2025. See **Table 12** for specific well data. Map and charts based on available data from the CNRA Open Data as of 04/01/2026.



Domestic Wells

Domestic (household) wells provide critical water supply to millions of people throughout California and are often the sole source of water supply for many households. During WY 2025, a total of 2,108 new domestic wells were reported to be installed in the state (**Table 17**). During the last eleven water years (October 2014 through September 2025), a total of 35,539 domestic wells have been installed, accounting for approximately 12% of the total 287,931 domestic wells installed since 1977. The number of new domestic wells installed each year has decreased since the end of the last drought in WY 2022, with WY 2025 having the fewest domestic wells installed in the last decade. The lower number of domestic well installations in WY 2025 could be attributed to the relatively high number of domestic wells installed in earlier years in response to the drought.

The location of new domestic and irrigation wells installed in California over the past five years (WY 2021 through WY 2025) is shown in **Figure 25**. The counties with the highest number of new domestic wells installed in the past five years were Fresno (1,491), Sonoma (1,027), and Tulare (959). Figure 17 shows that numerous domestic wells were installed outside of the 515 groundwater basins, particularly in volcanic and fractured-rock aquifers across the state, which underscores the importance of groundwater and the reliance on groundwater in these non-basin areas.

Irrigation Wells

Irrigation wells typically are constructed deeper than domestic wells, have higher pumping capacity, and pump more groundwater than domestic wells. They play a crucial role in supplying water to farms that feed millions of people in California and around the world.

During WY 2025, a total of 643 new irrigation wells were reportedly installed in the state, which is the lowest in the past decade (**Table 17**). Over the last eleven water years, the annual installation of irrigation wells has ranged from a low of 643 in WY 2025 to a high of 3,060 in WY 2015. A total of 17,587 irrigation wells have been installed in the last eleven water years, accounting for approximately 27% of the total 64,113 irrigation wells installed statewide since 1977.

Irrigation wells are much less geographically spread throughout the state when compared with domestic wells (**Figure 25**). In the past five water years, Tulare County installed more irrigation wells (1,058) than any other county in the state, accounting for approximately one out of every six new irrigation wells (17%) statewide. Neighboring Fresno County (847) and Kern County (333) ranked 2nd and 3rd, respectively, for the highest number of new irrigation well installations.

