DRAFT REPORT

Mound Basin Groundwater Sustainability Agency Groundwater Sustainability Plan

DRAFT 2026 Periodic Evaluation

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Executive Summary

Mound Basin Groundwater Sustainability Agency (MBGSA), formed in 2017, is the exclusive Groundwater Sustainability Agency (GSA) for the Mound Subbasin of the Santa Clara River Basin (DWR Basin No. 4-004.03; Figure 1.1). The Mound Subbasin, herein referred to as the Basin, is classified by the California Department of Water Resources (DWR) as a high-priority groundwater basin and subject to the Sustainable Groundwater Management Act (SGMA). Under SGMA, medium- and high-priority basins are required to form GSAs and develop Groundwater Sustainability Plans (GSPs), which are intended to guide groundwater management activities over a 50-year implementation horizon.

In December 2021, the MBGSA Board of Directors adopted the Basin GSP (MBGSA, 2021). The GSP summarizes historical and current groundwater conditions and provides a comprehensive framework to *sustainably manage the groundwater resources of the Mound Basin for the benefit of current and anticipated future beneficial users of groundwater and the welfare of the general public who rely directly or indirectly on groundwater*.[1] MBGSA submitted the GSP to the DWR on December 31, 2021, who approved the plan on October 26, 2023 (DWR, 2023). DWR's approval of the GSP indicates that the plan meets the regulatory requirements of SGMA and provides a clear path for managing groundwater sustainability through 2072.

Why is the Mound Basin GSA Preparing this Periodic Evaluation of the GSP?

SGMA requires that GSAs evaluate their approved GSPs at least every five years to assess whether GSP implementation, including the implementation of projects and management actions, is meeting the sustainability goal in the basin (23 CCR §356.4).[2] Through this evaluation process, DWR requires that each agency describe:

- The relationship between current groundwater conditions and the sustainable management criteria established in the GSP.
- The status of projects and management actions and their effects on groundwater conditions.
- Any significant new information collected in the basin that may impact the basin setting.
- Changes to the GSP monitoring network and any new, or resolved, data gaps.
- Any additional relevant actions taken by the agency, including legal actions or adoption of new regulations or ordinances related to the GSP.
- Any completed or proposed Plan Amendments.

In addition to these regulatory requirements, GSAs must address Recommended Corrective Actions (RCAs) included in the State's GSP approval.[3] RCAs aim to improve or clarify different components of the GSP. Five RCAs were included in the GSP approval letter.

[1] Italicized text is excerpted from the Mound Basin GSP's Sustainability Goal, which is detailed in Section 4.2 of the GSP.
[2] The Final GSP Emergency Regulations can be found online at: https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IB4B9AC005B6E11EC9451000D3A7C4BC3&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)
[3] Find RCAs for Mound Basin here: https://sgma.water.ca.gov/portal/gsp/preview/19

How have groundwater conditions changed over the past five years?

The GSP manages groundwater conditions related to five sustainability indicators: chronic lowering of groundwater levels, reduction of groundwater in storage, degraded water quality, seawater intrusion, and land subsidence.

Since 2019, groundwater elevations and storage in the Basin have increased, with groundwater levels and storage now at or near post-development historical highs. These improvements reflect a combination of favorable hydrologic conditions – particularly the wet 2023 and 2024 water years – and significantly reduced pumping resulting from including groundwater extraction fees, increased water conservation, and increased use of other local water supplies.

Groundwater quality conditions have remained stable, with no evidence of water quality degradation or seawater intrusion.

The Basin has not experienced land subsidence.

Is GSP Implementation Meeting the Sustainability Goal for the Basin?

Data collected over the past five years indicates that GSP implementation is meeting the sustainability goal for the Basin:

- All applicable sustainability indicators are meeting or exceeding the measurable objectives.
- Groundwater pumping has decreased, averaging approximately 52% of the Basin's estimated sustainable yield.
- MBGSA has effectively implemented management actions to enhance Basin management and groundwater monitoring.

Moreover, since adoption of the GSP, the City of Ventura has continued to advance their VenturaWaterPure and State Water Project Interconnection projects. These efforts are projected to reduce reliance on groundwater from the Basin by up to 71% (Ventura Water, 2025a). The updated projections are significant new information and suggest that groundwater pumping is unlikely to cause undesirable results over the GSP implementation horizon. Moreover, the significantly reduced groundwater extractions and projections for further reductions raise an important question about whether basin reprioritization is warranted to better reflect the Basin's limited groundwater reliance and absence of domestic wells. Reprioritization could potentially lead to reduced SGMA and GSP implementation costs should it be determined that the Mound Basin is now a low or very low priority basin.

Are Changes Being Made to the GSP?

DWR has requested that MBGSA consider updating the GSP to refine the minimum thresholds and the definition of undesirable results for chronic lowering of groundwater levels, degraded water quality, and interconnected surface water (ISW). MBGSA cannot make all of these changes at this time because it needs to first finish building out the monitoring network (drill monitoring well MW-B) and collect baseline data to inform the requested changes to the sustainable management criteria. This decision is supported by the fact that (1) the basin is meeting the measurable objectives, (2) groundwater extractions have dropped to almost ½ of the estimated sustainable yield, and (3) groundwater extractions are projected to decline further during the next five years. MBGSA also recognizes that significant uncertainty remains concerning the impact on the Mound Basin water balance because the approach to achieving sustainability in the adjacent, critically overdrafted Onxard Subbasin has not been determined. This periodic evaluation offers ideas concerning potential changes to the sustainable management criteria pursuant to the recommended corrective actions and lays out a plan for amending the GSP at a later date. Specifically, this Periodic Evaluation presents information in support of future GSP revisions:

- Refining the quantitative combination of groundwater level and groundwater quality minimum threshold exceedances that are representative of undesirable results based on the construction of new dedicated monitoring wells in the southwestern part of the Basin.
- Revising the GSP to identify depletion of ISWs as a sustainability indicator *applicable* to the Basin and define associated sustainable management criteria.

The future GSP update will ultimately address the recommended corrective actions once baseline data are available and will also address the currently unknown future impact of Oxnard Subbasin management on the Mound Basin water balance. MBGSA concludes that this approach is consistent with the goals of SGMA and is the most cost-effective approach for this Basin, which is impacted by a very small funding base for SGMA implementation.

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Acronyms and Abbreviations

AF	acre-foot/acre-feet
AF/yr	acre-feet per year
Alta MWC	Alta Mutual Water Company
msl	above mean sea level
Basin	Mound Basin
DMS	Data Management System
DWR	Department of Water Resources, State of California
ET	evapotranspiration
FICO	Farmers Irrigation Company
ft	foot/feet
ft/yr	feet per year
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HSU	hydrostratigraphic unit
IM	interim milestone
InSAR	interferometric synthetic aperture radar
M&I	Municipal and Industrial
MBAWG	Mound Basin Agricultural Water Group
MBGSA	Mound Basin Groundwater Sustainability Agency
mg/L	milligrams per liter
MO	measurable objective
msl	above mean sea level
MT	minimum threshold
SGMA	Sustainable Groundwater Management Act
SMC	Sustainable Management Criteria
SWP	State Water Project
TDS	total dissolved solids
United	United Water Conservation District
UWCD	United Water Conservation District
Ventura Water	The City of Ventura's water and wastewater department
VWRF	Ventura Water Reclamation Facility

1.0 Introduction

The Mound Basin Groundwater Sustainability Agency (MBGSA) has prepared this first periodic evaluation of the Mound Basin Groundwater Sustainability Plan (GSP) in compliance with the 2014 Sustainable Groundwater Management Act (SGMA) (California Water Code, Section 10720 et seq.). This first periodic evaluation assesses: (i) the impacts of climate, water usage trends, and groundwater management activities on groundwater conditions between water years 2020 and 2025, and (ii) whether GSP implementation is on track to achieve and maintain sustainability by 2042. In addition, this first periodic evaluation provides significant new updated future pumping and groundwater demand projections.

1.1 Background

The Mound Basin is classified by the California Department of Water Resources (DWR) as a high-priority groundwater subbasin in western Ventura County along the Pacific coastline, including the City of Ventura (officially San Buenaventura) (Figure 1.1). The Basin is within the Santa Clara River Valley watershed and includes the Santa Clara River estuary and floodplain at the southwestern corner of the Basin, where the river discharges into the Pacific Ocean (Figure 1.1). Adjacent basins include the Oxnard Subbasin (No. 4-004.02) to the south, Santa Paula Subbasin (No. 4-004.04) to the east, and Lower Ventura River Subbasin (4-003.02) to the west (Figure 1.1).

Groundwater supplies municipal and industrial (M&I) and agricultural beneficial uses within the Mound Basin from approximately 25 active extraction wells. Water demands in the Basin are met by groundwater extractions from these Basin extraction wells, plus groundwater imported from adjacent basins (Upper Ventura River Valley, Oxnard, and Santa Paula Basins) and surface water imported from the Ventura River Watershed to the north. There are no active domestic wells within the Basin; drinking water is exclusively provided by the City of Ventura (i.e., Ventura Water).

Four water-bearing Hydrostratigraphic Units (HSUs) have been identified within the Mound Basin (United, 2018), and two of them are identified as principal aquifers: the Mugu Aquifer and the Hueneme Aquifer. Extraction wells within the Basin extract water from the principal Mugu and Hueneme aquifers and a very minor amount from the Fox Canyon Aquifer. The other HSUs (Shallow Alluvial Deposits and Fox Canyon Aquifer) are not considered principal aquifers and are therefore not actively managed under the GSP. The Shallow Alluvial Deposits aquifer does not meet the Sustainable Groundwater Management Definition (SGMA) definition of a principal aquifer to "store, transmit, and yield significant or economic quantities of groundwater…," and the Fox Canyon Aquifer does not have a material amount of groundwater extractions due to its depth. The Shallow Alluvial Deposits have no material hydraulic connection with the principal aquifers and have no groundwater extraction. Owing to the lack of a material hydraulic connection between principal aquifers and the Shallow Alluvial Deposits and surface water, the GSP deemed the depletions of interconnected surface water sustainability indicator inapplicable to the Basin. The GSP concluded that the five other sustainability indicators are applicable to the Basin.

2.0 New Information Collected [Article 5 § 356.4(f)]

§ 356.4 (f) *A description of significant new information that has been made available since Plan adoption or Amendment, or the last five-year assessment. The description shall also include whether new information warrants changes to any aspect of the Plan, including the evaluation of the basin setting, measurable objectives, minimum thresholds, or the criteria defining undesirable results.*

Since adoption of the GSP, new monitoring data, progress work on water supply projects, management actions, and regional legal developments have emerged, but none currently impact GSP implementation to a degree that warrants a GSP amendment. Key updates for the Basin include construction of a new clustered monitoring well, progress work on a second clustered monitoring well, advancement of water supply projects and corresponding reductions in anticipated future groundwater demands, and interim shallow groundwater and seawater intrusion monitoring. In addition, litigation in the adjacent Oxnard Subbasin has established native and safe yields and could indirectly affect Mound Basin conditions in the future, but the implications will not be known until a physical solution and/or GSP update is prepared for those basins. Overall, MBGSA is tracking this information for consideration in a future GSP amendment while maintaining the current Plan. Table 2.1 lists and describes the significant new information for the Basin since GSP adoption.

Table 2.1. Summary of New Information Since GSP Adoption

Significant New Information	Description	Aspects of Plan Affected	Warrant Change to Any Aspects of the Plan (Yes/No)
Monitoring Network Information			
New monitoring data	In 2022, MBGSA constructed a new clustered monitoring well near the Ventura Water Reclamation Facility (02N23W23Q01S/02S/03S). This well, previously referred to as Site A, includes completions in the shallow alluvial deposits, Mugu aquifer, and Hueneme aquifer.	Monitoring network and sustainable management criteria	Not at this time. MBGSA anticipates using data from this well to address DWR RCAs related to sustainable management criteria in a future GSP amendment.
Water Supply			
VenturaWaterPure	The City of Ventura is advancing a potable water reuse program projected to produce up to 5,400 AFY at full capacity. This projection adds an additional 1,400 AFY of capacity compared to the 2020 UWMP estimates (Ventura Water, 2021, 2026). The project is expected to be fully operational in 2031, producing 3,600 AFY through 2033 and increasing to 5,400 AFY in 2034 (Ventura Water, 2026).	Future Water Supplies and Groundwater Demands	Not at this time.

Table 2.1. Summary of New Information Since GSP Adoption

Significant New Information	Description	Aspects of Plan Affected	Warrant Change to Any Aspects of the Plan (Yes/No)
Calleguas MWD Interconnection	In 2019, the City Ventura certified the State Water Interconnection Project Final EIR. The project will enable delivery of SWP water through Calleguas MWD during outage or emergency events, increasing the City's water supply resiliency. Construction of the interconnection is anticipated to start in 2026. By 2030, the City of Ventura anticipates that this project will provide 1,300 AFY of water supply (Ventura Water, 2025a).	Future Water Supplies and Groundwater Demands	Not at this time.
Municipal Groundwater Demands	Over the past five years, the City of Ventura has reduced their pumping in the Basin by nearly 50%, consistent with its long-term plans to reduce reliance on Mound Basin groundwater (Ventura Water, 2026). The City has also updated their groundwater extraction projections. Through 2029, the City does not anticipate pumping more than 2,462 AFY, reducing to 0 AFY in mid-2030. This reduces the future municipal groundwater demands by 1,538 to 4,000 AFY (Ventura Water, 2025a).	Future Water Supplies and Groundwater Demands.	Not at this time. MBGSA will be monitoring groundwater pumping trends over the next five years to evaluate how pumping compares to these projections to evaluate whether basin reprioritization should be requested.

Table 2.1. Summary of New Information Since GSP Adoption

Significant New Information	Description	Aspects of Plan Affected	Warrant Change to Any Aspects of the Plan (Yes/No)
Agricultural Groundwater Demands	Based on recent pumping data and stakeholder coordination through the Mound Basin Agricultural Water Group, future agricultural water demands have been updated to equal 3,000 AFY in dry years, 2,700 AFY in normal years, and 2,200 AFY in wet years. These projections are approximately 20% lower than the GSP.	Future Water Supplies and Groundwater Demands.	Not at this time. MBGSA will be monitoring groundwater pumping trends over the next five years to evaluate how pumping compares to these projections to evaluate whether basin reprioritization should be requested.
Projects and Management Actions			
Interim Shallow Groundwater Data Collection and Analysis	MBGSA has coordinated with partner agencies to collect and analyzed water level and quality samples from wells in the shallow alluvial deposits to evaluate the GSP conclusions related to depletion of ISWs.	Depletion of interconnected surface water sustainability indicator.	Not at this time. Data collected through this management action indicate that pumping does not cause a material depletion of surface waters. Nonetheless, MBGSA anticipates recognizing this sustainability indicator as applicable to the Basin through a future GSP amendment.

Table 2.1. Summary of New Information Since GSP Adoption

Significant New Information	Description	Aspects of Plan Affected	Warrant Change to Any Aspects of the Plan (Yes/No)
Seawater Intrusion Monitoring Wells	MBGSA constructed 1 of the 2 proposed monitoring well sites (02N23W23Q01S/02S) to improve chloride concentration isocontours and characterization of groundwater levels and quality conditions in the southwestern part of the Basin.	Seawater intrusion, chronic lowering of groundwater levels, and degraded water quality sustainability indicators	Not at this time. Data collected at the planned Site B well will inform, as applicable, appropriate revisions to the groundwater level, groundwater quality, and seawater intrusion SMC in a future GSP amendment.
Relevant General Plan Updates			
City of Ventura 2050 General Plan	In 2025, the City of Ventura adopted their 2050 General Plan, which documents the City's long-range vision and establishes clear goals, policies, and actions to help navigate future growth and changes. Relevant to the GSP, the General Plan outlines planned land use changes, population growth, conservation policies, and long-term strategies to preserve open spaces in the City.	The City's General Plan informs future water demand estimates, which have been accounted for in the updated water supply and pumping projections provided by the City.	Not at this time.

Table 2.1. Summary of New Information Since GSP Adoption

Significant New Information	Description	Aspects of Plan Affected	Warrant Change to Any Aspects of the Plan (Yes/No)
Relevant Regional Legal Actions			
OPV Coalition, et al. v. Fox Canyon Groundwater Management Agency, Santa Barbara Sup. Ct. Case No. VENCI00555357	In June 2021, the OPV Coalition filed a lawsuit challenging the GSPs in the adjacent Oxnard and Pleasant Valley basins. The lawsuit aims to establish the native and safe yields of the basins, groundwater rights, and a physical solution that will bring the basins into sustainability. In December 2025, the Court issued a statement of decision in Phase 1 of the trial, establishing the native and safe yields for the two basins. Dates for phases 2 and 3 of the trial have not yet been set.	While the adjudication does not include the Mound Basin, implementation of the Physical Solution administered under the final Judgment will likely impact groundwater conditions within the Basin.	Not at this time. However, MBGSA will evaluate the findings from the Court and the need to modify the GSP.

3.0 Groundwater Conditions Relative to Sustainable Management Criteria [Article 5, § 356.4(a)]

§ 356.4 (a) *A description of current groundwater conditions for each applicable sustainability indicator relative to measurable objectives, interim milestones and minimum thresholds.*

The following sections discuss groundwater conditions relative to each of the sustainability indicators applicable to the Basin. The GSP reported on groundwater conditions through water year 2019. This Periodic Evaluation provides an update on groundwater conditions from water year 2020 through water year 2025.

3.1 Chronic Lowering of Groundwater Levels Sustainability Indicator

This section summarizes current (i.e., water year 2025) groundwater elevations in the Basin and their relation to conditions at the start of the evaluation period (i.e., water year 2020) and the SMCs established in the GSP. Groundwater extractions, climate cycles, and conditions in the adjacent Oxnard Subbasin all influence groundwater levels in the Basin (MBGSA, 2021).

Since 2019, the Basin has received an average of 14.85 inches of precipitation per year, which is 5% lower than the 1926-2024 average precipitation of 15.45 inches per year (Figures 3.1 and 3.2)[4]. Over the same period, groundwater extractions from the Basin averaged approximately 4,300 acre-feet per year (AFY), or approximately 60% of the historical average and 52% of the estimated sustainable yield (Section 5.3). Together, the near-average precipitation and lower than average pumping has resulted in groundwater elevation increases across the Basin. The following sections summarize these trends.

3.1.1 Groundwater Elevation Trends

The following sections summarize recent groundwater elevation trends and flow conditions in the Mugu and Hueneme aquifers based on available monitoring data. Fall-low and spring-high conditions for both aquifers are compared across water years 2020 and 2025 to identify changes in groundwater levels, flow directions, and hydraulic conditions within the Basin. Groundwater elevation trend descriptions are based on the hydrographs of the representative monitoring wells.

3.1.1.1 Mugu Aquifer

Groundwater elevations are currently measured in a network of six wells in the Mugu aquifer (Figure 3.3). At the start of the evaluation period, fall-low (October 2019) groundwater elevations in the Mugu aquifer ranged from approximately -27 feet above mean sea level (ft. msl) at well 02N22W19M04S to -11 ft. msl at well 02N22W08G01S (Figure 3.4). Although groundwater elevation measurements in the Mugu aquifer are limited, available data indicate that groundwater generally flowed from the basin boundaries towards the low at 02N22W19M04S, with a gradient of 0.0015 feet per feet (ft/ft) in the center of the Basin. During spring-high conditions (April 2020), groundwater elevations ranged from

[4] Long-term precipitation calculated using rainfall measurements from Ventura County Watershed Protection District's climate station 222 (1926 through 1977) and 222A (1978 through 2024).

approximately -22 ft. msl at well 02N22W19M04S to -2 ft. msl at well 02N22W08G01S (Figure 3.5). Groundwater flow directions during spring were similar to those observed during fall-low conditions.

From spring 2020 through spring 2024, groundwater elevations in the Mugu aquifer exhibited increasing trends, recovering by as much as 12 feet and 27 feet in the eastern and western parts of the Basin, respectively (Figure 3.6). Notably, wells 02N23W15J02S and 02N23W23Q01S were reported artesian starting in February 2024.

In water year 2025, the fall-low (October 2024) groundwater elevations were significantly higher than those measured in fall of water year 2020 (Figures 3.4 and 3.7). The largest increase occurred at well 02N22W19M04S, where groundwater elevations increased by approximately 46 feet. In addition to the general increase in groundwater elevations over this period, groundwater flow directions shifted to a westerly direction with a slightly decreased gradient of approximately 0.001 ft/ft in the center of the Basin. Changes in seasonal high groundwater elevations between water years 2020 and 2025 were similar to changes observed in seasonal low conditions between water years 2020 and 2025 (Figures 3.5 and 3.8).

Artesian conditions persisted at wells 02N23W15J02S and 02N23W23Q01S through water year 2025.

3.1.1.2 Hueneme Aquifer

In the Hueneme aquifer, groundwater elevations are measured in a network of 14 wells (Figure 3.9). Fall-low groundwater elevations in water year 2020 ranged from approximately -29 ft. msl at well 02N22W17Q05S to 0.25 ft. msl at well 02N22W09K04S (Figure 3.10). In the eastern part of the Basin, groundwater generally flowed from north to south, towards the Oxnard Subbasin, with a gradient of approximately 0.004 ft/ft. In the western part of the Basin, groundwater flow was generally to the southeast, with a gradient of approximately 0.002 ft/ft (Figure 3.10). Spring-high groundwater elevations in water year 2020 were higher than the fall-low by approximately 9 to 22 feet (measured at wells 02N23W15J02S and 02N23W13K04S; Figure 3.11). The general groundwater flow directions were similar to the fall conditions.

Between water years 2020 and 2024, groundwater level trends differed across the Basin. In the eastern part of the Basin, levels were varied – well 02N20W09K04S exhibited seasonal variability but remained generally stable through 2023 before increasing in 2024, while well 02N22W07M01S showed a consistent increase over the four-year period. Conversely, at well 02N22W16K01S, groundwater levels generally declined through water year 2022 before increasing by more than 80 feet in 2023 and 2024. In the western part of the Basin, groundwater levels generally showed similar temporal patterns to those measured at well 02N22W16K01S (Figures 3.12 through 3.14).

By water year 2025, fall-low groundwater elevations in the Hueneme aquifer were significantly higher in than 2020 (Figure 3.15). The largest increase occurred in the northeastern part of the Basin, where the October 2024 measurement at 02N22W10N03S was approximately 86 feet higher than October 2019 (Figures 3.10 and 3.15). Farther west, near the coastline, the fall-low groundwater elevation at well 02N23W15J01S was approximately 26 feet higher in water year 2025 than water year 2020; this well, along with well 02N23W23Q01S, was reported artesian beginning in February 2024. Similar to the Mugu, the increase in groundwater elevations also corresponded to a shift in groundwater flow to a more westerly direction, with a gradient of approximately 0.002 ft/ft (Figure 3.16).

Spring-high groundwater elevations in the Hueneme aquifer show similar increases as those observed between fall-low conditions (Figures 3.11 and 3.16).

3.1.2 Sustainable Management Criteria

The chronic lowering of groundwater levels minimum thresholds are set equal to historical low groundwater levels to ensure continued well operation, prevent groundwater storage from declining below fully recoverable levels, and avoid undue impacts to underflows with the adjacent Oxnard Basin (MBGSA, 2021). Measurable objectives were established by adding the maximum simulated groundwater level decline under future conditions to the minimum thresholds (MBGSA, 2021).

Table 3.1 summarizes the annual low water levels during the evaluation period relative to the SMC for chronic lowering of groundwater levels. Groundwater elevation hydrographs with respective SMC for these representative monitoring sites are shown in Figures 3.13 through 3.16.

3.1.2.1 Measurable Objectives

In water year 2020, groundwater levels were higher than the measurable objectives in one of the five representative monitoring sites in the Mugu aquifer and six of the 13 representative monitoring sites in the Hueneme aquifer (Table 3.1). Between water years 2020 and 2025, groundwater elevations at the representative monitoring sites increased by 25 to 47 feet in the Mugu aquifer and 6 to 65 feet in the Hueneme aquifer (Figures 3.13 through 3.16). Groundwater elevations in all representative monitoring sites that were measured in water year 2025 were higher than the measurable objectives (Table 3.1). These groundwater conditions indicate that conditions have improved over the evaluation period and the Basin has met the sustainability goal set forth in the GSP.

3.1.2.2 Minimum Thresholds

Throughout the evaluation period, the Basin experienced one minimum threshold exceedance. This exceedance occurred in water year 2020 at well 02N22W07M02S, which is screened in the Mugu aquifer, in the western part of the Basin (Table 3.1; Figure 3.6). Since water year 2020, groundwater elevations at this well have exhibited an increasing trend, and in water year 2025, groundwater elevations had increased to above the measurable objective (Table 3.1). All wells are currently above their respective minimum thresholds.

3.1.2.3 Interim Milestones

In water year 2025, groundwater elevations were above the 5-year interim milestone in all 17 representative monitoring wells measured in the Basin (Table 3.1).

3.1.3 Undesirable Results

The GSP defines an undesirable result for chronic lowering of groundwater levels as, “groundwater levels that cause a significant number of wells in the Basin to no longer be capable of being operated as defined for the confined aquifers of the Mound Basin” (MBGSA, 2021). An undesirable result is considered to occur when minimum thresholds are exceeded at 50% of the groundwater level monitoring sites in either principal aquifer (MBGSA, 2021).

As described in Section 3.1.2.2, only one minimum threshold exceedance occurred during the evaluation period. Additionally, MBGSA received no reports of wells being unable to operate as designed. Based on both the qualitative and quantitative criteria, the Basin did not experience an undesirable result related to chronic lowering of groundwater levels. Furthermore, as of water year 2025, all measurable objectives have been met.

Table 3.1. Sustainable Management Criteria for the Chronic Lowering of Groundwater Levels Sustainability Indicator

State Well Identification	Aquifers Monitored	Frequency of Groundwater Elevation Measurement	Basin Half	MT	MO	IM 5-year	Water Year WL Minimum (ft msl)					
Number		2020-2025		ft msl			2020	2021	2022	2023	2024	2025
02N22W08G01S	Mugu	Monthly	Eastern	-20.39	5.21	-14	-20.39	-12.39	-10.4	-14.4	-2.39	26.81
02N22W08P01S	Mugu	Quarterly	Eastern	-16.11	7.93	-10.1	Well Destroyed					
02N22W07M02S	Mugu	Monthly	Western	-19.77	1	-14.6	-20.67	-15.52	-13.2	-14.61	-2.27	20.80
02N22W07P01S	Mugu	Monthly	Western	-21	0.88	-15.5	-16.71	-19.72	-7.87	-17.53	10.38	NM
02N22W19M04S	Mugu	Bimonthly	Western	-64.19	-43.98	-59.1	-32.38	-33.98	-36.4	-34.34	4.59	13.74
02N23W15J02S	Mugu	Monthly	Western	-18.64	-0.96	-14.2	-13.15	-9.72	-9.59	-9.60	-0.04	11.96
02N22W09K04S	Hueneme	Monthly	Eastern	-32.41	-10.31	-26.9	-0.02	3.80	1.15	1.80	17.67	36.92
02N22W09L03S	Hueneme	Monthly	Eastern	28.27	50.37	33.8	50.37	48.37	45.16	46.71	48.66	56.10
02N22W09L04S	Hueneme	Monthly	Eastern	42.28	64.39	47.81	61.08	87.34	93.84	53.51	64.35	79.29
02N22W10N03S	Hueneme	Bimonthly	Eastern	-38.2	-15.4	-32.5	-35.17	-28.06	-22.6	-25.87	6.24	20.29
02N22W16K01S	Hueneme	Quarterly	Eastern	-56.09	-33.73	-50.5	-24.63	-23.03	-31.8	-39.48	20.57	40.77
02N22W17Q05S	Hueneme	Bimonthly	Eastern	-66.73	-45.48	-61.4	-32.32	-35.47	-42.6	-43.76	11.17	19.69
02N22W07M01S	Hueneme	Monthly	Western	-25.21	-4.59	-20.1	-10.05	-4.87	-6.66	-6.56	5.86	21.64
02N22W17M02S	Hueneme	Bimonthly	Western	-18.76	2.51	-13.4	-2.94	7.72	5.36	7.99	23.39	27.26
02N22W20E01S	Hueneme	Monthly	Western	-72.79	-51.82	-67.6	-25.82	-37.93	-44.6	-31.78	20.30	23.57
02N23W13K03S	Hueneme	Quarterly	Western	-34.23	-14.44	-29.3	-9.49	-6.79	-16.1	3.11	-	13.41
02N23W13K04S	Hueneme	Quarterly	Western	-25.6	-5.81	-20.7	-20.70	-10.61	-17.6	-12.17	-6.73	10.37

State Well Identification	Aquifers Monitored	Frequency of Groundwater Elevation Measurement	Basin Half	MT	MO	IM 5-year	Water Year WL Minimum (ft msl)					
Number		2020-2025		ft msl			2020	2021	2022	2023	2024	2025
02N23W15J01S	Hueneme	Monthly	Western	-25.86	-7.3	-21.2	-12.11	-7.75	-10.8	-11.74	0.00	11.96
02N23W24G01S	Hueneme	Quarterly	Western	-22.3	-3.21	-17.5	-12.43	-3.10	NM	1.46	9.77	16.69

Notes:
MT = minimum threshold
MO = measurable objective
IM = interim milestone
NM = not measured
ft msl = feet above mean sea level

Color Key:

MO met	5-yr IM met	Between MT and IM	MT exceeded

3.1.4 Impacts to Beneficial Uses and Users

The GSP acknowledges that chronic lowering of groundwater levels has the potential to adversely affect groundwater beneficial users and land uses in the Basin.

3.1.4.1 Groundwater Beneficial Users (All Types)

Groundwater beneficial users in the Basin include municipal, agricultural, domestic, and environmental users. Minimum threshold exceedances could adversely affect these users by causing a depletion of water supplies and increasing financial burdens for well repairs and maintenance (MBGSA, 2021).

During the evaluation period, groundwater elevations did not result in adverse impacts to groundwater beneficial users, either through a depletion of supply or increased financial burden. Current groundwater elevations are higher than the measurable objectives, indicating that GSP implementation has had a positive effect on groundwater beneficial users.

3.1.4.2 Land Uses and Property Interests (All Types)

Minimum threshold exceedances could impact land uses and property interests by limiting groundwater availability for beneficial uses and potentially affecting property values, particularly for agricultural lands that are subject to the City of Ventura and County of Ventura Save Open Space and Agricultural Resources (SOAR) initiatives.

The fact that groundwater elevations are currently higher than the measurable objectives in all measured representative monitoring sites indicate that GSP implementation has positively impacted land uses and property interests in the Basin.

3.1.5 Progress Towards Achieving Sustainability

Water year 2025 groundwater elevations were higher than water year 2020 levels and exceeded the measurable objectives at all 17 representative monitor sites that were measured (Table 3.1); thus, the sustainability goal is being met with respect to this sustainability indicator.

3.1.6 Relevant Recommended Corrective Actions

DWR issued two RCAs related to chronic lowering of groundwater levels (DWR, 2023). These two RCAs, and MBGSA’s response, are described below.

3.1.6.1 Recommended Corrective Action 1

DWR’s first recommended corrective action on the GSP stated:

> *“Investigate the hydraulic connectivity of the Santa Clara River, the shallow alluvial deposits, and the principal aquifers. Estimate the quantity and timing of gains or losses of water to the groundwater system associated with groundwater pumping and projects and management actions. Based on results of this investigation, provide an updated discussion of the potential for management of the principal aquifers to*

> *impact beneficial uses and users of groundwater, including surface water ecosystems and [groundwater dependent ecosystems] GDEs."*

Mound Basin GSA Response

While this RCA is related to chronic lowering of groundwater levels, it is most relevant to the GSP's management of interconnected surface waters. Accordingly, MBGSA's detailed response is included in Section 3.6.

3.1.6.2 Recommended Corrective Action 4

DWR's fourth RCA on the GSP stated:

> *"Amend the quantitative definition of undesirable results (i.e., combination of minimum threshold exceedances) for chronic lowering of groundwater levels to account for local threshold exceedances in the Coastal Area to provide additional information to support why undesirable results for subsidence will not occur in the Coastal Area"*

Mound Basin GSA Response

MBGSA does not expect subsidence to originate from the Coastal Area because there is no current or planned groundwater pumping within that part of the Basin. Instead, the subsidence risk in this area arises from the potential for a subsidence center to develop adjacent to the Coastal Area, causing the Coastal Area to tilt eastward. The intent of the undesirable result definition was to avoid this risk throughout GSP implementation.

To clarify this intent, MBGSA anticipates revising the GSP's definition of an undesirable result to the following:

"The combination of minimum threshold exceedances that is deemed to cause significant and unreasonable effects in the Basin for chronic lowering of groundwater levels is:

1. Minimum threshold exceedance at 50% of the representative monitoring sites in each principal aquifer.

Or

2. Minimum threshold exceedance at 50% of the western area wells outside of the Coastal Area.

Or

3. A single minimum threshold exceedance in either coastal area representative monitoring site."

As described above, MBGSA anticipates integrating this into the GSP through a formal amendment at a future date.

3.1.7 Anticipated Future Revisions to the Sustainable Management Criteria

Groundwater level data collected over the past five years do not indicate a need to revise the SMC for chronic lowering of groundwater levels. However, MBGSA is evaluating the potential establishment of groundwater level SMC at the new well monitoring wells, 02N23W23Q01S and 02N23W23Q02S, and the proposed monitoring well "B". Because wells 02N23W23Q01S and 02N23W23WQ02S have been artesian since 2024, additional data is needed to develop baseline conditions at these wells.

A determination on whether to establish SMC at these locations will be made as part of a future GSP amendment, following the collection and evaluation of additional data at these wells.

3.1.8 Anticipated Future Revisions to the Definition of an Undesirable Results

MBGSA anticipates revising the definition of an undesirable result for the chronic lowering of groundwater levels sustainability indicator through a future GSP amendment to address DWR's RCA No. 4 after baseline data have been collected from the new and planned monitoring well.

While the proposed revision in Section 3.1.6.2 is not being formally amended into the GSP at this time, MBGSA will monitor for the occurrence of an undesirable result based on this definition over the next five-year implementation period.

3.2 Reduction of Groundwater in Storage Sustainability Indicator

3.2.1 Groundwater Storage Trends

Since adoption of the GSP, MBGSA has estimated groundwater storage changes for the Mugu aquifer, Hueneme aquifer, and Basin as a whole using differences in spring-high groundwater elevations between consecutive water years (MBGSA, 2022, 2023a, 2024, 2025, 2026). Changes in spring-high groundwater elevations are spatially interpolated across the Basin and multiplied by the storativity and aquifer areas defined in the Ventura Regional Groundwater Flow Model (United, 2018; MBGSA, 2022, 2023a, 2024, 2025, 2026). Prior to 2020, the Ventura Regional Groundwater Flow Model was used to estimate groundwater storage change in the Basin (MBGSA, 2021).

Since 2019, groundwater storage has increased by approximately 280 acre-feet (AF) in Mugu aquifer and 7,610 AF in the Hueneme aquifer (Table 3.2, Figures 3.17 and 3.18). Collectively, storage changes in these two principal aquifers accounted for approximately 20% of the total Basin-wide storage increase (Table 3.2, Figure 3.19).[5]

More than half of the groundwater storage increases over this period occurred in water year 2024. These increases reflect the benefits of two consecutive wet water years (2023 and 2024), during which precipitation averaged 178% of the 1985-2019 mean, and a reduction in pumping compared to historical conditions.

[5] Percentage contribution of the principal aquifers to the total storage change is calculated by dividing the 'Subtotal (Cumulative)' column by the 'Entire Basin, Cumulative' column.

Table 3.2 Change in Groundwater in Storage in the Basin for Water Years 2020 through 2025

Water Year	Water Year Type	Aquifer				Entire Basin[a]	
		Mugu	Hueneme	Subtotal (Annual)	Subtotal (Cumulative)	Annual	Cumulative
2020	Near Average	24	926	950	950	3,509	3,509
2021	Dry	2	275	277	1,227	755	4,264
2022	Near Average	37	720	757	1,984	4,650	8,914
2023	Wet	6	563	569	2,553	3,090	12,004
2024	Wet	151	3,674	3,825	6,378	20,483	32,487
2025	Dry	57	1,452	1,509	7,887	5,432	37,919
Total		**277**	**7,610**	**7,887**		**37,919**	

Notes:

Values reported in units of Acre-Feet

Water Year Type is based on percentage of long-term average annual precipitation (MBGSA, 2021)

[a] Entire Basin includes change in storage within the hydrostratigraphic units that are not considered principal aquifer

3.2.2 Sustainable Management Criteria

The GSP established SMC for reduction of groundwater in storage based on the estimated sustainable yield for the Basin (MBGSA, 2021). To prevent long-term depletion of groundwater supplies and the occurrence of undesirable results, the GSP set the minimum threshold equal to the sustainable yield, defined as 8,200 AFY, calculated over a long-term, balanced hydrologic period. The measurable objective was established at 90% of the estimated sustainable yield, or 7,400 AFY.

Table 3.3 summarizes the volume of groundwater pumped from the basin over the evaluation period relative to the SMC for reduction of groundwater in storage.

Table 3.3. Sustainable Management Criteria for the Reduction of Groundwater Storage

Water Year	Groundwater Extractions	Minimum Threshold	Measurable Objective
	AF/yr	AF/yr	AF/yr
2020	5,336	8,200	7,400
2021	5,392		
2022	5,334		
2023	4,257		
2024	2,565		
2025	3,068		
Average	**4,325**		

Color Key:

MO met
MT exceeded

3.2.2.1 Measurable Objectives

Over the evaluation period, groundwater extractions from the Basin averaged approximately 4,300 AFY[6], or 3,100 AFY lower than the measurable objective, indicating that the measurable objective has been met and that the sustainability goal has been met relative to this sustainability indicator. While the evaluation period represents a relatively short subset of the long-term hydrologic record, average annual precipitation received over the 2020-2025 period was near the long-term mean (Section 3.1). The combination of (1) average annual pumping remaining below the measurable objective during near-average hydrology and (2) an increase in Basin-wide groundwater storage of approximately 38,000 AF indicates that GSP implementation has been effective in managing the volume of groundwater storage in the Basin.

3.2.2.2 Minimum Thresholds

As shown in Table 3.3, groundwater pumping in the Basin remained below the sustainable yield throughout the evaluation period. Accordingly, the Basin did not experience a minimum threshold exceedance related to reduction of groundwater in storage.

3.2.2.3 Interim Milestones

The interim milestones for reduction of groundwater in storage are equal to the measurable objective (MBGSA, 2021), which has been met.

3.2.3 Undesirable Results

The GSP notes that a reduction in groundwater storage, by itself, does not constitute an undesirable result. Instead, the implications of declining groundwater storage are evaluated through their effects on other sustainability indicators (MBGSA, 2021). Because the reduction of groundwater storage is inherently linked to other sustainability indicators, the GSP defines the qualitative description of undesirable results for this indicator as a condition in which decreases in groundwater storage are likely to cause undesirable results in one or more other sustainability indicators (MBGSA, 2021).

As described in Sections 3.1.3, 3.3.3, 3.4.3, and 3.5.3, no undesirable results have been identified for any of the sustainability indicators applicable to the Basin. Accordingly, the Basin has not experienced an undesirable result related to reduction of groundwater in storage.

3.2.4 Impacts to Beneficial Uses and Users

The impacts of reduction of groundwater storage on beneficial uses and users, land uses, and property interests are the same as those described for the other sustainability indicators (Sections 3.1.4, 3.3.4, 3.4.4, and 3.5.4). Groundwater storage changes over the evaluation period have had a positive impact on these uses and users.

[6] This represents groundwater pumped for municipal, agricultural, and industrial uses as well as groundwater removed by native vegetation as a source of water supply. Native vegetation demands (i.e., evapotranspiration) is estimated to be 944 AFY (See Section 5.3).

3.2.5 Progress Towards Achieving Sustainability

The measurable objective for this groundwater storage has been met, indicating that the sustainability goal has been met relative to this sustainability indicator. At the end of water year 2025, groundwater in storage was approximately 38,000 AF higher than in 2019. This increase reflects the combined benefits of two consecutive wet water years and sustained reduction in pumping relative to the measurable objective. Overall, GSP implementation has been effective in advancing and maintaining groundwater sustainability in the Basin.

3.2.6 Relevant Recommended Corrective Actions

DWR did not issue any recommended corrective actions for this sustainability indicator.

3.2.7 Anticipated Future Revisions to the Sustainable Management Criteria

MBGSA does not anticipate revising the SMC for reduction of groundwater in storage.

3.2.8 Anticipated Future Revisions to the Definition of an Undesirable Result

MBGSA does not anticipate revising the definition of an undesirable result for reduction of groundwater in storage.

3.3 Degraded Water Quality Sustainability Indicator

The degraded water quality sustainability indicator is focused on impacts related to elevated concentrations of common ions (sulfate, chloride, and boron), nitrate, and total dissolved solids (TDS) (MBGSA, 2021).

3.3.1 Groundwater Quality Trends

Groundwater quality samples are collected from four groundwater wells in the Mugu aquifer and eight wells in the Hueneme aquifer (Figures 3.20 and 3.21). In the Mugu aquifer, water quality samples from three of the four wells are considered reflective of groundwater quality conditions in the Mugu aquifer. These include wells 02N23W15J02S, 02N22W07M02S, and 02N23W23Q02S (see discussion in section 3.2.4 of the GSP). In the Hueneme aquifer, water quality samples from four of the eight wells are considered reflective of groundwater conditions in the principal aquifer. These four wells are 02N23W15J01S, 02N23W23Q01S, 02N22W07M01S, and 02N22W09L03S (see discussion in section 3.2.4 of the GSP).

This section summarizes the groundwater quality trends based on samples from these wells.

3.3.1.1 Total Dissolved Solids (TDS)

TDS concentrations in both the Mugu and Hueneme aquifers were stable throughout the evaluation period (Figures 3.22 through 3.24). In water year 2020, concentrations ranged from 893 to 945 mg/L in the Mugu aquifer and from 1,067 to 1,340 mg/L in the Hueneme aquifer (Figures 3.25 and 3.26). Conditions remained consistent by water year 2025, with TDS concentrations ranging from 900 to 930 mg/L in the Mugu aquifer and from 1,035 to 1,295 mg/L in the Hueneme aquifer (Figures 3.27 and 3.28).

Within the Mugu aquifer, TDS concentrations were highest in the southwestern part of the Basin at well 02N23W23Q02S. At this well TDS concentrations averaged 1,156 mg/L since October 2023, approximately 200 mg/L higher than concentrations measured farther north at well 02N23W15J02S (Figure 3.27). In the Hueneme aquifer, TDS concentrations were consistent along the coastline, ranging between 1,240 mg/L and 1,295 mg/L (Figure 3.28).

3.3.1.2 Sulfate

In water year 2020, sulfate concentrations ranged from 316 to 379 mg/L in the Mugu aquifer and from 394 to 533 mg/L in the Hueneme aquifer (Figures 3.29 and 3.30). In water year 2025, sulfate concentrations at the same set of wells were similar to the start of the evaluation period, ranging from 324 to 378 mg/L in the Mugu aquifer and 426 to 544 mg/L in the Hueneme aquifer (Figures 3.31 and 3.32). Times series of sulfate concentrations at these representative wells indicate that sulfate concentrations were generally stable throughout the evaluation period (Figures 3.22 through 3.24).

At wells 02N23W23Q02S and 02N23W23Q01S, sulfate concentrations have averaged 496 and 488 mg/L, respectively, since October 2023. In the Mugu aquifer, this is approximately 120 mg/L higher than the nearest measurement, collected at well 02N23W15J02S (Figure 3.31). In the Hueneme aquifer, this is approximately 50 mg/L lower than the nearest measurement at 02N23W15J01S (Figure 3.32).

3.3.1.3 Chloride

Chloride concentrations showed similar stability to sulfate and TDS throughout the evaluation period. In water year 2020, concentrations ranged from 46 to 54 mg/L in the Mugu aquifer and 67 to 91 mg/L in the Hueneme aquifer (Figures 3.33 and 3.34). Water year 2025 chloride ranges were similar to those measured in 2020 (Figures 3.35 and 3.36) and the time series of concentration at these wells show that chloride concentrations were generally stable (Figures 3.22 through 3.24).

