

# Annual Groundwater Report



*Water Year 2023*







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# NORTH SAN BENITO ANNUAL GROUNDWATER REPORT 2023

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March 2024



Valley Water

**TODD**   
GROUNDWATER

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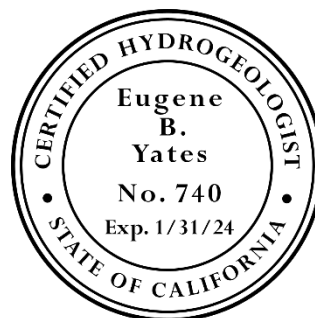
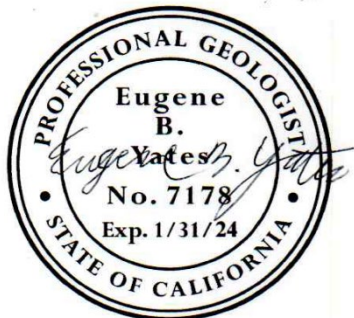
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## SIGNATURE PAGE

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Iris Priestaf, PhD  
President



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# EXECUTIVE SUMMARY

This Annual Groundwater Report describes groundwater conditions in the North San Benito Basin, a subbasin of the Gilroy-Hollister Basin. Consistent with Annual Groundwater Reports prepared by the San Benito County Water District for decades, this report fulfills requirements of the 1953 San Benito County Water District Act (California Water Code Appendix 70). This Annual Groundwater Report also fulfills requirements of the 2014 Sustainable Groundwater Management Act (SGMA). In brief, this report incorporates adaptive management; it strives to maintain consistency with past Annual Reports while fulfilling requirements for SGMA Annual Reports and supporting sustainable groundwater management into the future.

SGMA requires sustainable management of priority groundwater basins and empowers local Groundwater Sustainability Agencies (GSAs) to manage groundwater resources. San Benito County Water District GSA (SBCWD GSA), in partnership with Valley Water (known as Santa Clara Valley Water District prior to 2019) GSA, has developed a Groundwater Sustainability Plan (GSP) for the North San Benito Basin. The North San Benito Basin is predominantly in San Benito County with small areas in Santa Clara County. The North San Benito GSP was adopted by SBCWD and Valley Water GSA and was submitted to the California Department of Water Resources (DWR) in January 2022. The 2022 GSP provides the basic information, analytical tools, and projects and management actions for continued groundwater management, guided by SGMA and by locally defined sustainability goals, objectives, and metrics. The GSP was approved by DWR in July 2023.

This Annual Groundwater Report for San Benito County Water District (SBCWD or District) documents water sources and uses, groundwater elevations and storage, and management activities for Water Year 2023 and provides recommendations. This Report also details the six Sustainable Management Criteria and their respective Minimum Thresholds (MTs).

Water Year 2023 was a wet year and was characterized by above average rainfall, 100 percent Central Valley Project (CVP) allocations and increased groundwater storage in parts of the Basin. However, the water year spans two USBR contract years (March 2022 – February 2023 and March 2023 – February 2024). The first part of WY 23 saw historically low CVP allocations while the latter half saw historically high CVP allocations. The effects of the previous multiple year drought continue to be seen in the Basin including the slow recovery of water levels and reduced CVP supply in the beginning of the water year from the previous year's allocations. In addition to persistent drought impacts, the water system experienced issues that impacted water supply.

The District had a series of challenges that impacted management and distribution of water supply. First, the low CVP allocation followed by a destructive power surge limited the treatment capacity to supply CVP water to municipal customers. CVP deliveries to agricultural users in San Juan were disrupted in Spring 2023 due to highway construction. In addition, a flow valve at Hernandez Reservoir malfunctioned and water was released from storage for percolation along the San Benito River. Despite these engineering challenges, the District continues to serve urban and agricultural users, recharge groundwater, and implement their GSP.

The groundwater basin continues to serve as an important reserve in situations of drought, limited CVP allocation, or system disruptions. The District has effectively managed groundwater resources in San Benito County for reliable and sustainable supply. Groundwater levels and storage remain sustainable and are regularly monitored at Key Wells (also termed Representative Monitoring Sites or RMS) with



# EXECUTIVE SUMMARY

reference to Minimum Thresholds (MTs). Although 3 of 22 Key Wells showed measurements below their respective MT levels, no basin-wide thresholds were triggered for a Management Area (MA) during the water year. Groundwater levels in the Key Wells will continue to be monitored and the monitoring network itself will be assessed regularly. For example, if Key Wells are unable to be accessed, they must be replaced.

Working collaboratively with other agencies, the District has eliminated historical overdraft, developed and managed multiple sources of supply, established an effective water conservation program, protected water quality, and provided annual reporting. Water Year 2023 witnessed approval of the GSP, grant awards to implement GSP projects and the continuation of collaborative efforts. This Annual Report includes an update on many of the Projects and Management Actions (PMAs) including managed aquifer recharge (MAR), monitoring program improvements, Master Plan Update, pursuit of funding for various projects, and information about the District's funding mechanisms.

# 1-INTRODUCTION

This Annual Groundwater Report describes groundwater conditions in the North San Benito Basin (**Figure 1-1**), a subbasin of the Gilroy-Hollister Basin. Consistent with Annual Groundwater Reports prepared for decades by the San Benito County Water District (SBCWD or District), this report fulfills requirements of the 1953 San Benito County Water District Act (California Water Code Appendix 70). The District Act authorizes the Board of Directors, at its discretion, to direct staff to prepare an annual investigation and report on groundwater conditions of the District and its zones of benefit, such as Zone 6, the area for distribution of Central Valley Project (CVP) water. As documented in **Appendix A**, the District Act specifies the minimum content of the report to be prepared at the direction of the District Board of Directors. This Annual Report fulfills the requirements for a District Annual Report, including a brief Annual Groundwater Memorandum Report prepared for the January 8, 2024, meeting of the Board of Directors (in Appendix A). This Annual Report also provides information to the Board of Directors on the status of the groundwater basin, estimated conditions in the next year, and management recommendations.

This Annual Groundwater Report fulfills the requirements of the 2014 Sustainable Groundwater Management Act (SGMA). SGMA requires sustainable management of priority groundwater basins and empowers local Groundwater Sustainability Agencies (GSAs) to manage groundwater resources. San Benito County Water District GSA (SBCWD GSA), in partnership with Valley Water GSA, has developed a Groundwater Sustainability Plan (GSP) for the North San Benito Basin, which encompasses the historically defined Bolsa, Hollister, and San Juan Bautista Subbasins of the Gilroy-Hollister Basin and the Tres Pinos Valley Basin. The North San Benito Basin is predominantly in San Benito County with small areas in Santa Clara County. As presented in the North San Benito Groundwater Sustainability Plan (Todd 2021), the North San Benito Groundwater Basin has been divided into four management areas, shown in **Figure 1-2**, which have been defined to facilitate implementation of the GSP.

In accordance with SGMA, this Annual Report documents water supply sources and use, groundwater elevations and storage, and management activities from October 2022 through September 2023. The SGMA elements guide, detailing the required SGMA components, is included in **Appendix A**. This Annual Report conveys considerable data, including tables and figures, which are provided largely in **Appendices B through G**. **Appendix F** provides information on water rates and charges and **Appendix H** contains a list of acronyms.

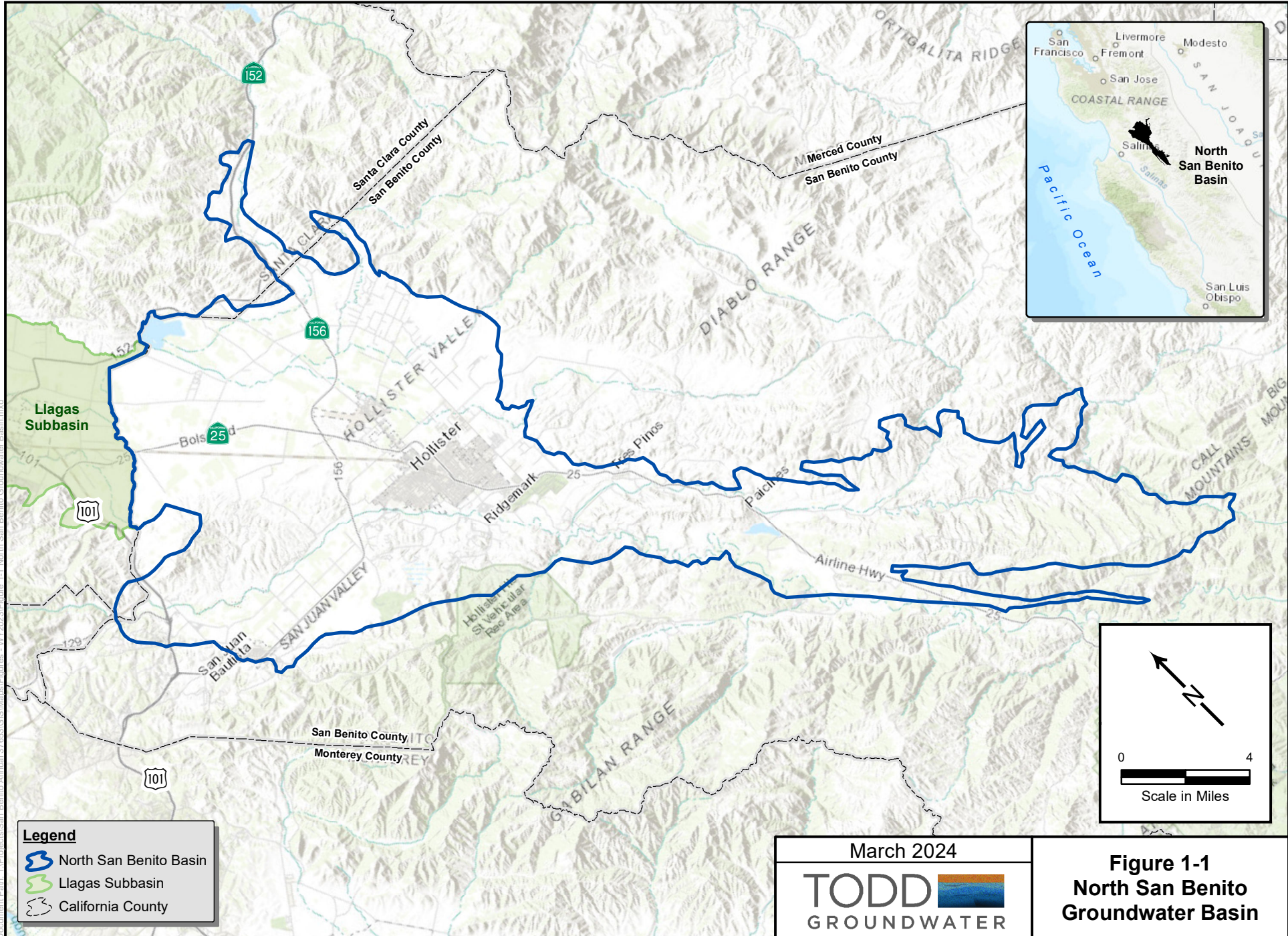
The 2023 Annual Groundwater Report incorporates adaptive management; it strives to maintain consistency with past Annual Reports while fulfilling requirements for SGMA Annual Reports and supporting sustainable groundwater management into the future.

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## Acknowledgments

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This report was prepared by Iris Priestaf, PhD, Maureen Reilly, PE, Gus Yates PG, CHG, Brent Johnson PG, CHG, and Chad Taylor, PG, CHG of Todd Groundwater. We appreciate the assistance of San Benito County Water District staff, particularly Steve Wittry, PE, Rob Hillebrecht, PE, and David Macdonald, PE.



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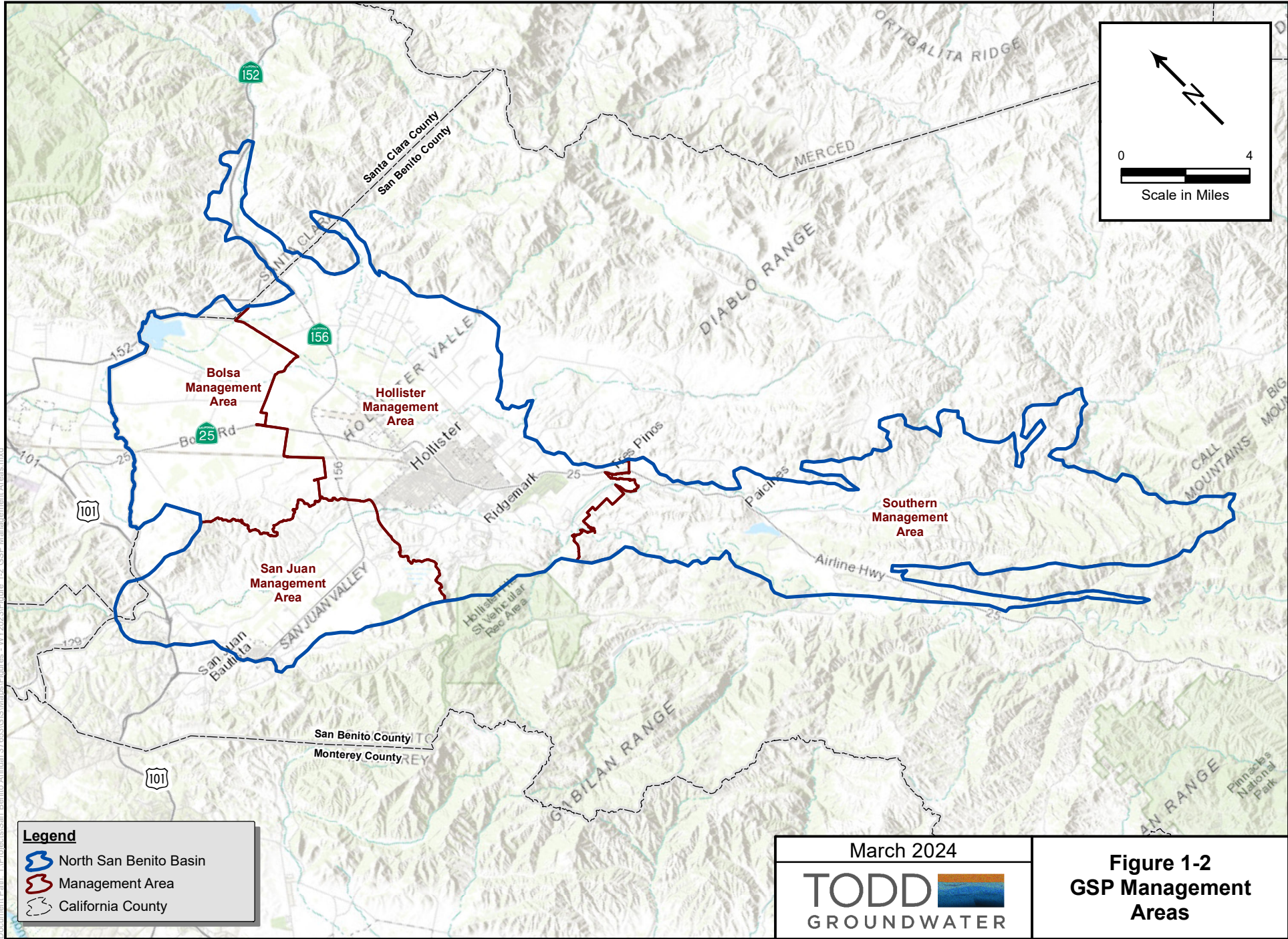
**Legend**

-  North San Benito Basin
-  Llagas Subbasin
-  California County

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**Figure 1-1**  
**North San Benito**  
**Groundwater Basin**



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**Legend**

- ⬢ North San Benito Basin
- ⬢ Management Area
- California County

March 2024

TODD

GROUNDWATER

Figure 1-2  
GSP Management  
Areas

## 2 – GEOGRAPHIC AREA

This Annual Report describes conditions in the North San Benito Basin (Basin),<sup>1</sup> located predominantly in San Benito County with small areas in Santa Clara County. Consistent with the North San Benito GSP, it uses groundwater basin boundaries described in DWR Bulletin 118 (DWR 3-003.005), California's Groundwater Update 2020. In addition to Bulletin 118, the geographic areas and boundaries of local groundwater subbasins have been defined differently by SBCWD for its management purposes. The previous and current boundaries are described here to provide a bridge between previous annual reports and the current SGMA analyses and reporting.

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### DWR-Defined Basin

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The areas of focus for the annual reports are the Management Areas (MAs), shown on Figure 1-2. The four MAs were defined in the North San Benito GSP to facilitate implementation. Major factors in defining the MAs within the Basin were watersheds and particularly, availability of water sources and zones of benefit. SBCWD provides local surface water from Hernandez and Paicines reservoirs to the zone of benefit, Zone 3, and provides CVP water to Zone 6.

The four Management Areas are listed below with the SBCWD-defined subbasins that they generally encompass:

- Southern MA
- Hollister MA (includes Tres Pinos, Hollister East and West, Bolsa SE, Pacheco subbasins)
- San Juan MA (includes almost all District-defined San Juan subbasin)
- Bolsa MA (includes almost all District-defined Bolsa subbasin)

Hollister and San Juan MAs include portions of Zone 6; Southern and Bolsa MAs do not.

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### Ongoing District Monitoring Programs

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Data from monitoring programs undertaken by local, state, and federal agencies are summarized below as currently incorporated in the Annual Report. The District data compilation and monitoring programs are being expanded and revised as data needs are identified through the GSP process, for example to address topics such as potential groundwater dependent ecosystems, and to represent the entire North San Benito Basin with appropriate detail.

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<sup>1</sup> The official name is North San Benito Subbasin of the Gilroy Hollister Basin, DWR Basin Number 3-003.05. For this report, it is referred to as North San Benito Basin to clearly differentiate it from previous DWR-defined and SBCWD-defined subbasins. As a matter of context, **Figure C-1 in Appendix C** shows all DWR Bulletin 118 groundwater basins that are wholly or partially in San Benito County.

## 2 – GEOGRAPHIC AREA

**Climate.** Climate data are regularly compiled from DWR’s California Irrigation Management Information System (CIMIS) and include total solar radiation, soil temperature, air temperature/relative humidity, wind direction, wind speed, and precipitation. Additional precipitation data are available from the Western Regional Climate Center (WRCC) station at Hollister from 1934-2023 (WRCC, 2023). For the Annual Groundwater Reports, historical annual precipitation data have been compiled and reported using the Hollister rain gage for the long-term precipitation and the CIMIS San Benito station for recent monthly precipitation. Monthly precipitation and evapotranspiration for the Hollister #126 CIMIS station are tabulated in **Appendix B**.

**Groundwater levels.** SBCWD has had a semi-annual groundwater level monitoring program since Water Year (WY) 1977; groundwater level data gathered by the United States Geological Survey (USGS) and other agencies are available as early as 1913 (Clark, 1924). The Annual Groundwater Reports provide quarterly groundwater level data in **Appendix C** for each year. The data are the basis for groundwater hydrographs and for numerical model update with preparation of groundwater level contour maps, change maps, and storage change computations. The SBCWD monitoring program includes wells in the Pacheco Valley in Santa Clara County, while Valley Water’s monitoring program has provided data for the southern Llagas Subbasin; the latter shared data are important to verify groundwater flow across the Llagas-North San Benito subbasin boundary. SBCWD reports water levels for SGMA Key Wells through the SGMA portal.

**Reservoirs.** The Annual Report summarizes reservoir water budget information for Hernandez, Paicines, and San Justo reservoirs and provides annual total releases from Hernandez and Paicines reservoirs from Water Year 1996 to present. Reservoir storage and release data are available in **Appendix D**.

**Surface water flows and percolation.** Surface water monitoring and percolation amounts are summarized in **Appendix D** of the Annual Groundwater Reports. For Water Year 1994 to present, percolation of imported CVP water is documented in **Table D-3** and percolation of wastewater is shown in **Tables D-4 and D-5**. The District temporarily suspended its surface water monitoring network in 2019 but plans to relaunch surface water monitoring at selected sites as part of SGMA implementation.

**Wells and groundwater pumping.** SBCWD has monitored groundwater pumping in Zone 6 using electrical meters. Pumping amounts are calculated semiannually by metering the number of hours of pump operation and multiplying by the average discharge rate. However, other estimates of pumping have indicated that the power meters underestimate pumping. Irrigation pumping beyond Zone 6 is not monitored but has been estimated for regular water budget updates based on land use information and water use factors. This method of estimating groundwater pumping will be replaced as part of SGMA implementation. The District is currently investigating new water use monitoring programs (like OpenET) that will address the entire GSP area and will be documented in future Annual Reports. Estimation of groundwater pumping using the numerical model by major use category and MA is described in Section 5, which also provides information on CVP use in Zone 6 and recycled water use. **Appendix E** contains additional information on water use.

**Water quality.** In 1997, SBCWD initiated a program for monitoring nitrate and electrical conductivity (EC) in wells. In 2004, SBCWD established a comprehensive water quality database with records from all water systems and regulated facilities. State-wide sources of groundwater quality data include the Water Data Library (WDL), Geotracker/GAMA program, and the State Water Resources Control Board’s

## 2 – GEOGRAPHIC AREA

Division of Drinking Water. The SBCWD database is updated and reviewed annually with detailed triennial assessment as described in the GSP; a triennial update of water quality was prepared for the WY 2022 Annual Report and will be included in the WY 2025 report. This triennial analysis contains information about the database update and a review of the water quality data. **Appendix F** contains additional information on water quality last updated for the WY 2022 analysis.

**Units and accuracy.** Throughout this report, water volumes and changes in storage are shown to the nearest acre-foot (AF). These values are accurate to one to three significant digits (depending on the measurement). All digits are retained in the text to maintain as much accuracy as possible during subsequent calculations, but results should be rounded appropriately.

# 3 – BASIN CONDITIONS

The Annual Report summarizes basin conditions including climate, groundwater elevations, groundwater storage, and groundwater level trends. Overall, Water Year 2023 was characterized by above average precipitation.

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## Climate

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Assessment of climatic conditions begins with collection of climate data (rainfall and evapotranspiration), which are summarized in **Appendix B**. Local rainfall amounts are compiled on a monthly basis and reviewed as an increasingly variable factor that affects basin inflows (e.g., deep percolation) and outflows (groundwater pumping). Recognizing that drought often is extensive across Northern California, local dry years also may be indicative of regional drought and reduced CVP allocations. Dry years often are characterized by increased groundwater pumping for agricultural irrigation to offset lack of rainfall and CVP supply.

In 2023, overall precipitation was 20.36 inches; monthly totals are shown in **Figure 3-1**. WY 2023 was a wet year; the annual precipitation was 156 percent of normal (12.8 inches). December, January, and March received higher than normal precipitation. Monthly rainfall and evapotranspiration data from WY 1996 to WY 2023 are presented in **Appendix B**. **Figure 3-2** shows annual precipitation and water year type from 1976 through 2023. As illustrated, Water year 2023 rainfall was a wet year, the second highest precipitation since 2000. However, it is noteworthy that most of the precipitation occurred during a period of frequent and intense storm events. The additional flow was recharged where available. However, the volume of precipitation may have resulted in more runoff than groundwater percolation. Precipitation data collected through February 2024 (10.8 inches) indicate that WY 2024 may be another wet year.

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## Groundwater Elevations

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In October 2023, SBCWD collected groundwater elevations in 138 wells from their existing network and 10 additional wells from Valley Water. This is a decrease from previous years as many wells were not sampled due to access or well issues. **Figure 3-3** shows well locations in the current SBCWD monitoring network, including wells previously monitored. Ongoing monitoring is indicated by blue circles, wells that have been monitored within the past five years are shown by yellow circles, and wells monitored anytime in the past are shown by gray circles. **Figures 3-4** through **3-8** show hydrographs for key wells in the basin with their respective minimum thresholds (MTs). Additional information is in Appendix C and in water balance Section 5. The MTs, shown as red lines on the hydrographs, were developed in the GSP to assess sustainability and minimize any risk to nearby domestic wells of future low-water levels (see Section 7).

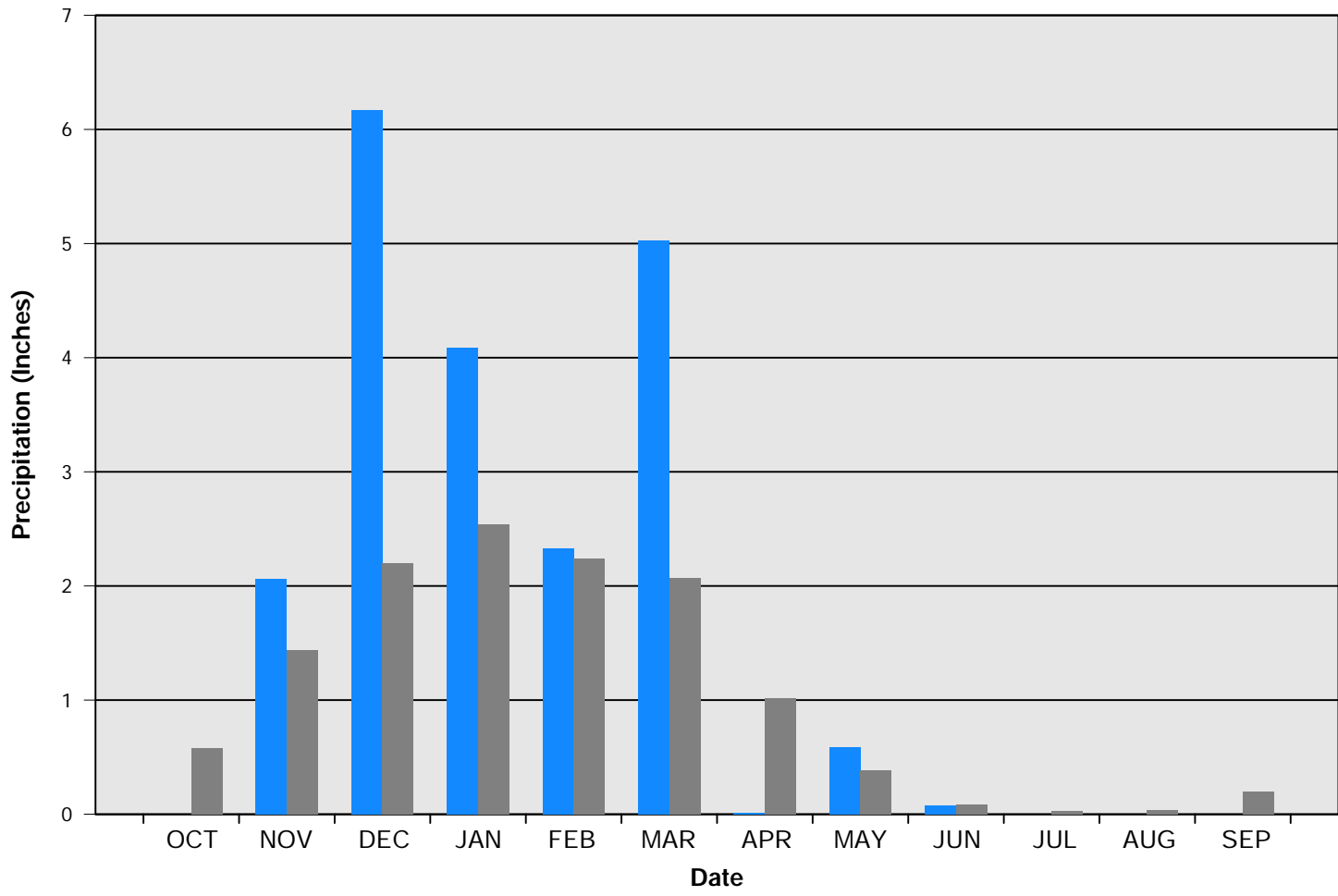
Over 2023, groundwater elevations increased throughout most the Basin due to the wet conditions; however, groundwater levels in San Juan remained stable. This reflects the increased CVP allocation in the rest of the basin and the specific engineering issues that limited CVP use in San Juan.



# 3 – BASIN CONDITIONS

This year's increases in groundwater levels and storage signal improvements in most wells from recent 2013-2015 drought conditions. Continuing its conjunctive use of surface water and groundwater resources and recognizing that climate change will increase temporal variability of water supplies, the District continues to implement projects to increase capture of available water supplies and enhance groundwater level and storage recovery when water becomes available.

Four key wells for groundwater elevations were unable to be monitored this water year due to access issues. The District is actively looking for replacement wells. A complete analysis of these wells, surrounding domestic wells, and potential undesirable results will be performed to identify new permanent key wells with corresponding MTs.



■ 2023 - (20.36 in)  
■ Average - (12.8 in)

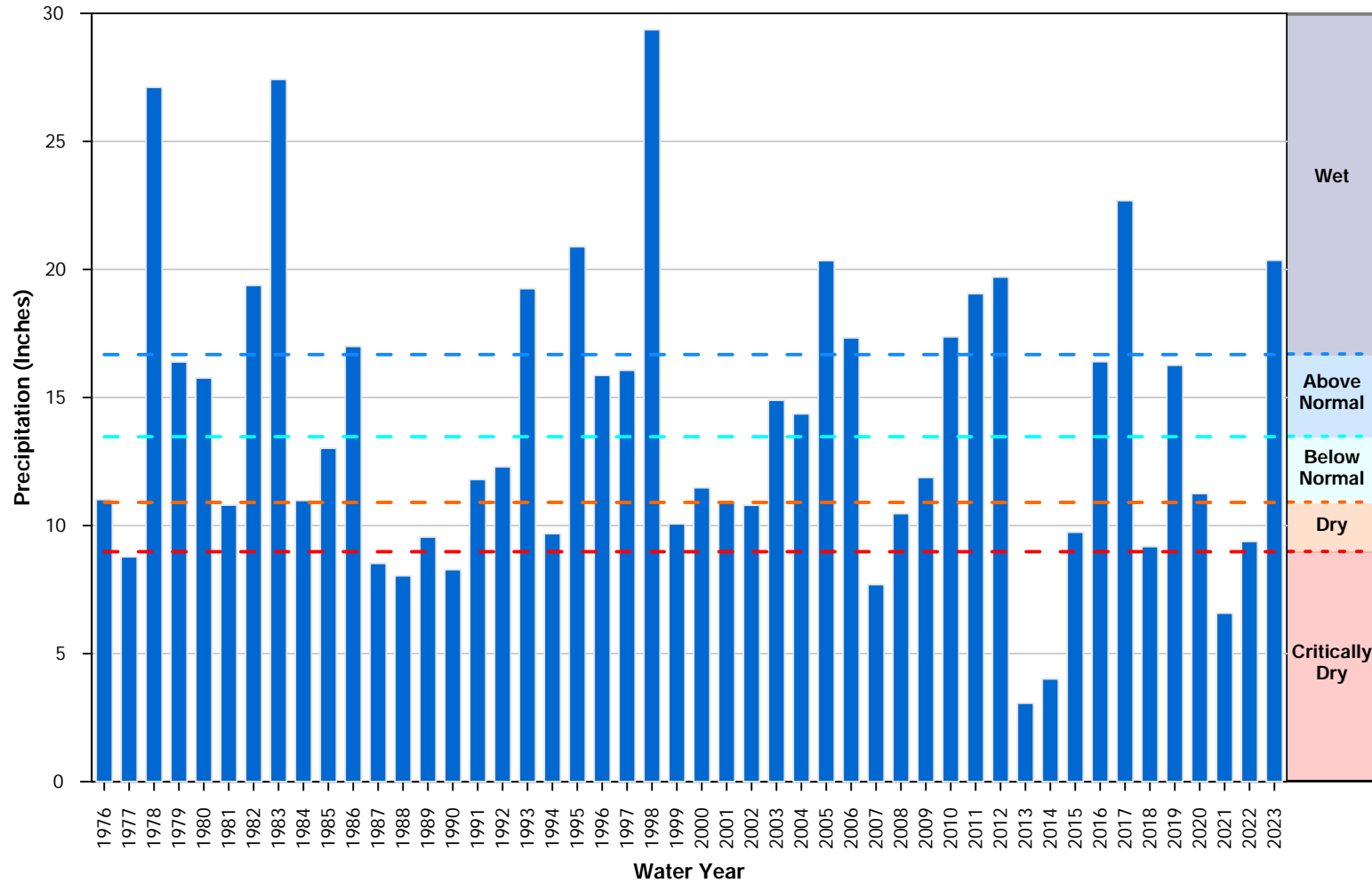
Source: CIMIS

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**Figure 3-1**  
Water Year 2023  
Precipitation

### Precipitation and Year Type



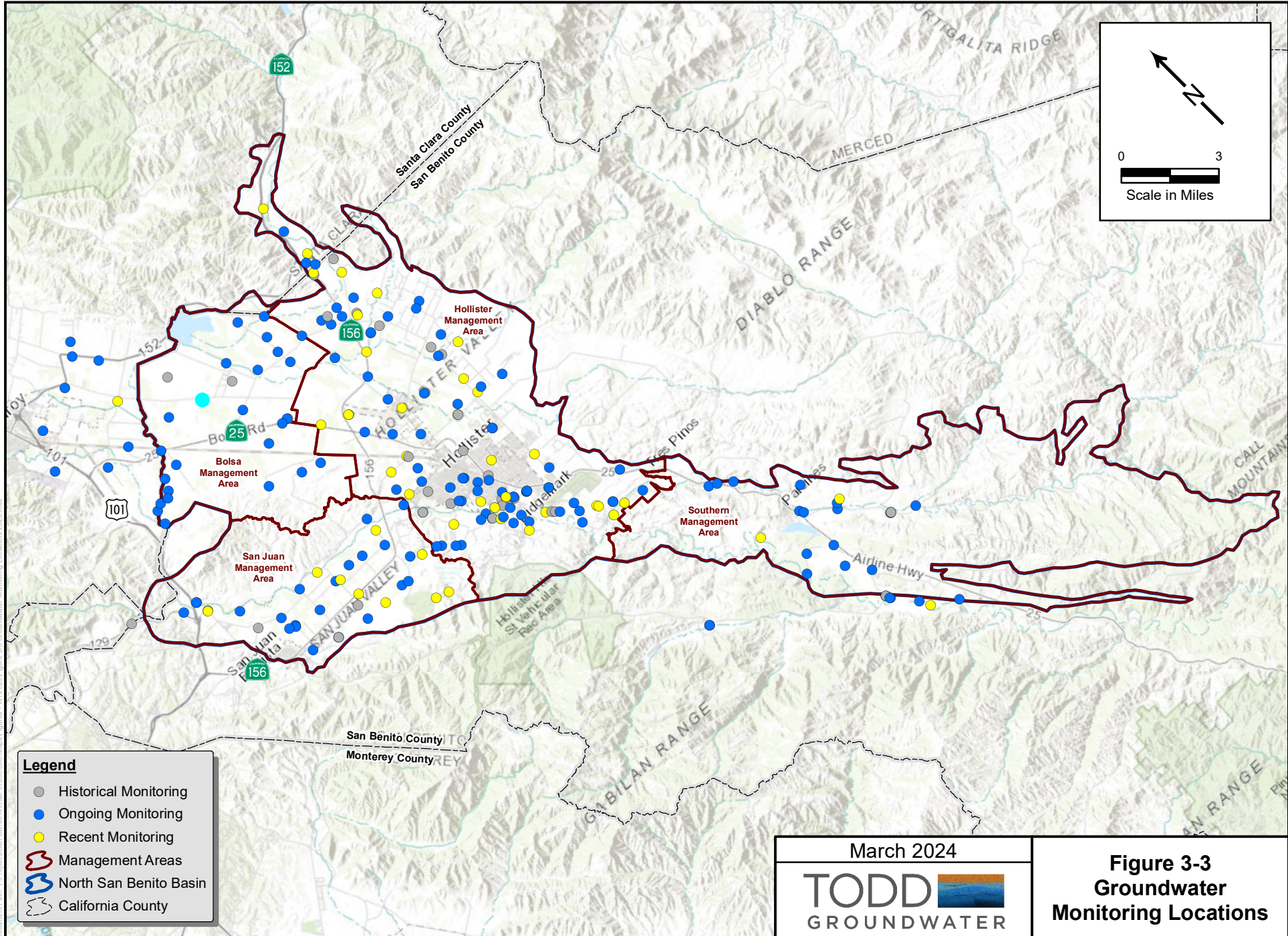
Path: T:\Projects\San Ramon\Annual 21\AS\GMAP\HCS\WY2023\Figure 3-2 Annual Precipitation, 1976-2023.gpj

