



San Gorgonio Pass GSA Board Meeting

Date: March 28, 2024

Time: 10:00 am

Called by: San Gorgonio Pass GSA

Location: **Microsoft Teams**
[Click here to join the meeting](#)
Meeting ID: 283 523 866 025
Passcode: gsRvDo
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Subject: San Gorgonio Pass GSA Board Meeting

Agenda

1. Introductions
2. Opportunity for public comment
3. Status update of SGMA grant award for four monitoring wells
4. Review of DWR's comments on the GSP
5. Review of Water Year 2023 Annual Report
6. Next steps/schedule next meeting
7. Meeting adjourned



San Gorgonio Subbasin GSA

March 28, 2024

San Gorgonio Subbasin GSA Agenda

- Introductions
- Opportunity for public comment
- SGMA grant award status update
- Discuss DWR's approval and comments on the GSP
- Annual Report Review
- Next steps/schedule next meeting

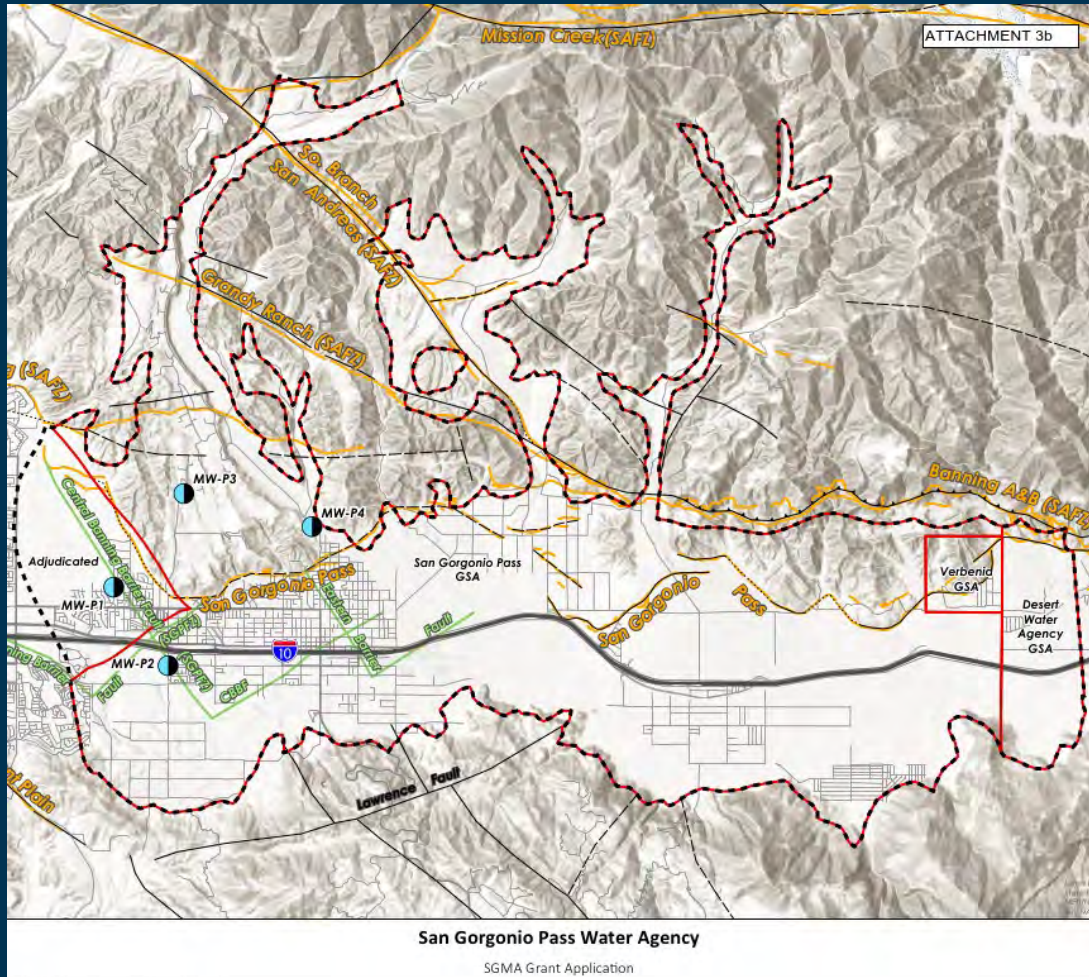
Public Comment

San Geronio Subbasin GSA

SGMA Grant Award for 4 Monitoring Wells

San Gorgonio Subbasin GSA

Monitoring Well Grant



- GSP identified data gaps in Banning and Banning Bench Storage Units
- Several local letters of support provided for application
- SGPWA submitted grant application for new wells December 2022
- DWR awarded SGPWA \$2.055 million September 2023
- Grant Application referenced favorably in GSP review

Monitoring Well Characteristics

- MW-P1 and MW-P2 located on both sides of Banning / Beaumont Basin Boundary
- MW-P1 and MW-P2 to characterize boundary groundwater flows
- MW-P3 and MW-P4 located at Banning Canyon / Banning Bench Interface
- MW-P3 provides Banning Bench monitoring
- MW-P4 to characterize Banning Canyon

Well Name	Approximate Groundwater Depth (feet)	Casing	Screen Interval (feet)
MW-P1	450	Shallow	480-500
		Mid	680-700
		Deep	980-1000
MW-P2	350	Shallow	380-400
		Mid	680-700
		Deep	980-1000
MW-P3	200	Shallow	280-300
		Deep	680-700
MW-P4	50	Shallow	180-200
		Deep	480-500

DWR Approval of San Gorgonio Pass GSP

San Gorgonio Subbasin GSA

San Geronio Pass GSP DWR Determination - October 26, 2023

- 58-page DWR Staff Report on GSP
- Eight DWR Recommended Corrective Actions
- “The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes to the GSP in future updates.”
- SGPWA and Consultants Discussed DWR Comments at meeting on February 14
- Five-year periodic update due January 2027

DWR Staff Recommended Corrective Action 1

DWR Comments:

Clarify how or why the defined storage units (SU) in the GSP are not Management Areas as defined in the GSP Regulations, or, alternatively, establish actual management areas consistent with the GSP Regulations

Response Discussion:

GSP had multiple references to storage units, which is not a SGMA term. DWR requested clarification on this topic and proposed use of storage units as Management Areas as appropriate.

DWR Staff Recommended Corrective Action 2

DWR Comments:

- Reevaluate combining Banning and Cabazon storage units for groundwater level undesirable results
- More rationale on groundwater level rolling 5-years component for the Banning and Cabazon storage unit
- More rationale for 5-years below minimum thresholds for groundwater level undesirable result in Banning Canyon storage unit

Response Discussion:

DWR requested more explicit definition of basis for Sustainable Management Criteria (SMC)'s and basis for different SMCs in different storage units

DWR Staff Recommended Corrective Action 3

DWR Comments:

Provide a clear measurable description of the undesirable result for changes in groundwater storage

Response Discussion:

This could be addressed by designating required storage volume for Management Areas distinct from equivalent volume implied by SMC water levels. Should describe basis for designating storage volume. Also could define storage remaining based on rate of pumping or storage decline.

DWR Staff Recommended Corrective Action 4

DWR Comments:

- Recommend the GSAs reevaluate the GSP's current treatment of the Banning and Cabazon storage units as one for degraded groundwater quality undesirable results
- Address the risk that by requiring two consecutive exceedances of MTs at two wells in the undesirable result definition, groundwater quality could continue to deteriorate

Response Discussion:

Similar issue as for Corrective Action 3 with designation of Storage Units. In addition, there is a substantive issue with two consecutive water quality exceedence, but based on commitment to sampling only every three years. This should be reviewed with GSA participants for response.

DWR Staff Recommended Corrective Action 5

DWR Comments:

The GSAs should establish regular monitoring and reporting for land subsidence which can be accomplished by using the publicly available TRE Altamira InSAR Dataset

Response Discussion:

The GSP identified insignificant risk of land subsidence, which DWR believes should be confirmed by monitoring. In practice, the Annual Reports have included the InSAR Dataset analysis as requested by DWR. GSA's could consider committing to this monitoring in the future.

DWR Staff Recommended Corrective Action 6

DWR Comments:

- Estimating the location, quantity, and timing of stream depletion due to ongoing pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for DWR's evaluations
- DWR plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water

Response Discussion:

DWR expects to provide GSP guidance for addressing stream depletion during 2024. After the guidance is provided, this should be addressed by the GSAs for the five year status update.

DWR Staff Recommended Corrective Action 7

DWR Comments:

Recommend the GSAs establish stream flow monitoring to aid in understanding and characterizing flow parameters in the Banning Canyon.

Response Discussion:

SGPWA has contacted DWR staff about grant opportunities for establishing a stream gaging station on San Gorgonio River at a site to be determined. GSA's may develop a formal response once funding opportunities are identified.

DWR Staff Recommended Corrective Action 8

DWR Comments:

Recommends the GSAs update its planning details for Projects 3, 4, and 5 to address the uncertainty in relying on water from sources outside the jurisdiction of the GSAs, explain how sustainability will be achieved if the needed water is unavailable, and how necessary funding and land for the recharge facilities would be obtained to complete

Response Discussion:

DWR staff indicated the potential for significant reductions in future levels of SWP water supply availability in upcoming SWP Delivery Capability Reports. GSAs should review the updated Delivery Capability Report and prepare revisions as appropriate for the five year status update.

GSP Proposed Response Plan

- Initial review of DWR staff report and recommended corrective actions
- Meet with DWR to understand basis for corrective actions and discuss additional information that could affect their review
- Discuss DWR meeting and proposed corrective actions with GSAs
- Document understanding of DWR expectations for corrective actions and provide to DWR
- Implement corrective actions as feasible in ongoing activity
- Include corrective actions (as modified based on discussion with DWR) in five-year update

2023 Annual Report Review

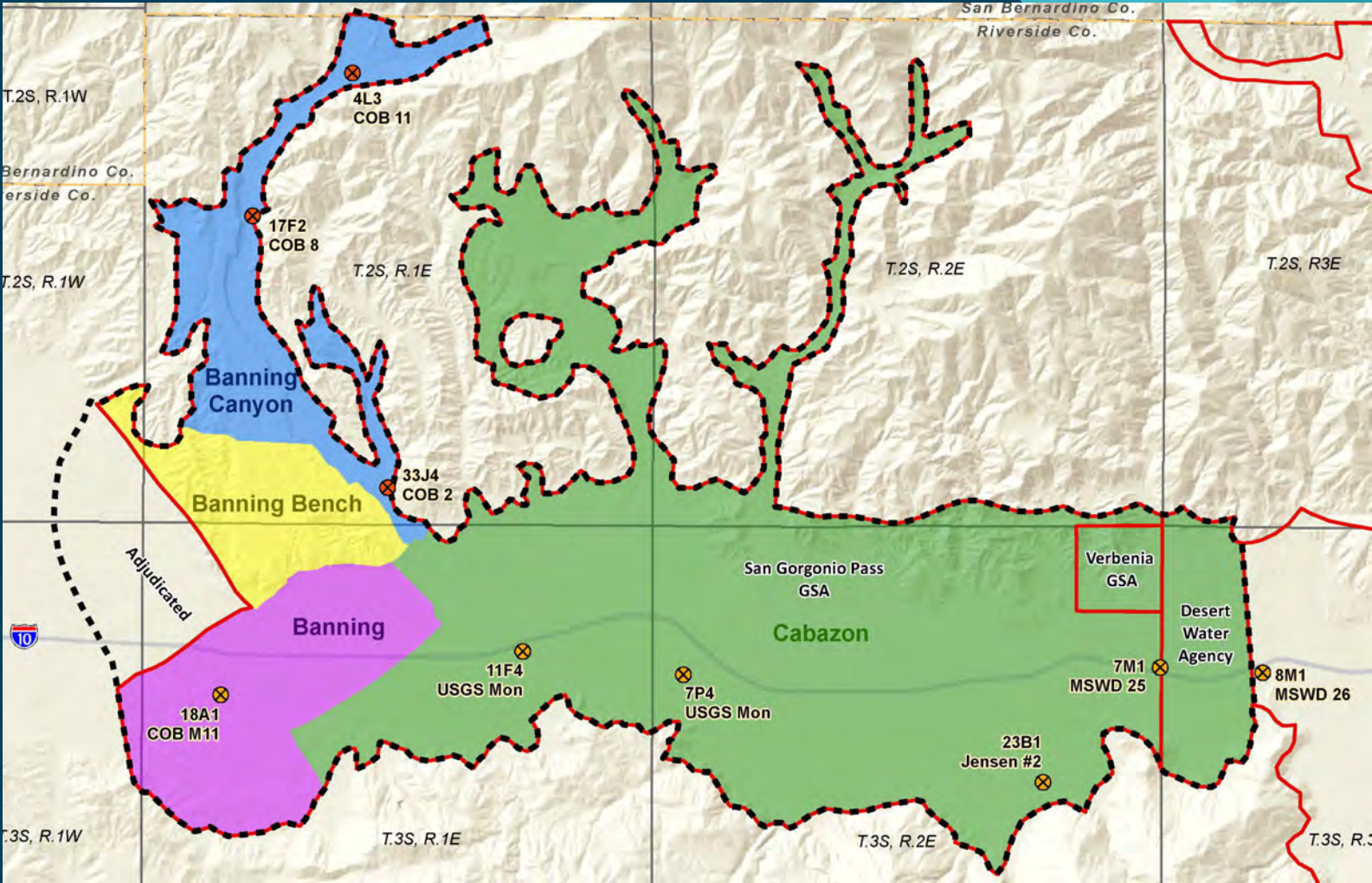
San Gorgonio Subbasin GSA

2023 Annual Report Overview

- General increase in groundwater levels due to the wet water year
- Decrease in storage, despite the wet year
- Extractions
- Slight decrease in water quality compared to last year.
 - Still well below MOs and MTs