3.3.1.4 Boron

Throughout the evaluation period, Boron concentrations in both the Mugu and Hueneme aquifers showed limited temporal variability and ranged from 0.5 to 0.7 mg/L (Figures 3.37 through 3.40).

3.3.1.5 Nitrate

Nitrate concentrations were less than or equal to the detection limit of 0.4 mg/L in all wells reflective of the Mugu and Hueneme aquifers throughout the evaluation period (Figures 3.41 through 3.44).

3.3.2 Sustainable Management Criteria

The SMC for degraded water quality were defined to be consistent with the WQOs for the Basin, applicable primary and secondary MCLs, and existing water quality conditions that support beneficial groundwater uses in the Basin (MBGSA, 2021). Specifically:

- The minimum thresholds were set using the RWQCB WQOs, except for TDS in the Hueneme aquifer, where the minimum threshold was based on the upper range of concentrations observed in representative monitoring wells during 2009 to 2019.

- The measurable objectives were established to preserve existing water quality while providing sufficient operational flexibility above minimum thresholds, based on historical concentrations ranges.
- The interim milestones were set to be equal to the measurable objectives.

Table 3.4 summarizes the constituent concentrations measured at representative wells in the Basin relative to their SMC at the start and end of the evaluation period. The temporal changes in constituent concentrations are shown in Figures 3.45 through 3.54.

3.3.2.1 Measurable Objectives

In water year 2020, groundwater quality measurable objectives were met at all representative monitoring locations (Table 3.4). As described in Section 3.3.1, groundwater quality remained stable throughout the evaluation period, with constituent concentrations consistently below the measurable objectives.

The one exception is well 02N23W23Q02S, which was drilled in 2022. At this well, the water year 2025 sulfate concentration was approximately equal to the measurable objective, and TDS concentrations were higher than the measurable objective. However, these results were from a single measurement. MBGSA will continue monitoring water quality at this location to develop a more complete baseline dataset for this monitoring well.

3.3.2.2 Minimum Thresholds

Minimum thresholds were not exceeded during the evaluation period (Table 3.4).

3.3.2.3 Interim Milestones

The interim milestones for degraded water quality are equal to the measurable objective (MBGSA, 2021). As noted in Section 3.2.2.1, groundwater quality is meeting the measurable objectives, except for at well 02N23W23Q02S.

Table 3.4. Sustainable Management Criteria for the Degraded Water Quality Sustainability Indicator

State Well Identification Number	Aquifer	Water Quality Measurement Frequency	Degraded WQ		Degraded WQ		Degraded WQ		Degraded WQ		Degraded WQ	
			Sulfate		Chloride		Boron		TDS		Nitrate	
		2015-2020	MT	MO/IM[1,2]	MT	MO/IM[1,2]	MT	MO/IM[1,2]	MT	MO/IM[1,2]	MT	MO/IM[1,2]
02N22W07M02S	Mugu	semiannually	600	500	150	75	1	0.75	1,200	1,000	45	5
Average observed concentration for water year 2020			331[a]		54[a]		0.6[a]		910[a]		<0.4	
Average observed concentration for water year 2025			377		47.5		0.5a		900		<0.4	
02N22W08G01S	Mugu	monthly	**Not used during 2020-2025. Anomalous water quality.**									
02N23W15J02S	Mugu	semiannually	600	500	150	75	1	0.75	1,200	1,000	45	5
Average observed concentration for water year 2020			377.5		46.5		0.3[a]		930		<0.4	
Average observed concentration for water year 2025			377		47.5		0.5[a]		930		<0.4	
02N23W23Q02S	Mugu	semiannually	600	500	150	75	1	0.75	1,200	1,000	45	5
Average observed concentration for water year 2020			**Well was not constructed.**									
Average observed concentration for water year 2025			501[a]		66[a]		0.5[a]		1150[a]		<0.4	
02N23W15J01S	Hueneme	semiannually	600	600	150	100	1	0.75	1,400	1,400	45	5
Average observed concentration for water year 2020			532.5		86.5		0.6[a]		1,335		<0.4	
Average observed concentration for water year 2025			544		91		0.6[a]		1,295		<0.4	
02N22W07M01S	Hueneme	semiannually	600	600	150	100	1	0.75	1,400	1,400	45	5
Average observed concentration for water year 2020			415[a]		73[a]		0.6[a]		1,090[a]		<0.4	
Average observed concentration for water year 2025			426		78		0.7[a]		1,080		<0.4[a]	
02N22W08F01S	Hueneme	monthly	**Not used during 2020-2025. Anomalous water quality.**									
02N22W09L03S	Hueneme	semiannually	600	600	150	100	1	0.75	1,400	1,400	45	5
Average observed concentration for water year 2020			447[a]		67[a]		0.5[a]		1,060[a]		0.7[a]	
Average observed concentration for water year 2025			461		66.7		0.5[a]		1,035		0.4[a]	
02N22W09L04S	Hueneme	semiannually	**Not used during 2020-2025. Anomalous water quality.**									
02N23W13F02S	Hueneme	annually	600	600	150	100	1	0.75	1,400	1,400	45	5

Table 3.4. Sustainable Management Criteria for the Degraded Water Quality Sustainability Indicator

State Well Identification Number	Aquifer	Water Quality Measurement Frequency	Degraded WQ		Degraded WQ		Degraded WQ		Degraded WQ		Degraded WQ	
			Sulfate		Chloride		Boron		TDS		Nitrate	
		2015-2020	MT	MO/IM[1,2]	MT	MO/IM[1,2]	MT	MO/IM[1,2]	MT	MO/IM[1,2]	MT	MO/IM[1,2]
Average observed concentration for water year 2020			400[a]		65[a]		0.6[a]		1,800[a]		<0.4	
Average observed concentration for water year 2025			**Not measured in water year 2025**									
02N23W13K03S	Hueneme	annually	**Not used during 2020-2025. Anomalous water quality.**									
02N23W23Q01S	Hueneme	semiannually	600	600	150	100	1	0.75	1,400	1,400	45	5
Average observed concentration for water year 2020			**Well was not constructed.**									
Average observed concentration for water year 2025			492[a]		87[a]		0.7[a]		1240[a]		<0.4	

Notes:

MO = Measurable Objective

IM = Interim Milestone

MT = Minimum Threshold

NA = Not Applicable

Color Key:

MT/MO met[2]

Between MT and MO/IM

MT Exceeded

[a]Value derived from a single measurement

[1]Sustainability Goal for degraded water quality for a given constituent is considered to be met when the two-year average concentration for at least one representative monitoring well is below the MO/IM.

[2]The degraded water quality MO and IM are equal and are met when the maximum 2-yr running average across all wells within each principle aquifer is below their respective MO/IM.

3.3.3 Undesirable Results

Groundwater quality in the Basin is marginal due to natural geochemical processes that are not influenced by groundwater extractions or changes in groundwater levels (MBGSA, 2021). This interpretation is supported by the stable groundwater quality conditions over the evaluation period, despite periods of groundwater level decline and recovery (Section 3.1.1).

Although groundwater quality is marginal, the GSP recognizes that further degradation could:

- Increase treatment or blending costs to meet drinking water standards or reduce salinity.
- Increased water demand to meet agricultural leaching requirements.

Because of this, the GSP defines the qualitative undesirable result for this sustainability indicator as groundwater quality that exceeds historical concentrations and significantly impacts beneficial uses. This is expected to occur when all representative monitoring wells in a principal aquifer exceed the minimum threshold concentrations for two consecutive years (MBGSA, 2021).

As shown in Table 3.4 and Figures 3.45 through 3.54, the Basin has not experienced an undesirable result related to degraded water quality.

3.3.4 Impacts to Beneficial Uses and Users

Degraded water quality minimum threshold exceedances could adversely affect groundwater beneficial users by increasing costs for treatment, blending, or water use to meet leaching requirements (MBGSA, 2021). In addition, potential effects on land uses and property interests could include lower quality crops, thereby affecting property values. Groundwater quality conditions in the Basin are consistent with historical conditions, indicating that GSP implementation has had a positive effect on groundwater beneficial uses and users and land uses and property interests.

3.3.5 Progress Towards Achieving Sustainability

With the caveat that more data are needed at new monitoring well 02N23W23Q02S, the water quality measurable objectives have been met over the evaluation period indicating that sustainability goal has been met.

3.3.6 Relevant Recommended Corrective Actions

DWR issued one RCA related to degraded water quality (DWR, 2023). This RCA, and MBGSA's response, is described below.

3.3.6.1 Recommended Corrective Action 3

DWR's third RCA on the GSP stated:

> *"Amend the quantitative definition of undesirable results (i.e., combination of minimum threshold exceedances) for degraded water quality to account for local or regional threshold exceedances or provide additional information to the GSP to*

support why undesirable results will not occur until minimum thresholds are exceeded in 100 percent of representative monitoring sites."

Mound Basin GSA Response

There are a limited number of wells in the Basin that provide representative groundwater quality samples in Mugu and Hueneme aquifer. At the time of GSP development, this included a total of three wells in the Mugu aquifer and four wells in the Hueneme aquifer. Because of this, the GSP set the 100% exceedance criteria to ensure that the measured water quality changes were representative of true undesirable results and impacts to the beneficial uses and users of groundwater in the Basin.

MBGSA's construction of wells 02N23W23Q01S and 02N23W23Q02S adds additional monitoring in the Mugu and Hueneme aquifers. Additionally, construction of a planned monitoring well inland of wells 02N23W15J01S and 02N23W15J02S is expected to further enhance water quality monitoring for the principal aquifers.

Given these efforts to expand monitoring the Basin, MBGSA will consider revising the undesirable result definition to be based on minimum threshold exceedances at 3 of the 4 (or 75%) representative monitoring sites in the Mugu aquifer or 3 of the 5 (or 60%) of the representative monitoring sites in the Hueneme aquifer. However, MBGSA will not incorporate these changes until sufficient baseline data from the new wells have been collected to understand the temporal variability in chemistry at the new and proposed monitoring wells.

3.3.7 Anticipated Future Revisions to the Sustainable Management Criteria

MBGSA does not anticipate revising the SMC for degraded water quality at this time. However, the SMC will continue to be evaluated as additional data are collected, including baseline data at the new and planned monitoring well.

3.3.8 Anticipated Future Revisions to the Definition of an Undesirable Result

MBGSA will revise the definition of an undesirable result for degraded water quality to address DWR's RCA No. 3 (Section 3.3.6.1) in a future GSP amendment after sufficient baseline data have been collected from the new and planned monitoring wells.

While the proposed revision in Section 3.3.6.1 is not being formally amended into the GSP at this time, MBGSA will monitor for the occurrence of an undesirable result based on this definition over the next five-year implementation period.

3.4 Seawater Intrusion Sustainability Indicator

Seawater intrusion is monitored using chloride concentrations from available water quality data (Section 3.3.1). These data are used to develop chloride concentration isocontours and track the landward migration of seawater into the Mugu and Hueneme aquifers over time. This section summarizes the current mapped extent of chloride in the Basin and the relation to the minimum thresholds and measurable objectives established in the GSP.

3.4.1 Chloride Isocontour Trends

Chloride isocontours in the Mugu and Hueneme aquifers show minor changes between water years 2020 and 2025, largely driven by additional data rather than concentration changes (Figures 3.55 through 3.58).

In the Mugu aquifer, a 50 mg/L isocontour was interpreted in water year 2020 at approximately 0.5 miles east of Harbor Boulevard (Figure 3.55). In water year 2025, the northern extent remained similar, while the southern extent shifted about 1 mile west (Figure 3.57). This change reflects new data from well 02N23W23Q02S, which was not available in 2020.

In the Hueneme aquifer, a 75 mg/L isocontour in water year 2020 was located approximately 0.25 to 0.75 miles east of Harbor Boulevard (Figure 3.56). In water year 2025, the interpreted isocontour extended farther east (Figure 3.57). This shift is primarily attributed to new data from well 02N23WQ01S and minor increases in chloride concentrations (3 to 4 mg/L) at nearby monitoring wells.

3.4.2 Sustainable Management Criteria

As described in the GSP and supported by recent chloride data, available evidence indicates that seawater has not intruded into the onshore portions of the principal aquifers.[7] While these data and particle tracking simulations performed for the GSP indicate that seawater intrusion is not likely to occur, the GSP established sustainable management criteria for this sustainability indicator to protect current and future beneficial uses and users and property interests from potential future risks.

3.4.2.1 Measurable Objectives

The GSP defines measurable objectives for seawater intrusion based on the chloride measurable objectives for the degraded water quality indicator. Accordingly, the measurable objective is a 75 mg/L chloride isocontour for the Mugu aquifer and a 100 mg/L chloride isocontour for the Hueneme aquifer, both located along Harbor Boulevard (Figures 3.55 through 3.58).

Throughout the evaluation period, chloride concentrations measured in both aquifers remained below these objectives, demonstrating that the Basin continues to meet the GSP sustainability goal.

[7] See section 3.2.3 of the GSP for further information (MBGSA, 2021).

3.4.2.2 Minimum Thresholds

Minimum thresholds are defined as a 150 mg/L isocontour for both the Mugu and Hueneme aquifer, consistent with the degraded water quality indicator. Chloride concentrations remained below this threshold throughout the evaluation period in both the Mugu and Hueneme aquifers.

3.4.2.3 Interim Milestones

The interim milestones for seawater intrusion are equal to the measurable objectives. Chloride concentrations remained below those levels during the evaluation period.

3.4.3 Undesirable Results

The GSP defines an undesirable result for this sustainability indicator as, "seawater intrusion extending east of Harbor Boulevard into areas with current or anticipated future beneficial uses" (MBGSA, 2021). Based on this qualitative definition, an undesirable result is considered to occur if the 150 mg/L chloride isocontour extends to, or east of, Harbor Boulevard in either principal aquifer.

Chloride concentrations remained below the 150 mg/L threshold in both aquifers, indicating that undesirable results have not occurred. This result, combined with (1) stable chloride concentrations along the shoreline (Figure 3.48 and 5.53), (2) recent increases in groundwater elevations, and (3) declining groundwater use, indicates that the Basin is not likely to experience an undesirable results related to seawater intrusion.

3.4.4 Impacts to Beneficial Uses and Users

While the Basin is not expected to be impacted by seawater intrusion throughout GSP implementation, the GSP defines conditions that would affect beneficial users and land uses in the Basin.

Seawater intrusion minimum threshold exceedances could adversely affect groundwater beneficial users by degrading groundwater quality. Because beneficial uses immediately east of Harbor Boulevard, the location of the minimum threshold isocontour, are agricultural, the potential effect on land uses and property interests would be the economic impact of decreased agricultural activity and decreased property value resulting from the inability to produce water for agricultural activities (MBGSA, 2021).

During the evaluation period, chloride concentrations along the shoreline and east of Harbor Boulevard did not increase and remained below the measurable objective concentrations. These stable, and relatively low, chloride concentrations indicate that seawater intrusion did occur and, therefore, there were no adverse impacts to groundwater beneficial users, land uses, or property interests..

3.4.5 Progress Towards Achieving Sustainability

Water year 2025 chloride concentrations were lower than the measurable objectives at all wells representative of groundwater quality conditions in the Mugu and Hueneme aquifers, indicating that the sustainability goal has been met with respect to this sustainability indicator. These conditions are consistent with the Hydrogeologic Conceptual Model of the Basin, which indicates limited risk of future seawater intrusion in the Basin.[8] Further, these data indicate that GSP implementation has been effective in advancing and maintaining groundwater sustainability in the Basin.

3.4.6 Relevant Recommended Corrective Actions

DWR did not issue any recommended corrective actions relevant to the seawater intrusion indicator.

3.4.7 Anticipated Future Revisions to the Sustainable Management Criteria

Chloride concentration data indicate the seawater intrusion remains a low risk to groundwater beneficial uses and users and land uses and property interests in the Basin. Based on data collected over the past five years, MBGSA does not anticipate revising the sustainable management criteria for this sustainability indicator.

3.4.8 Anticipated Future Revisions to the Definition of an Undesirable Results

Land uses in the Basin remain similar to those documented in the GSP (Section 5.3.1), indicating that the definition of an undesirable result for seawater intrusion remains appropriate for protecting current and future beneficial uses and users and land uses and property interests in the Basin. Based on this, MBGSA does not anticipate revising the definition of an undesirable result for this sustainability indicator.

3.5 Land Subsidence Sustainability Indicator

Land subsidence is directly measured in the eastern half of the Basin using DWR's publicly available Interferometric Synthetic Aperture Radar (InSAR) datasets. These data provide land surface elevation changes at a 100-meter spatial resolution with a vertical accuracy of approximately 0.1 feet (Towill, 2026). Continuous Global Positioning System (GPS) data from the VNCO station at Ventura College provides an additional direct measure of local elevation changes.

In the western half of the Basin, DWR's InSAR data contain significant spatial data gaps. As a result, groundwater elevations are used as a proxy for evaluating potential subsidence in this area.

3.5.1 Land Subsidence Trends

Because direct measurements are limited to the eastern half of the Basin, this section summarizes observed land surface changes based on InSAR and GPS data. Groundwater level trends in the western half of the Basin are discussed in Section 3.1.1.

3.5.1.1 InSAR Datasets

Figure 3.59 shows InSAR measurements of land subsidence in the Basin since October 1, 2019. Over the evaluation period, groundwater surface elevations in the eastern half of the Basin have changed by less than 0.1 feet, which is within the measurement accuracy of InSAR (Towill, 2026).

[8] The outcrop areas for the Mugu and Hueneme aquifers, where they may be exposed to seawater, are describe in Section 3.2.3 of the GSP (MBGSA, 2021).

3.5.1.2 Continuous GPS Data

The VNCO station has measured land surface elevations at Ventura College since the early 2000s (MBGSA, 2021; Figure 3.59). From 2000 and 2020, elevations declined at an average rate of about 0.015 feet per year, totaling approximately 0.3 feet of subsidence (Figure 3.59).

During the evaluation period, elevations declined by approximately 0.05 feet between January 2020 and March 2023, followed by a similar magnitude of uplift through March 2025 (Figure 3.59). During GSP preparation, it was concluded that there is a lack of correlation between the GSP data and groundwater levels and that the observed land surface variations are attributable to tectonic processes rather than groundwater extraction (MBGSA, 2021). However, the elevation increase indicated by the GSP data in recent years occurred during a period of significant rise in groundwater levels, which may indicate elastic rebound groundwater system sediments. This suggests that a portion of the long-term continuous downward land elevation trend at the GPS station could be partly related to aquitard compaction in addition to tectonic downwarping of the Santa Clara River Valley Basin. However, the declining land elevation measured by the GPS station is smaller than the resolution of the InSAR data and the minimum threshold (i.e., ~0.02 feet per year of elevation decline compared with the InSAR resolution and minimum threshold value of 0.1 foot per year).

3.5.2 Sustainable Management Criteria

Available data indicate that land subsidence due to groundwater extraction has not been documented in the Mound Basin. Numerical modeling conducted for the GSP also indicates a low likelihood of groundwater levels declining below historical lows, which could potentially induce inelastic subsidence.

While the overall subsidence risk is low, the Coastal Area west of Harbor Boulevard remains vulnerable to subsidence impacts due to existing conditions, including land uses, floodplain extent, infrastructure constraints, sea level rise, and coastal hazards. In this area, even minor subsidence could affect existing land uses and infrastructure. For example:

- The City of Ventura’s sewer infrastructure along Harbor Boulevard has low slope and could be affected by small changes in elevation.
- Sea level rise impacts in developed coastal areas, including the Pierpont community and Ventura Harbor, could be exacerbated by minor subsidence.

To avoid these potential impacts, the GSP defines land subsidence minimum thresholds differently for the western and eastern halves of the Basin. In the western half, where direct measurements are limited, minimum thresholds are based on historical low groundwater levels. In the eastern half, where sufficient InSAR data are available, the minimum threshold is defined as 0.1 feet of subsidence per year when groundwater levels are at or below historical lows.

In the western half of the Basin, the measurable objective is aligned with the groundwater level measurable objective. In the eastern half, the measurable objective is equivalent to the land subsidence minimum threshold.

Table 3.5. Sustainable Management Criteria for the Land Subsidence Sustainability Indicator

State Well Identification	Aquifers Monitored	Frequency of Groundwater Elevation Measurement	Basin Half	Land Subsidence MT	Land Subsidence MO	Subsidence Sustainability Indicator (ft msl)					
Number		2020-2025		(ft msl)		2020	2021	2022	2023	2024	2025
02N22W08G01S	Mugu	Monthly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*
02N22W08P01S	Mugu	Quarterly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	Well Destroyed					
02N22W07M02S	Mugu	Monthly	Western	-19.77	1	-20.67	-15.52	-13.15	-14.61	-2.27	20.80
02N22W07P01S	Mugu	Monthly	Western	-21	0.88	-16.71	-19.72	-7.87	-17.53	10.38	NM
02N22W19M04S	Mugu	Bimonthly	Western	-64.19	-43.98	-32.38	-33.98	-36.41	-34.34	4.59	13.74
02N23W15J02S	Mugu	Monthly	Western	-18.64	-0.96	-13.15	-9.72	-9.59	-9.60	-0.04	11.96
02N22W09K04S	Hueneme	Monthly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*
02N22W09L03S	Hueneme	Monthly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*
02N22W09L04S	Hueneme	Monthly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*
02N22W10N03S	Hueneme	Bimonthly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*
02N22W16K01S	Hueneme	Quarterly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*
02N22W17Q05S	Hueneme	Bimonthly	Eastern	≥ 0.1 ft/yr*	≥ 0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*	<0.1 ft/yr*
02N22W07M01S	Hueneme	Monthly	Western	-25.21	-4.59	-10.05	-4.87	-6.66	-6.56	5.86	5.86
02N22W17M02S	Hueneme	Bimonthly	Western	-18.76	2.51	-2.94	7.72	5.36	7.99	23.39	23.39
02N22W20E01S	Hueneme	Monthly	Western	-72.79	-51.82	-25.82	-37.93	-44.61	-31.78	20.30	20.30
02N23W13K03S	Hueneme	Quarterly	Western	-34.23	-14.44	-9.49	-6.79	-16.09	3.11	NM	13.41
02N23W13K04S	Hueneme	Quarterly	Western	-25.6	-5.81	-20.70	-10.61	-17.61	-12.17	-6.73	10.37
02N23W15J01S	Hueneme	Monthly	Western	-25.86	-7.3	-12.11	-7.75	-10.8	-11.74	0.00	11.96
02N23W24G01S	Hueneme	Quarterly	Western	-22.3	-3.21	-12.43	-3.10	NM	1.46	9.77	16.69

Notes:

MT/MO based on InSAR data in the Eastern Half of the Basin and groundwater elevations in the Western Half of the Basin
* INSAR land surface elevation accuracy threshold is 0.1 ft/yr
NM = Not Measured
MT = minimum threshold
MO = measurable objective
IM = interim milestone

Color Key:

MO met | 5-yr IM met | Between MT and IM | MT exceeded

3.5.2.1 Measurable Objectives

As described in Section 3.1.2.1, groundwater elevations at all representative monitoring sites in the western half of the Basin exceeded the measurable objectives by water year 2025. In the eastern half of the Basin, InSAR data indicate that land surface elevation changes were less than 0.1 feet per year, demonstrating that land subsidence measurable objectives were achieved throughout the evaluation period in this area.

3.5.2.2 Minimum Thresholds

As discussed in Section 3.1.2.2, there was one minimum threshold exceedance in the western half of the Basin in the Mugu aquifer (well 02N22W07M02S) in 2020. Conditions at the location now meet the measurable objective. In the eastern half of the Basin, land subsidence minimum thresholds were not exceeded during the evaluation period.

3.5.2.3 Interim Milestones

In water year 2025, the land subsidence interim milestones were met across the Basin in both the Mugu and Hueneme aquifers.

3.5.3 Undesirable Results

The GSP defines an undesirable result for this sustainability indicator as "land subsidence in the Coastal Area that exacerbates coastal hazards associated with sea level rise, impacts the City of Ventura's sewer mains along Harbor Boulevard, or substantially interferes with land uses elsewhere in the Basin" (MBGSA, 2021). Based on this definition, an undesirable result is considered to occur in the western half of the Basin when minimum thresholds are exceeded at 50% or more of the monitoring sites. In the eastern half of the Basin, an undesirable result is defined as one or more minimum threshold exceedances occurring when groundwater levels are at or near historical lows.

Groundwater elevations and InSAR data indicate that the Basin has not experienced an undesirable result related to land subsidence.

3.5.4 Impacts to Beneficial Uses and Users

While the Basin is not expected to be impacted by land subsidence throughout GSP implementation, the GSP defines conditions that would affect beneficial users, and land uses in the Basin.

3.5.4.1 Groundwater Beneficial Users (All Types)

Beneficial uses and users of groundwater are not anticipated to be affected by the low amounts of land subsidence that could potentially occur in the Basin (MBGSA, 2021). Over the evaluation period, there was no measurable land subsidence that impacted groundwater beneficial users.

3.5.4.2 Land Uses and Property Interests (All Types)

Land uses and property interests are the primary impact of potential land subsidence in the Basin (MBGSA, 2021). Over the evaluation period, there was no measurable land subsidence that impacted land uses and property interests.

3.5.5 Progress Towards Achieving Sustainability

Land surface and groundwater elevations measured over the past five years indicate that groundwater extractions have not induced measurable subsidence in the Basin (Table 3.5). These data indicate that GSP implementation has been effective in advancing and maintaining groundwater sustainability in the Basin.

3.5.6 Relevant Recommended Corrective Actions

DWR issued one RCA related to chronic lowering of groundwater levels (DWR 2023). This RCA states:

> *"Amend the quantitative definition of undesirable results (i.e., combination of minimum threshold exceedances) for chronic lowering of groundwater levels to account for local threshold exceedances in the Coastal Area to provide additional information to support why undesirable results for subsidence will not occur in the Coastal Area"*

Mound Basin GSA Response

MBGSA's response to this RCA is described in detail in Section 3.1.6.2.

3.5.7 Anticipated Future Revisions to the Sustainable Management Criteria

Groundwater level data collected over the past five years do not indicate a need to revise the SMC for land subsidence. However, MBGSA is evaluating the potential establishment of groundwater level SMC at the wells 02N23W23Q01S and 02N23W23Q02S, which would create new SMC for land subsidence at this location. Similarly, groundwater level SMC could be considered at the planned monitoring well. Baseline data are needed for these wells before additional SMC could be proposed.

A determination on whether to establish SMC at this location will be made as part of a future GSP amendment, following the collection and evaluation of additional data at this well.

3.5.8 Anticipated Future Revisions to the Definition of an Undesirable Results

MBGSA anticipates amending the definition of an undesirable result through a future amendment to address DWR's RCA No. 4 after sufficient baseline data have been collected from the new and planned monitoring wells.

3.6 Depletion of Interconnected Surface Water

Surface water in the Basin is locally connected to groundwater in the shallow alluvial deposits. However, these deposits are not considered a principal aquifer because they do not store or transmit significant or economic quantities of groundwater and there are no known wells that extract groundwater from this unit (MBGSA, 2021).

The GSP evaluated whether pumping from the Mugu and Hueneme aquifers affects surface water depletions. The analysis (which included an evaluation of the hydrogeologic structure of the basin, historical and current groundwater elevations and quality, and numerical modeling results) found that groundwater conditions in the Mugu and Hueneme aquifers, including groundwater extraction, do not materially influence groundwater levels in the shallow alluvial deposits and surface water depletions. Because of this, depletion of interconnected surface water was not identified as an applicable sustainability indicator for the Basin (MBGSA, 2021).

3.6.1 Relevant Recommended Corrective Actions

DWR issued two RCAs related to depletion of interconnected surface waters (DWR 2023). These RCAs, and MBGSA's response, are described below.

3.6.1.1 Recommended Corrective Action 1

DWR's first recommended corrective action on the GSP stated:

> *"Investigate the hydraulic connectivity of the Santa Clara River, the shallow alluvial deposits, and the principal aquifers. Estimate the quantity and timing of gains or losses of water to the groundwater system associated with groundwater pumping and projects and management actions. Based on results of this investigation, provide an updated discussion of the potential for management of the principal aquifers to impact beneficial uses and users of groundwater, including surface water ecosystems and [groundwater dependent ecosystems] GDEs."*

Mound Basin GSA Response

The Santa Clara River enters the Basin approximately 1.5 miles east of the Basin's boundary with the Pacific ocean (Figure 1.1). Along this reach, the Santa Clara River flows perennially, with baseflows consisting of groundwater discharge from the semi-perched aquifer of the adjacent Oxnard Subbasin and, to a lesser extent, from the shallow alluvial deposits within the Basin (MBGSA, 2021). Before reaching the ocean, the river flows into the Santa Clara River Estuary (SCRE), where it mixes with treated recycled water from the Ventura Water Reclamation Facility (VWRF). Riparian and aquatic habitat exists along the perennial reach of the Santa Clara River and within the SCRE. The SCRE is managed under a Settlement Agreement that aims to maintain suitable habitat conditions for critical and sensitive species.

In 2022, MBGSA constructed a new monitoring wells cluster at the VWRF:

- 02N23W23Q03S, which is screened in the shallow alluvial deposits.
- 02N23W23Q02S, which is screened in the Mugu aquifer.
- 02N23W23Q01S, which is screened in the Hueneme aquifer.

The data collected at these wells helps characterize the hydraulic connectivity between the Basin's principal aquifers and the shallow deposits that interact directly with the Santa Clara River. This effort was part of the GSP Project titled, *Seawater Intrusion Monitoring Wells for Sustainable Management Criteria Implementation*, and supported the discretionary implementation of the Project titled, *Interim Shallow Groundwater Data Collection and Analysis*, which has provided valuable shallow groundwater level data to further evaluate connectivity

As part of this Periodic Evaluation, the Mound Basin GSA analyzed new groundwater and surface water data collected in the Basin, including the measurements from the new well cluster, to reassess the interconnected surface water conditions described in the GSP. The new data show clear differences in water chemistry, groundwater elevations, and temporal groundwater level trends between the shallow alluvial deposits and principal aquifers (Appendix A). Conditions in the shallow alluvial deposits are closely linked to the river flows and physical estuary berm status (Ventura Water, 2023, 2024, 2025b), while the principal aquifers are primarily influenced by groundwater pumping and conditions in the adjacent Oxnard Subbasin. Importantly, these new data confirm the conclusions in the GSP, which state that *groundwater pumping is not causing a material depletion of surface waters in the Basin*.

While the new data from the past five years do not change the GSA's understanding of surface water depletions in the Basin, MBGSA anticipates updating the GSP in a future amendment to recognize depletions of interconnected surface water as a sustainability indicator that is applicable to the Basin in recognition of the fact that surface water is interconnected with groundwater within the shallow alluvial deposits, despite the fact that there are no current or anticipated groundwater extractions from this hydrogeologic unit and the fact that groundwater extraction from the principal aquifers has been demonstrated to no have a measurable effect on surface water. This change is made simply to comply with a strict interpretation of the GSP Emergency Regulations and should not be misconstrued to imply that groundwater extractions from the Basin impact interconnected surface water in any meaningful or measurable way.

The proposed revisions are not only intended to directly address DWR's comments on the GSP but will also improve consistency and coordination of interconnected surface water management with the adjacent Oxnard Subbasin, which supports a semi-perched aquifer that is hydrogeologically similar to the shallow alluvial deposits of the Basin and also connected to the Santa Clara River.

3.6.1.2 Recommended Corrective Action 5

DWR's fifth recommended corrective action on the GSP included four parts and stated:

> A. *Based on the results of Recommended Corrective Action 1, define the significant and unreasonable conditions that constitute undesirable results for depletions of interconnected surface water and monitor conditions in the Subbasin to verify that the defined undesirable results are not present and not likely to occur.*
>
> B. *Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.*
>
> C. *Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.*
>
> D. *Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSA's jurisdictional area.*

Mound Basin GSA Response to RCA 5A

Recent groundwater, surface water, and estuary data support the conclusions presented in the GSP regarding depletions of interconnected surface water (see Section 5.2.2). Regardless, MBGSA anticipates updating the GSP (as an amendment accompanied by a future periodic evaluation) to recognize depletion of interconnected surface water as a sustainability indicator that is applicable to the Basin. This revision is motivated by the GSA's commitment to the GSP's sustainability goal and efforts to remain coordinated with interconnected surface water management in adjacent basins. This revision is expected to be as follows:

Undesirable Results
As described in response to RCA 1, MBGSA anticipates developing a qualitative definition of undesirable results associated with depletion of interconnected surface water as, "depletions due to groundwater pumping that lead to significant impact to habitat in the Santa Clara River and its estuary".

Sustainable Management Criteria
MBGSA plans to use groundwater levels in the principal aquifers as a proxy for ISW depletion. Accordingly, the minimum threshold and measurable objective groundwater levels in the Mugu and Hueneme aquifers, or a subset thereof, will serve as the sustainable management criteria for ISW.

Sustainable Management Criteria Justification
The minimum threshold groundwater elevations in the Basin were established using historical low groundwater levels. GDEs identified in the GSP have persisted through these historical low conditions. Because of this, the historical low groundwater levels are anticipated to remain protective against the onset of an undesirable result for depletion of ISW.

Monitoring
MBGSA anticipates using the groundwater level representative monitoring sites for the ISW sustainability indicator.

Importantly, as described in the GSP, there are no current or planned groundwater extractions from the shallow alluvial deposits; therefore, MBGSA coordinates with partner agencies that monitor shallow groundwater conditions on a discretionary basis. If any groundwater extraction occurs in the shallow alluvial deposits, MBGSA will evaluate the need to revise the monitoring network and establish sustainable management criteria in the shallow alluvial deposits on an accelerated schedule.

MBGSA will continue to analyze groundwater, surface water, and ecological data over the next five years to evaluate and, as appropriate, update the definition of undesirable results and sustainable management criteria for depletion of ISW before amending the GSP.

Mound Basin GSA Response to RCA 5B

MBGSA understands that DWR has not released draft or final ISW guidance. MBGSA will consider the guidance provided by DWR when it is released.

Mound Basin GSA Response to RCA 5C

MBGSA has implemented projects and monitoring programs that address data gaps identified in the GSP (Section 4.5). Construction of the planned monitoring well east of well 02N23W15J01S and 02N23W15J02S is expected to further address these data gaps (Section 4.5). Monitoring data will continue to be evaluated over the next five years, prior to a formal GSP amendment that will identify depletion of interconnected surface water as an applicable sustainability indicator. In the interim, while a GSP amendment is pending, undesirable results for the depletions of interconnected surface water sustainability indicator will be considered to be avoided if the groundwater level minimum thresholds in 02N22W19M04S, 02N22W17Q05S, 02N22W16K01S, and 02N23W24G01S are met. This set of wells are located proximate to the Santa Clara River and its estuary and are completed in both the Mugu and Hueneme aquifers.

Mound Basin GSA Response to RCA 5D

MBGSA updated its Stakeholder Engagement Plan on November 27, 2023, to address this. Targeted outreach was performed on December 3, 2025, to address this RCA.

3.6.2 Anticipated Future Revisions to the Sustainable Management Criteria

MBGSA anticipates establishing SMC for depletion of interconnected surface water through a formal GSP amendment at a future date (Section 3.6.1.2).

To support establishment of these SMC, MBGSA will continue tracking the relationship between groundwater levels in the shallow alluvial deposits and principal aquifers of the Basin (i.e., see Appendix A). Critical to improving understanding of these relationships is the baseline data currently being collected at wells 02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S, as well as the baseline data that will be collected at the planned monitoring well "B". These baseline data and relationships will be used to update the discussion of interconnected surface waters in a forthcoming amendment.

3.6.3 Anticipated Future Revisions to the Definition of an Undesirable Result

MBGSA anticipates establishing specific undesirable results for depletion of interconnected surface water through a formal GSP amendment at a future date (Section 3.6.1.2).

4.0 Status of Projects and Management Actions [Article 5, § 356.4(b),(f)]

§ 356.4 (b) *A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions.*

(f) A description of significant new information that has been made available since Plan adoption or Amendment, or the last five-year assessment. The description shall also include whether new information warrants changes to any aspect of the Plan, including the evaluation of the basin setting, measurable objectives, minimum thresholds, or the criteria defining undesirable results.

The 50-year future water budget developed for the GSP indicates that the Basin can achieve and maintain groundwater sustainability without implementation of additional projects or management actions. However, to ensure that undesirable results are avoided and to provide flexibility to respond to changing Basin conditions, the GSP identified one mandatory and four voluntary projects and management actions that would be implemented at MBGSA's discretion:

- Seawater Intrusion Monitoring Wells for Sustainable Management Criteria Implementation (mandatory)
- Seawater Intrusion Contingency Plan and Additional Shoreline Monitoring
- Land Subsidence Contingency Plan
- Groundwater Quality Protective Measures
- Interim Shallow Groundwater Data Collection and Analysis

The status of these measures is summarized in Table 4-1 and described in the sections below.

Table 4-1. Summary of Projects and Management Actions and Activities Accomplished over the Evaluation Period

Project or Management Action Name	Project or Management Action Description	Targeted Sustainability Indicator	Project Status	Expected Schedule	Benefits Observed to Date or Anticipated Benefits	Estimated Accrued Benefits at Completion
Seawater intrusion monitoring wells	Construction of two new monitoring wells between the shoreline and existing water wells	Seawater Intrusion	Completed Construction of 02N23W23Q01S/02S well cluster (formerly Site A in the GSP). Site B well is under permitting and design.	Site B completion anticipated in the next 1-2 years.	New groundwater level and quality data from 02N23W23Q01S/02S starting in 2022	Refinement of chloride concentration isocontour using groundwater quality data from the two new wells. New locations for SMC for other sustainability indicators.
Seawater intrusion contingency plan	Development of an optional contingency plan to manage unexpected seawater intrusion, and construction of an additional monitoring well to provide early warning of any onshore flow of seawater	Seawater Intrusion	This management action was considered discretionary. No actions have been taken over the evaluation period due to attainment of the groundwater levels measurable objectives and the significant decrease in recent and projected groundwater extractions.	This management action is voluntary, to be implemented at MBGSA's discretion. Not anticipated during the next five year GSP evaluation period.	No benefits have been accrued over the evaluation period.	This management action is expected to provide early warning of onshore seawater flow and ensure pre-planned measures are in place to address unexpected seawater intrusion.

Table 4-1. Summary of Projects and Management Actions and Activities Accomplished over the Evaluation Period

Project or Management Action Name	Project or Management Action Description	Targeted Sustainability Indicator	Project Status	Expected Schedule	Benefits Observed to Date or Anticipated Benefits	Estimated Accrued Benefits at Completion
Land subsidence contingency plan	Identify triggers and measures that would be taken to halt groundwater level declines before historical low levels are exceeded in the western half of the Basin.	Land Subsidence	This management action was considered discretionary. No actions have been taken over the evaluation period due to attainment of the groundwater levels measurable objectives and the significant decrease in recent and projected groundwater extractions.	This management action is voluntary, to be implemented at MBGSA's discretion. Not anticipated during the next five year GSP evaluation period.	No benefits have been accrued over the evaluation period.	This management action is expected to provide pre-planned measures in the event of unexpected land subsidence.
Groundwater quality protection measures	Coordinate with County of Ventura to identify and address improperly constructed or abandoned wells that may provide a conduit for poor-quality water in the shallow alluvial deposits to migrate into the principal aquifers.	Degraded Water Quality	No actions have been taken over the evaluation period.	This management action is voluntary, to be implemented at MBGSA's discretion.	No benefits have been accrued over the evaluation period.	This management action is expected to protect groundwater quality from degradation.

Table 4-1. Summary of Projects and Management Actions and Activities Accomplished over the Evaluation Period

Project or Management Action Name	Project or Management Action Description	Targeted Sustainability Indicator	Project Status	Expected Schedule	Benefits Observed to Date or Anticipated Benefits	Estimated Accrued Benefits at Completion
Interim shallow groundwater data collection	Coordinate with City of Ventura and United Water Conservation District to collect groundwater level and quality data and shallow groundwater wells near Santa Clara River.	Depletion of Interconnected Surface Water[a]	Groundwater level and quality data collected over the past five years to characterize the effects of pumping on conditions in the shallow alluvial deposits and Santa Clara River. Data collection was planned for the first year GSP evaluation period and was implemented.	This management action is voluntary, to be implemented at MBGSA's discretion. MBGSA has budgeted to extend the monitoring through the next five-year GSP evaluation period.	Groundwater level and quality data confirm that groundwater pumping does not cause a material depletion of surface waters in the Basin.	

[a] Identified as being not applicable to the Basin in the GSP. As described in Section 3.6, MBGSA anticipates revising the applicability of this indicator in a future GSP amendment.

4.1 Seawater Intrusion Monitoring Wells

4.1.1 Project Overview

During development of the GSP, MBGSA identified the need to expand seawater intrusion monitoring and construct at least two monitoring wells between the shoreline and locations of water wells to implement sustainable management criteria designed to protect beneficial uses. These wells are needed to improve delineation of a chloride concentration isocontour (23 CCR §354.28 (c)(3)).

The GSP identified two sites planned for well construction, Site A (i.e., 02N23W23Q03S, 02N23W23Q02S, and 02N23W23Q01S, a monitoring well cluster installed in 2022) and Site B (Figures 3.20 and 3.21). An additional potential monitoring well cluster, Site C was also identified in the GSP; however, this is currently not planned due to attainment of the groundwater levels measurable objectives and the significant decrease in recent and projected groundwater extractions.

4.1.1.1 Targeted Sustainability Indicators

Groundwater level and quality measurements from these two wells are relevant to the seawater intrusion, chronic lowering of groundwater levels, degraded water quality, reduction of groundwater in storage, and land subsidence sustainability indicators.

4.1.1.2 Implementation Triggers

The GSP noted that this project would be implemented to address data gaps identified in the Basin. Accordingly, MBGSA anticipated implementing this project regardless of the groundwater conditions encountered in the Basin, with the goal of implementing the project prior to the first 5-Year Periodic Evaluation (MBGSA, 2021).

4.1.2 Project Status

Prior to GSP submittal, MBGSA applied for and was approved for DWR Technical Support Services to construct a clustered monitoring well in the Coastal Area of the Basin to monitor for seawater intrusion (i.e., Site A; 02N23W23Q03S, 02N23W23Q02S, and 02N23W23Q01S depicted in Figures 3.3 and 3.8). MBGSA obtained an access agreement, completed California Environmental Quality Act requirements, and obtained permits for the well in 2021. The clustered well was constructed in the spring of 2022.

Preliminary planning for construction of the other planned clustered monitoring well (Site B) was performed during water year 2023 (see Figure 3.3 for the planned location of Site B). Also, during water year 2023, MBGSA increased its fiscal reserve that is set aside to fund construction of the Site B monitoring well. During water year 2024 MBGSA continued to increase the fiscal reserve, identified a preliminary well site, and contracted with a consultant to develop applications for encroachment and coastal development permits. During water year 2025, MBGSA continued to increase the fiscal reserve and worked on applications for the encroachment and coastal development permits. The coastal development permit was received in May 2026. MBGSA plans to bid the project in 2026 or early 2027.

4.1.3 Project Benefits

4.1.3.1 Benefits Observed to Date

The construction of wells 02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S (formerly Site A in the GSP) helps to address a key data gap identified in the GSP. Groundwater elevation and quality data collected at this clustered well have been collected since spring 2022 and help characterize groundwater conditions in the coastal area and near the Santa Clara River estuary.

4.1.3.2 Expected Benefits at Project Completion

Following completion of the Site B well and collection of sufficient baseline data, MBGSA anticipates being able to:

- Further constrain chloride concentration isocontours for the seawater intrusion sustainable management criteria.
- Better characterize groundwater quality conditions and refine the quantitative definition of an undesirable result for the degraded water quality sustainability indicator.
- Evaluate the proposed definition of an undesirable result for groundwater levels to effectively manage land subsidence risks in the Coastal Area.

4.2 Seawater Intrusion Contingency Plan and Additional Shoreline Monitoring Well

4.2.1 Management Action Overview

Available data indicate that seawater has not been present in the onshore portions of the Mugu and Hueneme aquifers (MBGSA, 2021; Section 3.4). Additionally, particle tracking conducted for the GSP suggests that onshore migration of seawater is not anticipated during the 50-year planning and implementation horizon (MBGSA, 2021). While MBGSA does not anticipate onshore migration of seawater, the GSP noted that it would be prudent to develop a contingency plan to address any unexpected seawater intrusion.