Dry Well Reporting

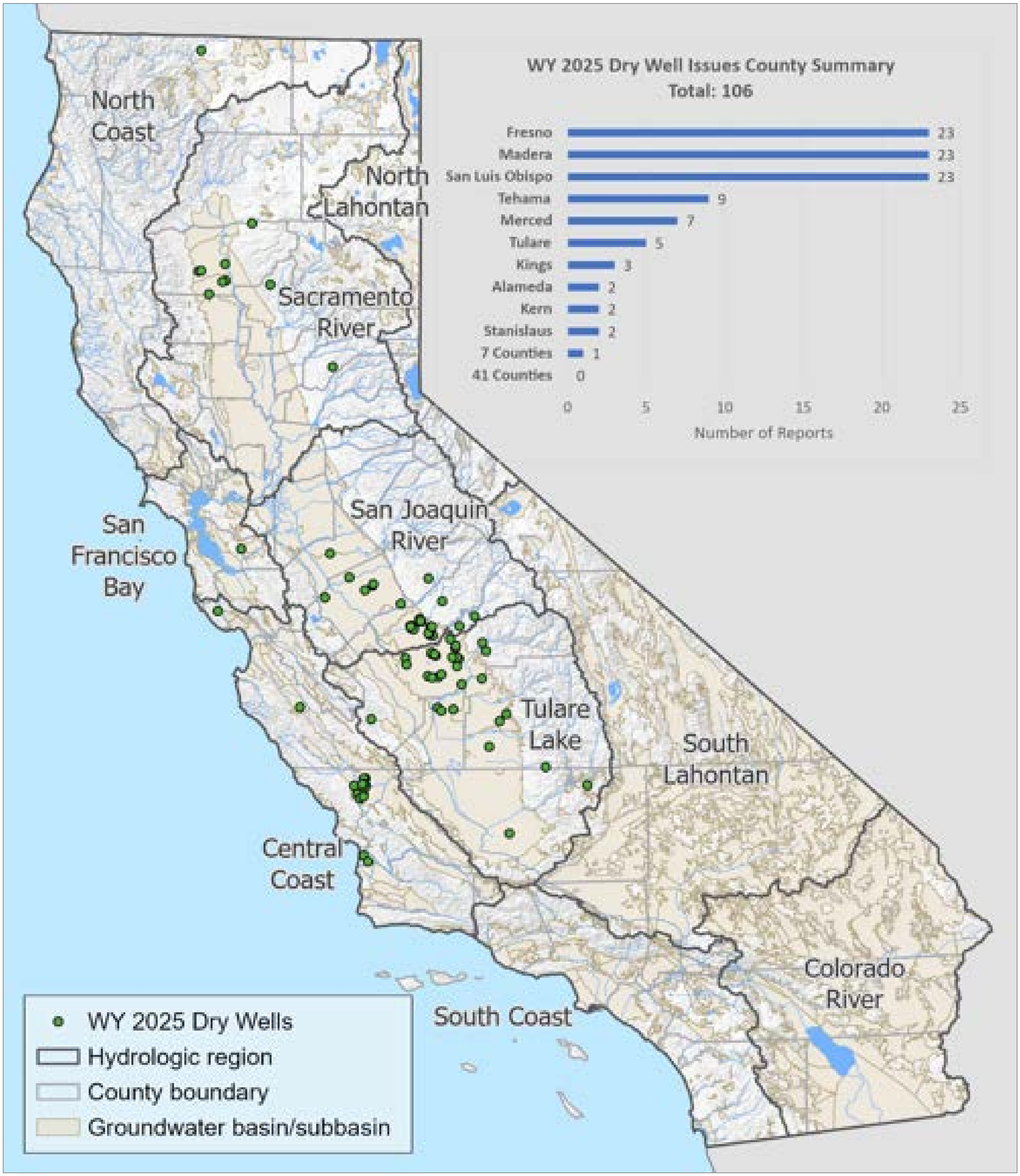
DWR's Dry Well Reporting System is a platform where Californians experiencing problems with their private, self-managed wells that are not served by a public water system can voluntarily report dry wells and connect with entities providing local drought assistance. The system helps centralize and disseminate information statewide when well outages are reported. This centralized reporting system helps ensure that local and State agencies are quickly notified and can respond to provide available resources such as interim water supplies or appropriate funding sources to help address the issues. The Dry Well Reporting database is designed to receive reports when a domestic well goes dry, or when a dry well problem is resolved. DWR provides a statewide statistical summary of locally reported dry wells on the Dry Well Reporting System website. The summary includes a cumulative report of dry wells by county, a map showing the statewide distribution of dry wells, and an accounting of dry wells reported to the state by quarter from 2013 to present.

The submission of dry well reports is voluntary so the data may not represent the total number of dry wells occurring across the state, only those submitted to the Dry Well Reporting System. Community outreach by DWR over the years since the development of the dry well reporting system has resulted in more awareness and greater usage of the system over time, so more dry well reports are likely being submitted to the Dry Well Reporting database than were submitted in the past. In 2017, the Dry Well Reporting System started requiring "*Approximate Issue Start Date*" as a required field when reporting dry wells. The report submission date historically has been used to assess the rate at which wells go dry across the state. However, it does not account for reporting delays or reporting of past dry wells and is not necessarily reflective of the number of dry wells for a given year. Prior to 2017, the "*Approximate Issue Start Date*" was optional and is not always included in the reported data. Of the 6,112 reports submitted in the system, there are 1,573 reports without an *issue start date* and 57 reports with an *issue start date* before 2013. Data after 2017 reflects the effects of reporting delays.