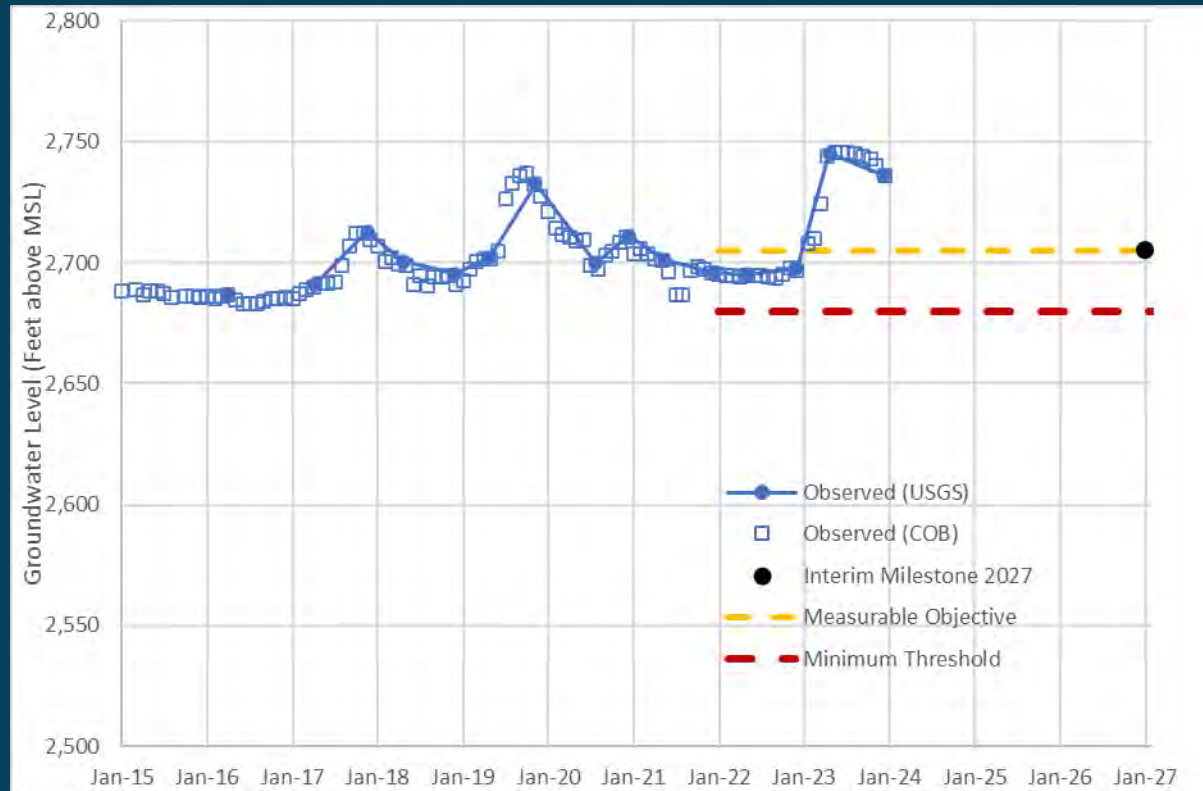


Representative Monitoring Well Locations



Groundwater Levels

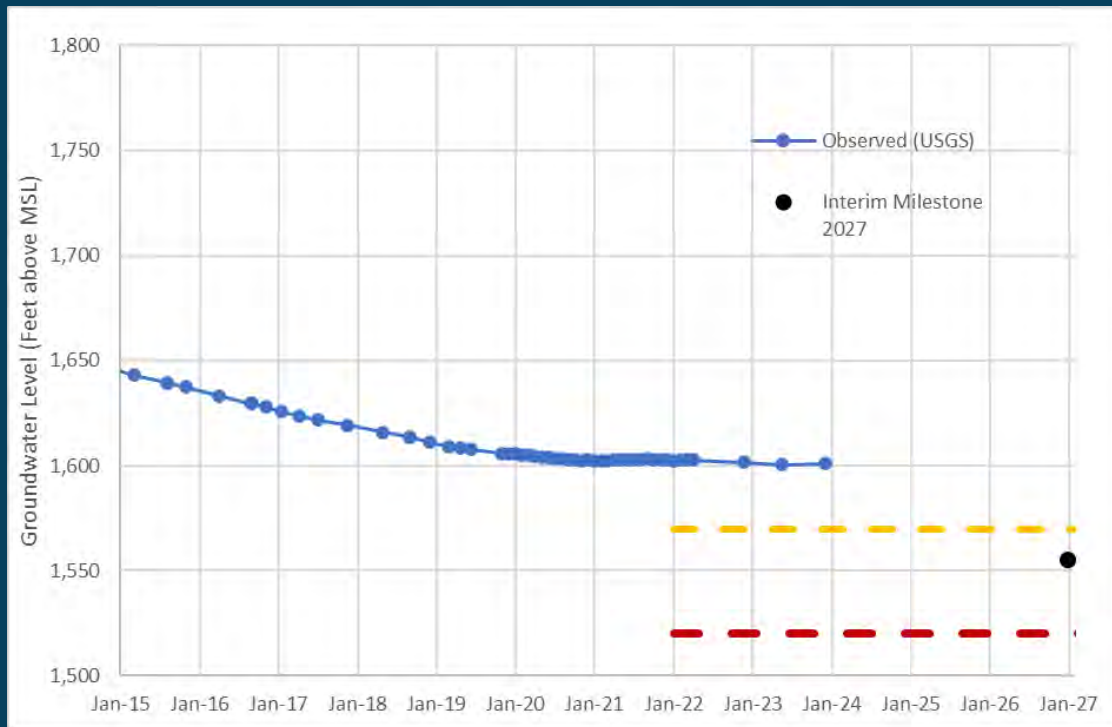
- Banning Canyon – consistent increases in water levels



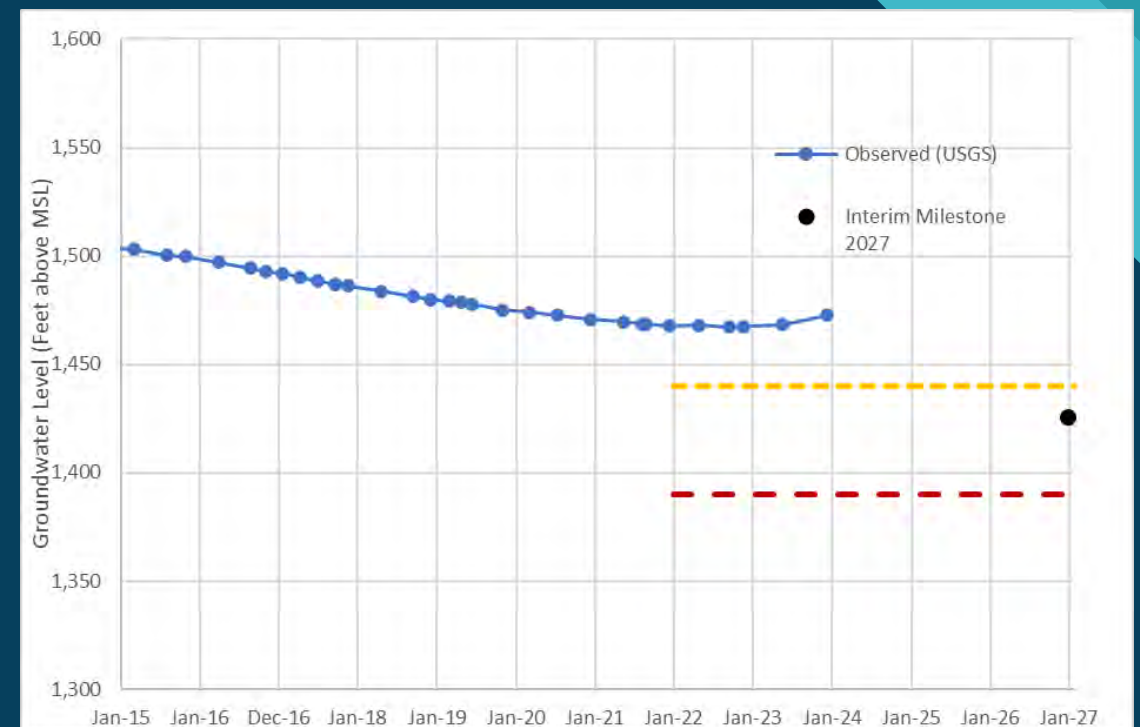
Well 33J4 – Banning Canyon

Groundwater Levels

- Banning Storage Unit – No noticeable change in groundwater level
- Cabazon Storage Unit – Mixed; some wells saw increases, others stayed the same



Well 11F4 West Cabazon



Well 7P4 - Middle Cabazon

Change in Storage & Extractions

- Extraction only minimally influenced by water year type

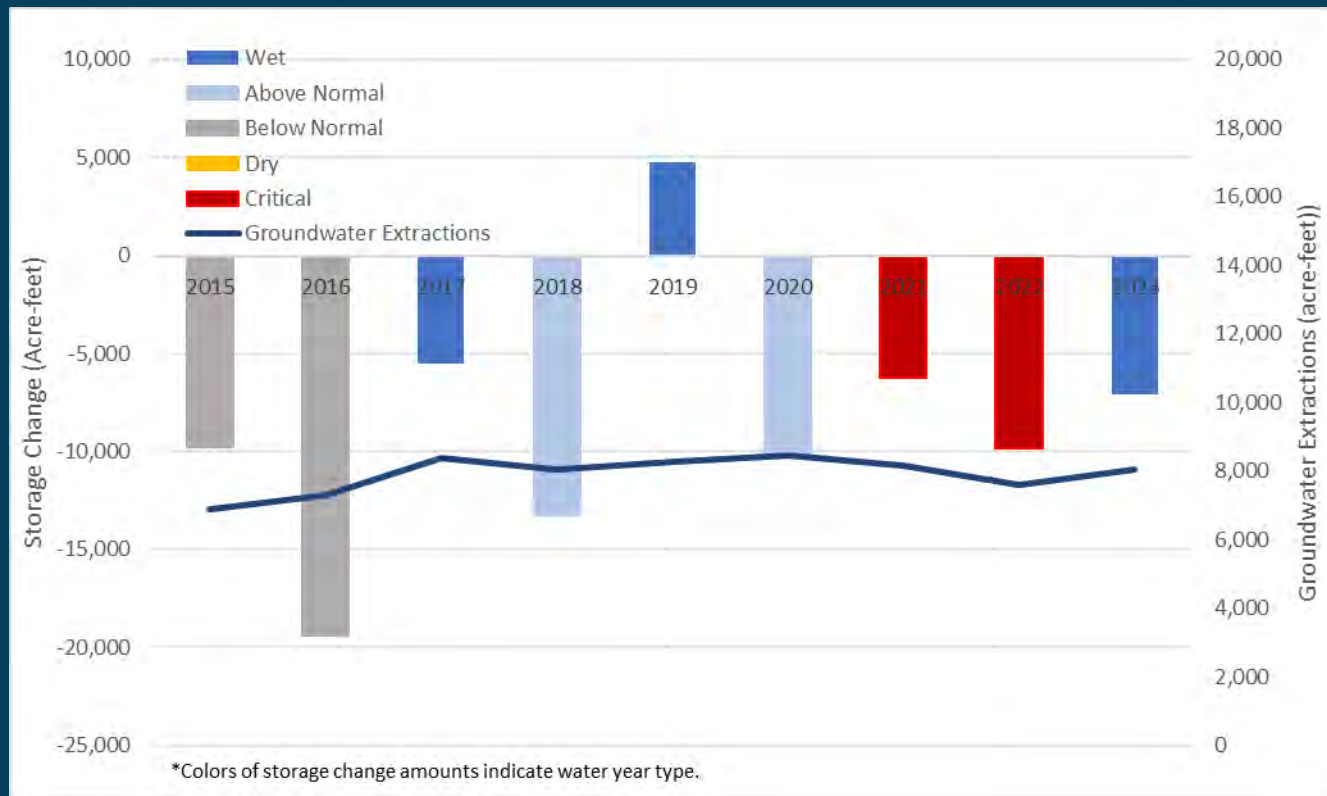


Figure 6-2 – Groundwater Extraction and Annual Change in Storage, WY2015 to WY2023*

Change in Storage

- Cumulative change in storage shows continued downward trend, despite wet year

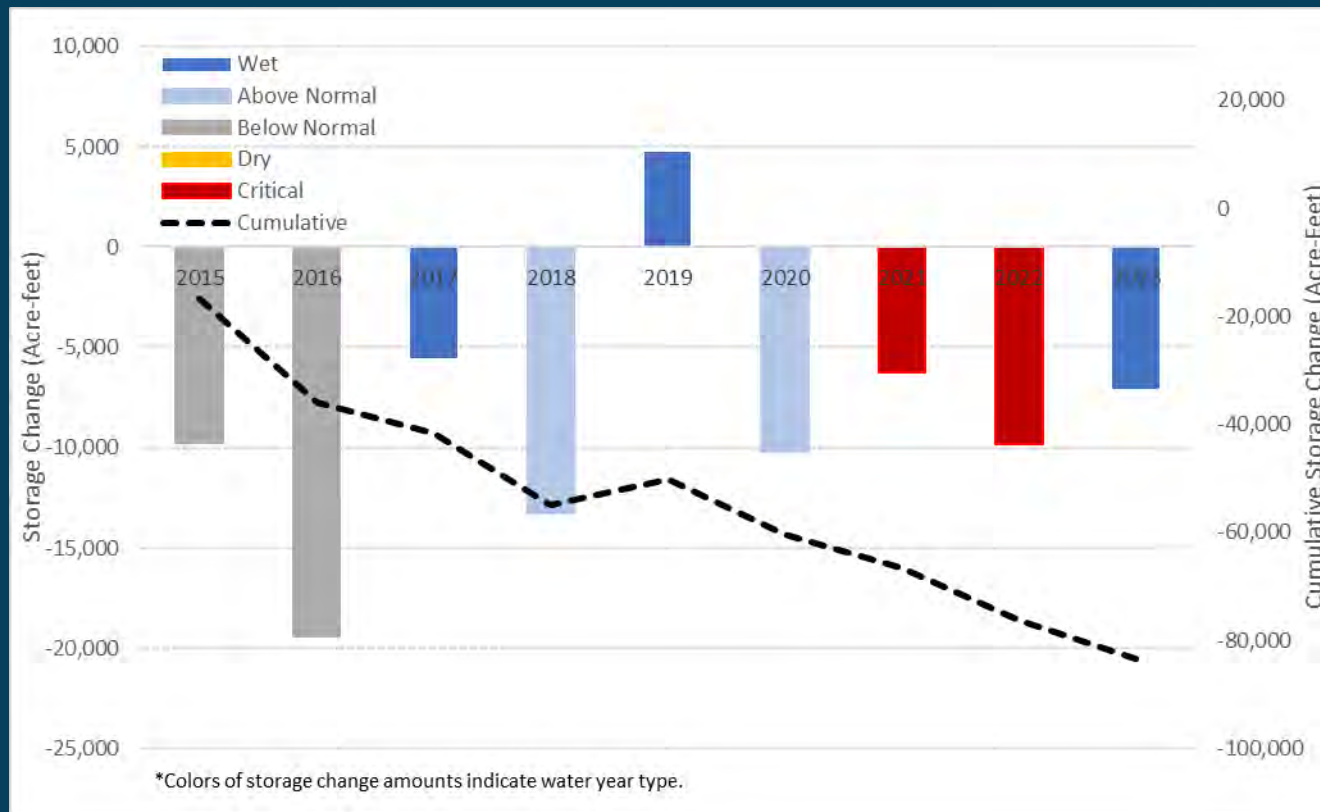


Figure 6 1 -Annual Change in Storage and Cumulative Change in Storage, 2015 to 2023*