This management action also identifies the potential construction of the Site C monitoring well as a related component to provide early warning of any onshore flow of seawater (Figure 3.3).

4.2.1.1 Targeted Sustainability Indicators

Implementation of this management action is relevant to the seawater intrusion sustainability indicator. Additionally, if constructed, groundwater level and quality data collected at the Site C monitoring well may inform management of the chronic lowering of groundwater levels, reduction of groundwater storage, degraded water quality, and land subsidence sustainability indicators.

4.2.1.2 Implementation Triggers

The seawater intrusion contingency plan and additional shoreline monitoring well is a voluntary measure that will be implemented at MBGSA's discretion. As such, there is no definitive implementation trigger for this management action.

4.2.2 Management Action Status

This management action has not been implemented and is described as voluntary in the GSP. This management action has not been pursued during evaluation period due to attainment of the groundwater levels measurable objectives and the significant decrease in recent and projected groundwater extractions, which may result in future groundwater pumping rates that are up to 71% lower than the projected future baseline conditions (MBGSA, 2021; Section 5.3).

4.2.3 Management Action Benefits

4.2.3.1 Benefits Observed to Date

No benefits have been realized over the evaluation period.

4.2.3.2 Expected Benefits after Implementation

The seawater intrusion contingency plan and additional shoreline monitoring well project is expected to benefit beneficial users and property interests in the Basin by providing early warning of unexpected seawater intrusion and ensuring pre-planned measures are in place to address unexpected seawater intrusion.

4.3 Land Subsidence Contingency Plan

4.3.1 Management Action Overview

While available data and modeling for the GSP indicate low potential for inelastic land subsidence in the Basin, the GSP noted that it would be prudent to develop a contingency plan to address unexpected conditions that could cause groundwater levels to decline below historical low levels in the western half of the Basin and potentially trigger inelastic land subsidence in the Coastal Area. The contingency plan would be developed to identify triggers and measures that would be taken to halt groundwater level declines before historical low levels are exceeded in the western half of the basin.

4.3.1.1 Targeted Sustainability Indicator

The land subsidence contingency plan is relevant to the land subsidence sustainability indicator.

4.3.1.2 Implementation Triggers

The land subsidence contingency plan is a voluntary measure. As such, there is no definitive implementation trigger for this management action.

4.3.2 Management Action Status

This management action has not been implemented and is described as voluntary in the GSP. This management action has not been pursued during evaluation period due to attainment of the groundwater levels measurable objectives and the significant decrease in recent and projected groundwater extractions, which may result in future groundwater pumping rates that are up to 71% lower than the projected future baseline conditions (MBGSA, 2021; Section 5.3).

4.3.3 Management Action Benefits

4.3.3.1 Benefits Observed to Date

No benefits have been realized over the evaluation period.

4.3.3.2 Expected Benefits after Implementation

The land subsidence contingency plan is expected to benefit beneficial users and property interests in the Basin by providing early warning of groundwater level declines that could lead to potential land subsidence in the Coast Area and by ensuring pre-planned measures are in place to address it before undesirable results could occur.

4.4 Groundwater Quality Protection Measures

4.4.1 Management Action Overview

The GSP recognized that there is the potential for improperly constructed or abandoned wells to create conduits for migration of poor-quality water from the shallow alluvial deposits vertically downward to the principal aquifers. This management action covered coordination with the County of Ventura to identify and address these improperly constructed or abandoned wells and, as appropriate, review and modify, if necessary, the County well permit ordinance to ensure future wells are properly sealed.

4.4.1.1 Targeted Sustainability Indicators

This management action is relevant to the degraded water quality sustainability indicator.

4.4.1.2 Implementation Triggers

The GSP notes that this is a voluntary management action that will be implemented at MBGSA's discretion. As such, there are no definitive triggers to implement this management action.

4.4.2 Management Action Status

This management action has not been implemented and is described as voluntary in the GSP. No action was taken during the GSP evaluation period.

4.4.3 Management Action Benefits

4.4.3.1 Benefits Observed to Date

No benefits have been realized over the evaluation period.

4.4.3.2 Expected Benefits after Implementation

This management action is expected to benefit beneficial users and property interests in the Basin by protecting groundwater quality from degradation.

4.5 Interim Shallow Groundwater Data Collection and Analysis

4.5.1 Management Action Overview

The Interim Shallow Groundwater Data Collection and Analysis management action involves coordination between MBGSA, City of Ventura, and United to collect interim shallow groundwater levels and water quality data from existing shallow wells near the Santa Clara River and its estuary leading up to this first 5-Year periodic evaluation of the GSP. The goal of this project was to evaluate the GSP's conclusion that pumping from the principal aquifers does not result in material depletion of surface water from the Santa Clara River.

4.5.1.1 Targeted Sustainability Indicators

Depletion of interconnected surface water was not recognized as an applicable sustainability indicator for the Basin. This management action was included in response to concerns communicated by several commenters on the GSP to collect data to further evaluate the need for including SMC for this sustainability indicator.

4.5.1.2 Implementation Triggers

This is a voluntary measure implemented at the discretion of MBGSA. As such, there is no definitive implementation trigger for this management action.

4.5.2 Management Action Status

Throughout the evaluation period, United, the City of Ventura, and MBGSA coordinated to collect groundwater level and quality data from a network of five wells completed in the shallow alluvial deposits, near the Santa Clara River and its estuary (Appendix A). The data collected at these wells demonstrate clear differences in water level and quality between the shallow alluvial deposits and principal aquifers, supporting the conclusion in the GSP that pumping from the principal aquifers does not materially deplete surface waters in the Basin.

4.5.3 Management Action Benefits

4.5.3.1 Benefits Observed to Date

Groundwater level and quality data collected through this management action have helped to improve MBGSA's understanding of groundwater conditions underlying the Santa Clara River and its estuary. In the shallow alluvial deposits, these data indicate that conditions are largely controlled by flows in the Santa Clara River and the physical status of the sand berm that separates the estuary from the Pacific

Ocean. Conversely, the conditions in the principal aquifer are primarily influenced by groundwater pumping and conditions in the adjacent Oxnard and Santa Paula subbasins. Importantly, the distinct differences in water quality, levels, and trends between the principal aquifers and shallow alluvial deposits confirm the GSP's conclusion that *groundwater pumping is not causing a material depletion of surface waters in the Basin*.

4.5.3.2 Expected Benefits after Implementation

The GSP noted that implementation of this voluntary measure would provide additional data to evaluate the HCM, sustainable management criteria, and monitoring network to protect beneficial uses associated with the shallow alluvial deposits and the Santa Clara River from any groundwater extraction impacts. The data collected over the evaluation period indicate that, currently, there is no need to modify these GSP elements.

5.0 Basin Setting Based on New Information or Changes in Water Use [Article 5, § 356.4(d)]

§ 356.4 (d) *An evaluation of the basin setting in light of significant new information or changes in water use, and an explanation of any significant changes. If the Agency's evaluation shows that the basin is experiencing overdraft conditions, the Agency shall include an assessment of measures to mitigate that overdraft.*

This section of the report evaluates the Basin Setting described in the GSP, including the Hydrogeologic Conceptual Model (Section 5.1) and water supplies and land uses over the evaluation period (Section 5.2).

5.1 Hydrogeologic Conceptual Model

The GSP recognizes five distinct hydrostratigraphic units (HSUs) in the Basin: the shallow alluvial deposits, fine grained Pleistocene deposits, Mugu aquifer, Hueneme aquifer, and Fox Canyon aquifer (MBGSA, 2021). Of these, the Mugu and Hueneme aquifers are considered principal aquifers. The shallow alluvial deposits and fine-grained Pleistocene deposits do not store, transmit, or yield significant or economic quantities of water and are not considered principal aquifers. Similarly, the Fox Canyon aquifer does not have material groundwater extractions and is not considered a principal aquifer.

5.1.1 Hydrostratigraphic Model Updates

United maintains the three-dimensional (3D) hydrostratigraphic model of the Basin and adjacent basins. This model maps the lateral extents, thicknesses, and properties of the regionally extensive aquifer units that comprise the HSUs for the Basin. In 2021, United updated their 3D hydrostratigraphic model to incorporate additional geophysical, lithologic, and shallow groundwater level data along the shoreline of the Oxnard Subbasin, where the Mugu and Hueneme canyons provide a conduit for seawater intrusion (FCGMA, 2024). These revisions were localized to the Oxnard Subbasin and did not result in hydrostratigraphic revisions within the Basin.

5.1.2 Numerical Groundwater Flow Model Updates

In addition to maintaining the 3D hydrostratigraphic model for the Basin, United also maintains the Ventura Regional Groundwater Model, a numerical groundwater flow model that encompasses the Mound Basin and adjacent Oxnard, Pleasant Valley, and West Las Posas basins (United, 2018). This model was used to develop historical groundwater budgets and project future groundwater conditions for the GSP.

In 2024, United updated the Ventura Regional Groundwater Flow Model (United, 2024) to incorporate:

- Hydrostratigraphic revisions from the updated 3D hydrostratigraphic model (in other basins);
- Updated boundary conditions informed by regional simulations of the upgradient Santa Paula Basin.

Following these updates, United recalibrated the model to ensure consistency with observed groundwater conditions across the model domain. Aquifer properties of the principal aquifers remained generally consistent with the GSP model; however, the recalibration included the following changes relevant to the Mound Basin:

Santa Paula / Mound Basin Boundary

- Hydraulic conductivity in the Basin's five HSUs were locally increased by a factor of 2 to 10.
- Hydraulic conductivity of the aquitards that separate the five HSUs from each other were increased by factors of 10 to 100.

Within the Mound Basin

- Hydraulic conductivity of the aquitard separating the Mugu and Hueneme aquifers was reduced by approximately two-orders of magnitude.

Overall, the recalibrated model improved simulation of groundwater conditions in adjacent basins, but slightly degraded model performance within the Basin (United, 2024). These results indicate that the GSP model version remains appropriate for guiding Basin management over the next five years.

5.1.3 New Wells

Since adoption of the GSP, one new dedicated monitoring well cluster and three groundwater production wells have been constructed in the Basin (Table 5.1). The lithologic data from these wells does not change MBGSA's interpretation of the existing HCM.

Table 5.1. New Wells in the Mound Basin

SWN	Well Type	Depth (ft. bgs)	Screened Interval
02N23W13K05S	Water Supply – Agricultural (replacement well)	865	360 – 865
02N22W08K01S	Water Supply - Municipal	1260	775 – 1260
02N22W17R01S	Water Supply – Municipal	765	665 – 765
02N23W23Q01S	Monitoring	1,200	670 – 680
02N23W23Q02S	Monitoring	540	310 – 530
02N23W23Q03S	Monitoring	110	30 – 105

Notes:
ft bgs = feet below ground surface.

5.1.4 General Evaluation of the Hydrogeologic Conceptual Model

The data collected over the past five years indicate that the Hydrogeologic Conceptual Model developed in the GSP remains appropriate for management over the next five years.

5.1.5 Uncertainties in the Hydrogeologic Conceptual Model

The GSP identified uncertainties in the hydrogeologic conceptual model that create uncertainty in the understanding of:

- The vertical and lateral extent of the Basin.
- The hydraulic impact of the McGrath and Country Club faults.
- Local aquifer hydraulic properties based on measured pump testing data.
- Groundwater quality in the northern and western portions of the Basin.

No additional investigations have been conducted over the evaluation period to address these data gaps. However, while these data gaps exist, they are not considered a significant gap in understanding that limits the ability to effectively manage the Basin (MBGSA, 2021).

5.2 Groundwater Conditions

5.2.1 New Depth-Discrete Groundwater Elevation and Quality Data

In 2022, a new dedicated monitoring well cluster near the VWRF was constructed by DWR through its TSS program on behalf of MBGSA (Section 5.3.1; Figures 3.3, 3.8, and 4.1). The cluster contains three separate completions, each screened within a unique HSU of the Basin:

- Well 02N22W23Q01S is screened 670 to 680 ft bgs in the Hueneme aquifer.
- Well 02N22W23Q02S is screened 310 to 530 ft bgs in the Mugu aquifer.
- Well 02N22W23Q03S is screened 30 to 105 ft bgs in the shallow alluvial deposits.

Groundwater elevations at this clustered well have been measured monthly via electronic sounder (Section 3.1.1). In May 2024, well 02N23W23Q03S was equipped with a pressure transducer to log sub-daily groundwater levels.[9] Groundwater quality samples have been collected from these wells have been collected semiannually since construction (Section 3.3.1).

Data from these wells have been used to improve understanding groundwater elevation contours and trends, as well as groundwater quality conditions in the southwestern part of the Basin. These data have been included in the GSP annual reports covering water years 2023 through 2025.

During water year 2023 and into early water year 2024, prior to wells 02N23W23Q02S and 02N23W23Q01S becoming artesian, groundwater levels at this well cluster indicated a downward vertical gradient between the shallow alluvial aquifer and Mugu aquifer (averaging approximately 0.018 ft/ft) and an upward vertical gradient between the Mugu and Hueneme aquifers (averaging approximately -0.015 ft/ft).[10] These vertical gradients are consistent with those measured and reported in the GSP (MBGSA, 2021).

In March 2024, wells 02N23W23Q02S and 02N23W23Q03S became artesian, reversing the gradient between the shallow alluvial and Mugu aquifers.

[9] Pressure transducers have not been installed in wells 02N22W23Q01S and 02N22W23WQ02S because the wells have been artesian since March 2024.
[10] Positive values represent a downward vertical gradient. Negative values represent an upward vertical gradient.

5.2.2 Assessment of Depletions of Interconnected Surface Water

5.2.2.1 Shallow Groundwater Monitoring Data

During the evaluation period, MBGSA coordinated with the City of Ventura and United to monitor four shallow groundwater monitoring wells located near the Santa Clara River and its estuary (Section 4.5; Appendix A). These wells are equipped with pressure transducers, providing high-frequency characterization of groundwater level trends and responses to hydrological and physical drivers in the Basin.

5.2.2.2 Santa Clara River Estuary Monitoring

As part of their VenturaWaterPure program, Ventura Water is implementing a Pre-Construction Assessment Program to collect baseline estuary condition data (Ventura Water, 2023, 2024, 2025). This effort includes monitoring of:

- Physical and Hydrologic conditions of the estuary, including berm status and morphology; Santa Clara River estuary bathymetry; Santa Clara River estuary surface water depth; depth to groundwater in the shallow alluvial deposits; Santa Clara River stream flows; and Ventura Water Reclamation Facility discharge volumes.
- Surface and groundwater quality conditions.
- Habitat and vegetation conditions.
- Fish and aquatic habitat conditions.
- Bird habitat and nesting conditions.

The physical and hydrologic condition monitoring provide new data to characterize the relationship between the Santa Clara River, its estuary, and groundwater in the underlying shallow alluvial deposits (Appendix A).

5.2.2.3 Assessment of GSP Conclusions

Appendix A details the new shallow groundwater, estuary, and surface water flow data collected over the evaluation period. This section summarizes the findings from this data.

Shallow Alluvial Aquifer

During the evaluation period, groundwater elevations in the shallow alluvial deposits underlying the Santa Clara River and its estuary varied geographically and in response to flow conditions. Near the upper reach of the Santa Clara River within the Basin, groundwater levels were responsive to Santa Clara River flows. These responses were particularly prominent during the 2023 and 2024 water years, when flows in Santa Clara River measured at gage 723 peaked at more than 30,000 cubic feet per second. These elevated flows caused approximately 5 to 7 feet of groundwater level rise at MW-8, the northernmost shallow monitoring well located proximally to the Santa Clara River (Appendix A).

Farther west, near the Santa Clara River Estuary, groundwater levels were similarly responsive to these high-flow events but showed distinctly different behavior prior to peak Santa Clara River flow conditions. For example, in spring 2022, groundwater levels at both MW-9 and MW-10 increased from approximately 5 feet over a period where flows were not measured at gage 723 and groundwater levels at MW-8 declined by approximately 2 feet (Appendix A). The City of Ventura's PCAP data indicates that the groundwater level increases at MW-9 and MW-10 coincided with periods of estuary berm closure, during which the estuary was hydraulically disconnected from the Pacific Ocean and surface water levels increased (Appendix A). Similar groundwater level increases at MW-9 and MW-10 were observed during berm closure in late October and November 2024 (Appendix A). In contrast, groundwater levels at MW-8 showed minimal sensitivity to estuary berm conditions.

These data, presented in Appendix A, indicate that groundwater elevations in the shallow alluvial deposits are driven by changes in Santa Clara River flows and physical conditions of the estuary berm, not groundwater pumping.

Groundwater samples collected from wells 02N22W23MW10, 02N22W23Q03S, 02N23W23MW11, and 02N23W23MW8 indicate that groundwater in the shallow alluvial deposits is high in salinity and predominantly sodium-sulfate type (Appendix A).

Mugu and Hueneme Aquifers

In the Mugu and Hueneme aquifers, groundwater elevations show distinctly different patterns than those measured in the shallow alluvial deposits. This difference is most clearly shown when comparing groundwater elevation and quality data across wells 02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S. At this location, groundwater elevations show two different trends throughout time:

- Between May 2023 and October 2023, groundwater elevations in 02N23W23Q03S steadily declined by approximately 1.5 feet, while groundwater levels in the Mugu and Hueneme aquifers (02N23W23Q02S and 02N23W23Q01S) increased by approximately 5 feet.
- Between March 2024 and May 2025, groundwater conditions in the Mugu and Hueneme aquifer were artesian, while groundwater elevations in the shallow alluvial deposit varied in response to estuary berm status.

Further, groundwater quality data collected from this well cluster also show distinct differences, with groundwater in the shallow alluvial deposits showing much higher salinity and sulfate concentrations than groundwater measured in the Mugu and Hueneme aquifers (Appendix A).

These new data, presented in Appendix A, support the GSP's conclusions that there is no material depletion of interconnected surface water within the Basin.

5.3 Water and Land Use Trends

The GSP characterized historical land uses and water supplies in the Basin through water year 2019. Since 2019, operators in the Basin have continued to rely on a broad portfolio of water supplies to meet agricultural, municipal, and industrial demands. This section summarizes the water supplies to the Basin from water year 2020 through water year 2025. Land use change over the evaluation period are provided for context.

5.3.1 Land Use Changes

5.3.1.1 Land Use Changes over the Evaluation period

Land use change in the Basin over the evaluation period was assessed using DWR's statewide land use data for 2020 and 2024.[11] Land use data were grouped into three categories: agricultural, urban, and unclassified (Table 5.2). Approximately 1,900 acres of the basin support agricultural operations, with the largest cropping associated with nursery crops and berries (Table 5.2). The total area of agricultural land use did not change over the evaluation period.

The total mapped area in DWR's datasets varies by approximately 350 acres between 2020 and 2024. While DWR's land use data attributes this to differences in the urban land use category, the difference in mapped areas largely reflects uncertainty in the geospatial mapping techniques, rather than land use changes (Table 5.2, Figures 5.1, 5.2).

Table 5.2. Land Use Changes in the Basin, 2020 to 2024

Year	2020	2024	Difference (Acres)
Agricultural	1,904	1,912	8
Urban	8,734	8,420	-314
Unclassified	42	3	-39
Total	**10,680**	**10,335**	**-345**

Notes:
[a]Land cover data was obtained from the DWR SGMA Data Viewer, crop mapping dataset.
[b]Mapped acreage does not fully cover the basin and vary by year.

5.3.1.2 Future Land Use Changes

In 2025, the City of Ventura adopted their 2050 General Plan, which provides a long-range vision, goals, policies, and actions to guide community growth and change over the next 25 years (City of Ventura, 2025). The 2050 General Plan generally continues the land use and population growth framework established in the 2005 General Plan, including an emphasis on well-planned communities, protection of the region's agricultural heritage and economy, and smart growth practices.

As described in the GSP, the General Plan can impact Basin water demands and water budgets by establishing future land use patterns and development strategies. The areas most relevant to the GSP are the hillsides along the northern part of the Basin, where the principal aquifers receive recharge. Since adoption of the 2005 General Plan, the City and community advocacy groups have substantially implemented actions intended to discourage development in these areas, including aligning the City's sphere of influence with the city limits and increasing the area of open space protected from development.

Consistent with these prior actions, the 2050 General Plan includes goals and policies that continue to discourage outward expansion and development of these open spaces (City of Ventura, 2025):

[11] Land use data for water year 2025 had not been published at the time of reporting.

- Goal LU-3: Maximize use of land in the city before considering expansion, prioritizing infill development over the expansion of the City's sphere of influence.
- Goal LU-8: Create well-planned communities that respect and support the agricultural heritage and economy of the region while ensuring that new development is designed to be compatible with nearby agricultural uses.
- Goal LU-8: Strengthen local and regional partnerships to enhance overall quality of life and regional cohesion, which includes a policy to coordinate with organizations and agencies responsible for protecting open spaces

In addition to these, the continued existence of SOAR, the Hillside Voter Participation Protection Area (HVPPA), and the Hillside Management Plan (HMP) makes it very unlikely that a material amount of open space or agricultural land will be developed during the foreseeable future (MBGSA, 2021). Because of this, there is limited potential for land use-driven water-demand changes in the Basin.

Water demand changes due to population growth projected in the General Plan are included in the updated water supply projections described in Section 5.2.

5.3.2 Water Supplies

Water supplies in the Basin consist of local groundwater, imported groundwater, and imported surface water. This section summarizes total water supplies in the Basin and provides a comparison to historical and future, anticipated availability, as described in the GSP. Because the GSP provides data on water supplies through 2019, water supply data are summarized here for water years 2020 through 2025.

As part of this Periodic Evaluation, MBGSA reviewed groundwater extraction trends since GSP adoption with the Mound Basin Agricultural Water Group (MBAWG) and Ventura Water to update future groundwater extraction projections. Both entities anticipate lower groundwater usage than projected in the GSP. These reductions are attributable to:

- Economic pressures from pumping fees, which have resulted in below-average agricultural water usage.
- Ventura Water's efforts to advance water supply diversification and resiliency projects, which introduce new sources of supply to the Basin.
- Reduced water demand projections for the City of Ventura of approximately 1,500 to 1,600 AFY through 2045 (Ventura Water, 2021, 2026).

This new information is discussed below.

5.3.2.1 Groundwater Extraction

During the evaluation period, groundwater extraction data were provided to MBGSA by United and Ventura Water. United maintains semi-annual extraction reports for non-City operators within its service area, while the City of Ventura submits monthly extraction data for its wells in the Basin.

United's data report semi-annual extractions on a calendar year basis, with reports submitted for the January to June and July to December periods. To convert these data to water year extractions, MBGSA converts the semi-annual extraction volumes into monthly values based on precipitation patterns

(United, 2018). These monthly extraction estimates were combined with the City of Ventura data to calculate total groundwater extraction for each water year (Table 5.3).

Groundwater extraction attributable to native vegetation (i.e., evapotranspiration [ET]) was estimated based numerical model results for similar water year types (MBGSA, 2021, 2022, 2023, 2024, 2025, and 2026).

Table 5.3. Groundwater Extraction by Water Use Sector for Water Years 2020 to 2025.

Water Year (AF/yr)	Water Use Sector			Total
	Agricultural[a]	Municipal and Industrial[b]	Native Vegetation[c,d]	
2020	2,639	2,697	1,200	6,536
2021	3,094	2,298	1,193	6,585
2022	2,962	2,372	755	6,089
2023	2,500	1,757	911	5,168
2024	2,058	507	911	3,476
2025	2,162	906	691	3,759
2020-2025 Average	**2,569**	**1,756**	**944**	**5,269**

Notes:
Totals may not match sum of values due to rounding.
[a] Quantified using a combination of direct measurements and estimated values, with medium accuracy. Water Year volumes estimated on precipitation.
[b] Quantified using a combination of direct measurements and estimated values, with high accuracy. Water Year volumes for 2 non-city wells estimated based on precipitation.
[c] Quantified using estimated values, with medium accuracy. Water Year volumes estimated based on numerical model results for the baseline simulation GSP (MBGSA, 2021).
[d] The extraction due to native vegetation includes the invasive species Arundo.

5.3.2.1.1 Groundwater Extractions over the Evaluation Period

Over the past five years, groundwater extractions, excluding riparian demands, have declined from approximately 5,300 AFY in water year 2020 to approximately 3,100 AFY in water year 2025, averaging approximately 4,300 AFY (Table 5.3). This reduction in total groundwater production is attributable to a decline in both M&I and agricultural pumping. On average, agricultural and M&I groundwater use accounted for 59.4% and 40.6%, respectively, of total extractions from the Basin, excluding native ET demands.

5.3.2.1.2 Comparison to Historical Pumping Trends

Between 1986 and 2019, groundwater extractions from the Basin averaged approximately 7,290 AFY, excluding native ET demands (MBGSA, 2021). Groundwater extractions over the evaluation period were approximately 40% lower than the historical average.

5.3.2.1.3 Comparison to Pumping Projections in the GSP

The GSP evaluated future groundwater conditions using information provided by Ventura Water and MBAWG to constrain future groundwater demands. Based on their 2020 Urban Water Management Plan (UWMP) projections, Ventura Water anticipated that their pumping from the Mound Basin would average approximately 4,000 AFY (Ventura Water, 2021). The MBAWG estimated that agricultural pumping from the Mound Basin would average approximately 3,300 AFY (MBGSA, 2021). Accounting for different future climatic conditions and native ET demands, the GSP evaluated future basin conditions assuming that groundwater extractions ranged from approximately 7,900 AFY (Future Baseline conditions) to an average of approximately 8,200 AFY (2070 Climate Change and Sea Level Rise conditions).

The average annual extractions over the evaluation period are approximately 45% lower than the GSP-projected future groundwater demands. M&I extractions over the evaluation period were approximately 36% lower than the GSP projections and agricultural extractions were approximately 47% lower than GSP projections.

5.3.2.1.4 Updated Future Pumping Projections

Both Ventura Water and MBAWG provided updated pumping projections for this Periodic Evaluation. Ventura Water's projections range from 1,664 to 2,642 AFY through mid-2029, and are as low as 0 AFY by mid-2030, when VenturaWaterPure is anticipated to come online (Ventura Water, 2025a). Based on more recent reported pumping and stakeholder input from MBAWG, the updated projections for agricultural pumping for wet, normal, and dry water years are 2,200 AFY, 2,700 AFY, and 3,000 AFY, respectively.

Based on these updated projections, MBGSA anticipates that future groundwater extractions from the Basin will range from 2,300 AFY to 5,300 AFY over a long-term hydrologic period – approximately 2,600 AFY to 5,600 AFY lower than projected under future baseline conditions in the GSP and 35% to 72% lower than the estimated sustainable yield.

5.3.2.2 Surface Water Supply

Ventura Water purchases surface water from the Casitas Municipal Water District (CMWD) for municipal and industrial uses. Surface water is imported to Mound Basin via pipeline and the exact volumes used within the Basin are unknown because the basin boundary is not coincident with the area this water is delivered to (i.e., the extent of CMWD within the City of Ventura). Because of this, surface water use within the Basin is estimated using a methodology developed for and documented in the GSP and annual reports.

Table 5.4. Imported Surface Water (Casitas MWD) by Water Use Sector for Water Years 2020 to 2025.

Water Year (AF/yr)	Water Use Sector			Total
	Agricultural	Municipal and Industrial	Native Vegetation	
2020	0	1,606	0	1,606
2021	0	1,624	0	1,624
2022	0	1,028	0	1,028

Table 5.4. Imported Surface Water (Casitas MWD) by Water Use Sector for Water Years 2020 to 2025.

Water Year (AF/yr)	Water Use Sector			Total
	Agricultural	Municipal and Industrial	Native Vegetation	
2023	0	822	0	822
2024	0	1,663	0	1,663
2025[a]	0	1,613	0	1,613
2020-2025 Average	**0**	**1,393**	**0**	**1,393**

Notes:
All values reported in units of acre-feet
[a]Water year 2025 data updated to correct an error in the water year 2025 annual report calculations.

5.3.2.2.1 Surface Water Uses over the Evaluation Period

Over the past five years, surface water uses have remained relatively consistent, averaging approximately 1,390 AFY (Table 5.4). The notable deviation from this was in water year 2023, when surface water supplies in the Basin were approximately 500 AF lower than this average (Table 5.4).

5.3.2.2.2 Comparison to Historical Surface Water Uses

Between 1986 and 2019, the City of Ventura imported an average of approximately 3,600 AFY of Casitas water (MBGSA, 2021).[12] This is approximately three times the volume of imported water supplies utilized over the evaluation period.

5.3.2.2.3 Comparison to Surface Water Supply Projections in the GSP

Under the three future scenarios presented in the GSP for the 20-year implementation period (2022-2041), the average annual imported surface water supply from Casitas was estimated to be approximately 5,600 AF/yr. This is approximately 4 times higher than the estimated surface water demands over the evaluation period.

5.3.2.2.4 Updated Surface Water Supply Projections

Ventura Water estimates that surface water supplies will range from 2,000 to 3,200 AFY through mid-2030 (Ventura Water, 2025a). These projections are lower than anticipated in the GSP. However, Ventura Water's advancement of the State Water Project Interconnection and VenturaWaterPure projects are expected to more than offset this reduction in local surface water uses (Ventura Water, 2026).

5.3.2.3 Imported Groundwater Supply

Ventura Water, Alta Mutual Water Company (Alta MWC), and Farmers Irrigation Company (FICO) own and operate wells in adjacent basins. A portion of the water pumped by these entities from adjacent

12 See table 3.3-02 of the GSP (MBGSA, 2021).

basins is used as a source of water supply within the Basin. Because all three service areas are not wholly encompassed in the Basin, the volume of groundwater imported by each entity is estimated using procedures documented in the annual reports.

Table 5.5. Imported Groundwater, Water Year 2020 - 2025.

Water Year (AF/yr)	Imported Groundwater				Total
	Upper Ventura River	Oxnard		Santa Paula	
	Municipal and Industrial	Agricultural	Municipal and Industrial	Agricultural	
2020	1,606	133[a]	2,686	1,067[b]	5,492
2021	1,624	133[a]	3,904	1,067[b]	6,728
2022	1,028	133[a]	4,426	1,067[b]	6,654
2023	822	133[a]	4,562	1,067[b]	6,584
2024	1,663	133[a]	3,848	1,067[b]	6,711
2025	1,613[c]	133[a]	4,525[c]	1,067[b]	7,338[c]
2020-2025 Average	**1,393**	**133**	**3,992**	**1,067**	**6,585**

Notes
All values reported in units of acre-feet.
[a] Estimated volume of water pumped by Alta MWC.
[b] Estimated volume of water pumped by FICO and Alta MWC.
[c] Water year 2025 data updated to correct an error in the water year 2025 annual report calculations

5.3.2.3.1 Imported Groundwater Uses over the Evaluation Period

Over the past five years, an average of 6,600 AF of groundwater was imported from outside of the Mound Basin (Table 5.5). The majority of this was used to meet municipal and industrial demands and originated as groundwater pumped from either the Oxnard subbasin or Upper Ventura River basin. The volume of imported groundwater remained relatively consistent over the evaluation period.

5.3.2.3.2 Comparison to Historical Imported Groundwater Uses

The GSP did not quantify the volume of groundwater imported into the Basin (MBGSA, 2021). However, Ventura Water's 2020 UWMP indicates that their pumping from the Oxnard subbasin averaged approximately 3,500 AFY between 2016 and 2019 (Ventura Water, 2021). As described in the annual reports, we assume that 5% of that is used to meet the demands within the Oxnard Subbasin; therefore, it is estimated that 3,325 AFY of groundwater was imported from the Oxnard Subbasin for municipal and industrial uses.[13] Imported groundwater volumes during the evaluation period were approximately 800 AFY higher than this estimate.

[13] Approximately 5% of Ventura Water's service area overlies the Oxnard Subbasin.

Groundwater importations from the Upper Ventura River basin and purchases from CMWD averaged 2,785 AFY over the evaluation period (Table 5.4 and 5.5). This is approximately 415 AFY lower than the historical importation estimates (MBGSA, 2021).[14]

Groundwater imports by Alta MWC and FICO are assumed to equal historical estimates.

5.3.2.3.3 Comparison to Imported Groundwater Projections in the GSP

In their 2020 UWMP, Ventura Water estimates that groundwater pumping from the Oxnard Subbasin in 2025 would be 4,813 AFY (Ventura Water, 2021). Assuming that 5% of that is used to meet the demands within the Oxnard Subbasin, it is estimated that groundwater from the Oxnard Subbasin would provide 4,572 AFY of supply to the Basin. Groundwater imports from the Oxnard Subbasin over the evaluation period were approximately 600 AFY lower than this estimate (Table 5.5).

Groundwater imports by Alta MWC and FICO are assumed to equal projected estimates.

5.3.2.3.4 Updated Imported Groundwater Supply Projections

Ventura Water estimates that groundwater pumping in the Oxnard Subbasin will range from approximately 4,370 to 5,150 AFY through mid-2030 (Ventura Water, 2025a). These estimates are consistent with the 2020 UWMP data used to support development of the GSP.

Groundwater imports by Alta MWC and FICO are assumed to remain the same as the GSP, which were set equal to historical estimates.

5.3.3 Evaluation of Water Use Trends and Updated Future Projections

The total estimated water use within Mound Basin for water years 2020 through 2025 is summarized by water source type in Table 5.6. Over the evaluation period, total water use is estimated to have averaged approximately 13,200 AFY (Table 5.6). Of this, approximately 29% (or 3,800 AFY) was used to support agricultural operations, 7% was used by riparian vegetation demands, and the remaining 64% supported municipal and industrial demands.

Approximately 50% of the total water used in the Basin originates as imported groundwater. The largest source of imported groundwater is from the Oxnard Subbasin. Locally pumped groundwater provided approximately 40% of the water used in the Basin, and imported water purchased from CMWD provides the remaining 10%.

The average total water uses during the evaluation period were lower than projected in the GSP, which assumed:

- Local groundwater demands would average approximately 8,500 AFY through 2041 (MBGSA, 2021)
- Imported groundwater supplies from the Oxnard Basin would average approximately 2,500 AFY (MBGSA, 2021).

[14] The historical importation estimate is calculated assuming 64% of the 5,000 AFY of combined CMWD and Upper Ventura River water importations are used within the Basin (MBGSA, 2021).

- The volume of Ventura River water imported to the Basin would average approximately 5,600 AFY (MBGSA, 2021).[15]

Based on these projections, total water supplies in the Basin through 2041 were estimated to average 16,600 AFY. Total water use in the Basin during the evaluation period was approximately 20% lower than this projection.

5.3.3.1 Updated Water Demand Projections

In their draft 2025 UWMP, Ventura Water estimates that water demands in their service area will increase from approximately 14,100 AFY in 2030 to 15,100 AFY in 2045 (Ventura Water, 2026). These estimates are approximately 1,100 to 1,300 AFY lower than the 2020 UWMP projections (Ventura Water, 2021). This is an approximately 8% reduction in total water demands within Ventura Water's service area compared to the assumptions used for GSP development.

Importantly, as previously stated:

- Ventura Water's reliance on Mound Basin groundwater is anticipated to be as low as 0 AFY after 2030, a result of implementing its VenturaWaterPure and State Water Project Interconnection projects.
- Agricultural groundwater demands are projected to be 15 to 20% lower than projected for the GSP, a result of increased conservation practices and increasing pumping fees.

Together, this reduction in agricultural groundwater demands and diversification of future municipal water supplies are anticipated to result in future groundwater extractions that range from approximately 2,300 to 5,300 AFY. These updated estimates are:

- 33% to 77% lower than the average annual future baseline scenario groundwater extraction rate of 7,900 AFY (MBGSA, 2021).
- 27% to 68% lower than the average annual historical groundwater extraction rate of 7,300 AFY (MBGSA, 2021).
- 35% to 72% lower than the estimated future sustainable yield of 8,200 AFY (MBGSA, 2021).

These updated pumping estimates consider the availability of sufficient surface water supplies.

[15] This is the combination of imported water purchased by Ventura Water from CMWD and groundwater pumped from the Upper Ventura Basin by Ventura Water and used in the Mound Basin.

5.3.3.2 Relevant Recommended Corrective Actions

DWR issued one RCA related to water use (DWR 2023). This RCA, and MBGSA's response, is described below:

> *"Clarify if the projected water budgets consider the availability of sufficient surface water supply in the future and whether insufficient surface water supply would require more groundwater pumping which could result in undesirable results"*

Mound Basin GSA Response

Yes, the projected water budgets consider the availability of sufficient surface water supplies and whether insufficient water supply would require more groundwater pumping.

Groundwater in the Basin is used as a source of municipal (City of Ventura), industrial, and agricultural water supply. Agricultural and industrial users in the Basin do not rely on imported or surface water (MBGSA, 2021). Therefore, changes in surface water availability do not impact future pumping demands for these users.

In contrast, the City of Ventura's water supplies include groundwater from the Basin, groundwater from the Santa Paula, Oxnard, and Upper Ventura River basins, and surface water imported from the Ventura River Watershed, which is purchased from Casitas Municipal Water District. As described throughout this section, the City of Ventura will be further diversifying its water supply portfolio by interconnection with Calleguas Municipal Water District to facilitate delivery of its 10,000 AFY State Water Project Table A entitlement and implementing the VenturaWaterPure project, a direct potable reuse project, which will supply up to 20% of the City's future water supply (Ventura Water, 2026). In addition to these projects, the City of Ventura's ability to expand production in the Basin during dry periods is limited because groundwater pumped from the Mound Basin is generally high in TDS and sulfate, which requires blending with other water supplies to meet applicable standards.

In short, even if the availability of other water supplies decrease, the City of Ventura would not be able to significantly increase extractions from the Mound Basin because the City of Ventura's use of Mound Basin groundwater is constrained by water quality and associated blending requirements. In fact, the City of Ventura has already reduced its Mound Basin groundwater extraction volumes due to water quality and it does not plan on extracting more than 2,462 AFY during the next five-year GSP evaluation period, which is a 38% reduction compared to the GSP projection of 4,000 AFY. Looking beyond, the VenturaWaterPure Project is anticipated to be online in 2031 and the City's Ventura rate study shows Ventura's Mound Basin extractions going to zero (Ventura Water, 2025a).

Table 5.6. Total Water Use for Water Years 2020 to 2025 and Updated Water Supply Projections.

Water Year	Water Source Type												Total
	Ground Water Extraction				Imported Ground Water					Imported Surface Water		Recycled Water	
	Agricultural[d]	Municipal and Industrial[e]	Native Vegetation[f,g]	*subtotal*	Upper Ventura River Basin[a] Municipal and Industrial[e]	Oxnard Basin[b] Agricultural[d]	Oxnard Basin[b] Municipal and Industrial[e]	Santa Paula Basin[b] Agricultural[d]	*subtotal*	Casitas MWD[a] Municipal and Industrial[e]	SWP Inter-connection	VenturaWater Pure	
2020	2,639	2,697	1,200	*6,536*	1,606	133	2,686	1,067[c]	*5,492*	1,606	0	0	13,634
2021	3,094	2,298	1,193	6,585	1,624	133	3,904	1,067	6,728	1,624	0	0	14,937
2022	2,962	2,372	755	*6,089*	1,028	133	4,426	1,067[c]	*6,654*	1,028	0	0	13,771
2023	2,500	1,757	911	*5,168*	822	133	4,562	1,067[c]	*6,584*	822	0	0	12,574
2024	2,058	507	911	*3,476*	1,663	133	3,848	1,067[c]	*6,711*	1,663	0	0	11,850
2025[h]	2,162	906	691	*3,759*	1,613	133	4,525	1,067[c]	*7,338*	1,613	0	0	12,710
2020-2025 Average	2,569	1,756	944	5,269	1,393	133	3,992	1,067	6,585	1,393	0	0	13,246
Updated Water Supply Availability Estimates													
2026 – 2030	**2,200 – 3,000**[i]	**106 – 2,568**[j,k]	**350 – 700**[l]	**2,656 – 6,268**	**832 – 2,048**[j]	**133**[c]	**3,560 – 4,743**[j]	**1,067**[c]	**5,592 – 7,991**	**418 – 1,644**[j]	**0 – 832**[j]	**0 – 2,304**[j]	**N/A**

Notes:

- Totals may not match sum of values due to rounding.

[a] M&I supplies from Upper Ventura River Basin and Casitas MWD are assumed to be split 50%-50% for use within Mound Basin (see text in Section 2.6 of prior Annual Reports).
[b] See text Section 5.3.2.3 for estimation method.
[c] Groundwater imported by FICO and Alta MWC, see Section 3.1.1.3 in GSP.
[d] Quantified using a combination of direct measurements and estimated values, with medium accuracy. Water year volumes for extraction wells estimated based on precipitation.
[e] Quantified using a combination of direct measurements and estimated values, with high accuracy. Water year volumes for extraction wells estimated based on precipitation. Imported M&I volumes are metered, and total use is based on the fraction of Mound Basin within Ventura Water service area.
[f] Quantified using estimated values, with medium accuracy. Water Year volumes estimated based on numerical model results for the baseline simulation (MGBSA, 2021)
[g] The extraction due to native vegetation includes the invasive species Arundo.
[h] Water Year 2025 values for imported groundwater and surface water updated to correct an error in the water year 2025 annual report calculations.
[i] Based on recent pumping data and stakeholder input from MBAWG.
[j] Based on 2025 Rate Study (Ventura Water, 2025a). Includes two non-City M&I wells.
[k] Includes two non-City M&I wells.
[l] Based on Future Baseline modeling conducted for the GSP (MBGSA, 2021).
[l] Based on 2025 UWMP water supply data (Ventura Water, 2026).

6.0 Monitoring Networks [Article 5, § 356.4(e)]

§ 356.4 (e) *A description of the monitoring network within the basin, including whether data gaps exist, or any areas within the basin are represented by data that does not satisfy the requirements of Sections 352.4 and 354.34(c). The description shall include the following:*

1) *An assessment of monitoring network function with an analysis of data collected to date, identification of data gaps, and the actions necessary to improve the monitoring network, consistent with the requirements of Section 354.38.*

2) *If the Agency identifies data gaps, the Plan shall describe a program for the acquisition of additional data sources, including an estimate of the timing of that acquisition, and for incorporation of newly obtained information into the Plan.*

3) *The Plan shall prioritize the installation of new data collection facilities and analysis of new data based on the needs of the basin.*

The GSP established groundwater elevation, groundwater quality, and land surface elevation monitoring networks to monitor conditions related to the chronic lowering of groundwater levels, reduction of groundwater in storage, degraded water quality, seawater intrusion, and land subsidence sustainability indicators. The network of wells used to monitor conditions related to these sustainability indicators is summarized in tabular form in Appendix B and includes revisions made to the network over the evaluation period. The GSP does not define a monitoring network for depletion of interconnected surface water.

This section of the Periodic Evaluation summarizes changes to these monitoring networks and provides an evaluation of whether the monitoring networks are sufficient to monitor and manage groundwater conditions in the Basin over the next five years.

6.1 Groundwater Level Monitoring Network

Appendix B summarizes the groundwater level monitoring network for the Mound Basin (MBGSA, 2021). At the time of GSP development, the groundwater level monitoring network was comprised of 19 wells, six screened in the Mugu and 13 screened in the Hueneme (Appendix B; Figure 3.3 and 3.6). Groundwater levels from these wells are manually measured on a monthly to quarterly basis.

6.1.1 Changes to the Groundwater Level Monitoring Network

In 2020, well 02N22W08P01S was decommissioned by the well owner and removed from the Mugu aquifer monitoring network (Figure 3.3). Due to its proximity to well 02N22W08G01S, the removal of this 02N22W08P01S from the monitoring network has not resulted in a new groundwater level data gap in the Basin (MBGSA, 2022).

In spring 2022, MBGSA constructed the clustered monitoring well near the VWRF (Table 6.1). This well was funded by DWR's Technical Support Service (TSS) grant program and includes completions in the Hueneme aquifer, Mugu aquifer, and shallow alluvial deposits (02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S wells, respectively). This well was constructed to address a data gap identified in the GSP and provides additional data on groundwater conditions in the southwestern part of the Basin, underlying the Santa Clara River and its estuary. Changes to the groundwater level monitoring network in the Basin are summarized in Table 6.1.