Source: WRCC Hollister 1 and Hollister 2 Stations

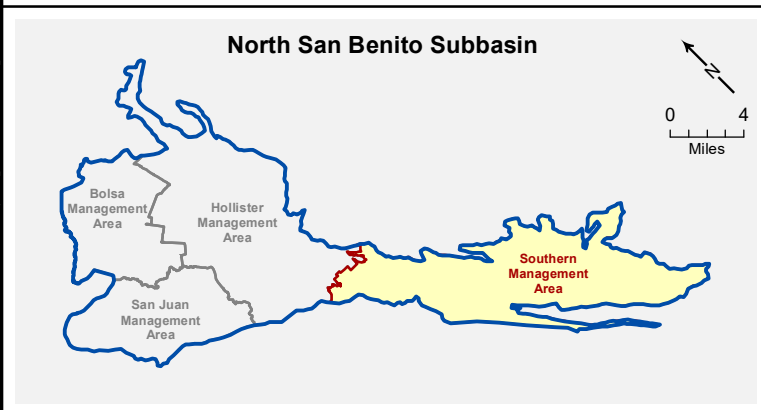
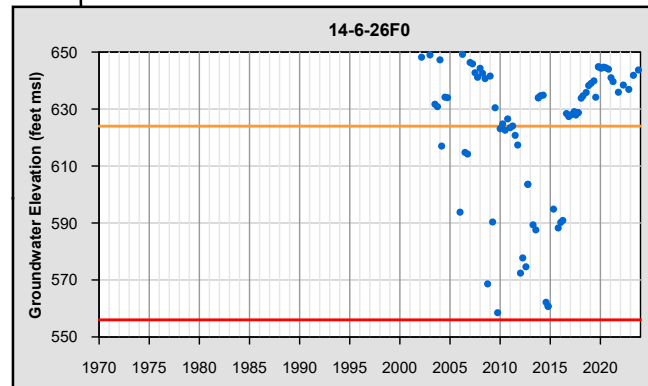
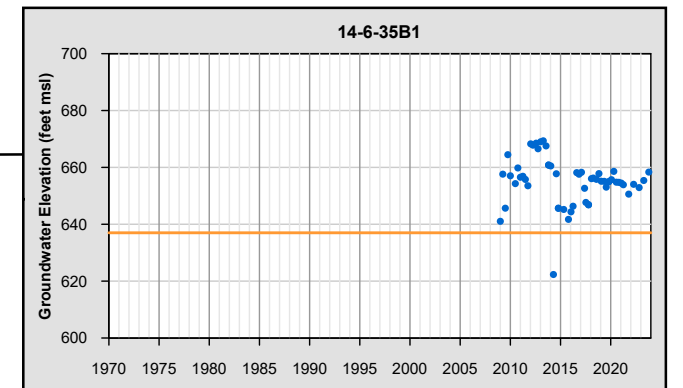
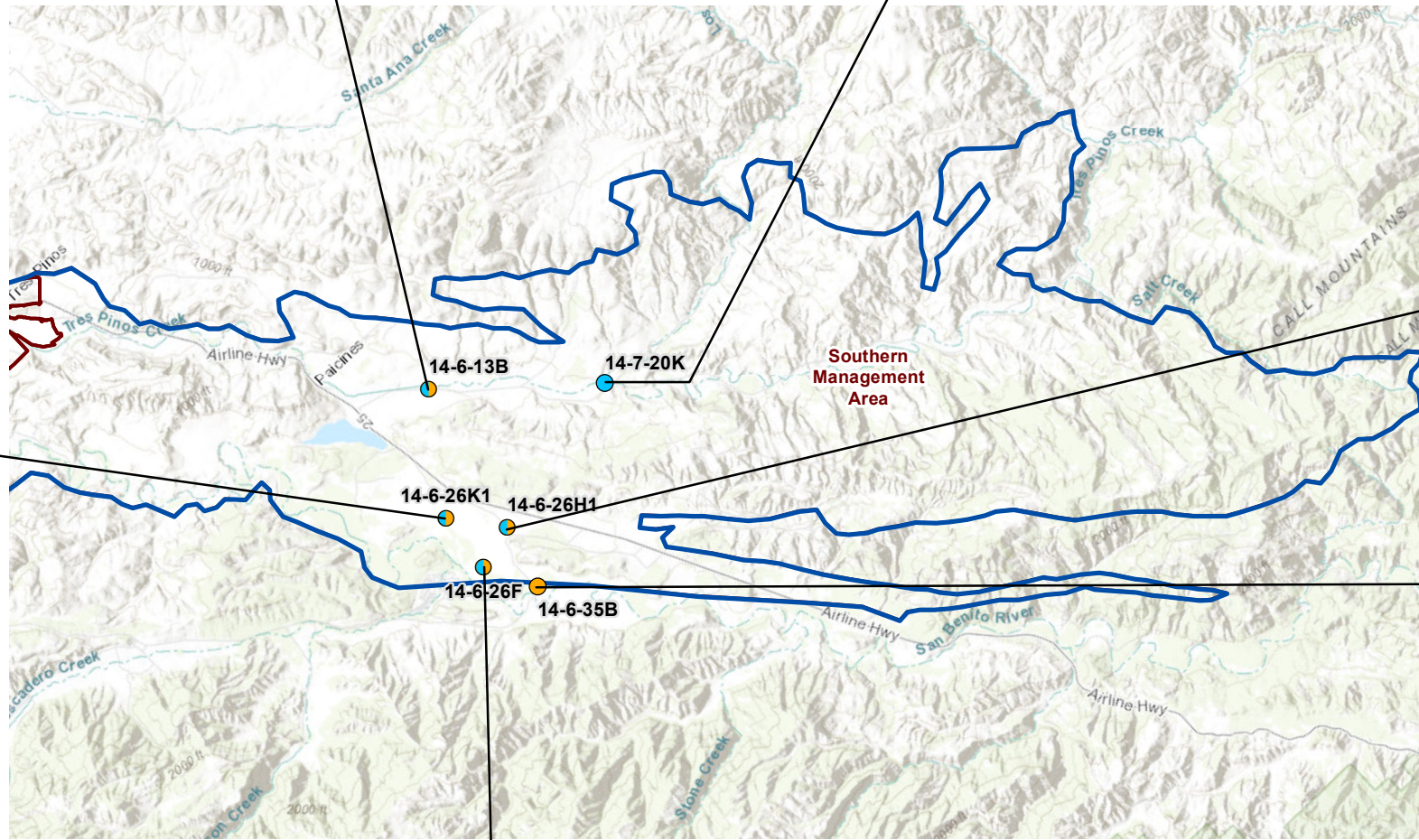
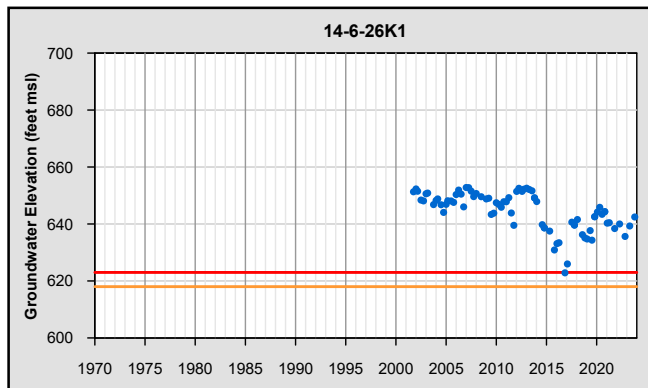
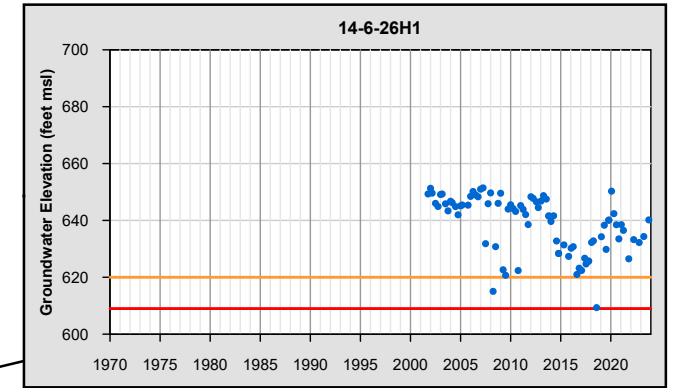
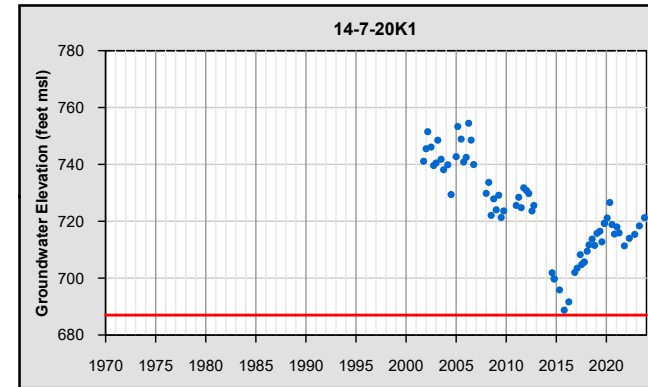
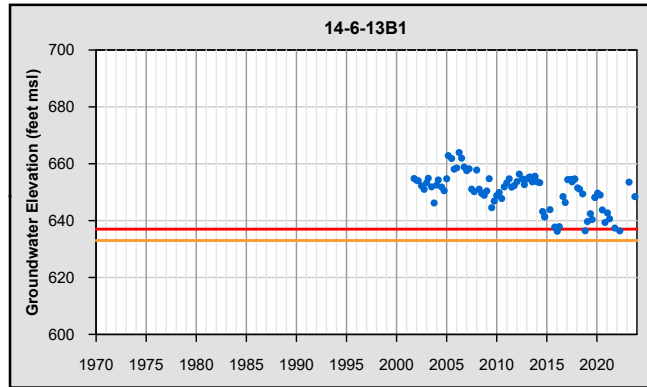
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**Figure 3-2**  
**Annual Precipitation**  
**1976-2023**



Document Path: T:\Projects\San Benito Annual 2023\GIS\Map\Figures - WY2023\Figure 3-3 Groundwater Monitoring Locations 2023.mxd



- GDE Hydrograph
- Water Level Hydrograph
- Water Level/GDE Hydrograph
- North San Benito Basin
- Management Area
- California County

- Groundwater Elevation (ft msl)
- Minimum Threshold for Water Level (feet msl)
- Minimum Threshold for GDE (feet msl)

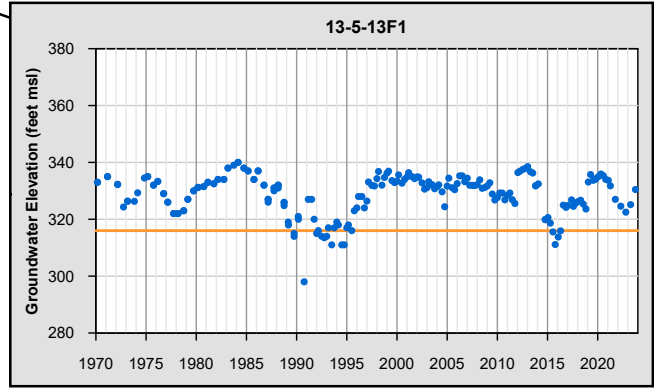
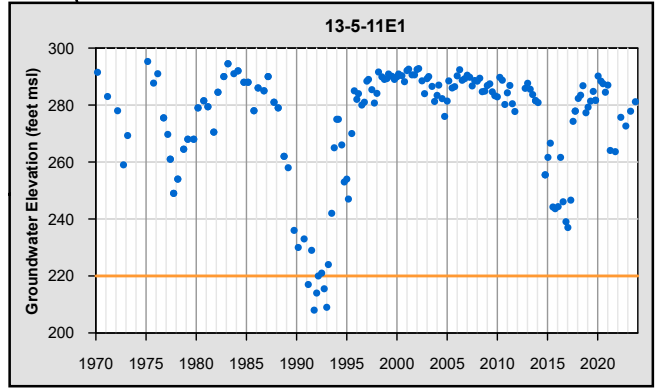
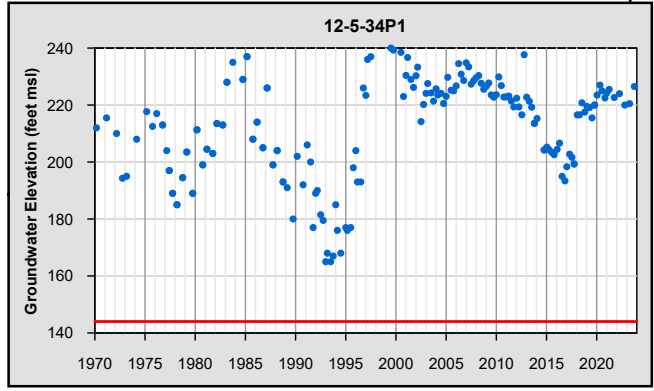
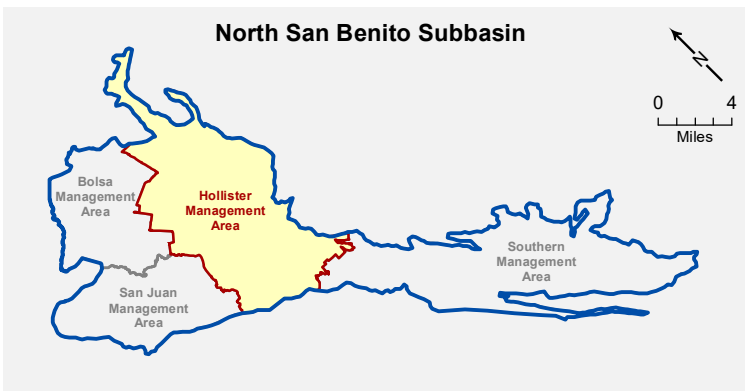
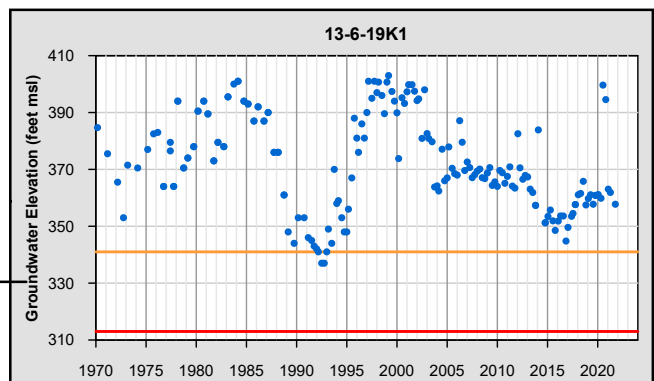
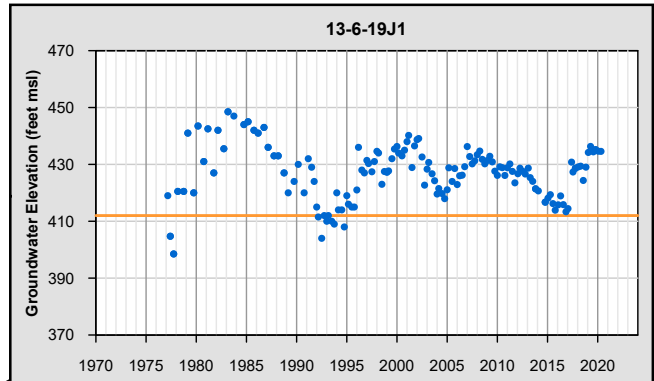
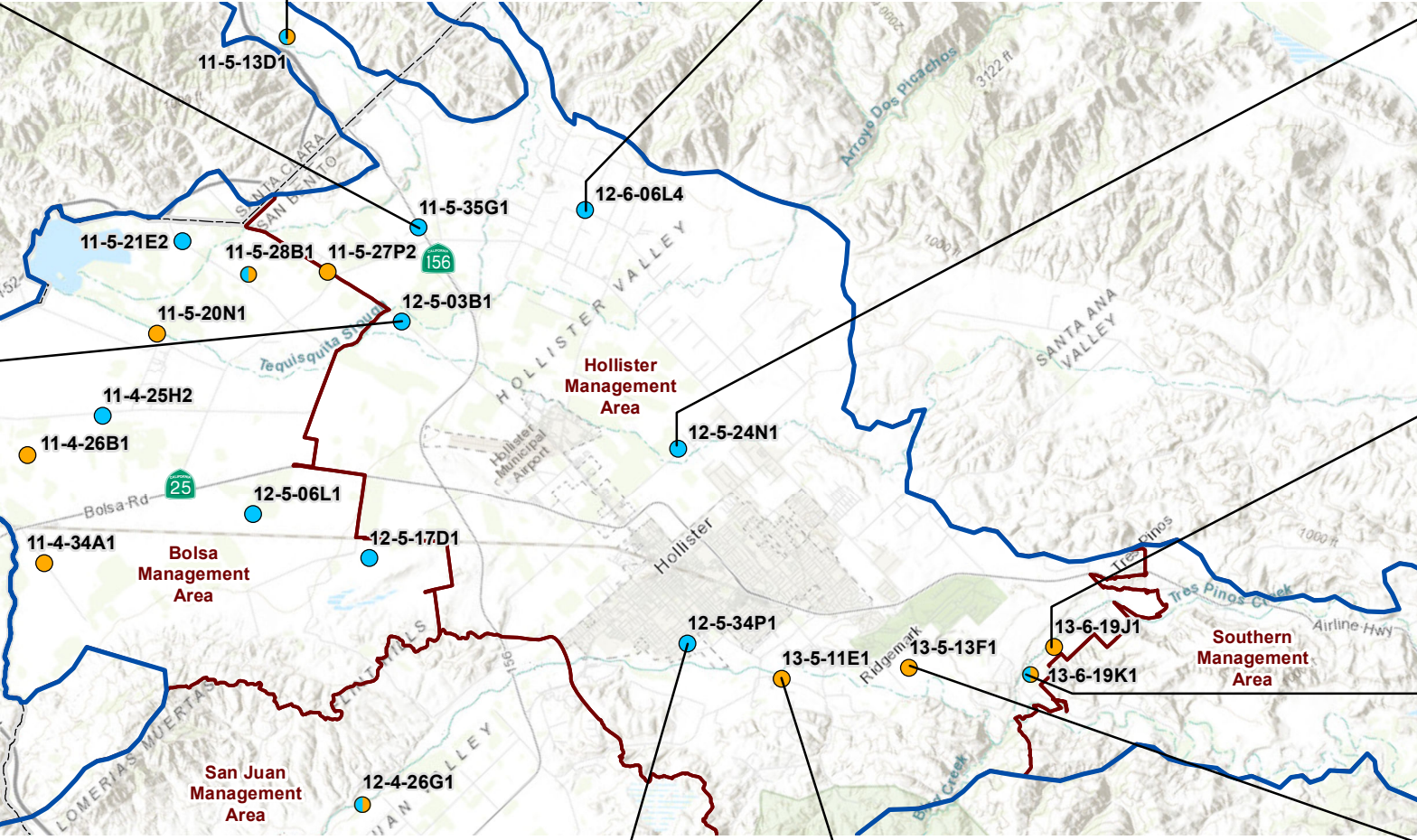
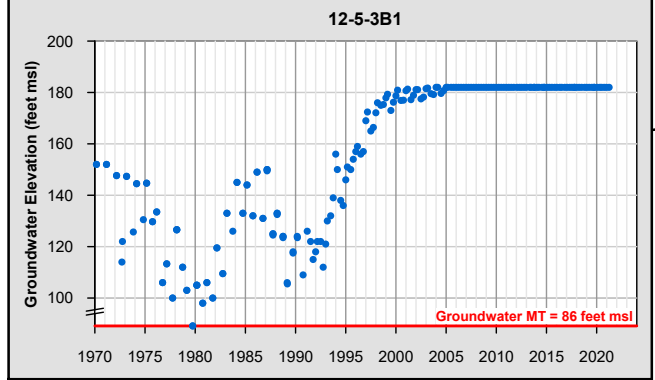
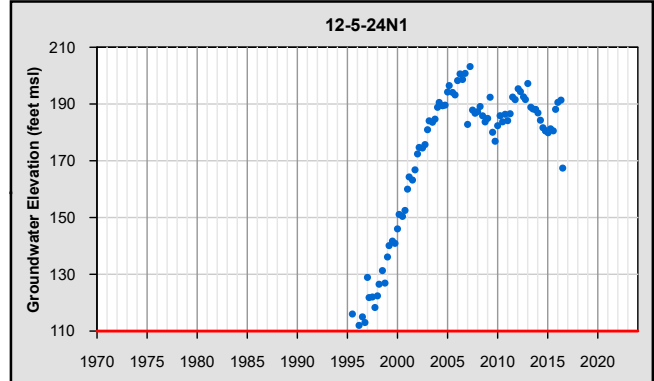
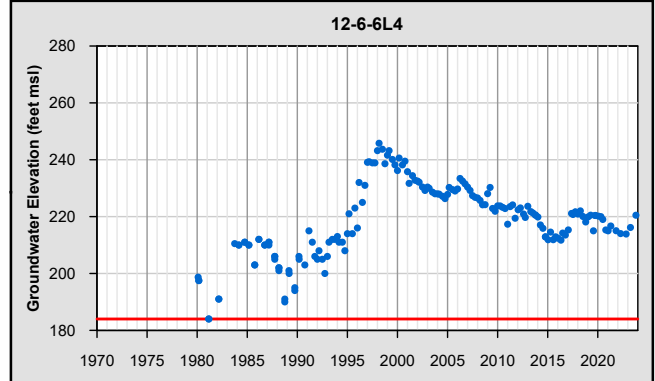
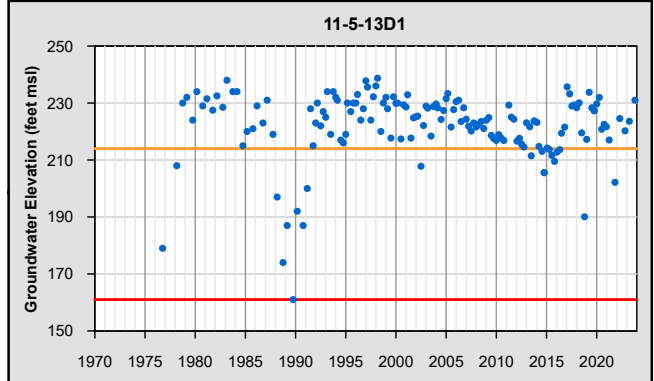
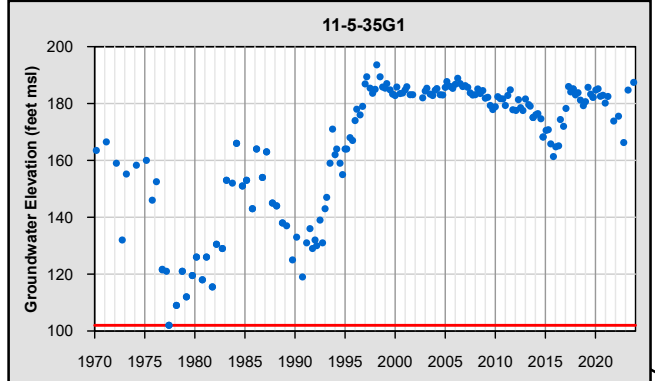


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**Figure 3-4**  
Key Well Hydrographs  
Southern Management  
Area

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- GDE Hydrograph
- Water Level Hydrograph
- Water Level/GDE Hydrograph
- North San Benito Basin
- Management Area
- California County

- Groundwater Elevation (ft msl)
- Minimum Threshold for Water Level (feet msl)
- Minimum Threshold for GDE (feet msl)



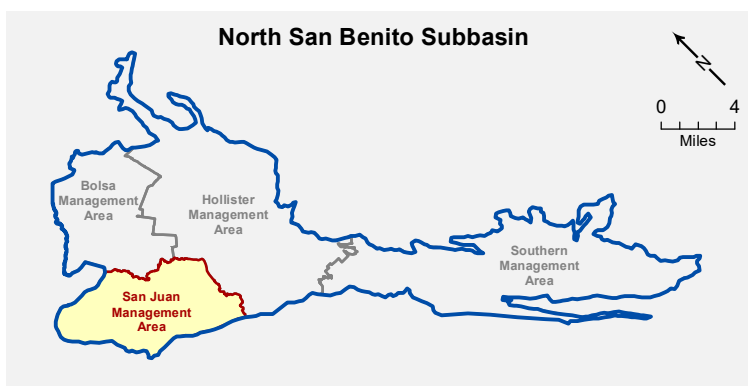
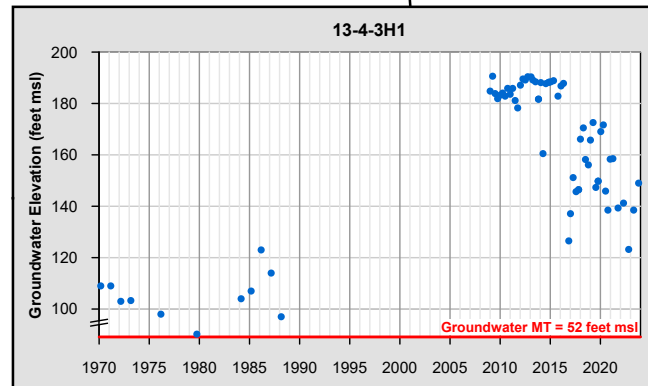
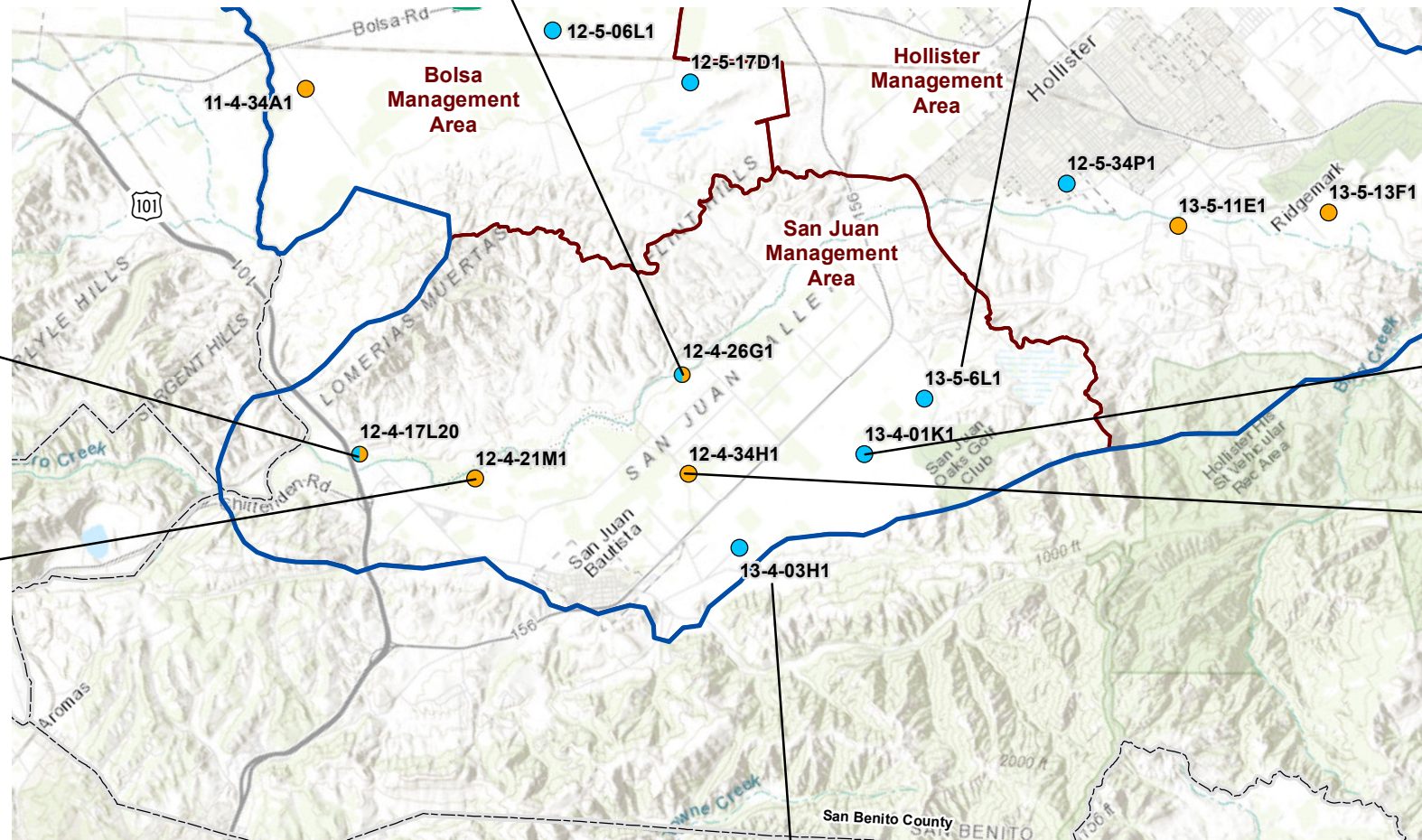
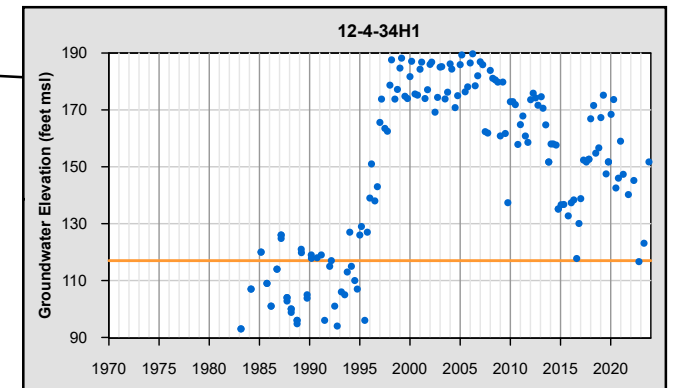
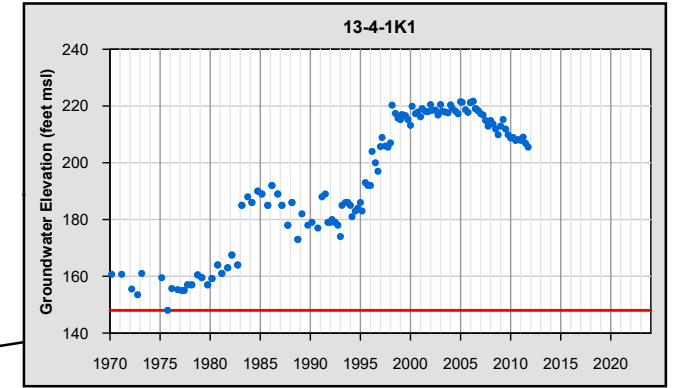
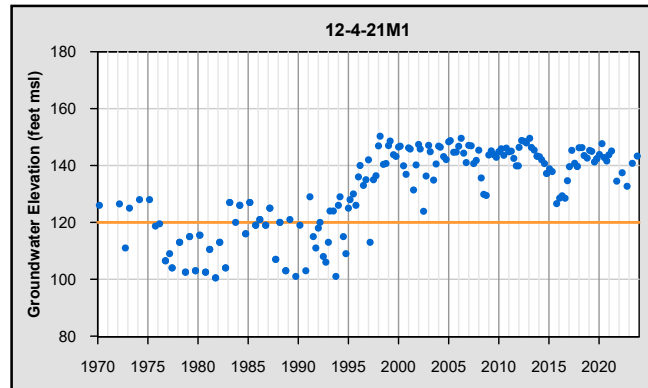
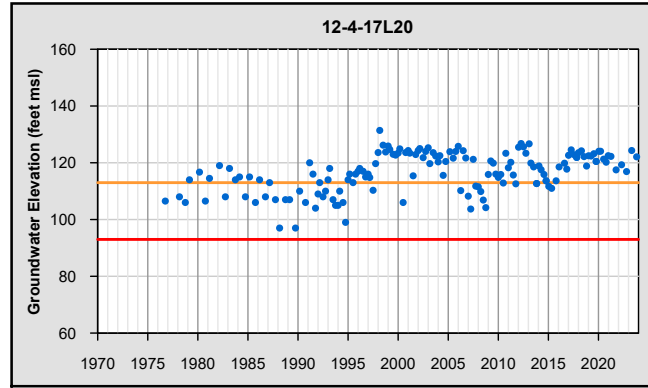
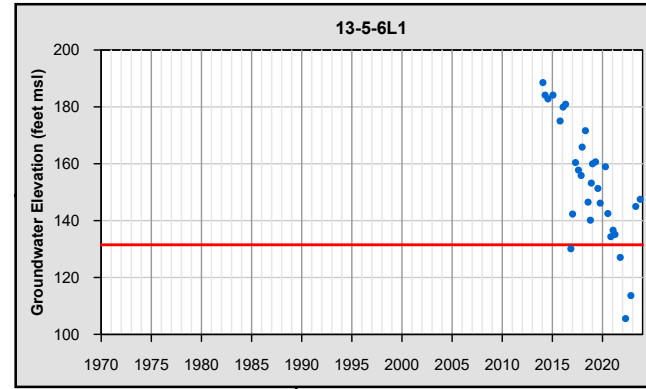
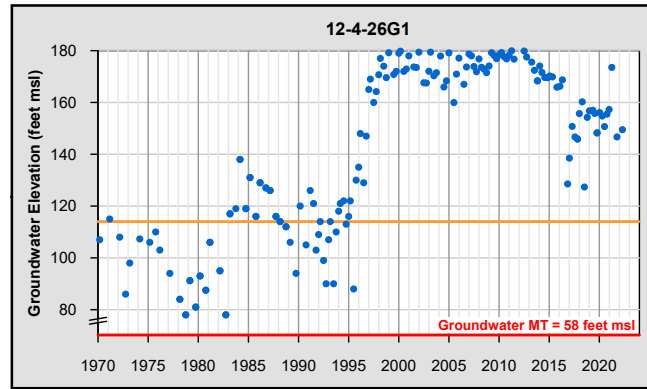
March 2024

**Figure 3-5**  
**Key Well Hydrographs**  
**Hollister Management Area**

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- GDE Hydrograph
- Water Level Hydrograph
- Water Level/GDE Hydrograph
- North San Benito Basin
- Management Area
- California County

- Groundwater Elevation (ft msl)
- Minimum Threshold for Water Level (feet msl)
- Minimum Threshold for GDE (feet msl)

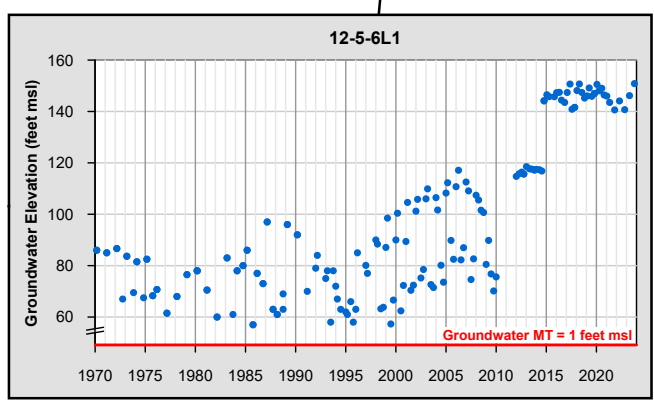
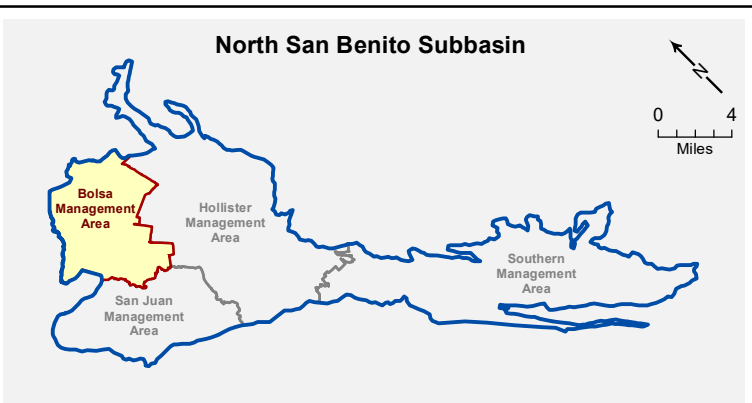
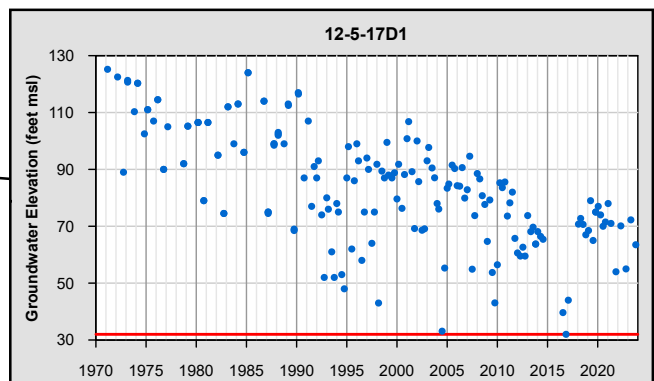
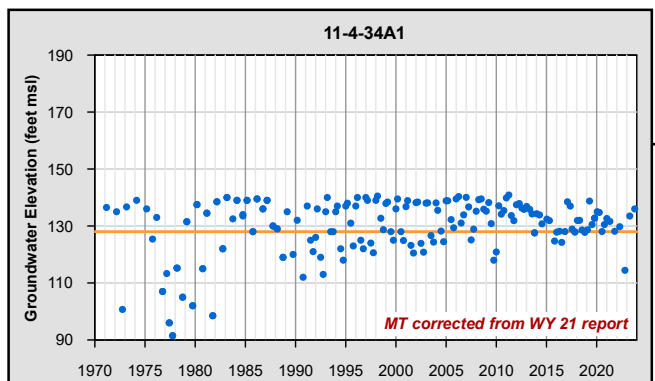
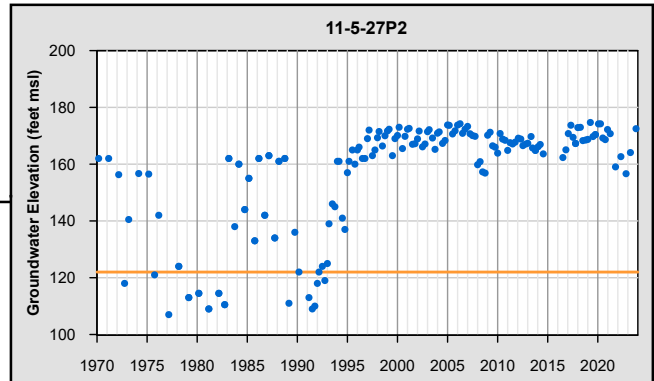
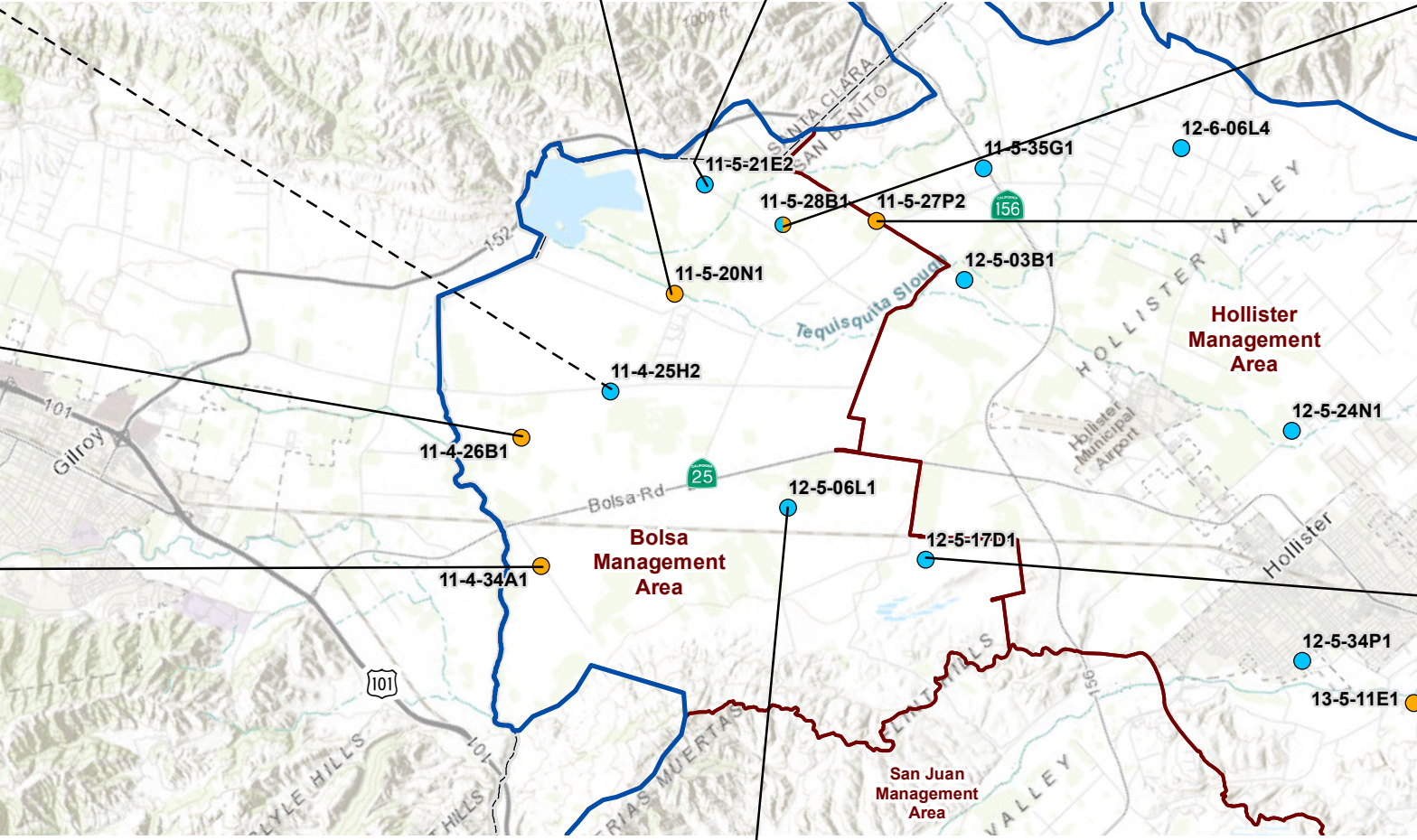
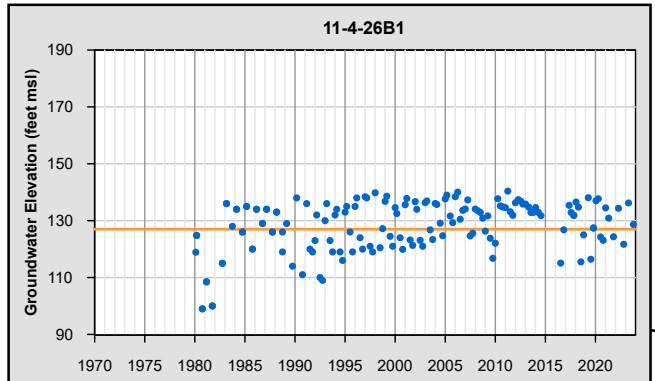
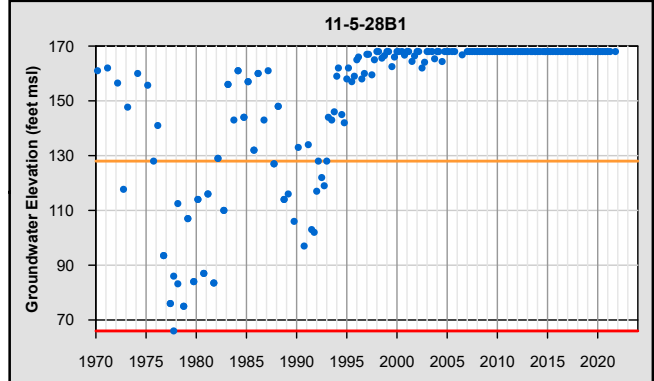
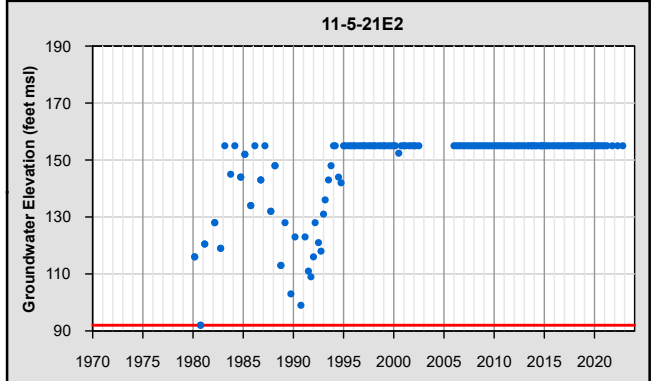
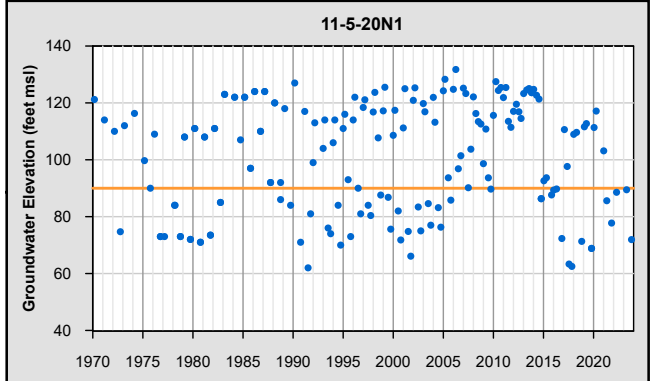
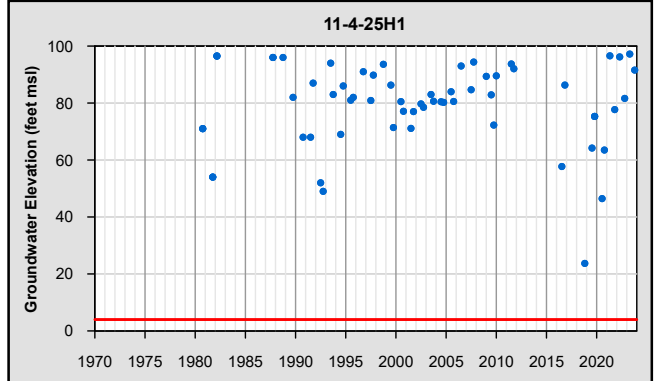


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**Figure 3-6**  
**Key Well Hydrographs**  
**San Juan Management Area**

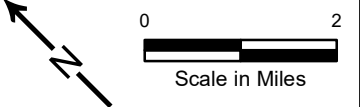
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- GDE Hydrograph
- Water Level Hydrograph
- Water Level/GDE Hydrograph
- North San Benito Basin
- Management Area
- California County

- Groundwater Elevation (ft msl)
- Minimum Threshold for Water Level (feet msl)
- Minimum Threshold for GDE (feet msl)



March 2024

**Figure 3-7**  
**Key Well Hydrographs**  
**Bolsa Management Area**

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# 3 – BASIN CONDITIONS

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## Groundwater Trends

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**Figures 3-4 through 3-7** shows hydrographs of key wells, illustrating long term groundwater elevation changes for the four MAs shown on the maps. As part of the GSP, a network of key wells was selected to monitor for sustainability. These wells were identified from the larger groundwater monitoring network based on length of record, location, continued monitoring, and proximity to water ways (for interconnected surface water key wells). There are 22 key wells to monitor regional groundwater levels (blue circles) and 19 key wells to monitor interconnected surface water / Groundwater Dependent Ecosystems (GDEs; orange circles). These two data sets overlap; eight wells are both groundwater level and interconnected surface water/GDE key wells (blue and orange circles). The MTs set in the GSP to determine chronic lowering of water levels are shown as red lines and MTs that serve as a proxy for interconnected surface water/GDEs are shown as orange lines. In WY 2023, four key wells for groundwater levels and three wells for GDEs (four wells total) were unable to be measured and have been removed from the monitoring program. The District is actively assessing temporary replacement wells; permanent replacement wells and respective MTs will be documented in the next periodic evaluation (due January 2027).