This report includes a summary of data submitted to the Dry Well Reporting System over the last eleven water years (2015 – 2025) based on both Reporting Date and Approximate Issue Start Date. The count of dry wells prior to 2017 is based on Reporting Date while counts for 2017 and onwards are based on Issue Start Date. Moving forward, counts will be based on the Approximate Issue Start Date to account for reporting delays and best reflect reporting delays. In WY 2025, a total of 106 new dry well issues were reported, compared to 166 in WY 2024 and 382 in WY 2023. Although the number of dry wells has declined each year since the end of the 2022 drought, the 106 issues reported in WY 2025 remain higher than annual totals observed during the wetter period from 2017 to 2019.

A total of 3,100 new dry well issues were reported to have occurred over the last five water years (2021-2025), and a total of 6,113 dry well reports have been received since 2013. The year-to-year number of dry wells since 2017 has fluctuated from a low of just 59 in WY 2019 to a high of 1,383 in WY 2022 (**Table 17**). The locations of dry wells in WY 2025 are shown in **Figure 26**.

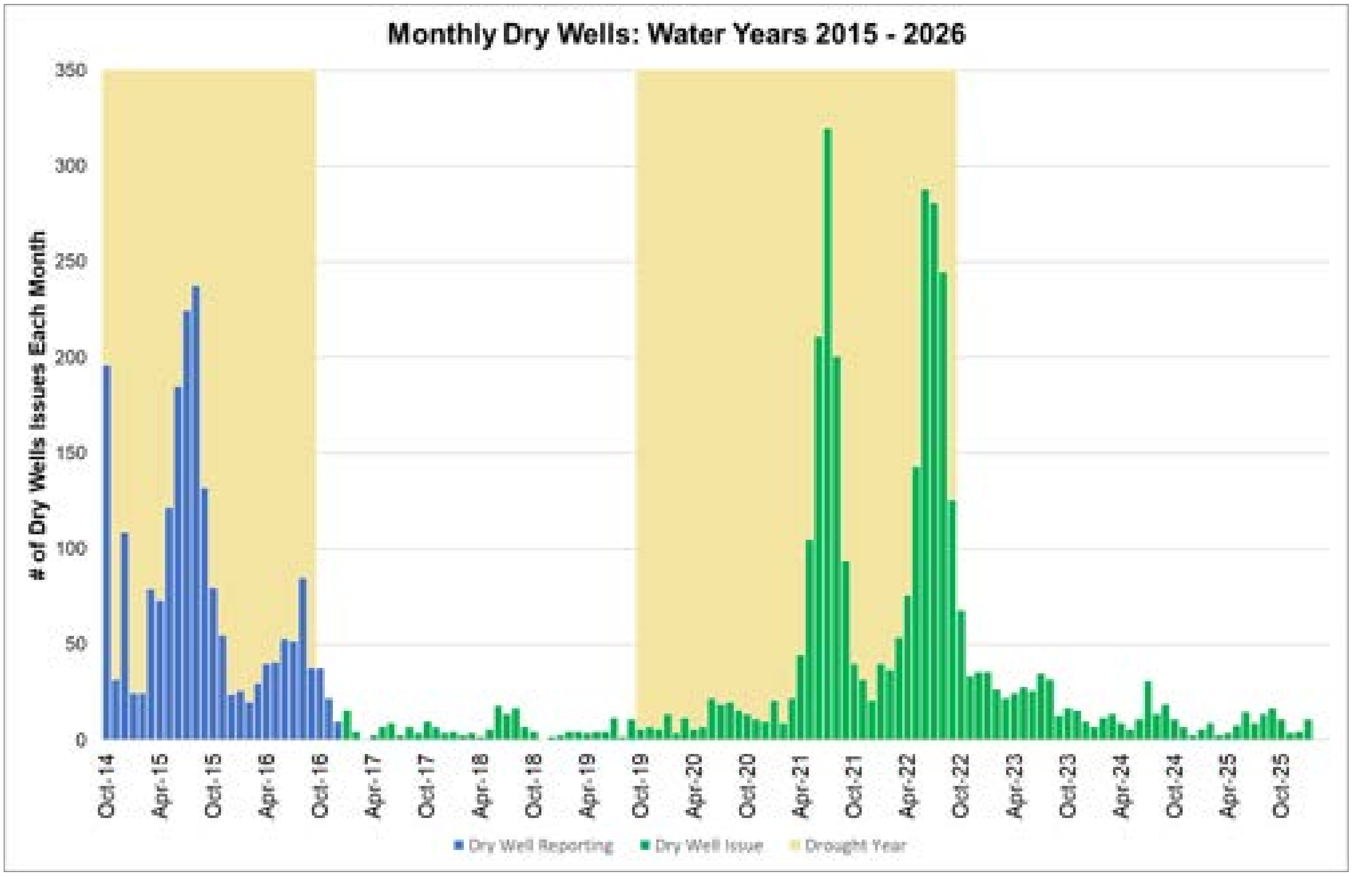
Figure 25: **Dry Well Reporting** - Statewide one-year reported dry wells map for WY 2025. Map and charts based on available data from the CNRA Open Data as of 04/01/2026.