Table 6.1. Changes to the Groundwater Level Monitoring Network

State Well Number	Aquifer	Well Use	Sampling Frequency	Monitoring Entity	Presence of Pressure Transducer
Removed Wells (2020)					
02N22W08P01S	Mugu	Irrigation	quarterly	VCWPD	No
Added Wells (Spring 2022)					
02N23W23Q01S	Hueneme	Monitoring	quarterly	United	Yes
02N23W23Q02S	Mugu	Monitoring	quarterly	United	Yes

6.1.2 Assessment of Groundwater Level Monitoring Network Function

The groundwater level monitoring network continues to be suitable for groundwater sustainability planning relative to the criteria provided by DWR's GSP and CASGEM guidance (DWR, 2016, 2010).

6.1.2.1 Western Portion of Mound Basin

The western half of the Basin faces the greatest risk of undesirable results due to the vulnerability of land uses and critical infrastructure to land subsidence in the Coastal Area, as well as the proximity of agricultural beneficial users to the shoreline and potential exposure to seawater intrusion (MBGSA, 2021). During development of the GSP, MBGSA identified monitoring data gaps in this part of the Basin. MBGSA has implemented projects to address these data gaps over the past five years, resulting in the construction of a new dedicated monitoring wells 02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S (see Section 4.1).

6.1.2.2 Northern Portion of Mound Basin

Due to the limited number of local water supply wells, the northern portion of the Basin lacks groundwater level monitoring sites screened in the Mugu and Hueneme aquifers. The lack of wells in this area was not considered a constraint on sustainable management of the Basin and will not be addressed through a GSA project for the following reasons (MBGSA, 2021):

- There are no current or anticipated future beneficial uses in this part of the Basin.
- The calibrated numerical groundwater flow modeling maintained by United Water Conservation District can estimate the potentiometric surface in this area, regardless of the groundwater level data gap.

The GSP calls for MBGSA to evaluate opportunities to expand monitoring opportunistically if new or replacement wells are constructed in this area. No wells were drilled in this area since GSP adoption.

6.2 Groundwater Storage Monitoring Network

The groundwater storage monitoring network consists of the groundwater level monitoring network (Section 6.1; MBGSA, 2021). Groundwater levels measured from these wells are used to estimate storage change within each principal aquifer and basin-wide (Section 3.2).

An additional component of monitoring the reduction of groundwater in storage involves tracking groundwater extraction rates against the estimated sustainable yield (Section 3.2; MBGSA, 2021). This extraction monitoring network consists of pumping wells, whose extraction rates are reported semiannually to United by the well owners under Water Code 75611.

6.2.1 Changes to Groundwater Storage Monitoring Network

Changes to the groundwater level monitoring network, which impacts the groundwater storage monitoring network, are described in Section 6.1.1. In addition to these changes, one new agricultural well and two new municipal water supply wells were constructed in the Basin during the evaluation period (Table 5.1).

6.2.2 Assessment of Groundwater Storage Monitoring Network Function

Because groundwater levels are used to estimate aquifer storage, the assessment of the current groundwater storage monitoring network and its potential improvements is identical to that of groundwater level monitoring network (Section 6.1.1).

6.3 Degraded Water Quality Monitoring Network

Appendix B summarizes the degraded water quality monitoring network established in the GSP (MBGSA, 2021). The network is comprised of ten wells, three of which are screened in the Mugu aquifer and seven of which are screened in the Hueneme aquifer. Monitoring frequency across these wells varies from monthly to annually.

6.3.1 Changes to Degraded Water Quality Monitoring Network

Changes to the groundwater level monitoring network are the same as those made to the degraded groundwater quality monitoring network (Table 6.1). Water quality samples are collected from wells 02N23W23Q01S and 02N23W23Q02S semiannually.

6.3.2 Assessment of Degraded Water Quality Monitoring Network Function

The degraded water quality monitoring network has expanded since GSP adoption and remains suitable for groundwater sustainability planning relative to the criteria provided by DWR's GSP and CASGEM guidance (DWR, 2016, 2010).

While the existing monitoring network is sufficient for GSP implementation, spatial gaps in groundwater quality characterization exist in the northern and western parts of the Basin, particularly in the Mugu aquifer (MBGSA, 2021). However, as discussed in Section 6.1.2, the lack of monitoring sites in the norther portion of the Basin does not impact sustainable groundwater management because there are limited beneficial users in this area.

An additional water quality and seawater intrusion monitoring site (clustered well Site B) is currently undergoing permitting and will further address a data gap identified in the GSP upon its completion.

6.4 Seawater Intrusion Monitoring Network

The GSP established a network of two wells for the seawater intrusion monitoring network: 02N23W15J01S (Hueneme aquifer) and 02N23W15J02S (Mugu aquifer). In addition, the GSP pointed to the construction of the Site A well (02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S, installed in 2022) and Site B well as future additions to the seawater intrusion monitoring network. Site C was identified as a potential monitoring well cluster to provide improved early warning for seawater intrusion in the Basin (MBGSA, 2021), however MBGSA is no longer planning for the construction of this well because measurable objectives are being met and projected groundwater demands have significantly reduced.

6.4.1 Changes to Seawater Intrusion Monitoring Network

Throughout the evaluation period, chloride concentration isocontours have been developed using chloride measurements collected from the broader degraded water quality monitoring network, with the inclusion of the 02N23W23Q01S and 02N23W23Q02S monitoring well cluster starting in 2023 (Figures 3.55 through 3.58; Table 6.1).

The use of the degraded water quality monitoring network has expanded the seawater intrusion monitoring network to include a total of three wells in the Mugu aquifer and seven wells in the Hueneme aquifer (Appendix B).

6.4.2 Assessment of Seawater Intrusion Monitoring Network Function

The seawater intrusion monitoring network remains suitable for groundwater sustainability planning relative to the criteria provided by DWR's GSP and CASGEM guidance (DWR, 2016, 2010). The network of wells in the Mugu and Hueneme provide the ability to:

- Develop chloride concentration isocontours to monitor and track the landward migration of chloride concentrations in the Basin.
- Identify early signs of seawater intrusion before beneficial uses are impacted.

6.4.2.1 Evaluation of Seawater Intrusion Monitoring Network Data Gaps

MBGSA identified data gaps in the Coastal Area of the Basin. To date, MBGSA has addressed this data gap through construction of monitoring wells 02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S and planning and permitting for construction of Site B. Data collected from these wells over the next five years will inform whether additional data gaps persist within the Coastal Area of the Basin.

6.5 Land Subsidence Monitoring Network

Land subsidence in the Basin is monitored using multiple data sources, including groundwater elevations in the western portion of the Basin, remotely sensed Interferometric Synthetic Aperture Radar (InSAR) data in the eastern portion of the Basin, and continuous Global Positioning System (CGPS) data at Ventura College (Section 3.5). This integrated approach uses the best available data to characterize changes in land surface elevation while accounting for uncertainties in areas with limited InSAR coverage (MBGSA, 2021).

6.5.1 Changes to Land Subsidence Monitoring Network

As described in Section 6.1.1, well 02N22W08P01S was removed from the groundwater level monitoring network and, therefore, was removed from the land subsidence monitoring network.

While MBGSA are collecting groundwater level measurements at the new wells, 02N23W23Q01S and 02N23W23Q02S, these wells are not yet included in the land subsidence monitoring network because there are limited baseline data to characterize historical low groundwater levels conditions (Section 3.5).

6.5.2 Assessment of Land Subsidence Monitoring Network Function

Because groundwater levels are used as a proxy for land subsidence in the western part of the Basin, the assessment and potential improvements of the monitoring network for land subsidence are identical to those for groundwater level monitoring network. InSAR and GPS data in the eastern half of the Basin remains suitable for characterizing land subsidence in the eastern half of the Basin (MBGSA, 2021).

6.6 Depletion of Interconnected Surface Water Monitoring Network

As discussed in Section 3.6, MBGSA anticipates utilizing the groundwater level monitoring network to monitor depletions of interconnected surface water. This network will be established in a formal GSP amendment, completed at a future date.

7.0 GSA Authorities and Enforcement Actions [Article 5, § 356.4(g), (h)]

§ 356.4
(g) *A description of relevant actions taken by the Agency, including a summary of regulations or ordinances related to the Plan.*
(h) *Information describing any enforcement or legal actions taken by the Agency in furtherance of the sustainability goal for the basin.*

7.1 Actions Taken by MBGSA

This section describes relevant actions taken by MBGSA and includes a summary of regulations or ordinances adopted by MBGSA after GSP adoption related to GSP implementation.[16]

Table 7.1 Resolutions Adopted by MBGSA Board of Directors Since Adoption of the GSP Relevant to GSP Implementation

Date Adopted	Regulatory Action	Description
6/16/2022	Resolution 2022-07 Establishing a groundwater extraction fee for the 10th and 11th billing periods.	Established a groundwater extraction fee of $62/AF.
10/6/2022	Resolution 2022-08 adopting a groundwater well consistency policy.	Adopted a well consistency policy implementing Govern Newsom's EO N-7-22, requiring applications for replacement well permits or well alteration permits to execute an acknowledgment form confirming compliance with the GSP before MBGSA provides written verification to Ventura County.
11/17/2022	Resolution 2022-09 authorizing SGMA Round 2 implementation grant application.	Authorized the Executive Director to prepare and submit an application to DWR for a 2021 SGMA Round 2 Implementation grant and to execute a funding agreement if a grant is awarded. Grant award was not received.

[16] This table does not include resolutions extending virtual teleconferencing authorization, modifying the MBGSA's banking policies, or honoring previous Board Members or directors.

Table 7.1 Resolutions Adopted by MBGSA Board of Directors Since Adoption of the GSP Relevant to GSP Implementation

Date Adopted	Regulatory Action	Description
6/26/2023	Resolution 2023-03 establishing a groundwater extraction fee for the 12th and 13th billing periods.	Established a groundwater extraction fee of $97/AF.
6/24/2024	Resolution 2024-04 establishing a groundwater extraction fee for the 14th and 15th billing periods.	Established a groundwater extraction fee of $129/AF.
6/23/2025	Resolution 2025-02 establishing a groundwater extraction fee for the 16th and 17th billing periods.	Established a groundwater extraction fee of $160/AF.
6/22/26	Resolution 2026-01 establishing a groundwater extraction fee for the 18th and 19th billing periods.	Established a groundwater extraction fee of $170/AF.

7.2 Additional Management Actions

Management actions implemented by MBGSA since GSP adoption include:

- Construction of the monitoring well cluster 02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S (formerly Site A in the GSP).
- Planning and permitting of the Site B monitoring well.
- Implementation of the Interim Shallow Groundwater Data Collection and Analysis action.

These activities are summarized in Section 4 of this periodic evaluation.

In March 2023, MBGSA Board of Directors unanimously approved participation in the Small Groundwater Sustainability Agency Coalition, an advocacy group focused on developing solutions to address the financial challenges associated with GSP implementation for small agencies. MBGSA continues to coordinate with this group to address long-term fiscal considerations, including routine reporting and administrative costs.

7.3 Funding

Funding GSP implementation remains a significant challenge for MBGSA. Extraction fees are high due to the limited volume of groundwater extractions from the Basin. This situation is becoming increasingly challenging due to the downward trend in groundwater extractions described in Section 5.3.2.1. As a result, the potential monitoring well cluster, Site C, identified in the GSP is no longer planned unless grant funding becomes available. However, the groundwater levels measurable objectives have been achieved and a significant decrease in recent and projected groundwater extractions has occurred.

Therefore, it is anticipated that foregoing the Site C monitoring well cluster will not impede the ability of MBGSA to achieve its sustainability goal.

7.4 Enforcement and Legal Actions Taken by MBGSA

MBGSA has not taken or received any legal actions related to GSP implementation over the past five years.

8.0 Outreach, Engagement, and Coordination With Other Agencies [Article 5, 356.4(j)]

§ 356.4 (j) *Where appropriate, a summary of coordination that occurred between multiple Agencies in a single basin, Agencies in hydrologically connected basins, and land use agencies.*

8.1 Outreach and Engagement

MBGSA maintains a stakeholder engagement plan for the Mound Basin (MBGSA, 2023b). The plan:

- Describes MBGSA's organizational structure.
- Discusses how stakeholder and interested party input is integrated into MBGSA's decision-making process.
- Discusses the different avenues that MBGSA takes to engage stakeholders and interested parties throughout GSP implementation.
- Emphasizes collaboration with regulatory agencies and interested parties concerning depletions of interconnected surface waters (in response to DWR's RCA 5)

Since adopting the GSP, MBGSA Board of Directors has continued to prioritize outreach and engagement. This is demonstrated through public outreach for regular and special board meetings, engagement with interested parties during project implementation, and outreach to regulatory agencies and interested parties for development of this periodic evaluation. Specific outreach activities are summarized below.

8.1.1 Periodic Evaluation Outreach

MBGSA initiated development of this periodic evaluation through release of newsletters and public workshops. To encourage participation and collaboration in the development of this evaluation, MBGSA contacted interested parties identified in the Stakeholder Engagement Plan, as wells as Resource Agency or interested party representatives that submitted comments on the GSP. In this kickoff workshop, MBGSA summarized the regulatory requirements to develop the periodic evaluation, the expected contents of the periodic evaluation, and whether the periodic evaluation is likely to lead to a GSP amendment.

[PLACEHOLDER TO DISCUSS FEEDBACK RECEIVED DURING WORKSHOPS AND PUBLIC COMMENT PERIOD]

8.1.2 GSP Implementation Engagement and Coordination

As discussed in Section 4, over the evaluation period, MBGSA undertook activities to implement the *Seawater Intrusion Monitoring Wells* and *Interim Shallow Groundwater Data Collection and Analysis*. To implement these management actions, MBGSA coordinated with:

- The County of Ventura to permit the new dedicated monitoring wells.
- The City of Ventura to develop an access agreement for construction and monitoring of the well cluster 02N23W23Q01S, 02N23W23Q02S, and 02N23W23Q03S.

- A private landowner to develop an access agreement for the planned construction and monitoring of the Site B well.
- United to collect groundwater level and quality measurements from shallow monitoring wells constructed near the Santa Clara River.

In addition to these management action-specific efforts, MBGSA has continued to successfully coordinate with the City of Ventura and United to monitor groundwater levels and quality in the Basin.

8.1.3 Public Meetings

MBGSA Board of Directors holds regular meetings during which the Board discusses ongoing projects, upcoming activities, and groundwater conditions in the Basin. Stakeholders are notified of the Board meetings via email. Additionally, the Board meeting schedule and announcements are posted to MBGSA's website.[17] Technical updates and feedback from stakeholders provided in these meetings are integrated into the Board's decision making process.

Since adoption of the GSP, MBGSA Board of Directors has held 27 regular meetings and 2 special meetings.[18] These meetings were used to discuss:

- GSP annual reports and corresponding groundwater conditions.
- Groundwater extraction fees and policy.
- Activities related to the construction of the monitoring well cluster 02N23W23Q01S/02S/03S (formerly Site A in the GSP).
- Activities supporting the planning and permitting of the Site B monitoring well.
- Updates to the Stakeholder Engagement Plan.
- Appointment of new Board members.

8.2 Coordination with Other Agencies

MBGSA was formed in 2017, pursuant to a joint exercise of powers agreement (JPA) between three local public agencies overlying the Basin: the City of San Buenaventura, the County of Ventura, and the United Water Conservation District (United) (Figure 2.1-01). The City of San Buenaventura is a local municipality that exercises water supply, water management, and land use authority within the city's boundaries. The County of Ventura exercises water management and land use authority on a portion of the land overlying the Mound Basin. See Figure 2.1-03 for land use information. United was formed in 1950 under the State of California's Water Conservation District Law of 1931 and is organized as a governmental special district. United does not produce water from the Basin, but is authorized to engage in groundwater replenishment of the Basin. The MBGSA Board of Directors consists of three Member Directors, consisting of representatives from the County of Ventura, City of San Buenaventura, and United, and two Stakeholder Directors, representing agricultural and environmental interests in the Basin.

[17] https://moundbasingsa.org/
[18] https://moundbasingsa.org/agendas/

Coordination between these agencies and interests, and their representatives, occurs organically through the GSA operations and decision-making process.

9.0 Other Information [§356.4(k)]

§ 356.4 (k) *Other information the Agency deems appropriate, along with any information required by the Department to conduct a periodic review as required by Water Code Section 10733.*

9.1 Consideration of Adjacent Basins

The Mound Basin is hydrogeologically connected to the Santa Paula and Oxnard subbasins (MBGSA, 2021). In developing the sustainable management criteria, MBGSA evaluated the potential impacts of groundwater level, quality, and subsidence thresholds on adjacent basins to ensure that Basin conditions do not adversely affect their path to sustainability. DWR determined that this approach adequately considered potential impacts to neighboring basins (DWR, 2023).

Data collected over the past five years indicate that these thresholds remain appropriate for the Mound Basin and are not expected to adversely affect sustainable management in adjacent basins.

However, as previously described, the Oxnard Subbasin has an uncertain path to sustainability and an ongoing water rights adjudication that may impact groundwater conditions in the Mound Basin. Because the two basins are hydrogeologically connected, future decisions – particularly those related to proposed projects that impact groundwater levels – could affect inter-basin flows and progress towards sustainability in the Mound Basin. MBGSA will continue to monitor Oxnard Subbasin GSP implementation and the adjudication.

9.2 Challenges Not Previously Discussed

The primary challenge facing MBGSA's implementation GSP implementation is funding related (Section 7.3).

9.3 Relevant Regional Legal Actions

There are no legal actions in the Mound Basin that affect GSP implementation. As described in Section 9.1, legal actions in the adjacent Oxnard Subbasin may affect groundwater conditions in the Mound Basin. MBGSA will continue to monitor the Oxnard Subbasin GSP implementation and adjudication.

10.0 Summary of Proposed or Completed Revisions to Plan Elements [§356.4(c),(i)]

§ 356.4
(c) *Elements of the Plan, including the basin setting, management areas, or the identification of undesirable results and the setting of minimum thresholds and measurable objectives, shall be reconsidered and revisions proposed, if necessary.*
(i) *A description of completed or proposed Plan Amendments.*

The information presented in this first periodic evaluation demonstrates that Basin management continues to support groundwater sustainability. Over the past five years, MBGSA and its partner agencies have achieved the following:

- Continued, successful coordination with partner agencies to monitor groundwater level and quality conditions in the Basin.
- Construction of a dedicated monitoring well cluster at the Ventura Water Reclamation Facility.
- Permitting and planning for a second monitoring well cluster to provide early warning of seawater intrusion.
- Significant reduction in current and projected groundwater demand within the Mound Basin.

Importantly, groundwater conditions have met or exceeded the measurable objectives for all five applicable sustainability indicators identified in the GSP.

As described in Section 3.6, MBGSA anticipates amending the GSP in the next five years to implement the approaches described in this document to address DWR RCAs 3, 4, and 5, including the inclusion of depletion of interconnected surface water as an applicable sustainability indicator and revisions to the undesirable results criteria for chronic lowering of groundwater levels and degraded water quality.

MBGSA has not elected to amend the GSP at this time because baseline data are needed at the new and future monitoring well cluster sites (wells 02N23W23Q01S, 02N23W23Q02S, and Site B, respectively). Data collected over the next two to four years are expected to provide these baseline data. MBGSA also hopes to receive clarity during the next evaluation period concerning the approach to achieve sustainability in the adjacent Oxnard Subbasin and the corresponding impact on the water balance for the Mound Basin.

The decision to defer a plan update at this time is supported by the fact that:

- The measurable objectives and sustainability goal for the Mound Basin are already being met.
- Groundwater extractions volumes since GSP adoption have been approximately 48% lower than historical conditions.
- Updated projections future groundwater demands are 35% to 72% lower than the estimated sustainable yield.

MBGSA expects that the Mound Basin will continue to meet the sustainability goal for the foreseeable future. MBGSA will review monitoring and extraction data on an ongoing basis to determine whether a plan amendment is needed sooner than the next scheduled periodic evaluation, or if the plans to reduce pumping in the Mound Basin by more than 70% are realized and MBGSA should consider pursuing opportunities for basin reprioritization.

11.0 References and Technical Studies [§354.4(b)]

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FIGURES

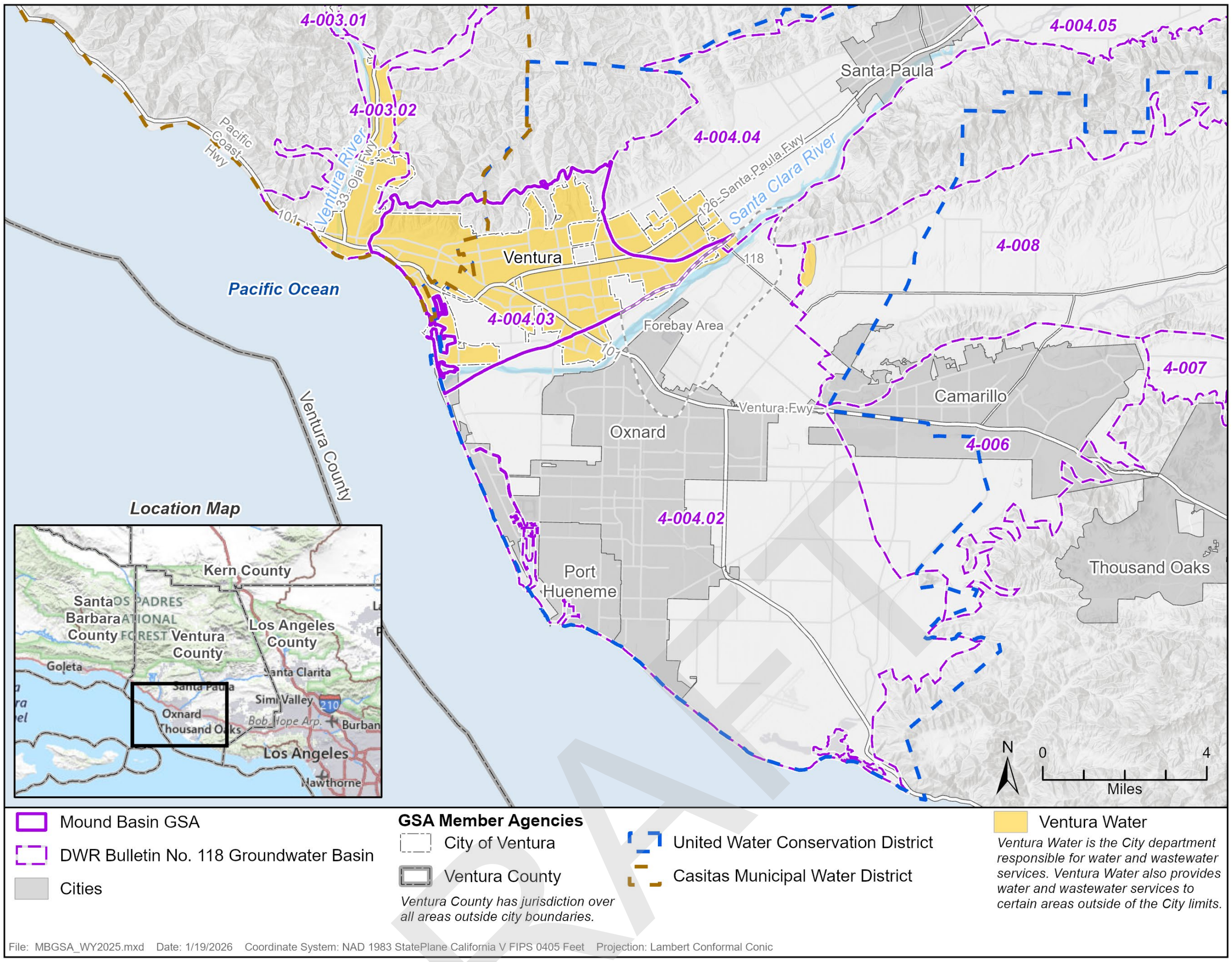

Figure 1.1 **Mound Basin Groundwater Sustainability Agency Boundary Map**

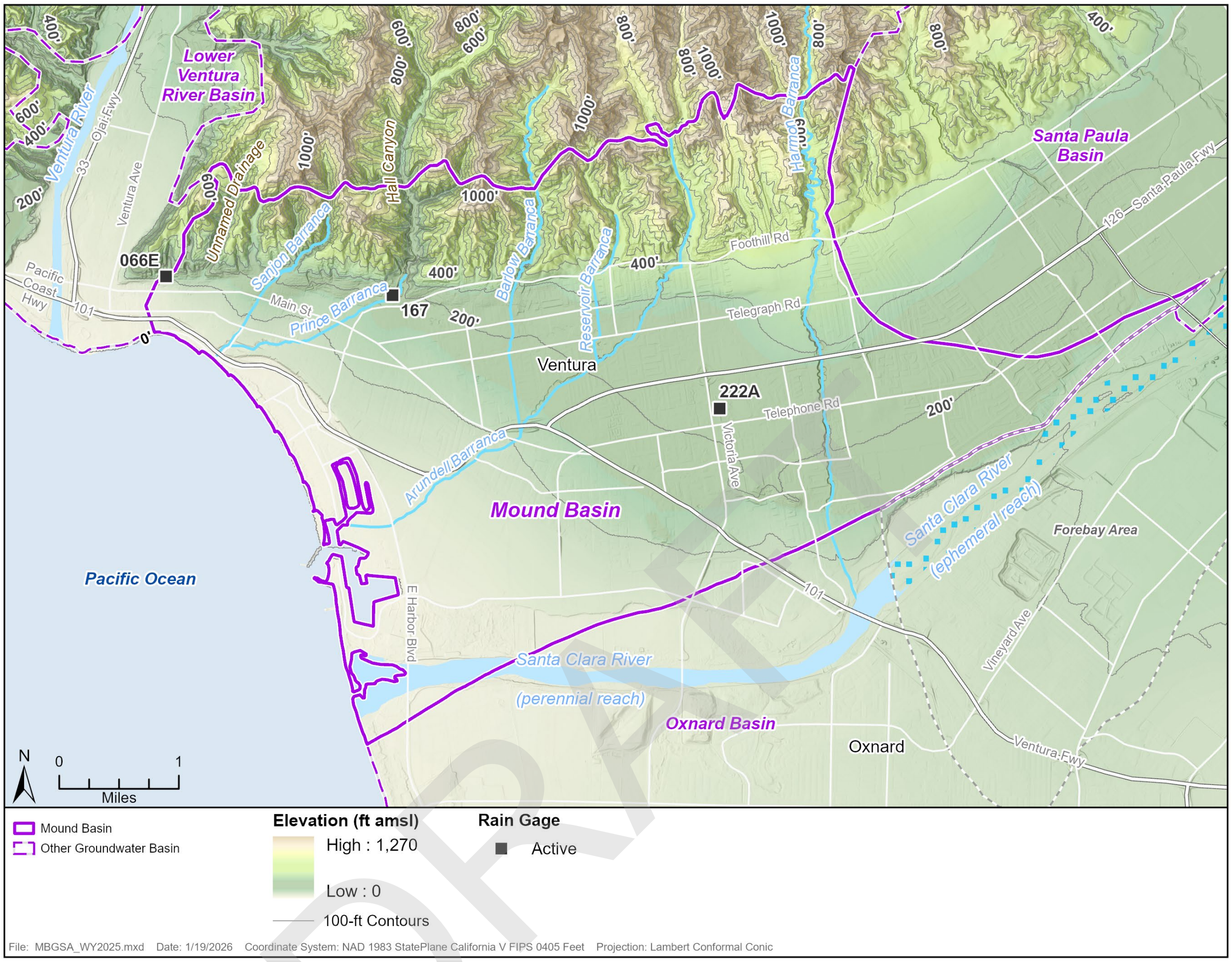

Figure 3.1 **Topographic Map with Precipitation Gage Stations in Mound Basin**

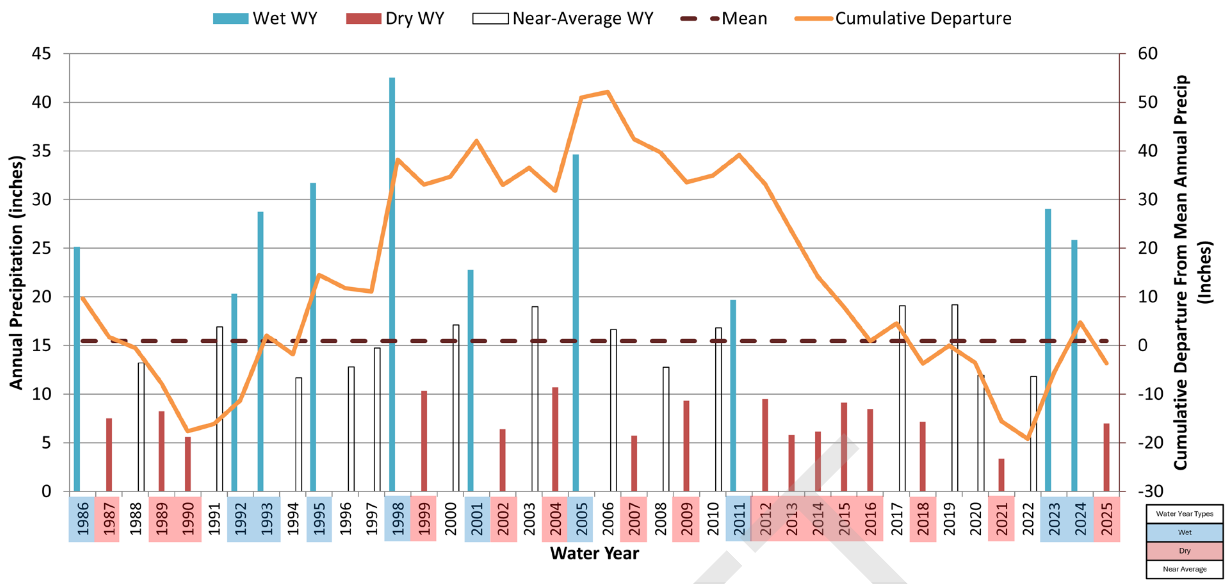

Figure 3.2 Annual Precipitation and Cumulative Departure from the Mean, with Water Year Types

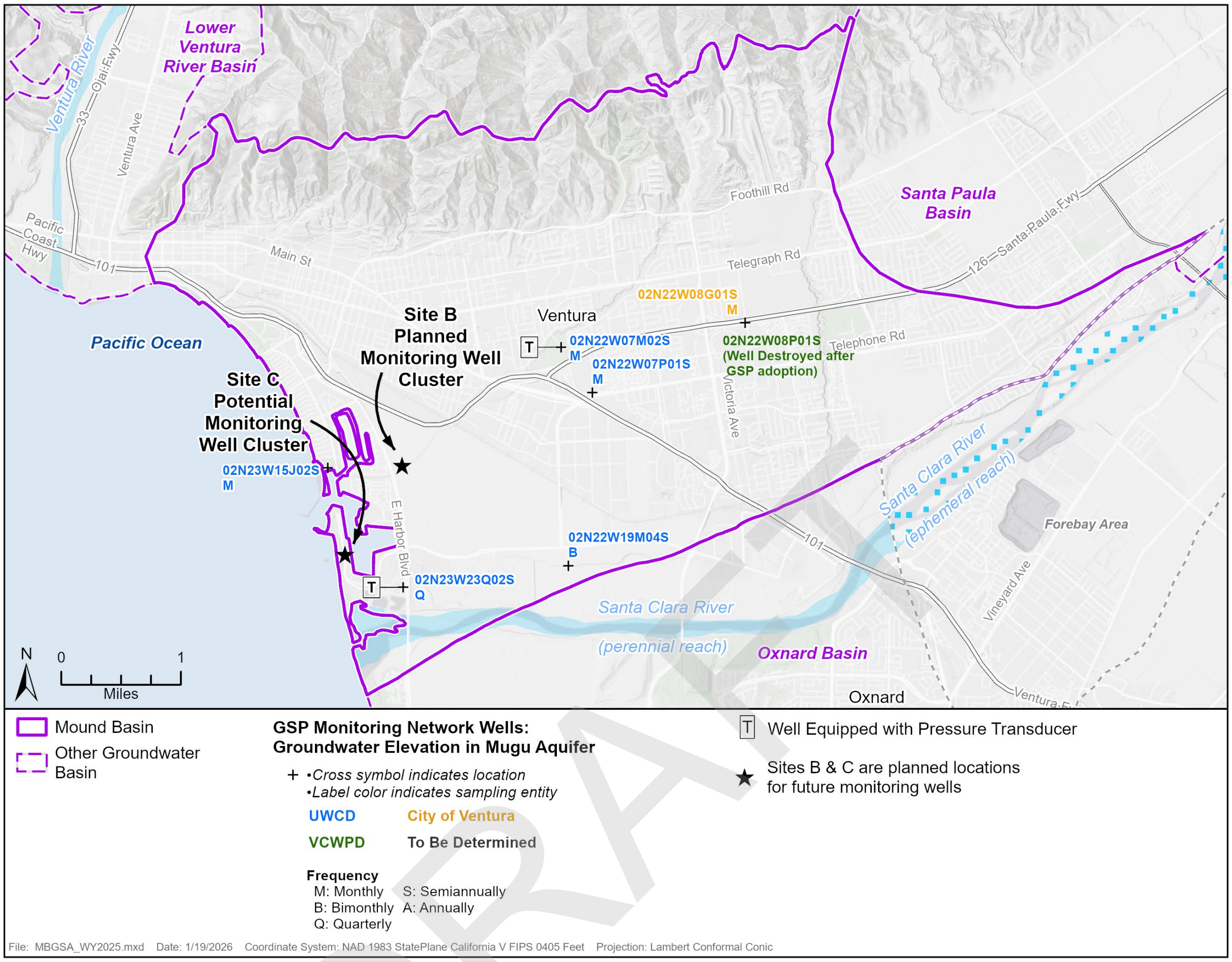

Figure 3.3 Groundwater Elevation Monitoring Network in the Mugu Aquifer of Mound Basin

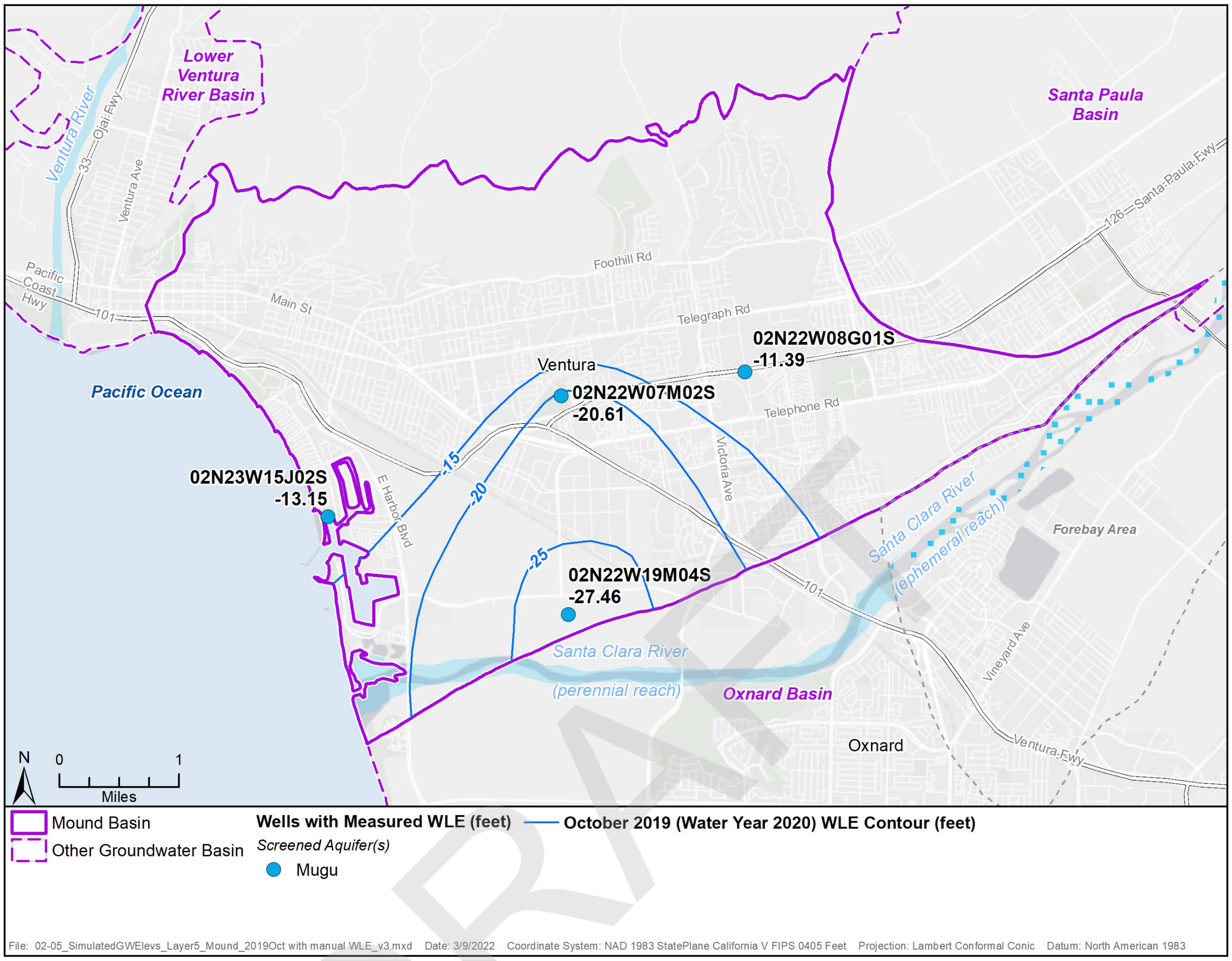

Figure 3.4 **Groundwater Elevations in Mugu Aquifer, October 2019 (Fall-Low Water Year 2020)**

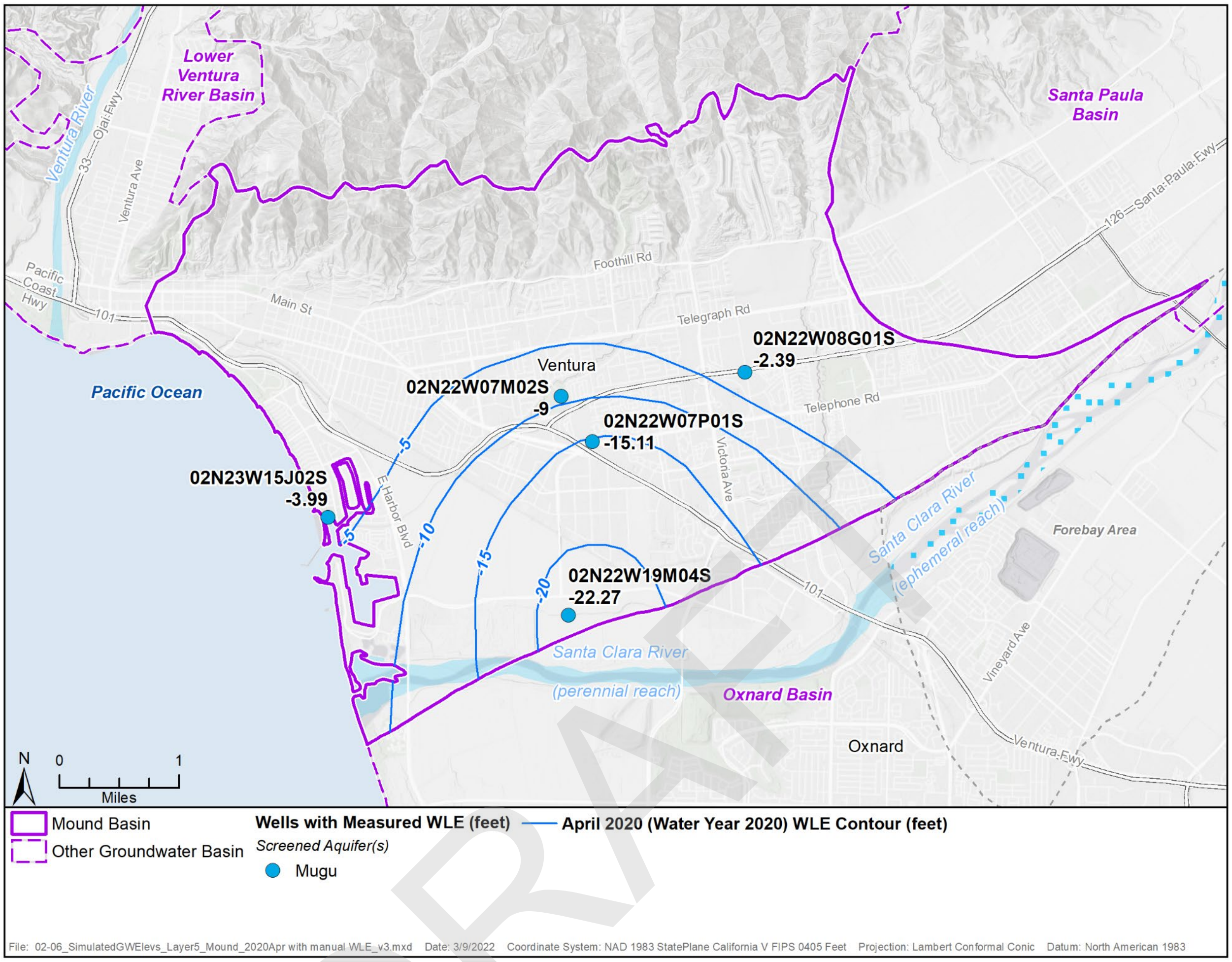

Figure 3.5 **Groundwater Elevations in Mugu Aquifer, April 2020 (Spring-High Water Year 2020)**

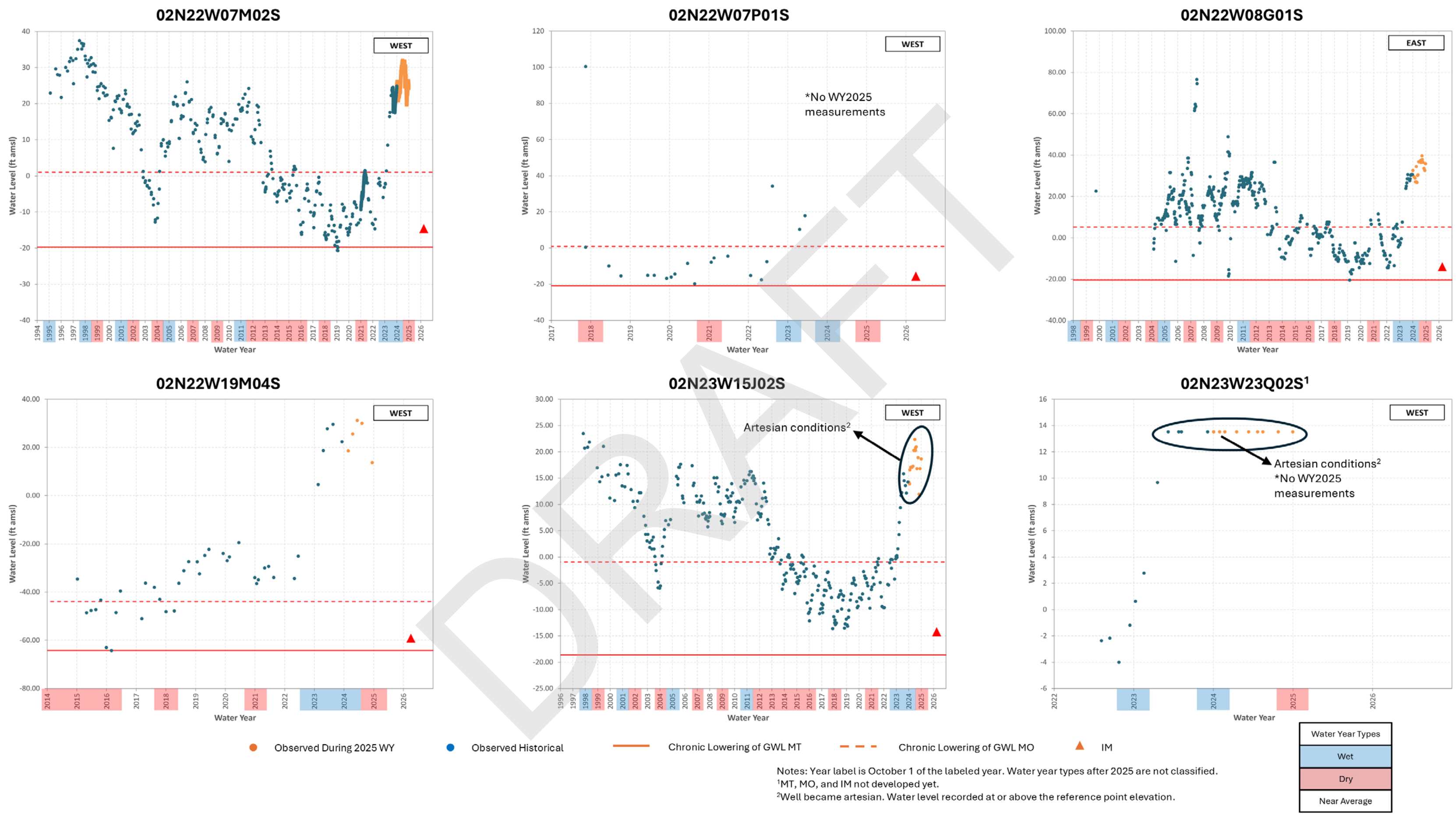

Figure 3.6 Hydrographs for the Monitoring Network in the Mugu Aquifer of Mound Basin