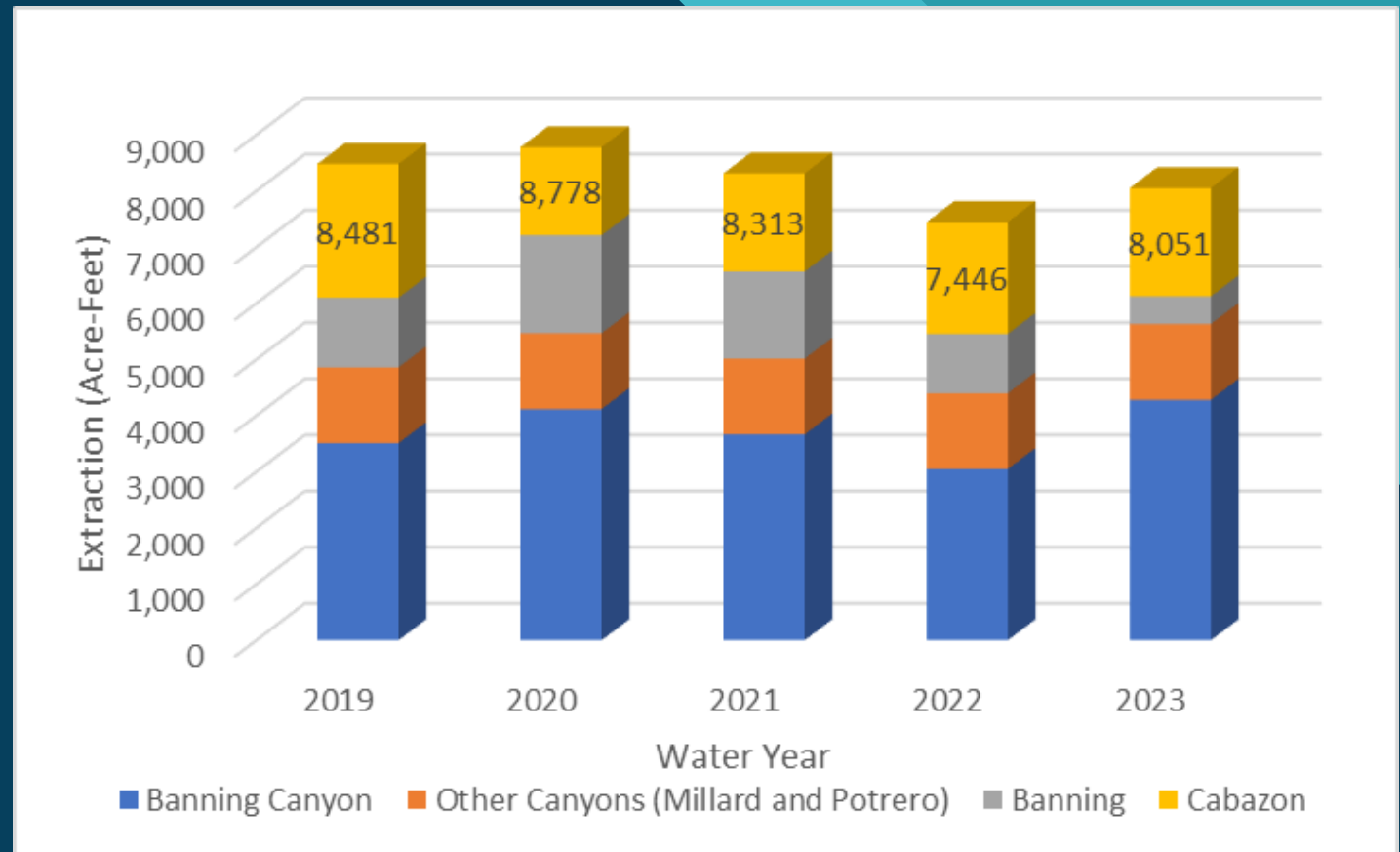
Extractions

- Extractions by agency and by storage unit for WY 2023
- Greatest extractions in Banning Canyon, as expected to serve City of Banning population

Agency	Storage Unit	WY 2023
Total SGP Subbasin	Banning Canyon	4,281
	Other Canyons (Millard and Potrero)	1,350
	Banning	492
	Cabazon	1,928
	Total	8,051

Extractions

- Consistent pumping patterns compared to other years
- See lower pumping in critical years, likely due to increased efforts toward conservation



Water Quality

- Water quality well below measurable objective and minimum thresholds
- Slight increase in Nitrate over past three years
- Fewer TDS samples than expected

State Well Number	Nitrate as NO ₃ (mg/L as N)		TDS	
	Average	# of Samples	Average	# of Samples
02S01E17M001S	0.68	1	N/A	N/A
03S01E18A001S	1.3	1	N/A	N/A
03S02E07K001S	1.6	1	220	1
03S02E09E001S	2.4	1	N/A	N/A
03S03E07D001S	N/A	N/A	N/A	N/A
Measurable Objective	8.0		800	
Minimum Threshold	10.0		1,000	

Review

- Increase in some groundwater levels due to the wet water year
- Decrease in storage, as extraction does not appear to be dependent on water year type
- Water levels and water quality above Measurable Objective and Minimum Thresholds in all cases

Next Steps/Schedule Next Meeting

San Gorgonio Subbasin GSA

Next Meeting/Next Steps

- Meeting Topics Next Meeting (Tentative Oct 2024)
 - Update Re: DWR Corrective Measures
 - Status Report Re: Monitoring Wells
 - 2024 Annual Report Data Request
 - Other



Thank You

SAN GORGONIO PASS SUBBASIN DRAFT ANNUAL REPORT



MARCH 2024

Prepared for:

San Gorgonio Pass
Groundwater Sustainability Agency

Prepared by:

Provost & Pritchard Consulting Group
Sacramento, California

Executive Summary

In 2014, the California legislature enacted the Sustainable Groundwater Management Act (SGMA) in response to continued overdraft of California's groundwater resources. The San Gorgonio Pass (SGP) Subbasin (7-021.04) is one of several alluvial basins and subbasins identified by the California Department of Water Resources (DWR) as being of medium-priority in Bulletin 118 (2003). Beginning in 2015, Groundwater Sustainability Agencies (GSAs) within the SGP Subbasin formed to address the long-term reliability of groundwater through the development a single Groundwater Sustainability Plan (GSP)¹. The SGP Subbasin GSP (SGP GSP) was developed in a coordinated fashion by the Desert Water Agency GSA, San Gorgonio Pass GSA, and Verbenia GSA with the goal of achieving sustainability for the SGP Subbasin as a whole. The SGP GSP was adopted by the respective GSAs and submitted to DWR on January 25, 2022, ahead of the January 31, 2022, deadline.

The SGP GSP jurisdiction includes the Desert Water Agency GSA, San Gorgonio Pass GSA, and Verbenia GSA. Desert Water Agency GSA consists of the Desert Water Agency. San Gorgonio Pass GSA consists of Banning Heights Mutual Water Company (MWC), the City of Banning, Cabazon Water District (WD) and San Gorgonio Pass Water Agency (SGPWA). Verbenia GSA consists of Mission Springs WD and SGPWA. The three GSAs have cooperatively worked together to coordinate SGP GSP development. The SGP Subbasin includes a portion of an adjudicated area, known as the Beaumont Basin, that resides outside the Plan Area. Since it was previously adjudicated, the portion of the Beaumont Basin located in the SGP Subbasin is not subject to SGMA regulations and data for the Beaumont Basin is not included in this Annual Report.

The SGP Subbasin Water Year (WY) 2023 Annual Report has been prepared for the entire Subbasin and is in compliance with SGMA². WY2023 includes the period from October 1, 2022, through September 30, 2023.

The data presented in this Annual Report indicate that the three GSAs were in compliance with the Sustainable Management Criteria included in the GSP. Groundwater levels were above the specific minimum threshold in all nine of the representative monitoring wells, which addresses the groundwater level, groundwater storage, and interconnective surface water sustainability indicators. Groundwater quality at the representative monitoring wells did not exceed the specified measurable objectives or minimum thresholds. Observed subsidence remained at essentially non-detectable levels. The three GSAs in the SGP Subbasin are beginning to implement GSP elements, including monitoring, public outreach and development of implementation plans for projects and management actions to maintain long term groundwater sustainability. As a recent grant was awarded, a reduction data gaps is also expected in the upcoming years.

¹ San Gorgonio Pass Subbasin, Groundwater Sustainability Plan, January 2022.

² California Code of Regulations (CCR) Title 23, Division 2, Chapter 1.5, Subchapter 2, Article 7 Annual Reports and Periodic Evaluations by the Agency

California Code of Regulations - GSP Regulation Sections	Annual Report Elements	Section(s) and page numbers(s) where requirements for Annual Report elements are included
Article 7	Annual Reports and Periodic Evaluations by Agency	
§ 356.2	Annual Reports	
	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.	Executive Summary and General Information Figure 1-1 (Pages ES-2 through 1-3)
	(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.	Groundwater Elevation Data Figure 2-1, Figure 2-2, Figure 2-3, Figure 2-4 (Pages 2-2 through 2-6)
	(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.	Figure 2-5 through Figure 2-13 (Pages 2-8 through 2-12)
	(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.	Groundwater Extraction Data Figure 3-1, Table 3-1, Table 3-2 (Pages 3-3 through 3-4)
	(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.	Surface Water Supply Table 4-1 (Page 4-1)
	(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.	Total Water Use Table 5-1 (Page 5-1)
	(5) Change in groundwater in storage shall include the following:	--
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.	Change in Groundwater Storage, Figure 6-1, Table 6-1 (Pages 6-1 through 6-2)
	(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.	Change in Groundwater Storage Figure 6-1, Figure 6-2, Table 6-1 (Pages 6-1 through 6-2)
	(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.	Plan Implementation (Pages 7-1 through 7-2)

Abbreviations and Acronyms

AF	Acre-Foot
CCR	California Code of Regulations
COB	City of Banning
DWR	Department of Water Resources
GAMA	Groundwater Ambient Monitoring and Assessment
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IRWM	Integrated Regional Water Management
M&I	Municipal and Industrial
Morongo Tribe, MBMI	Morongo Band of Mission Indians
MWC	Mutual Water Company
Plan Area	Area of GSP Jurisdiction
SGMA	Sustainable Groundwater Management Act
SGP	San Geronio Pass
SGPWA	San Geronio Pass Water Agency
SMC	Sustainable Management Criteria
SWP	State Water Project
SWN	State Well Number
Subbasin	San Geronio Pass Subbasin
SWRCB	State Water Resources Control Board
USGS	United States Geologic Survey
WD	Water District
WY	Water Year (Ex. Water Year 2023 is WY2023)

This annual report is broken into the following seven sections:

1. General Information
2. Groundwater Elevation Data
3. Groundwater Extraction Data
4. Surface Water Supply
5. Total Water Use
6. Change in Groundwater Storage
7. Plan Implementation

1 General Information

The GSAs of the SGP Subbasin have collaborated to prepare this Annual Report for WY2023 defined as the period from October 1, 2022, to September 30, 2023, in compliance with the SGMA³. The California Code of Regulations Title 23 Section 356.2 outlines the annual report's required content. Data and conditions for previous water years can be found in previous Annual Reports. The conditions of the SGP Subbasin for WY 2023 are included in this Annual Report. For groundwater elevation hydrographs, information is provided back to WY2015 as required by SGMA.

The SGP Subbasin (DWR Basin 7-021.04) is located in Southern California between the San Bernardino Mountains to the north, the San Jacinto Mountains to the south, Coachella Valley to the east and San Bernardino Valley to the west. The SGP Subbasin adjoins the San Timoteo Groundwater Subbasin to the west and the Indio Subbasin to the east. The SGP Subbasin boundaries generally correspond to the DWR's California's Groundwater Bulletin 118.

The GSP jurisdiction (Plan Area) includes the Desert Water Agency GSA, San Gorgonio Pass GSA, and Verbenia GSA. Desert Water Agency GSA consists of the Desert Water Agency. San Gorgonio Pass GSA consists of Banning Heights MWC, the City of Banning (or COB), Cabazon Water District and SGPWA. Verbenia GSA consists of Mission Springs Water District and SGPWA. The three GSAs worked cooperatively to coordinate GSP development. The SGP Subbasin includes a portion of an adjudicated area, known as the Beaumont Basin, that resides outside the Plan Area. Since it was previously adjudicated, the portion of the Beaumont Basin located in the SGP Subbasin is not subject to SGMA regulations and data for the Beaumont Basin is not included in this Annual Report. The SGP Subbasin, and the three GSAs it contains, are shown in **Figure 1-1**.

The Plan Area includes approximately 13,211 acres of land, or 37 percent of the SGP Subbasin, within the federally recognized Morongo Band of Mission Indians (Morongo Tribe or MBMI) dominion. The Morongo Tribe is not required to comply with SGMA; however, the entire SGP Subbasin will be evaluated for sustainability, including influences from the Morongo Tribe's groundwater management to the extent those data are available.

³ California Code of Regulations (CCR) Title 23, Division 2, Chapter 1.5, Subchapter 2, Article 7 Annual Reports and Periodic Evaluations by the Agency

Much of the SGP Subbasin is undeveloped open space. There are limited rural residential properties, with most of the domestic water use occurring within residential communities such as the City of Banning, Cabazon Water District, Banning Heights, and the residences within MBMI. The City of Banning, the community of Cabazon, and MBMI are the primary areas of development within the Plan Area. The urban development within the SGP Subbasin includes residential neighborhoods, as well as commercial lands for such uses as retail outlets and the Morongo Casino, Resort & Spa, industrial areas, and municipal facilities such as schools and the police department.

Groundwater is a key component of overall water supplies in the SGP Subbasin. Banning Heights MWC was the only water user in the SGP Subbasin known to be supplied with surface water, via Whitewater River Flume diversions. However, the August 2020 Apple Fire damaged critical infrastructure, resulting in a reliance on groundwater supplied by the City of Banning. Municipal and Industrial (M&I) water use, which is the primary water use in the SGP Subbasin, occurs primarily within the City of Banning and local communities that predominantly use groundwater to meet those demands. The largest M&I use area in the SGP Subbasin, based on 2020 population estimates from the U.S. Census Bureau, is the City of Banning (population 29,505)⁴. Smaller communities in the SGP Subbasin include Cabazon, Banning Heights, Palm Springs Crest, and the residential community within MBMI.