**Southern Management Area.** Although the District has monitored selected wells in the Southern MA since 2001, elevation data remain limited throughout the MA. The five key wells for water levels and one key well for interconnected surface water are shown on **Figure 3-4**. Because of topography and groundwater flow direction, water levels in the Southern MA are about 400 feet higher than those in the Hollister MA, about nine miles away. As an example, the hydrograph for Well 14-7-20K shows that water levels reached a local maximum during 2006, decreased to a local minimum during the drought in 2013-2015, and recovered through 2019. In 2023 groundwater levels increased, but the groundwater elevations are still below historical highs. In general, the pattern of water level change over time observed in 14-7-20K, including decline from 2020-2022 and an increase in 2023, is illustrative of other wells in Southern MA.

**Hollister Management Area.** As shown on **Figure 3-5**, the Hollister MA has six key wells for tracking groundwater levels, three wells for tracking interconnected surface water, and one additional well serving both. One key well, 12-5-03B1, is a flowing artesian well under similar conditions as artesian wells in the Bolsa MA. The hydrographs for wells 11-5-35G and 12-5-24N1 in the north and central portions of the MA exemplify the recovery experienced in the 1990s and early 2000s with the introduction of CVP water for agricultural irrigation. Review of most of the hydrographs indicates that groundwater levels have generally plateaued, declining slightly in drought and rebounding in wet years with sufficient CVP allocation. Since 2020, and continuing through 2022, groundwater levels generally declined but remained above historical lows. In 2023, groundwater levels increased showing some recovery from the most recent drought. Well 12-6-06L4 near Pacheco Creek and Well 13-6-13F1 near San Benito River also show slight recovery from drought, reflecting increased stream recharge and inflow from upgradient groundwater.

**San Juan Management Area.** **Figure 3-6** shows the locations in San Juan MA and hydrographs for six key wells: two for tracking groundwater levels, two for interconnected surface water, and two for tracking

# 3 – BASIN CONDITIONS

both. Groundwater elevations generally peaked around 2005-2010 with subsequent declines especially in the eastern MA. Nonetheless, groundwater levels remain above historical lows. When available, managed recharge of CVP water at the ponds near the Hollister WRP will help in managing groundwater levels. The westernmost key well 12-4-17L20 (located along the San Benito River) shows more stable groundwater elevation with levels in WY 2023 showing an increase approaching observed highs. The groundwater levels in this well have recovered and water levels are above the MT for interconnected surface water/GDEs.

**Bolsa Management Area.** As shown on **Figure 3-7**, the Bolsa MA has five key wells for tracking groundwater levels, four key wells for monitoring interconnected surface water/GDEs, and one for both purposes. Two key wells are currently flowing artesian wells (11-5-21E2 and 11-5-28B1). These artesian conditions reflect local confined conditions created by clay layers in the northern Bolsa and Hollister MAs. Groundwater elevations increased from 1992 until about 1998, when levels were pressurized to above the ground surface. While the groundwater pressure head above the ground surface elevation may vary in artesian wells, artesian groundwater levels are challenging to measure. Consequently, all artesian wells in the San Benito are recorded as having a groundwater elevation at ground surface elevation. Water levels in most of the key wells show a general level trend, albeit with differing magnitudes of variability that likely reflect varying degrees of confinement and responses to pumping. While groundwater elevations in well 12-5-06L1 show an increasing trend, well 12-5-17D1 shows a gradual decreasing trend. The different trends in these wells, located within two miles from each other, likely reflect changing land use and pumping patterns. Groundwater levels in well 11-4-34A1 show increases; this is a key well for interconnected surface water/GDEs, and spring 2023 groundwater levels are above the MT.

**District Act Determination of Overdraft.** The District Act (see **Appendix A**) requires presentation of estimates of annual overdraft for the current water year and ensuing water year. Consistent with previous Annual Reports, this would be represented by long-term groundwater level declines, accounting for rainfall conditions and CVP imports. As of 2023, groundwater elevation trends do not indicate overdraft and overdraft is not anticipated for the remainder of 2023 and 2024.

# 3 – BASIN CONDITIONS

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## Sustainable Management Criteria for Groundwater Quality

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Sustainable management, as defined by SGMA, is the use and management of groundwater without causing undesirable effects. For groundwater quality, SGMA defines undesirable results as significant and unreasonable adverse impacts to groundwater quality caused by GSA projects, management actions, or other management of groundwater such that beneficial uses are affected or well owners experience an increase in operational costs.

The sustainability goal is to protect groundwater and prevent circumstances where future management activities may degrade groundwater quality. This could occur if groundwater levels change and thereby induce leaching or vertical migration of poor quality groundwater, if areal migration of poor quality groundwater is induced by pumping, or if groundwater quality degradation is associated with recharge or wastewater discharge projects.

Sustainable management of the North San Benito Basin focuses on the two key constituents, TDS and nitrate, as indicators of groundwater quality degradation. As described in the GSP, the triennial analysis of TDS and nitrate is used to determine if degradation is occurring. The GSP established Minimum Thresholds (MTs) for both TDS and nitrate based on the General Basin Plan Objectives developed in the District's Salt and Nutrient Management Plan (SNMP).

As discussed in the GSP, if a triennial update shows that TDS or nitrate concentrations are greater than the minimum thresholds, it will lead to an evaluation of whether the degradation is likely caused by GSA management activities, legacy loading, or a changing dataset. A complete analysis of water quality was performed in the Annual Report for WY 2022 and the triennial update will occur in the WY 2025 Annual Report.

# 4-WATER BALANCE

For the GSP, a quantitative assessment of the water balance (or water budget) of the North San Benito Subbasin (or Basin) was developed, using the numerical model, and presenting estimates of inflows, outflows, and change in storage for the Management Areas (MAs). The North San Benito GSP numerical model was based on historical data for water years 1975-2017 and has been updated annually as part of the annual report. For this Annual Report, newly available data were used to improve and update analyses for recent years. Results for 2019 through 2023 are shown here.

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## Method of Analysis

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The water balance used for the GSP, and updated here, was developed using a rainfall-runoff-recharge model and a groundwater flow model. Complete, itemized surface water and groundwater balances were estimated by combining raw data (rainfall, stream flow, municipal pumping, wastewater percolation) with values simulated using models. Collectively, the models simulate the entire hydrologic system, but each model or model module focuses on part of the system, as described below. In general, the models were used to estimate flows in the surface water and groundwater balances that are difficult to measure directly or that depend on current groundwater levels. These include surface and subsurface inflows from tributary areas, percolation from stream reaches within the Basin, groundwater discharge to streams, subsurface flow from the Llagas Subbasin and between Management Areas, locations and discharges of flowing wells, consumptive use of groundwater by riparian vegetation, and changes in groundwater storage. The two separate models, collectively referred to as the North San Benito Numerical model, are described as follows.

**Rainfall-Runoff-Recharge Model.** This Fortran-based model simulates hydrologic processes that occur over the entire land surface, including precipitation, interception, infiltration, runoff, evapotranspiration, irrigation, effects of impervious surfaces, pipe leaks in urban areas, deep percolation below the root zone, and shallow groundwater flow to streams and deep recharge.

**Groundwater Model.** The groundwater flow model uses the MODFLOW 2005 code developed by the U.S. Geological Survey, with pre- and post-processing facilitated using Groundwater Vistas, a readily available commercial software package. The model produces linked simulation of surface water and groundwater, as described below. MODFLOW simulates subsurface flow by combining equations representing flow through porous sediments (the Darcy Equation) with equations that enforce conservation of mass. The equations are implemented numerically, which means that they are applied simultaneously between all adjoining cells in a model grid through an iterative process.

The numerical model is the best tool to quantify the North San Benito water balance. The model will continue to be updated for future Annual Reports, providing a better understanding of the surface water-groundwater system and a tool to evaluate future conditions and management actions. Additional information about the model can be found in the GSP and the model documentation report found as Appendix G in the GSP. **Tables 4-1 through 4-4** show the updated water balances for each MA. **Figures 4-1 through 4-4** show the water balances for each MA for the entire model period.



# 4-WATER BALANCE

**TABLE 4-1. WATER BALANCE UPDATE - SOUTHERN MA, AF**

Water Balance Items	2019	2020	2021	2022	2023
<b>Groundwater Inflow</b>					
Subsurface inflow from external basins	-	-	-	-	-
Percolation from streams	27,495	15,650	12,754	8,303	52,235
Bedrock inflow	2,291	918	486	33	546
Dispersed recharge from rainfall <sup>1</sup>	6,630	1,029	429	277	36,548
Irrigation deep percolation	601	668	772	832	603
Reclaimed water percolation	0	0	0	0	0
Inflow from Hollister MA	1,462	1,149	832	813	895
<b>Total inflow</b>	<b>38,478</b>	<b>19,413</b>	<b>15,273</b>	<b>10,258</b>	<b>90,827</b>
<b>Groundwater Outflow</b>					
Subsurface outflow to external basins	0	0	0	0	0
Wells - M&I and domestic	(143)	(143)	(143)	(143)	(144)
Wells - agricultural	(6,722)	(7,421)	(8,652)	(9,312)	(6,734)
Groundwater discharge to streams	(20,328)	(20,198)	(16,380)	(13,627)	(23,089)
Riparian evapotranspiration	(1,464)	(1,687)	(1,900)	(1,999)	(1,479)
Outflow to Hollister MA	(2,361)	(2,309)	(2,684)	(2,890)	(2,734)
<b>Total outflow</b>	<b>(31,017)</b>	<b>(31,758)</b>	<b>(29,759)</b>	<b>(27,971)</b>	<b>(34,180)</b>
<b>Net Change in Storage</b>	<b>7,462</b>	<b>(12,345)</b>	<b>(14,486)</b>	<b>(17,712)</b>	<b>56,647</b>

1. Dispersed recharge volumes adjusted from pre-processor to match model inflows

**TABLE 4-2. WATER BALANCE UPDATE - HOLLISTER MA, AF**

Water Balance Items	2019	2020	2021	2022	2023
<b>Groundwater inflow</b>					
Subsurface inflow from external basins	-	-	-	-	-
Percolation from streams	24,680	15,015	13,182	10,550	44,306
Bedrock inflow	19,728	10,203	1,744	472	1,232
Dispersed recharge from rainfall <sup>1</sup>	25,074	12,465	6,946	5,151	58,722
Irrigation deep percolation	4,514	4,986	5,286	5,567	4,447
Reclaimed water percolation	327	291	248	226	372
Inflow from Southern MA	4,958	4,760	5,187	5,562	5,698
<b>Total inflow</b>	<b>79,282</b>	<b>47,721</b>	<b>32,594</b>	<b>27,528</b>	<b>114,777</b>
<b>Groundwater Outflow</b>					
Subsurface outflow to external basins	0	0	0	0	0
Wells - M&I and domestic	(1,808)	(2,056)	(3,748)	(3,555)	(3,555)
Wells - agricultural	(35,913)	(39,586)	(46,728)	(53,681)	(37,020)
Groundwater discharge to streams	(8,630)	(6,972)	(2,119)	(1,119)	(1,844)
Riparian evapotranspiration	(193)	(182)	(147)	(125)	(184)
Outflow to Bolsa and San Juan MAs	(11,511)	(10,985)	(10,409)	(10,283)	(10,382)
<b>Total outflow</b>	<b>(58,056)</b>	<b>(59,781)</b>	<b>(63,151)</b>	<b>(68,763)</b>	<b>(52,986)</b>
<b>Net Change in Storage</b>	<b>21,226</b>	<b>(12,060)</b>	<b>(30,557)</b>	<b>(41,235)</b>	<b>61,791</b>

# 4-WATER BALANCE

**TABLE 4-3. WATER BALANCE UPDATE - SAN JUAN MA, AF**

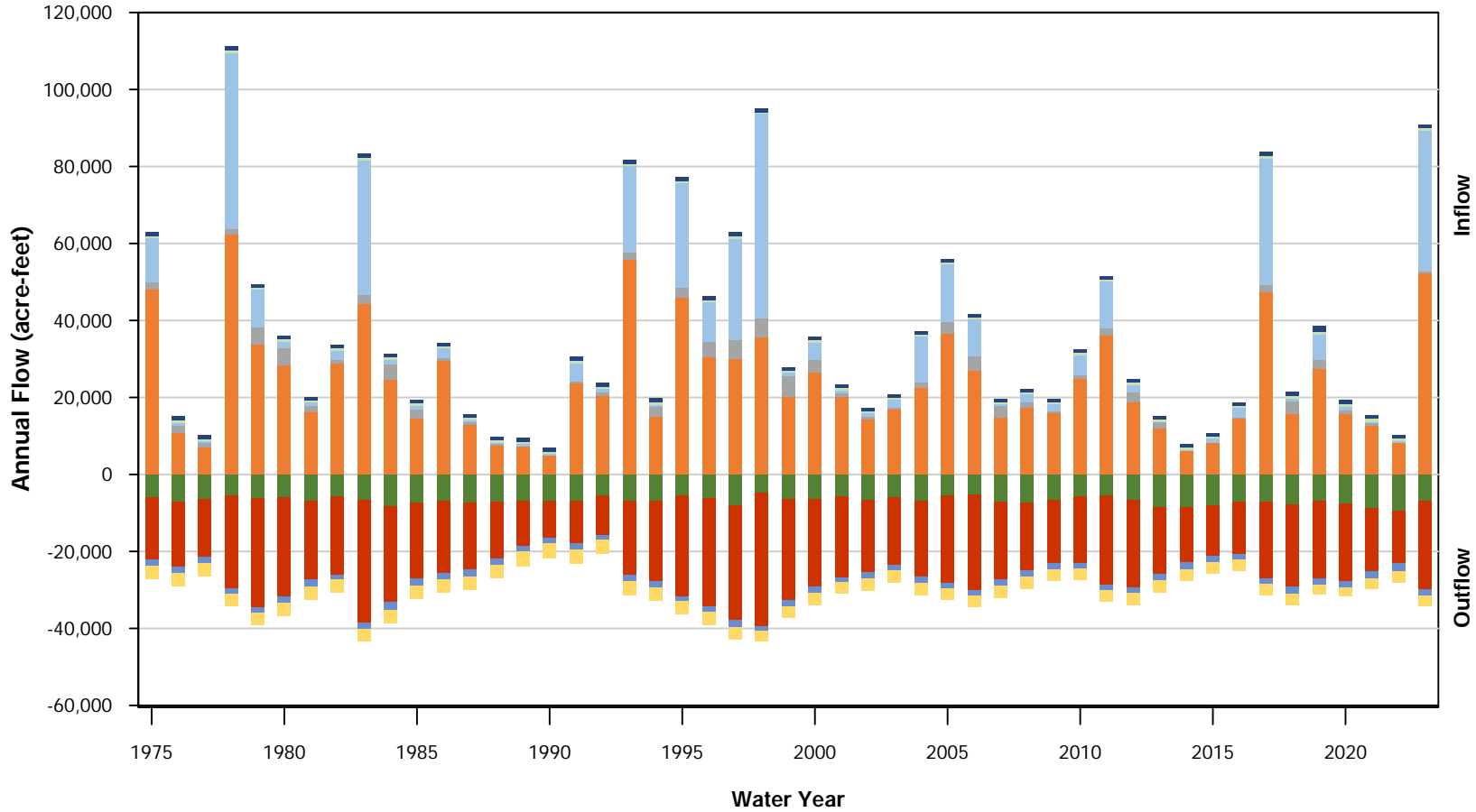
Water Balance Items	2019	2020	2021	2022	2023
<b>Groundwater Inflow</b>					
Subsurface inflow from external basins	-	-	-	-	-
Percolation from streams	8,291	5,271	2,231	612	13,666
Bedrock inflow	707	558	364	99	259
Dispersed recharge from rainfall <sup>1</sup>	10,268	4,413	2,478	1,754	26,756
Irrigation deep percolation	1,830	2,027	2,124	2,244	1,786
Reclaimed water percolation	2,088	2,671	2,884	2,884	3,142
Inflow from Hollister and Bolsa MAs	4,980	4,969	5,107	5,466	4,610
<b>Total inflow</b>	<b>28,164</b>	<b>19,910</b>	<b>15,188</b>	<b>13,059</b>	<b>50,220</b>
<b>Groundwater Outflow</b>					
Subsurface outflow to external basins	0	0	0	0	0
Wells - M&I and domestic	(397)	(234)	(240)	(235)	(475)
Wells - agricultural	(15,944)	(17,906)	(20,286)	(22,896)	(15,607)
Groundwater discharge to streams	(1,716)	(1,666)	(1,051)	(600)	(1,826)
Riparian evapotranspiration	(997)	(1,136)	(1,267)	(1,326)	(998)
Outflow to Bolsa MA	(1,664)	(1,560)	(1,508)	(1,535)	(1,775)
<b>Total outflow</b>	<b>(20,717)</b>	<b>(22,501)</b>	<b>(24,351)</b>	<b>(26,592)</b>	<b>(20,682)</b>
<b>Net Change in Storage</b>	<b>7,448</b>	<b>(2,591)</b>	<b>(9,164)</b>	<b>(13,533)</b>	<b>29,538</b>

1. Dispersed recharge volumes adjusted from pre-processor to match model inflows

**TABLE 4-4. WATER BALANCE UPDATE - BOLSA MA, AF**

Water Balance Items	2019	2020	2021	2022	2023
<b>Groundwater Inflow</b>					
Subsurface inflow from external basins	5,033	5,896	8,297	10,778	5,585
Percolation from streams	4,274	3,264	3,320	2,184	5,372
Bedrock inflow	0	0	0	0	0
Dispersed recharge from rainfall <sup>1</sup>	13,653	6,037	3,246	2,381	30,083
Irrigation deep percolation	2,300	2,432	2,616	2,769	2,283
Reclaimed water percolation	0	0	0	0	0
Inflow from Hollister and San Juan MAs	5,698	5,507	5,184	4,804	5,597
<b>Total inflow</b>	<b>30,958</b>	<b>23,135</b>	<b>22,662</b>	<b>22,916</b>	<b>48,919</b>
<b>Groundwater Outflow</b>					
Subsurface outflow to external basins	(1,732)	(630)	(76)	0	(1,992)
Wells - M&I and domestic	(15)	0	0	0	(36)
Wells - agricultural	(25)	(25)	(25)	(25)	(25)
Groundwater discharge to streams	(23,918)	(25,354)	(27,358)	(29,019)	(23,802)
Riparian evapotranspiration	(2,043)	(833)	(247)	(80)	(2,779)
Outflow to San Juan MA	(229)	(185)	(165)	(86)	(238)
<b>Total outflow</b>	<b>(1,563)</b>	<b>(1,532)</b>	<b>(1,709)</b>	<b>(1,937)</b>	<b>(1,908)</b>
<b>Net Change in Storage</b>	<b>1,433</b>	<b>(5,424)</b>	<b>(6,918)</b>	<b>(8,231)</b>	<b>18,139</b>

### Southern Management Area



#### Inflows

- Inflow from Hollister MA
- Reclaimed water percolation
- Irrigation deep percolation
- Dispersed recharge from rainfall
- Bedrock inflow
- Percolation from streams
- Subsurface inflow from external basins

#### Outflows

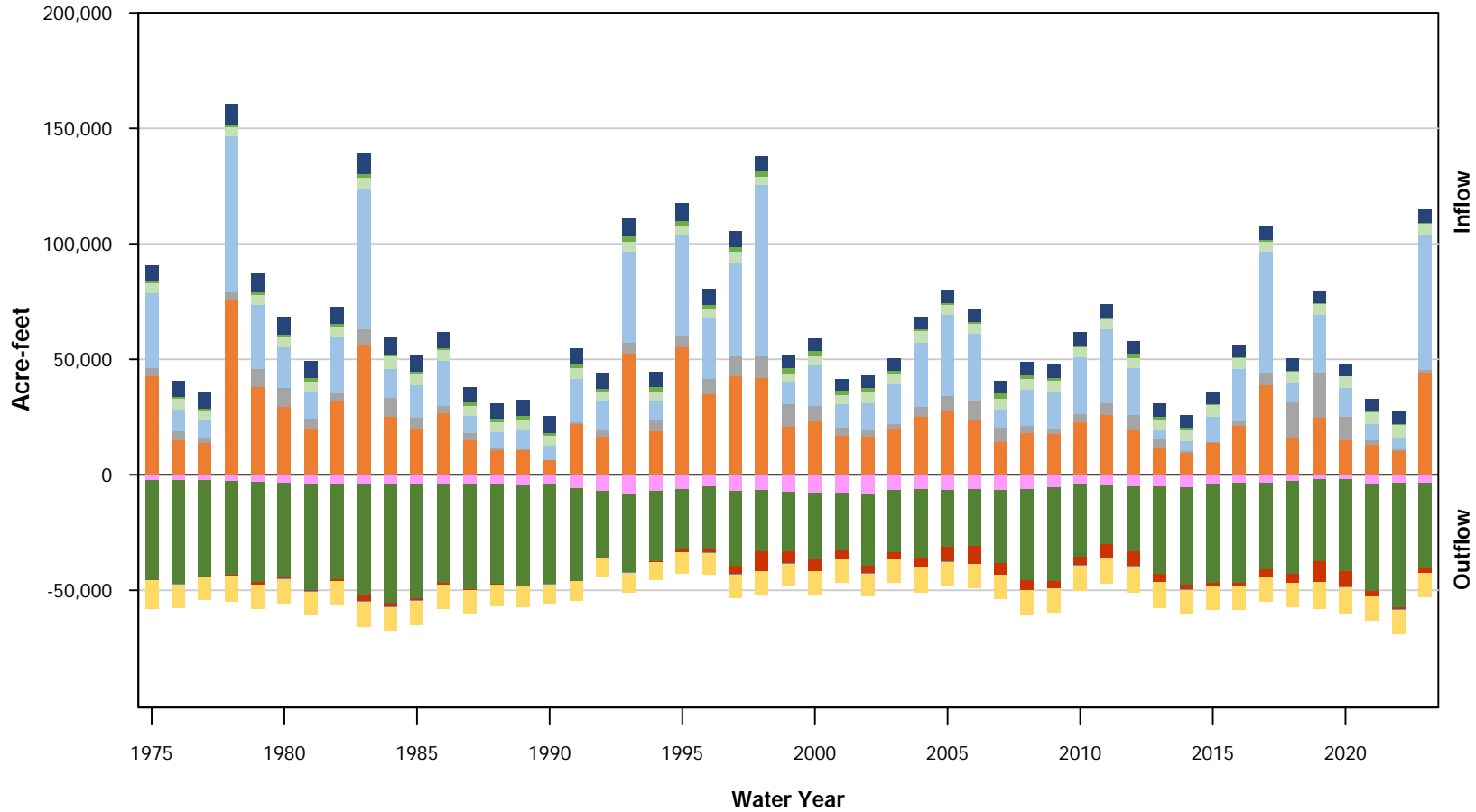
- Shallow discharge to streams
- Subsurface outflow to external basin
- Wells - M&I and domestic
- Wells - agricultural
- Groundwater discharge to streams
- Riparian evapotranspiration
- Outflow to Hollister MA

March 2024



**Figure 4-1**  
**Water Balance**  
**Southern**  
**Management Area**

### Hollister Management Area



**Inflows**

- Inflow from Southern MA
- Reclaimed water percolation
- Irrigation deep percolation
- Dispersed recharge from rainfall
- Bedrock inflow
- Percolation from streams
- Subsurface Inflow from external basins

**Outflows**

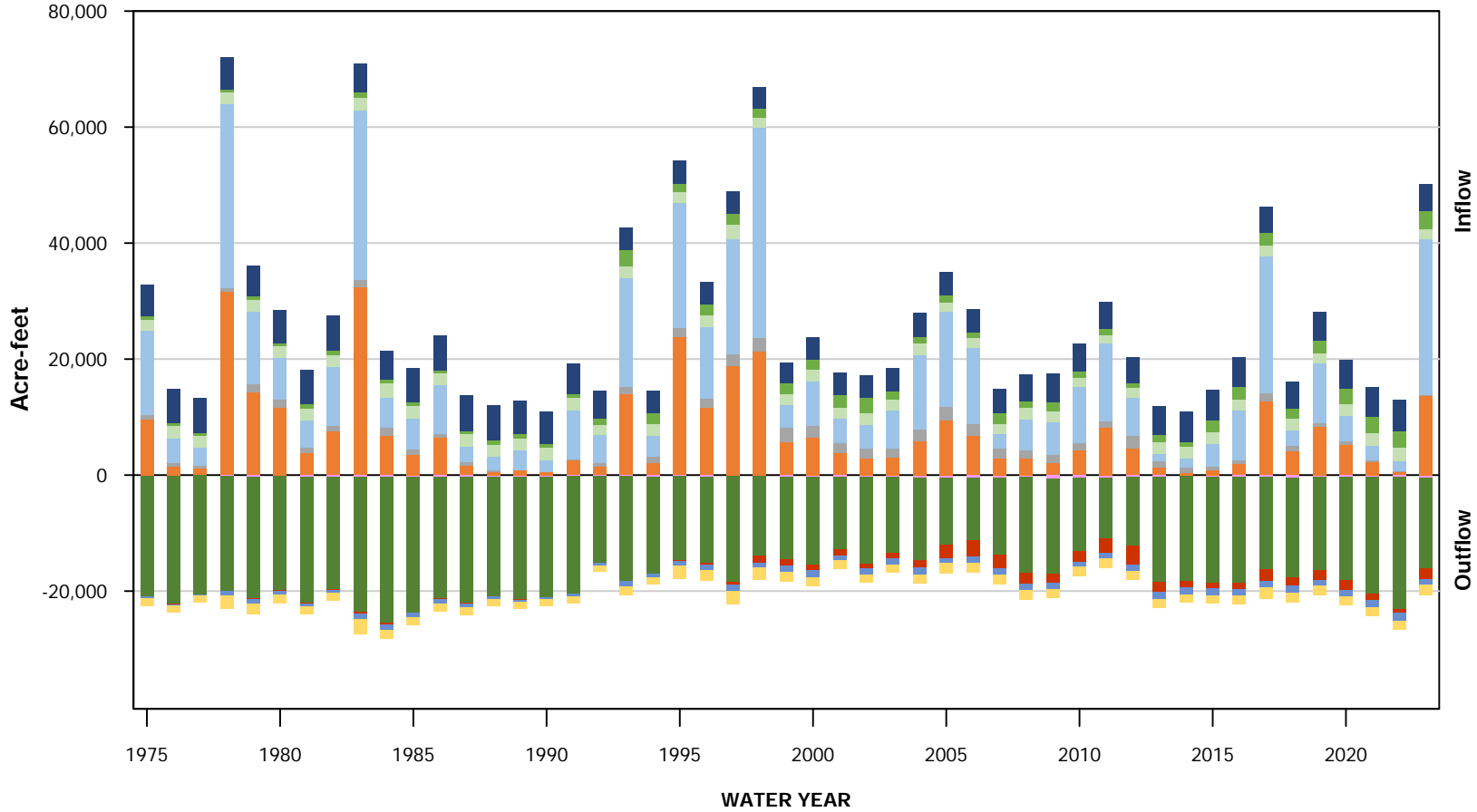
- Shallow discharge to streams (Shallow)
- Subsurface outflow to external basins
- Wells - M&I and domestic
- Wells - agricultural
- Groundwater discharge to streams
- Riparian evapotranspiration
- Outflow to Bolsa and San Juan MAs

March 2024



**Figure 4-2  
Water Balance  
Hollister  
Management Area**

### San Juan Management Area



#### Inflows

- Inflow from Hollister MA
- Reclaimed water percolation
- Irrigation deep percolation
- Dispersed recharge from rainfall
- Bedrock inflow
- Percolation from streams
- Subsurface inflow from external basins

#### Outflows

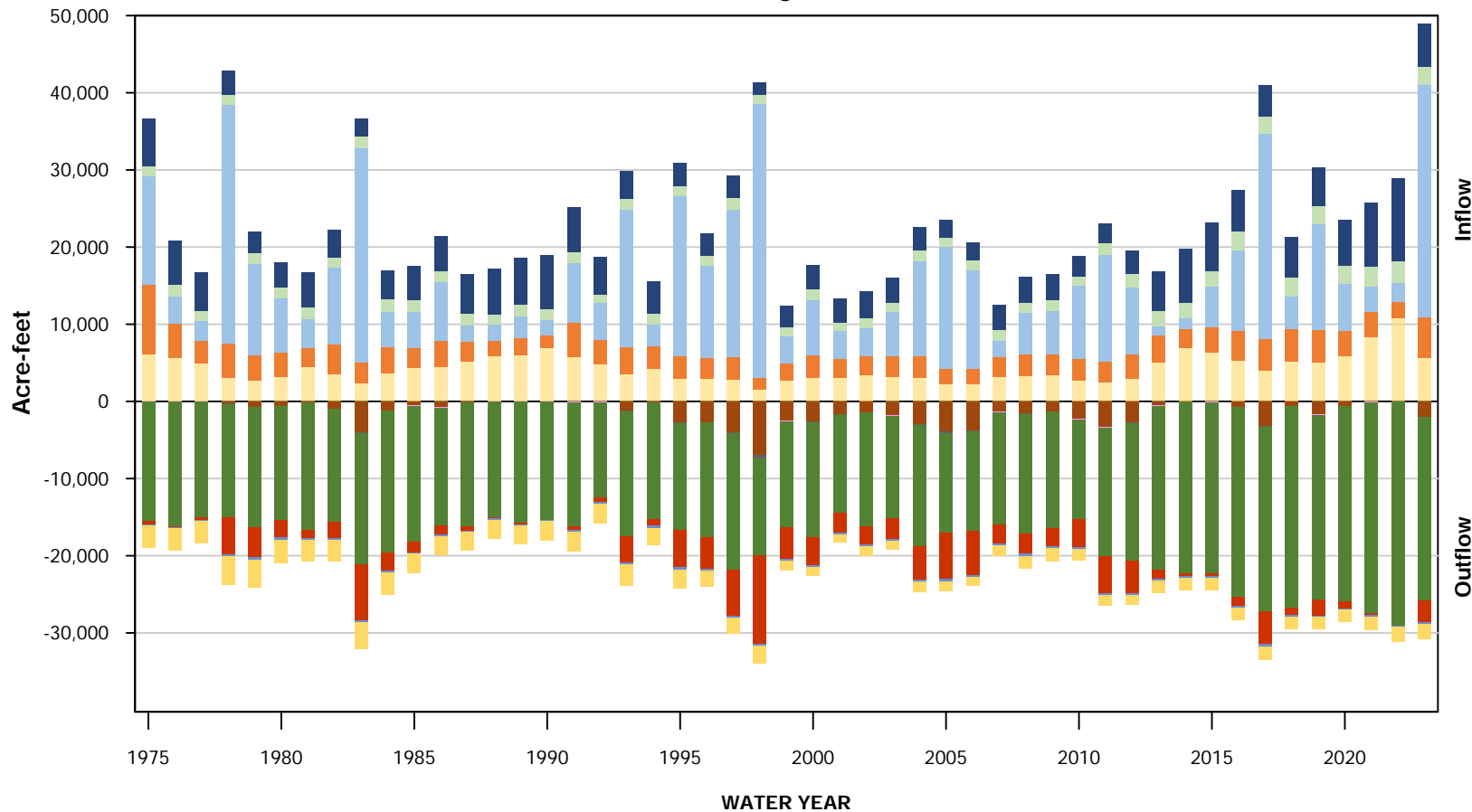
- Shallow discharge to streams
- Subsurface outflow to external basins
- Wells - M&I and domestic
- Wells - agricultural
- Groundwater discharge to streams
- Riparian evapotranspiration
- Outflow to Bolsa MA

March 2024



**Figure 4-3**  
**Water Balance**  
**San Juan**  
**Management Area**

### Bolsa Management Area



**Inflows**

- Inflow from Hollister and San Juan MAs
- Reclaimed water percolation
- Irrigation deep percolation
- Dispersed recharge from rainfall
- Bedrock inflow
- Percolation from streams
- Subsurface inflow from external basins

**Outflows**

- Shallow discharge to streams
- Subsurface outflow to external basins
- Wells - M&I and domestic
- Wells - agricultural
- Groundwater discharge to streams
- Riparian evapotranspiration
- Outflow to San Juan MA

March 2024



**Figure 4-4**  
**Water Balance**  
**Bolsa**  
**Management Area**

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# 4-WATER BALANCE

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## Inflows

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The rainfall-runoff-recharge model and groundwater model were updated to reflect conditions from Water Years 2019-2023. Data, assumptions and calculations for individual hydrologic processes and groundwater inflows are described below.

**Precipitation and Evaporation.** Precipitation and evaporation on the land surface are accounted for in the rainfall-runoff-recharge model. Data are obtained from local climate stations.

**CVP Imported Water.** Two Management Areas (Hollister and San Juan) receive imported water from the CVP, which is delivered to municipal and agricultural users and to several percolation ponds to enhance groundwater recharge. CVP imported water stored in San Justo Reservoir seeps from the reservoir to the local groundwater. In addition, water evaporates from water surfaces. These seepage and evaporation losses remain consistent through the period of record and are included in the groundwater model.

**Dispersed Recharge from Rainfall and Deep Irrigation.** Dispersed recharge from rainfall and applied irrigation water is estimated by the rainfall-runoff-recharge model. The model simulates soil moisture storage in the root zone, which derives from rainfall infiltration and irrigation, and outflows to evapotranspiration and deep percolation. Simulation is on a daily basis. In recharge zones with irrigated crops, irrigation is simulated by assuming water is applied when soil moisture falls below a certain threshold. When soil moisture exceeds the root zone storage capacity, any excess rainfall or irrigation becomes deep percolation. Rainfall and irrigation water coming in the root zone and in deep percolation. In urban recharge zones, pipe leaks are included in the amount shown as rainfall recharge. The resulting net recharge is passed to the top layer of the groundwater model.

**Percolation from Streams.** Percolation from streams depends on the flow, stage, width, length, and bed permeability of stream reaches, as well as the elevation difference between the stream surface and groundwater in the underlying model cell. Point sources of recharge (such as wastewater percolation facilities) are entered into the top model layer as if they were injection wells. Surface inflows to the stream network in the surface water module of the groundwater model include a combination of gauged flows (for the San Benito River at the upstream end of the Southern MA only), simulated runoff from tributary watersheds and valley floor areas obtained from the rainfall-runoff-recharge model, and historical amounts of CVP water percolated in local streams. The effects of Hernandez Reservoir operation on San Benito River flows are included in the gauged flows, and the effects of Pacheco Reservoir on Pacheco Creek inflows were estimated by applying simple rules for seasonal storage and release. Valley floor areas are flatter than the tributary watersheds, and the amount of runoff per acre is consequently smaller. The rainfall-runoff-recharge model simulates runoff from valley floor areas, and those flows are added to the inflows of nearby stream segments in the groundwater model.

**Reclaimed Water Percolation.** Percolation of reclaimed water in wastewater disposal ponds occurs in two Management Areas (San Juan and Hollister) at facilities operated by the City of Hollister, SSCWD, and Tres Pinos County Water District. Discharges from the San Juan Bautista wastewater treatment plant are not included. Percolation is assumed to be the plant inflow less net evaporation and amounts of wastewater recycled for irrigation use. Additional percolation may occur around rural residential

# 4-WATER BALANCE

septic systems. For the numerical model, it is assumed to be negligible as the volumes would be small and spread out over the Basin.

**Subsurface Groundwater Inflow.** Three types of subsurface inflow are listed separately in the water balance tables. Subsurface inflow from external basins occurs only in the Bolsa MA, where flow enters from the adjacent Llagas Subbasin. This is simulated as a head-dependent flow that varies depending on simulated groundwater levels near the boundary (lower water levels increase the simulated inflow rate). Along the rest of the Basin perimeter, small amounts of subsurface inflow result from recharge percolating through fractured bedrock in tributary watershed areas. Bedrock inflow is simulated as shallow injection wells along the perimeter of the Basin.

Finally, subsurface flow occurs across the management area boundaries within the Basin. Although flow across MA boundaries is predominantly in one direction in most cases, local variations in boundary alignment relative to regional gradients can result in inflow at one location concurrent with outflow at another. For example, **Table 4-1** indicates inflow from Hollister to Southern MA although Southern MA is generally upgradient of Hollister MA. This reflects the zig-zag character of the boundary between the two MAs, such that groundwater flows from Hollister into portions of Southern MA and then flows out again.

Most groundwater inflows to the Basin are controlled by hydrologic conditions. Natural stream percolation and deep percolation from rainfall are related to the volume and distribution of rainfall. The availability of imported water similarly reflects wet and dry conditions in the source area, which for CVP water is the Sierra Nevada. Because they are related to rainfall, almost all Basin inflows are higher in wet years and lower in dry years. In contrast, deep percolation of applied irrigation water (irrigation return flow) is generally similar from year to year.

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## Outflows

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Major outflows from the Basin are pumping (agricultural, municipal, industrial, and domestic), groundwater seepage into streams, subsurface outflow, and evapotranspiration by riparian vegetation.