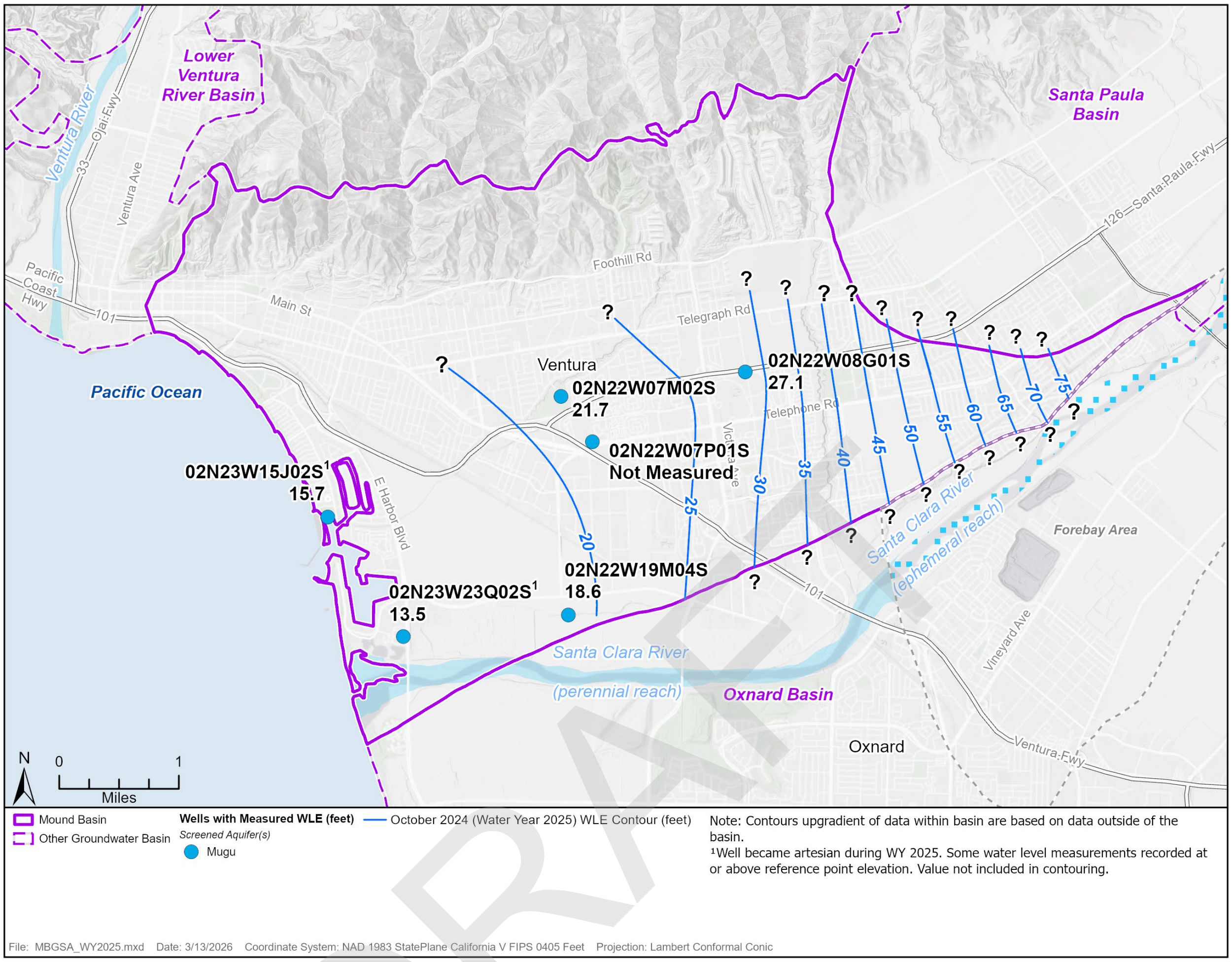

Figure 3.7 Groundwater Elevations in Mugu Aquifer, October 2024 (Fall-Low Water Year 2025)

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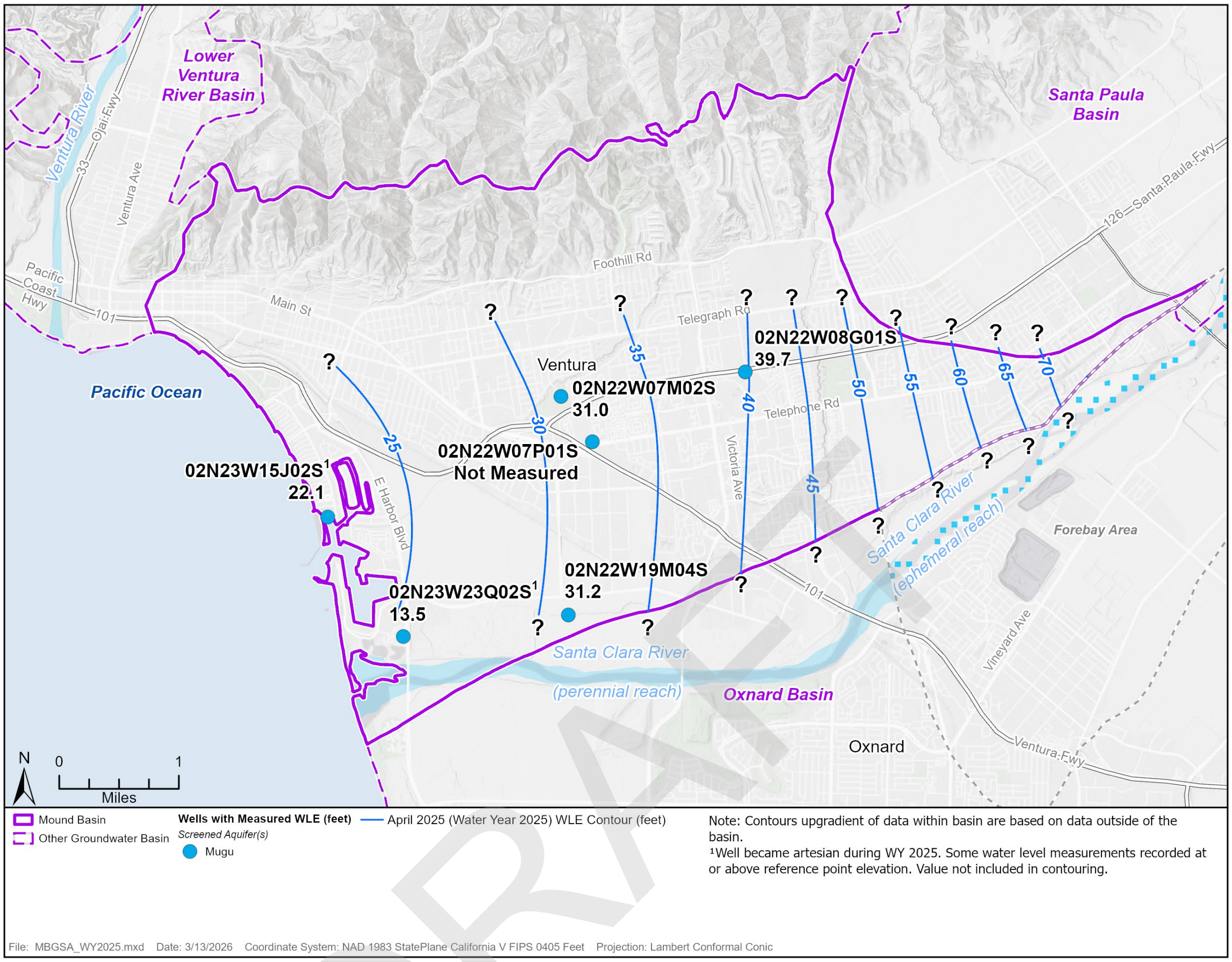

Figure 3.8 Groundwater Elevations in Mugu Aquifer, April 2025 (Spring-High Water Year 2025)

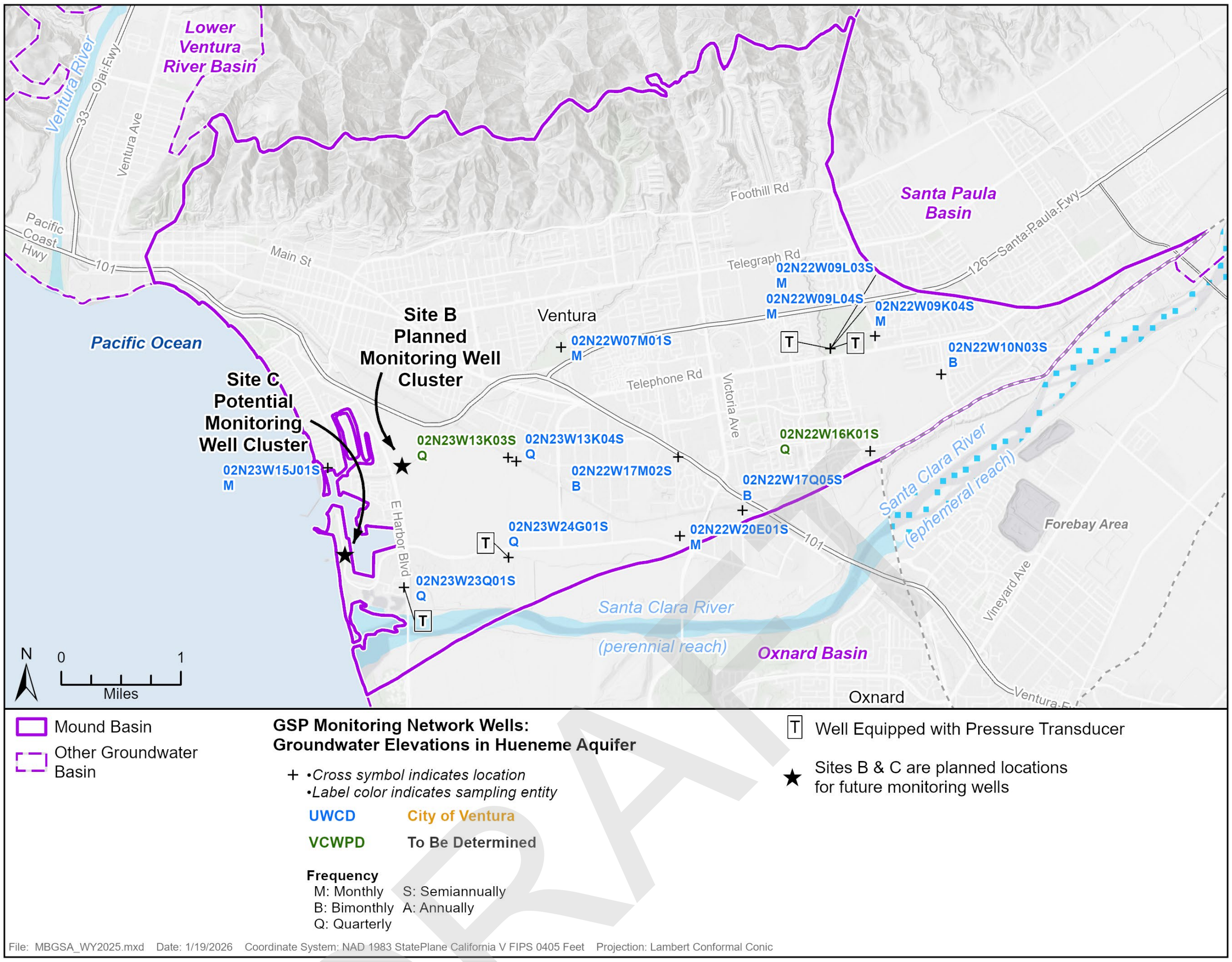

Figure 3.9 **Groundwater Elevation Monitoring Network in the Hueneme Aquifer of Mound Basin**

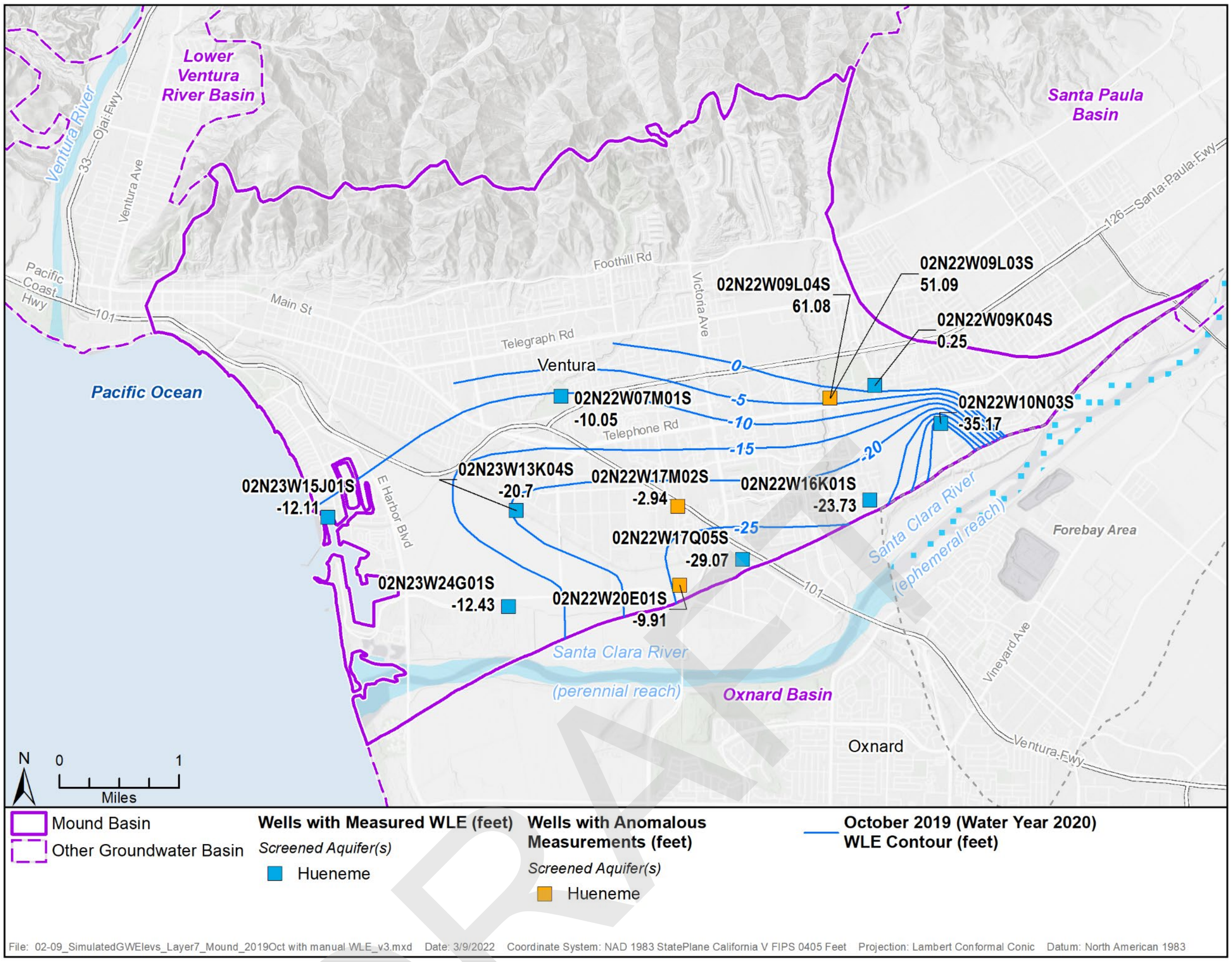

Figure 3.10 Groundwater Elevations in Hueneme Aquifer, October 2019 (Fall-Low Water Year 2020)

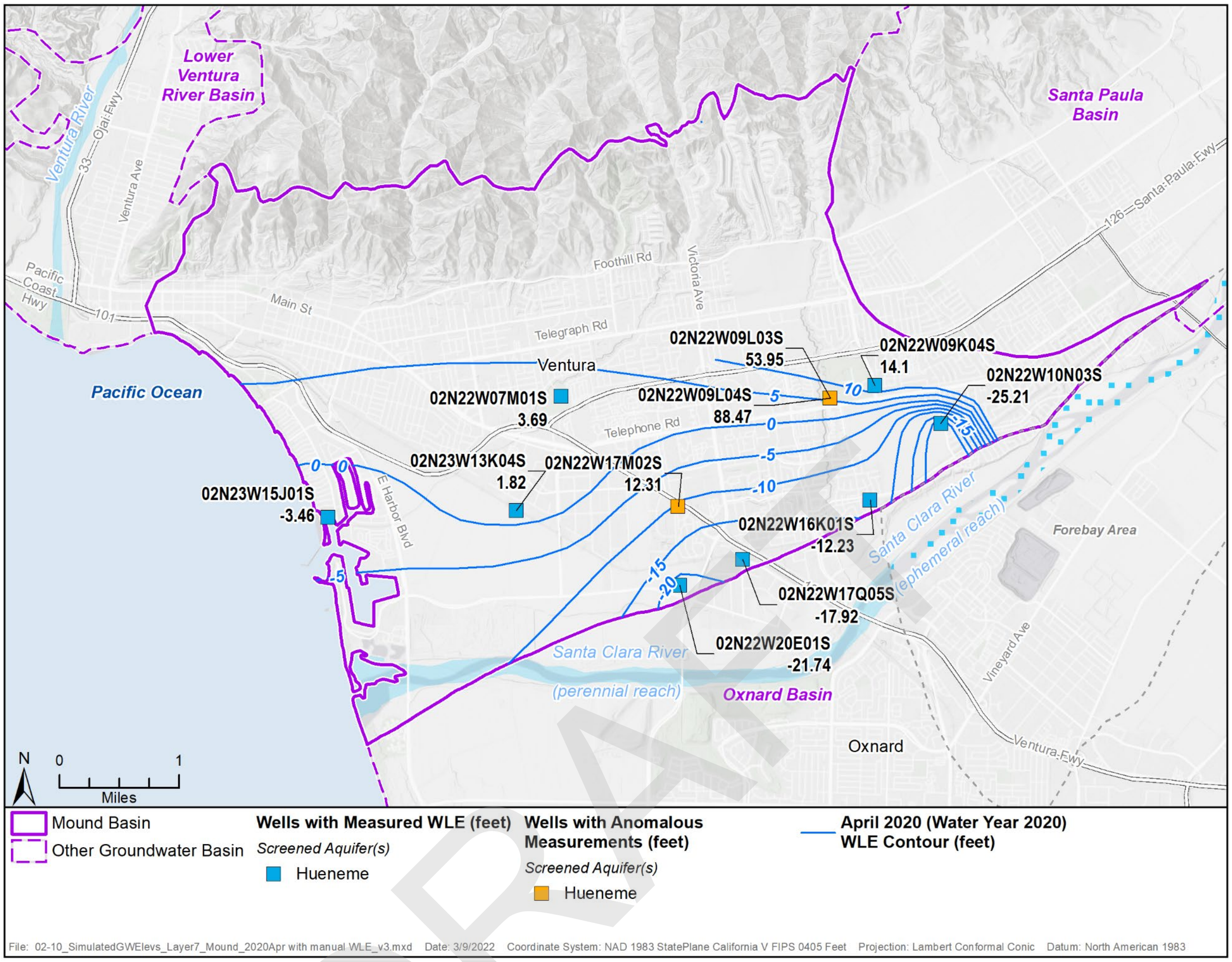

Figure 3.11 Groundwater Elevations in Hueneme Aquifer, April 2020 (Spring-High Water Year 2020)

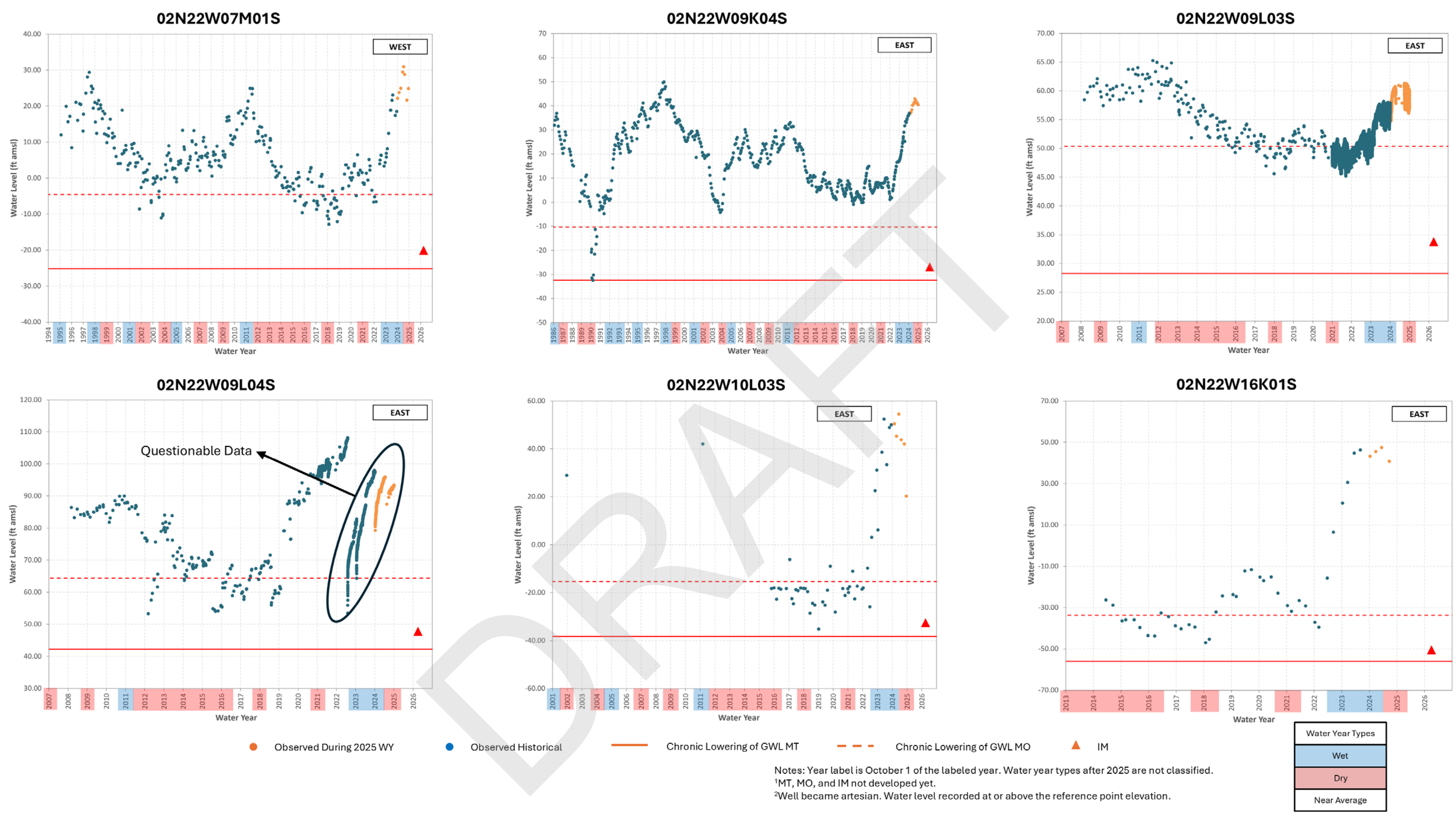

Figure 3.12 Hydrographs for the Monitoring Network in the Hueneme Aquifer of Mound Basin

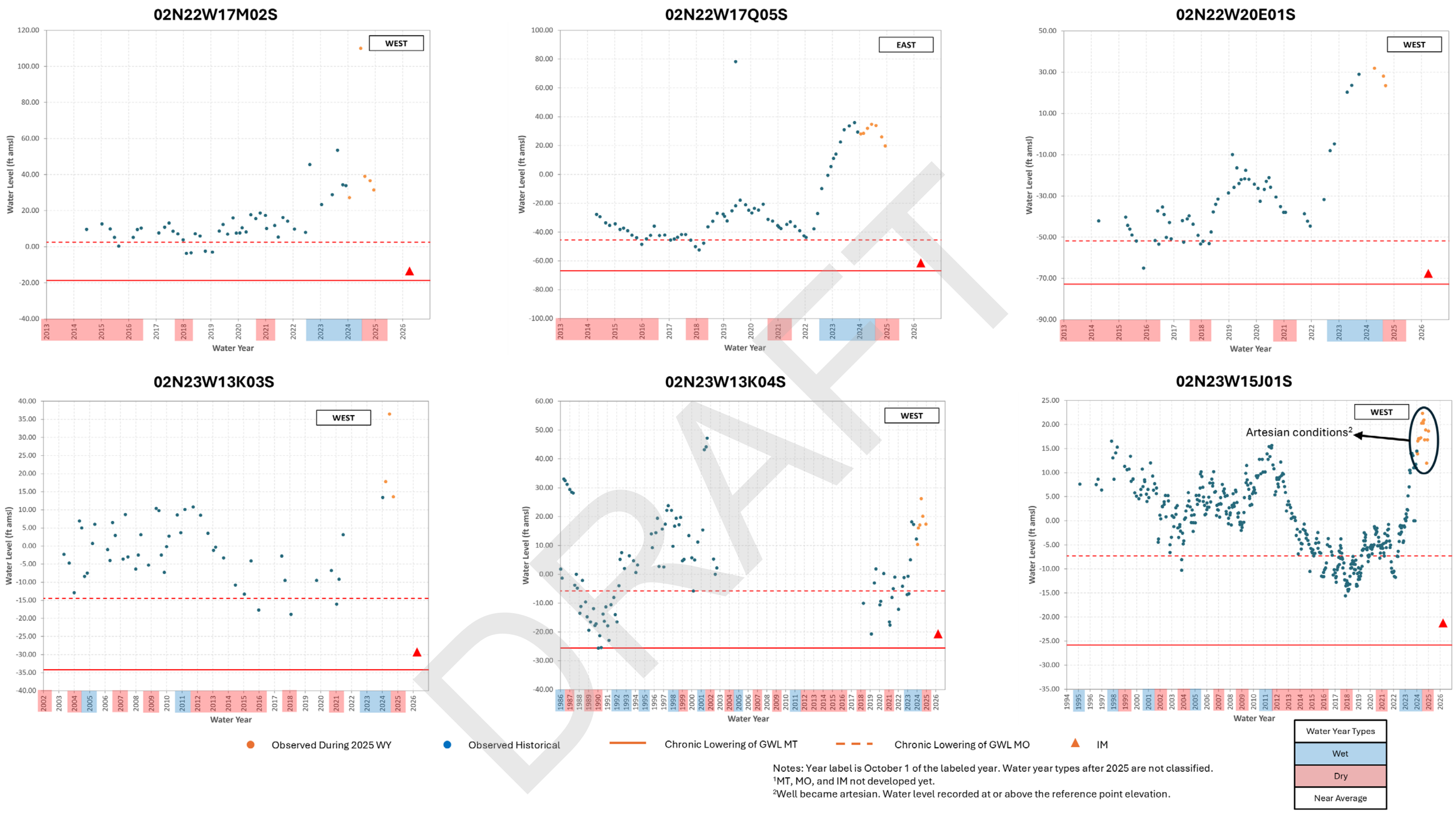

Figure 3.13 Hydrographs for the Monitoring Network in the Hueneme Aquifer of Mound Basin

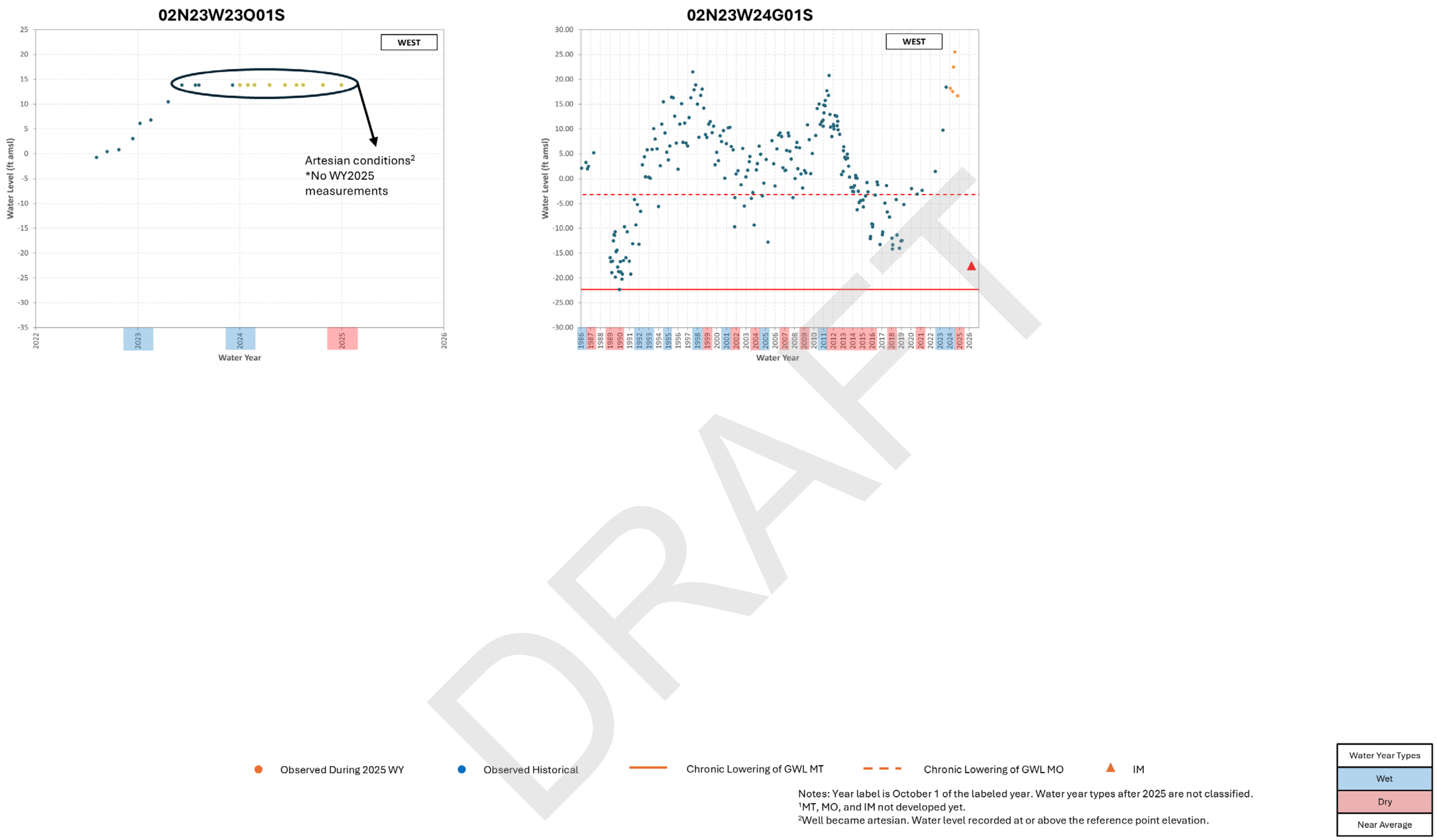

Figure 3.14 Hydrographs for the Monitoring Network in the Hueneme Aquifer of Mound Basin

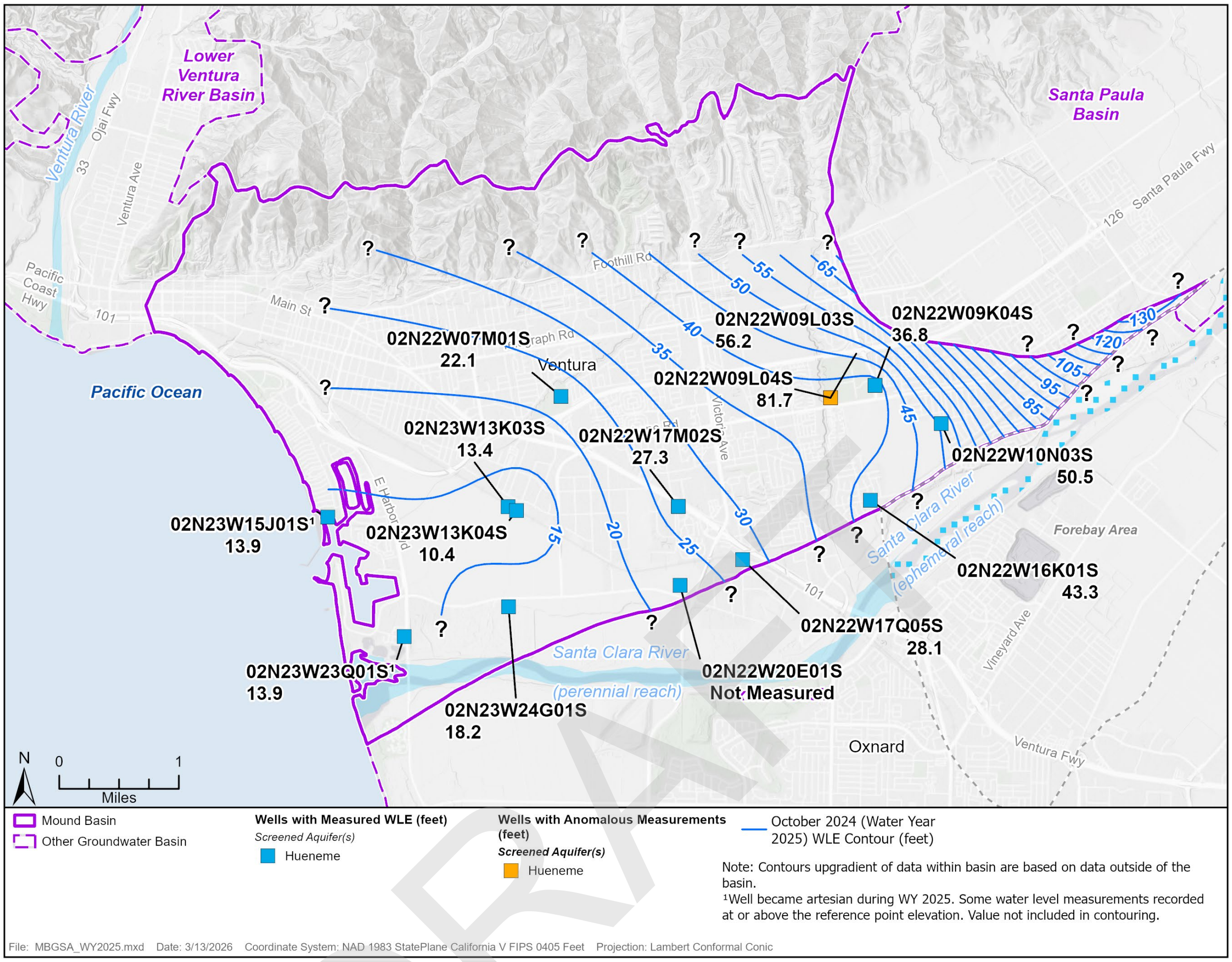

Figure 3.15 Groundwater Elevations in Hueneme Aquifer, October 2024 (Fall-Low Water Year 2025)

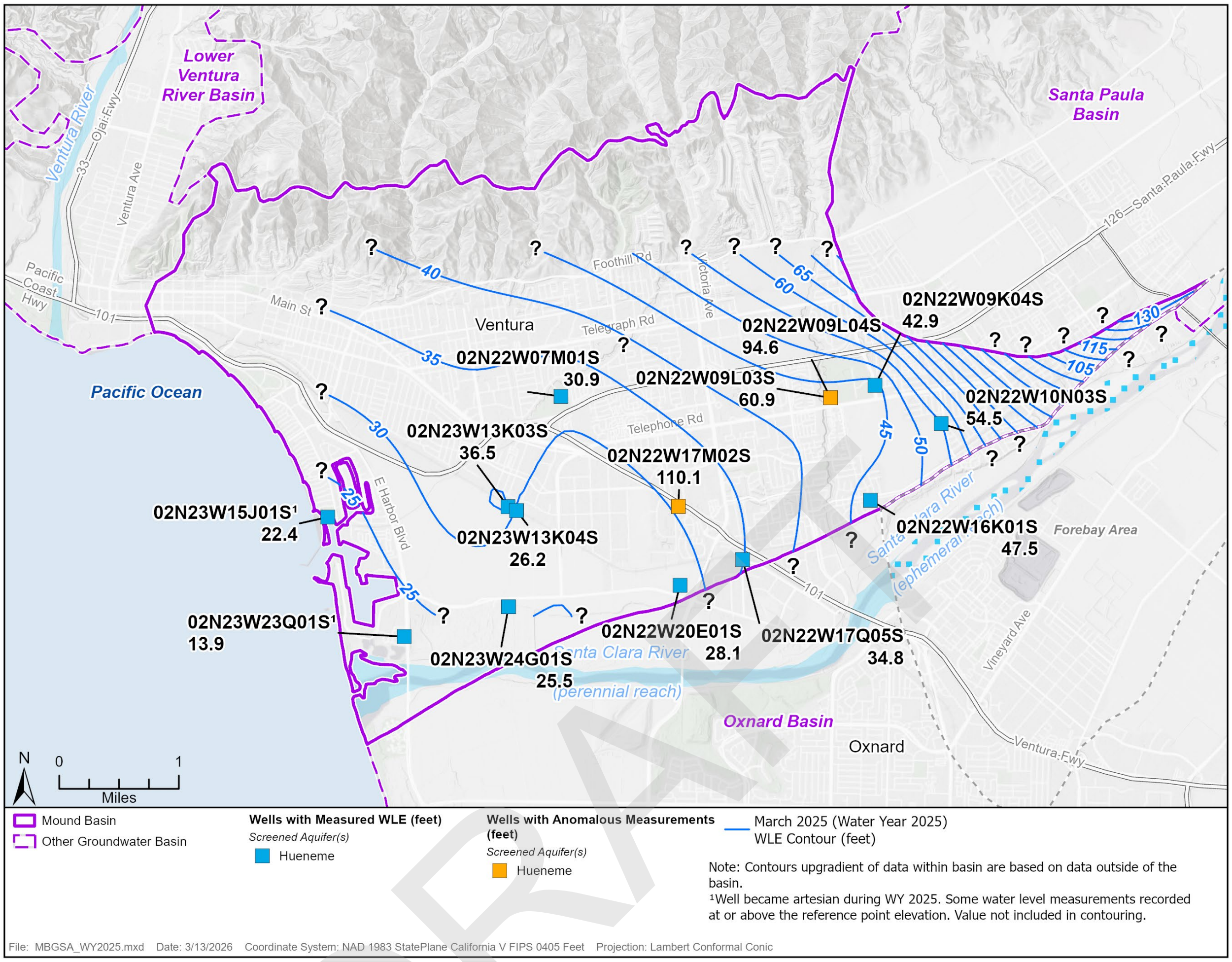

Figure 3.16 Groundwater Elevations in Hueneme Aquifer, April 2025 (Spring-High Water Year 2025)

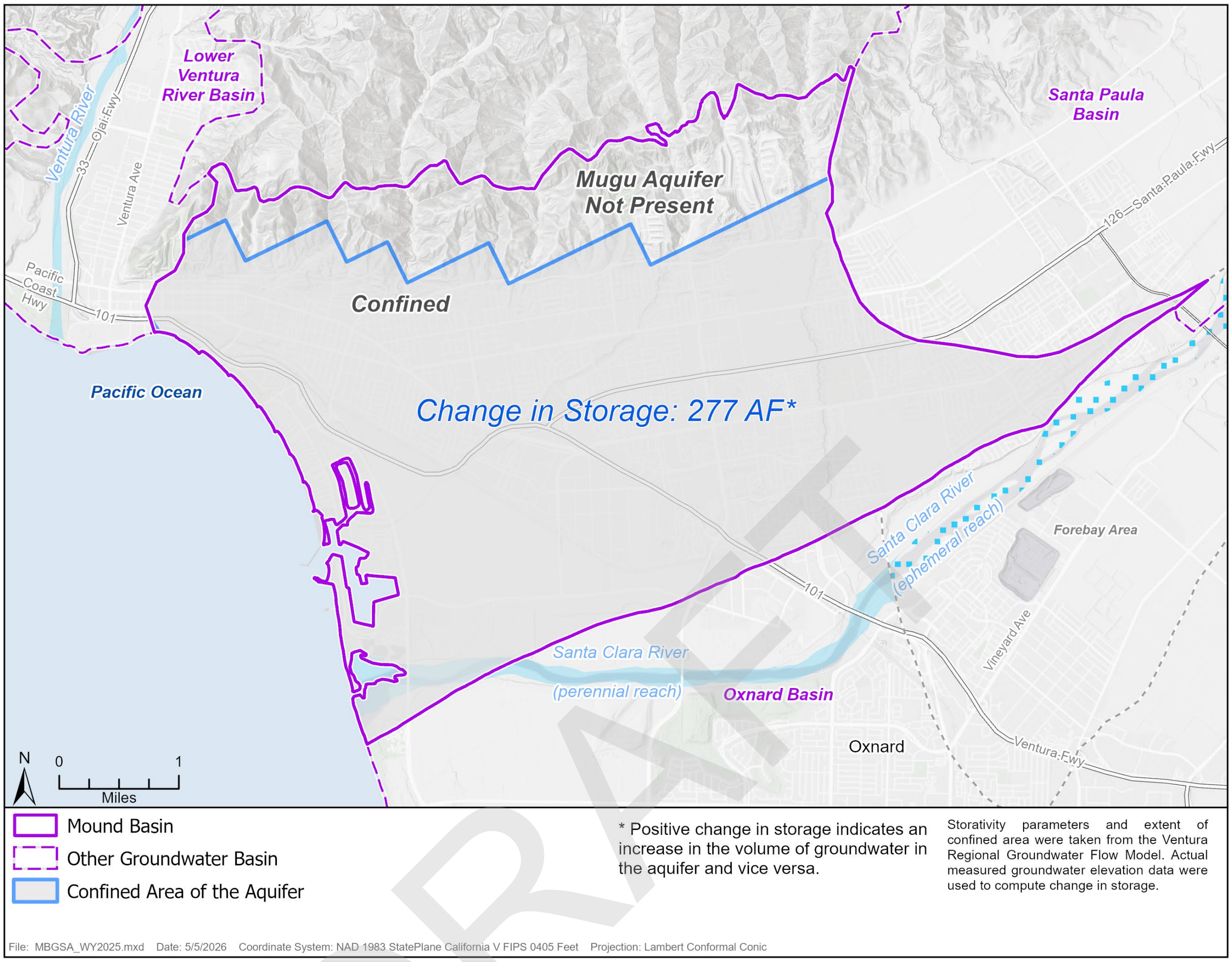

Figure 3.17 Cumulative Change in Groundwater in Storage for Mugu Aquifer, Water Years 2020 - 2025