⁴ City of Banning 2020 population estimate (as of April 1, 2020):
[U.S. Census Bureau QuickFacts: Banning city, California](#)

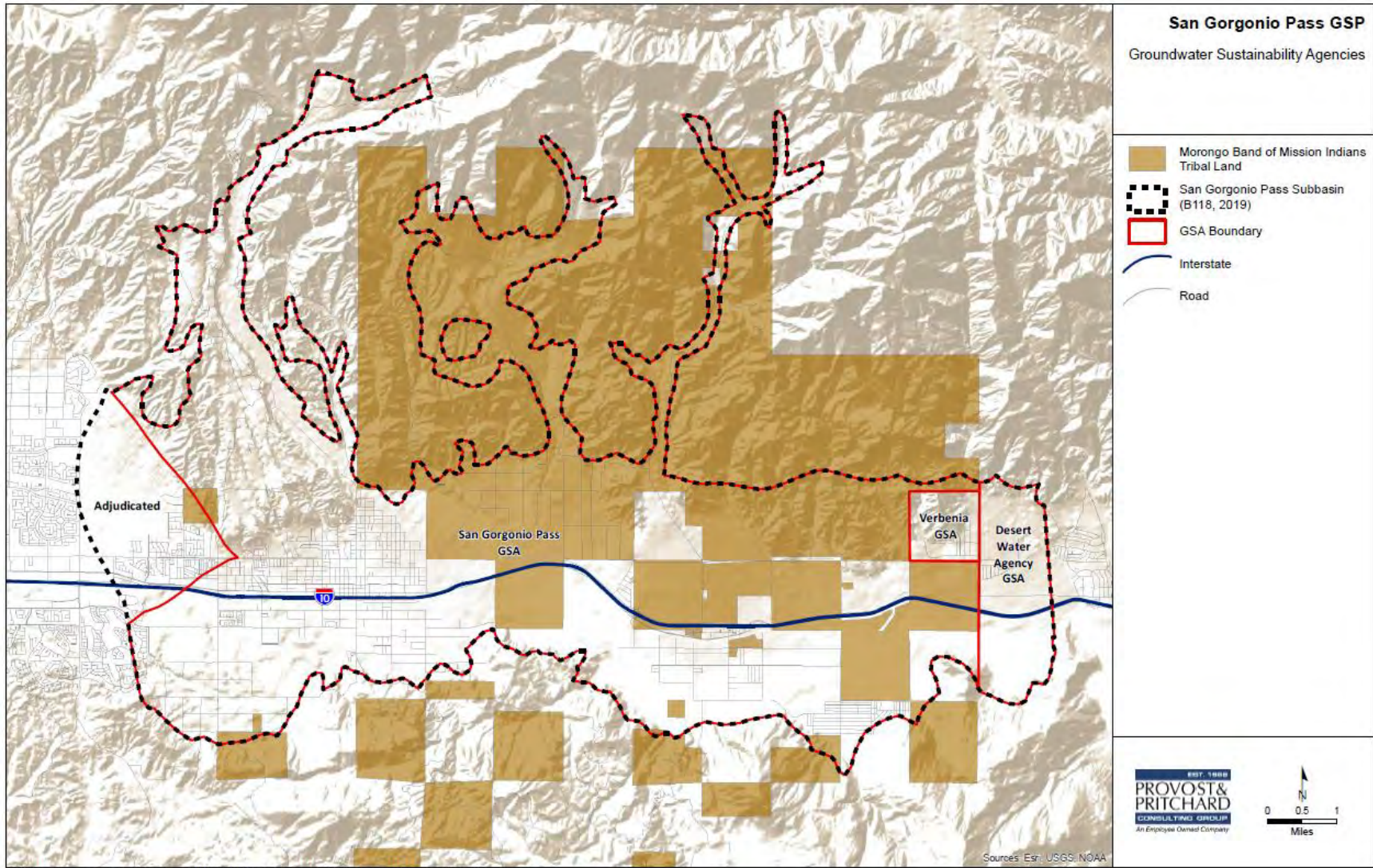
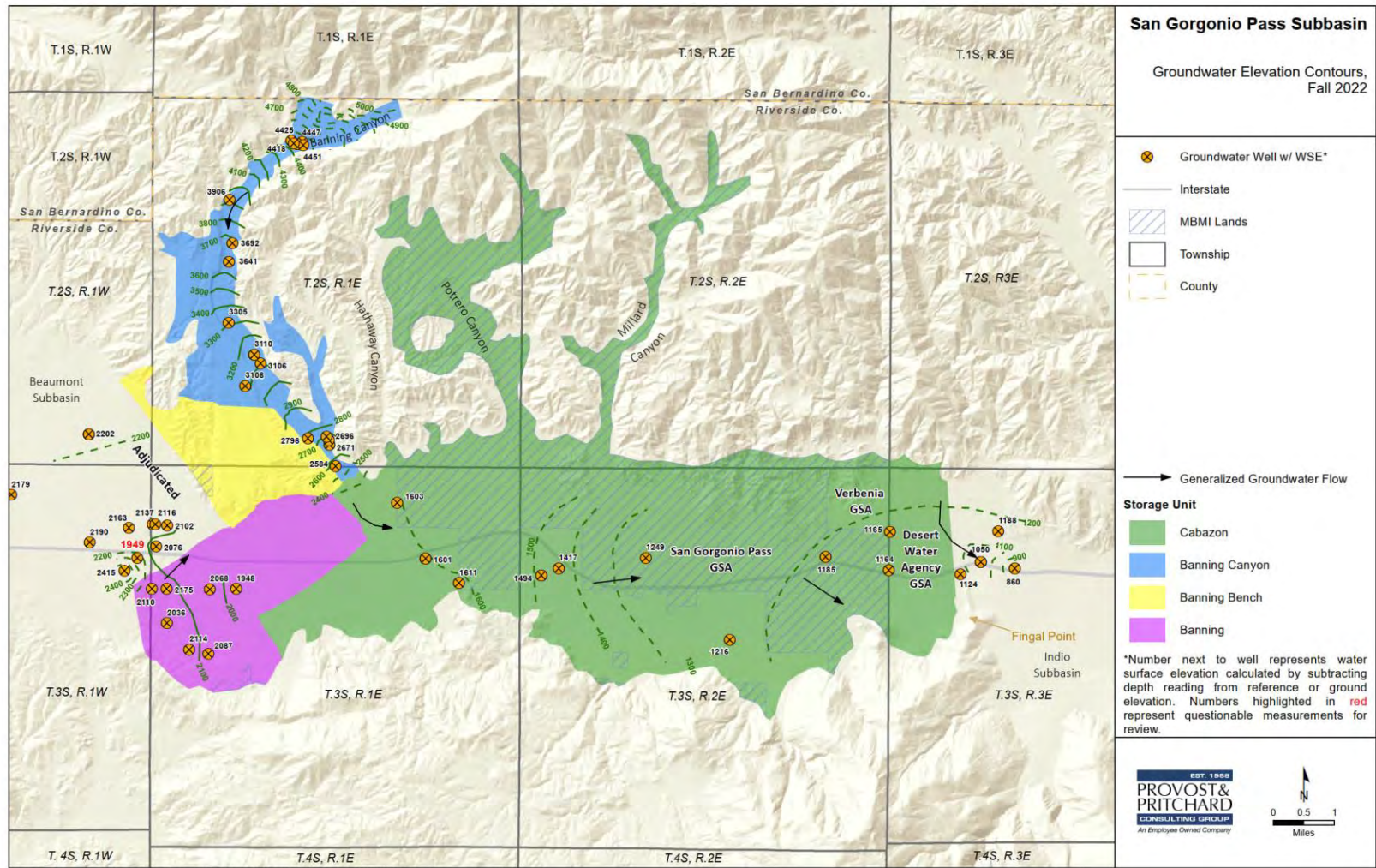


Figure 1-1 - San Gorgonio Pass Subbasin and Groundwater Sustainability Agencies

2 Groundwater Elevation Data

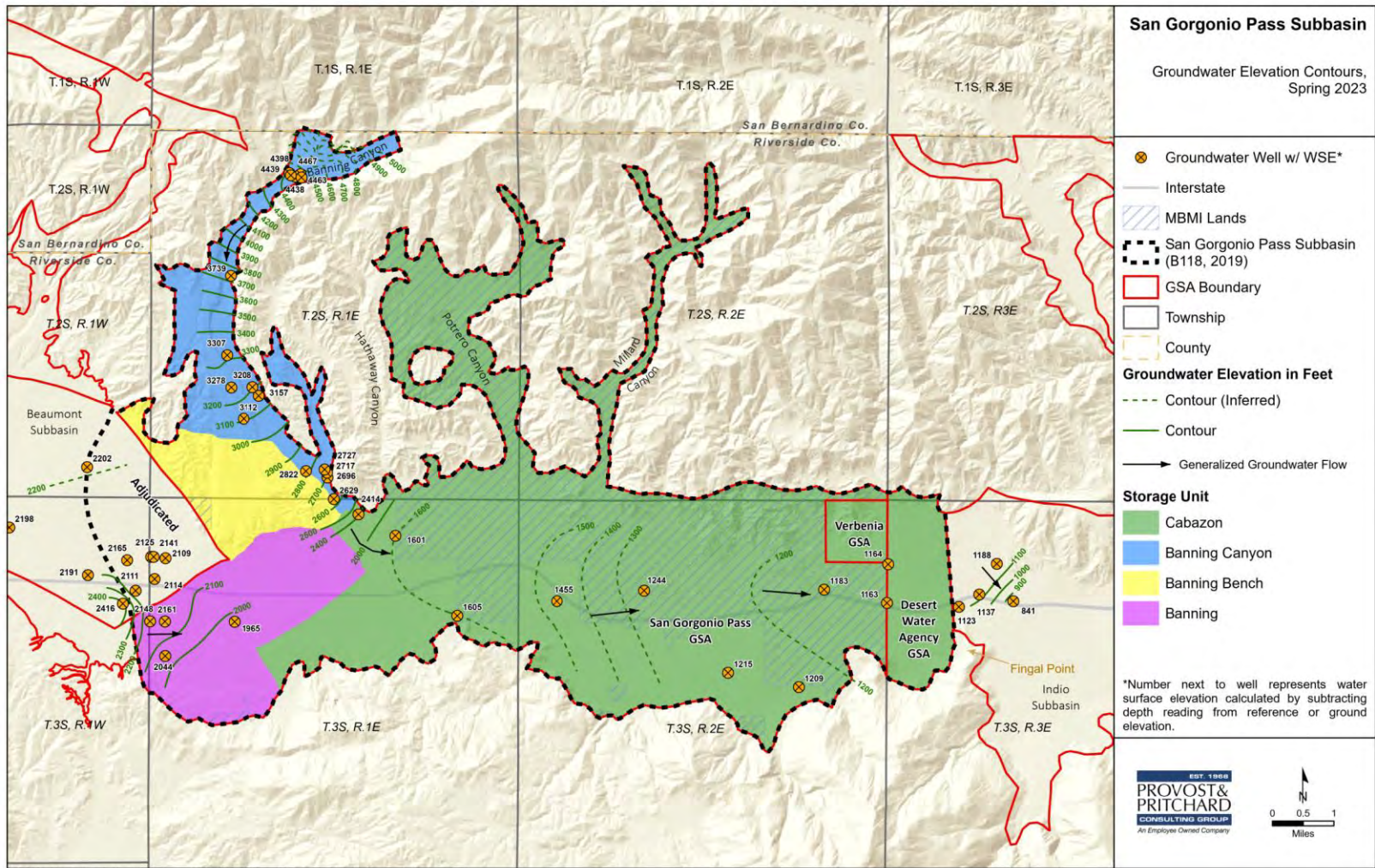
Groundwater elevation data are presented as groundwater level contour maps and groundwater level hydrographs.

Groundwater surface elevation contour maps were prepared from groundwater elevation data collected from wells in the SGP Subbasin's water purveyors and publicly available resources, such as the United States Geologic Survey (USGS). The contour maps illustrate the seasonal high and seasonal low conditions in the principal aquifer in the SGP Subbasin during Water Year 2023. In the SGP Subbasin, the seasonal high is normally defined as any groundwater level measurement recorded between February and April (labeled Spring) and seasonal low is defined as any groundwater level measurement recorded in September or October (labeled Fall). While these are the preferred time periods for seasonal high and low, water level data during those defined periods is occasionally not available and, in those instances, data for the most proximate available time period is sometimes used. Any water level measurements not occurring within the preferred time period have been highlighted in light red on the contour maps. While water agencies in the SGP Subbasin sometimes collect water level measurements from pumping or recently pumped wells, only static water level measurements were used for the contour maps and hydrographs shown on the following pages as **Figure 2-1** through **Figure 2-13**.



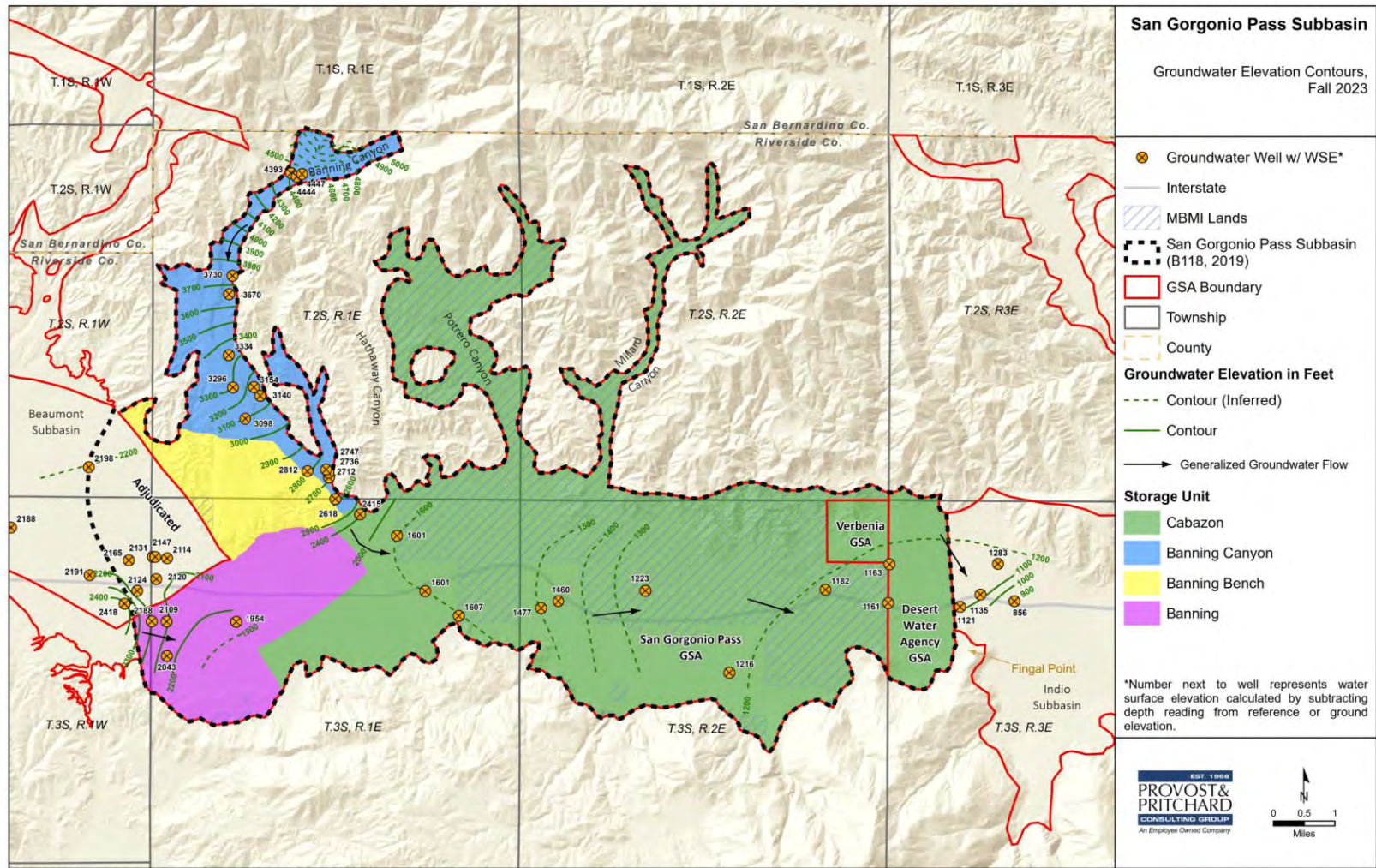
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Figure 2-1 - Fall 2022 Groundwater Level Contours



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Figure 2-2 - Spring 2023 Groundwater Level Contours



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Figure 2-3 - Fall 2023 Groundwater Level Contours

Hydrographs of static groundwater elevations, including historical data through WY2023, are included below for each well in the SGP Subbasin's representative monitoring network for the chronic lowering of groundwater levels sustainability indicator. The location of wells in the representative monitoring network are shown in **Figure 2-4**.