**Pumping by Wells.** Agricultural pumping is much larger than the other types and is listed separately in the water balance tables and shown in green on the water balance bar charts. Agricultural pumping is dependent not only on cropping patterns and irrigation practices, but also on the volume of CVP imports and the amount and timing of rainfall. Spring rains decrease total irrigation demand, and growers adjust pumping to compensate for wet weather and the availability of CVP imports. Agricultural groundwater pumping in the model and water balance tables is simulated by the rainfall-runoff-recharge model. When simulated soil moisture falls below a specified threshold in a recharge zone with irrigated crops, irrigation is assumed to be applied and to refill soil moisture to capacity. Irrigation not derived from CVP water or recycled water is assumed to be from groundwater.

Agricultural pumping in Zone 6 is also monitored by SBCWD by recording the operating time of pump motors and multiplying that by a measured discharge rate. Previous studies have found that the pumping estimates obtained by this method are significantly smaller than the estimates obtained by



# 4-WATER BALANCE

simulating crop water demand and soil moisture. The simulation approach improved model calibration during the 2014 model update, and that approach is retained in the current model.

Reliable measurements of agricultural pumping are a recognized data gap. Given the large range or uncertainty and the model sensitivity to the volume and location of agricultural pumping, evaluation is currently underway of alternative methodologies for accurately evaluating agricultural pumping.

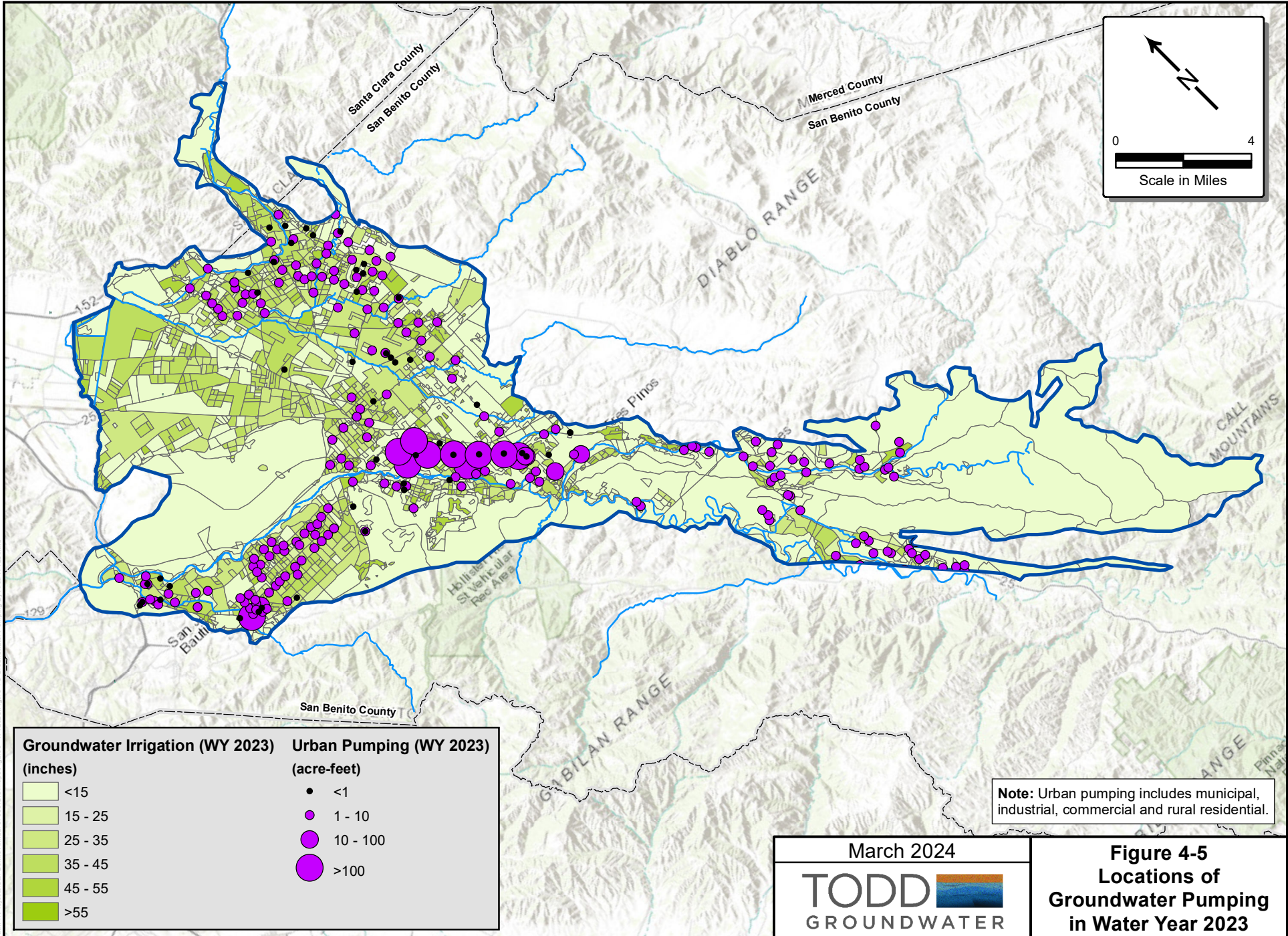
Municipal pumping by City of Hollister and SSCWD is in the Hollister MA, with additional pumping by San Juan Bautista in the San Juan MA. Pumping by major municipal providers is measured, as is pumping by smaller community water systems and self-supplied commercial and industrial facilities within Zone 6. Actual pumping and well locations are used in the numerical model. Additional pumping for potable use at rural residences and agricultural buildings was estimated by inventorying the number and locations of those buildings on aerial photos. This domestic pumping is assigned to 200 hypothetical wells near building locations.

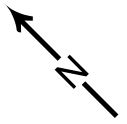
A map showing the locations of agricultural and municipal, commercial, industrial, and domestic pumping is presented in **Figure 4-5**. Irrigation pumping is represented as a one-dimensional annual groundwater application rate (in inches) on the irrigated fraction of each recharge analysis polygon. Use of CVP water and recycled water has already been subtracted from total irrigation demand to obtain these estimates of groundwater-supplied irrigation. Monthly one-dimensional rates are multiplied by irrigated area and entered into the groundwater model as a hypothetical irrigation well located at the centroid of each irrigated recharge polygon. Municipal, commercial, industrial, and domestic wells are displayed as circles with areas proportional to annual pumping in 2023. Points representing the first three categories are actual well locations, and the pumping is measured and reported to the District. The small dots representing rural domestic pumping are located where rural residences are visible in aerial photographs, and a uniform production rate was assumed at all those locations.





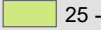





**Subsurface Outflow.** Subsurface outflows to other basins and other Management Areas were calculated using the groundwater model by the same methods used to simulate subsurface inflows.

**Groundwater Discharge to Streams.** Discharges from the groundwater basin to surface water bodies are simulated by the groundwater model based on stream bed wetted area and permeability and on the amount by which the simulated groundwater elevation in a model stream cell is higher than the simulated surface water elevation. This occurs in all Management Areas, but notably where Pacheco Creek and Tequisquita Slough approach the Calaveras Fault, where the Pajaro River approaches the downstream end of the Bolsa MA, and along the San Benito River at the downstream end of the San Juan MA. The relatively large amounts of simulated groundwater discharge to streams in the Southern MA is balanced by high amounts of percolation from streams. The San Benito River and Tres Pinos Creek transition between gaining and losing at various locations in the Southern MA.

**Riparian Evapotranspiration.** The presence of dense, vigorous trees and shrubs along a stream channel is often a sign that the roots of the vegetation extend to the water table and have access to groundwater throughout the dry season. Plants that draw water directly from groundwater are called phreatophytes. In the groundwater model, riparian ET is a function of water table depth, decreasing from unrestricted water use when the water table is at the ground surface to zero when it is 15 feet or more below the ground surface. This reflects a reasonable range of root depth distribution for a mix of riparian shrub and tree species.



  
 0 4  
 Scale in Miles

Groundwater Irrigation (WY 2023) (inches)	Urban Pumping (WY 2023) (acre-feet)
 <15	 <1
 15 - 25	 1 - 10
 25 - 35	 10 - 100
 35 - 45	 >100
 45 - 55	
 >55	

**Note:** Urban pumping includes municipal, industrial, commercial and rural residential.

March 2024  
**TODD**   
 GROUNDWATER

**Figure 4-5**  
**Locations of**  
**Groundwater Pumping**  
**in Water Year 2023**

# 4-WATER BALANCE

The Management Area water balances for 2023 are easiest to interpret in the context of balances in prior years (see **Figures 4-1 through 4-4**). In the Southern MA, total inflows were much higher than the previous three years due to the wet conditions and outflows were similar resulting in increased storage in the MA. In the Hollister MA, total inflows were high, the largest volume since 1998. Outflows were slightly lower than previous years, reflecting the increased imported water for agriculture and municipal supply. Total inflows in the San Juan MA were also the highest since 1998 and total outflows were below average, similar to Hollister. In the Bolsa MA, total inflows were the highest on record whereas total outflow remained the same; agricultural pumping increased but was offset by increased subsurface inflow from the Llagas Subbasin.

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## Simulated Groundwater Elevations

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In previous annual reports, contours of groundwater elevation surfaces in a portion of the Basin were constructed using measurements from monitored wells with refinement to account for the effects on groundwater of faults and other hydrogeologic conditions. These previous groundwater elevation surfaces were highly influenced by variability in data available from the monitoring network.

One of the changes to the annual reports associated with SGMA compliance is the presentation of groundwater contours for the entire Basin. A consequence of this basin-wide approach is inclusion of areas with limited or no groundwater monitoring. As a result, contouring with relatively simple software or by hand is more difficult and subjective. However, the calibrated groundwater model, which will now be updated annually, provides simulation of groundwater elevations for every month of the model period in a way that is internally consistent with the hydrogeologic conceptualization of the Basin and the water budget. Using contours from the model produces groundwater surface elevation representations that are consistent with the water budget and change in storage estimates.

**Figure 4-6** shows contours of groundwater elevations in March 2023, representing seasonal high conditions, while **Figure 4-7** shows groundwater elevations in September 2023, representing seasonal low conditions. These are contours of elevations simulated by the calibrated groundwater model, which provides estimates of water levels throughout the Basin. They are from model layer 3, which is within the typical range of screened intervals for irrigation and municipal wells. The general pattern of contours is similar for both seasons, but March water levels are up to 20 ft higher. Groundwater in the Southern MA flows northwest toward the Hollister MA. On the east side of the Calaveras Fault, flow is northward and westward, converging toward San Felipe Lake, where groundwater that hasn't leaked through the fault emerges into surface waterways and crosses the fault as stream base flow. On the west side of the Calaveras Fault, inflow from the Southern MA flows northwest beneath the San Benito River and bends west to enter the San Juan MA. In the latter area, flow is toward the west end of the MA, where groundwater exits by emerging as surface flow in San Juan Creek, the San Benito River or the Pajaro River. In the Southern MA, simulated water levels have steep gradients beneath the hilly areas between and around the Paicines and Tres Pinos Creek Valleys and relatively flat gradients within those valleys. This reflects the relatively low estimated transmissivity of the Purisima Formation in the hills relative to the alluvial materials in the valleys.

**Figure 4-8** shows contours of the net change in groundwater elevation during the water year from September 2022 to September 2023. Unlike the past two years, significant areas were characterized by groundwater level increases, ranging from less than 10 feet to local increases as much as 40 and even 50

# 4-WATER BALANCE

feet. Broad areas of increase in the Southern, Hollister, and San Juan Valleys reflect increases in dispersed rainfall recharge and percolation from streams. Areas of groundwater level decrease are indicated mostly in the Bolsa MA, northeastern Hollister MA, and in one area along the northeastern edge of Southern MA indicating local declines of more than 50 feet. These areas of decrease are characterized by relative distance from sources of stream percolation and by continued or increased groundwater pumping, including vineyard development in upland areas north of Southern MA. Contour bullseyes are visible where individual wells had much different pumping amounts in 2022 and 2023.

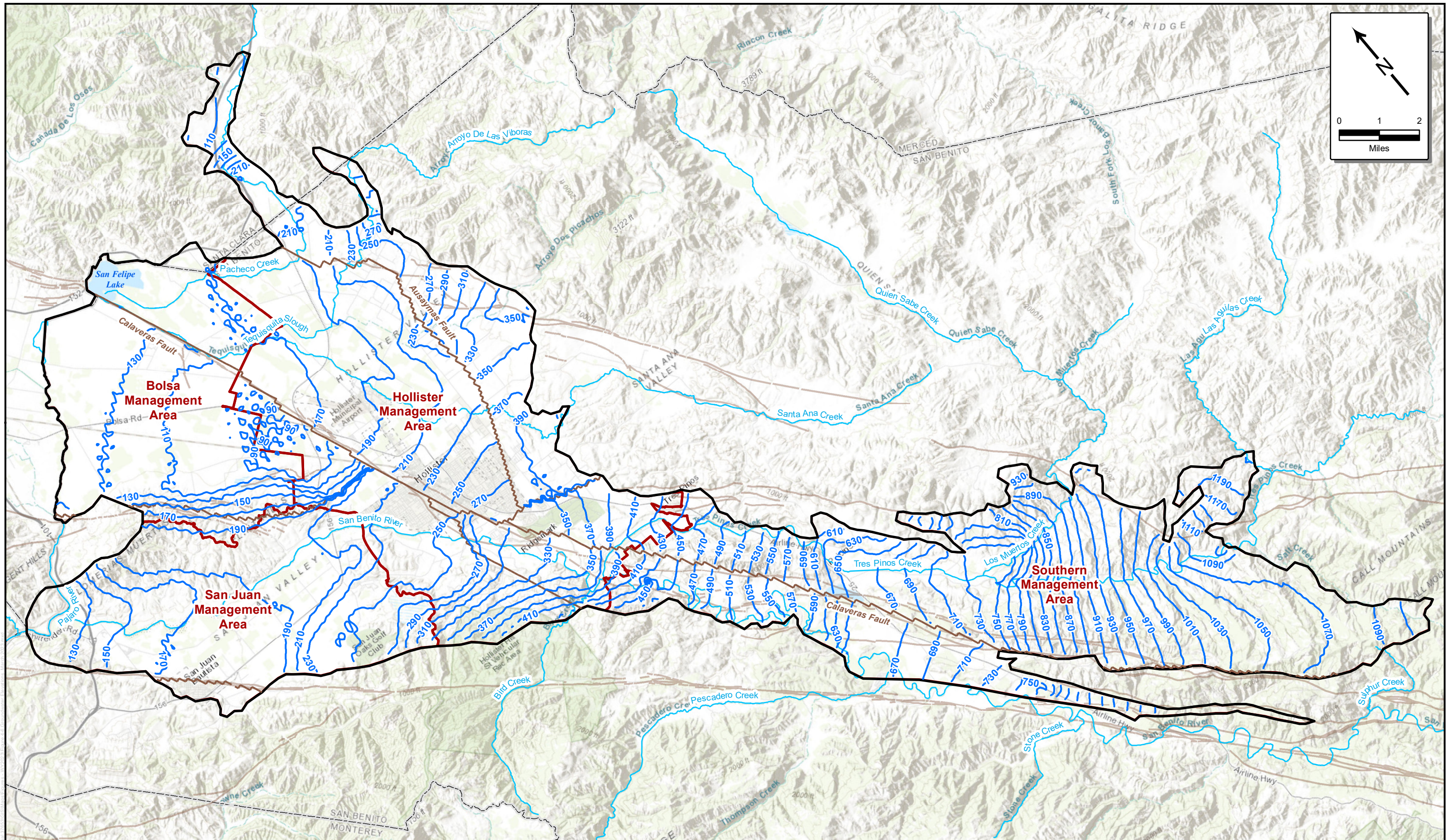
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## Change in Storage

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**Figure 4-9** shows the cumulative change in storage from the model for the four Management Areas for 1975-2023. The change in storage for each MA for the model update period (2019-2023) is documented in **Tables 4-1 through 4-4**. In **Appendix E, Figures E-1 through E-4** illustrate the annual storage change, cumulative storage change, and estimated groundwater pumping for each MA from 1975 to present. On each, the water year type is indicated with the first letter of the types: Wet, Above normal, Below normal, Dry, and Critically dry (see Figure 3-2).

Storage increased in all four Management Areas for the first time since 2019 and total storage is far above the 1975 amounts in all the MAs. Overall, storage increased significantly in 2023 and is about equal to the amount of storage in 1975.



- Groundwater Elevation Contour (feet msl)
- Faults
- Major Streams and Rivers
- Management Area
- North San Benito Basin
- San Benito County

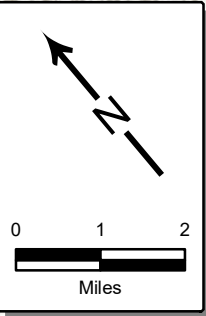
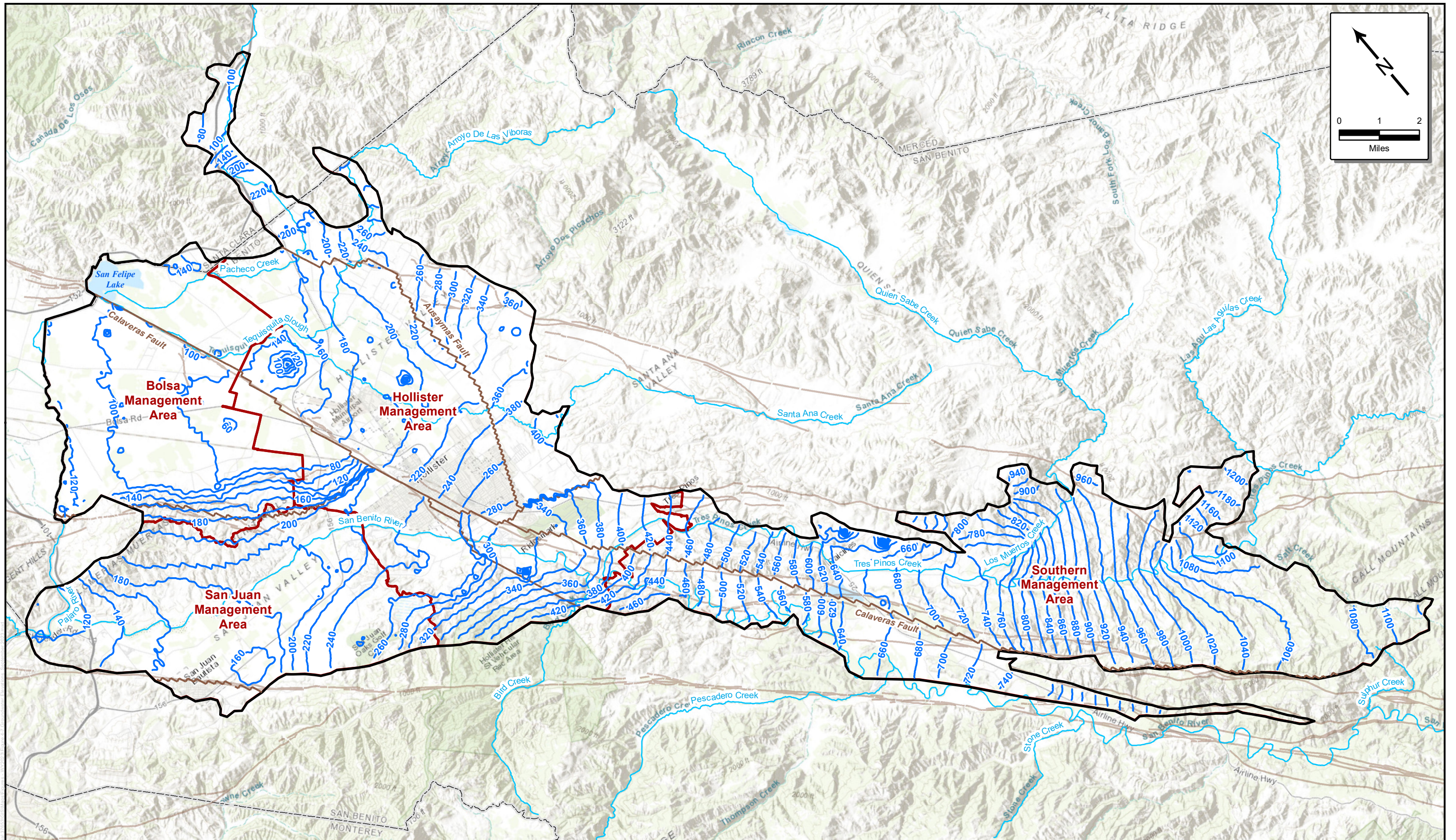
Note:  
 Groundwater discharge from the Basin occurs as discharge to streams, subsurface outflow, and groundwater pumping from wells. The distribution of active wells changes over time, so wells are not shown on this map.

March 2024

**TODD** **GROUNDWATER**

**Figure 4-6**  
**Groundwater**  
**Elevations (ft msl)**  
**March 2023**





- Groundwater Elevation Contour (feet msl)
- Faults
- Major Streams and Rivers
- Management Area
- North San Benito Basin
- San Benito County

Note:  
 Groundwater discharge from the Basin occurs as discharge to streams, subsurface outflow, and groundwater pumping from wells. The distribution of active wells changes over time, so wells are not shown on this map.

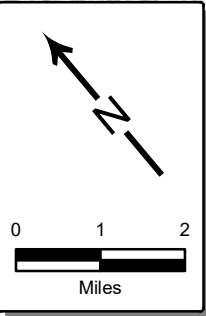
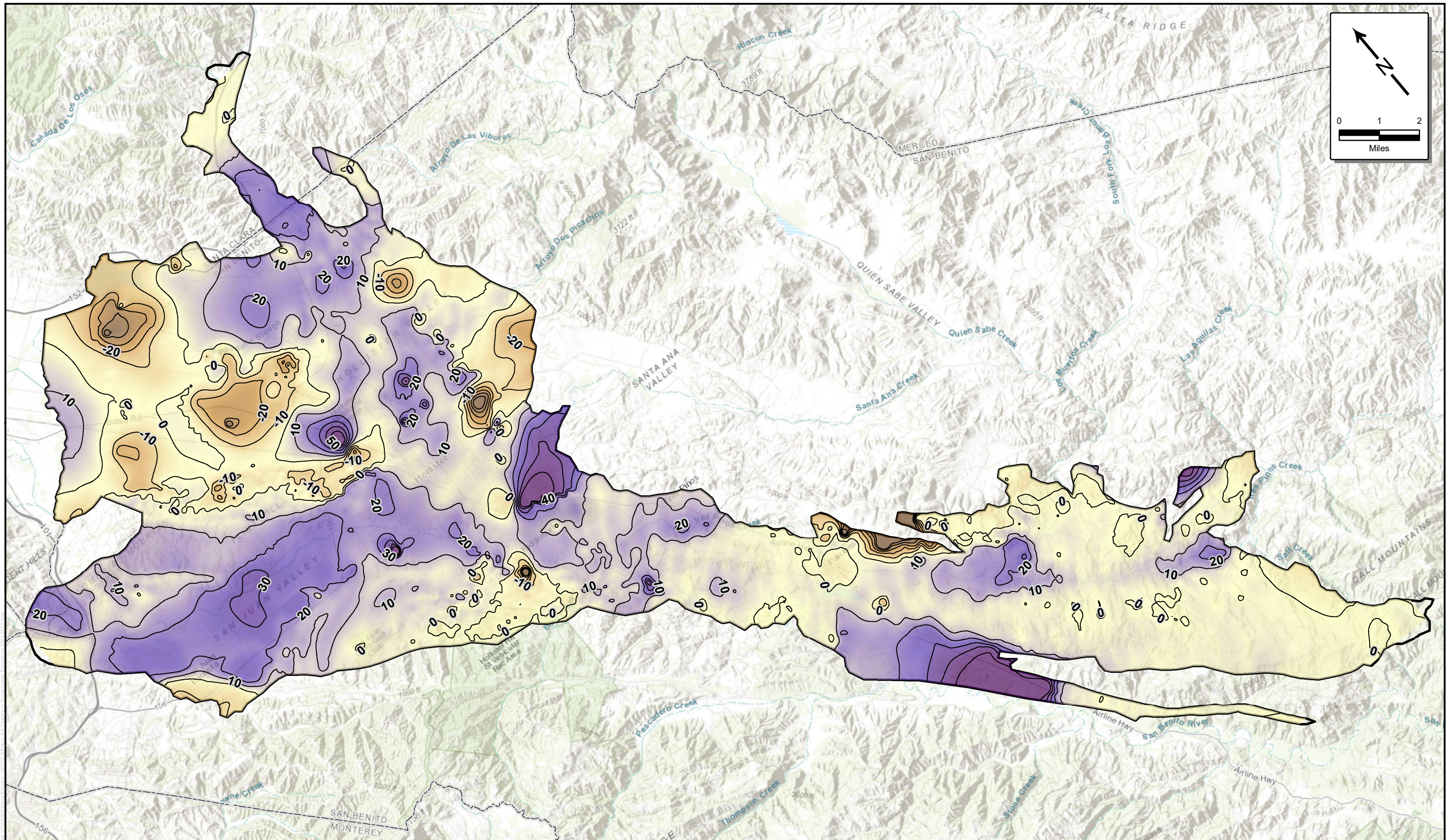
March 2024

**TODD** **GROUNDWATER**

**Figure 4-7**  
**Groundwater Elevations**  
**in September 2023**







**1 Year Change in Groundwater Level**

- High : 50
- Low : -50
- Change in GWE Sep2022-Sep2023 Contour
- North San Benito Basin
- San Benito County

Note:  
Groundwater discharge from the Basin occurs as discharge to streams, subsurface outflow, and groundwater pumping from wells. The distribution of active wells changes over time, so wells are not shown on this map.

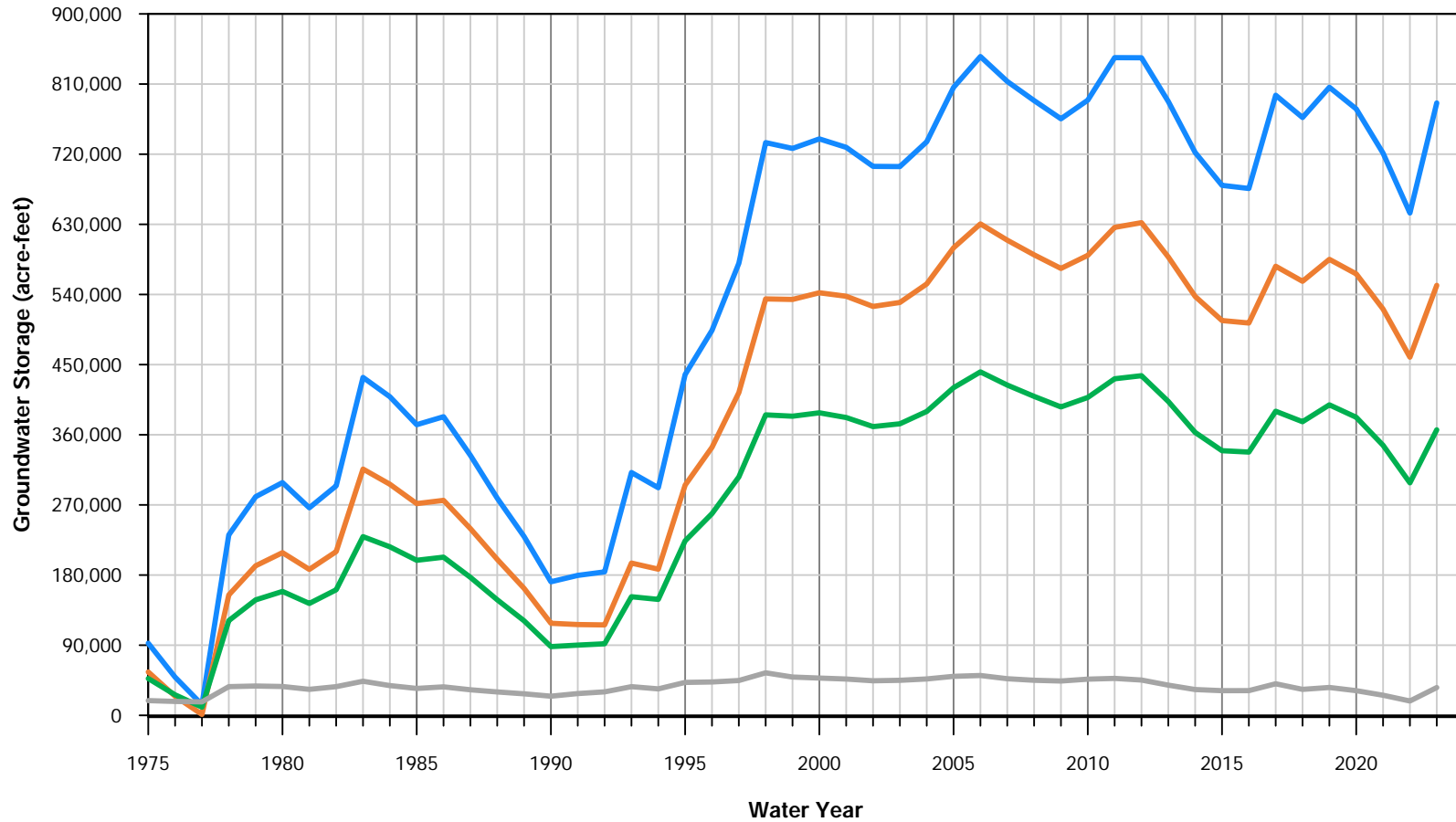
March 2024



**Figure 4-8**  
**Change in**  
**Groundwater Elevations**  
**Sep. 2022 to Sep. 2023**



### Cumulative Storage Change



- Bolsa Management Area
- Hollister Management Area
- San Juan Management Area
- Southern Management Area

March 2024

**TODD**   
GROUNDWATER

**Figure 4-9**  
**Cumulative Change**  
**in Storage, 1975-2023**



# 5-WATER SUPPLY AND USE

## Water Supply Sources

Four sources of water supply are available for municipal, rural, and agricultural water demands in the Basin. Each is summarized below; for more data and graphs, see **Appendix E**. Local groundwater and imported water are described in detail in the following sections.

**Local Groundwater.** Groundwater is pumped by private irrigation and domestic wells and by public water supply retailers. The District does not directly produce or sell groundwater but has the responsibility and authority to manage groundwater throughout San Benito County.

**Imported Water.** The District purchases Central Valley Project (CVP) water from the U.S. Bureau of Reclamation (USBR) and distributes to customers in Zone 6. Some CVP water has also been released for groundwater recharge. The District has a contract with no expiration for a total of 43,800 AFY, of which 8,250 AFY is for Municipal and Industrial (M&I) water. . CVP water is not available in the Bolsa or Southern MAs.

**Recycled Water.** Water recycling began in 2010 with landscape irrigation at Riverside Park. The system was expanded in 2014, including infrastructure and treatment capability for the purpose of agricultural irrigation. Recycled water currently is provided to approximately 865 acres for agricultural production and landscape irrigation. This source is reliable during drought and helps maintain sustainable water supply. Recycled water is only available in the Hollister MA.

**Local Surface Water.** Surface water is not used directly for potable or irrigation use in the Basin, but channel percolation is a significant source of groundwater recharge. In 2023, releases from the District’s Hernandez and Paicines reservoirs were above average, reflecting the wet year and spills from Hernandez. Stormwater capture currently is limited to some diversion by the City of Hollister to the Hollister Industrial WWTP (via a combined sewer system) with subsequent treatment and discharge to percolation and evaporation ponds.

 <p><b>Groundwater</b></p> <ul style="list-style-type: none"><li>• Important storage</li><li>• M&amp;I, rural, and agricultural use</li><li>• Limited water quality</li><li>• Used in all MAs</li></ul>	 <p><b>Imported Water</b></p> <ul style="list-style-type: none"><li>• Variable supply</li><li>• Good water quality</li><li>• All use metered</li><li>• M&amp;I, agricultural use, recharge in Zone 6</li></ul>	 <p><b>Recycled Water</b></p> <ul style="list-style-type: none"><li>• Good water quality</li><li>• Reliable supply</li><li>• Irrigation uses</li><li>• All use metered</li><li>• Only in Hollister MA</li></ul>	 <p><b>Local Surface Water</b></p> <ul style="list-style-type: none"><li>• Can be depleted by drought</li><li>• Groundwater recharge</li><li>• No direct potable use</li></ul>
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# 5-WATER SUPPLY AND USE

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## Groundwater

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Groundwater is a critical water resource in North San Benito Basin, not only providing water supply in all four MAs, but also water storage. In Hollister and San Juan MAs, the Basin continues to provide a reserve in times of dry hydrologic conditions or when engineering issues prevent the full delivery of CVP allocations, as occurred in WY 2023 when West Hills WTP was offline for about five months and a CVP pipeline to San Juan was out of service for several months. In Bolsa and Southern MAs, groundwater is the sole source of supply.

The North San Benito Basin groundwater resource has been actively managed since 1953 when the San Benito County Water District was established. This Annual Report reflects the changing scope of groundwater management in the Basin and thus involves adapted methods, for example, to estimate agricultural groundwater pumping, which is the largest use of groundwater supply. It builds on the GSP (which includes extensive update and application of the numerical model) and presents an estimate of groundwater pumping simulated by the numerical model. This represents a departure from previous Annual Reports and a first step toward basin-wide and more accurate assessment of agricultural pumping.

As described in the water balance section, the simulated estimate relies on the 2014 land use map and applies a crop coefficient to identified agricultural parcels. Annual crop evapotranspiration (ET) is calculated by applying the crop coefficient to the daily observed reference ET from the CIMIS station. Groundwater pumping is then estimated based on the crop ET and an irrigation efficiency assumption less the available CVP and recycled water delivered to agricultural customers in the MA. The volume is simulated as a well in the center of the identified parcel.

In previous annual reports, the water use patterns for Zone 6 were presented using the reported pumping from available power meters. Pumping amounts have been calculated semiannually by metering the number of hours of pump operation and multiplying by the average discharge rate. This monitoring program began in about 1990 (soon after CVP imports started) but was not applied to irrigation pumping beyond Zone 6. This historical method of estimating groundwater pumping based on power consumption has drifted from original calibration and is now considered inadequate; it is being replaced as part of SGMA implementation. Accordingly, the pumping indicated by these meters is not shown in this annual report.

The District is currently developing a new water use monitoring program that will address the entire basin area and will be documented in future SGMA Annual Reports. One method currently identified to evaluate agricultural water use is termed OpenET. OpenET is a tool developed by a consortium of private and public partners and led by Environmental Defense Fund, NASA, Desert Research Institute, and HabitatSeven. The tool utilizes satellite-based estimates of the total ET by month by parcel. The data are available at a spatial resolution of 30 meters by 30 meters (0.22 acres per pixel). The District is running a pilot program where measured water use from selected agricultural wells (linked to specific parcels) is compared to ET data available in the beta version of the program. Due to extreme wet weather and unexpected changes in the CVP delivery system, the District has extended the pilot program through September 2024. Assuming a successful pilot program, these data—ET by parcel over

# 5-WATER SUPPLY AND USE

time—will be available for import into the numerical model to improve the model simulation of groundwater pumping.

## Imported Water – Zone 6

The District distributes CVP water to agricultural and M&I customers in Zone 6. The allocation of the contract for each year is variable and contingent on total available supply of the CVP system. In dry years, the allocation may be zero and in wet years, it may be 100 percent of the contract amount. The USBR contract years are March through February, so Water Year 2023 (Oct 2022-Sept 2023) overlapped two contract years. Both contract years were below-average hydrological conditions, which resulted in extremely low allocations, but the allocation improved with recent wet weather. **Table 5-1** shows the contract entitlements and recent allocations for both USBR contract years that overlap Water Year 2023 (SLDMWA 2021).

**TABLE 5-1. ALLOCATION FOR USBR WATER YEARS 2022-2023**

March 2022 - February 2023

	Contract	% Allocation	Allocation Volume (AF)
Agriculture	35,550	0%	0
M&I	8,250	33%*	2,766
<b>TOTAL</b>	<b>43,800</b>		<b>2,766</b>

\*Public Health and Safety

March 2023 - February 2024

	Contract	% Allocation	Allocation Volume (AF)
Agriculture	35,550	100%	35,550
M&I	8,250	100%	8,250
<b>TOTAL</b>	<b>43,800</b>		<b>43,800</b>

As shown in **Table 5-1**, USBR contract year 2022 (March 2022- February 2023) allocations were 0 percent for agricultural users. For M&I users, the initial allocation was also 0 percent but agencies had the opportunity to request water to serve public health and safety (PHS) needs. The District prepared a memorandum to USBR summarizing the demands and supplies of the retailers consistent with the “Central Valley Project Municipal and Industrial Water Shortage Policy Guidelines and Procedures” (WSP

# 5-WATER SUPPLY AND USE

Guidelines). The District documented that—without any CVP imports—the unmet PHS demand would be 2,968 AF. USBR granted the District 2,766 AF, equivalent to 33.5 percent of their contract.

In contract year 2023 (March 2023-2024), both agriculture and urban users received 100 percent of their contract. Full contract supply has only happened two other times since 2006.

Over the last ten years (2014-2023), the average allocations were 35 percent and 65 percent for agricultural users and M&I users respectively. More information on the past years' allocations can be found in **Appendix E**.

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## Municipal Use

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**Figure 5-1** shows the municipal water supply for the City of Hollister, SSCWD, San Juan Bautista, and Tres Pinos County Water District. Municipal demand was satisfied entirely by groundwater prior to 2003. The completion of Lessalt Water Treatment Plant (WTP) in 2003, expansion of Lessalt in 2016, and completion of West Hills WTP in 2018 have significantly increased the availability and use of CVP water for the Hollister and SSCWD municipal systems.

In **Figure 5-1**, annual water supply provided through the Lessalt WTP is shown in grey and West Hills WTP in blue. In 2023, these two treatment plants served about 28 percent of the municipal supply, a decrease from last water year when CVP imports provided 43 percent of the municipal supply. WY 2023 overlaps with two USBR contract years: one the lowest allocation on record and one the highest. In the beginning of WY 2023, Lessalt WTP was offline due to the extended drought and lack of CVP supply but came back online in February 2023. In addition, West Hills WTP was offline from mid-November 2022 through about late April 2023 due to an electrical power surge that destroyed much of the electrical equipment and controls at the plant. Despite the wet year and 100 percent allocations, less CVP water was available for municipal supplies (due to WTP outages) and groundwater use increased. It is noteworthy that in WY 2019, imported water represented 71 percent of supply; this indicates that additional treatment capacity stands ready when imported water is available and WTPs are operational. Groundwater serves as a reliable supply in situations of drought or facility disruptions, highlighting the importance of reliance on a portfolio of supplies.

It is expected that WTP operations will maximize CVP use WY 2024 to increase flexibility for local water users to use groundwater or CVP. CVP provides better quality water for delivery to municipal customers and results in improved wastewater quality, which supports water recycling. The City of San Juan Bautista Regional Water and Wastewater Solution project, described in the GSP and currently being implemented, will allow the City of San Juan Bautista to have these benefits.



# 5-WATER SUPPLY AND USE

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## Agricultural Use

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**Figure 5-2** shows the annual volume of CVP imported water by use. Review of **Figure 5-2** reveals the significant decrease in CVP supply for agriculture (shown in green). With zero allocation for USBR Water Year 2022-2023 and 100 percent allocation Water Year 2022-2023, the total CVP volume delivered to agricultural users was 8,438 AF. This amounts, for example, to only forty percent of the volume delivered to agricultural users in 1997 (21,061 AF). The available CVP supply in the first part of WY 2023 was the lowest since CVP imports were brought into the Basin. And, although the allocation was increased to 100 percent by the end of the water year, the total delivered water remained lower than expected. CVP deliveries to San Juan Valley also were impacted by construction. The pipeline connecting the Hollister conduit to San Juan was moved to complete local highway construction in early 2023 and was not restored until June. The CVP system is now completely restored, and the District and purveyors should be able to maximize CVP use.