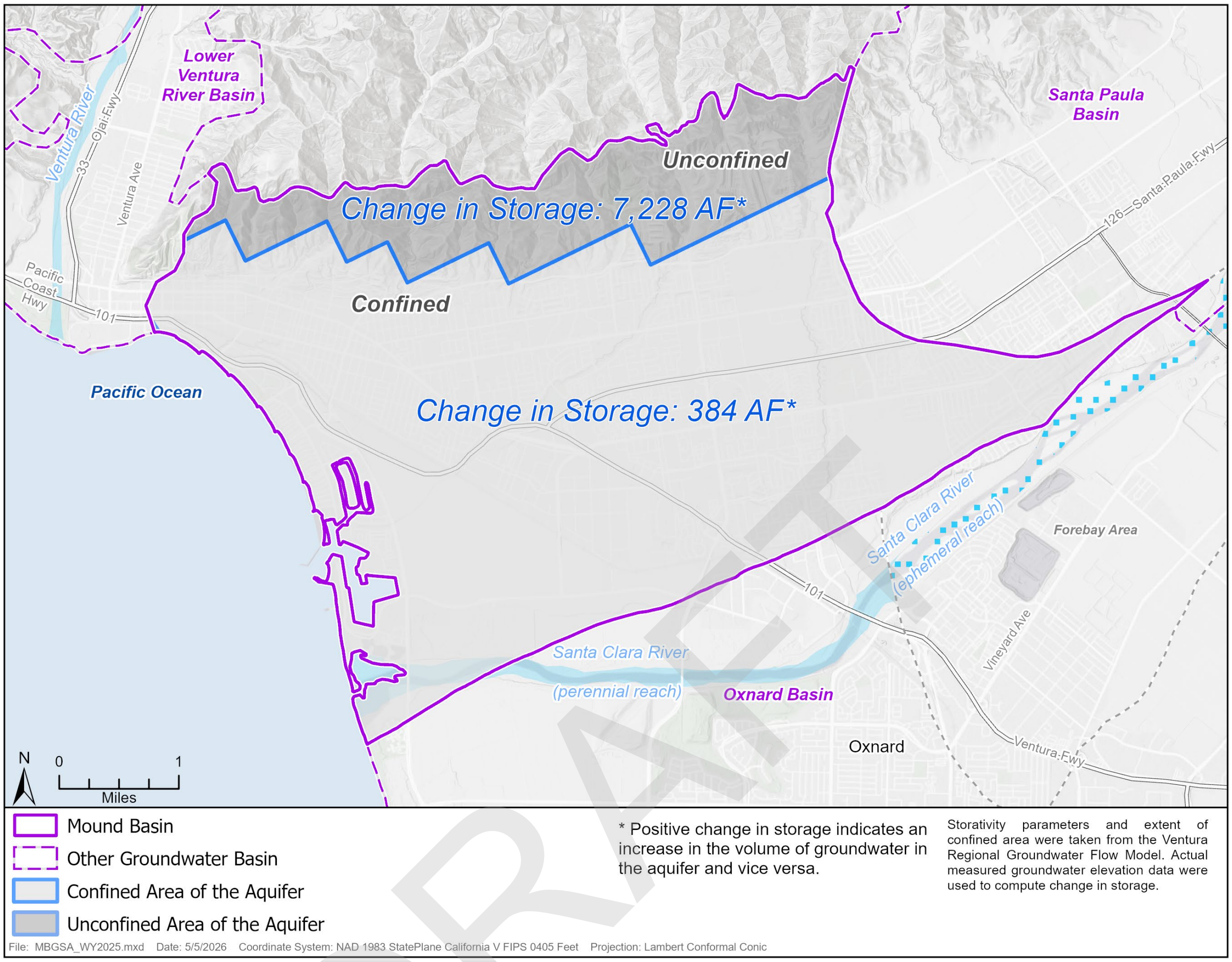

Figure 3.18 Cumulative Change in Groundwater in Storage for Hueneme Aquifer, Water Year 2020 - 2025

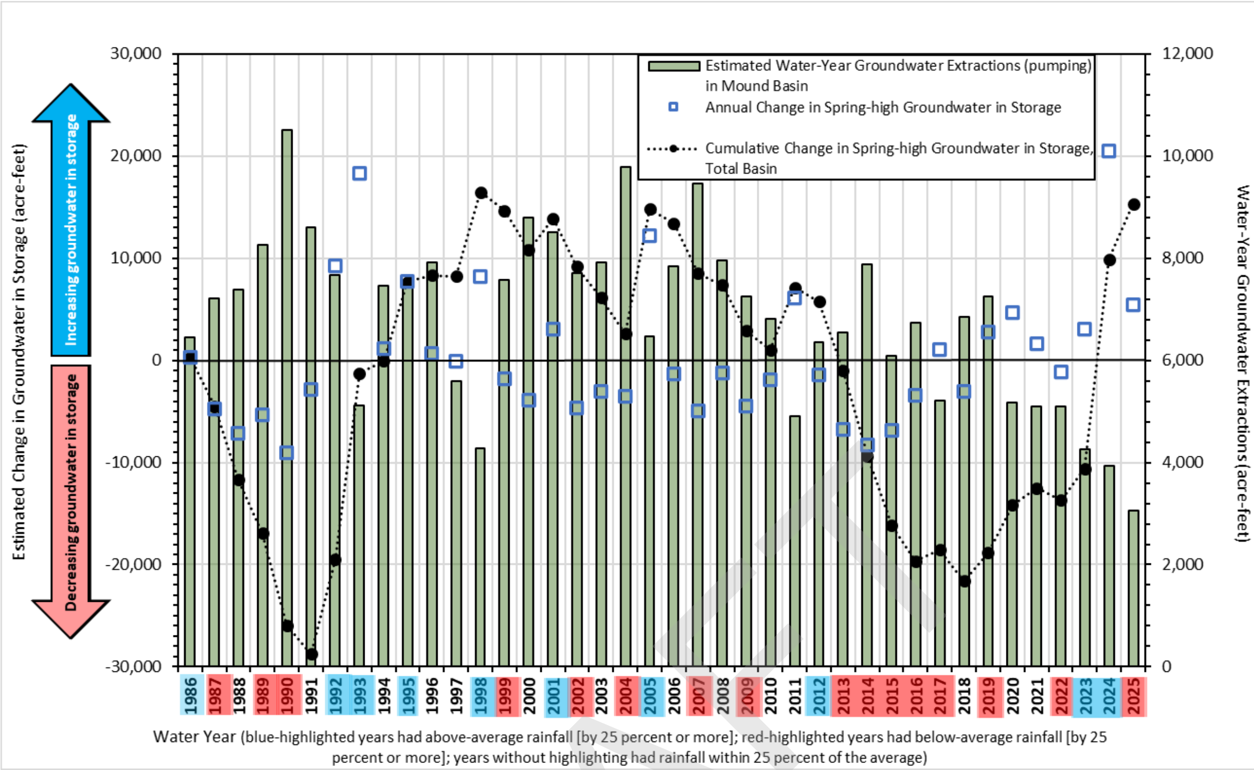

Figure 3.19 **Annual Change in Storage and Groundwater Extractions in the Mound Basin, 1986 through 2025**

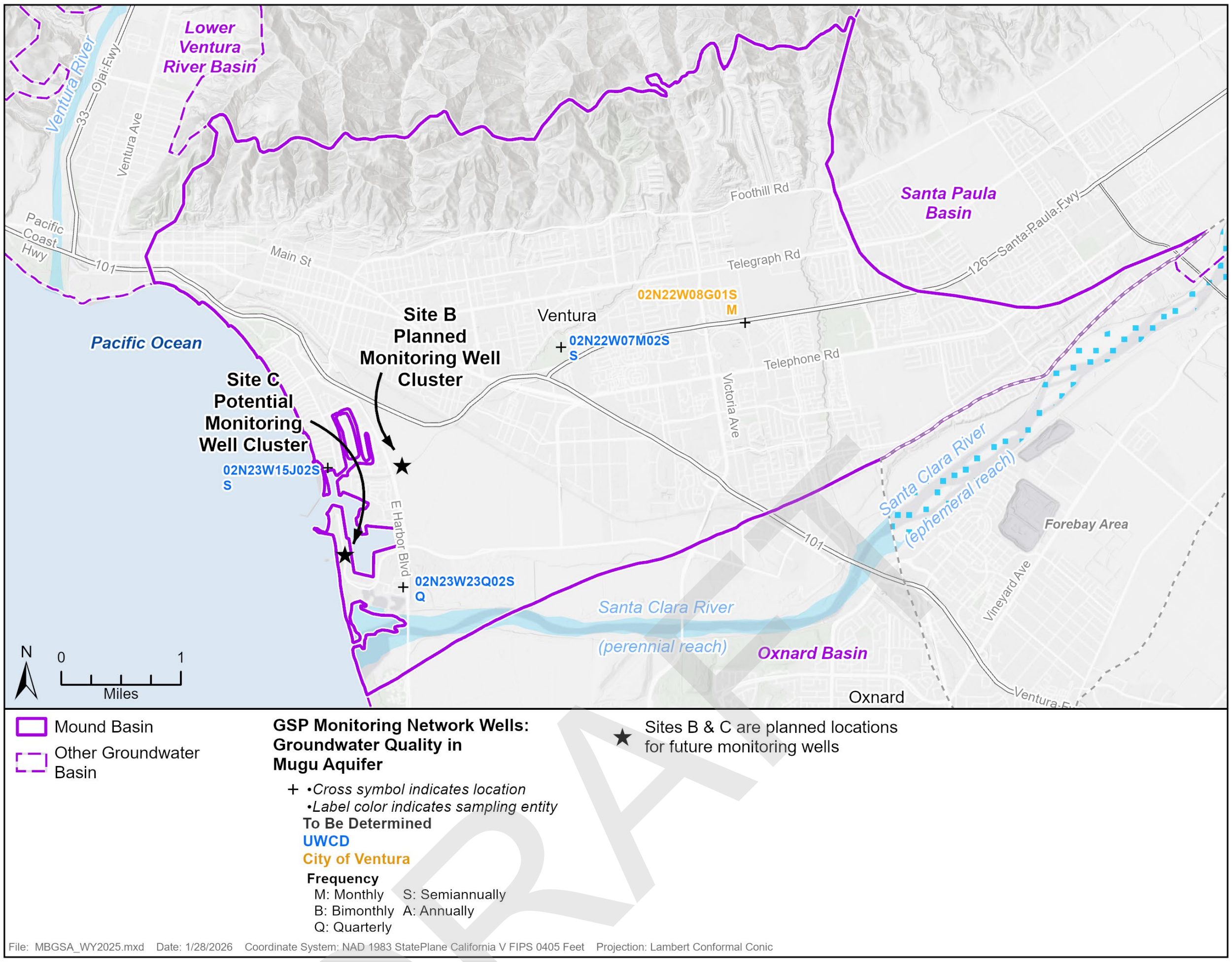

Figure 3.20 Map Showing the Groundwater Quality and Seawater Intrusion Monitoring Networks in the Mugu Aquifer of Mound Basin

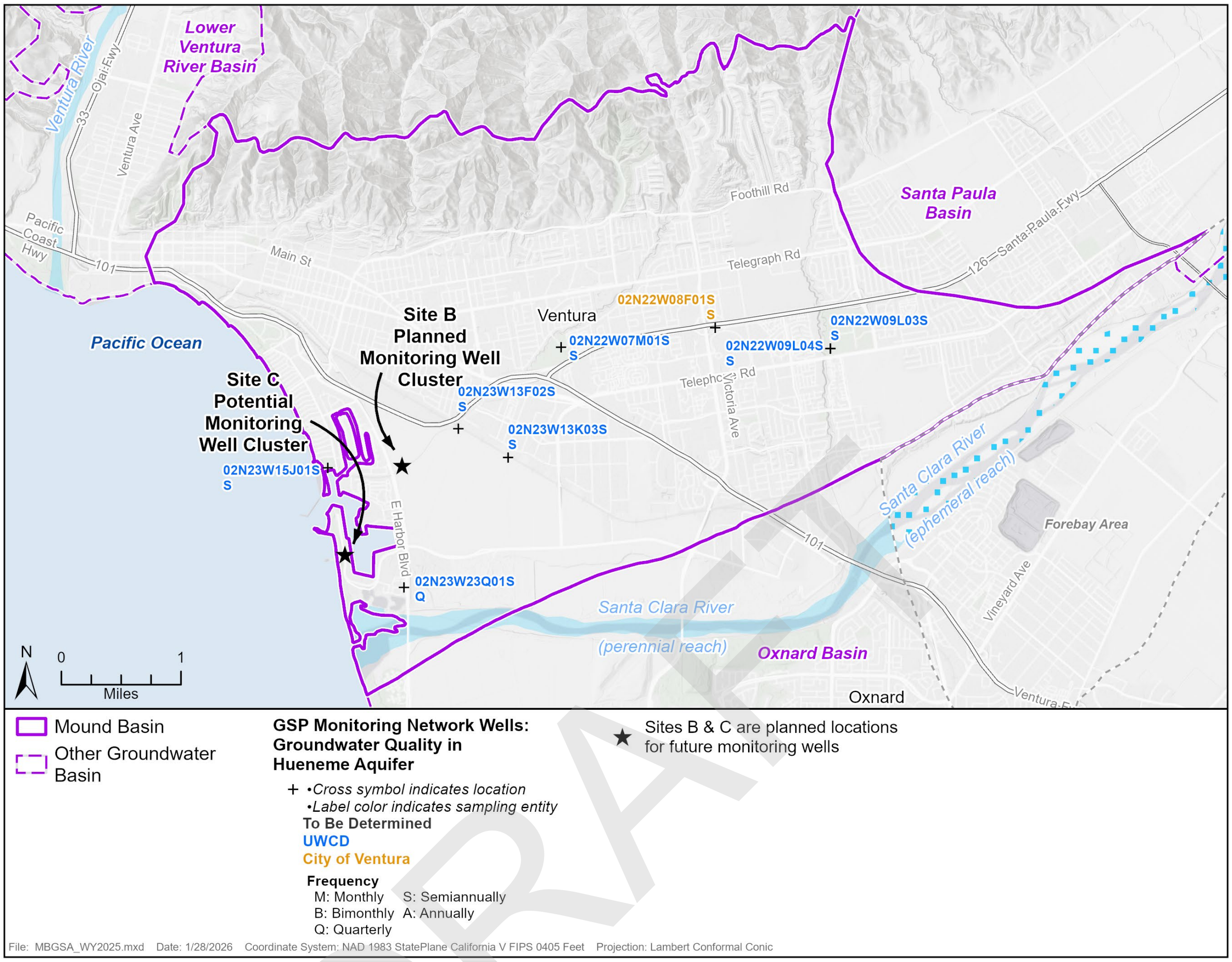

Figure 3.21 **Map Showing the Groundwater Quality and Seawater Intrusion Monitoring Networks in the Hueneme Aquifer of Mound Basin**

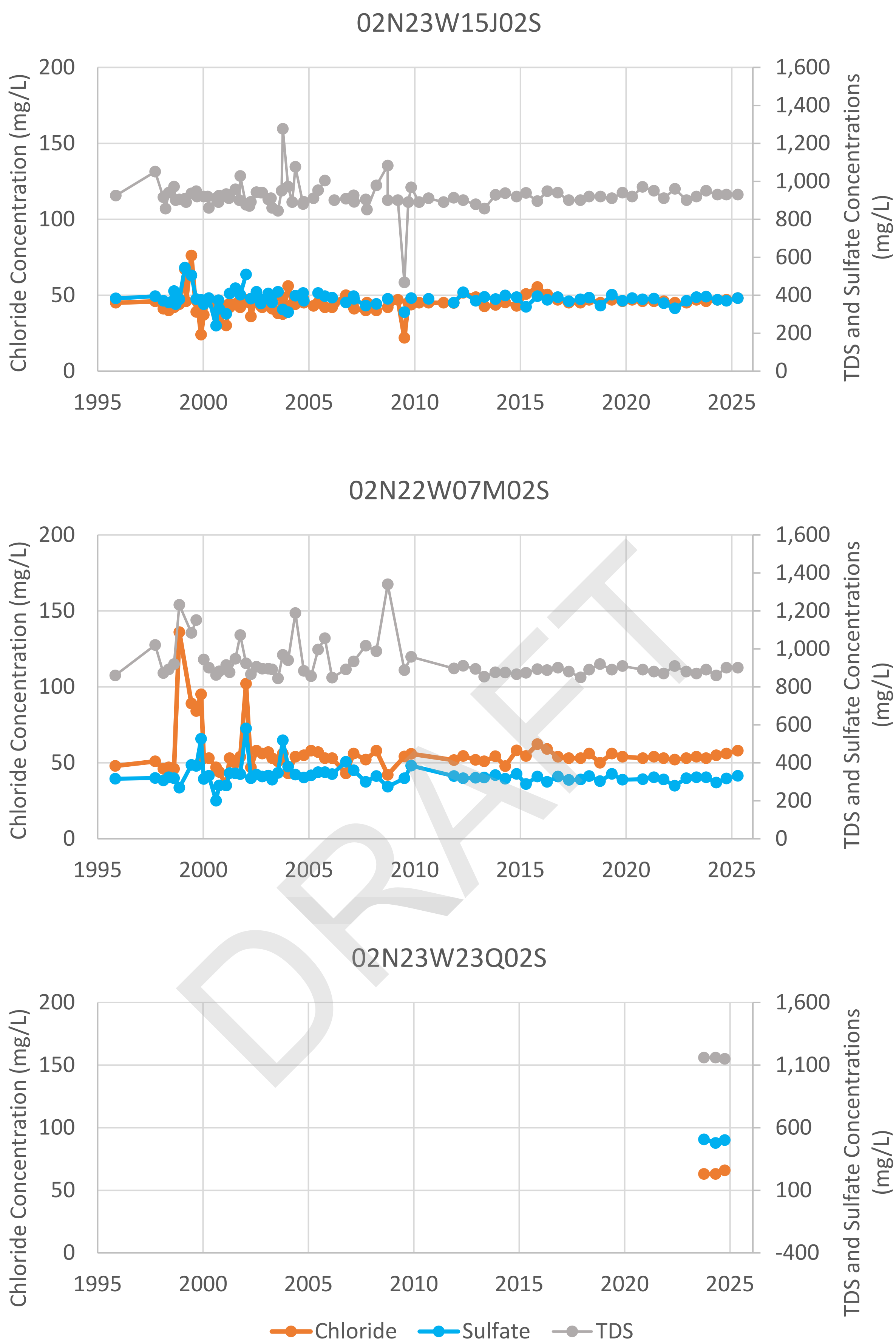

Figure 3.22 Time Series of TDS, Sulfate, and Chloride Concentrations in the Mugu Aquifer

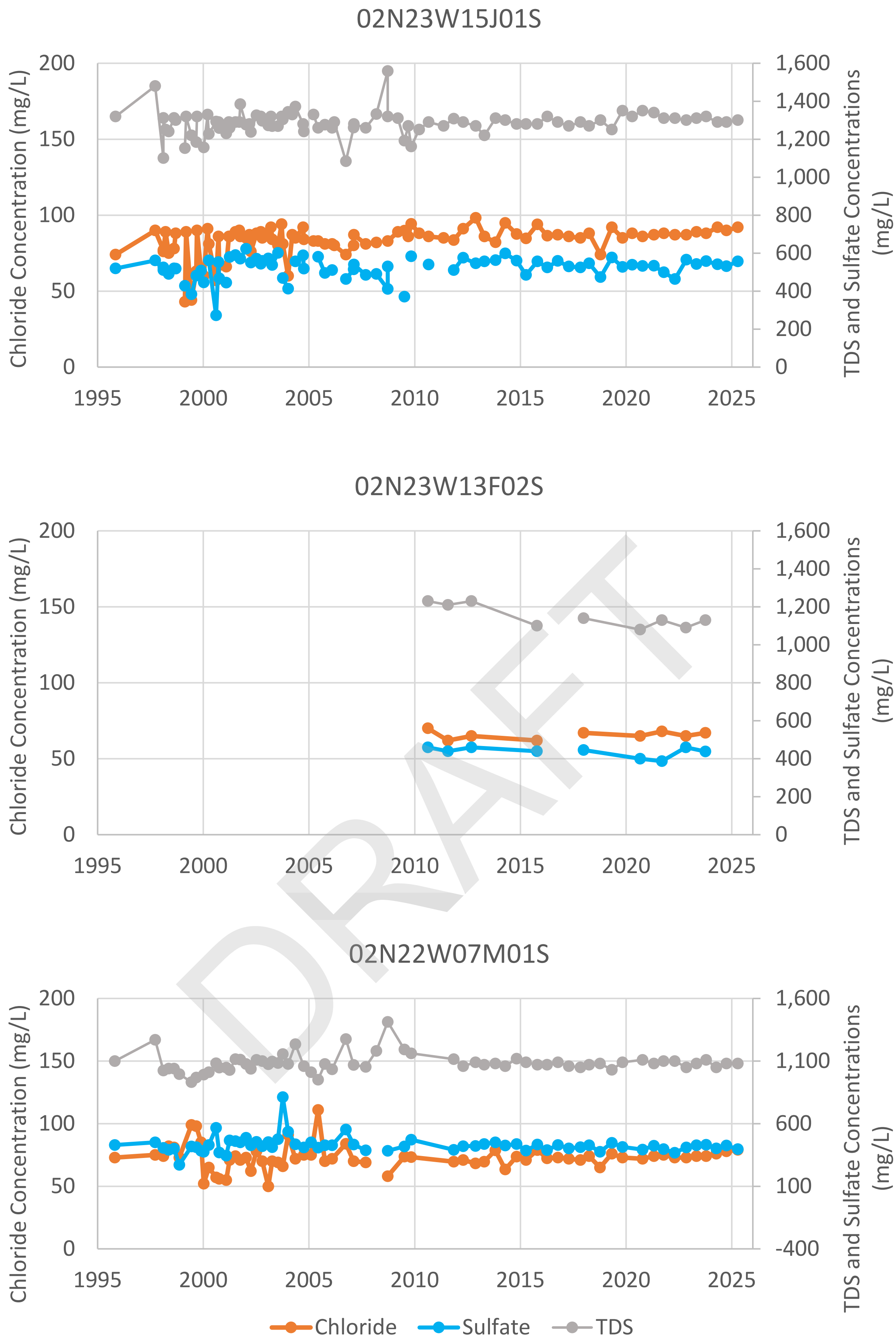

Figure 3.23 **Time Series of TDS, Sulfate, and Chloride Concentrations in the Hueneme Aquifer**

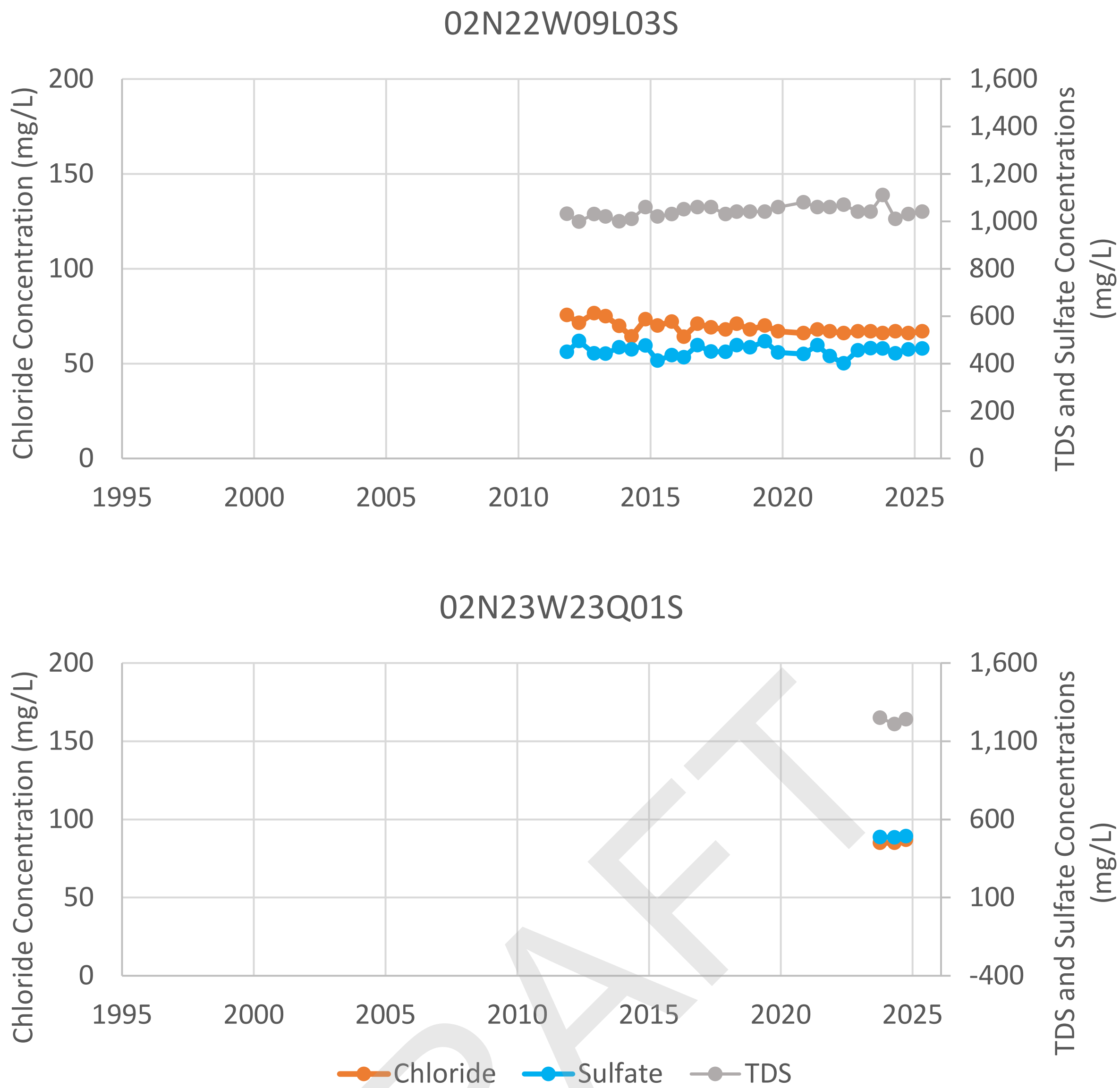

Figure 3.24 Time Series of TDS, Sulfate, and Chloride Concentrations in the Hueneme Aquifer

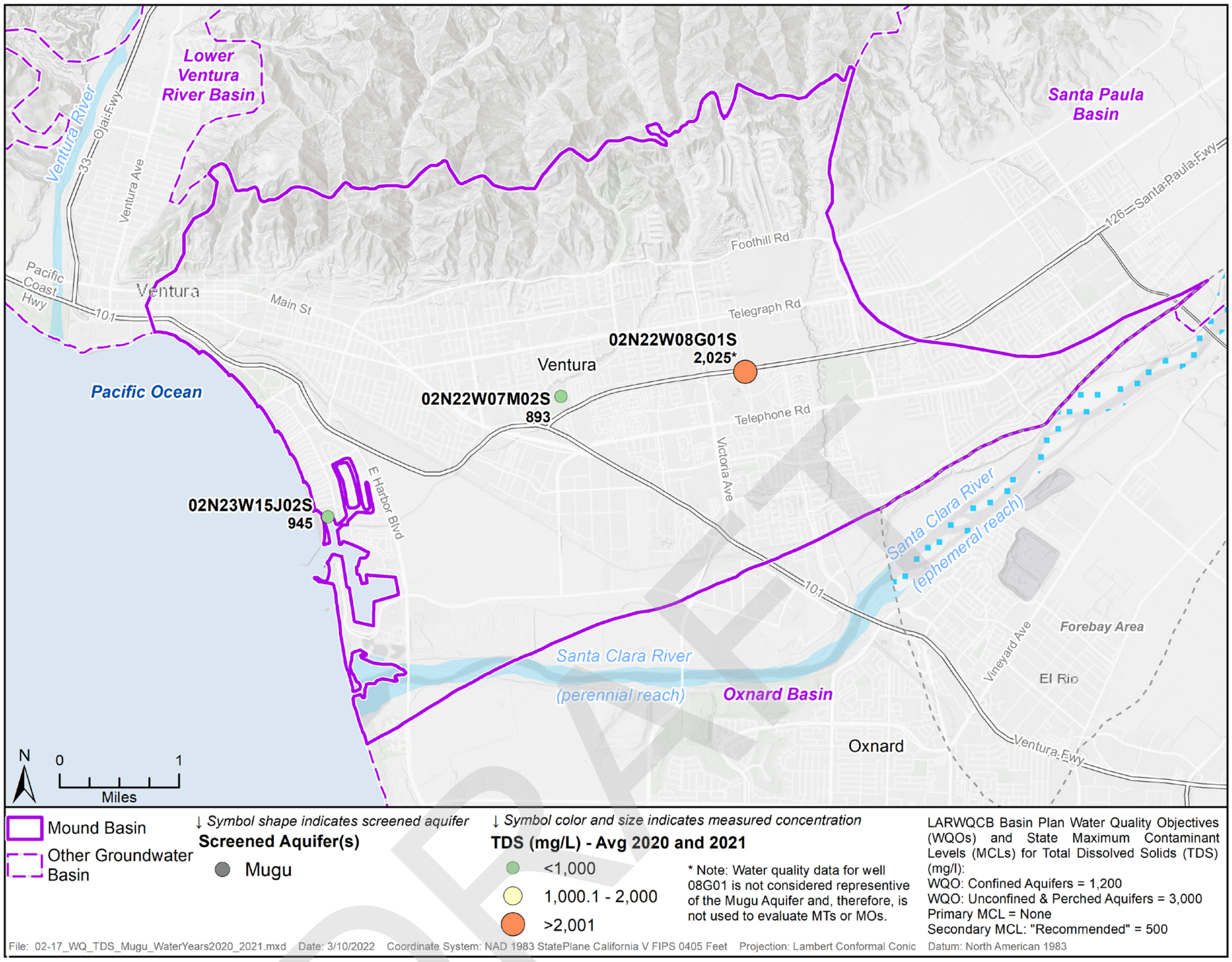

Figure 3.25 Average TDS Concentrations Detected in Mugu Aquifer During Water Year 2020

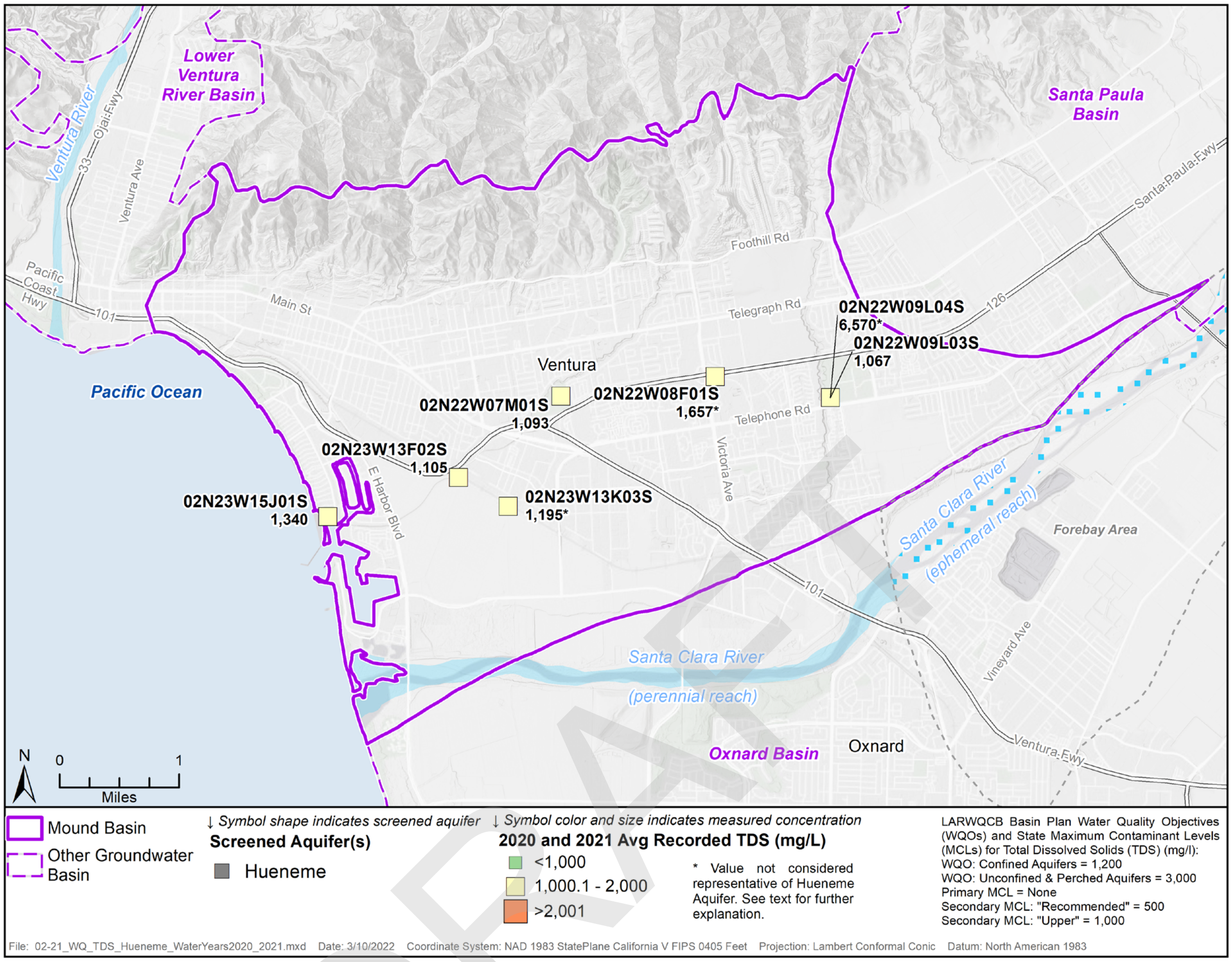

Figure 3.26 Average TDS Concentrations Detected in Hueneme Aquifer During Water Year 2020

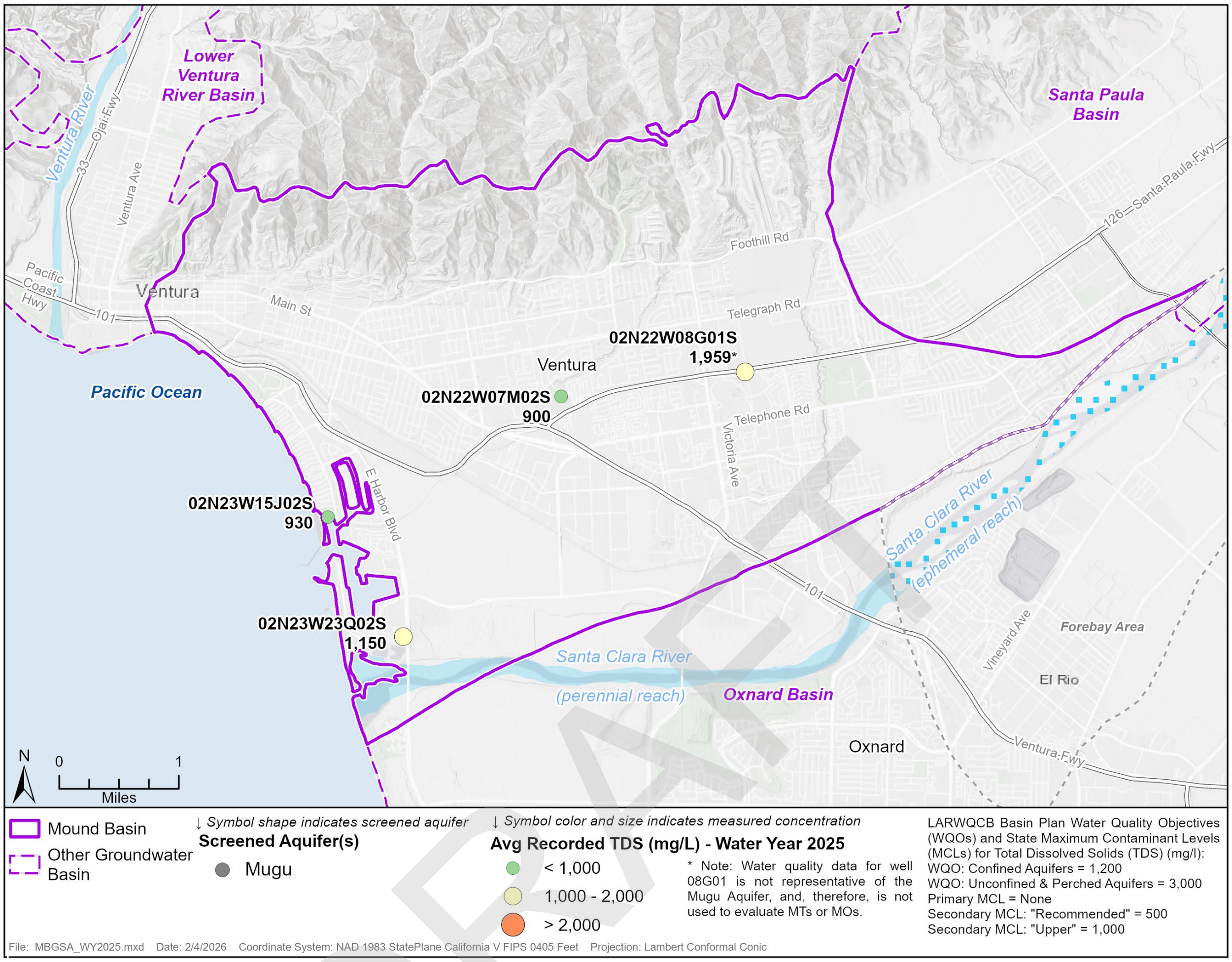

Figure 3.27 Average TDS Concentrations Detected in Mugu Aquifer During Water Year 2025

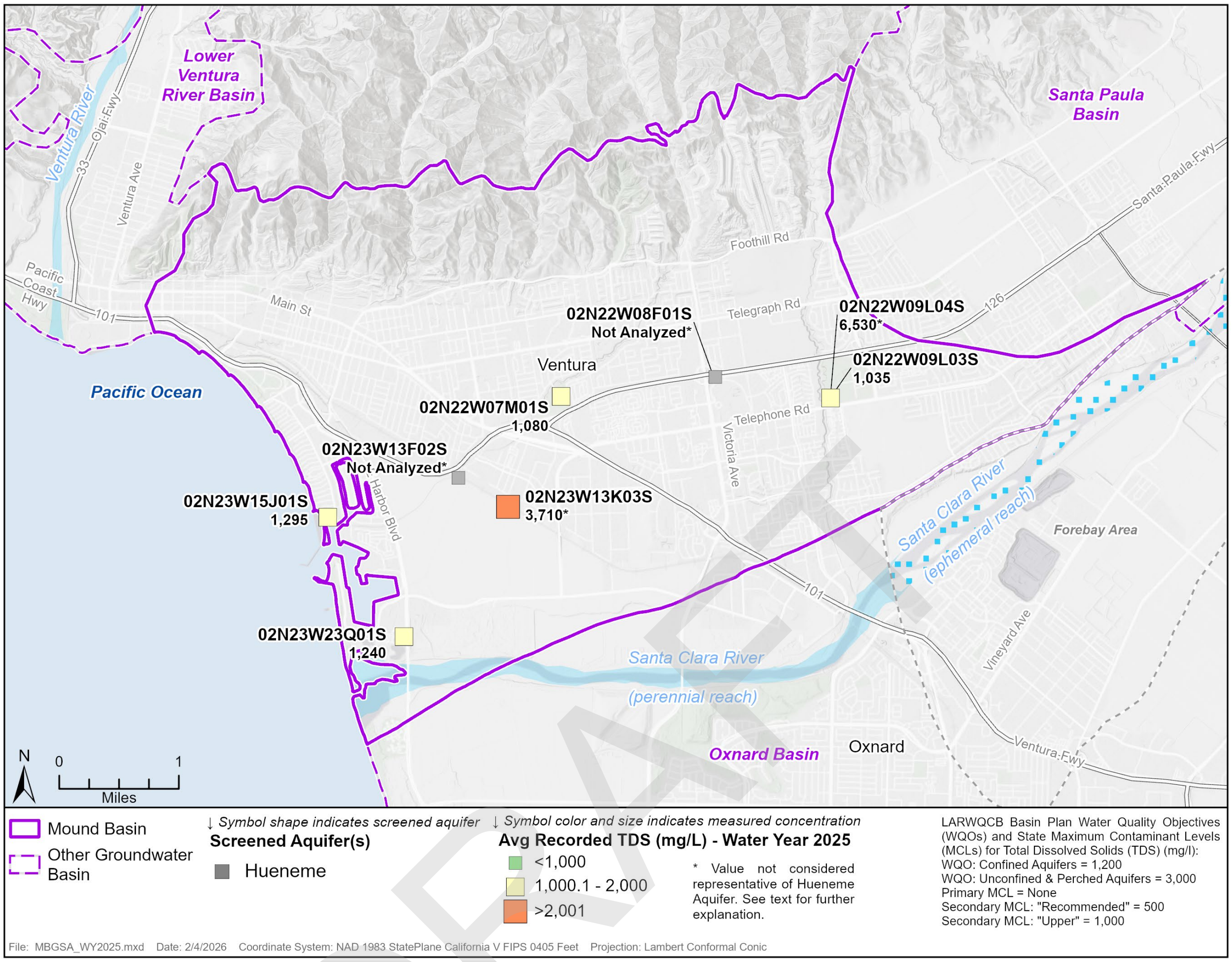

Figure 3.28 Average TDS Concentrations Detected in Hueneme Aquifer During Water Year 2025

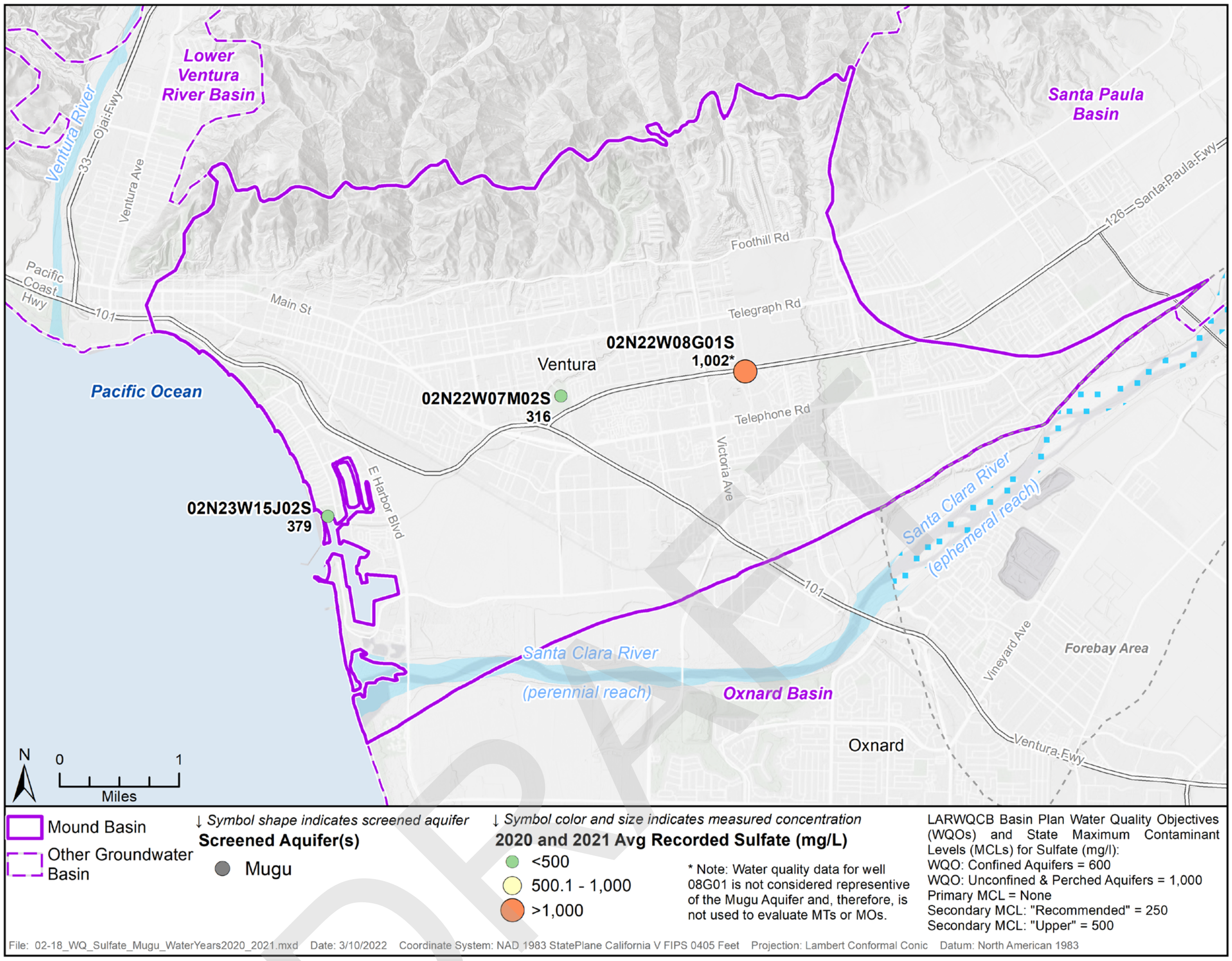

Figure 3.29 Average Sulfate Concentrations Detected in Mugu Aquifer During Water Year 2020