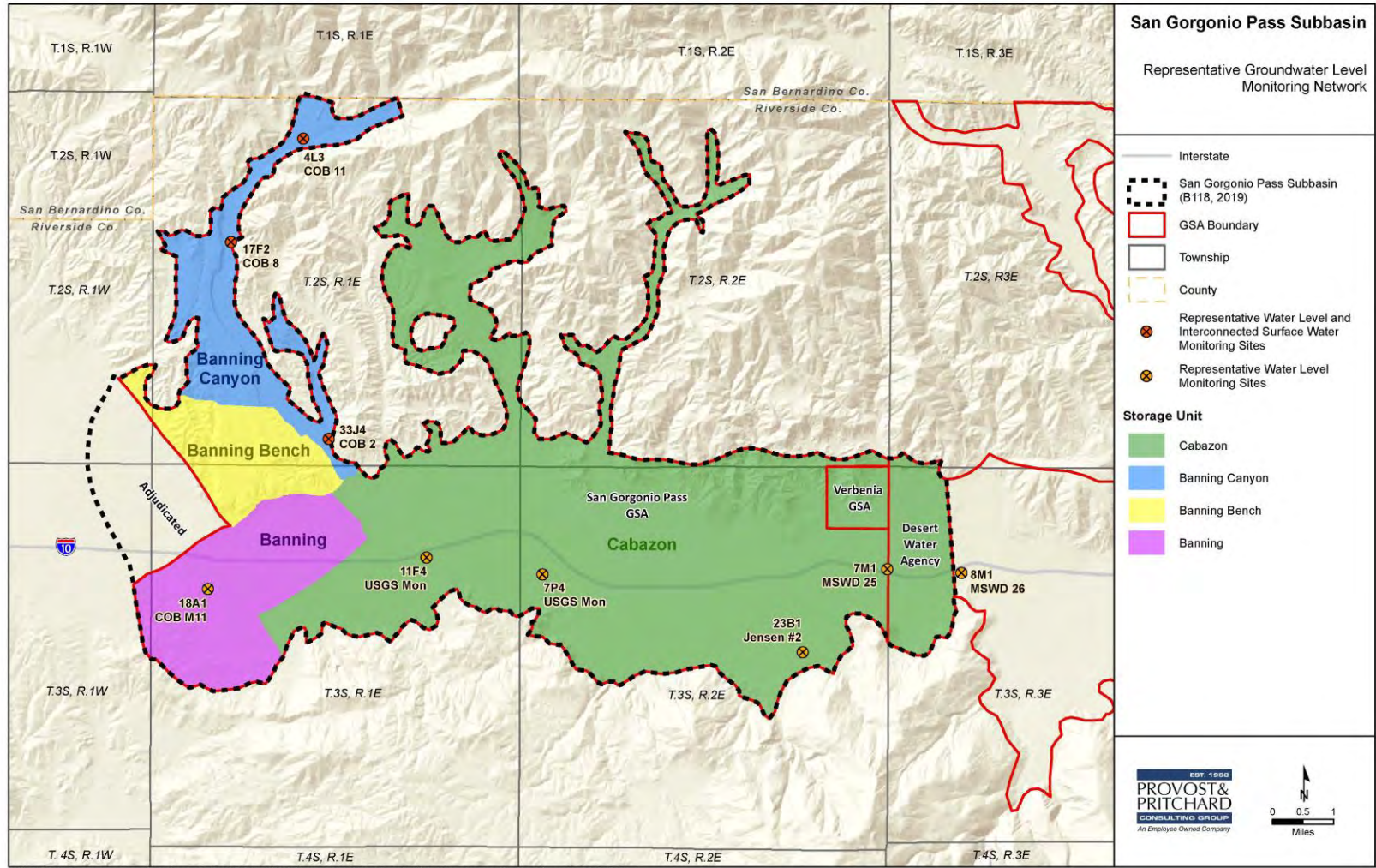


Figure 2-4 - Representative Monitoring Wells Locations

The hydrographs in **Figure 2-5** through **Figure 2-13** show groundwater level measurements since SGMA was enacted in 2015, along with Sustainable Management Criteria (SMC) through the first Interim Milestone period (2027). The SMC consist of the minimum thresholds, the measurable objective and interim milestones. The minimum thresholds represent a point in the basin that, if exceeded, may cause undesirable results in the SGP Subbasin. The measurable objectives are a kind of warning indication, providing a guide towards meeting a basin’s sustainability that provides operational flexibility for overall basin management. The interim milestones are defined at five-year increments to indicate a pathway towards maintaining sustainability by 2042.

SGMA requires an indication of the water year types for groundwater basins. For the SGP Subbasin, the water year types were directly taken from the DWR January 2021 report, “Water Year Type Dataset Development Report” for Hydrologic Code 18100201(the Whitewater River watershed) as available. The 2021 DWR report includes years from 1931-2018. Year Types for 2019 through 2023 were estimated based on data from the Tahquitz Creek gage (USGS Gage Number 10258000) which measures flow on a watershed without significant upstream development with a long historical record that is located downstream of the SGP Subbasin in the Whitewater River watershed. As defined in the January 2021 report, there are five water year types – Wet, Above Normal, Below Normal, Dry and Critical. While water year types may be a useful guide in many California watersheds, and may play a noticeable role in groundwater trends in the Banning Canyon, as discussed later, they did not appear to consistently be a meaningful predictor of groundwater conditions throughout the SGP Subbasin.

Table 2-1 – San Gorgonio Subbasin Water Year Types

Year	Water Year Type
2015	Below Normal
2016	Below Normal
2017	Wet
2018	Above Normal
2019	Wet
2020	Above Normal
2021	Critical
2022	Critical
2023	Wet

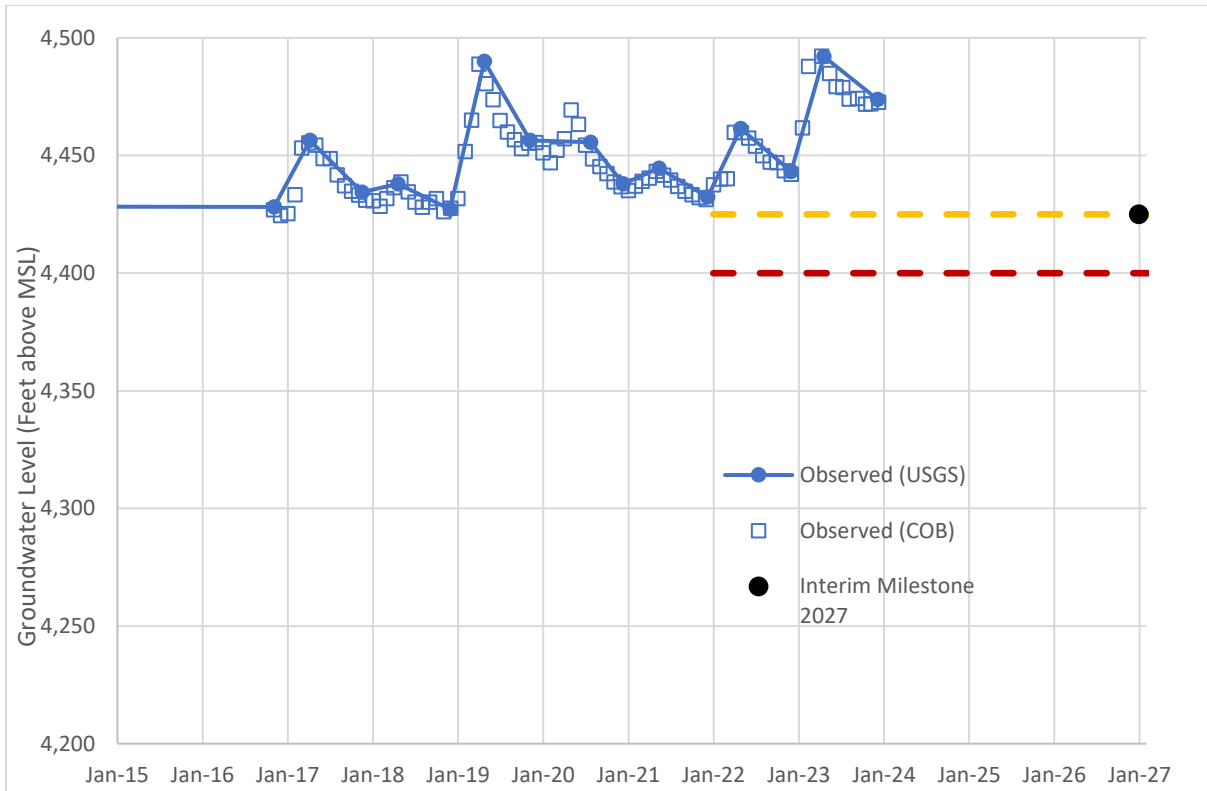


Figure 2-5 - Well 4L3 (COB #11) Historical Groundwater Levels and Sustainable Management Criteria

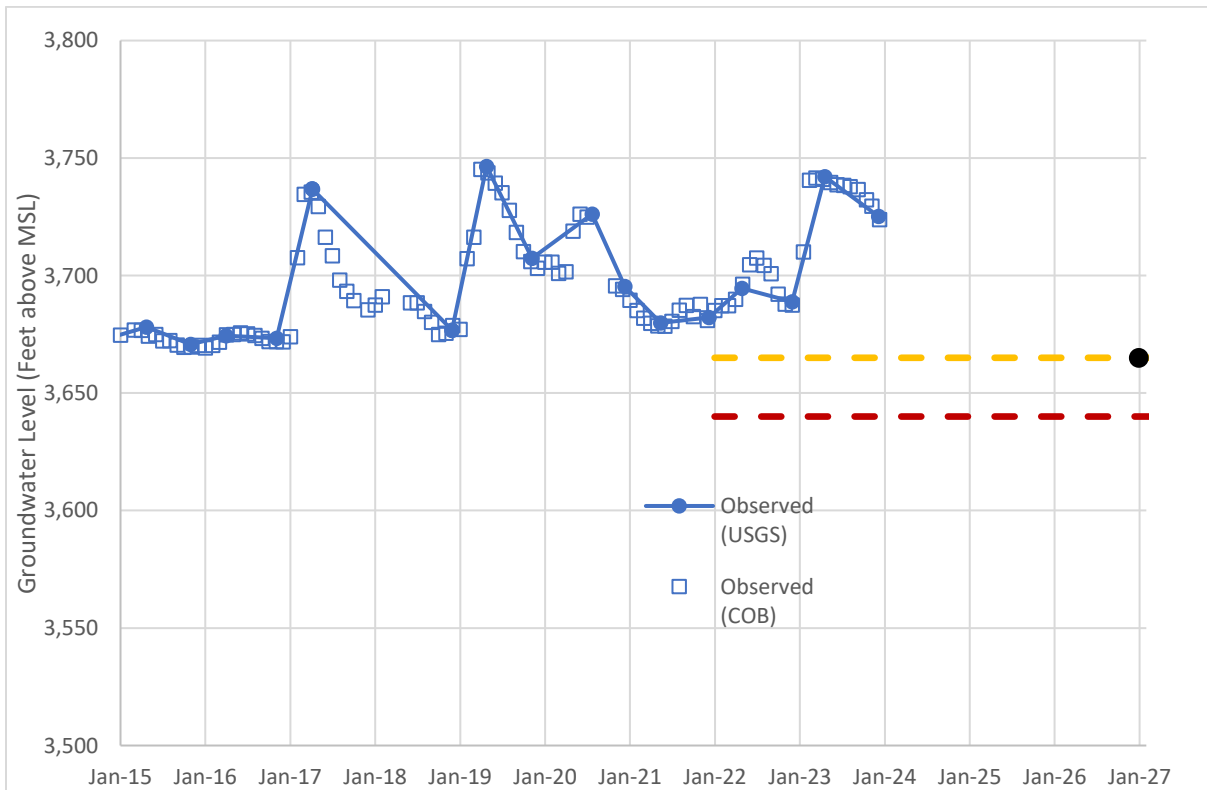


Figure 2-6 - Wells 17F2 (COB #8) - Historical Groundwater Levels and Sustainable Management Criteria

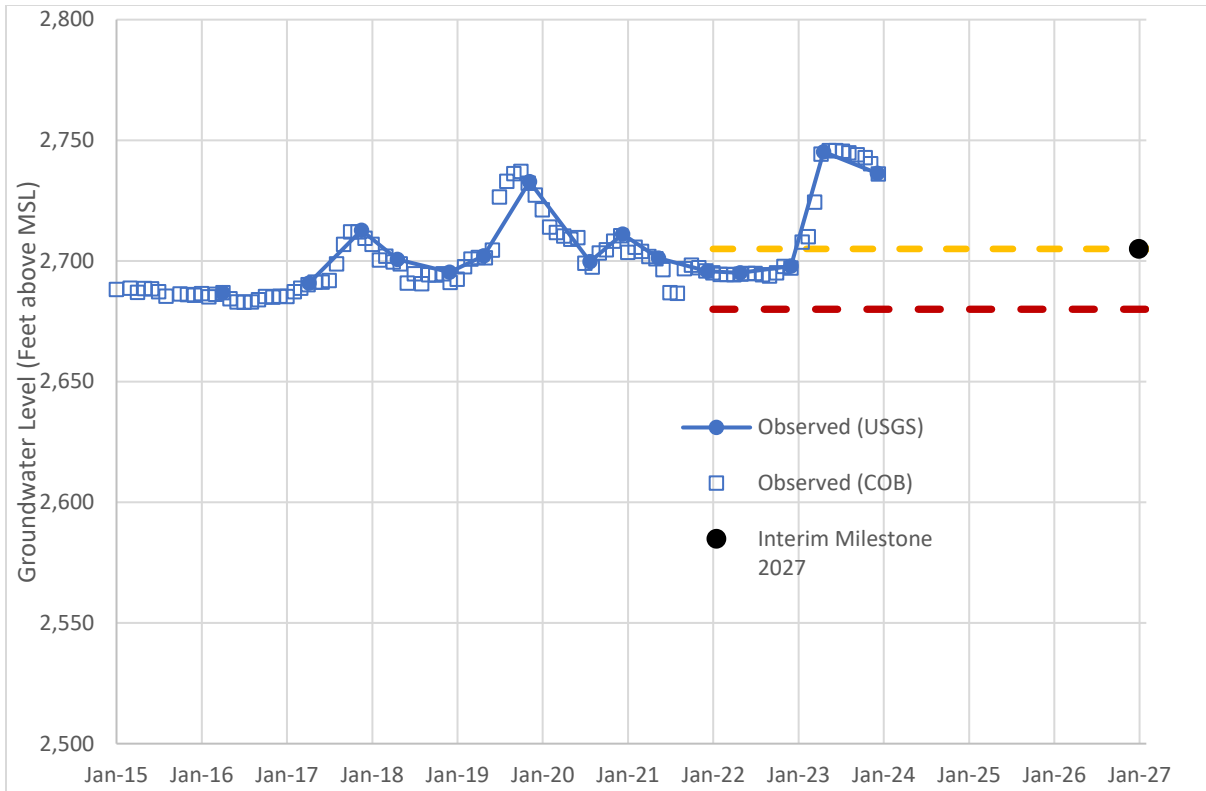


Figure 2-7 - Well 33J4 (COB #2) - Historical Groundwater Levels and Sustainable Management Criteria