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## Total Water Use

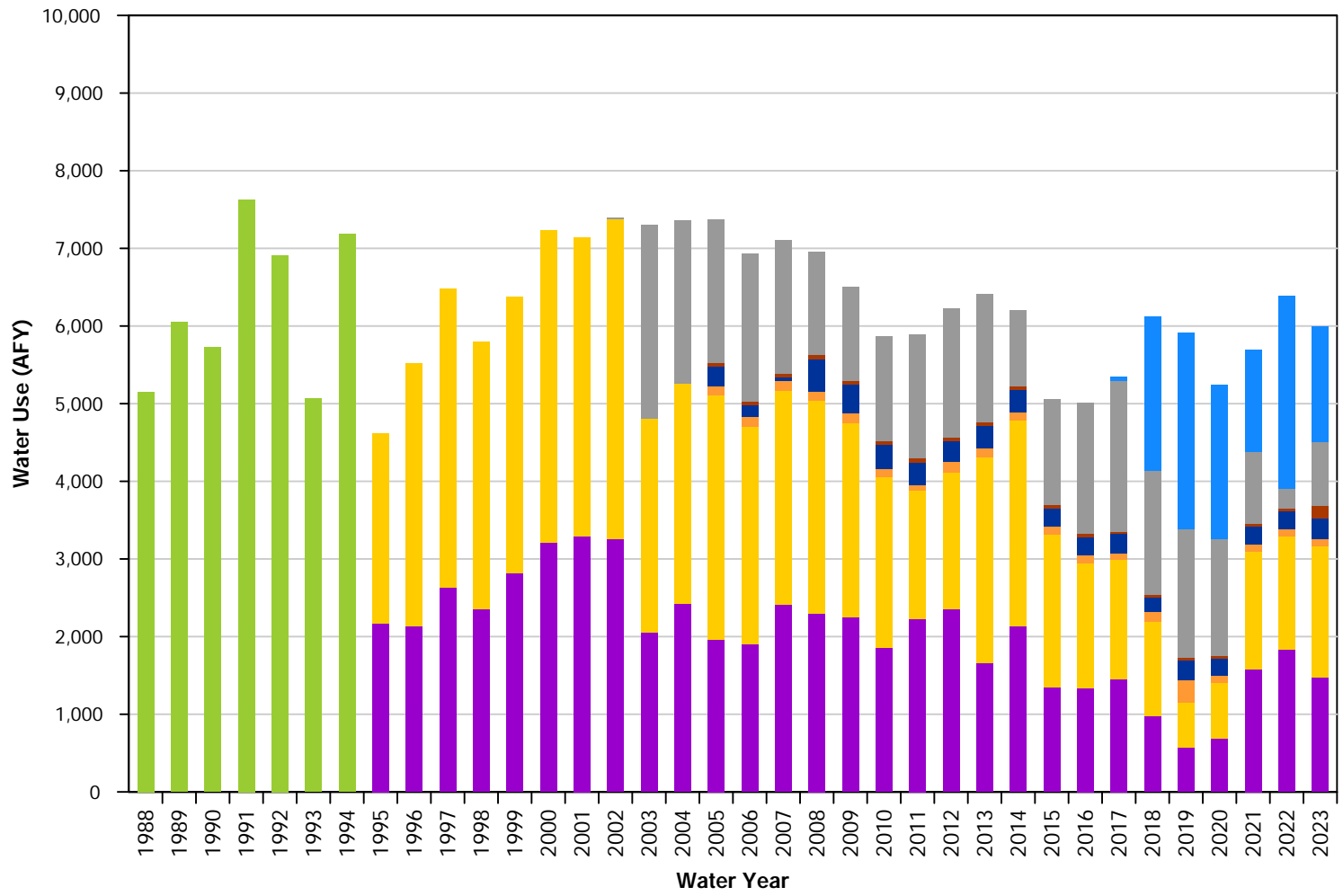
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**Table 5-2** shows the total water use in the Basin by source and user type for Water Years 2019-2023. CVP and recycled water uses are measured directly. Municipal groundwater use also is metered. M&I and domestic groundwater uses are included in the model simulated pumping.

As shown in **Table 5-2**, total water use was lower in WY 2023 than 2022. The CVP imports increased to about three times the volume of WY 2022 and groundwater pumping overall decreased from the WY 2022 volume, generally reflecting wet conditions but also affected by local factors, the WH WTP outage and the CVP pipeline disruption.

Noting the use of a 2014 land use map in modeling simulations and upcoming information from the OpenET pilot program, additional analysis is recommended of changing crop patterns along with update of the model during the next periodic evaluation (in 2027).

Water use information will be uploaded to DWR as part of the Annual Report. The tables are included in Appendix A, following the Elements Guide.



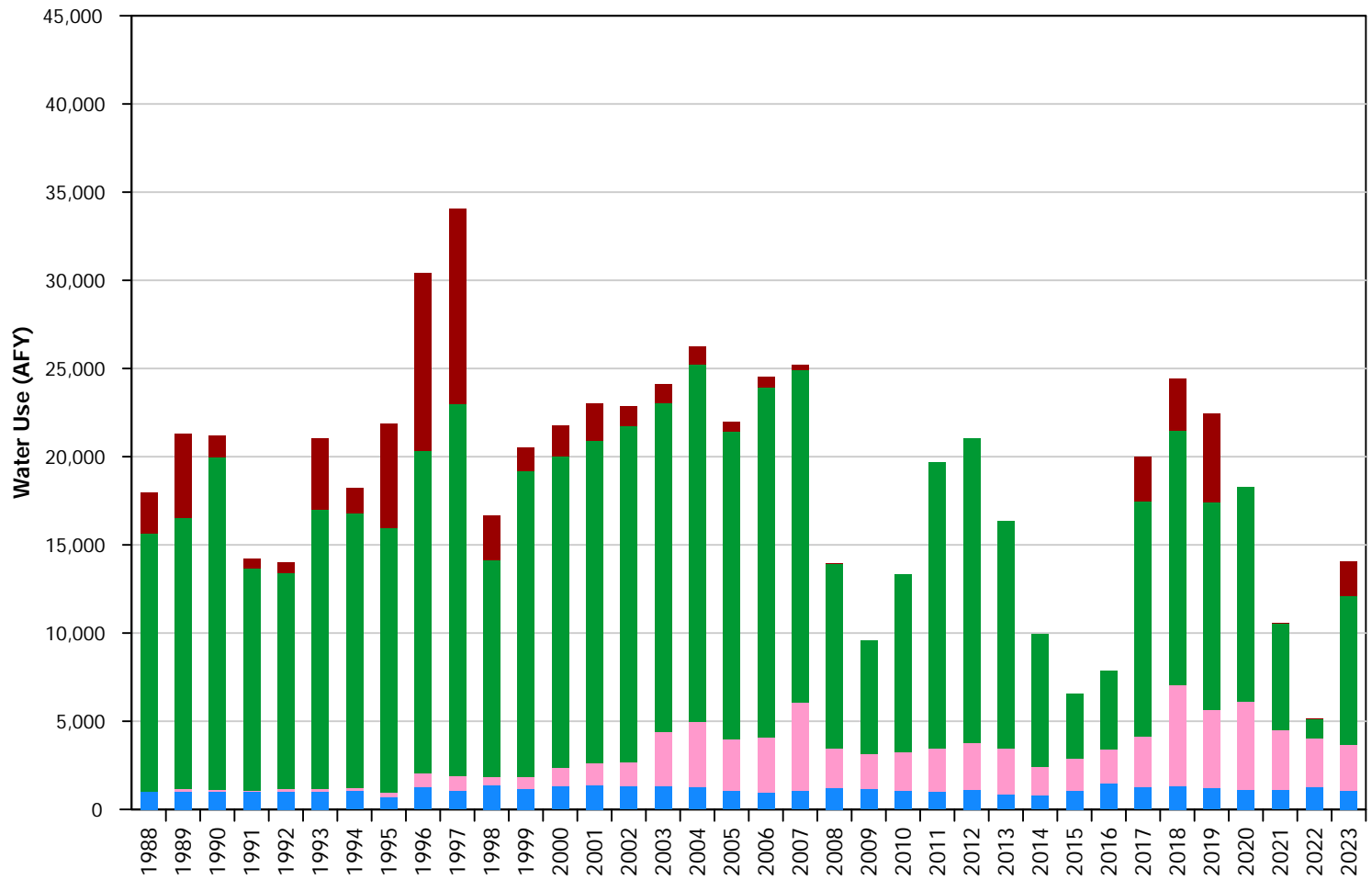
- City of Hollister - GW Wells
- Sunnyslope CWD Wells
- San Juan Bautista Wells
- City of Hollister - Cienega Wells
- Lessalt Water Treatment Plant
- Tres Pinos CWD Well
- Undivided Total
- West Hills Water Treatment Plant

March 2024

**TODD** **GROUNDWATER**

**Figure 5-1**  
**Municipal Water Supply by Source**

Path: \\wood-bldg\dm\Projects\San Benito Annual 2023\GIS\Map\5-1 Municipal Water Supply by Source.gpx



- Percolation
- Agricultural
- Domestic & Municipal
- Seepage & Evaporation

March 2024



TODD  
GROUNDWATER

**Figure 5-2**  
**Total CVP Water**  
**Use by Type**  
**1976-2023**

# 5-WATER SUPPLY AND USE

**TABLE 5-2. TOTAL WATER USE, AF**

Management Area	Water Type	User Type	2019	2020	2021	2022	2023	Method
Southern	Groundwater	M&I and Domestic	143	143	143	143	144	Simulated
		Agricultural	6,150	6,744	7,822	8,485	6,734	Simulated
Hollister	Groundwater	M&I and Domestic	1,808	2,056	3,748	3,517	3,555	Simulated
		Agricultural	34,204	37,164	44,093	50,175	37,020	Simulated
	CVP	M&I and Domestic	4,334	3,937	3,314	298	1,077	Reported Flow Meters
		Agricultural	7,864	8,564	4,519	805	6,080	Reported Flow Meters
	RW	M&I and Domestic	108	97	21	21	79	Reported Flow Meters
		Agricultural	461	428	405	590	404	Reported Flow Meters
San Juan	Groundwater	M&I and Domestic	415	363	360	463	475	Simulated
		Agricultural	17,605	19,579	22,144	24,803	15,607	Simulated
	CVP	M&I and Domestic	123	1,016	27	2,488	1,539	Reported Flow Meters
		Agricultural	3,867	3,602	1,561	291	2,358	Reported Flow Meters
Bolsa	Groundwater	M&I and Domestic	25	25	25	25	25	Simulated
		Agricultural	15,345	16,091	17,419	18,175	23,918	Simulated
<b>Total</b>	<b>Groundwater</b>	<b>All</b>	<b>75,694</b>	<b>82,165</b>	<b>95,753</b>	<b>105,787</b>	<b>87,478</b>	<b>Simulated</b>
	<b>CVP</b>	<b>All</b>	<b>16,188</b>	<b>17,119</b>	<b>9,421</b>	<b>3,882</b>	<b>11,054</b>	<b>Reported Flow Meters</b>
	<b>RW</b>	<b>All</b>	<b>569</b>	<b>526</b>	<b>426</b>	<b>611</b>	<b>484</b>	<b>Reported Flow Meters</b>
	<b>TOTAL</b>	<b>ALL</b>	<b>92,451</b>	<b>99,810</b>	<b>105,600</b>	<b>110,279</b>	<b>99,016</b>	<b>Various</b>

# 6-WATER MANAGEMENT ACTIVITIES

As presented in the North San Benito GSP, the GSAs have been actively managing their local groundwater resources for decades with various projects and management actions. The GSP summarizes ongoing efforts, indicates supplementary work on those efforts, and identifies potential future projects and management actions. This Annual Report provides an update on significant progress.

As defined in the GSP, *Projects* are substantial efforts that involve an increase in water supply or a reduction in demand for the GSP Area. Projects outlined in the GSP include:

- Develop Surface Water Storage (e.g., Pacheco Reservoir Expansion Project)
- Expand Managed Aquifer Recharge (MAR)
- Enhance Conjunctive Use
  - Hollister Urban Area Water and Wastewater Project
  - City of San Juan Bautista Regional Water and Wastewater Solution
  - North County Project
  - Zone 3 Operations Planning Tool
- Enhance Water Conservation.

*Actions* provide a framework for groundwater management and include establishing GSP procedures or policies, filling data gaps with scientific studies or improved monitoring, and providing for funding.

Management Actions identified in the GSP include:

- Improve Monitoring Program and Data Management System (DMS)
- Measure agricultural groundwater extraction
- Improve monitoring well network and DMS
  - Improve water quality monitoring program
  - Enhance surface water gaging
- Develop Response Plans
- Enhance Water Quality Improvement Programs
- Reduce Potential Impacts to Groundwater Dependent Ecosystems (GDEs)
- Provide Long-term Basin-wide Funding Mechanism
- Provide GSP Administration, Monitoring, and Reporting.

The projects and management actions (PMAs) are presented in the GSP with an Implementation Plan that extends to 2045 in five-year intervals; the last interval includes the 2042 deadline for the 20-year implementation to achieve and demonstrate sustainability. Not all projects and management actions are updated specifically in this Annual Report, which focuses on projects and management actions with active implementation.

It is noted that the District monitoring program is summarized in Section 2, presenting the basis for subsequent information and analyses. Importation and distribution of CVP water in Zone 6 are described in Section 5. Sources of revenue to support District operations are presented in this section.

# 6-WATER MANAGEMENT ACTIVITIES

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## Surface Water Storage

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**Pacheco Reservoir Expansion Project.** The surface water storage project with the most advanced planning is the Pacheco Reservoir Expansion (PRE) Project. The PRE Project is a collaborative effort of Valley Water, San Benito County Water District, and Pacheco Pass Water District. The project would establish a new dam and expanded reservoir on the North Fork of Pacheco Creek, which would store local watershed inflows and CVP supplies for use by the involved agencies. The PRE project has received funding from California Proposition 1 and Safe, Clean Water Program. Recent progress includes completion and release in November 2021 of the Draft Environmental Impact Report (EIR), public meeting on the project January 2022, and closure of the public comment period in February 2022. The EIR will be recirculated in the Summer of 2025 with a Final EIR expected in the Summer of 2026. Construction is expected to begin in 2027.

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## Managed Percolation

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Ongoing North San Benito Basin management includes percolation of local surface water, wastewater, and CVP water. Considering climate change and potential growth in urban and agricultural water demand, the GSP recognizes the importance of continued percolation activities and future expansion.

**Percolation of Local Surface Water.** In most years, local surface water is released from Hernandez and Paicines reservoirs for percolation along the San Benito River and Tres Pinos Creek (see **Appendix D**). Releases are managed to maximize percolation along the stream channels of the San Benito River and Tres Pinos Creek and to avoid any losses out of the Basin. A valve problem at Hernandez Reservoir caused the spillway to remain open from September through October, prior to repair. The large outflow contributed to percolation in the basin, but some flow was lost to basin outflow into the Pajaro River.

**Percolation of Wastewater.** Wastewater is percolated by the City of Hollister at its Domestic and Industrial plants, by SSCWD at its Ridgemark Facilities, and by Tres Pinos County Water District. While the City of San Juan Bautista wastewater treatment plant also discharges wastewater, the flows are not considered to percolate to the groundwater basin because of local hydrogeologic conditions that result in outflow to San Juan Creek. As described in the next section, the City of San Juan Bautista Regional Water and Wastewater Solution (now being built) will convey San Juan Bautista wastewater to the City of Hollister WWTP. Recent changes in operation of the wastewater facilities (including increased water recycling) and decreased municipal water use have decreased the volume percolating to the groundwater. Information about the amount of groundwater recharged from wastewater facilities is found in **Appendix D**.

**Percolation of CVP Water.** In Water Year 2023, the District percolated 1,966 AF of CVP. While the CVP allocations were available, percolation was limited to allow groundwater storage capacity for percolation of the large amount flow from the Hernandez Reservoir due to the engineering issue. In normal and wet years, the District percolates in four dedicated off-stream basins; locations are shown in

# 6-WATER MANAGEMENT ACTIVITIES

**Figure 6-1.** The managed recharge of the imported water was critical in replenishing the Basin in the 1980s and 1990s; however, the threat of zebra mussel contamination and low CVP allocations prevented the practice from 2008 to 2016. Given available CVP supply, the District has resumed recharge at dedicated basins adjacent to streams.

**BF Sisk Dam Raise.** USBR and DWR are implementing a project to raise the B.F. Sisk Dam that creates San Luis Reservoir to address seismic concerns. A subsequent phase of the project is being developed to increase water storage capability in the Reservoir. All phases of construction are scheduled for completion in 2031. SBCWD diverts its CVP allocations from San Luis Reservoir. Additional storage would increase the capacity for carryover storage of surface water allocations in years when excess water is available, for increased flexibility to use the entire CVP allocation.

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## Managed Aquifer Recharge (MAR)

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Expand MAR was identified as a PMA in the 2022 GSP, and a MAR study was conducted and completed in WY 2022. The study identified injection wells as the best method for implementing MAR in the Basin. The District has planned a MAR project using injection wells, specifically Aquifer Storage and Recover (ASR) and has begun implementation. The ASR Project will provide for injection and storage of up to 6,000 acre-feet per year (AFY) of treated Central Valley Project (CVP) water in wet years with recovery of up to 6,000 AFY of stored water in dry years (HDR, June 2022; HDR, October 2022). Responding to the recent drought, the ASR Project was re-envisioned to facilitate greater storage on an accelerated timeline. This first phase, the Accelerated Drought Response Project (ADRoP), will be completed by November 2026. The ADRoP phase will consist of five ASR wells, expansion of the West Hills WTP and construction of pipelines to convey injection and recovery water between the five ASR wells, West Hills WTP and the Hollister Distribution System (HDR, October 2022).

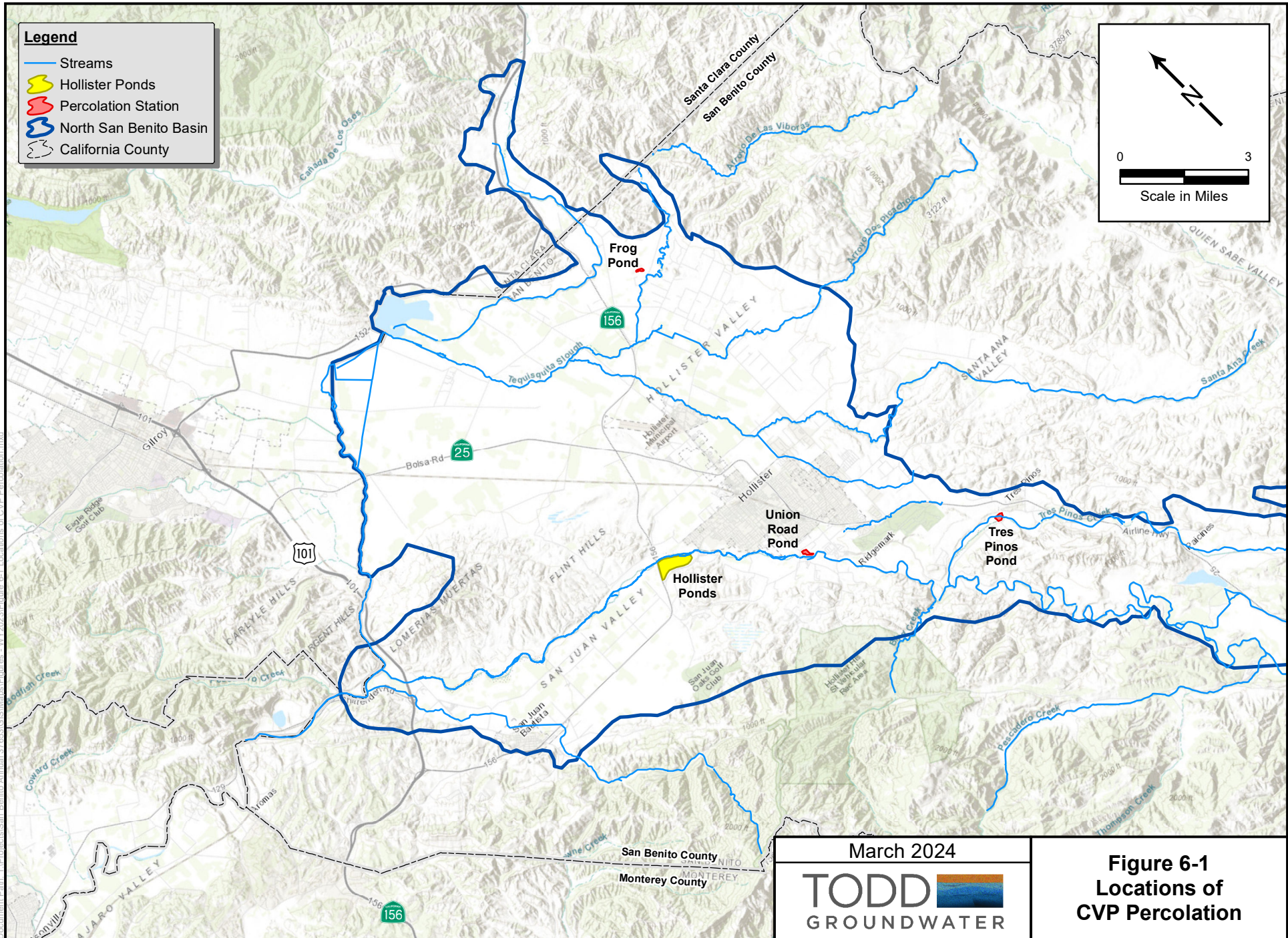
In December 2022, the District progressed with ASR implementation by applying for three grant funding opportunities. The District applied to DWR for a SGMA Implementation Grant and an Integrated Water Resource Management Grant and to USBR for a Small Storage Grant. These grant applications focused on the accelerated phase of the ASR project, ADRoP. The District was awarded \$11.5 million for the DWR SGMA Implementation grant and \$1.8 million from the Integrated Resource Management Grant. The District reapplied for the USBR Small Storage Grant in November 2023 and is awaiting a decision.

Progress in WY 2023 has included design, permitting and environmental review of treatment and conveyance facilities, well siting and design, numerical modeling and documentation of wellfield feasibility, and outreach.

**Legend**

- Streams
- Hollister Ponds
- Percolation Station
- North San Benito Basin
- California County

Scale in Miles



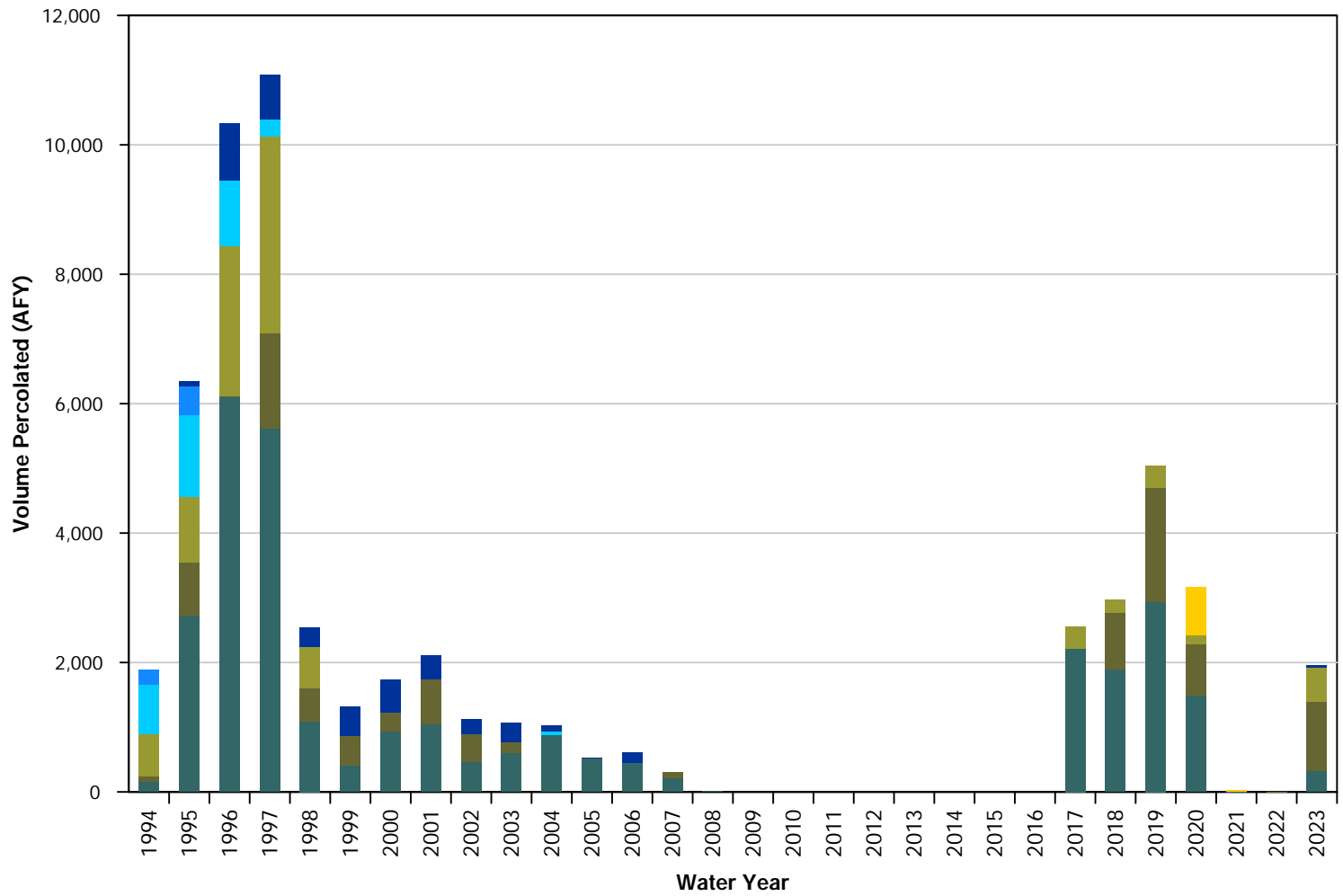
Document Path: T:\Projects\San Benito Annual 137653\GIS\Map\Figures - WY2023\Figure 6-1 Locations of CVP Percolation.mxd

March 2024

**TODD**   
GROUNDWATER

**Figure 6-1**  
Locations of  
CVP Percolation





- Hollister Ponds
- Santa Ana Creek
- Pacheco Creek
- Arroyo Dos Picachos
- Arroyo de las Viboras
- Tres Pinos Creek
- San Benito River

March 2024



TODD  
GROUNDWATER

**Figure 6-2**  
**Volume of CVP**  
**Recharge by Major**  
**Waterway over Time**

# 6-WATER MANAGEMENT ACTIVITIES

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## Water Resources Planning and Conjunctive Use

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As presented in the GSP, SBCWD is engaged in several conjunctive use projects; significant updates and recent accomplishments are summarized below.

**Urban Water Management Plan (UWMP) and Agricultural Water Management Plan (AWMP).** The District, in collaboration with Sunnyslope County Water District (SSCWD) and the City of Hollister, developed the 2020 UWMP for the Hollister Urban Area, which was submitted to DWR in 2021. The agencies continue to implement the Plan. The UWMP provides detailed information on the current and future water supply and demand for the Hollister Urban Area and provides a comparison of supply and demand in normal years plus single-year and multi-year droughts. To address drought and other water shortages, the UWMP promotes water conservation, conjunctive use, and water recycling.

The 2020 Agricultural Water Management Plan (Todd Groundwater, Sept 2021) describes and evaluates water deliveries and uses, sources of supply, water quality, water delivery measurements, water rates and charges, water shortage allocation policies, drought management, and reasonable and practical efficient water management practices. The USBR accepted the AWMP in October 2022.

**San Benito Urban Areas Water and Wastewater Master Planning Project.** This project (formerly called the Hollister Urban Area Water and Wastewater Plan) has represented an ongoing collaborative effort of SBCWD, City of Hollister, and Sunnyslope County Water District to provide a secure and stable water supply to the region. The project has involved provision of water treatment for CVP water, which allows its direct use for municipal and industrial (M&I) purposes. It also allows delivery of improved quality water to customers. While recent USBR allocations for M&I users were reduced because of drought (see Section 5), the availability of water treatment capacity remains an important element of sustainability. The San Benito Urban Areas Water Supply and Treatment Master Plan was approved in October 2023 (HDR, October 2023). The Master Plan includes the planned expansion to include City of San Juan Bautista. The Master Plan Update evaluated the reliability of the existing CVP supply and assessed various water supply alternatives to increase the resiliency of the water supply by providing storage of water available in wet years for later use during dry years. The highest-ranking alternative in the 2023 Master Plan is the ASR Project described in the preceding section.

**City of San Juan Bautista Regional Water and Wastewater Solution.** As described in the GSP, the Regional Solution involves importing high quality water from the West Hills WTP to San Juan Bautista, replacing groundwater use, removing residential self-generating water softeners, reducing industrial salt loading to the City wastewater, and then conveying San Juan Bautista wastewater to the City of Hollister WWTP. The Regional Solution is now part of the Master Plan process. The San Juan Bautista Pipeline construction is underway and water deliveries may start as early as 2024.

**North County Project.** Test wells drilled in March 2021 as part of the North County Project were added to the North San Benito GSP groundwater level and quality monitoring program. Information about the

# 6-WATER MANAGEMENT ACTIVITIES

wells (including ground surface elevation, screened intervals, and baseline conditions) are currently being collected.

**Zone 3 Operations Planning Tool.** The Zone 3 Operations Planning Tool is continuing to be updated annually and applied to guide Hernandez and Paicines reservoir operations.

**Water Recycling.** Water recycling is an ongoing conjunctive use project with the City of Hollister. Recycled water currently is provided to approximately 865 acres for agricultural production and landscape irrigation. Recycled water use is documented in Section 5 and Appendix D.

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## Water Conservation

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Water conservation is an important tool to manage demands on the groundwater basin particularly during drought. Water conservation efforts in San Benito County are conducted through the Water Resources Association (WRA). WRA is a cooperative effort among the District, City of Hollister, City of San Juan Bautista, and Sunnyslope County Water District. Following two dry winters and the Governor's proclamations of drought emergencies, Stage 2 -Mandatory Water Conservation was initiated in May 2022 for customers of the City of Hollister, City of San Juan Bautista, and the Sunnyslope County Water District. The water demand measures for stage 2 are detailed in the Water Supply Contingency Plan (WSCP) updated with the UWMP in 2021. While the UWMP was only prepared for the HUA, the WRA encourages the water demand measures Basin-wide. In response to the wet year the Water Shortage Stage was returned to Stage 1 – Voluntary Water Conservation on April 26, 2023.

The WRA added a Turf Removal Program in May 2022 in response to the continued drought. The program has used state funding of \$150,000 to pay customers to replace turf. The program pays \$2 per square foot of turf removed up to 1,000 square feet (\$2,000 maximum rebate). The program requires that participants use materials that are permeable and allow water to infiltrate through the soil. In addition, 25 percent of the area where the turf has been removed needs to be low-water use plants. Applicants have four months to complete their projects after their plans are approved.

As of January 2024, approximately 202,000 square feet of turf have been removed through the WRASBC's Turf Removal Program. There is approximately \$95K left in the Turf Removal Program for FY 23/24. The WRASBC expects to continue the program into FY 24/25 with additional funds being requested from Member Agencies. The WRASBC also applied for a Small-Scale Water Efficient grant through the Bureau of Reclamations WaterSMART program. The WRASBC requested \$100K in their grant application that was recently submitted. The grant awards will be announced in June 2024.

The WRASBC had ramped up its school presentations and fieldtrips this year. There have been eight such presentations and/or field trips as of January 2024. This year has shown the most interest since the pausing of the program during the pandemic. Public outreach has also continued on virtual platforms including Facebook. WRA staff continues to author news articles for the online news sites that serve San Benito County. The articles provided water conservation and efficiency tips that were seasonal in nature and they continue to provide timely advice for water use. To supplement this effort, the WRA is

# 6-WATER MANAGEMENT ACTIVITIES

developing a series of water conservation videos for distribution to the local news media and the newly updated WRA website.

WRA has been monitoring changes in water use sectors that have occurred over time. With more residential water use and less water use in the agricultural and business sector, they are focusing their conservation message to residential customers. This focus extends to new residential development in the City. WRA reviews landscape plans for the City of Hollister to make sure that new homes comply with the State's Model Water Efficient Landscape Ordinance (MWELO) and follows up with a post inspection after the landscape materials are installed to ensure the landscape plans were followed. WRA and the water purveyors are implementing DWR's Urban Water Use Objective (UWUO), new legislation designed to set water use targets for each category of municipal water use.

Finally, WRA continues to provide various rebates (toilets, landscape hardware, etc.). The most popular rebate program is the water softener demolishing/replacement program. With provision of CVP supply for municipal use, the delivered water quality has improved, and customers are willing to abandon unneeded water softeners. This program has the benefit of improving the water quality of municipal wastewater and recycled water.

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## Monitoring Program and DMS

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The GSP recognized that a single, reliable, and consistent method of measuring agricultural pumping is needed for the entire Basin. This was identified as a high-priority action, noting that it is required specifically for annual reporting. SBCWD is conducting a pilot study to test the remote sensing services offered by OpenET. OpenET uses satellites to estimate water consumed by crops and other plants and provides free ET data to public water managers throughout the western states. SBCWD will analyze the results of the OpenET pilot and, if applicable, incorporate it into the evaluation of groundwater pumping in North San Benito.

In addition, the GSP's monitoring network assessment provided recommendations for the DMS well inventory, including prompt development of a unique well identification for monitored wells that discontinues use of well names as identifiers. Well identifications were updated to be consistent with DWR site IDs used in the SGMA Portal's Monitoring Network Module (MNM). All wells are identified in this report by State Well Number. Another recommendation was to enhance the DMS with cross-referencing of monitoring sites (groundwater and surface water) relative to location and monitoring for regional groundwater level, groundwater quality, shallow groundwater, subsidence, or managed aquifer recharge. The DMS was updated for groundwater levels, pumping, CVP deliveries, water quality, and reservoir water balances, and cross referencing has been initiated.

# 6-WATER MANAGEMENT ACTIVITIES

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## Monitoring Well Network

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The GSP's assessment of the monitoring network identified data gaps including the uneven distribution of monitored wells across the Basin, reliance on private production wells, and insufficient groundwater level data on vertical gradients. Installation of new dedicated monitoring wells in the Basin was identified as a top priority to enhance the existing groundwater monitoring network. This need reflected historical data gaps in the Basin related to water level and water quality monitoring and newly identified data gaps related to monitoring groundwater elevations in areas of interconnected surface water and GDEs. In 2022, new monitoring wells were added to the monitoring program, including six shallow and six deep monitoring wells. The wells are entered in the DMS and are sampled as part of the regular monitoring. Additional information about these wells including the reference point and well depths will be added to the DMS when available. These wells will continue to be monitored by SBCWD for inclusion in future annual reports and periodic GSP updates.

In WY 2023, several regularly monitored wells were not measured due to well and access issues. The District has reviewed these wells to determine if they can be accessed in the future. In brief, four key wells for groundwater levels and three wells for GDEs (four wells total) were unable to be measured and have been removed from the monitoring program. The District is actively assessing temporary replacement wells and permanent replacement wells. For replacement wells, new MTs will need to be determined based on the historical range of water levels and the potential impacts to nearby domestic wells. A complete analysis of these wells, surrounding domestic wells, and potential undesirable results will be performed in the period evaluation of the GSP to establish new permanent MTs.

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## Develop Response Plans

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The GSP concludes that the Basin is managed sustainably relative to groundwater levels, but nonetheless, recognizes that declining groundwater levels could occur rapidly and approach an MT level during drought. Regular groundwater level monitoring and annual reporting were identified to provide an early warning system. An Action Plan was prepared to respond to wells that fall below the MT level and provides a guide for the District's response in the event of rapid and potentially problematic changes. The Plan, included in **Appendix A**, details a four-step process to respond to potentially problematic changes relative to groundwater level or water quality thresholds is triggered. These steps include:

1. Identify exceedance and investigate the representative monitoring well area
2. Determine contributing factors
3. Evaluate implementation of specific management actions and/or projects
4. Adopt Outreach and Enforcement Plan.

# 6-WATER MANAGEMENT ACTIVITIES

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## Water Quality Improvement Programs

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The GSP identified potential management actions to enhance water quality including collaboration with UC Extension and other organizations toward reduced nitrate and salt loading by agriculture, support to farmers for use of remote sensing to optimize fertilizer applications, and cooperation with the County and local agencies on regulation of water softeners and wastewater treatment/disposal including onsite wastewater treatment systems. As noted above, the most popular rebate program for the WRA is the water softener demolishing / replacement program.

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## Reduce Potential Impacts to GDEs

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A recommended management action is to reduce potential impacts to GDEs. Foremost among specific actions is installation of dedicated shallow monitoring wells to measure water table depth at locations where riparian vegetation might potentially be impacted by pumping. In 2021, six shallow monitoring wells were installed at selected locations near the Pajaro River, Pacheco Creek, San Benito River (three sites), and Tres Pinos Creek. These continue to be monitored and will be included in future annual reports and periodic GSP updates. In February 2024 DWR released the first of three papers providing new guidance on interconnected surface water (DWR, 2024); this will be incorporated in the periodic evaluation of the GSP.

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## Long-term Funding

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Groundwater sustainability necessitates the continuation of activities including monitoring, data compilation, data analysis, numerical model update, public outreach and annual reporting, five-year GSP updates, investigations, coordination with other agencies, and program administration. While SBCWD has conducted such activities, SGMA requirements are more comprehensive and rigorous. In addition, the extent of activities encompasses the entire North San Benito Groundwater Basin. Accordingly, the GSP identifies management actions to maintain long-term, basin wide funding.

In addition to establishing a groundwater management fee for the entire North San Benito Basin, the District has been pursuing grant funding. In December 2022, the District submitted an application for ADRoP for the DWR SGMA Implementation Round 2. In May 2023, DWR announced that the District was awarded \$11.5 million for the project. The District also received \$1.8 million from the Integrated Resource Management Grant. In addition, the District submitted to the USBR Small Storage Grant. The required feasibility study was originally accepted by USBR in June 2023 and an updated feasibility study, showing proposed changes in project location was approved November 2023. The District submitted their grant application in November 2023 and is awaiting a decision.

# 6-WATER MANAGEMENT ACTIVITIES

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## Plan Approval

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The GSP for North San Benito Subbasin was submitted January 2022 and approved by DWR in July 2023.

Along with its approval, DWR issued a GSP Assessment Staff Report (DWR, July 2023) that documented the plan implementation of SGMA and provided corrective actions. The District has begun to address these corrective actions through project and management actions and will revise Sustainability Management Criteria (SMC) as needed in the periodic evaluation and update of the GSP due January 2027. The corrective actions are summarized below:

- **Recommended Corrective Action 1** - Update the sustainable management criteria for degraded water quality to provide clear definitions of undesirable results.
- **Recommended Corrective Action 2** - Identify the minimum threshold exceedances that constitute an undesirable result for land subsidence.
- **Recommended Corrective Action 3** - Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions. Continue to fill data gaps.
- **Recommended Corrective Action 4** - Identify the total number of monitoring wells and monitoring schedule in the degraded water quality monitoring network.

Additional details and suggestions are provided in the GSP Assessment Staff Report, which encourages additional clarification of the GSP and progress toward resolution of data gaps recognized in the 2021 GSP. These suggestions and corrective actions are being reviewed to start timely implementation.

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## Financial Information

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The District derives its operating revenue from charges levied on landowners and water users. Non-operating revenue is generated from property taxes, interest, standby and availability charges, and grants. District zones of benefit are listed in **Appendix A**. Zone 6 charges, relating to the importation and distribution of CVP water, are the focus of this section. A brief Annual Groundwater Memorandum Report (in **Appendix A**) was presented to the SBCWD Board of Directors on January 8, 2024, including the recommended groundwater rates and presenting the technical justification for the rates.

**Table 6-1** presents the groundwater charges for Zone 6 water users, which reflect costs associated with monitoring and management. A full worksheet of how groundwater charges are determined can be found in **Appendix F**. Groundwater charges are adjusted annually in March. For March 2023 – February 2024, District rates are \$13.75 for agricultural use and \$13.75 for M&I use. The District adopts rates on a three-year cycle. For next year, March 2024 through February 2025, adopted groundwater rates are the same for Agriculture and M&I users at \$14.03.

# 6-WATER MANAGEMENT ACTIVITIES

**TABLE 6-1. ADOPTED GROUNDWATER CHARGES**

Year	Agriculture (\$/AF)	M&I (\$/AF)
2021-2022	\$13.55	\$40.55
2022-2023	\$13.55	\$40.55
2023-2024	\$13.75	\$13.75

CVP rates (provided by the USBR) include the cost of service, restoration fund payment, charges for maintenance of San Luis Delta Mendota Water Authority facilities, and other fees (the breakdown is found in **Appendix G**). The District’s blue valve rates (paid by users of CVP water) include a water charge and a power charge. Additionally, the standby and availability charge is a \$6 per-acre charge assessed on all parcels with access to CVP water (an active or idle turnout from the distribution system). **Table 6-2** shows the CVP water charge and **Table 6-3** shows the CVP power charge.