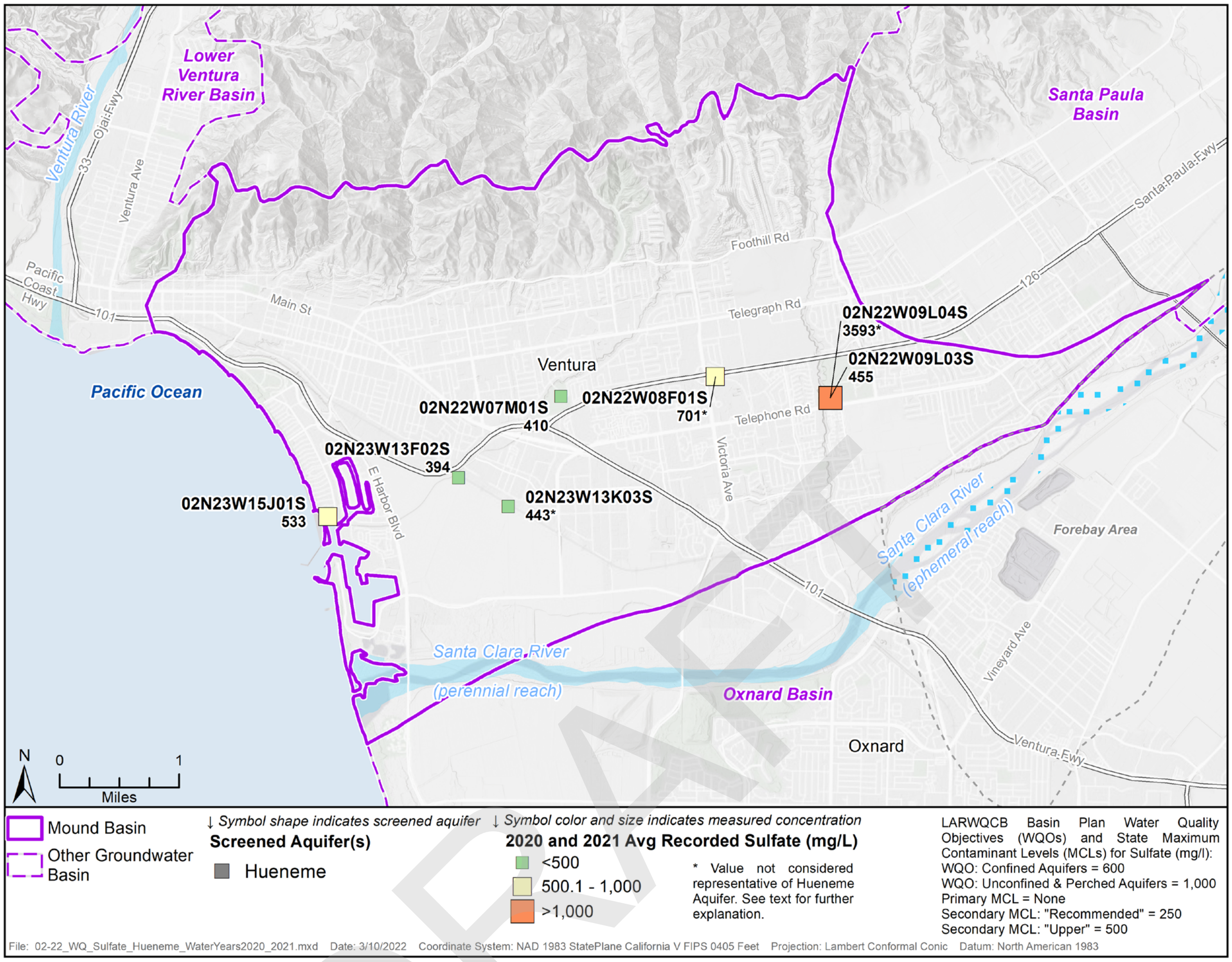

Figure 3.30 Average Sulfate Concentrations Detected in the Hueneme Aquifer During Water Year 2020

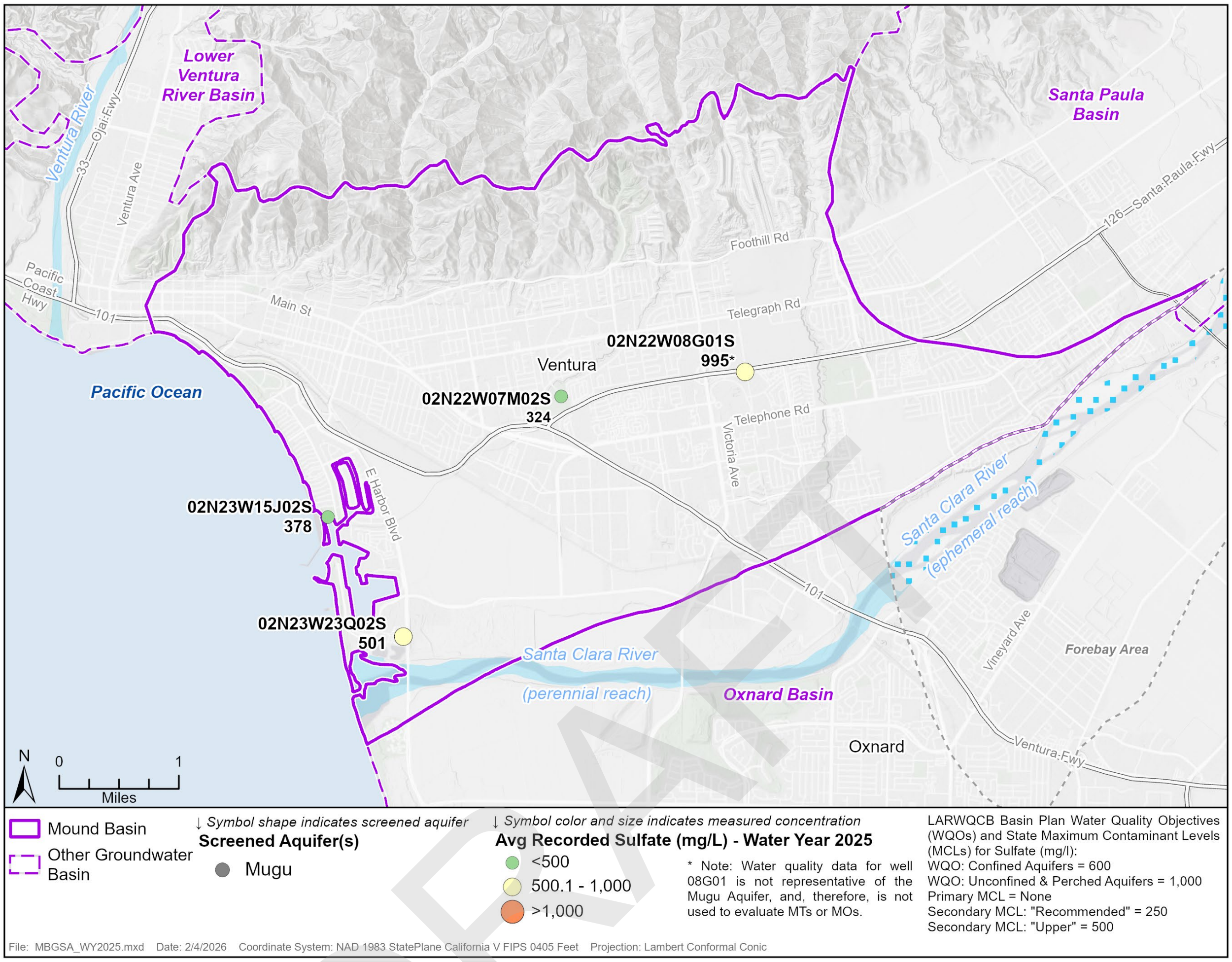

Figure 3.31 Average Sulfate Concentrations Detected in Mugu Aquifer During Water Year 2025

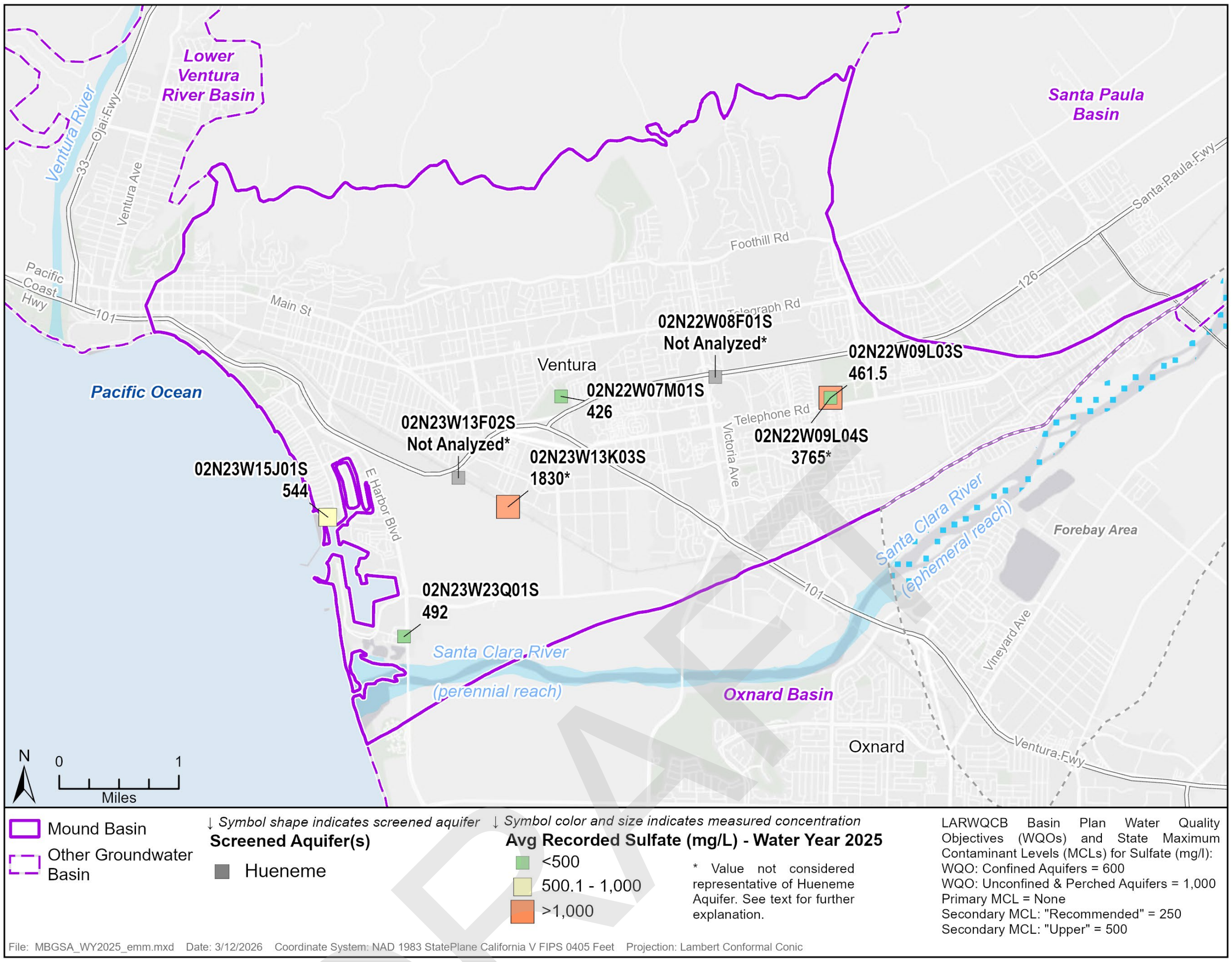

Figure 3.32 Average Sulfate Concentrations Detected in Hueneme Aquifer During Water Year 2025

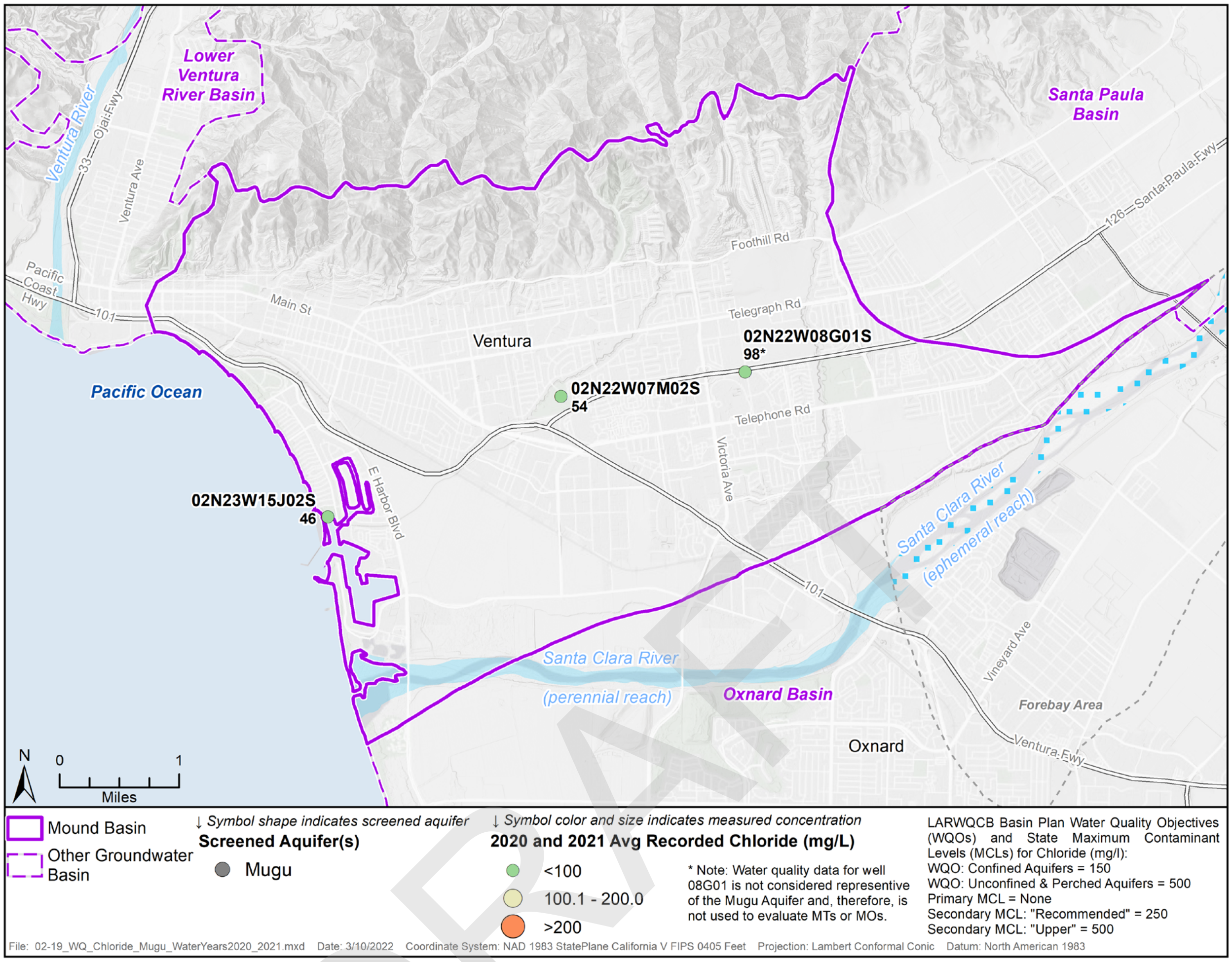

Figure 3.33 Average Chloride Concentrations Detected in Mugu Aquifer During Water Year 2020

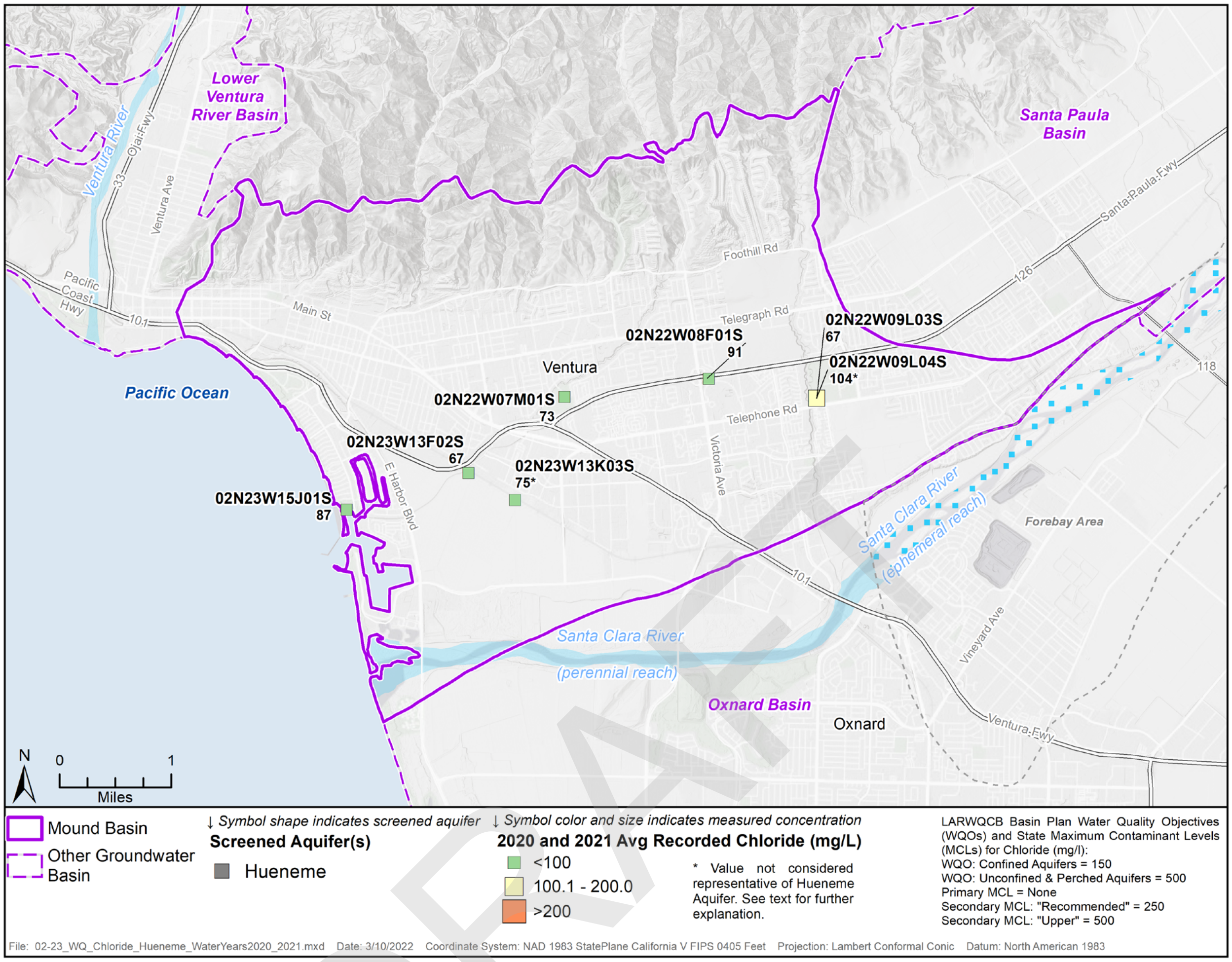

Figure 3.34 Average Chloride Concentrations Detected in Hueneme Aquifer During Water Year 2020

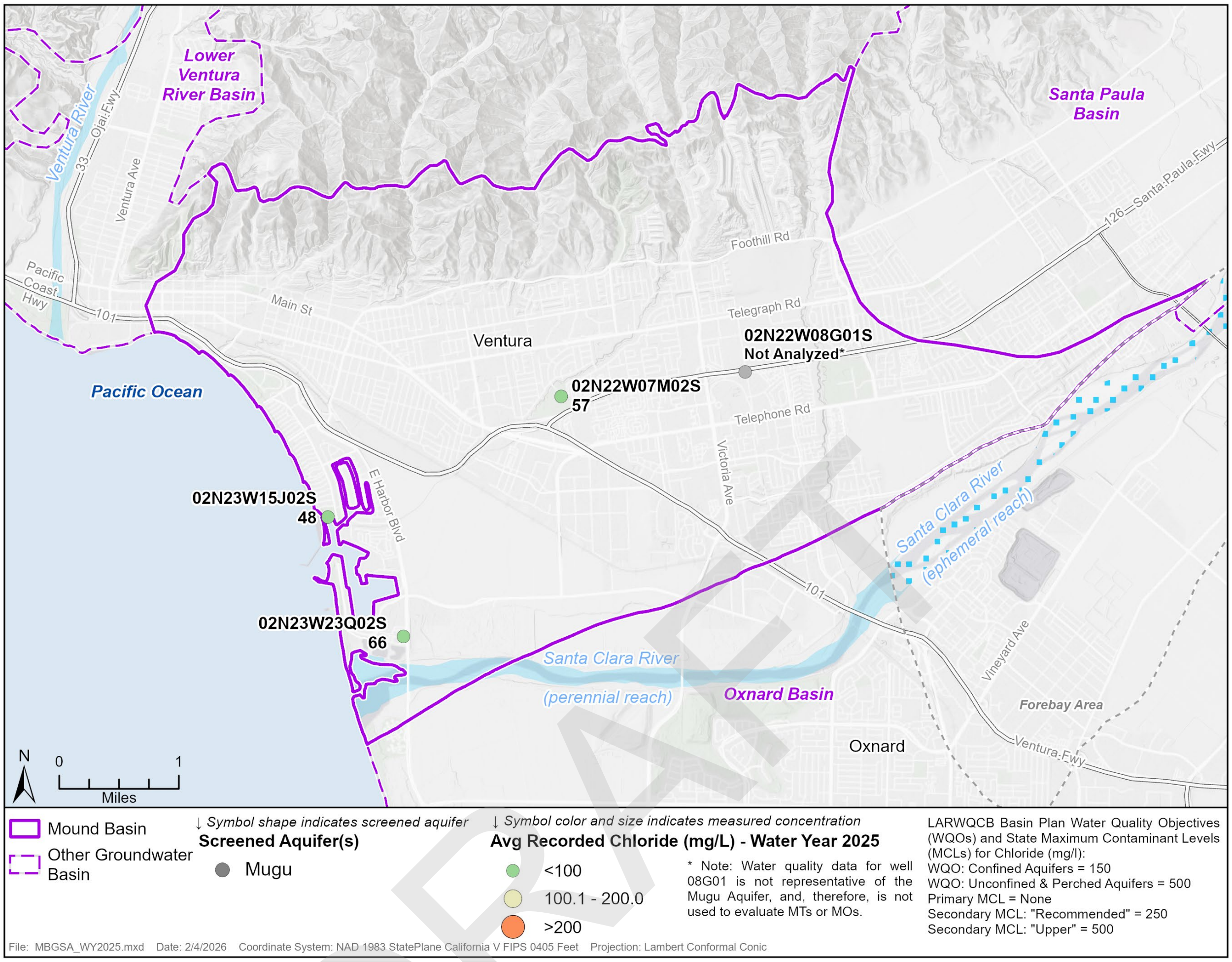

Figure 3.35 Average Chloride Concentrations Detected in Mugu Aquifer During Water Year 2025

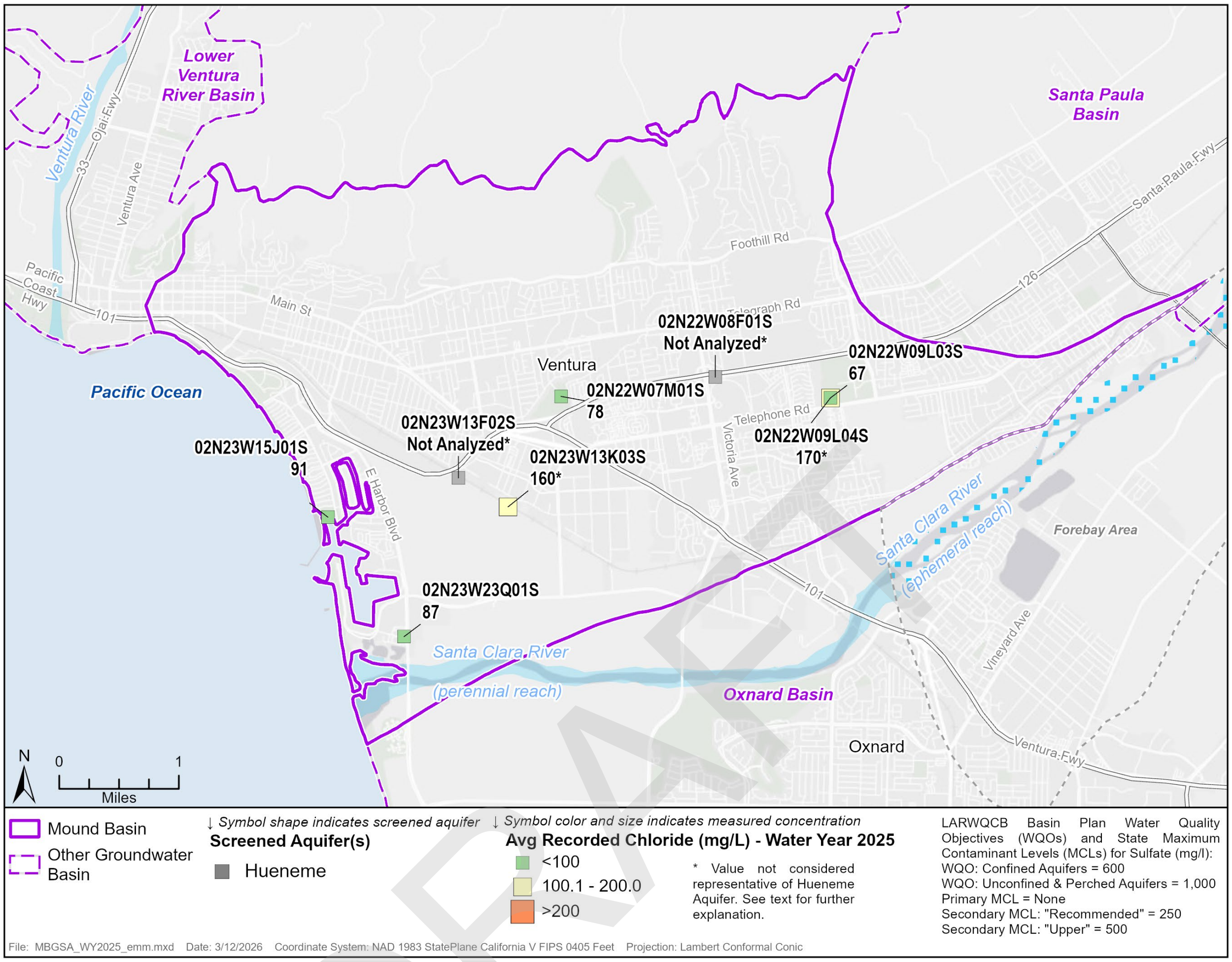

Figure 3.36 Average Chloride Concentrations Detected in Hueneme Aquifer During Water Year 2025

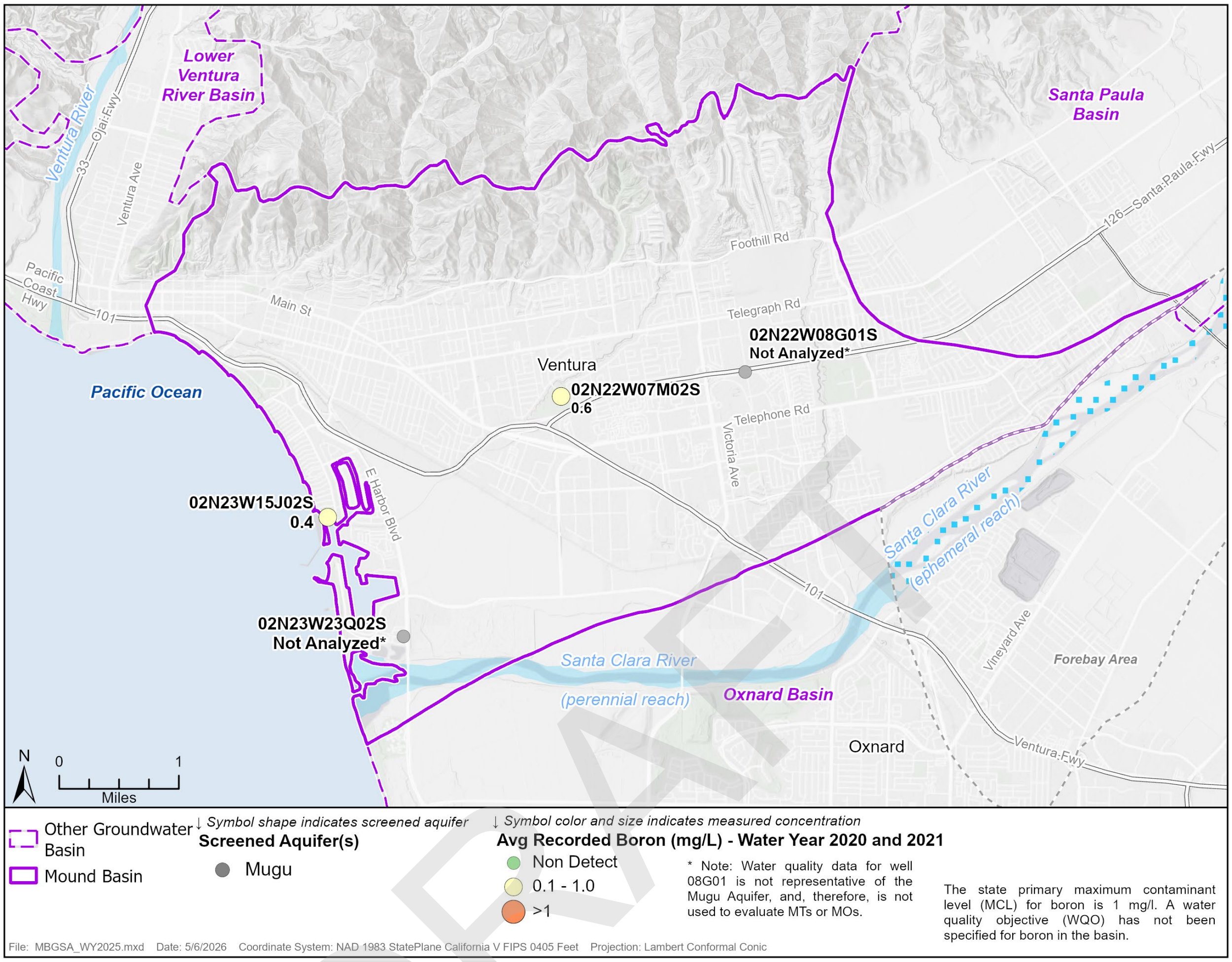

Figure 3.37 Average Boron Concentrations Detected in Mugu Aquifer During Water Year 2020

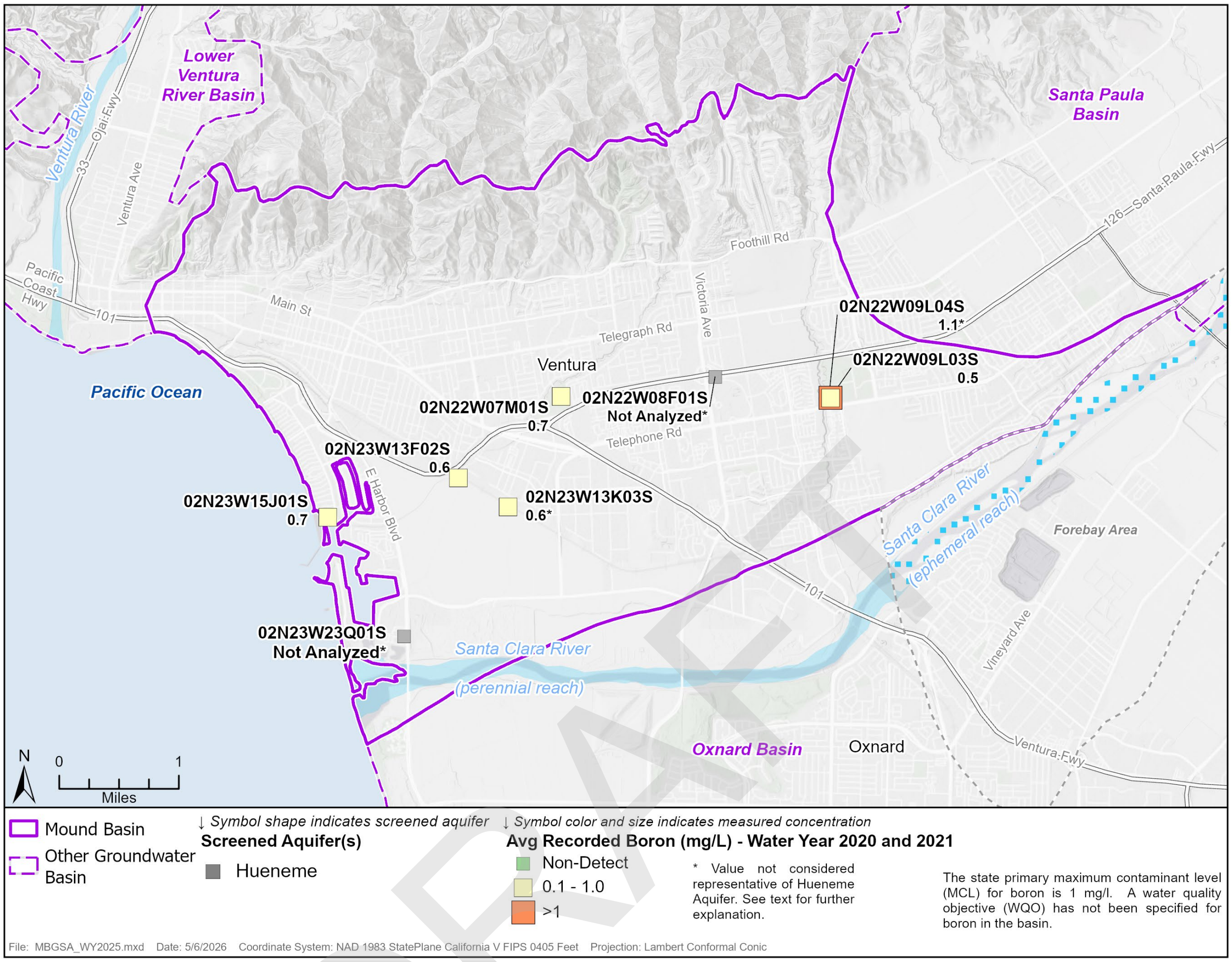

Figure 3.38 Average Boron Concentrations Detected in Hueneme Aquifer During Water Year 2020

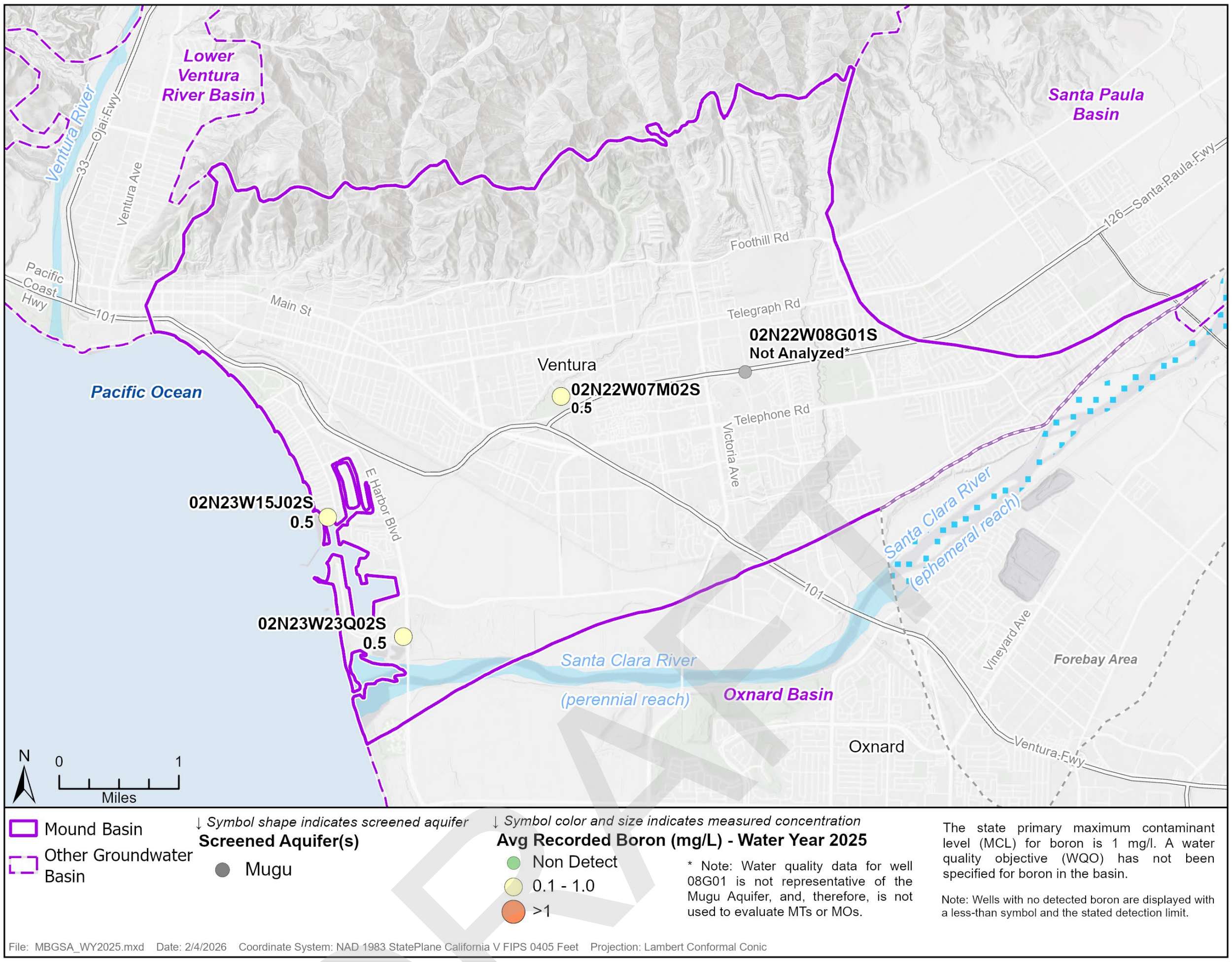

Figure 3.39 Average Boron Concentrations Detected in Mugu Aquifer During Water Year 2025

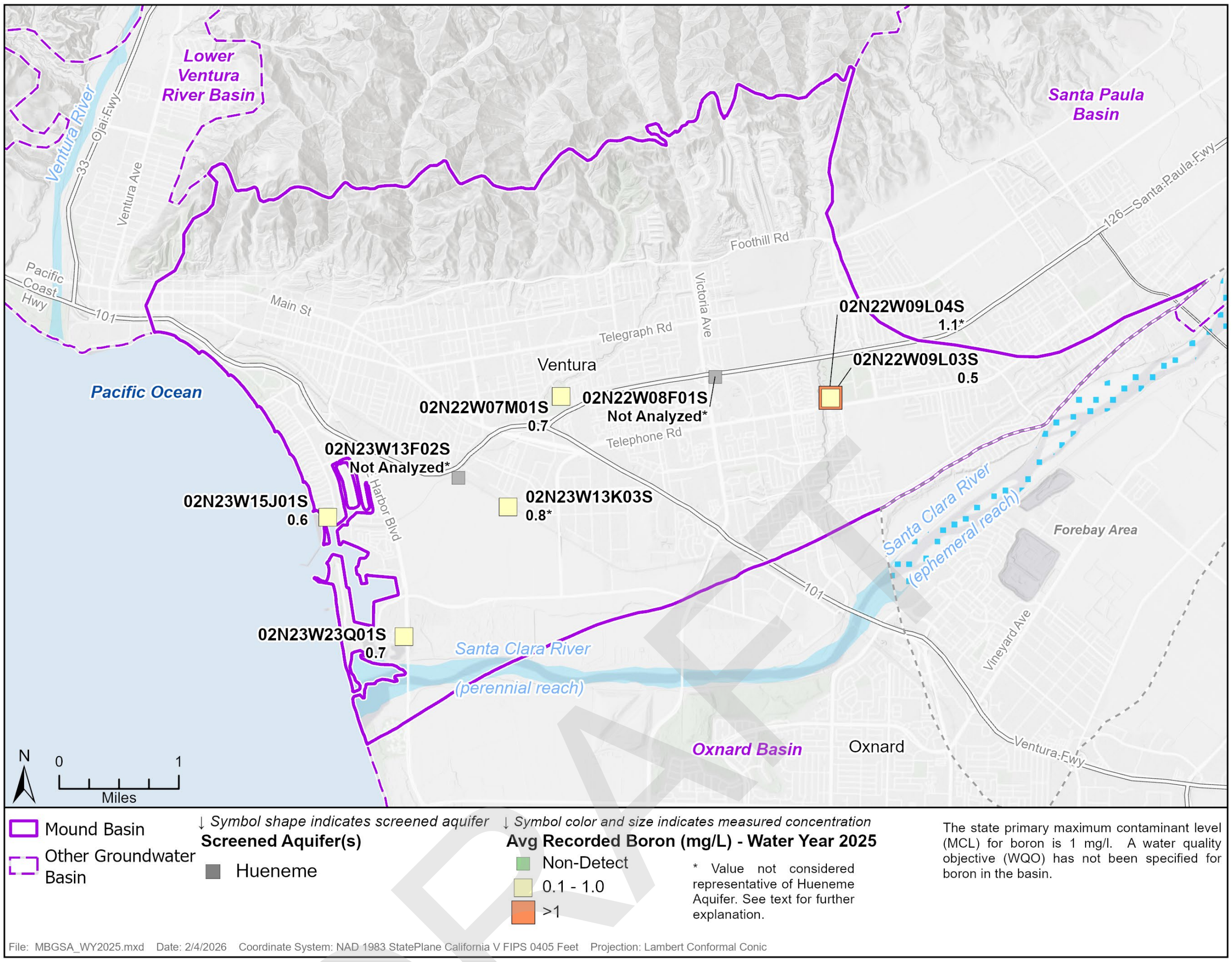

Figure 3.40 Average Boron Concentrations Detected in Hueneme Aquifer During Water Year 2025