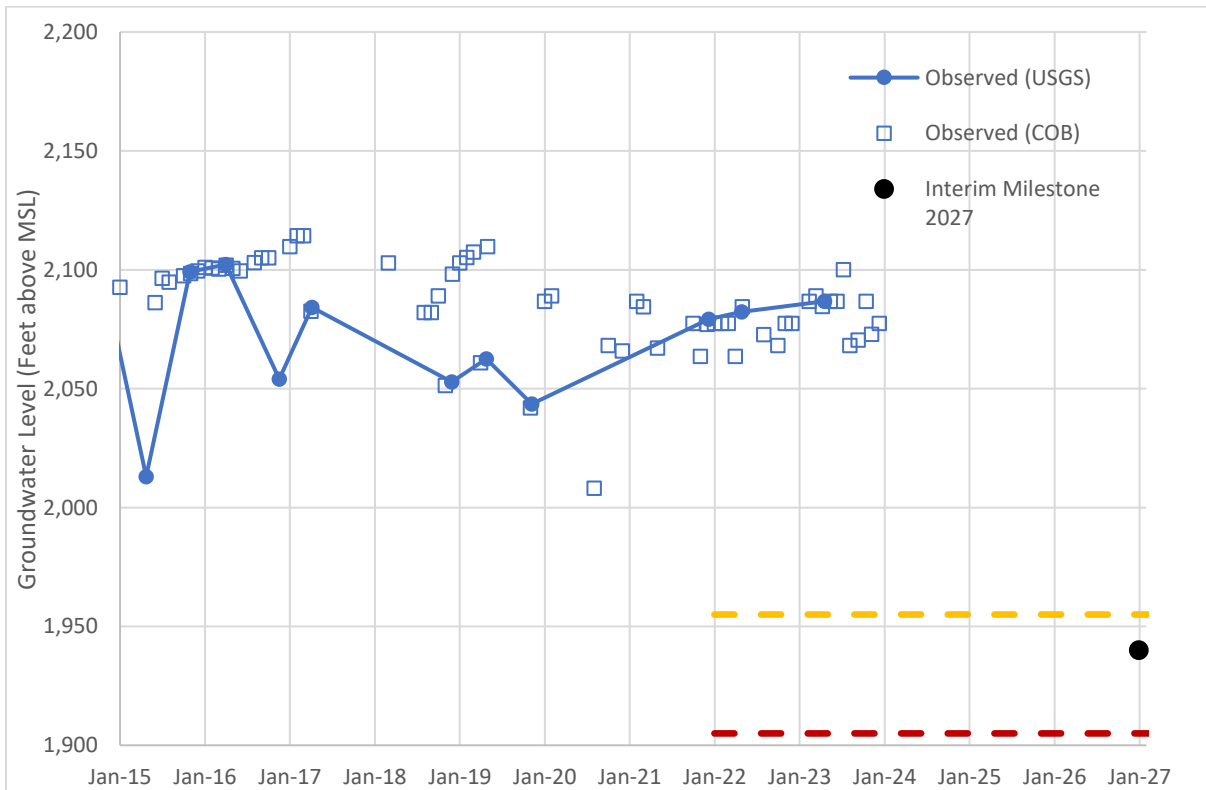


Figure 2-8 - Well 18A1 (COB #M11) - Historical Groundwater Levels and Sustainable Management Criteria

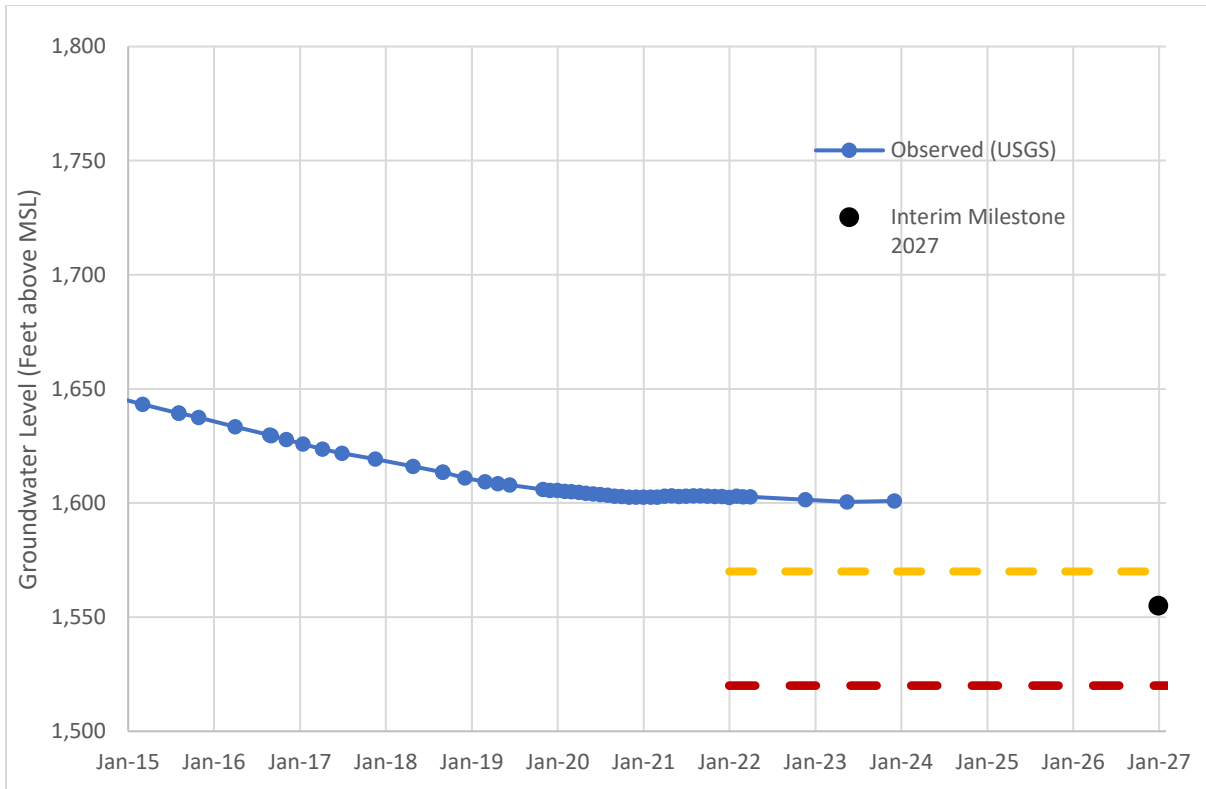


Figure 2-9 - Well 11F4 - Historical Groundwater Levels and Sustainable Management Criteria

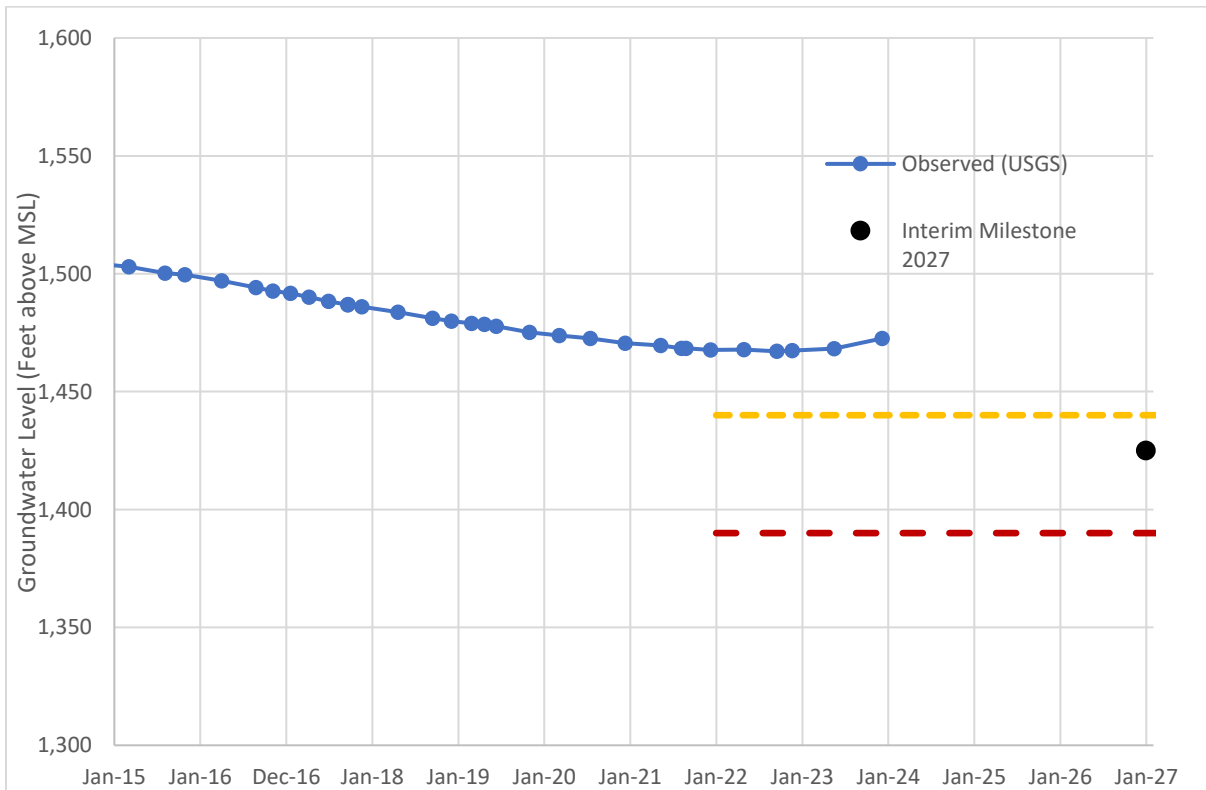


Figure 2-10 - Well 7P4 - Historical Groundwater Levels and Sustainable Management Criteria

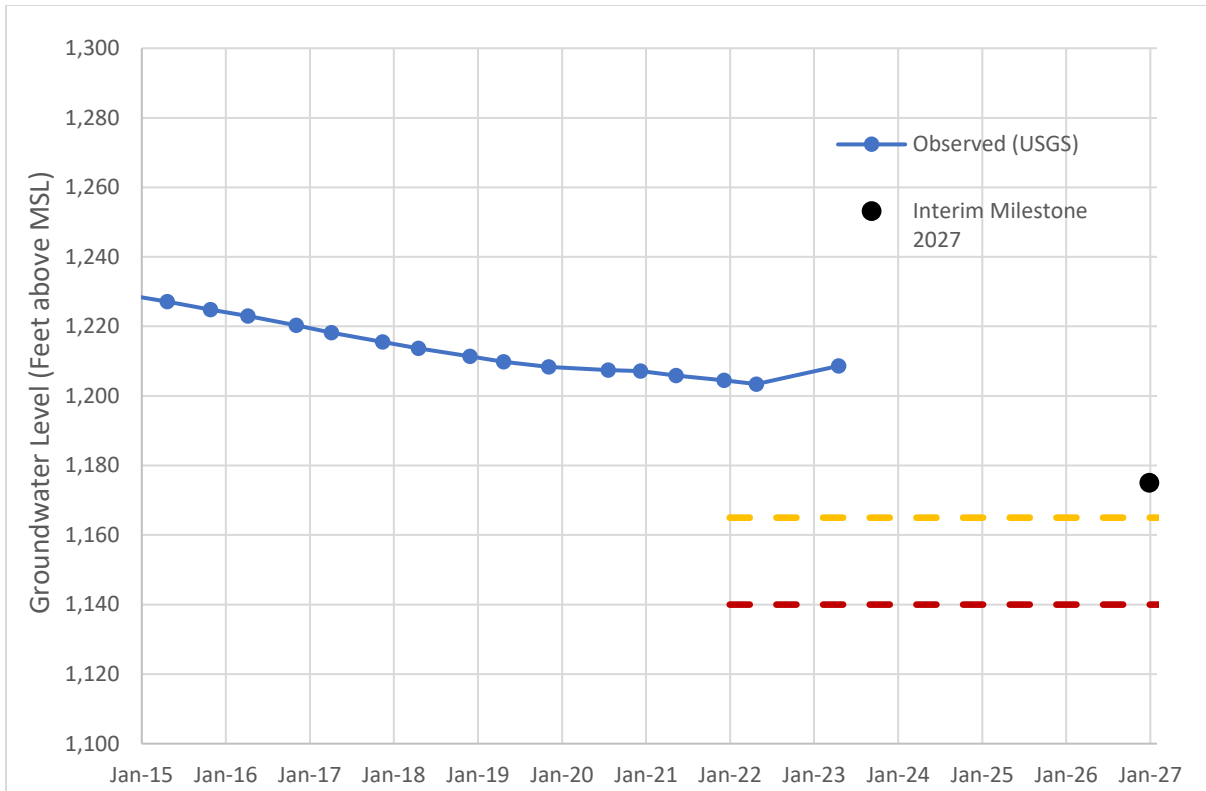


Figure 2-11 - Well 23B1 (Jensen #2) - Historical Groundwater Levels and Sustainable Management Criteria

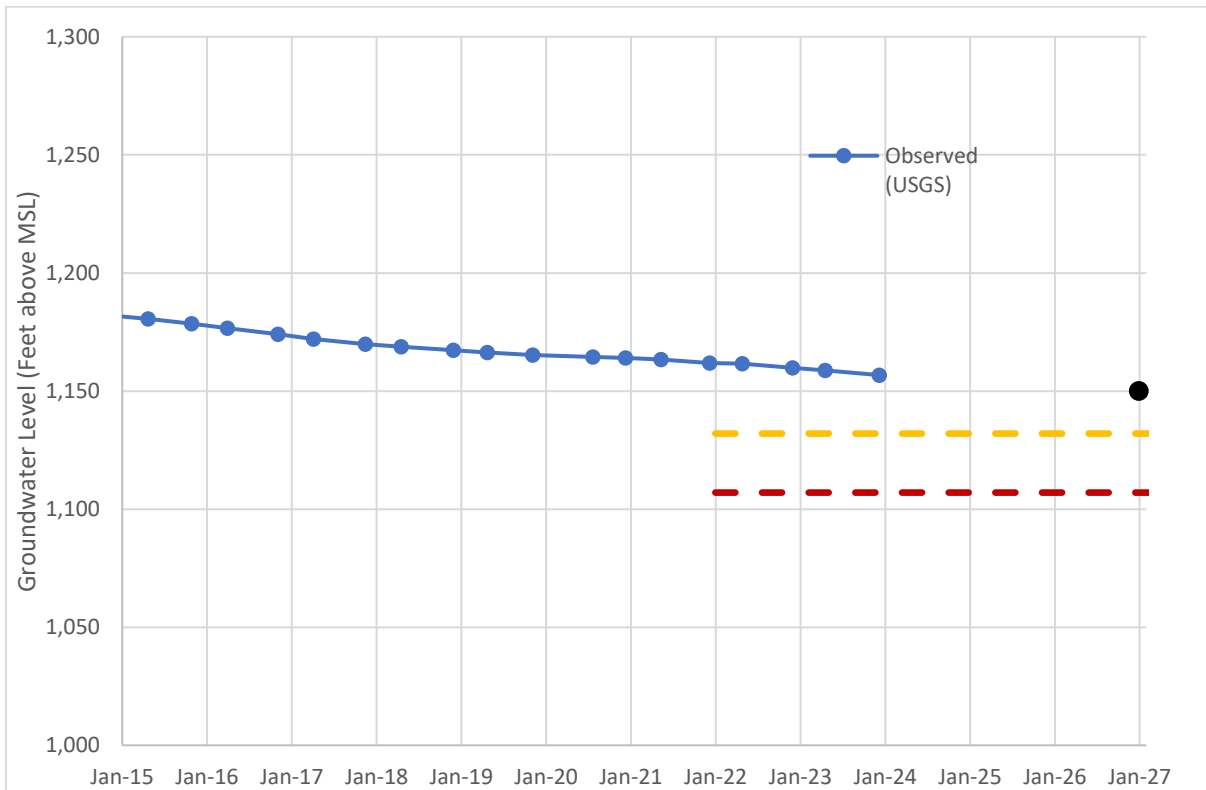


Figure 2-12 - Well 7M1 (MSWD #25) - Historical Groundwater Levels and Sustainable Management Criteria