In WY 2025, Madera County, Fresno County, and San Luis Obispo County each reported 23 dry wells. These three counties account for approximately half the dry well reports (65%) received statewide in WY 2025. No other county reported more than 9 dry wells, and 41 counties reported zero dry wells.

The statewide trend for dry well reporting over the past eleven years (2015-2025) shows a strong correlation between extended drought periods and the number of dry well reports. More dry wells were reported during the drought periods (2015-2016 and 2020-2022) than any other period. Coming out of the drought in water year 2023 resulted in a steep decline in dry wells reported. **Figure 26** shows a monthly time series of dry well reports from October 2014 to March 2026.

Figure 26: **Monthly Dry Well Reporting** - October 2014 through March 2026.



Groundwater Reporting Assessment

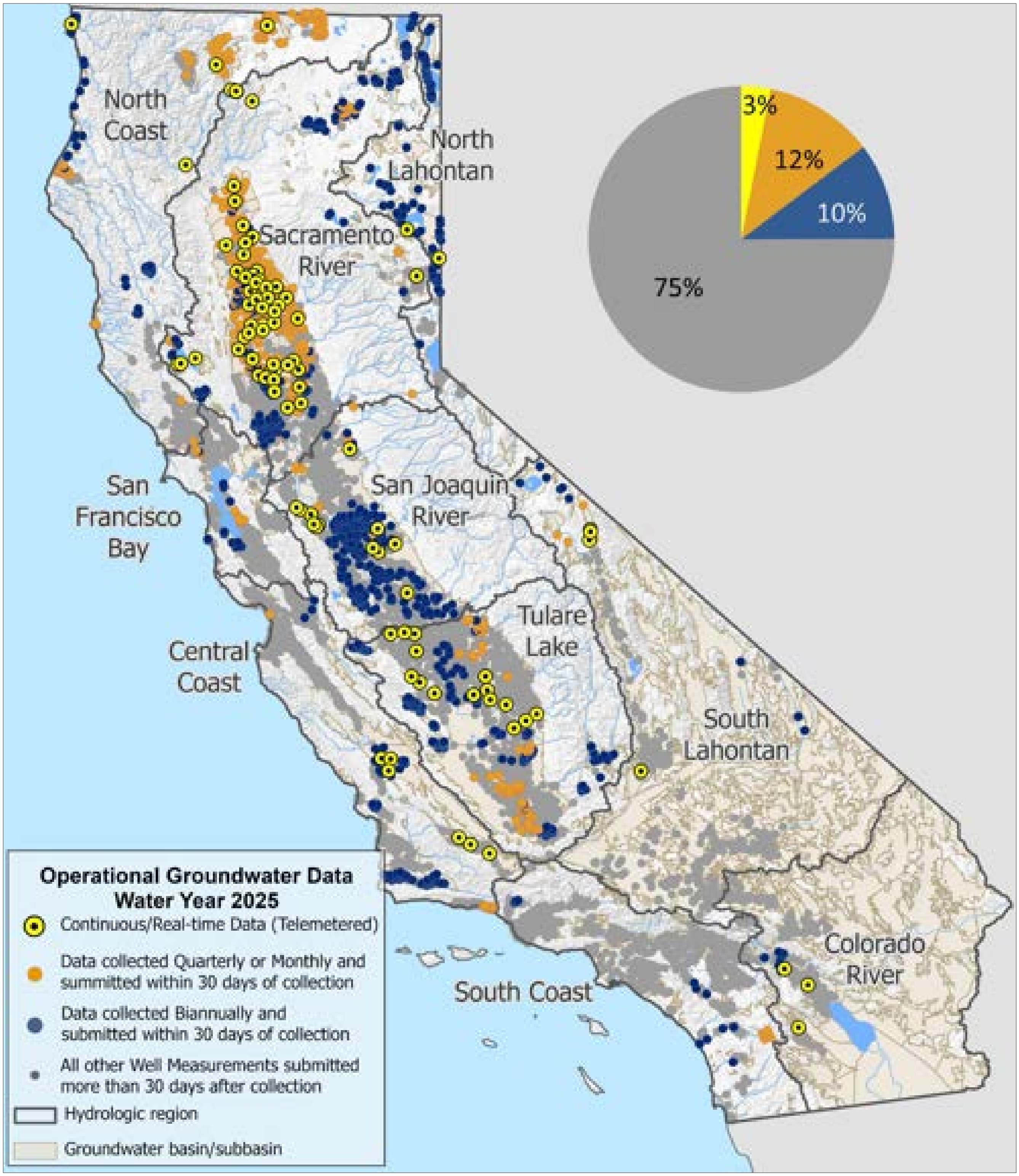
How frequently groundwater levels are measured and how quickly they are submitted to DWR's monitoring data systems by local water agencies, the state, and other contributors is critical to achieving an accurate depiction of aquifer conditions. Groundwater level data are fundamental to understanding and managing California's groundwater resources by facilitating informed decision-making. They support evaluation of short-term, seasonal, and long-term groundwater level changes, as well as broader trends in groundwater storage. Additionally, these data also help identify areas susceptible to land subsidence, seawater intrusion, and dry wells.