**TABLE 6-2. ADOPTED BLUE VALVE WATER CHARGES**

Year	Blue Valve Water Charge (\$/AF)			Municipal & Industrial	
	Non - Full Cost	Agricultural Full Cost (1a)	Full Cost (1b)	Small Parcel & Contract	Wholesale
2021-2022	\$274.00	\$411.00	\$433.00	\$424.00	\$424.00
2022-2023	\$274.00	\$411.00	\$433.00	\$424.00	\$647.00
2023-2024	\$294.68	\$294.68	\$294.68	\$653.70	\$653.70

**TABLE 6-3. ADOPTED BLUE VALVE POWER CHARGES**

Blue Valve Power Charge (\$/AF)	Subsystem 2	Subsystem 6H	Subsystem 9L	Subsystem 9H	All other subsystems
2021-2022	\$85.35	\$41.50	\$93.55	\$138.25	\$35.75
2022-2023	\$85.35	\$41.50	\$93.55	\$138.25	\$35.75
2023-2024	\$40.22	\$40.22	\$94.01	\$94.01	\$40.22



# 6-WATER MANAGEMENT ACTIVITIES

Recycled water charges (**Table 6-4**) are set to recover current operating and maintenance costs related to the water service. Recycled water rates include those associated with water supply, water quality, and infrastructure.

**TABLE 6-4. ADOPTED RECYCLED WATER CHARGES**

Effective	Recycled Water (\$/AF)	
	Agriculture Rate	Power Charge
3/1/2021	\$210.00	\$61.85
4/1/2022	\$211.00	\$63.09
4/1/2023	\$294.70	\$101.10

# 6-WATER MANAGEMENT ACTIVITIES

## Groundwater Management Fee

The District is authorized by California Water Code Section 10730(a), to collect fees to recover costs for GSP development, monitoring, and GSP Annual Reports. In July 2021, the SBCWD Board of Directors passed two resolutions respectively to levy a groundwater management fee and to request that the County of San Benito collect the groundwater management fee on the property tax rolls. The groundwater management fee is based on assessor’s parcels and acreage, as the most appropriate way to ensure property owners are paying their fair share toward cost recovery. The annual rates are shown in **Table 6-5**.

Land categories as outlined below have been identified as the basis for application of fees to land within the Basin:

- Valley areas overlying productive portions of the Basin and benefiting significantly from GSP development and implementation, including major municipal and industrial areas, will be charged a land-based fee.
- Upland areas (UA) with less access to groundwater and insignificant benefit of groundwater management and GSP development will not be charged a fee.

**TABLE 6-5. GROUNDWATER MANAGEMENT FEE**

Groundwater Management Fee (\$/Acre)	
2021-2022	\$5.77
2022-2023	\$5.92
2023-2024	\$6.07
2024-2025	\$6.23
2025-2026	\$6.39






Those who receive their water through municipal agencies pay fees to their respective agencies. All other landowners are charged a fee as part of their San Benito County tax bill. It is expected that the District will have sufficient data to revise the Groundwater Management Fee to account for cost-recovery of extraction measurements during the periodic update of the GSP, to be completed in 2027.

# 7-GROUNDWATER SUSTAINABILITY

## SGMA Indicators

Of the six sustainability criteria developed by DWR, five are relevant to North San Benito Basin (seawater intrusion is not relevant). As documented in the GSP, the Basin has been and is being managed sustainably relative to all criteria. Accordingly, sustainability does not need to be achieved, but it does need to be maintained through the planning and implementation horizon. This will involve continuation and improvement of existing management actions—most notably import of Central Valley Project (CVP) water and its conjunctive use with groundwater. It also will include improvement and expansion of management actions and monitoring.

**TABLE 7-1. SGMA INDICATORS**

	Indicator	Status of Minimum Threshold
	Groundwater-Level Declines	Compile water level data. Compare key wells elevations with MTs
	Groundwater-Storage Reductions	Compute groundwater storage using the numerical model.
	Water-Quality Degradation	Compile water quality data. Summarize the findings for the triennial review.
	Land Subsidence	Download and review DWR InSar data
	Interconnected Surface-Water Depletions	Review key shallow wells elevations with MTs

While the North San Benito Basin has been managed sustainably, the following sustainability criteria were defined in the GSP because potential exists for undesirable results.

- The Minimum Threshold relative to **chronic lowering of groundwater levels** is defined at designated Key Wells by historical groundwater low levels adjusted to provide reasonable protection to nearby wells. Undesirable results are indicated when two consecutive exceedances occur in each of two consecutive years, in 60 percent or more of the key wells (e.g., three of five wells) in each Management Area. The Measurable Objective is to maintain

# 7-GROUNDWATER SUSTAINABILITY

groundwater levels above the MTs and to maintain groundwater levels within the historical operating range.

- The Minimum Threshold for **reduction of storage** for all Management Areas is fulfilled by the minimum threshold for groundwater levels as proxy. The Measurable Objective for storage is fulfilled by the MT for groundwater levels, which maintains groundwater levels within the historical operating range.
- The Minimum Threshold for **land subsidence** is defined as a rate of decline equal to or greater than 0.2 feet in any five-year period. This has been considered in terms of a potential cumulative decline equal to or greater than one foot of decline since 2015; 2015 represents current conditions and the SGMA start date. The extent of cumulative subsidence across the Basin will be monitored and evaluated using InSAR and UNAVCO data. Subsidence is closely linked to groundwater levels, and it is unlikely that significant inelastic subsidence would occur if groundwater levels remain above minimum thresholds.
- The Minimum Thresholds for **degradation of water quality** address nitrate and TDS for each MA. The MT for nitrate is defined initially as the percentage of wells with concentrations exceeding the nitrate Maximum Contaminant Limit (MCL) (45 mg/L) based on current conditions (2015-2017). The MT for TDS is defined initially as the percentage of wells with concentrations exceeding the TDS value of 1,200 mg/L based on current conditions. The Measurable Objectives for both are defined as maintaining or reducing the percentage of wells with median concentrations exceeding the MTs.
- The Minimum Threshold for **depletion of interconnected surface water** is the amount of depletion associated with the lowest water levels during the 1987-1992 drought, with some adjustments made for wells with groundwater levels lower in 2016 than in 1992. Undesirable results would occur if more than 25 percent of monitored wells within 1 mile of a shallow water table reach along the Pajaro River, Pacheco Creek, San Benito River, or Tres Pinos Creek had static spring water levels lower than the lowest static spring water level during 1987-1992.

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## Updates on SGMA Indicators

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**Chronic lowering of groundwater levels.** Sustainability criteria (minimum thresholds and measurable objectives) for groundwater levels rely on a network of representative monitoring wells (Key Wells). The MT for a Key Well was based on its historical low levels and adjusted as needed to minimize any risk to nearby domestic wells of future low-water levels. For each Management Area, **Figures 3-4 through 3-7** show the Key Well hydrographs and their respective MTs for groundwater levels. Current water levels are above the MT in all available key wells.

**Table 7-2** lists the 22 key wells and their respective MTs, as well as the minimum groundwater elevation for WY 2023. Groundwater elevations were measured above the MT in thirteen wells, two wells were flowing artesian wells (and thus above the MT), and four wells were listed as temporarily inaccessible. In WY 2023, two wells (one in San Juan and one in Southern) showed groundwater elevations below the respective MT.

# 7-GROUNDWATER SUSTAINABILITY

TABLE 7-2. KEY WELLS

Groundwater Level Key Well	MA	Minimum Threshold Depth to Water (ft-bgs)	Minimum Threshold Elevation ft (NAVD 88)	Min Groundwater Elevation WY 2023	Above MT	Years Below MT
11-4-25H2	Bolsa	145	4.0	81.63	Y	
11-5-21E2	Bolsa	63	92.0	155	Y	
11-5-28B1	Bolsa	102	66.0	Artesian	Y	
12-5-06L1	Bolsa	176	1.0	140.71	Y	
12-5-17D1	Bolsa	185	32.0	55	Y	
11-5-13D1	Hollister	97	161.0	220.25	Y	
11-5-35G1	Hollister	104	102.0	166.28	Y	
12-5-03B1	Hollister	96	86.0	Artesian	Y	
12-5-24N1	Hollister	160	110.0	Temporarily inaccessible		
12-5-34P1	Hollister	150	144.0	218.5	Y	
12-6-06L4	Hollister	64	184.0	213.88	Y	
13-6-19K1	Hollister	109	313.0	Temporarily inaccessible		
12-4-17L20	San Juan	47	93.0	116.9	Y	
12-4-26G1	San Juan	152	58.0	Temporarily inaccessible		
13-4-01K1	San Juan	75	148.0	Temporarily inaccessible		
13-4-03H1	San Juan	155	52.0	123.2	Y	
13-5-6L1	San Juan	110	131.5	113.63	N	3
14-6-13B1	Southern	59	637.0	631.18	N	2
14-6-26F0	Southern	45	556.0	557	Y	
14-6-26H1	Southern	136	609.0	629.62	Y	
14-6-26K1	Southern	73	623.0	635.63	Y	
14-7-20K1	Southern	79	687.0	711.75	Y	

# 7-GROUNDWATER SUSTAINABILITY

In San Juan MA, Well 13-5-6L1 was first measured below the MT in October 2021 as reported in last year's annual report. WY 2023 represents the third year with this well's groundwater level remaining below the MT. The MT is triggered if 60 percent of wells in the MA are below the threshold – for now this well represents 25 percent of the monitored wells in San Juan. While no action is required, the groundwater levels in this key well should be reviewed and this area considered for targeted management.

Well 14-6-13B1 was below the MT for the second year. The recovery from the most recent drought is a slow process, especially for the Southern MA as it does not directly receive CVP allocations. If hydrologic conditions continue to remain wet or above average next water year, these water levels will also likely improve. Local increases in pumping should also be assessed to determine if they are impacting water levels in the MA. If water levels remain low in both wells, 40 percent of wells are below the MT. The overall threshold from water levels is 60 percent of wells below their individual MTs for two years. Overall, the data indicate that the Basin is not currently affected by undesirable results due to chronic lowering of groundwater levels but continue monitoring especially in these areas is recommended.

**Reduction of storage.** This indicator is tracked using the groundwater levels at key wells as a proxy. In addition, the change in groundwater in storage is estimated by the numerical model (Section 4). The groundwater level data indicate that the Basin is not currently affected by undesirable results due to depletion of groundwater storage.

**Land Subsidence.** Land subsidence is tracked using the regional InSAR data and the site-specific UNAVCO station data provided by DWR) on its SGMA Data Viewer (DWR 2024). The most recent InSAR maps (showing change in ground elevation over WY 2023) indicate no areas of displacement; the basin has experienced -0.1 to 0.1 (feet) of change. The UNAVCO data from Station 242 in northwest Bolsa was incomplete for Water Year 2023; data were only available for October through December and May. The available UNAVCO data indicate that ground surface decline reached its maximum in October 2022 but has begun its seasonal elastic rebound through May, likely due to the wet year recharge conditions. A more comprehensive analysis of the potential for subsidence will be included in the five-year GSP update.

**Degradation of water quality.** Water quality (TDS, nitrate) continues to be monitored in the SBCWD Water Quality Monitoring Program. As discussed in Section 3, a detailed analysis and comparison of triennial data with the Minimum Thresholds was performed in WY22. For 2020-2022, the Southern, Hollister and Bolsa MAs showed decreases in the percent of wells that exceeded the respective basin objectives (based on 2015-2017) established in the GSP.

For 2020-2022, the San Juan MA showed an increase in the percent of wells with TDS concentrations greater than 1,200 mg/L basin objective, in part due to the expansion of the Irrigated Lands Program (Aglands) monitoring new locations. The SBCWD monitoring program showed only two out of six monitored wells (33%) in the San Juan MA with TDS concentrations greater than 1,200 mg/L. This particular increase in the San Juan MA does not represent a regional change in groundwater quality; continued monitoring and expanded dedicated monitoring in San Juan MA is recommended.

**Depletion of interconnected surface water.** Nineteen wells are currently selected as Key Wells for Interconnected Surface Water. They are monitored for water levels within 1 mile of stream reaches

# 7-GROUNDWATER SUSTAINABILITY

where springtime depth to water is typically 20 feet or less (and the Key Wells are not separated from the reach by a fault). The locations of the wells are shown as orange dots in **Figure 3-4** through **3-7** for each MA. The MT for these wells is based on spring 1992 water levels or in some cases Spring 2016, whichever was lower. **Table 7-3** lists the nineteen wells and their respective MTs, as well as the groundwater elevation for Spring 2023. As noted previously, three wells were not monitored due to access and well issues. The District is actively looking for replacement monitoring locations for these wells.

**TABLE 7-3. INTERCONNECTED SURFACE WATER WELLS**

Surface Water / GDE Key Well	Spring MT Groundwater Elevation (ft NAVD88)	Groundwater Elevation Spring 2023	Above MT	Years Below MT
11-4-26B1	127.0	134.35	Y	
11-4-34A1	128.0	129.75	Y	
11-5-13D1	214.0	224.55	Y	
11-5-20N1	90.0	88.57	N	3
11-5-27P2	122.0	162.65	Y	
11-5-28B1	128.0	Artesian	Y	
12-4-17L20	113.0	119.3	Y	
12-4-21M1	120.0	137.46	Y	
12-4-26G1	114.0	Temporarily inaccessible		
12-4-34H1	117.0	145.19	Y	
13-5-11E1	220.0	275.7	Y	
13-5-13F1	316.0	324.6	Y	
13-6-19J1	412.0	Temporarily inaccessible		
13-6-19K1	341.0	Temporarily inaccessible		
14-6-13B1	633.0	636.4	Y	
14-6-26F0	624.0	638.43	Y	
14-6-26H1	620.0	633.25	Y	
14-6-26K1	618.0	640	Y	
14-6-35B1	637.0	654.05	Y	

# 7-GROUNDWATER SUSTAINABILITY

Based on spring water levels, 15 wells had groundwater elevations measured above the MT and one well was a flowing artesian and thus above the MT. Only one of the key wells for surface water interconnection was below the MT level. Well 11-5-20N1 located in the Bolsa MA on Tequisquita Slough showed a groundwater elevation of 88.57 feet, slightly lower than the 90-foot threshold. Additional data and analysis are needed at this well to understand the seasonal variation, which can range over 60 feet or more, and to evaluate the well's suitability for representing surface water and GDE conditions. This one well represents seven percent of the total monitored in Spring 2023. To represent an undesirable result, the MT indicates that 25 percent of wells would show levels below the MT. This has not occurred as of 2023. DWR has recently released the first installment of draft guidance on interconnected surface water (DWR, Feb 2024). The District will review and update the SMCs for Interconnected Water if applicable.



# 8-RECOMMENDATIONS

District policies and programs have served to effectively manage water resources for many years. The District, working collaboratively with other agencies, has eliminated historical overdraft through importation of CVP water, has developed and managed multiple sources of supply to address drought, has established an active and effective water conservation program, has initiated programs to protect water quality, and has improved delivered water quality to many municipal customers. The District also has provided consistent reporting and outreach. The following recommendations are responsive to the District Act and support effective management consistent with SGMA.

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## Monitoring Programs

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Through GSP implementation, the monitoring programs should continue to be improved to provide the SBCWD Board of Directors with information to support management of the groundwater supplies of the District and its zones. Detailed monitoring recommendations have been developed as part of the GSP, including accurate measurement of agricultural groundwater pumping, which has been identified as an important data gap. Accurate groundwater production data is consistent not only with SGMA but also with the District Act, by which the Board of Directors can order an Annual Report, which reports on total production of water from the groundwater supplies of the District during the water year. This supports the following recommendations, provided in response to the District Act, as to the quantity of water needed for surface delivery and for replenishment of groundwater supplies, and whether or not a groundwater charge should be levied and if so, what rate per acre-foot.

As a first priority, several Key Wells have become inaccessible and need to be replaced. The District should conduct a survey of available nearby wells that represent regional trends, have long records of monitoring, and have the same general construction. MTs for these wells should be based on historical lows in the new wells, using the same methodology developed for the GSP.

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## Groundwater Production and Replenishment

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Past District percolation operations helped to reverse historical overdraft and then accumulate a water supply reserve. The District currently manages groundwater storage and surface water to minimize excessively high or low groundwater elevations on a temporal and geographic basis. The District should continue to operate Hernandez and Paicines to improve downstream groundwater conditions. In 2023, the District provided off-channel percolation of CVP water; this should be continued with optimization of recharge when CVP water is available. In light of climate change and increasing variability of CVP supply, replenishment projects like ADRoP should be pursued as a groundwater management priority. Such replenishment operations are critical to sustainable groundwater supply.

# 8-RECOMMENDATIONS

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## CVP Purchase Recommendation

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CVP imports continue to be a critical source of supply for agricultural users and M&I. The water retailers rely on continued CVP water, treated through Lessalt or West Hills WTP, to provide quality drinking water to their customers. This ability to maximize CVP use will increase flexibility for local water users to use groundwater or CVP. CVP also provides better quality water for delivery to municipal customers and results in improved wastewater quality, which supports water recycling. In addition, the District is pursuing projects to store CVP imports in wet years through ASR and can continue to percolate the water through off-stream channels. As such, the District should continue to purchase the maximum available volume allocated during the upcoming contract year.

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## Groundwater Charges

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The groundwater charge for the USBR contract year (March 2023-February 2024) is recommended to be \$13.75 per AF for agricultural use in Zone 6 and a groundwater charge of \$13.75 per AF is recommended for M&I use. For March 2023 – February 2024, District rates are proposed to be \$14.03 for agricultural use and \$14.03 for M&I use. The District adopts rates on a three-year cycle. Current water rates were adopted January 2023.

# 9-REFERENCES

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# APPENDIX A REPORTING REQUIREMENTS

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Table A-1. District Zones of Benefit

Table A-2. Special Topics in Previous Annual Reports

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## List of Attachments

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Water Code Appendix 70 Excerpts

SGMA Annual Elements Guide

SGMA Annual Report Data Upload

San Benito County Water District Annual Groundwater Report for January 8, 2024 Meeting of the Board of Directors

# APPENDIX A REPORTING REQUIREMENTS

The San Benito County Water District Act (1953) is codified in California Water Code Appendix 70. Section 70-7.6 (District Act) authorizes the District Board of Directors to require the District to prepare an annual groundwater report. This Annual Report satisfies both the requirements of a SGMA Annual Report and report detailed in the District Act. The District Act requires that the report address the District and its zones of benefit (**Table A-1**) for the water year. While section 70-7.2 defines the water year as March through February, the same as the USBR contract year, Section 70-7.6 identifies data sets to be documented for the hydrologic water year, October through September.

**Table A-1. District Zones of Benefit**

Zone	Area	Provides
1	Entire County	Specific District administrative expenses
3	San Benito River Valley (Paicines to San Juan) and Tres Pinos River Valley (Paicines to San Benito River)	Operation of Hernandez and Paicines reservoirs and related groundwater recharge and management activities
6	Hollister and San Juan Management Areas of North San Benito Groundwater Basin (previously San Juan, Hollister East, Hollister West, Pacheco, Bolsa SE, and Tres Pinos subbasins)	Importation and distribution of CVP water and related groundwater management activities

The Board has consistently ordered preparation of Annual Reports, and the reports have included the contents specified Section 70-7.6. The following table shows the contents specified by the Act and the section of the Annual Report where the information is available.

The full text of Appendix 70, Section 70-7.6 through 7.8 is enclosed in this appendix.

# APPENDIX A REPORTING REQUIREMENTS

**Table A-2. District Act Requirements**

District Act Requirements		Annual Report Section	Notes
Overdraft	An estimate of the annual overdraft for the current water year and for the ensuing water year. Information for the consideration of the Board in its determination of the annual overdraft and accumulated overdraft as of September 30 of the current year	4	The water balance is simulated for the continuous period from January 1976 through September 2022. The basin is not in overdraft over the contract year (March 2021 through February 2022) or the water year (October 2021 through September 2022).
Total Production	A report as to the total production of water from the groundwater supplies of the District and its zones as of September 30 of the current year.	5	CVP imports, groundwater pumping, and recycled water use are reported for agricultural and other uses for the hydrologic water year ending September 30
	Information for the consideration of the Board in its determination of the estimated amount of agricultural water and the estimated amount of water other than agricultural water to be withdrawn from the groundwater supplies of the District and its zones		
Future Purchase	The amount of water the District is obligated to purchase during the ensuing water year.	5, 8	The allocations for the contract years covered by the report are shown in Tables 5-1 and 5-2. Recommendations to purchase the full amount available are provided.
	A recommendation as to the quantity of water needed for surface delivery and for replenishment of the groundwater supplies of the District and its zones during the ensuing water year.		
Rate	A recommendation as to whether or not a groundwater charge should be levied in any zone(s) of the District in the ensuing water year and if so, a rate per acre-foot for all water other than agricultural water for such zone(s)	6, Appendix G, and Engineer's Report	Rate information is provided by the contract (USBR) year
Other	Any other information the Board requires.	1-9	The report includes SGMA implementation, financial information, and other content requested by staff and Board.

# APPENDIX B CLIMATE DATA

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## Water Code Appendix 70 Excerpts

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Sec. 7.6. the board by resolution require the district to annually prepare an investigation and report on groundwater conditions of the district and the zones thereof, for the period from October 1 of the preceding calendar year through September 30 of the current year and on activities of the district for protection and augmentation of the water supplies of the district and the zones thereof. The investigation and report shall include all of the following information:

- (a) Information for the consideration of the board in its determination of the annual overdraft.
- (b) Information for the consideration of the board in its determination of the accumulated overdraft as of September 30 of the current calendar year.
- (c) A report as to the total production of water from the groundwater supplies of the district and the zones thereof as of September 30 of the current calendar year.
- (d) An estimate of the annual overdraft for the current water year and for the ensuing water year.
- (e) Information for the consideration of the board in its determination of the estimated amount of agricultural water and the estimated amount of water other than agricultural water to be withdrawn from the groundwater supplies of the district and the zones thereof for the ensuing water year.
- (f) The amount of water the district is obligated to purchase during the ensuing water year.
- (g) A recommendation as to the quantity of water needed for surface delivery and for replenishment of the groundwater supplies of the district and the zones thereof the ensuing water year.
- (h) A recommendation as to whether or not a groundwater charge should be levied in any zone or zones of the district during the ensuing year.
- (i) If any groundwater charge is recommended, a proposal of a rate per acre-foot for agricultural water and a rate per acre-foot for all water other than agricultural water for such zone or zones.
- (j) Any other information the board requires.

(Added by Stats. 1965, c. 1798, p.4167, 7. Amended by Stats.1967,c.934, 5, eff. July27,1967; Stats. 1983, c. 402, 1; Stats. 1998, c. 219 (A.B.2135), 1.)



# APPENDIX B CLIMATE DATA

## **Section 70-7.7. Receipt of report; notice of hearing; contents; hearing**

Sec. 7.7. (a) On the third Monday in December of each year, the groundwater report shall be delivered to the clerk of the board in writing. The clerk shall publish, pursuant to Section 6061 of the Government Code, a notice of the receipt of the report and of a public hearing to be held on the second Monday of January of the following year in a newspaper of general circulation printed and published within the district, at least 10 days prior to the date at which the public hearing regarding the groundwater report shall be held. The notice shall include, but is not limited to, an invitation to all operators of water producing facilities within the district to call at the offices of the district to examine the groundwater report.

(b) The board shall hold, on the second Monday of January of each year, a public hearing, at which time any operator of a water-producing facility within the district, or any person interested in the condition of the groundwater supplies or the surface water supplies of the district, may in person, or by representative, appear and submit evidence concerning the groundwater conditions and the surface water supplies of the district. Appearances also may be made supporting or protesting the written groundwater report, including, but not limited to, the engineer's recommended groundwater charge.

(Added by Stats. 1965, c. 1798, p. 4167, 8. Amended by Stats. 1983, c. 02,2; Stats. 1998, c. 219 (A.B.2135,2.)

## **Section 70-7.8. Determination of groundwater charge; establishment of rates; zones; maximum charge; clerical errors**

Sec. 7.8. (a) Prior to the end of the water year in which a hearing is held pursuant to subdivision (b) of Section 7.7, the board shall hold a public hearing, noticed pursuant to Section 6061 of the government Code, to determine if a groundwater charge should be levied, it shall levy, assess, and affix such a charge or charges against all persons operating groundwater- producing facilities within the zone or zones during the ensuing water year. The charge shall be computed at fixed and uniform rate per acre-foot for agricultural water, and at a fixed and uniform rate per acre-foot for all water other than agricultural water. Different rates may be established in different zones. However, in each zone, the rate for agricultural water shall be fixed and uniform and the rate for water other than agricultural water shall be fixed and uniform. The rate for agricultural water shall not exceed one-third of the rate for all water other than agricultural water.

(b) The groundwater charge in any year shall not exceed the costs reasonably borne by the district in the period of the charge in providing the water supply service authorized by this act in the district or a zone or zones thereof.

(c) Any groundwater charge levied pursuant to this section shall be in addition to any general tax or assessment levied within the district or any zone or zones thereof.

(d) Clerical errors occurring or appearing in the name of any person or in the description of the water-producing facility where the production of water there from is otherwise properly charged, or in the making or extension of any charge upon the records which do not affect the substantial rights of the assessee or assesses, shall not invalidate the groundwater charge.

(Added by Stats. 1965, c. 1798, p. 4168, 9. Amended by Stats. 1983, c. 402, 3; Stats.1983, c. 402, 3; Stats. 1998, c. 219 (A.B.2135), 3.)

# APPENDIX B CLIMATE DATA

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## SGMA Annual Elements Guide

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## Groundwater Sustainability Plan Annual Report Elements Guide

<i>California Code of Regulations - GSP Regulation Sections</i>	<i>Groundwater Sustainability Plan Elements</i>	<i>Document page number(s) that address the applicable GSP element.</i>	<i>Notes: Briefly describe the GSP element does not apply.</i>
Basin Name			
GSP Local ID			
<b>Article 5</b>	<b>Plan Contents</b>		
<b>Subarticle 4</b>	<b>Monitoring Networks</b>		
<b>§ 354.40</b>	<b>Reporting Monitoring Data to the Department</b>		
	Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.	14-23;115-117	
	Note: Authority cited: Section 10733.2, Water Code. Reference: Sections 10728, 10728.2, 10733.2 and 10733.8, Water Code.		
<b>Article 7</b>	<b>Annual Reports and Periodic Evaluations by the Agency</b>		
<b>§ 356.2</b>	<b>Annual Reports</b>		
	Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:		
	(a) General information, including an executive summary and a location map depicting the basin covered by the report.	8-15	
	(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:		
	(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:		
	(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.	45-47	
	(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.	21-28	
	(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.	33-38;42; 133-138	
	(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.	33-38; 53-62; 70-71; 131-132	

<b>California Code of Regulations - GSP Regulation Sections</b>	<b>Groundwater Sustainability Plan Elements</b>	<b>Document page number(s) that address the applicable GSP element.</b>	<b>Notes: Briefly describe the GSP element does not apply.</b>
	(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.	57-65; 121-138	
	(5) Change in groundwater in storage shall include the following:		
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.	49	
	(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.	135-138	
	(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.	75-82	

# APPENDIX B CLIMATE DATA

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## SGMA Annual Report Data Upload

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Basin Number	3-003.05
Water Year	2023 (Oct. 2022 - Sept. 2023)
Total Groundwater Extractions (AF)	87,478
Water Use Sector Urban (AF)	4,199
Water Use Sector Industrial (AF)	
Water Use Sector Agricultural (AF)	83,280
Water Use Sector Managed Wetlands (AF)	
Water Use Sector Managed Recharge (AF)	-
Water Use Sector Native Vegetation (AF)	-
Water Use Sector Other (AF)	
Water Use Sector Other Description	Urban includes all municipal and industrial uses

Basin Number	3-003.05
Water Year	2023 (Oct. 2022 - Sept. 2023)
Meters Volume (AF)	-
Meters Description	
Meters Type	
Meters Accuracy (%)	
Meters Accuracy Description	
Electrical Records Volume (AF)	
Electrical Records Description	
Electrical Records Type	
Electrical Records Accuracy (%)	
Electrical Records Accuracy Description	
Land Use Volume (AF)	
Land Use Description	
Land Use Type	
Land Use Accuracy (%)	
Land Use Accuracy Description	
Groundwater Model Volume (AF)	87,478.0
Groundwater Model Description	Numerical Model developed for the GSP and updated for the Annual Report
Groundwater Model Type	MODFLOW



Groundwater Model Accuracy (%)	UNK
Groundwater Model Accuracy Description	Without data on the actual water use it is impossible to calculate the % accuracy
Other Method(s) Volume (AF)	
Other Method(s) Description	
Other Method(s) Type	
Other Method(s) Accuracy (%)	
Other Method(s) Accuracy Description	

Basin Number	3-003.05
Water Year	2023 (Oct. 2022 - Sept. 2023)
Methods Used To Determine	Meters
Water Source Type Central Valley Project (AF)	11,054
Water Source Type State Water Project (AF)	-
Water Source Type Colorado River Project (AF)	-
Water Source Type Local Supplies (AF)	-
Water Source Type Local Imported Supplies (AF)	-
Water Source Type Recycled Water (AF)	484
Water Source Type Desalination (AF)	-
Water Source Type Other (AF)	-
Water Source Type Other Description	-

# APPENDIX B CLIMATE DATA

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## Memorandum Report:

San Benito County Water District Annual Groundwater Report  
for January 8, 2024 Meeting of the Board of Directors

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# San Benito County Water District Annual Groundwater Assessment

December 2023



The San Benito County Water District (District or SBCWD) was formed in 1953 by a special act (District Act) of the State with responsibility and authority to manage groundwater. The District Act authorizes the Board of Directors, at its discretion, to direct staff to prepare an annual report on groundwater conditions of the District and its zones of benefit, such as Zone 6, the area for distribution of Central Valley Project (CVP) water. The groundwater report (addressing the previous water year from October 1 through September 30) also summarizes activities of the District for protection and augmentation of water supplies and provides management recommendations. Annual Groundwater Reports have been prepared since the 1970s and District Act requirements are listed in Appendix A of recent reports.

In response to the 2014 Sustainable Groundwater Management Act (SGMA), the District has become the exclusive Groundwater Sustainability Agency (GSA) for the North San Benito Groundwater Basin (Basin) in San Benito County. In coordination with Santa Clara Water District (Valley Water), the GSA for the Santa Clara County portion of the Basin, the District led preparation of a Groundwater Sustainability Plan (GSP) for the Basin that was submitted to DWR in January 2022 and received Approval from DWR in July 2023. Starting in 2022, the District shifted Annual Groundwater Report preparation to align with the requirements of SGMA, and SGMA Annual Reports for water years 2021 and 2022 (Todd 2022 and 2023) have been prepared for local use and submittal to DWR. The District recently initiated preparation of the SGMA Annual Report for water year 2023 in accordance with SGMA and consistent with the District Act. The water year 2023 SGMA Annual Groundwater Report is due to DWR by April 1, 2024.

This brief Memorandum Report has been prepared at the direction of the SBCWD Board of Directors to address requirements of the District Act, while recognizing that the SGMA Annual Report will provide the substantial documentation that has been presented in pre-SGMA Annual Groundwater Reports.

## **1. GROUNDWATER BASIN CONDITIONS**

As documented in the GSP (Todd 2021), the Basin is not in overdraft. Historical overdraft was halted through importation of CVP water and other management actions. In water year (WY) 2023<sup>1</sup>, the State-wide drought continued in the beginning of the year but was followed by a wet winter and spring. In February 2023, CVP initial allocations were at 35 percent for agricultural uses and 75 percent for municipal and industrial (M&I) uses. In March, the USBR increased allocation to 80 percent and 100 percent for agricultural and M&I uses, respectively. Finally in April, USBR announced the CVP 2023 water supply allocations were 100 percent for both agricultural and M&I uses (ACWA 2023).

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<sup>1</sup> Water year 2023 was the 12-month period from October 1, 2022 through September 30, 2023.

Several infrastructure issues affected the water supply in WY 2023, including:

- Construction delays along Highway 156 caused disruption of CVP deliveries to Subsystem 10 (San Juan area) from January to early June.
- West Hills Treatment plant was offline from mid-November 2022 through April 2023 due to an electrical power surge.
- Lessalt Treatment plant was offline in 2022 due to the reduced CVP supply.

These disruptions of CVP delivery reduced the potential CVP that could have been delivered in this wet year with 100 percent allocation. As a result, the growers in Subsystem 10 and the municipalities in the Hollister Urban Area relied more on groundwater as a back-up supply. Table 1 shows that WY 2023 M&I groundwater pumping was higher than previous wet and average years but lower than pumping during the severe drought of WY 2021 and WY 2019. Even so, Water Year 2023 shows the lowest agricultural pumping over the last five years, Table 1.

**Table 1. Groundwater Production in Zone 6 by Water Year, acre-feet per year**

	WY 2019	WY 2020	WY 2021	WY 2022	WY 2023
<b>Agriculture*</b>	15,423	17,021	22,614	23,945	13,147
<b>Municipal &amp; Industrial</b>	2,660	3,514	6,067	5,840	4,769

\* based on power meters in Zone 6

While WY 2023 was a wet year hydrologically, the lasting effects of the multiple year drought can still be seen in the North San Benito Basin. Groundwater levels and storage reserves have shown an increase over the past years but remain below historical highs. However, the District continues to manage the Basin to maintain water levels above the quantitative minimum thresholds that are protective of beneficial uses of groundwater (Todd 2021).

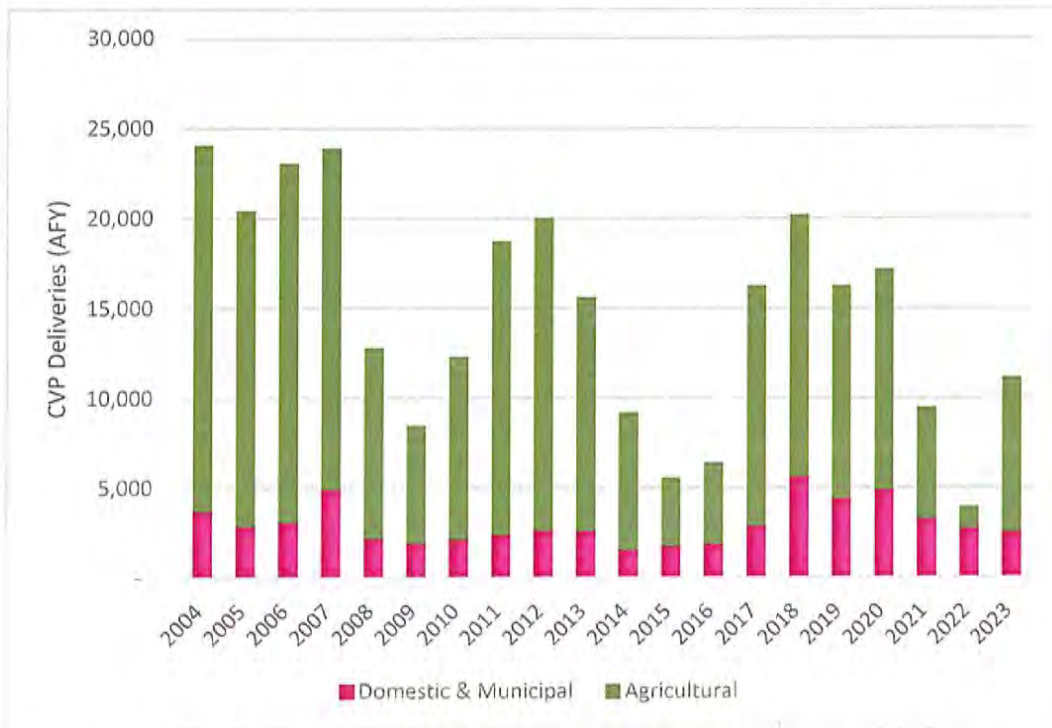
## **2. WATER SUPPLIES AND MANAGEMENT ACTIVITIES**

As described in the previous SGMA Annual Reports and pre-SGMA Annual Groundwater Reports, water supply sources available in Zone 6 include local groundwater, imported CVP water, recycled water, and local surface water.

The District contract with the USBR provides up to 35,550 acre-feet per year (AFY) of imported water for agricultural use and 8,250 AFY for M&I use. As noted above, CVP allocations were increased to 100 percent for agricultural and M&I uses in WY 2023. However, the overall delivery of CVP to users in Zone 6 was less than the previous two years

of severe drought and recent normal and wet years due to the delivery and treatment infrastructure issues described above. **Figure 1** shows the delivered CVP water by user type over the last 20 years.

**Figure 1. CVP Deliveries by User Type (WY 2004- WY 2023)**



CVP and the other non-groundwater water sources are used conjunctively with local groundwater. The District has consistently worked to maintain groundwater storage in the Basin to serve as an important water source in dry years when CVP and other sources are restricted. District groundwater management projects (also described in GSP Chapter 8, Todd 2021) are focused on increasing water importation, local water storage, managed aquifer recharge, and water recycling, all of which maintain and increase local groundwater storage.

Ongoing management actions include groundwater level, quality, and water use monitoring, data compilation and analysis, numerical modeling, water conservation, water quality improvement programs, stakeholder outreach, reporting, and administrative activities among others that contribute to long-term sustainability.

### 3. RECOMMENDATIONS

The following recommendations are responsive to the District Act:



- Continue to purchase and supply all imported CVP water available under the District's contract and any additional supplies that can reasonably be attained.
- Continue to operate Hernandez and Paicines reservoirs for downstream percolation to improve downstream groundwater conditions.
- Continue off-channel percolation of CVP water as available and expand percolation capabilities.
- Levy a groundwater charge in Zone 6 as substantiated and recommended in the 2023 Annual Groundwater Report. The groundwater charge for the USBR contract year (March 2024-February 2025) is recommended to be \$14.03 per acre-foot (AF) for agricultural use in Zone 6 and a groundwater charge of \$14.03 per AF is recommended for M&I use.

#### **4. REFERENCES**

Association of California Agencies, 2023, Bureau of Reclamation Bolsters CVP Water Supply Allocations, <https://www.acwa.com/news/bureau-of-reclamation-bolsters-cvp-water-supply-allocations/>, April 23, 2023.

Todd Groundwater (Todd), 2022, 2021 Annual Groundwater Report, March.

Todd Groundwater (Todd), 2021, North San Benito Groundwater Sustainability Plan, November.

Todd Groundwater (Todd), 2023, 2022 Annual Groundwater Report, March.

## **Appendix A**

### **2014 Sustainable Groundwater Management Act impacts to the Groundwater Investigation, Report and Recommendations required by the District Act**

The San Benito County Water Conservation and Flood Control District Act (District Act) Section 70-7.6, requires the San Benito County Water District (District) to prepare an annual investigation and report on groundwater conditions. In 2014, the Sustainable Groundwater Management Act (SGMA) was approved by the legislature. Since SGMA approval, the District has become the exclusive Groundwater Sustainability Agency (GSA) for the North San Benito Groundwater Basin (Basin) in San Benito County and has led the preparation of a Groundwater Sustainability Plan (GSP) for the basin.

Consistent with SGMA and the District Act, the District is required to complete an Annual Groundwater Report. There is considerable overlap between the two legislative requirements as both require the development and analysis of groundwater conditions. The SGMA Annual Report is required to be submitted to the Department of Water Resources (DWR) by April 1 of each year. The District Act requires a public hearing on the second Monday in January for interested parties to inquire/discuss the condition of the groundwater supplies or surface water supplies of the district.

The District has determined the most efficient method for meeting the requirements of the SGMA and District Act is to provide an Annual Groundwater Assessment available to the public in December of each year. This assessment will provide an overview of basin conditions and recommendations. A public hearing will be held on the second Monday in January of each year in compliance with the District Act. The annual report will be completed following the public hearing and prior to the April 1 deadline. This will allow the District the opportunity to address any groundwater issues brought forward at the January public hearing and incorporate any substantive changes prior to submission to the DWR.

Per the District Act, the investigation and report shall include the following information:

- (a) Information for the consideration of the board in its determination of the annual overdraft.
- (b) Information for the consideration of the board in its determination if the accumulated overdraft as of September 30 of the current calendar year.
- (c) A report as to the total production of water from the groundwater supplies of the district and the zones thereof as of September 30 of the current calendar year.
- (d) An estimate of the annual overdraft for the current water year and for the ensuing water year.
- (e) Information for the consideration of the board in its determination if the estimated amount of agricultural water and the estimated amount of water other than agricultural water to be withdrawn from the groundwater supplies of the district and zones thereof for the ensuing water year.