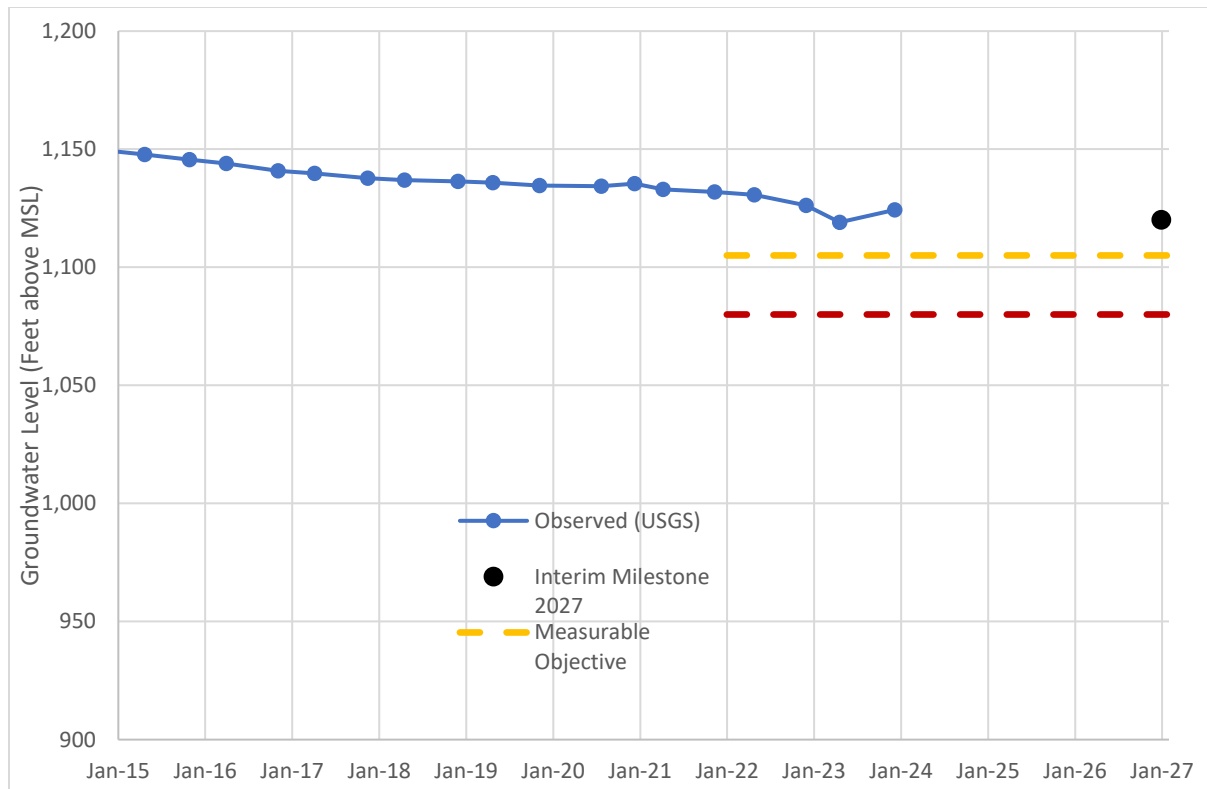


Figure 2-13 - Well 8M1 (MSWD #26) - Historical Groundwater Levels and Sustainable Management Criteria

As shown in the hydrographs in **Figure 2-5** through **Figure 2-13**, groundwater levels in all parts of the SGP Subbasin were above the Minimum Thresholds specified in the GSP. Without exception, all the SGP Subbasin hydrographs for representative monitoring wells have water levels for Water Year 2023 that are also above the 2027 Interim Milestone and the Measurable Objective. Most hydrographs showed an increase in groundwater levels, likely due to the wet water year type. Water levels in the mid and upper Banning Canyon Storage Unit (Wells 4L3 and 17F2) and in the Banning Storage Unit (Well 18A1) showed continued seasonal variations without a long-term trend.

Water levels in the Banning Canyon (**Figure 2-5** through **Figure 2-7**) had increases in the wet water year types of 2017 and 2019, and showed a corresponding increase in 2023. The other years in the period of 2015 through 2023 did not show any distinct impact of water year types. The only representative monitoring well that fell below the 2027 Interim Milestone in the previous annual report, Well 33J4 (COB #2), rebounded significantly, even surpassing 2019 levels. Historically and in most years, the lower portion of the Banning Canyon has very shallow depths to water and a thin groundwater aquifer that is actively managed by pumping from the City of Banning to maintain water levels in a very narrow operational zone that is above the Minimum Threshold for Well 33J4 (COB #2). While Well 33J4 (COB#2) occasionally has had water levels above the Measurable Objective during high runoff periods, water levels there have commonly been below the Measurable Objective historically.

Water levels in the Banning Storage Unit (**Figure 2-8**) appear to show two ranges in water levels – one higher range that likely reflects static water level measurements without pumping impacts and a lower range that likely reflects periods when pumping had recently occurred or was occurring in nearby production wells. The hydrographs in the Banning Storage Unit did not show any clear relationship to water year types. The five wells (**Figure 2-9** through **Figure 2-13**) in the Cabazon Storage Unit showed a flattening of the declining trend that those wells had shown since about 1998, until 2023. Likely because of the wet year in 2023, three wells- Well 7P4, Well 8M1 (MSWD #26) and Well 23B1 (Jensen #2) showed an increase in water level, compared to the historical decline. Prior to 2023, the trends in both those storage units appeared to be insensitive to identified water year types. However, if future years show similar trends to 2023, this may not be the case.

3 Groundwater Extraction Data

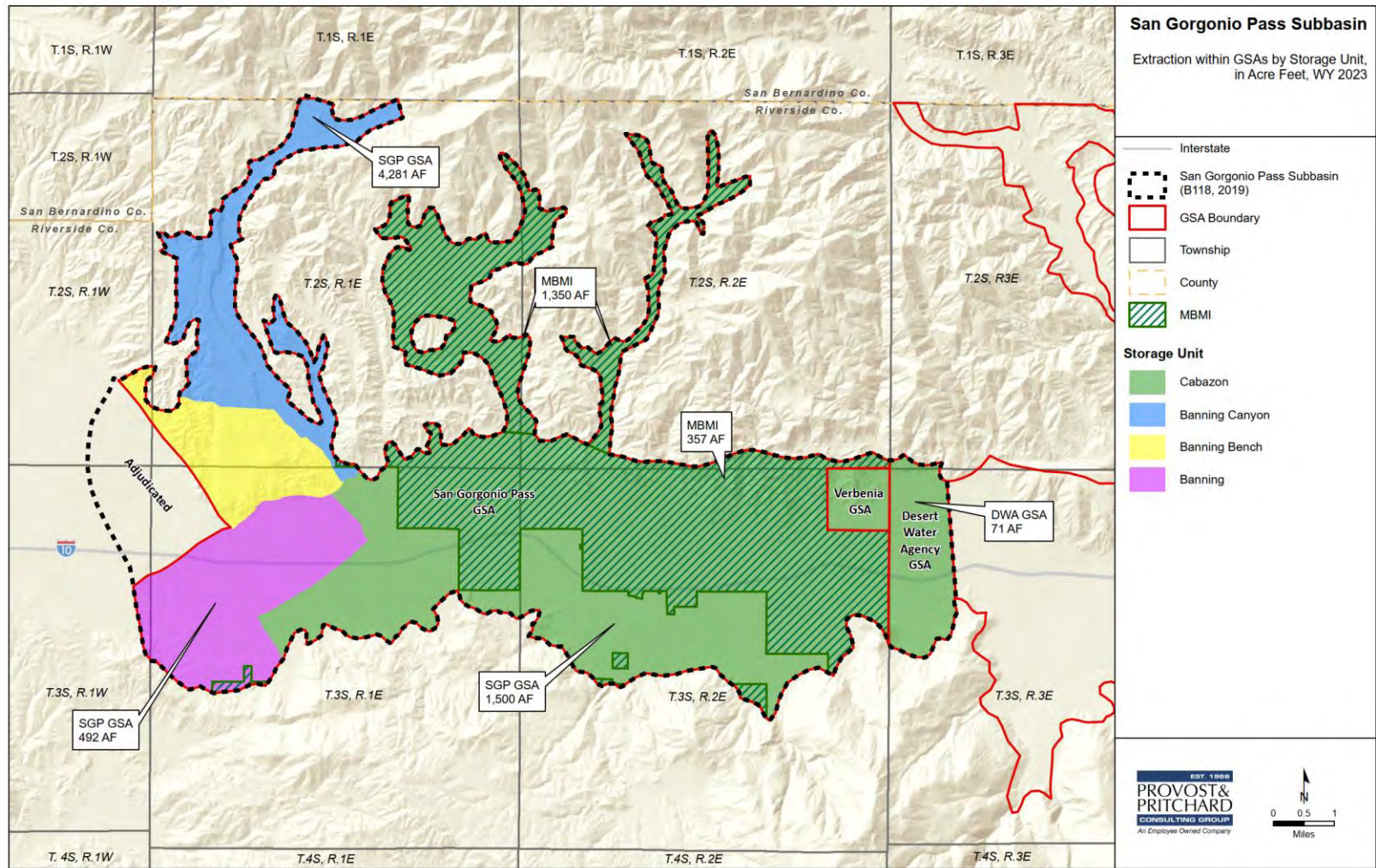
Groundwater extraction data for WY2023 shown in **Table 3-1** and **Table 3-2** are a combination of direct measurements and estimates from water purveyors in the three GSAs in the SGP Subbasin. For WY2023, most of the groundwater extraction data are directly measured from metered pumps by the primary production agencies in the SGP Subbasin – the City of Banning, Cabazon Water District, and Mission Springs Water District. The accuracy of measurements from these three districts varies by well but is believed to be accurate to within five percent or less. Other smaller water users in the SGP Subbasin (Robertson Ready Mix, Banning Heights MWC and Summit Cemetery District) report their water use to SGPWA annually as required by the groundwater recordation program based on unknown measurement methods.

The largest other water user in the SGP Subbasin is the MBMI. MBMI provides water supplies for residential use on its reservation properties, a Casino and Hotel, as well as other industrial uses from sources in Potrero Canyon, the Cabazon Storage Unit, and the Millard Canyon. As a sovereign entity, MBMI is not subject to SGMA, is not required to report its water use and has not voluntarily provided water use information. Estimates for MBMI pumping were taken from background material prepared for the 2018 San Gorgonio Integrated Regional Water Management (IRWM) Water Supply Reliability Study (Woodard and Curran, 2018). Based on Appendix A of the San Gorgonio IRWM Water Supply Reliability Report, MBMI groundwater use in 2016 was approximately 1,007 acre-feet for water use in residential areas and at the Morongo Casino and Hotel. In addition, there was an estimated 696 acre-feet of use at the Arrowhead Water Bottling Plant. Pumping for the MBMI was assumed to occur in Potrero Canyon and in the Cabazon Storage Unit. Pumping in Potrero Canyon was assumed as approximately 650 acre-feet per year based on relative size and watershed area to the Millard Canyon, which has had reported diversions averaging approximately 700 acre-feet per year. The remaining estimated 357 acre-feet per year of MBMI pumping (1,007 acre-feet (AF) less 650 AF Potrero Canyon supply) is assumed to occur in the Cabazon Storage Unit. As described in the SGP GSP, pumping by MBMI from various sources is assumed to be based on water rights from the Whitewater River Decree, State Water Resources Control Board (SWRCB) water rights, and the MBMI share of percolating groundwater in the SGP Subbasin.

The groundwater extraction estimates in the SGP Subbasin fluctuate within a small range from year to year, with minimal variation due to water year type or other factors.

Figure 3-1 shows the general location and volume of groundwater extractions within each of the GSAs and the MBMI during WY2023. In some cases, the extractions occur within one GSA and are used in another GSA within the same storage unit.

In WY2022, it was noticed that USGS and DWR boundaries differed with respect to the edge between the SGP and adjudicated Beaumont Basins. For now, the COB well in question (SWN 3S/1E-18D1, COB # M7) was retained in the calculations as it had been included in prior years; this is consistent with current DWR boundaries. During the 5-year GSP update, these boundaries will be investigated in further detail to reach a consensus regarding the boundaries and the wells that should be included on either side.



2/26/2024 : G:\San Gorgonio Pass Water Agency-2537253724001-Annual Report 2023\400 GIS\Map\Extraction_By_Storage_Unit_22_23.mxd

Figure 3-1 - Extraction by Storage Unit in Acre Feet, WY 2023

Table 3-1 - Extraction by Storage Unit in Acre Feet, WY 2023

Agency	Storage Unit	WY 2023
Total SGP Subbasin	Banning Canyon	4,281
	Other Canyons (Millard and Potrero)	1,350
	Banning	492
	Cabazon	1,928
	Total	8,051
City of Banning	Banning Canyon	4,125
	Banning	492
	Cabazon	408
	Total	5,025
MBMI	Millard Canyon	700
	Potrero Canyon	650
	Cabazon	357
	Total	1,707
MSWD	Cabazon	71
Robertsons Ready Mix	Cabazon	618
Cabazon WD	Cabazon	473
Banning Heights MWC	Banning Canyon	91
Summit Cemetery District	Banning Canyon	65

Table 3-2 - Groundwater Extraction Measurement Methods

Agency	Period	Method	Accuracy
City of Banning	2023	Direct Measurement	+/- 5%
Cabazon WD	2023	Direct Measurement	+/- 5%
Mission Springs WD	2023	Direct Measurement	+/- 5%
Morongo Band of Mission Indians	2023	Estimate	Unknown
Robertsons Ready Mix	2023	Average of 2020-2022	Unknown
Banning Heights MWC	2023	Average of 2020-2022	Unknown
Summit Cemetery District	2023	Average of 2020-2022	Unknown

4 Surface Water Supply for Recharge

The following surface water supply data are a combination of direct measurements and estimates from each of the three GSAs in the SGP Subbasin.

While SGPWA and DWA provide for State Water Project (SWP) recharge to support water use in the SGP Subbasin, the recharge facilities for both of those agencies are located outside of the SGP Subbasin itself. SGPWA recharges SWP water at Noble Creek in the adjacent Beaumont basin, which improves groundwater gradients at the boundary with the SGP Subbasin and enhances groundwater flows into the SGP Subbasin. The Desert Water Agency recharges SWP water at the Whitewater Recharge Basins just east of the boundary between the SGP Subbasin and the Indio Subbasin. The Desert Water Agency recharge adjacent to the SGP Subbasin improves groundwater gradients at the SGP Subbasin-Indio Subbasin boundary and provides improved groundwater conditions within the SGP Subbasin. While the SGP Subbasin indirectly benefits from these recharge operations in adjacent groundwater basins, there is no direct recharge of SWP water within the SGP Subbasin.

The only historical surface water supply within the SGP Subbasin is water diverted from the Whitewater River watershed into the SGP Subbasin for direct use by Banning Heights MWC and indirect use by the City of Banning. Estimates of the amount of this supply are indirect. The facilities used for the Whitewater River watershed diversion were rendered unusable by the Apple Fire of August 2020 and no surface water supplies have been available since then.