To establish short-term seasonal groundwater patterns, quality data are required. DWR has made a distinction that data collected monthly or more frequently and submitted to DWR within 30 days of measurement provides reasonable quality. When these data are submitted to the public at large, DWR terms this "operational data". Seasonal groundwater patterns are generally consistent across years, but typically vary by hydrologic conditions, location, and land use. Late winter to early spring measurements typically represent pre-irrigation annual highs, while late summer to early fall measurements reflect post-irrigation lows. These fluctuations establish annual high and low groundwater levels for a basin. During critical periods, such as droughts, peak water, demand seasons, and flooding events, these patterns can shift substantially from historical annual patterns, making the collection of monthly or higher-frequency data critical to providing insight into how extreme events are influencing the groundwater system.

Frequent and timely submission of data is also important for long-term resource planning. Broad trends in basin storage, a metric for SGMA, can only be established with consistent data. By far the most timely data are supplied by telemetry; however, only about 3% of California's broad monitoring well network is telemetered. Telemetry delivers near real-time, continuous data directly to DWR's system. Available through the Water Data Library, these data support rapid response to changing conditions and improve evaluation of water management actions. Expansion of telemetry—supported by recent state investments—has increased monitoring frequency and strengthened coordination, advancing a more robust, data-driven approach to groundwater management.

Figure 27 summarizes monitoring well data collection frequency and data submittal timing for wells reporting groundwater level measurements collected during WY 2025. Overall, the Figure shows that the majority (65%) of water level measurements were submitted more than 30 days after collection. Groundwater level data were submitted for 9,458 wells during WY 2025. Of these, 25% were submitted within 30 days of collection. Approximately 10% of wells were measured at least twice per year and reported within 30 days. Operational monitoring data accounted for 12% of wells, where measurements were collected at least ten times per year and submitted within 30 days. Continuous real-time telemetered data, operated by DWR in coordination with the USGS, was collected in 292 wells (3%), up from 219 wells that were telemetered the previous water year.