- (f) The amount of water the district is obligated to purchase during the ensuing water year
- (g) A recommendation as to the quality of water needed for surface delivery and for replenishment of the groundwater supplies of the district and the zones thereof the ensuing water year.
- (h) A recommendation as to whether or not a groundwater charge should be levied in any zone or zones of the district during the ensuing water year.
- (i) If any groundwater charge is recommended, a proposal of a rate per acre-foot for agricultural water and a rate per acre-foot for all water other than agricultural water for such zone or zones.

Any other information the board requires.



# APPENDIX B CLIMATE DATA

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## List of Tables and Figures

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Table B-1. Monthly Precipitation at the SBCWD CIMIS Station (inches)

Table B-2. Reference Evapotranspiration at the SBCWD CIMIS Station (inches)



**Table B-1. Monthly Precipitation at the SBCWD CIMIS Station (inches)**

Water Year	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	% Normal
1996	0.12	0.01	2.21	4.38	4.52	1.56	1.33	1.32	0.00	0.01	0.00	0.00	15.46	118%
1997	0.96	3.16	4.26	6.84	0.21	0.09	0.19	0.02	0.10	0.00	0.00	0.03	15.86	121%
1998	0.16	3.78	2.59	4.94	9.06	2.70	2.31	2.40	0.09	0.02	0.00	0.08	28.13	215%
1999	0.54	1.93	0.79	2.54	2.49	1.52	0.67	0.06	0.07	0.00	0.00	0.00	10.61	81%
2000	0.14	0.98	0.11	4.05	4.53	0.68	0.40	0.45	0.10	0.00	0.00	0.02	11.46	88%
2001	3.54	0.80	0.23	2.86	2.77	0.62	2.20	0.01	0.01	0.03	0.02	0.00	13.09	100%
2002	0.70	11.48	11.93	0.66	1.15	1.57	0.37	0.28	0.00	0.00	0.00	0.00	28.14	215%
2003	0.00	1.67	5.04	0.77	1.41	1.06	3.05	0.06	0.00	0.00	0.06	0.00	13.12	100%
2004	0.20	0.60	5.25	1.31	4.21	0.59	0.27	0.08	0.01	0.00	0.00	0.01	12.53	96%
2005	1.95	0.54	3.46	2.49	2.89	3.42	0.83	0.64	0.43	0.00	0.00	0.04	16.69	128%
2006	0.07	0.27	3.08	1.49	1.01	4.96	1.73	0.39	0.01	0.00	0.02	0.01	13.04	100%
2007	0.20	0.73	1.69	0.57	2.22	0.29	0.55	0.02	0.00	0.02	0.00	0.43	6.72	51%
2008	0.71	0.67	0.92	4.56	2.06	0.09	0.06	0.00	0.00	0.00	0.00	0.00	9.07	69%
2009	0.28	1.05	1.89	0.35	3.73	1.83	0.20	0.47	0.00	0.00	0.00	0.15	9.95	76%
2010	0.50	0.02	1.31	2.29	2.19	1.74	3.44	0.61	0.00	0.01	0.00	0.00	12.11	93%
2011	0.72	1.85	2.59	1.57	2.63	2.33	0.19	0.78	0.30	0.00	0.00	0.00	12.96	99%
2012	0.69	0.96	0.07	0.81	0.46	2.34	1.39	0.26	0.09	0.00	0.00	0.00	7.07	54%
2013	0.01	2.23	1.15	1.35	0.64	0.46	0.30	0.02	0.01	0.00	0.03	0.10	6.30	48%
2014	0.07	0.37	0.17	0.22	1.91	1.59	0.86	0.02	0.00	0.00	0.00	0.14	5.35	41%
2015	1.57	0.48	5.78	0.02	1.20	0.22	0.24	0.87	0.00	0.01	0.09	0.08	10.56	81%
2016	0.22	3.65	1.58	3.98	0.57	3.72	0.79	0.05	0.08	0.08	0.06	0.10	14.88	114%
2017	1.77	2.48	3.33	4.66	6.05	1.70	1.09	0.50	0.32	0.00	0.02	0.00	21.92	168%
2018	0.20	1.12	0.19	2.39	0.29	2.74	1.33	0.00	0.00	0.00	0.00	0.00	8.26	63%
2019	0.17	2.52	1.48	2.24	4.02	2.55	0.25	1.95	0.20	0.00	0.00	0.00	15.38	118%
2020	0.00	1.40	3.69	1.39	0.00	2.78	1.18	0.42	0.24	0.13	0.02	0.00	11.25	85%
2021	0.00	0.42	0.77	3.82	0.28	1.28	0.01	0.00	0.00	0.00	0.00	0.00	6.58	50%
2022	2.16	0.41	5.09	0.09	0.10	0.64	0.74	0.02	0.13	0.00	0.00	0.00	9.38	72%
2023	0.00	2.06	6.17	4.09	2.33	5.03	0.01	0.59	0.08	0.00	0.00	0.00	20.36	156%
AVG	0.63	1.70	2.74	2.38	2.32	1.79	0.93	0.44	0.08	0.01	0.01	0.04	13.08	100%

-The CIMIS value for September 2017 (2.4") includes measurement error due to irrigation overspray. The corrected District value is 0".

-The CIMIS value for February, May, June, and August 2018 (0.8", 2.6", 0.1", 0.03") includes measurement error due to irrigation overspray. The corrected District value is 0.3" for February and 0" for all other months.

-The CIMIS value for October and November 2018 included measurement error due to irrigation overspray. The corrected District value is 0.17" for October and 2.52" for November (WRCC Hollister2 Station)

**Table B-2. Reference Evapotranspiration at the SBCWD CIMIS Station (inches)**

Water Year	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	% Normal
1996	3.88	2.24	1.22	1.48	1.88	3.67	5.10	6.06	6.73	7.39	6.68	4.71	51.04	103%
1997	3.84	1.84	1.37	1.38	2.48	4.27	5.84	7.51	7.13	7.18	6.71	5.67	55.22	111%
1998	3.85	1.84	1.52	1.29	1.38	2.82	4.26	4.53	5.27	6.91	6.83	4.72	45.22	91%
1999	3.51	1.73	1.52	1.54	1.84	3.01	4.72	5.80	6.66	6.92	5.91	4.67	47.83	96%
2000	4.00	1.98	1.89	1.22	1.62	3.69	5.14	6.04	6.73	6.74	6.19	4.74	49.98	101%
2001	2.91	1.71	1.47	1.47	1.81	3.07	3.90	6.15	6.54	6.02	6.23	4.75	46.03	93%
2002	3.51	1.91	1.24	1.53	2.26	3.66	4.21	6.37	7.05	7.24	6.14	5.39	50.51	102%
2003	3.57	1.94	1.25	1.56	1.80	3.87	3.79	6.00	6.47	7.29	6.15	5.07	48.76	98%
2004	4.11	1.73	1.24	1.32	1.72	3.98	5.19	6.38	6.71	6.63	5.98	5.32	50.31	101%
2005	3.08	1.69	1.44	1.30	1.69	2.95	4.38	5.74	6.36	6.86	6.13	4.55	46.17	93%
2006	3.59	2.00	1.19	1.43	2.18	2.43	3.00	5.49	6.41	7.02	5.60	4.38	44.72	90%
2007	3.28	1.69	1.37	1.77	1.77	4.11	4.76	6.29	6.89	6.79	6.46	4.65	49.83	101%
2008	3.48	2.21	1.44	1.25	2.03	3.76	5.17	5.97	6.88	6.74	6.31	5.00	50.24	101%
2009	3.82	1.87	1.36	1.70	1.72	3.51	4.83	5.53	6.31	7.08	6.31	5.30	49.34	100%
2010	3.45	2.21	1.71	1.26	1.80	3.49	3.87	5.37	6.71	6.29	5.88	4.98	47.02	95%
2011	3.02	1.86	1.05	1.59	2.05	2.71	4.43	5.34	5.99	6.56	5.74	4.64	44.98	91%
2012	3.27	1.89	1.83	1.84	2.46	3.34	4.39	6.39	6.81	6.63	6.00	4.60	49.45	100%
2013	3.25	1.82	1.16	1.50	2.10	3.71	5.39	6.26	6.36	6.46	5.98	4.83	48.82	98%
2014	3.51	2.02	1.80	2.08	1.85	3.58	4.89	6.83	6.61	6.43	6.02	4.74	50.36	102%
2015	3.90	1.86	1.45	1.80	2.16	4.13	5.12	5.01	6.41	6.52	6.49	5.34	50.19	101%
2016	4.11	2.05	1.39	1.32	2.72	3.40	4.65	5.71	7.54	7.22	5.74	5.15	51.00	103%
2017	3.40	2.11	1.47	1.55	1.76	3.73	4.45	6.29	6.82	7.62	6.03	5.16	50.39	102%
2018	4.15	1.93	1.98	1.57	2.66	3.25	4.81	5.83	7.29	7.65	6.60	5.15	52.87	107%
2019	3.85	2.20	1.54	1.58	1.91	3.42	4.81	5.17	6.68	7.15	6.54	5.36	50.21	101%
2020	4.24	2.31	1.37	1.60	2.78	3.15	4.54	6.53	7.17	6.96	6.23	4.78	51.66	104%
2021	4.16	2.24	1.82	1.79	2.45	3.79	5.27	6.54	7.09	7.15	6.18	5.27	53.75	108%
2022	3.66	2.23	1.21	1.78	2.73	4.02	5.36	6.91	7.73	7.30	6.45	5.42	54.80	111%
2023	3.63	2.11	1.17	1.61	2.05	2.94	5.02	5.08	5.68	7.52	6.19	4.55	47.55	96%
AVG	3.64	1.97	1.45	1.54	2.06	3.48	4.69	5.97	6.68	6.94	6.20	4.96	49.58	100%

Note: The averages are for the available period of record, 1995 for reference evapotranspiration.





# APPENDIX C GROUNDWATER DATA

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## List of Tables and Figures

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Table C-1. Groundwater Elevations October 2021 through 2022

Figure C-1. Groundwater Basins in San Benito County

Figure C-2. Monitoring Locations



**Table C-1. Groundwater Elevations October 2022 through October 2023**

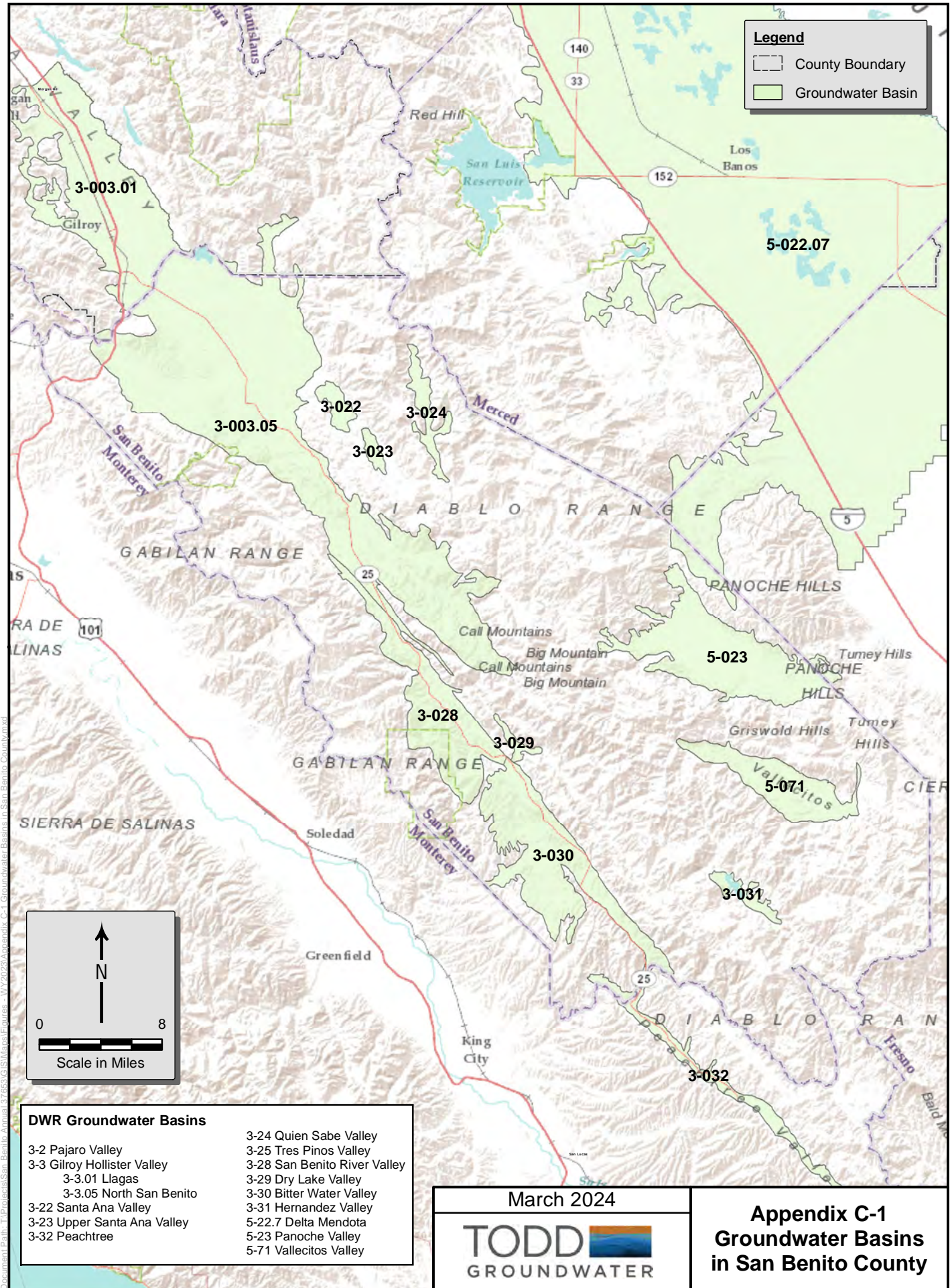
Well Number	Ground Elev (feet)	Well Depth (feet)	Depth to Top of Screens (feet)	Management Area	Groundwater Elevations (feet MSL)				
					Oct 22 Elev	Jan Elev	Apr Elev	Jul Elev	Oct 23 Elev
<b>Southern Management Area</b>									
Bolado Park #1				Southern	-14.3		-14.25		-12.6
Bolado Park #2				Southern	-21.8		-22.58		-18.5
COH Cullum #1				Southern	-52.33		-37.5		-20.6
COH Cullum #2				Southern	-52.16		-37.4		-20.3
Deep Well 5				Southern	-71.19	-58.97	-53.6	-46.32	-39.74
Deep Well 6				Southern	-32.37	-26.54	-23.75	-19.62	-17.91
14-6-13B1	696	0	0	Southern	631.18	638.5	653.53	650.33	648.44
14-6-14Q0	694	0	0	Southern	633.04		635.16		638.3
14-7-19G0	753	0	0	Southern	707.66		709.12		714.02
Panoche Solar Farm				Southern	-38.97		-40		-38.58
14-6-35B1	705	0	0	Southern	652.9		655.4		658.35
14-6-26K1	668	0	0	Southern	635.63	543	639.3	548	642.46
14-6-26F0	692	0	0	Southern	636.9	557	641.85	577	643.72
14-6-36D0	737	0	0	Southern	646.5		650.5		656.85
14-6-26H1	680	0	0	Southern	632.23	629.62	634.34	637.12	640.18
Shallow Well 4				Southern	-32.88		-29.4033	-29.1	-28.86
Shallow Well 5				Southern	-16.44			-5	-7.3
Swett 1				Southern	-33.45		-35.26		-33.5
Swett 2				Southern	-45.86		-44.34		-40.65
Swett2 1				Southern	-60.2		-61.25		-58.68
Swett2 2				Southern	-63.14		-65		-63.21
14-7-20K1	766	0	0	Southern	715.38	711.75	718.37	719.64	721.25
<b>San Juan Management Area</b>									
12-4-17L20	137	0	0	San Juan	116.9	125	124.32	123.12	122.09
12-4-18J1	150	0	0	San Juan	127.55		129.85		122.17
12-4-21M1	169	250	0	San Juan	132.7		140.77		143.31
12-4-34H1	197.5	387	120	San Juan	116.65		123.12		151.71
12-4-35A1	216	325	110	San Juan	141.64		147.25		172.79
12-5-28N1	253.66	408	168	San Juan	195.48		216.16		221.88
12-5-30H1	250	240	0	San Juan	199.25		204.57		207.12
12-5-31H1	248	0	0	San Juan	185.12		192.21		187.22
13-4-3H1	206.25	312	168	San Juan	123.2	147.64	138.5	144	149
13-4-4A3	210	195	48	San Juan	171.4		173.85		198.3
775 Flint Rd				San Juan	-41.68		-39.33		-36.4
Alameda 1 (Top Flavor)				San Juan	-70.27		-69.74		-71.4
Alameda 2				San Juan	-57.24		-58.32		-62.37
Barker Farms 1				San Juan	-63.5		-64.25		-63.38
Barker Farms 2				San Juan	-64.89		-66.15		-67.41
Barker Farms 3				San Juan	-67.7		-69.5		-68.68
Barker Farms 4				San Juan	-11.25		-13		-11.5
Dobler				San Juan	-110.7		-115.6		-108.66
13-5-6L1	241.5	0	0	San Juan	113.63	141.5	144.98	135.15	147.5
Shallow Well 3				San Juan	-19.73		-14.7167	-13.92	-13.71
<b>Bolsa Management Area</b>									
11-4-25H1	148	631	216	Bolsa	81.63	115.42	97.2	94.4	91.57
11-4-26B1	143	642	149	Bolsa	121.7		131.65	130.05	128.67
11-4-34A1	142	100	0	Bolsa	114.44		130.1667	134.75	136
11-5-20N1	150	300	0	Bolsa	45.03		84.78	77.03	71.94
11-5-21E2	155	220	100	Bolsa	155				
11-5-27P2	184	331	67	Bolsa	156.64		164.2967	169.61	172.5
11-5-31F1	159	515	312	Bolsa	68.36		80.84		80.59

**Table C-1. Groundwater Elevations October 2022 through October 2023**

Well Number	Ground Elev (feet)	Well Depth (feet)	Depth to Top of Screens (feet)	Management Area	Groundwater Elevations (feet MSL)				
					Oct 22 Elev	Jan Elev	Apr Elev	Jul Elev	Oct 23 Elev
12-5-5G1	175	500	150	Bolsa	109.5		117.35		107.45
12-5-5M1	175	0	0	Bolsa	55		64.24		57.55
12-5-6L1	177	0	0	Bolsa	140.71	146.74	146.17	148.36	150.85
12-5-7P1	204	750	360	Bolsa	33.5		56		46
12-5-17D1	216	950	314	Bolsa	55	70.75	72.25	67	63.5
Deep Well 1				Bolsa	-114.78	-109.7	-110.38	-113.4	-111.5
Shallow Well 1				Bolsa	-21.63				
Shallow Well 2				Bolsa			-15.96	-16.89	-17.47
<b>Llagas - SCVWD</b>									
11-4-2D8	229	0	0	Llagas	124.36333	152.1	159.3367	126.15	145.925
11-4-2N1	174.9	0	0	Llagas	119.43667	148.875	155.1933	120.55	143.37
11-4-3J2	196	0	0	Llagas	117.175	151.67	160.0567	128.8467	140.89
11-4-8K2	178.1	0	0	Llagas	130.58667	153.445	163.6867	151.6767	148.945
11-4-10D4	169.9	0	0	Llagas	124.34	148.23	158.6067	134.5133	140.115
11-4-15J2	144	0	0	Llagas	100.35	144			
11-4-17N4	180.1	0	0	Llagas	129.59667	154.635	163.4	152.23	147.6
11-4-21P3	154.9	0	0	Llagas	121.72	142.225	147.41		137.9
11-4-22N1	149.9	0	0	Llagas	112.53	138.57	139.9733	121.5433	126.53
11-4-32R2	140.1	0	0	Llagas	103.07	130.535	132.8467	117.9467	120.7
<b>Hollister Management Area</b>									
11-5-13D1	257.5	125	0	Hollister	220.25	220.6	223.8	226.5	231
11-5-23R2	230	118	43	Hollister	194.9				
11-5-24C2	249	165	70	Hollister	211.5		213.38		225.38
11-5-24L1	234	70	0	Hollister	193.29		195.24		208.8
11-5-26N2	198	232	95	Hollister	165.16		167.32		174.31
11-5-26R3	208	225	65	Hollister	157		175.57		181.63
11-5-35C1	198	180	0	Hollister	169.08		171.79		176.66
11-5-35G1	206	230	0	Hollister	166.28	182.17	184.73	185.89	187.44
11-5-36C1	223	98	0	Hollister	183.25		190.5		196.75
12-5-1G2	215	300	0	Hollister	175.77		177.83		183.38
12-5-2H5	210	128	42	Hollister	179.18		183.07		190.75
12-5-22C1	236	237	102	Hollister	167.02		169.64		176.35
12-5-22J2	250	355	120	Hollister	190.25		193.08		197.02
12-5-23A20	239	862	178	Hollister	155.5		160.5		184.5
12-5-27E1	270	175	0	Hollister	196.26		201.1		199.54
12-5-28J1	276	220	0	Hollister	207.22		212.12		217.3
12-5-33E2	266	121	81	Hollister	221.68		221.56		223.64
12-5-34P1	293.2	195	153	Hollister	220	218.5	220.5	221.25	226.5
12-5-36B20	315	500	430	Hollister	195.2		197.5		200
12-6-6L4	246.5	235	50	Hollister	213.88	216.48	216.18	218.69	220.49
12-6-7P1	266	147	0	Hollister	233.33		242.35		246.4
12-6-18G1	303	198	70	Hollister	258.64		264.34		
12-6-30E1	375	0	0	Hollister	343.75		347.31		350.48
13-5-3L1	303	126	0	Hollister	221.45		226.6		233
13-5-10B1	305	0	0	Hollister	215		216		221.25
13-5-11E1	308.33	0	0	Hollister	272.64		276.98	278.88	281.17
13-5-11Q1	324	178	61	Hollister	247.9		249.7		266.2
13-5-13F1	348	134	30	Hollister	322.5		326.34	328.2	330.46
13-5-13H1	400	252	112	Hollister	329.69		336		341.5
13-5-13J2	375	180	0	Hollister	328.28		331.82		340.17
13-5-13Q1	360	185	44	Hollister	326.45		329.89		334.12
13-5-14C1	365	0	0	Hollister	287.75		290		
13-6-7D2	500	0	0	Hollister	336.28		337.19		338.13
13-6-20K1	440	0	0	Hollister	407		408		411.84
Alameda 3				Hollister	-120.34		-122.38		-119.85
Cienega 1				Hollister	-28.6		-30		-27.6
COH Well #2				Hollister	-74.66		-70		-70.2
COH Well #4				Hollister	-69		-63.9		-60.2
COH Well #5				Hollister	-82		-78.1		-72.2
Deep Well 3				Hollister	-97.89	-96.45	-95.74	-97.38	-94.68
Deep Well 4				Hollister	-64.76	-60.21	-61.3	-59.88	-58.8

**Table C-1. Groundwater Elevations October 2022 through October 2023**

Well Number	Ground Elev (feet)	Well Depth (feet)	Depth to Top of Screens (feet)	Management Area	Groundwater Elevations (feet MSL)				
					Oct 22 Elev	Jan Elev	Apr Elev	Jul Elev	Oct 23 Elev
13-6-19L0	460	0	0	Hollister	296.56		303.73		309.86
13-6-19L1	460	0	0	Hollister	310.29		316.32		324.54
Lico and Greco 1				Hollister	-41.84		-40.65		-37.4
12-5-13H1	250	0	0	Hollister	226		227.37		233.2
San Benito Foods #2				Hollister	-56.94		-60.35		-56
13-5-4P1	318	0	0	Hollister	271.6		274.48		277.04
13-5-5F0	320	0	0	Hollister	273		283.2		289.35
13-5-5J0	338	0	0	Hollister	230.9		237.87		240.11
Shallow Well 6				Hollister	-18.18		-14.8467	-12.38	-10.38
Sunnyslope Test well #10				Hollister			-29		
Sunnyslope Test Well #11				Hollister	-148		-107		-95
Sunnyslope Test Well #12				Hollister	-78		-75.6		-72
Sunnyslope Test Well #9				Hollister			-94		-92
Sunnyslope Well #10				Hollister	-37				
Sunnyslope Well #11				Hollister	-181		-107		-95
Sunnyslope Well #2				Hollister	-96		-91.5		-89
Sunnyslope Well #5				Hollister	-127		-122		-119
Sunnyslope Well #7				Hollister	-160		-159		-110
Sunnyslope Well #9				Hollister	-95				
SunnyslopeWell #6				Hollister	-79		-74		-62
Veteran's Memorial Park Well				Hollister	-131.68				



**Legend**

- County Boundary
- Groundwater Basin

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Scale in Miles

**DWR Groundwater Basins**

3-2 Pajaro Valley	3-24 Quien Sabe Valley
3-3 Gilroy Hollister Valley	3-25 Tres Pinos Valley
3-3.01 Llagas	3-28 San Benito River Valley
3-3.05 North San Benito	3-29 Dry Lake Valley
3-22 Santa Ana Valley	3-30 Bitter Water Valley
3-23 Upper Santa Ana Valley	3-31 Hernandez Valley
3-32 Peachtree	5-22.7 Delta Mendota
	5-23 Panoche Valley
	5-71 Vallecitos Valley

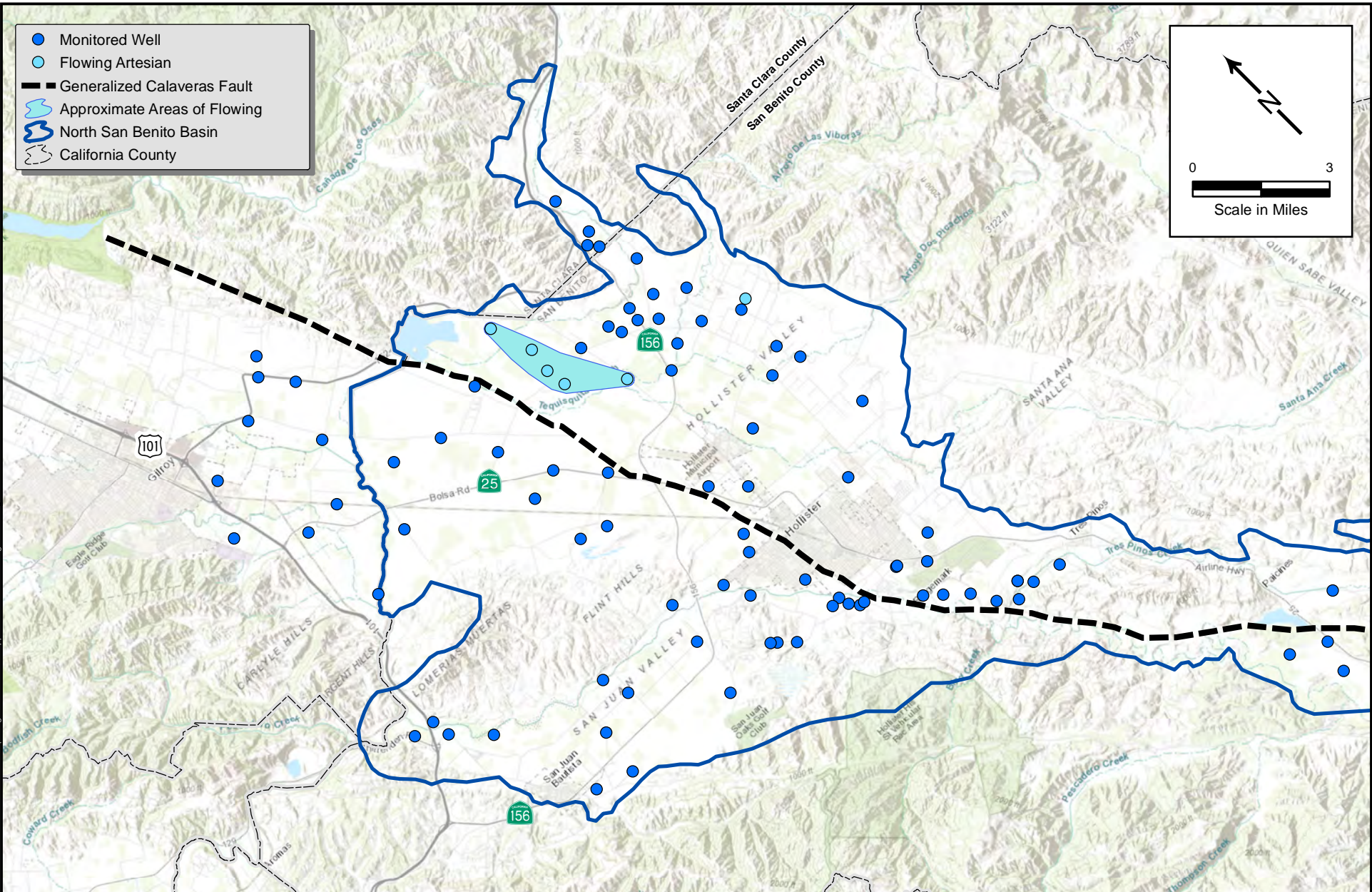
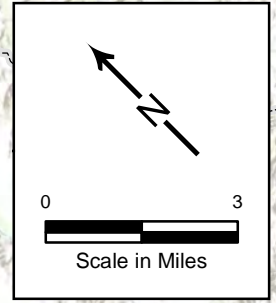
March 2024

**TODD** **GROUNDWATER**

**Appendix C-1**  
**Groundwater Basins**  
**in San Benito County**

Document Path: T:\Projects\San Benito Annual\37653\GIS\MapSeries - WY2023\Appendix C-1 Groundwater Basins in San Benito County.mxd

- Monitored Well
- Flowing Artesian
- Generalized Calaveras Fault
- Approximate Areas of Flowing
- North San Benito Basin
- California County



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March 2024

**TODD** **GROUNDWATER**

**Appendix C-2**  
**Monitoring Locations**





# APPENDIX D PERCOLATION DATA

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Figure D-1. Reservoir Releases for Percolation



**Table D-1. Reservoir Water Budgets for Water Year 2023 (acre-feet)**

	Hernandez	Paicines	San Justo
<b>Observed Storage</b>			
Starting Storage (Oct 2022)	496	300	7,373
Ending Storage (Sept 2023)	5,542	2,055	5,334
<b>Inflows</b>			
Rainfall	640	96	290
San Benito River	41,779	3,028	n.a.
Hernandez-Paicines transfer	n.a.	1,739	n.a.
San Felipe Project*	n.a.	n.a.	12,227 *
<b>Total Inflows</b>	<b>42,419</b>	<b>4,863</b>	<b>12,517</b>
<b>Outflows</b>			
Hernandez spills	18,292	n.a.	n.a.
Hernandez-Paicines transfer	323	n.a.	n.a.
Tres Pinos Creek percolation releases	n.a.	2,199	n.a.
San Benito River percolation releases	17,451	0	n.a.
CVP Deliveries*	n.a.	n.a.	13,084 *
Evaporation and seepage (less interceptor wells)	1,269	840	1,051
<b>Total Outflows</b>	<b>37,334</b>	<b>3,039</b>	<b>14,134</b>
<b>Change in Storage</b>			
<b>Observed storage change (Ending - Starting)</b>	<b>5,046</b>	<b>1,755</b>	<b>-2,039</b>
<b>Calculated net storage change (Inflow - Outflows)</b>	<b>5,085</b>	<b>1,825</b>	<b>-1,617</b>
<b>Unaccounted for Water (Observed - Calculated)**</b>	<b>-39</b>	<b>-70</b>	<b>-422</b>
<b>Reservoir Information</b>			
Reservoir capacity	17,200	2,870	11,000
Maximum storage	12,572	2,580	10,308
Minimum storage	558	250	4,573

\* Reflects imported water for beneficial use, not all stored in reservoir

\*\* Negative value is water shortage, positive value is water surplus

**Table D-2. Historical Reservoir Releases (AFY)**

<b>WY</b>	<b>Hernandez</b>	<b>Paicines</b>	<b>TOTAL</b>
1996	13,535	6,139	19,674
1997	3,573	2,269	5,842
1998	26,302	450	26,752
1999	12,084	1,293	13,377
2000	13,246	2,326	15,572
2001	12,919	3,583	16,502
2002	9,698	310	10,008
2003	5,434	0	5,434
2004	3,336	0	3,336
2005	19,914	677	20,591
2006	14,112	196	14,308
2007	12,022	1,254	13,276
2008	7,646	495	8,141
2009	4,883	0	4,883
2010	8,484	4,147	12,631
2011	9,757	2,397	12,154
2012	6,341	1,321	7,662
2013	3,963	677	4,640
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	23,191	2,407	25,597
2018	6,054	384	6,438
2019	15,924	2,045	17,969
2020	9,473	2,037	11,510
2021	7,480	504	7,984
2022	3,279	210	3,489
2023	17,451	2,199	19,650
<b>AVG</b>	<b>9,646</b>	<b>1,333</b>	<b>10,979</b>

**Table D-3. Historical Percolation of CVP Water (AFY)**

Water Year <sup>1</sup>	Pacheco Creek	Arroyo de las Viboras			Arroyo Dos Picachos			Santa Ana Creek				Tres Pinos Creek (and Pond)	San Benito River		Total
		Road	Creek 1 (Frog Ponds)	Creek 2	Fallon Road	Jarvis Lane	Creek	John Smith Road	Maranatha Road	Airline Highway	Ridgemark		Union Road Pond	Hollister Ponds	
1994	232	136	515	0	0	550	209	0	0	0	0	85	158	0	1,885
1995	444	238	770	2	0	654	622	73	0	0	0	809	2,734	0	6,345
1996	0	494	989	832	67	235	708	531	197	134	25	21	6,097	0	10,330
1997	0	447	601	1,981	77	0	200	17	353	286	29	1,477	5,619	0	11,087
1998	0	132	109	403	0	0	0	65	0	158	74	518	1,084	0	2,543
1999	0	0	0	0	0	0	4	256	48	141	10	452	413	0	1,322
2000	1	0	0	6	0	0	3	236	21	240	12	285	938	0	1,740
2001	0	0	0	0	0	0	0	161	17	186	1	703	1,041	0	2,110
2002	0	0	0	2	0	0	1	78	2	143	0	426	470	0	1,122
2003	0	0	0	0	0	0	5	119	9	172	0	163	605	0	1,074
2004	0	0	0	0	0	0	52	83	0	0	0	1	882	0	1,018
2005	0	0	0	0	0	0	0	0	0	0	0	0	527	0	527
2006	0	0	0	0	0	0	7	156	0	0	0	1	451	0	614
2007	0	0	0	0	0	0	0	0	0	0	0	88	216	0	304
2008	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6
2009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	340	0	0	0	0	0	0	0	0	0	2,209	0	2,549
2018	0	0	199	0	0	0	0	0	0	0	0	867	1,899	0	2,965
2019	0	0	335	0	0	0	0	0	0	0	0	1,775	2,932	0	5,043
2020	0	0	134	0	0	0	0	0	0	0	0	780	1,499	747	3,161
2021	0	0	2	0	0	0	0	0	0	0	0	2	3	20	28
2022	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
2023	0	0	536	0	0	0	0	0	0	40	1	1,060	328	0	1,966

1. 2017-2022 percolation occurred only to recharge basins adjacent to the listed streams.

**Table D-4. Percolation of Municipal Wastewater during Water Year 2022**

	Pond Area <sup>1</sup> (acres)	Effluent Discharge (acre-feet)	Evaporation <sup>2</sup> (acre-feet)	Percolation (acre-feet)
Hollister - domestic	93	2,966	266	2,699
Hollister - industrial	39	0	0	0
Ridgemark Estates I & II	7	177	21	156
Tres Pinos	2	21	5	16
<b>Total</b>	<b>141</b>	<b>3,164</b>	<b>292</b>	<b>2,872</b>

Notes:

1. Hollister pond areas are from Dickson and Kenneth D. Schmidt and Associates (1999) and include treatment ponds in addition to percolation ponds at the domestic wastewater treatment plant. Assumes 80% of total pond area in use at any time (Rose, pers. comm.). These areas should be updated as operations change.

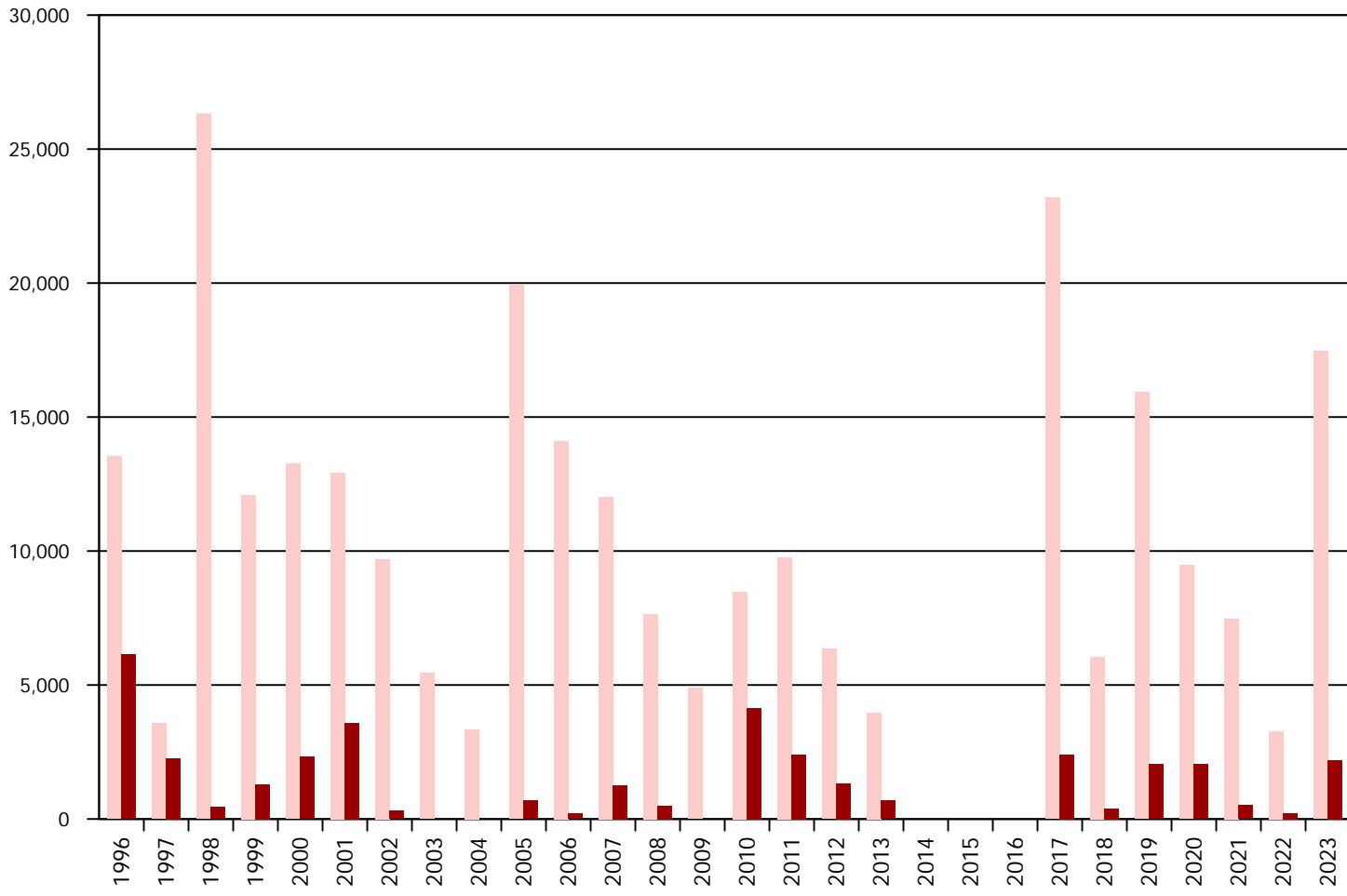
2. Average evaporation less precip = 43 inches (56 in/yr evaporation (DWR Bulletin 73-79) less 13 in/yr precip (CIMIS) The IWTP evaporation was adjusted to account only for when the ponds are in use.

The San Juan Bautista plant is not included because the unnamed tributary of San Juan Creek that receives its effluent usually gains flow along the affected reach and is on the southwest side of the San Andreas Fault. These conditions prevent the effluent from recharging the basin.