Table 4-1 – WY2023 Surface Water Supply, San Gorgonio Pass Subbasin

Surface Water Source	WY 2023 Total
Local Supplies	0
Total	0

5 Total Water Use

Total water use by water use sector and supply is shown in **Table 5-1**. The data presented in **Table 5-1** is a summation of data from the GSP storage units and incorporates a variety of methods for data calculation and estimation. Note that the total water use values presented in **Table 5-1** are not consumptive; there is a material return flow component included. In other words, this table indicates the total applied water use and the net water use (without return flow) would be lower. These data are a combination of direct measurements and estimates from each of the three GSAs in the SGP Subbasin, as well as estimates for MBMI. Several types of water use (Agricultural, Managed Wetlands, Managed Recharge, Native Vegetation and Outside Subbasin) do not occur in the SGP Subbasin and are not included in **Table 5-1**.

Total water use is relatively consistent for Water Year 2023 as compared to other recent water years. There is a slight increase compared to the WY 2022, which was a critical year type. Data for prior years is available in preceding reports⁵.

Table 5-1 – WY 2023 Total Water Use, San Gorgonio Pass Subbasin

Summary of Total Water Use (Acre-Feet)			
Total Water Use	WY 2023 Wet Year Type	Measurement Method	Measurement Accuracy (%)
Urban/Domestic			
Groundwater	6,737	Measured/Estimate	Refer to Table 3-2
Surface Water	0	Estimate	+/- > 10%
Total	6,737	Estimate	Unknown
Industrial			
Groundwater	1,314	Estimate	Refer to Table 3-2
Surface Water	0	Estimate	Unknown
Total	1,314	Estimate	Unknown
Total			
Groundwater	8,051	Measured/Estimated	Refer to Table 3-2
Surface Water	0	Estimate	Unknown
Total	8,051	Estimate	Unknown

⁵ San Gorgonio Pass Subbasin Groundwater Sustainability Agency (as of 1 March, 2024):
https://www.sgpgsas.org/wp-content/uploads/2022/04/7-021.04_WY_2021.pdf
<https://www.sgpgsas.org/wp-content/uploads/2023/11/SGPSGSA-Annual-Report-WY22-Final.pdf>

6 Change in Groundwater Storage

The change in groundwater storage in this Annual Report uses consistent computation methods for the three storage units (Banning Canyon, Banning and Cabazon) based on groundwater elevation maps. Storage change was computed based on groundwater contour maps and specific yield. For this computation, average changes in water levels (taken from the contour maps in **Figure 2-1** to **Figure 2-3**) were tabulated by computation areas and were then multiplied by the surface area and specific yield to determine the volume of storage change.

Table 6-1 shows the annual and cumulative change in groundwater storage for Water Years 2015 through 2023.

Table 6-1 - Annual and Cumulative Change in Storage from 2015 to 2023, San Geronio Pass Subbasin

Year	Annual Change in Storage (Acre-Feet)	Cumulative Change in Storage (Acre-Feet)
2015	-16,661	-16,661
2016	-19,385	-36,046
2017	-5,535	-41,581
2018	-13,259	-54,840
2019	4,745	-50,095
2020	-10,190	-60,285
2021	-6,267	-66,552
2022	-9,838	-76,390
2023	-7,087	-83,477

Figure 6-1 shows annual change in groundwater stored by water year type with cumulative change in groundwater storage at the SGP Subbasin level as calculated using the methods previously described. As with the SGP GSP base period analysis, there was minimal variation in groundwater storage trends depending on the water year types.

Figure 6-2 compares annual change in groundwater storage with annual groundwater extraction estimates. As indicated in the SGP GSP, groundwater extractions comprise a relatively small quantity in comparison to the total outflows (including water use and subsurface outflow) in the SGP Subbasin.

Groundwater extractions did not vary significantly from year to year and groundwater storage changes appear to depend on underlying longer term hydrologic conditions more than water year type. Furthermore, following 2015, the Subbasin, and to a great extent the state of California, experienced a series of very dry years. The short record of 2015 forward shows a continued decrease in cumulative change in groundwater storage, but the models have a longer base period that show the basin increasing during prior wet periods. As wet periods of hydrology are experienced in the future, these trends are expected to show a more similar variation to historical patterns with both increases and decreases in cumulative change in storage.

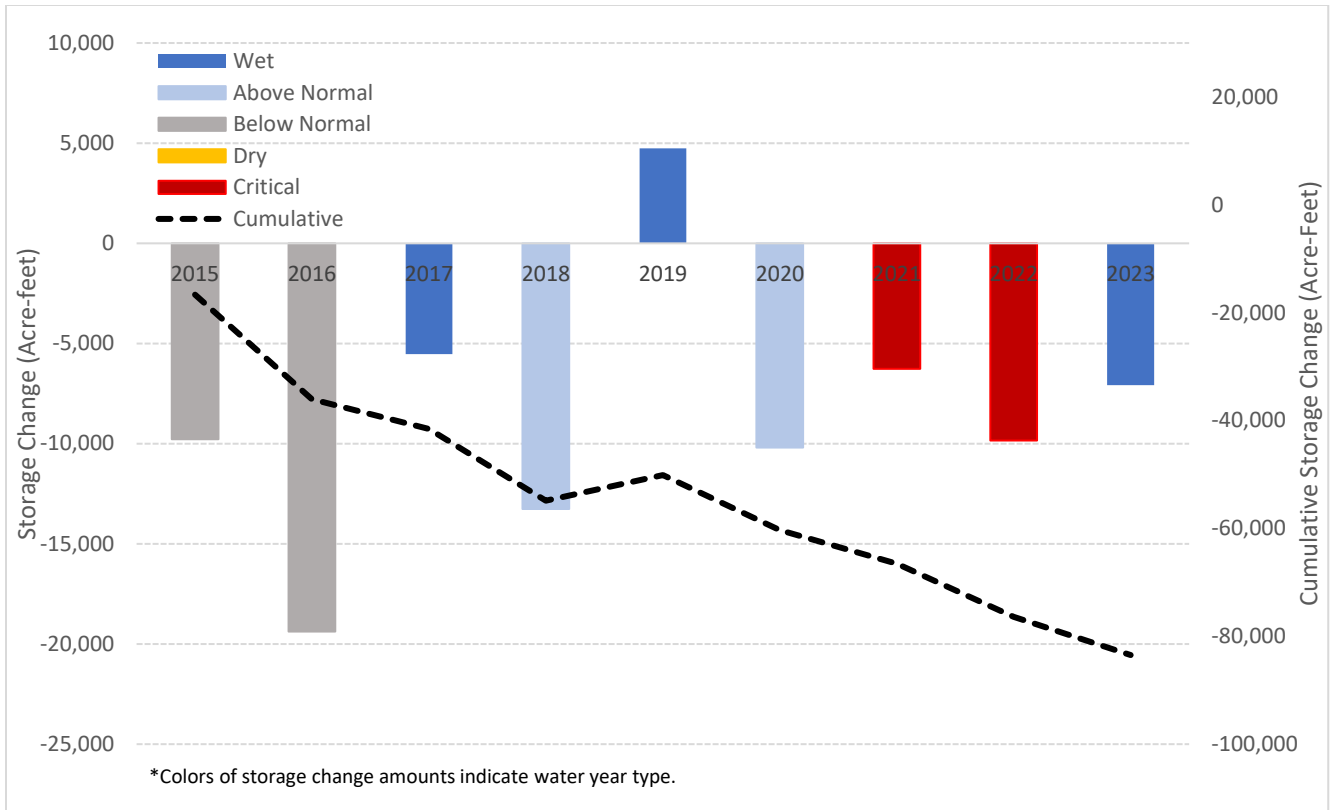


Figure 6-1 –Annual Change in Storage and Cumulative Change in Storage, 2015 to 2023*

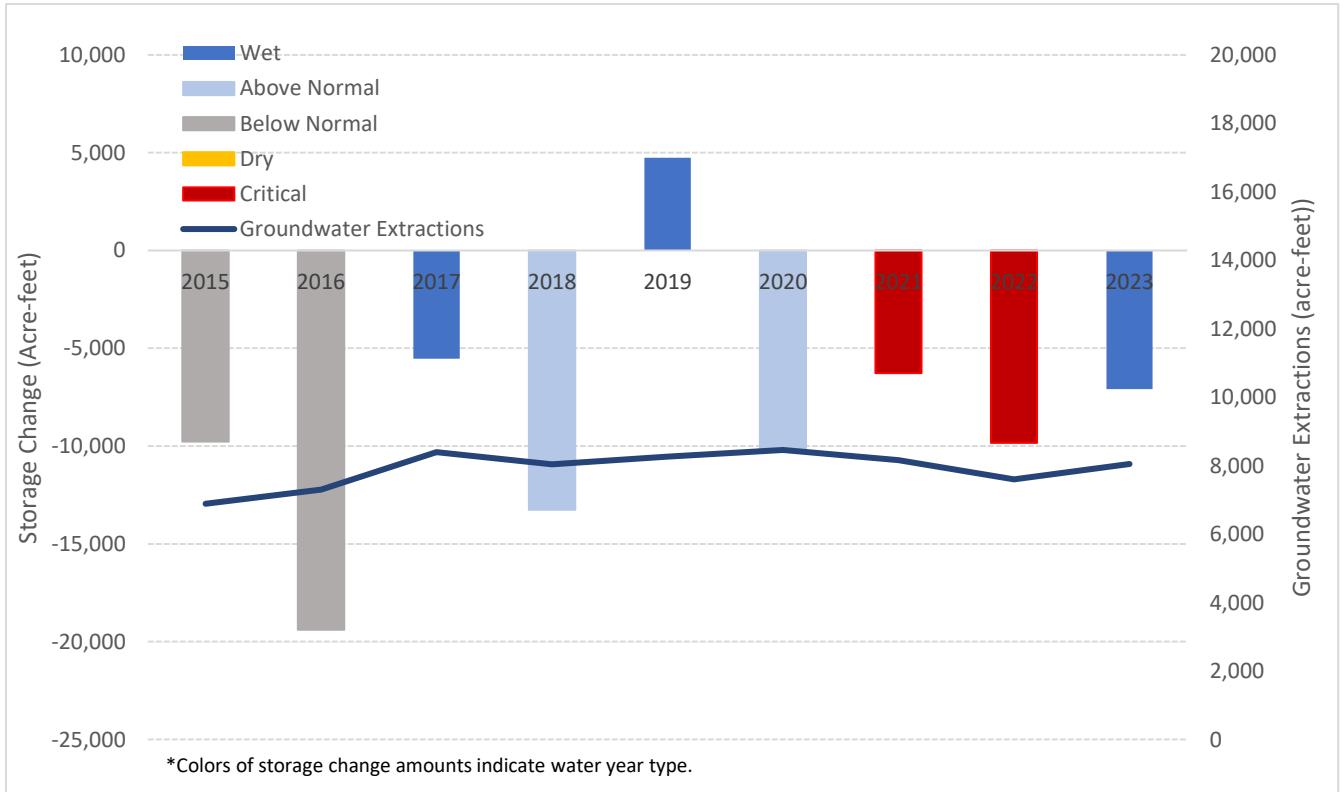


Figure 6-2 – Groundwater Extraction and Annual Change in Storage, WY2015 to WY2023*

7 Plan Implementation

This section describes progress made by the SGP GSAs toward implementing the SGP GSP, including progress towards achieving interim milestones and the implementation of projects and management actions. While significant implementation of the GSP did not occur during WY2023, owing to the fact that the SGP GSP was not adopted until WY2022, some progress was realized.

The SGP GSP includes several planned and possible projects and management actions to be implemented. Initial implementation work anticipated for the upcoming water year 2024 includes project development and design, gathering of information to fill data gaps and continued stakeholder outreach and engagement. SGPWA, on behalf of the SGP GSAs, has initiated an evaluation of the potential for additional conveyance and recharge facilities to directly deliver SWP water to the SGP Subbasin. SGPWA and Desert WA are planning participants in the Delta Conveyance Facility Project which would provide increased delivery reliability and efficiency. SGPWA and Desert WA are also planning participants in the Sites Reservoir Project which would provide additional water supplies. Both the Delta Conveyance Facility and the Sites Reservoir projects would improve overall water supply conditions and serve as components of Projects #3, #4, and #5 as presented in the SGP GSP.

In December 2022, SGPWA submitted an application for funding to DWR for construction of four monitoring wells within the SGP. In 2023, this application for funding was accepted. The four monitoring wells would address two of the data gaps identified in the SGP GSP in the Banning Bench and Banning Storage Units. Two of the monitoring wells would be installed at the boundary of the Banning Storage Unit and the adjudicated Beaumont Basin to provide data on the level of hydraulic connection at that boundary and information to support improving estimates of subsurface boundary flow. The other two monitoring wells would be installed at the interface between the Banning Bench and the Banning Canyon storage unit to identify subsurface flows between the two storage units and to support evaluation of groundwater management options in the Banning Bench storage units. Based on the grant funding awarded, SGP is in the process of installing the monitoring wells and is expected to have them by March, 2025. It is anticipated that water level data would be available to support the GSP five-year review in 2027.

Hydrographs, included as **Figure 2-5** through **Figure 2-13** for all representative monitoring wells in the groundwater levels monitoring network for the SGP Subbasin, show groundwater elevations along with their associated minimum thresholds and measurable objectives. As shown in these hydrographs, actual water level conditions at representative monitoring wells have been maintained at levels that are higher than the SGP GSP-specified minimum thresholds. The hydrographs also show that as of WY 2023, all of the representative monitoring wells have water levels that are higher than the measurable objective and the Interim Milestones specified in the SGP GSP.

Groundwater quality data for the representative groundwater quality monitoring network retrieved for Water Year 2023 from Groundwater Ambient Monitoring and Assessment (GAMA)⁶ is summarized in **Table 7-1**.

⁶<https://gamagroundwater.waterboards.ca.gov/gama/datadownload>

Based on these data, no measurements were observed that exceeded the measurable objective or minimum threshold for the five representative groundwater quality monitoring sites in the SGP Subbasin.

Table 7-1 - Groundwater Quality Representative Monitoring Wells WY 2023

State Well Number	Nitrate as NO3 (mg/L as N)		TDS	
	Average	# of Samples	Average	# of Samples
02S01E17M001S	0.68	1	N/A	N/A
03S01E18A001S	1.3	1	N/A	N/A
03S02E07K001S	1.6	1	220	1
03S02E09E001S	2.4	1	N/A	N/A
03S03E07D001S	N/A	N/A	N/A	N/A
Measurable Objective	8.0		800	
Minimum Threshold	10.0		1,000	

Observed groundwater subsidence data, as reported by the TRE ALTAMIRA InSAR16 analysis⁷, was reviewed for the SGP Subbasin. The observed groundwater subsidence data indicated that subsidence in the SGP Subbasin was in the range of -0.1 to 0.1 feet range of vertical displacement for Water Year 2023, which is the smallest amount of change reported. In essence, this indicates that subsidence is not detectable.

In summary, the SGP Subbasin GSAs have maintained water level, water quality, and subsidence conditions that are consistent with the measurable objectives and show continuing sustainable groundwater conditions. The SGP Subbasin GSAs have also initiated planning for projects and management actions that will maintain sustainable groundwater within the SGP Subbasin through the implementation period.

⁷ <https://data.cnra.ca.gov/dataset/tre-altamira-insar-subsidence>