Figure 27: **Operational Groundwater Data** - Statewide groundwater level data reported for data collected Water Year 2025. Map based on available data from the CNRA Open Data as of 4/02/2026.



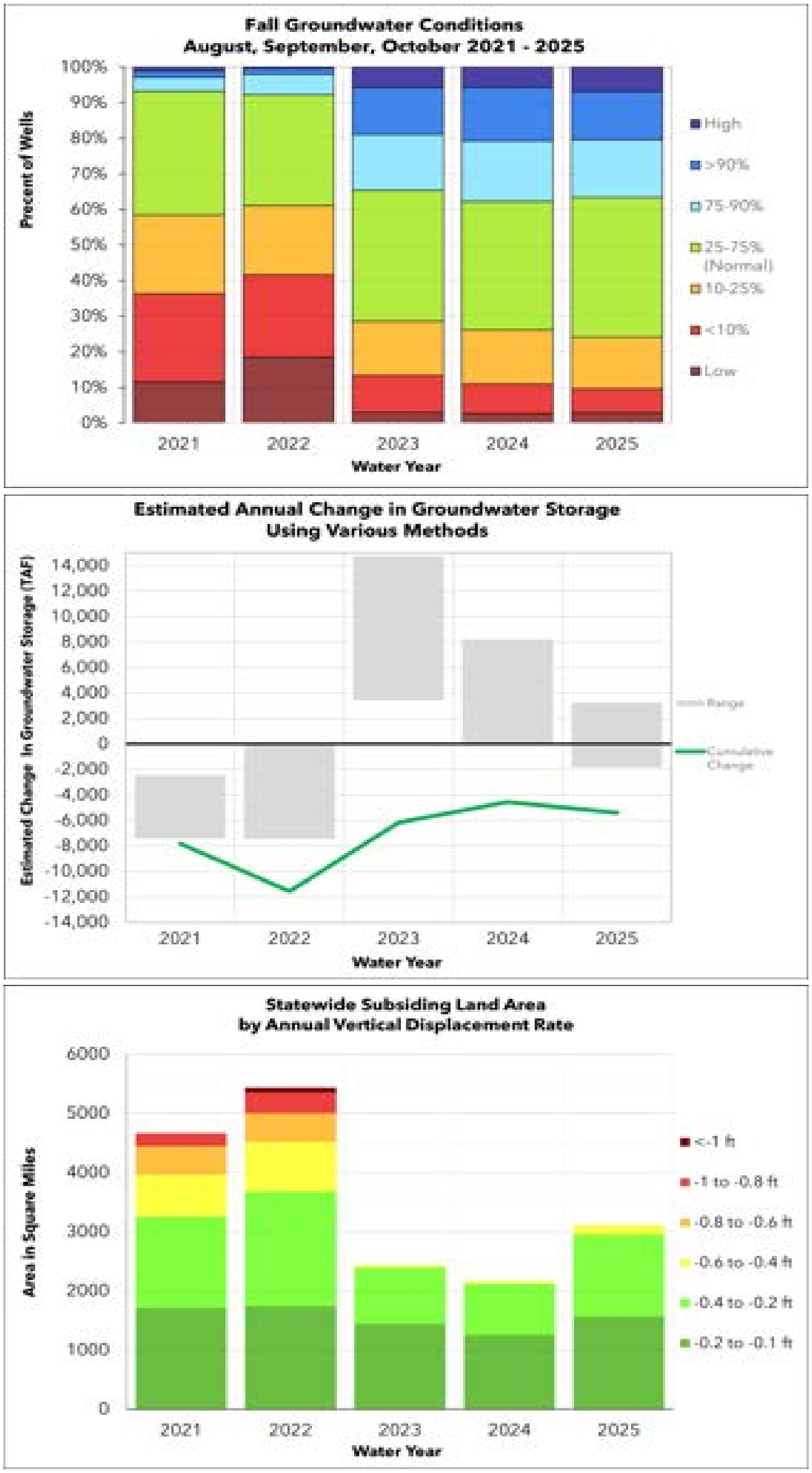
Closing Thoughts

California's groundwater systems are increasingly shaped by the combined pressures of climate variability and human demand. Conditions in WY 2025 and early 2026 reflect a shift toward more variable, rain-dominated hydrology, with reduced snowpack, uneven precipitation, and fewer opportunities for sustained recharge. While recent wet years contributed to short-term improvements in groundwater conditions, these improvements have been limited and uneven. Many areas remain imbalanced, with persistent declines and continued land subsidence in vulnerable regions, underscoring the cumulative impacts of long-term overdraft and the delayed response of aquifer systems.

Statewide data show groundwater conditions are highly responsive to hydrologic variability, and recovery remains uneven and often temporary (**Figure 28**). The groundwater percentile distributions show clear statewide stress during the dry years of 2021 and 2022, when a larger share of monitored wells fell below normal conditions, followed by broad improvement during the wetter years of 2023 through 2025 as more wells returned to normal or above-normal ranges. Groundwater storage estimates reinforce this pattern, indicating substantial losses during the drought period, partial recovery during the wet years that followed, and continued sensitivity to annual precipitation variability. Land subsidence data provide an additional reminder that groundwater impacts can persist beyond a single wet season, with renewed increases in subsiding areas during 2025, particularly where pumping pressures remained elevated.

Together, these findings show that while groundwater systems can respond positively to favorable hydrologic conditions, recovery is often slower, uneven, and incomplete compared to short-term changes in precipitation or reservoir storage. This lagged response highlights groundwater's role as California's long-term savings account within the broader water system. As climate change drives more variable precipitation, warmer winters, and greater reliance on groundwater during dry periods, continued investment in monitoring networks, telemetry, and statewide data integration will be essential for tracking conditions in near real time, improving drought preparedness, and supporting sustainable groundwater management.