**Table D-5. Historical Percolation of Municipal Wastewater (AFY)**

	Hollister Reclamation Plant - Domestic	Hollister - industrial wastewater and stormwater	Ridgemark Estates I & II	Tres Pinos	TOTAL
1994	1,775	665	155	5	2,600
1995	1,935	610	180	10	2,735
1996	2,020	689	207	14	2,930
1997	1,965	909	201	17	3,092
1998	2,490	518	231	17	3,256
1999	1,693	1,476	156	12	3,337
2000	2,110	1,136	293	24	3,563
2001	1,742	1,078	303	24	3,147
2002	1,884	1,545	283	24	3,736
2003	2,009	1,432	279	24	3,744
2004	1,787	1,536	268	21	3,612
2005	1,891	1,323	227	26	3,468
2006	1,797	1,211	216	33	3,257
2007	1,740	1,228	139	19	3,126
2008	1,580	1,257	139	19	2,996
2009	1,976	428	172	19	2,594
2010	1,922	37	172	19	2,150
2011	1,807	466	183	19	2,476
2012	1,740	605	177	19	2,541
2013*	889	332	188	21	1,430
2014	1,552	86	179	21	1,838
2015	1,816	344	161	21	2,342
2016	1,923	305	154	21	2,402
2017	1,945	57	154	20	2,177
2018	1,365	57	150	15	1,587
2019	1,822	0	149	16	1,986
2020	2,392	0	155	6	2,553
2021	2,405	0	161	16	2,582
2022	2,618	0	155	16	2,788
2023	2,699	0	156	16	2,872

\*Potential missing data



■ Hernandez  
■ Paicines

March 2024



TODD  
GROUNDWATER

**Appendix D-1  
Reservoir Releases  
for Percolation**



# APPENDIX E WATER USE DATA

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Figure E-2 Groundwater Water Balance By Year Type – Hollister MA (AFY)

Figure E-3. Groundwater Water Balance By Year Type – San Juan MA (AFY)

Figure E-4. Groundwater Water Balance By Year Type – Southern MA (AFY)



**Table E-1. Recent CVP Allocation and Use**

Water Year	Municipal and Industrial (M&I) CVP				Agricultural CVP			
	Percent of Contract Allocation <sup>1</sup>	Percent of Historic Average <sup>2</sup>	Contract Amount Used (AF)	Contract Amount Used (%)	Percent of Contract Allocation <sup>3</sup>	Percent of Contract and M&I Adjustment <sup>2</sup>	Contract Amount Used (AF) <sup>4</sup>	Contract Amount Used (%)
	(USBR Water Year Mar-Feb)		(Hydrologic Water Year Oct-Sep)		(USBR Water Year Mar-Feb)		(Hydrologic Water Year Oct-Sep)	
2006	100%		3,152	38%	100%		19,840	56%
2007	100%		4,969	60%	40%		18,865	53%
2008	37%	75%	2,232	27%	40%	45%	10,514	30%
2009	29%	60%	1,978	24%	10%	11%	6,439	18%
2010	37%	75%	2,197	27%	45%	50%	10,061	28%
2011	100%		2,433	29%	80%		16,234	46%
2012	51%	75%	2,683	33%	40%	40%	17,267	49%
2013	47%	70%	2,652	32%	20%	22%	12,914	36%
2014	34%	50%	1,599	29%	0%	0%	7,545	21%
2015	25%		1,810	22%	0%		3,697	10%
2016	55%		1,914	23%	5%		4,434	12%
2017	100%		2,909	35%	100%		15,837	45%
2018	75%		5,679	69%	50%		17,418	49%
2019	100%		4,457	54%	75%		16,774	47%
2020	65%		4,953	60%	15%		15,327	43%
2021	65%		3,341	40%	0%		6,108	17%
2022 <sup>5</sup>	33%		2,786	34%	0%		1,098	3%
2023	100%		2,616	32%	100%		8,441	24%
<b>Average (14-23)</b>	<b>65%</b>				<b>35%</b>			

Notes: 1 Total contract (100% allocation) M&I 8,250 AFY

2 Shortage Policy Adjustments

3 Total contract (100% allocation) Ag 35,550 AFY

4 Includes water percolated

5 Public Health Safety volumes

**Table E-2. Historical CVP and RW Use by MA in Zone 6 (AFY)**

MA: Source:	San Juan MA CVP	Hollister MA CVP	RW	Total Zone 6 CVP	RW
1993	4,300	11,333	0	15,633	0
1994	3,836	11,155	0	14,990	0
1995	4,554	11,576	0	16,130	0
1996	5,187	13,636	0	18,823	0
1997	6,191	14,858	0	21,048	0
1998	4,099	8,697	0	12,796	0
1999	5,990	12,048	0	18,038	0
2000	6,372	12,301	0	18,673	0
2001	7,232	12,170	0	19,402	0
2002	7,242	13,169	0	20,411	0
2003	7,127	14,607	0	21,734	0
2004	7,357	16,653	0	24,010	0
2005	6,245	14,139	0	20,384	0
2006	7,200	15,792	0	22,992	0
2007	6,160	15,955	0	22,115	0
2008	3,160	9,586	0	12,745	0
2009	1,605	6,599	0	8,204	0
2010	3,452	8,532	151	11,984	151
2011	5,623	13,045	183	18,667	183
2012	5,976	13,973	230	19,949	230
2013	4,134	11,431	357	15,566	357
2014	1,984	7,160	262	9,144	262
2015	975	4,532	101	5,507	101
2016	819	5,528	499	6,347	499
2017	5,853	10,344	366	16,197	366
2018	6,383	13,748	471	20,131	471
2019	3,990	12,198	569	16,188	569
2020	4,618	12,501	526	17,119	526
2021	1,587	7,859	472	9,446	472
2022	2,779	1,102	611	3,882	611
2023	3,897	7,158	484	11,054	484
<b>AVG 93-22</b>	<b>4,734</b>	<b>11,208</b>	<b>160</b>	<b>15,942</b>	<b>160</b>

\* No Recycled Water is used in San Juan MA

**Table E-3. Municipal Water Use by Major Purveyor for Water Year 2022 (AF)**

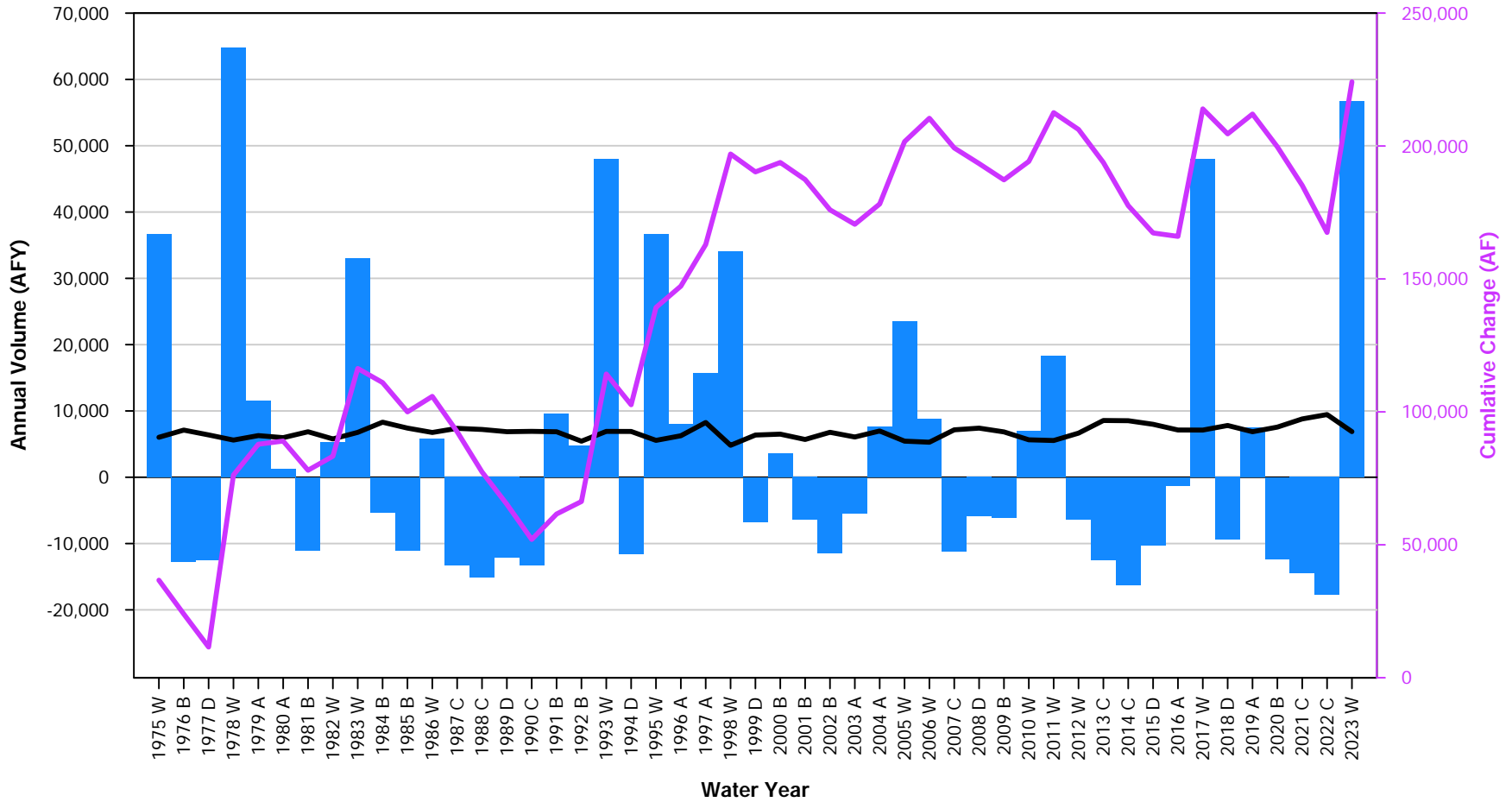
	WY 2022	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Groundwater</b>													
Sunnyslope CWD	<b>1,478</b>	185	191	181	176	146	88	85	157	43	58	83	85
City of Hollister	<b>1,684</b>	117	172	168	164	150	162	194	136	46	161	149	64
City of Hollister - Cienega Wells	<b>90</b>	9	8	8	8	7	8	8	8	5	8	8	5
San Juan Bautista	<b>276</b>	24	20	17	18	17	17	19	24	25	33	31	30
Tres Pinos CWD	<b>159</b>	0	8	7	9	9	13	12	19	11	23	23	25
<b>Groundwater Subtotal</b>	<b>3,686</b>	<b>336</b>	<b>400</b>	<b>382</b>	<b>374</b>	<b>330</b>	<b>287</b>	<b>319</b>	<b>345</b>	<b>130</b>	<b>283</b>	<b>294</b>	<b>208</b>
<b>CVP Imported Water</b>													
Lessalt Treatment Plant	<b>814</b>	0	0	0	0	0	64	72	107	122	132	178	138
West Hills Treatment Plant	<b>1,489</b>	204	170	0	0	0	0	0	31	279	300	250	254
<b>Imported Water Subtotal</b>	<b>2,303</b>	<b>204</b>	<b>170</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>64</b>	<b>72</b>	<b>138</b>	<b>401</b>	<b>433</b>	<b>429</b>	<b>392</b>
<b>Municipal Total</b>													
<b>TOTAL Municipal Water Supply</b>	<b>5,990</b>	<b>540</b>	<b>570</b>	<b>382</b>	<b>374</b>	<b>330</b>	<b>352</b>	<b>391</b>	<b>483</b>	<b>531</b>	<b>715</b>	<b>723</b>	<b>600</b>

**Table E-4. Historical Municipal Water Use by Major Purveyor (AFY)**

WY	Sunnyslope CWD - GW	City of Hollister - GW	City of Hollister - Cienega Wells <sup>1</sup>	San Juan Bautista	Tres Pinos CWD	Lessalt Treatment Plant	West Hills Treatment Plant	Undivided Total	TOTAL
1988						0	0	5,152	5,152
1989						0	0	6,047	6,047
1990						0	0	5,725	5,725
1991						0	0	7,631	7,631
1992						0	0	6,912	6,912
1993						0	0	5,066	5,066
1994						0	0	7,186	7,186
1995	2,167	2,446				0	0		4,613
1996	2,139	3,386				0	0		5,525
1997	2,638	3,848				0	0		6,486
1998	2,357	3,441				0	0		5,798
1999	2,820	3,558				0	0		6,378
2000	3,214	4,021				0	0		7,235
2001	3,290	3,851				0	0		7,141
2002	3,256	4,120				21	0		7,398
2003	2,053	2,754				2,494	0		7,302
2004	2,426	2,828				2,101	0		7,356
2005	1,959	3,147	123	247	49	1,843	0		7,368
2006	1,907	2,801	123	150	49	1,900	0		6,930
2007	2,413	2,758	123	47	49	1,719	0		7,108
2008	2,294	2,746	123	417	47	1,323	0		6,949
2009	2,251	2,503	123	373	47	1,212	0		6,509
2010	1,861	2,194	108	308	47	1,344	0		5,861
2011	2,225	1,651	80	292	47	1,593	0		5,887
2012	2,360	1,761	130	267	45	1,657	0		6,219
2013	1,655	2,655	120	281	46	1,648	0		6,405
2014	2,134	2,646	114	285	49	979	0		6,207
2015	1,348	1,960	114	225	49	1,364	0		5,060
2016	1,331	1,615	105	232	49	1,682	0		5,014
2017	1,449	1,543	79	249	32	1,940	51		5,344
2018	978	1,217	121	184	34	1,596	1,990		6,119
2019	565	588	283	257	33	1,660	2,524		5,912
2020	694	707	95	224	35	1,503	1,990		5,248
2021	1,576	1,517	101	224	35	931	1,314		5,698
2022	1,839	1,449	97	229	34	258	2,488		6,394
2023	1,478	1,684	90	276	159	814	1,489		5,990

1. Data from Hollister Cienega Wells for 2005-2008 was estimated to be the same as WY 2009  
Cells with no data indicate that the information is unavailable, while years with no use are shown explicitly as 0's.

### Cumulative Storage Change



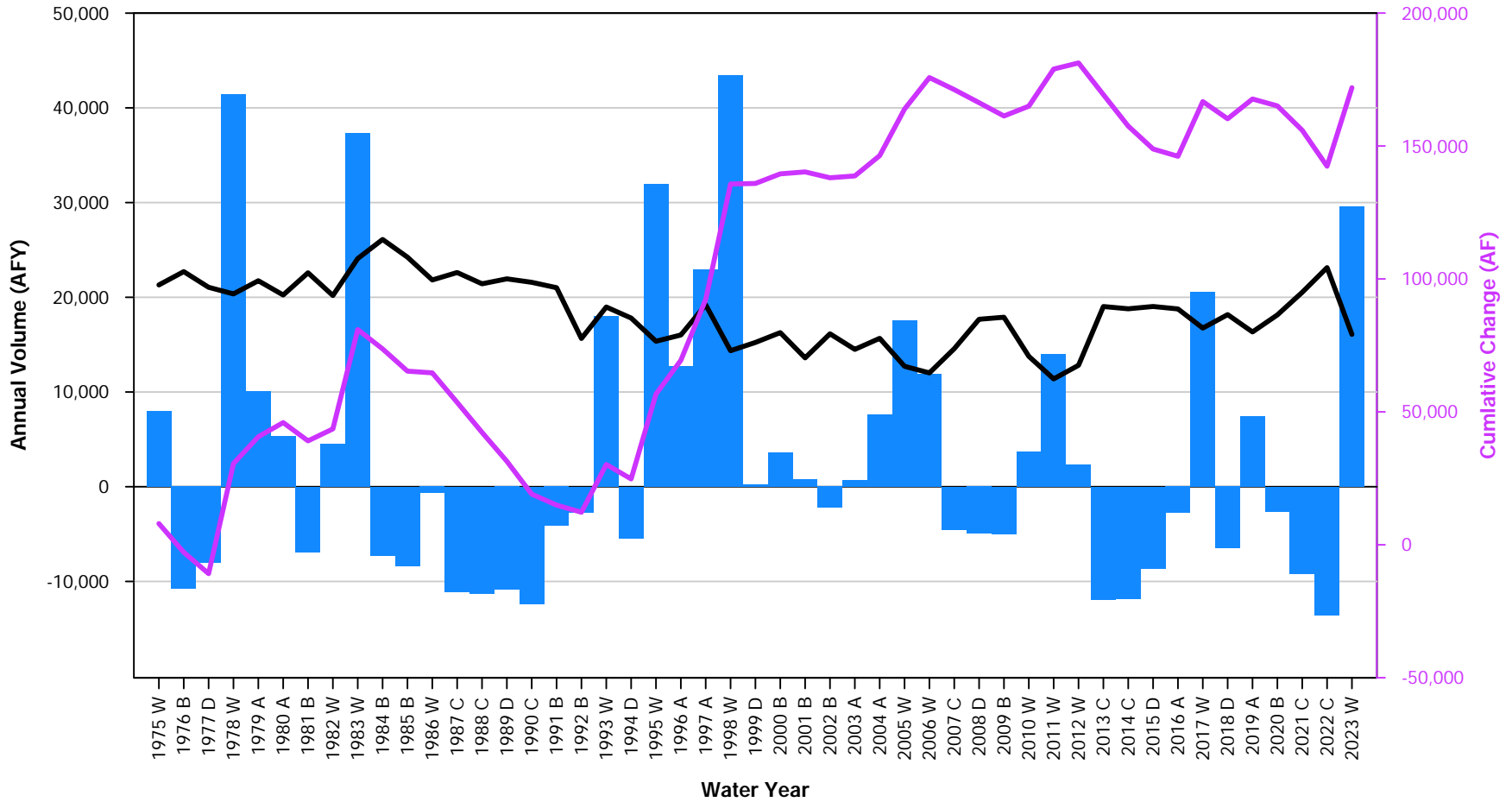
- Cumulative Storage Change
- Pumping
- █ Annual

March 2024



**Figure E-1**  
**Water Year Type**  
**and Storage, Southern**  
**Management Area**

### Cumulative Storage Change

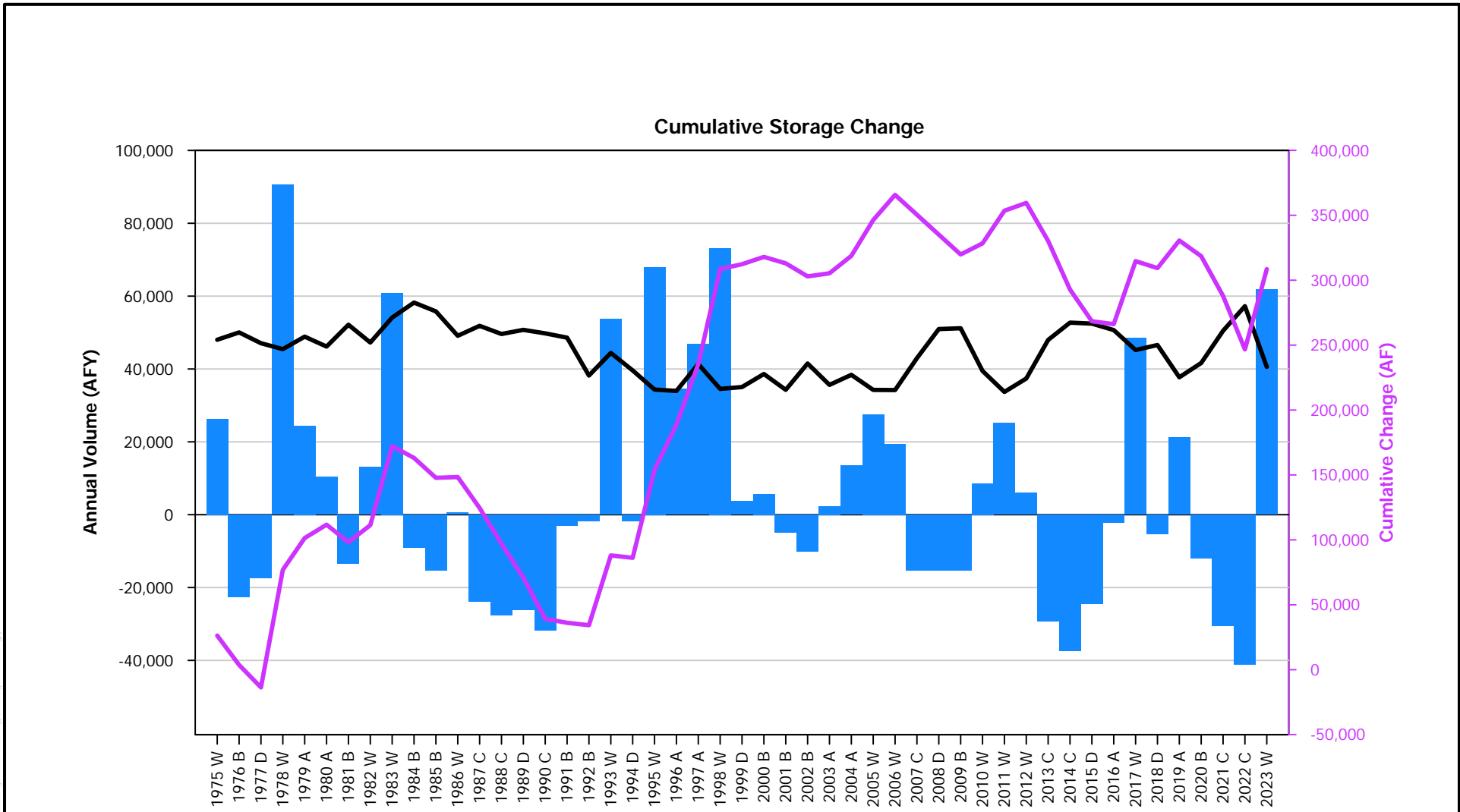


- Cumulative Storage Change
- Pumping
- █ Annual

March 2024

**Figure E-2**  
Water Year Type  
and Storage, San Juan  
Management Area

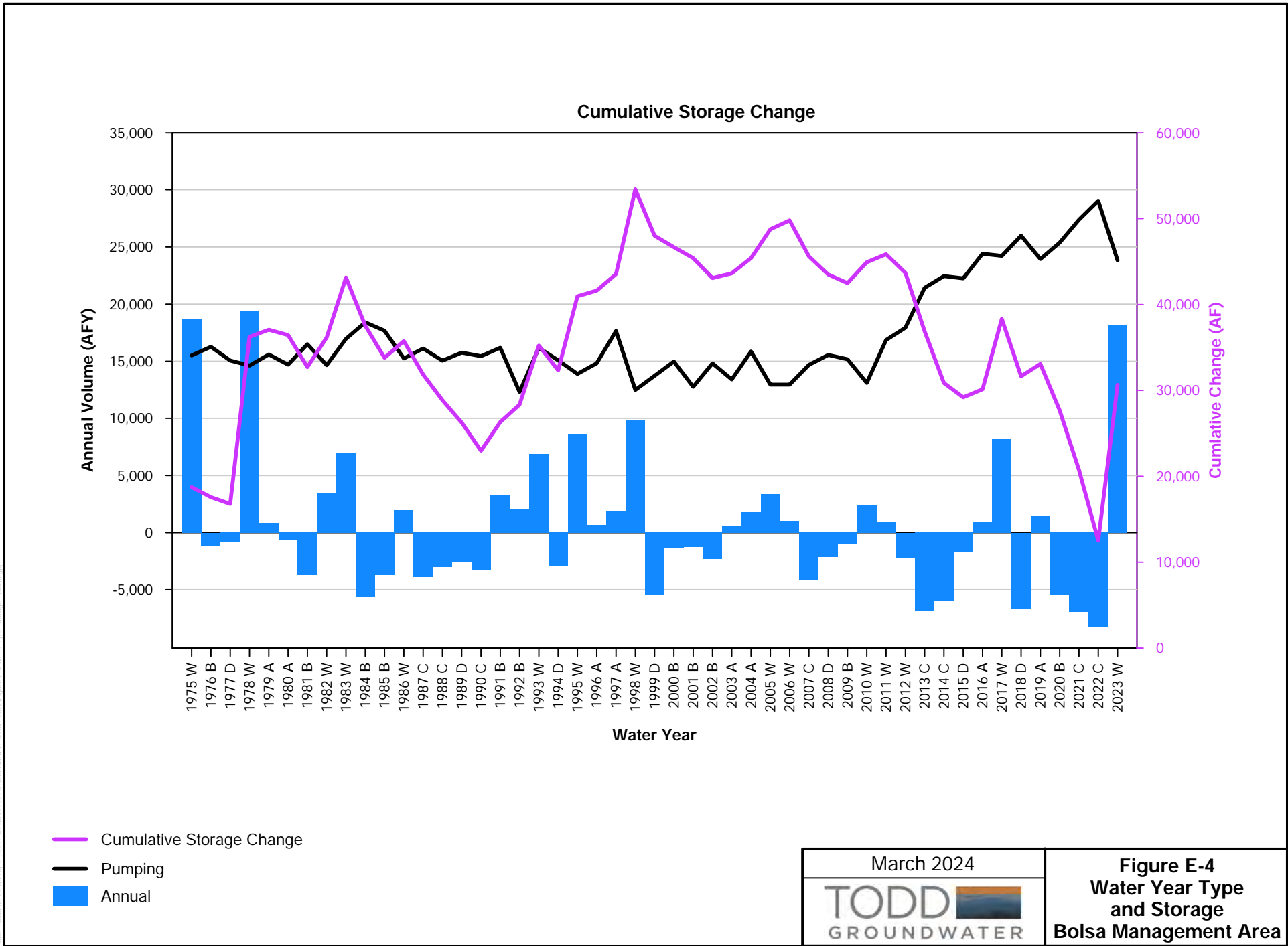




- Cumulative Storage Change
- Pumping
- █ Annual

March 2024

**Figure E-3**  
**Water Year Type**  
**and Storage, Hollister**  
**Management Area**



Path: \\msd\file\info\Projects\San\_Benito\_Annual\_37453\GRAPHICS\WY2024\Figure E-4 Water Type Storage - Bolsa.pdf

March 2024

**Figure E-4**  
**Water Year Type**  
**and Storage**  
**Bolsa Management Area**

# APPENDIX F RATES AND CHARGES

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## List of Tables and Figures

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Table F-1. Historical and Current San Benito County Water District CVP (Blue Valve) Water Rates

Table F-2. Recent US Bureau of Reclamation Charges per Acre-Foot for CVP Water



**Table G-2. Historical and Current San Benito County Water District CVP (Blue Valve) Water Rates (dollars/af)**

USBR Water Year	Standby & Availability Charge (dollars/acre)	Water Charge			Power Charge					Groundwater Charge (dollars/af)			Recycled Water (per AF)	
		Agricultural	Municipal & Industrial		Distribution Subsystem					Agricultural	Municipal & Industrial		Agricultural	Power Charge
			Small Parcel & Contract	Whoelsale	2	6H	9L	9H	Others					
1987	\$8.00	\$34.00	n.c.								n.i.	n.i.		
1988	\$2.00	\$34.00	n.c.								n.i.	n.i.		
1991	\$4.00	\$38.00	\$110.00								\$6.25	\$22.00		
1992	\$4.00	\$45.00	\$120.00								\$2.00	\$10.00		
1994	\$4.50	\$77.61	\$168.92								\$1.00	\$5.00		
1995	\$4.50	\$77.61	\$168.92								\$1.00	\$15.75	First 100 af	
												\$36.70	Next 500 af	
												\$54.60	Over 600 af	
1996	\$6.00	\$75.00	\$150.00								\$1.50	\$33.00		
1997	\$6.00	\$75.00	\$157.00								\$1.50	\$33.00		
1998	\$6.00	\$75.00	\$155.00								\$1.50	\$33.00		
2000	\$6.00	\$75.00	\$155.00								\$1.50	\$11.50		
2001	\$6.00	\$75.00	\$155.00								\$1.50	\$25.00		
2004	\$6.00	\$75.00	\$150.00	\$150.00	\$24.30	\$46.75	\$25.05	\$53.70	\$15.25		\$1.50	\$10.00		
2005	\$6.00	\$80.00	\$150.00	\$150.00	\$26.15	\$49.40	\$35.00	\$66.90	\$17.10		\$1.50	\$21.50		
2006	\$6.00	\$85.00	\$160.00	\$160.00	\$23.60	\$36.05	\$34.70	\$65.75	\$18.40		\$1.50	\$21.50		
2007	\$6.00	\$85.00	\$160.00	\$160.00	\$23.60	\$36.05	\$34.70	\$65.75	\$18.40		\$1.50	\$21.50		
2008	\$6.00	\$100.00	\$170.00	\$170.00	\$17.25	\$19.40	\$32.60	\$62.75	\$14.85		\$1.50	\$21.50		
2009	\$6.00	\$115.00	\$180.00	\$180.00	\$17.50	\$20.25	\$42.55	\$74.85	\$16.30		\$2.50	\$22.50		
2010	\$6.00	\$135.00	\$200.00	\$200.00	\$22.00	\$27.30	\$49.75	\$84.35	\$21.75		\$2.50	\$22.50		
2011	\$6.00	\$155.00	\$220.00	\$220.00	\$22.70	\$28.15	\$51.25	\$86.90	\$22.40		\$2.50	\$22.50		
2012	\$6.00	\$170.00	\$235.00	\$235.00	\$23.35	\$29.00	\$52.80	\$89.50	\$23.10		\$2.50	\$22.50		
2013	\$6.00	\$170.00	\$235.00	\$235.00	\$40.30	\$29.25	\$43.05	\$91.55	\$22.40		\$3.25	\$23.25		
2014	\$6.00	\$170.00	\$238.00	\$238.00	\$41.55	\$30.15	\$44.35	\$94.30	\$23.10		\$3.60	\$23.25		
2015	\$6.00	\$179.00	\$247.00	\$247.00	\$42.75	\$31.05	\$45.70	\$97.15	\$23.80		\$3.95	\$23.25		
2016	\$6.00	\$272.00	\$363.00	\$363.00	\$123.10	\$75.65	\$109.95	\$162.55	\$66.05		\$4.95	\$24.25	\$182.55	\$57.70
2017	\$6.00	\$191.00	\$363.00	\$363.00	\$126.80	\$77.90	\$113.25	\$167.45	\$68.05		\$6.45	\$24.25	\$183.45	\$59.45
2018	\$6.00	\$209.00	\$363.00	\$363.00	\$130.60	\$80.25	\$116.25	\$172.45	\$70.10		\$7.95	\$24.25	\$183.45	\$59.45
2019	\$6.00	\$254.00	\$404.00	\$404.00	\$80.45	\$39.30	\$88.15	\$130.30	\$33.70		\$12.75	\$38.25	\$183.45	\$59.45
2020	\$6.00	\$265.00	\$415.00	\$415.00	\$82.85	\$40.45	\$90.80	\$134.10	\$34.75		\$13.15	\$39.40	\$208.00	\$60.64
2021	\$6.00	\$274.00	\$424.00	\$424.00	\$85.35	\$41.50	\$93.55	\$138.25	\$35.75		\$13.55	\$40.55	\$210.00	\$61.85
2022	\$6.00	\$274.00	\$424.00	\$647.00	\$85.35	\$41.50	\$93.55	\$138.25	\$35.75		\$13.55	\$40.55	\$211.00	\$63.09
2023	\$6.00	\$294.68	\$653.70	\$653.70	\$40.22	\$40.22	\$94.01	\$94.01	\$40.22		\$13.75	\$13.75	\$294.70	\$101.10
2024	\$6.00	\$300.58	\$640.07	\$640.07	\$41.64	\$41.64	\$97.31	\$97.31	\$41.64		\$14.03	\$14.03	\$300.59	\$104.65

Notes:  
af = acre-feet.  
n.c. = no classification.  
n.i. = not implemented  
All rates effective March 1 through following February.

**Table G-3. Recent US Bureau of Reclamation Charges per Acre-Foot for CVP Water**

User Category and Cost Item	Irrigation <sup>1</sup>						Municipal & Industrial					
	Cost of service (non-full cost)	Restoration fund <sup>3</sup>	SLDMWA <sup>4</sup>	Trinity PUD Assessment	Total	Contract rate <sup>5</sup>	Cost of service <sup>2</sup> (non-full cost)	Restoration fund <sup>3</sup>	SLDMWA <sup>4</sup>	Trinity PUD Assessment	Total	Contract rate <sup>5</sup>
1994	\$71.68	\$6.20	n.a.		\$77.88	\$17.21	\$165.67	\$12.40	n.a.		\$178.07	\$85.86
1995	\$66.47	\$6.35	n.a.		\$72.82	\$17.21	\$132.90	\$12.69	n.a.		\$145.59	\$85.86
1996	\$65.63	\$6.53	n.a.		\$72.16	\$27.46	\$127.40	\$13.06	n.a.		\$140.46	\$85.86
1997	\$69.57	\$6.70	n.a.		\$76.27	\$27.46	\$143.27	\$13.39	n.a.		\$156.66	\$85.86
1998	\$61.58	\$6.88	\$5.00		\$73.46	\$27.46	\$130.88	\$13.76	\$5.00		\$149.64	\$85.86
1999	\$60.30	\$6.98	\$2.73		\$70.01	\$27.46	\$127.91	\$13.96	\$2.73		\$144.60	\$85.86
2000	\$64.24	\$7.10	\$6.43		\$77.77	\$27.46	\$129.59	\$14.20	\$6.43		\$150.22	\$85.86
2001	\$69.50	\$7.28	\$2.65		\$79.43	\$27.46	\$129.40	\$14.56	\$4.15		\$148.11	\$85.86
2002	\$68.71	\$7.54	\$6.61		\$82.86	\$24.30	\$130.32	\$15.08	\$6.61		\$152.01	\$79.13
2003	\$72.20	\$7.69	\$5.46		\$85.35	\$24.30	\$129.07	\$15.38	\$5.46		\$149.91	\$79.13
2004	\$74.52	\$7.82	\$6.61		\$88.95	\$24.30	\$134.86	\$15.64	\$6.61		\$157.11	\$79.13
2005	\$77.10	\$7.93	\$7.99		\$93.02	\$24.30	\$132.01	\$15.87	\$7.99		\$155.87	\$79.13
2006	\$91.13	\$8.24	\$9.31		\$108.68	\$30.93	\$214.41	\$16.49	\$9.31		\$240.21	\$77.12
2007	\$93.53	\$8.58	\$9.99	\$0.11	\$112.21	\$30.93	\$215.32	\$17.15	\$9.99	\$0.11	\$242.46	\$80.08
2008 <sup>6</sup>	\$28.12	\$8.79	\$10.95	\$0.07	\$47.93	\$30.93	\$33.34	\$17.57	\$10.95	\$0.07	\$61.68	\$33.34
2009	\$30.20	\$9.06	\$11.49	\$0.07	\$50.82	\$30.20	\$32.77	\$18.12	\$11.49	\$0.07	\$62.45	\$32.77
2010	\$33.27	\$9.11	\$11.91	\$0.11	\$54.40	\$33.27	\$36.11	\$18.23	\$11.91	\$0.11	\$66.36	\$36.11
2011	\$38.92	\$9.29	\$9.51	\$0.05	\$57.77	\$38.92	\$42.58	\$18.59	\$9.51	\$0.05	\$70.73	\$42.58
2012	\$39.71	\$9.39	\$15.20	\$0.05	\$64.35	\$39.71	\$37.95	\$18.78	\$15.20	\$0.05	\$71.98	\$37.95
2013	\$40.39	\$9.79	\$17.29	\$0.05	\$67.52	\$39.91	\$38.71	\$19.58	\$17.29	\$0.05	\$75.63	\$40.92
2014	\$46.87	\$9.99	\$28.81	\$0.23	\$85.90	\$46.87	\$29.70	\$19.98	\$28.81	\$0.23	\$78.72	\$29.70
2015	\$53.82	\$10.07	\$30.66	\$0.23	\$94.78	\$53.82	\$34.74	\$20.14	\$30.66	\$0.23	\$85.77	\$34.74
2016	\$85.12	\$10.21	\$30.66	\$0.30	\$126.29	\$38.28	\$61.24	\$20.41	\$30.66	\$0.30	\$112.61	\$23.42
2017	\$66.17	\$10.23	\$14.15	\$0.30	\$90.85	\$39.90	\$49.50	\$20.45	\$14.15	\$0.30	\$84.40	\$22.85
2018	\$79.09	\$10.47	\$20.39	\$0.30	\$110.25	\$48.35	\$43.74	\$20.94	\$20.39	\$0.30	\$85.37	\$17.45
2019	\$67.32	\$10.63	\$20.26	\$0.30	\$98.51	\$40.14	\$37.54	\$21.26	\$20.26	\$0.30	\$79.36	\$17.98
2020	\$72.24	\$10.91	\$27.57	\$0.12	\$110.84	\$52.76	\$37.18	\$21.82	\$27.57	\$0.12	\$86.69	\$17.87
2021	\$72.61	\$11.11	\$38.52	\$0.15	\$122.39	\$48.42	\$35.47	\$22.23	\$38.52	\$0.15	\$96.37	\$35.47
2022	\$46.07	\$11.23	\$39.19	\$0.15	\$96.64	\$28.46	\$45.07	\$22.46	\$39.19	\$0.15	\$106.87	\$27.50
2023	\$66.96	\$12.02	\$14.46	\$0.15	\$93.59	\$33.97	\$63.15	\$24.05	\$14.46	\$0.15	\$101.81	\$25.52

- Notes:
- (1) Total USBR rate given for non-full cost users only, as they represent the majority of water users.
  - (2) Cost-of-service for agricultural and municipal and industrial users includes a capital repayment rate and an operation and maintenance (O&M) rate. For municipal and industrial customers, cost-of-service also includes a deficit charge, which includes interest on unpaid O&M and interest on capital and on unpaid deficit.
  - (3) Restoration fund charges apply October 1 through September 30. All other rates effective March 1 through following February.
  - (4) Beginning in 1998, the San Luis-Delta Mendota Water Authority instituted this charge to "self-fund" costs associated with maintaining the Delta-Mendota Canal and certain other facilities, which were formerly funded directly by the Bureau of Reclamation. SLDMWA issues preliminary rates in December for the upcoming contract year (March-February). These rates are used for rate-setting purposes; actual rates may vary.
  - (5) The contract rate is the minimum rate CVP contractors are allowed to pay. To the extent that the contract rate does not cover interest plus actual operation and maintenance costs, a contractor deficit is accumulated that is charged interest at the current-year treasury borrowing rate.
  - (6) Per the amendatory contract with the USBR "out of basin" capital costs that were previously included in the cost of service are now under a separate repayment contract.
  - (7) Cost of service rates are inclusive of USBR direct pumping and Project Use Energy costs.

# APPENDIX H LIST OF ACRONYMS

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## List of Acronyms

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AF or A/F	acre-foot
AFY	acre-foot per year
AG	agriculture
BMP	Best Management Practices
CASGEM	California Statewide Groundwater Elevation Monitoring
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
COC	Constituent of Concern
CVP	Central Valley Project
District or SBCWD	San Benito County Water District
CWD	County Water District
DDW	Division of Drinking Water
DWR	California Department of Water Resources
DWTP	Domestic Wastewater Treatment Plant
ET	evapotranspiration
ft	feet
GAMA	Groundwater Ambient Monitoring and Assessment
GICIMA	Groundwater Information Center Interactive Map
GPBO	General Basin Plan Objective
gpd	gallons per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GW	groundwater
HUA	Hollister Urban Area
IRWMP	Integrated Regional Water Management Plan
ITRC	Irrigation Training and Research Center, California Polytechnic State University
IWTP	Industrial Wastewater Treatment Plant
M&I	Municipal and Industrial
MA	Management Area
MCL	Maximum Contaminant Level
MGD	million gallons per day
msl	mean sea level
MT	Minimum Threshold
MW	Monitored well
NGVD	National Geodetic Vertical Datum
pdf	Adobe Acrobat Portable Document Format
PPWD	Pacheco Pass Water District
PVWMA	Pajaro Valley Water Management Agency
RW	recycled water
RWQCB	Regional Water Quality Control Board

# APPENDIX H LIST OF ACRONYMS

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## List of Acronyms (cont.)

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SCVWD	Santa Clara Valley Water District
SEIR	Supplemental Environmental Impact Report
SGMA	Sustainable Groundwater Management Act
SLDMWA	San Luis & Delta-Mendota Water Authority
SMCL	Secondary Maximum Contaminant Levels
SSCWD	Sunnyslope County Water District
USBR	U.S. Bureau of Reclamation
UWMP	Urban Water Management Plan
WRA	Water Resources Association of San Benito County
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant
WY	water year