Figure 28: Summary of statewide groundwater response indicators for Water Years 2021 through 2025, including groundwater level percentile distributions relative to historical conditions (top), estimated annual and cumulative changes in groundwater storage from multiple methods (middle), and statewide land area affected by subsidence by annual vertical displacement rate (bottom).



Implementation of sustainable groundwater management continues to advance statewide under SGMA, with nearly 2,000 projects and management actions identified across GSPs and Annual Reports. These efforts reflect a growing commitment to sustainability through supply augmentation, managed recharge, demand management, and improved monitoring. However, many projects remain in early or ongoing phases, and measurable benefits are not yet fully realized at a statewide scale. Continued progress will depend on sustained implementation, improved reporting, and adaptive strategies.

California's water system depends on timely and reliable information across snowpack, reservoirs, and groundwater. While groundwater remains the state's largest and slowest-responding storage reserve, it is also the most difficult to observe in near real time. Continued expansion of telemetry and automated monitoring networks can significantly improve groundwater data availability by providing more frequent measurements, faster identification of changing conditions, and stronger integration with surface water indicators. As climate variability increases and water conditions shift more rapidly, these investments in telemetry will help strengthen situational awareness, support more responsive management, and improve California's ability to track the health of its connected water system.

Achieving groundwater sustainability under increasing climate variability will require a shift from reactive responses to proactive, coordinated management. Success will depend on expanding recharge during high-flow periods, improving coordination between surface water and groundwater systems, managing demand, and maintaining groundwater levels above critical thresholds to minimize irreversible impacts such as land subsidence. Continued improvements in data transparency and accessibility, including expanded telemetry and near real-time monitoring, will be essential to supporting timely decision-making and accountability.

Groundwater sustainability in California remains both achievable and challenging. Progress is underway but outcomes depend on sustained implementation, stronger coordination among local, regional, and state partners, continued investment in infrastructure and data systems, and adaptive management. The decisions made in the next decade will determine whether groundwater can fulfill its role as a cornerstone of the state's long-term water resilience.