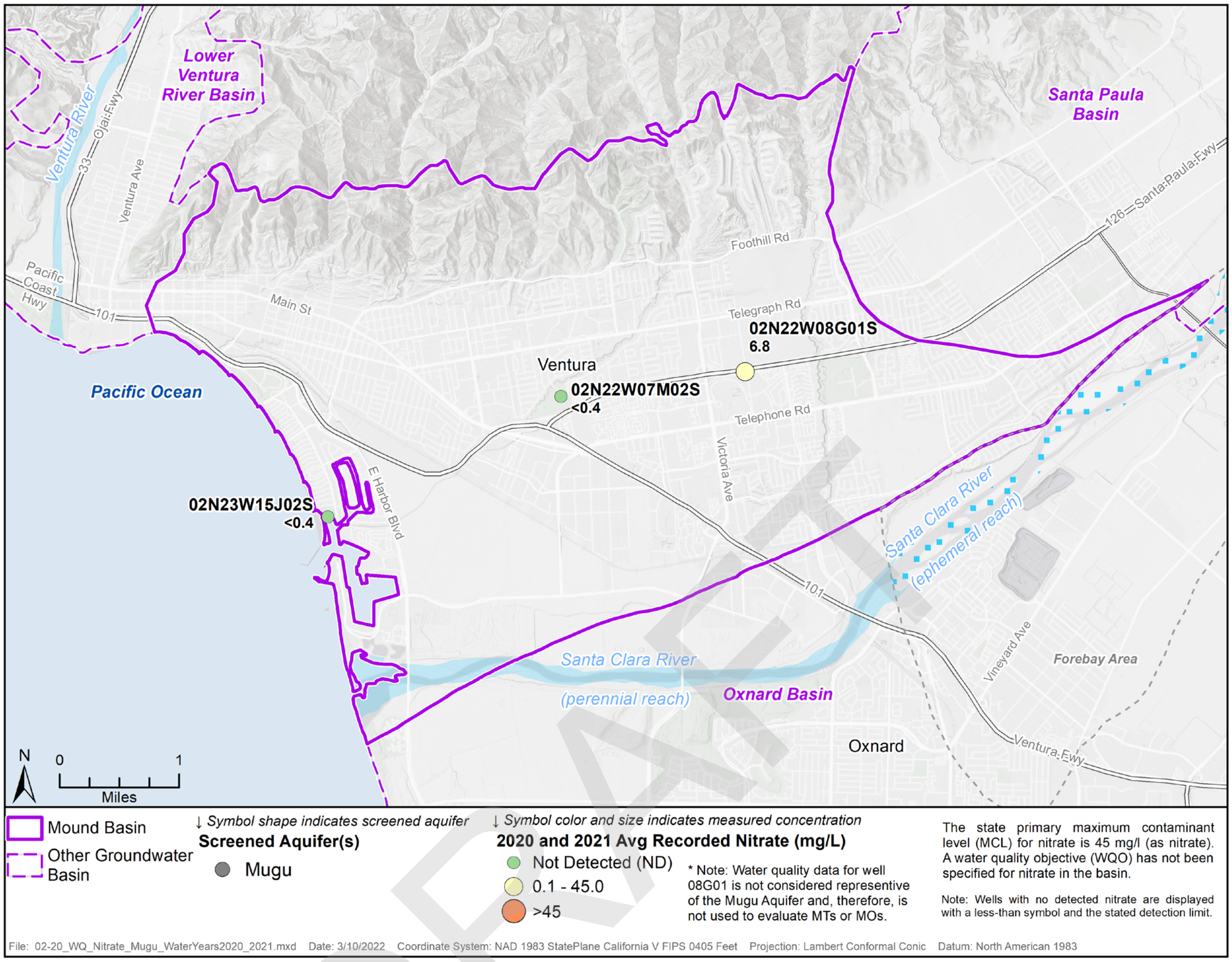

Figure 3.41 Average Nitrate Concentrations Detected in Mugu Aquifer During Water Year 2020

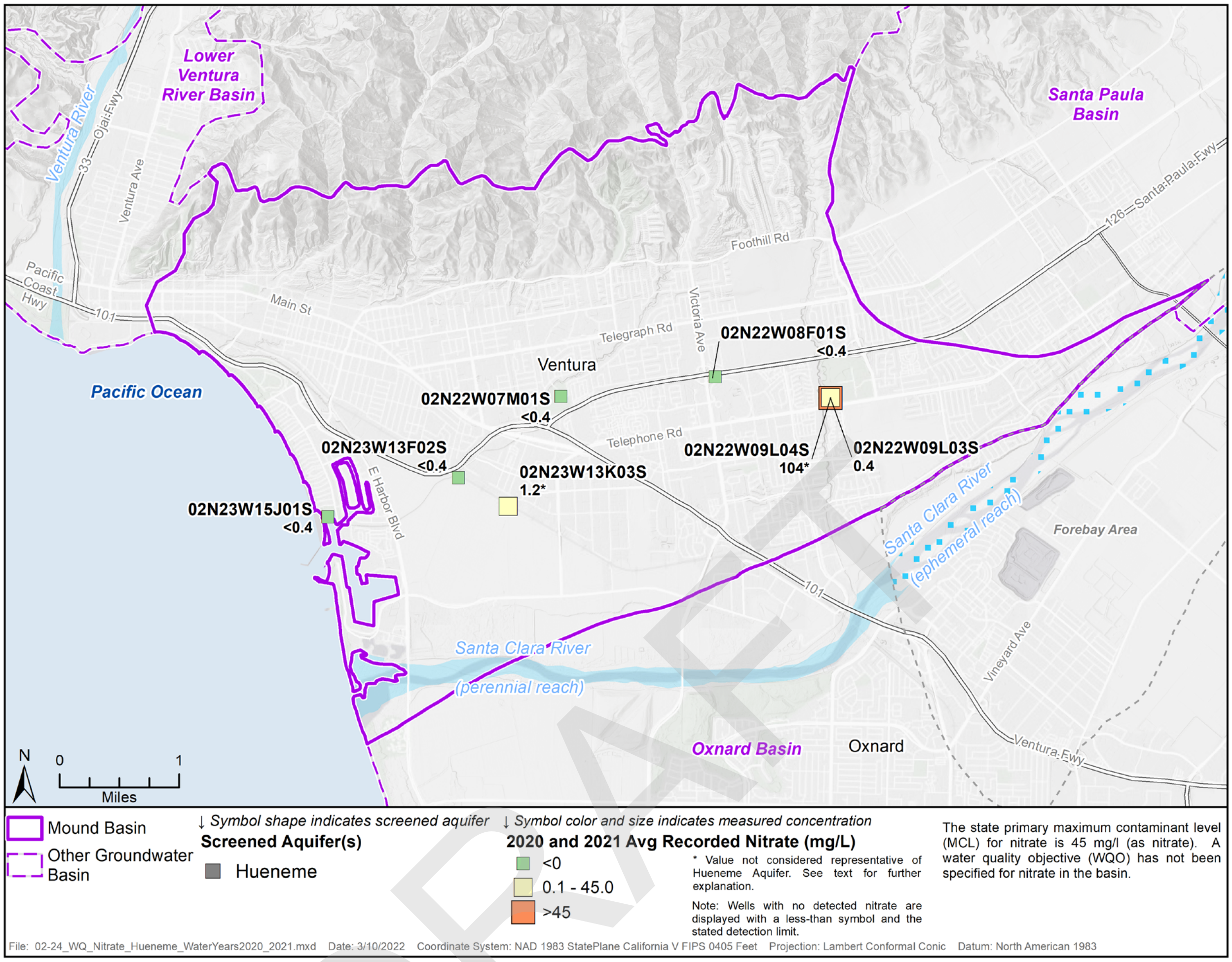

Figure 3.42 **Average Nitrate Concentrations Detected in Hueneme Aquifer During Water Year 2020**

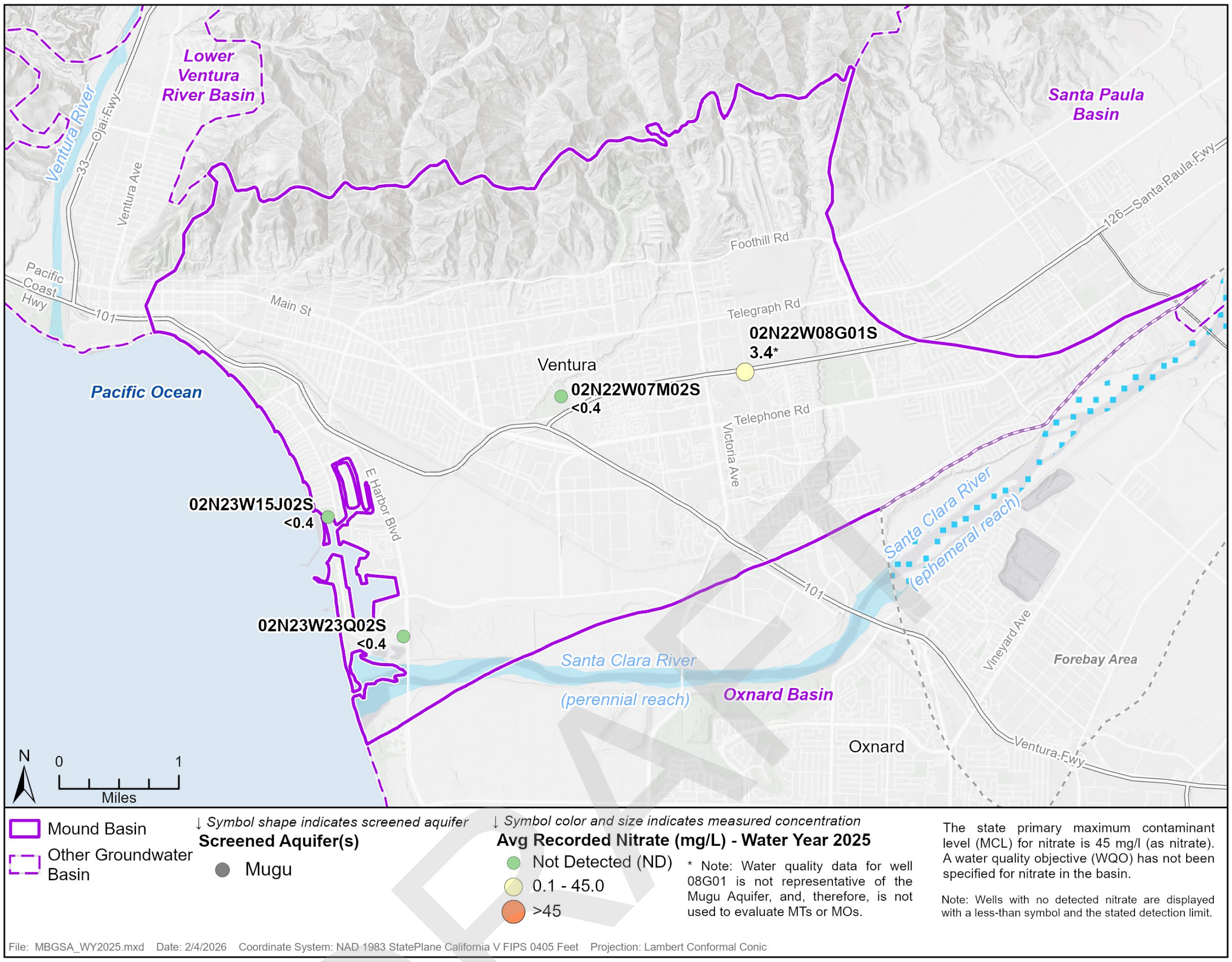

Figure 3.43 Average Nitrate Concentrations Detected in Mugu Aquifer During Water Year 2025

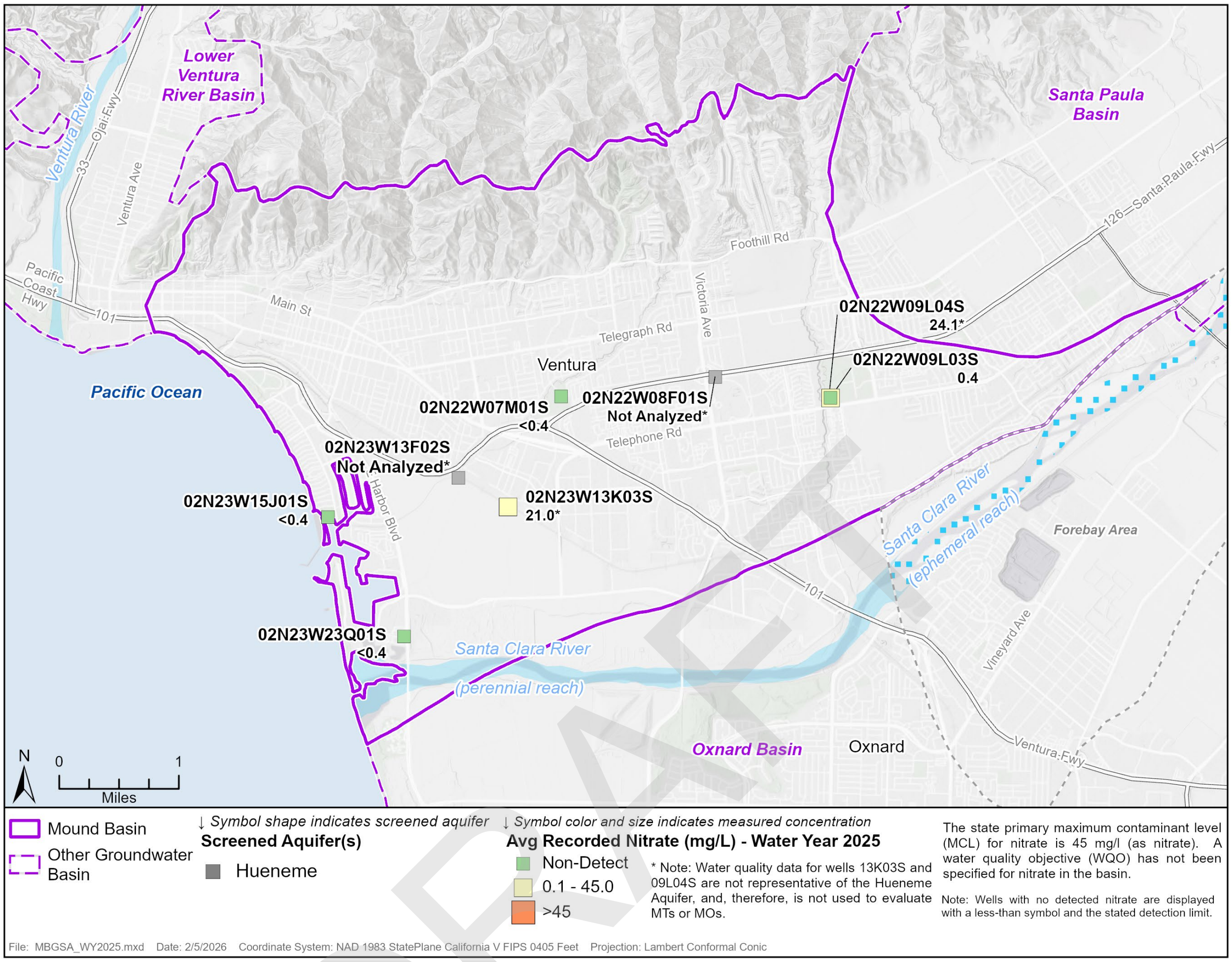

Figure 3.44 Average Nitrate Concentrations Detected in Hueneme Aquifer During Water Year 2025

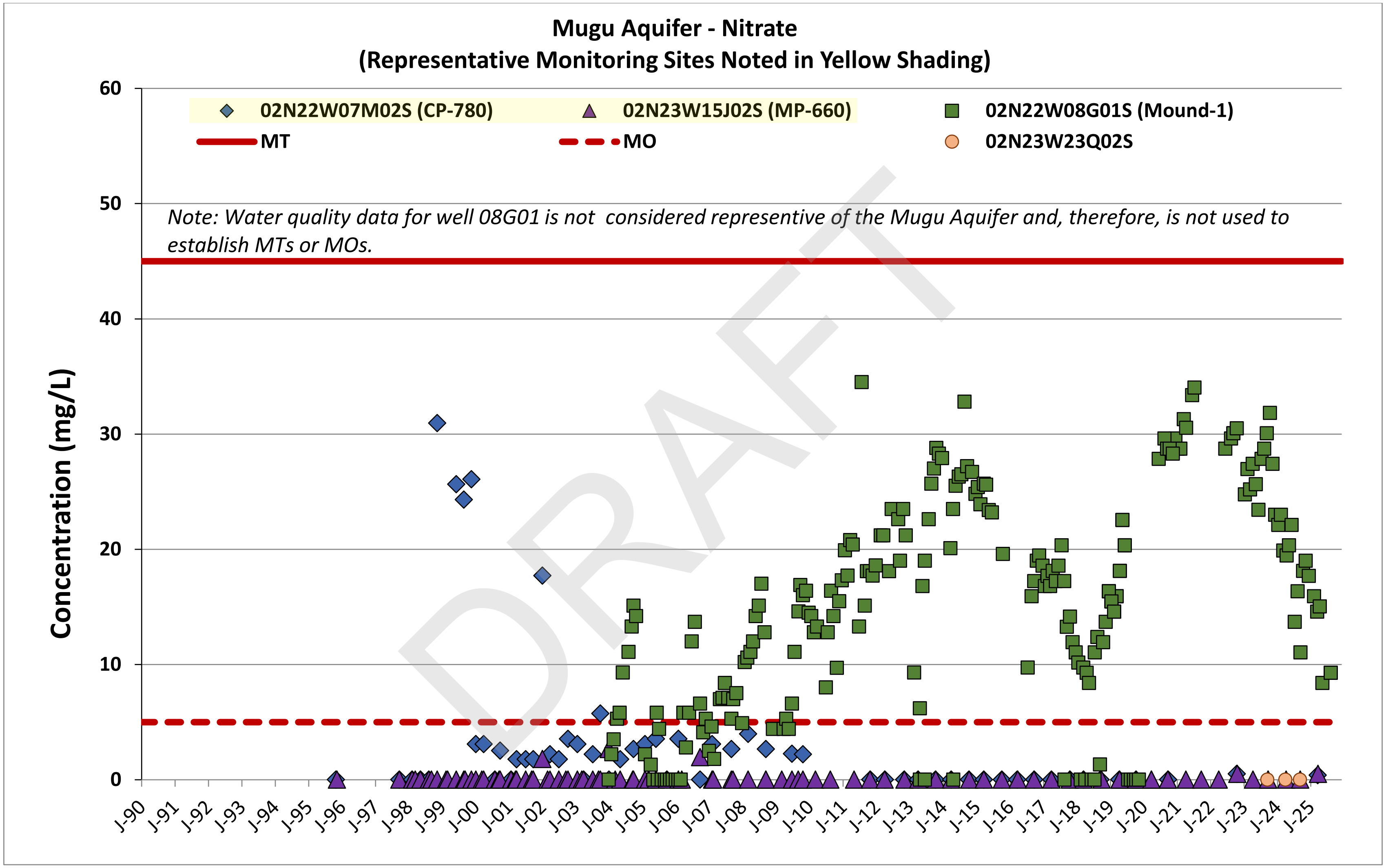

Figure 3.45 Time Series of Nitrate Concentrations in the Mugu Aquifer

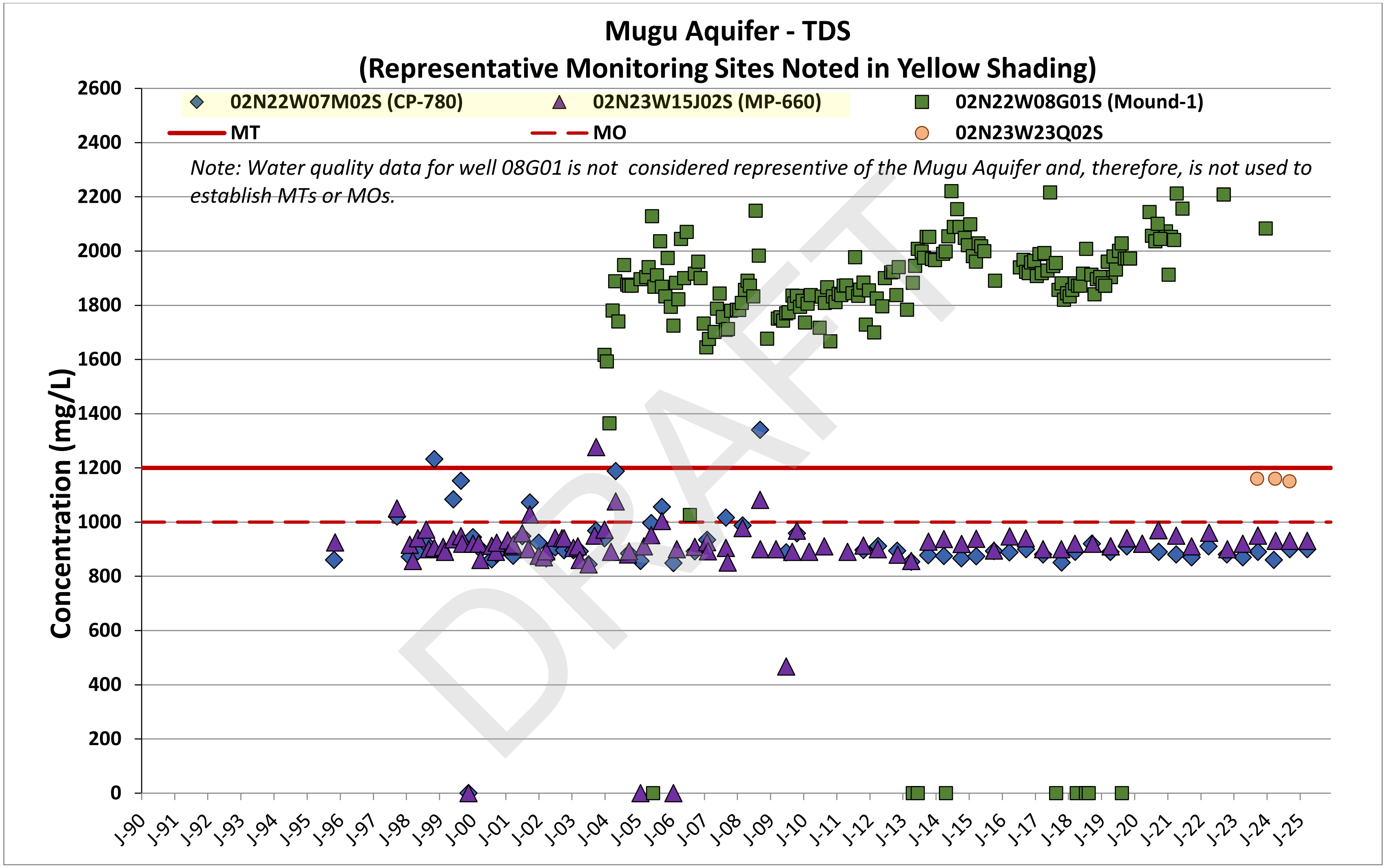

Figure 3.46 Time Series of TDS Concentrations in the Mugu Aquifer

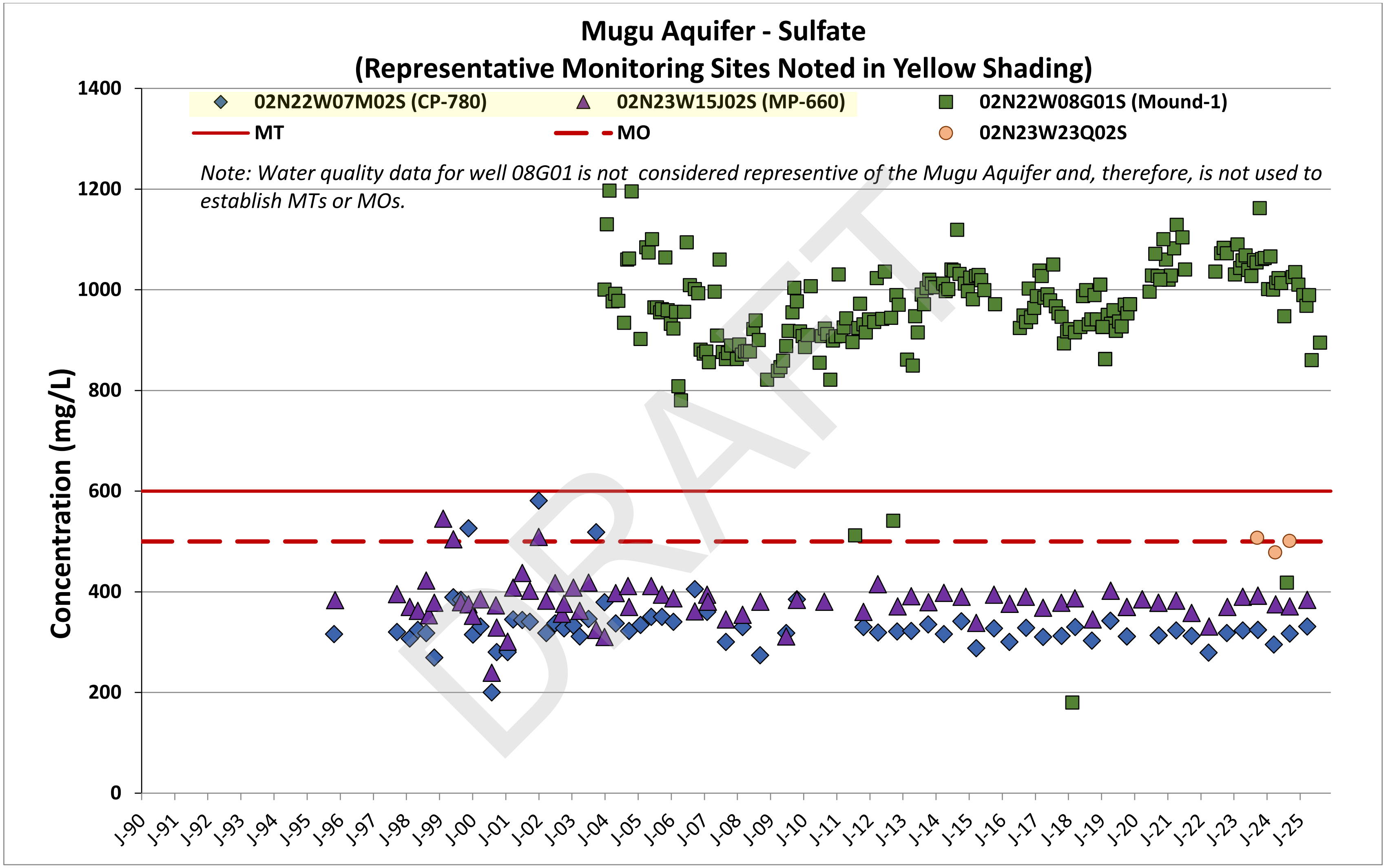

Figure 3.47 Time Series of Sulfate Concentrations in the Mugu Aquifer

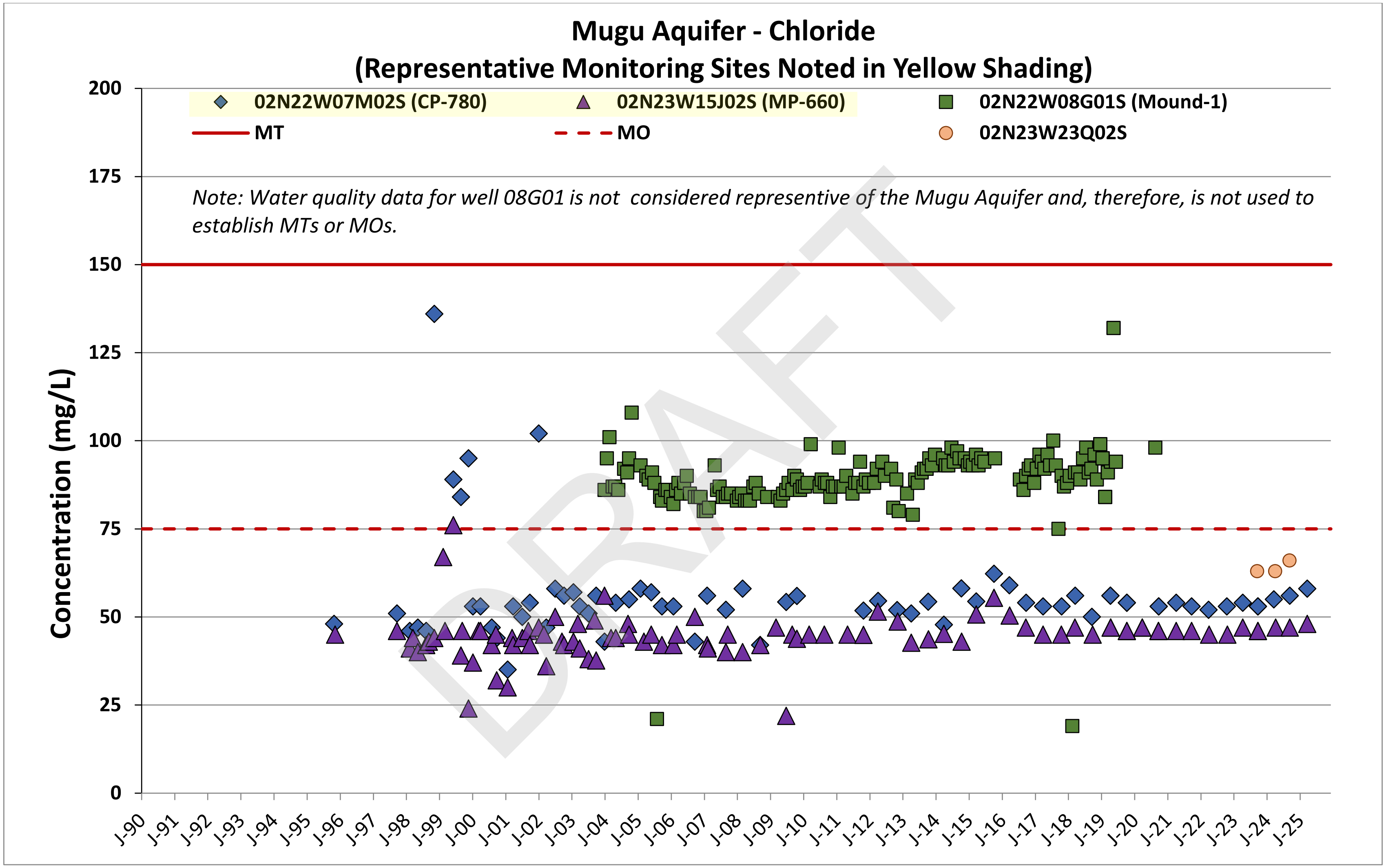

Figure 3.48 **Time Series of Chloride Concentrations in the Mugu Aquifer**

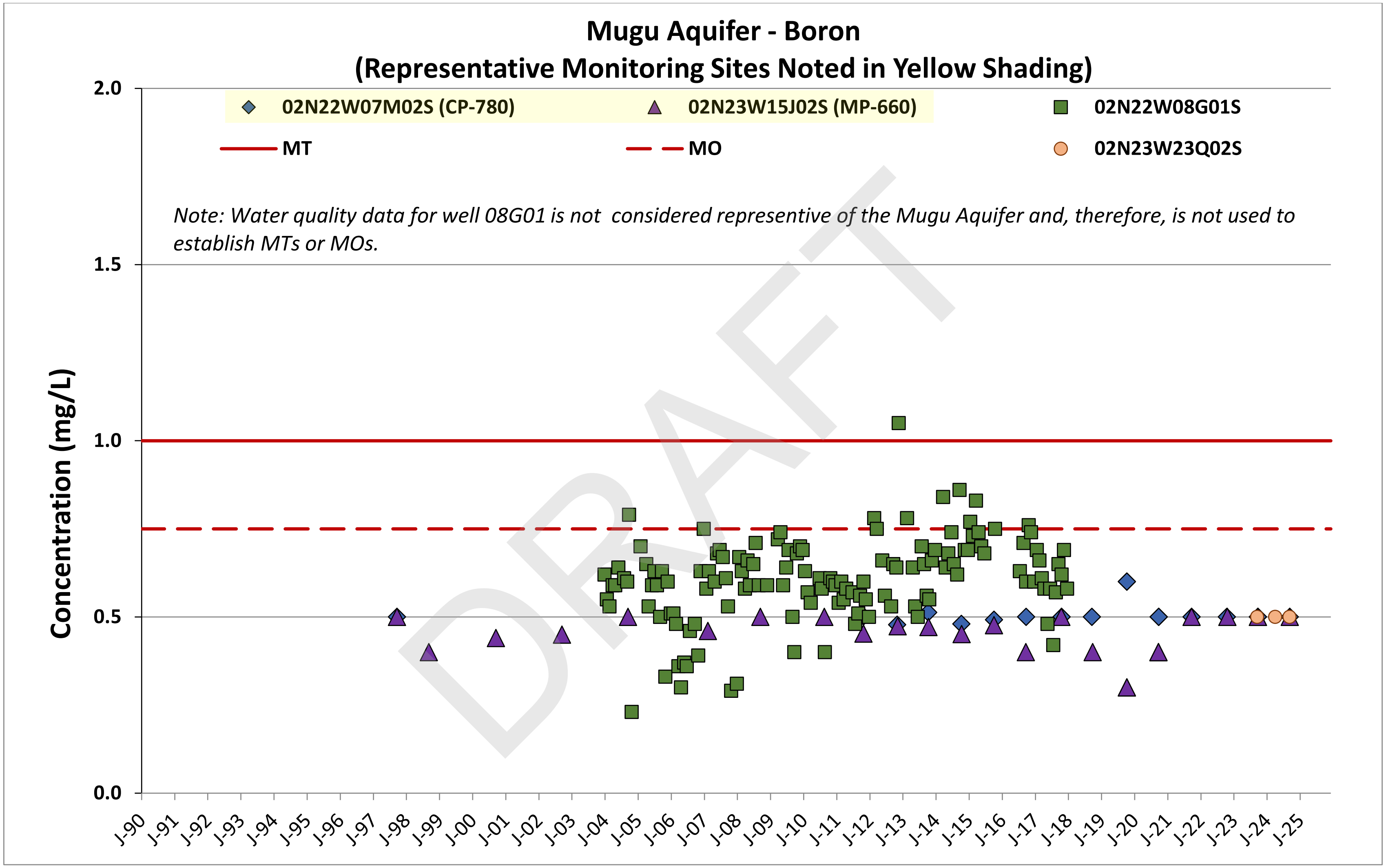

Figure 3.49 Time Series of Boron Concentrations in the Mugu Aquifer

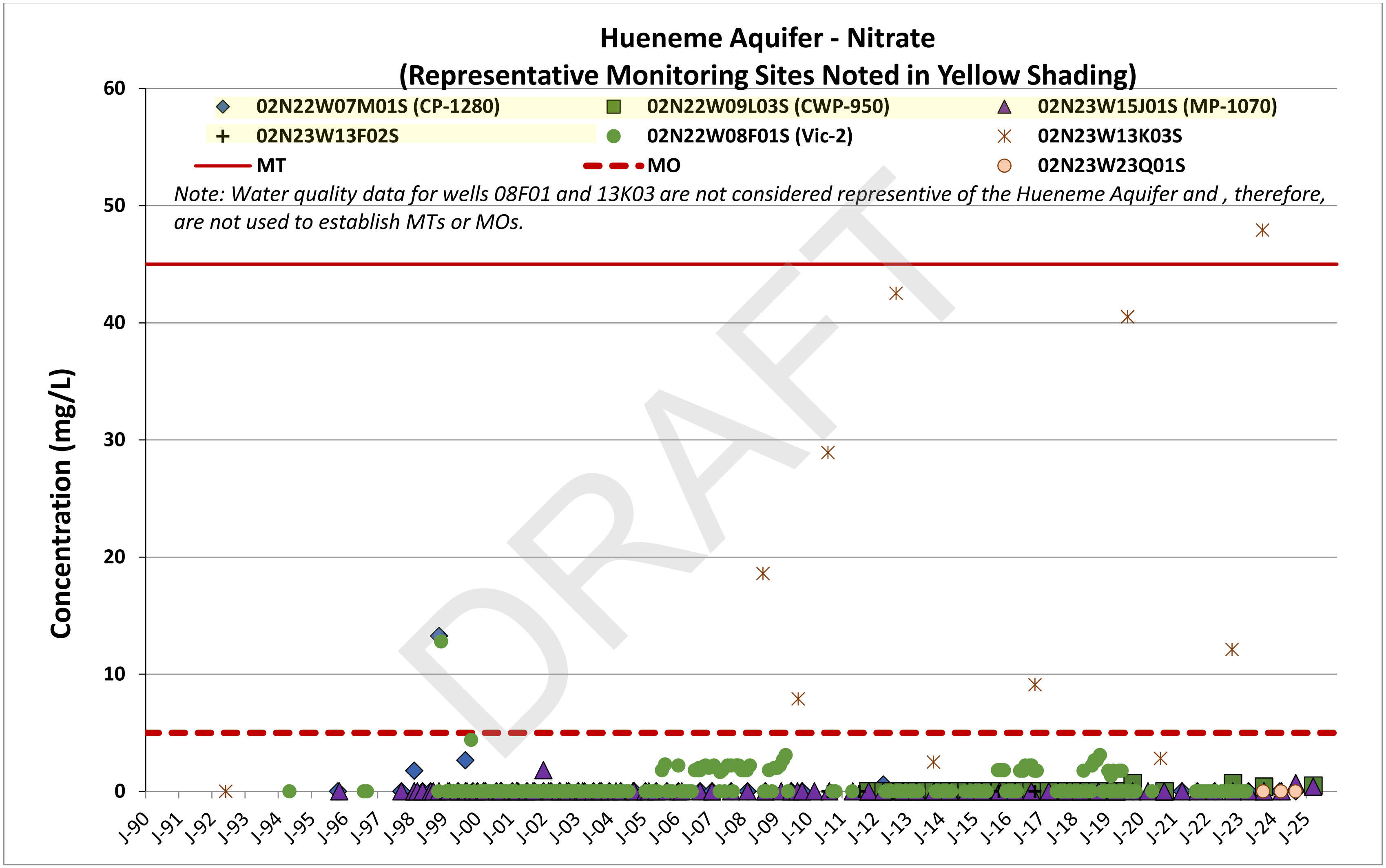

Figure 3.50 Time Series of Nitrate Concentrations in the Hueneme Aquifer

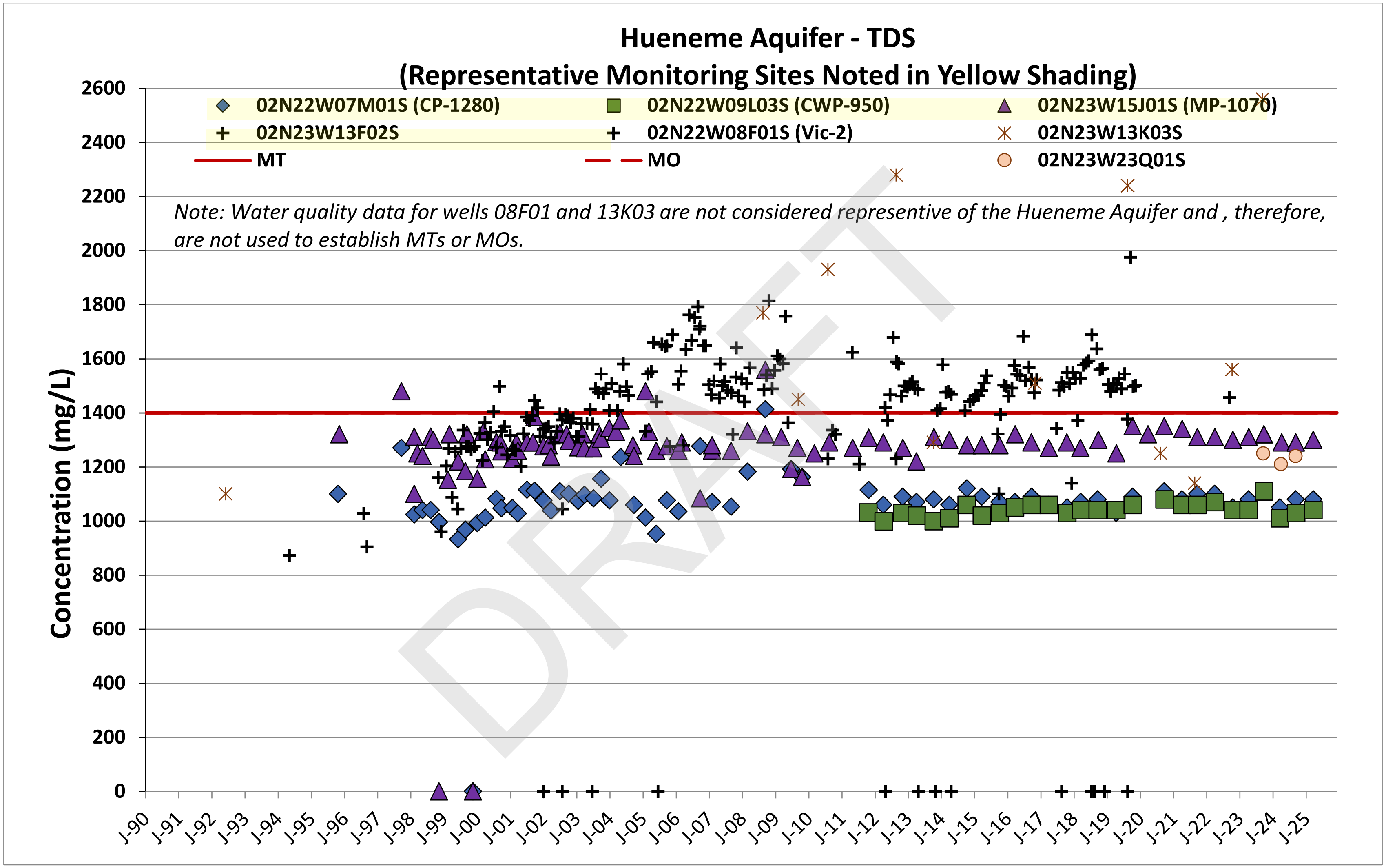

Figure 3.51 Time Series of TDS Concentrations in the Hueneme Aquifer

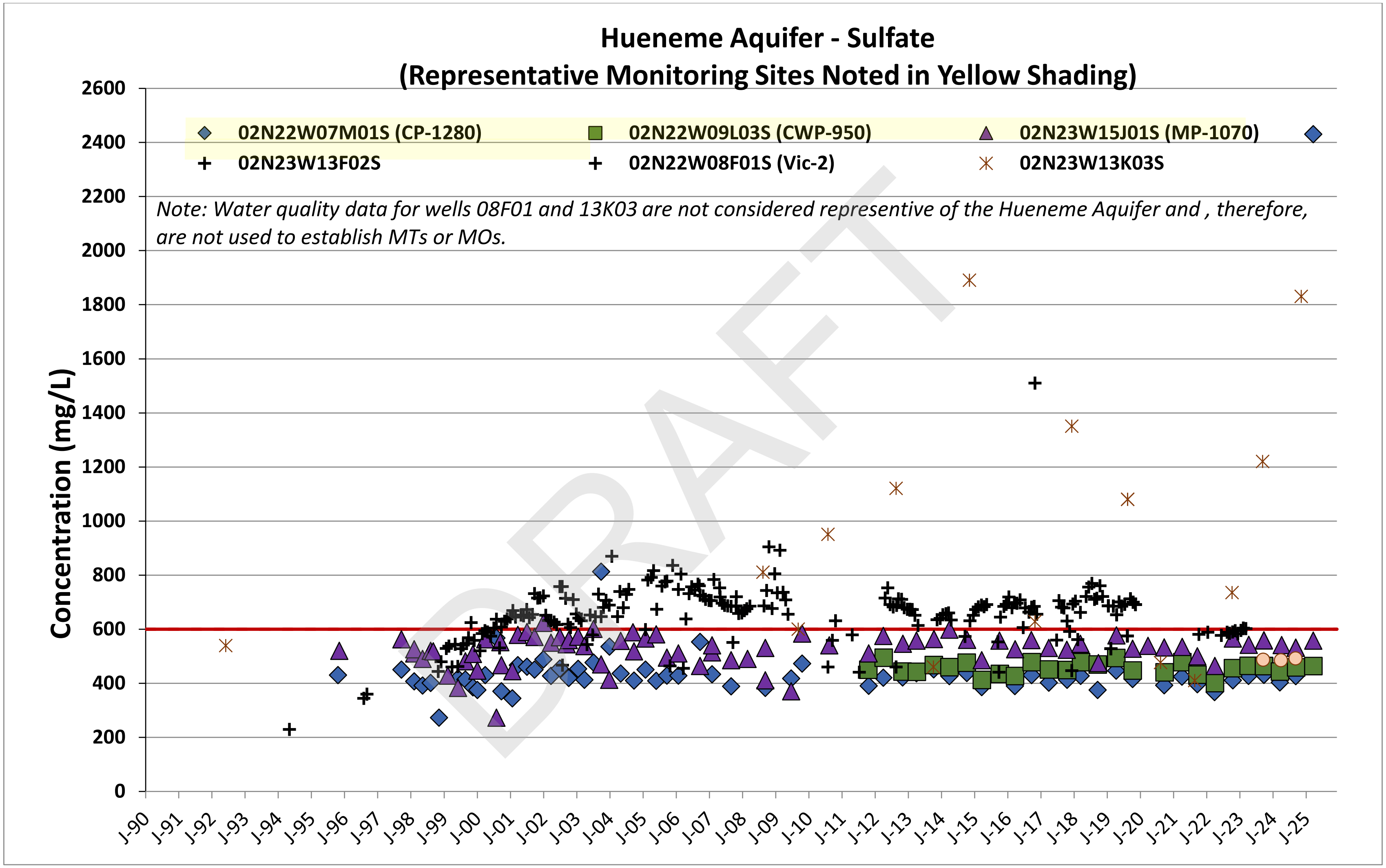

Figure 3.52 Time Series of Sulfate Concentrations in the Hueneme Aquifer

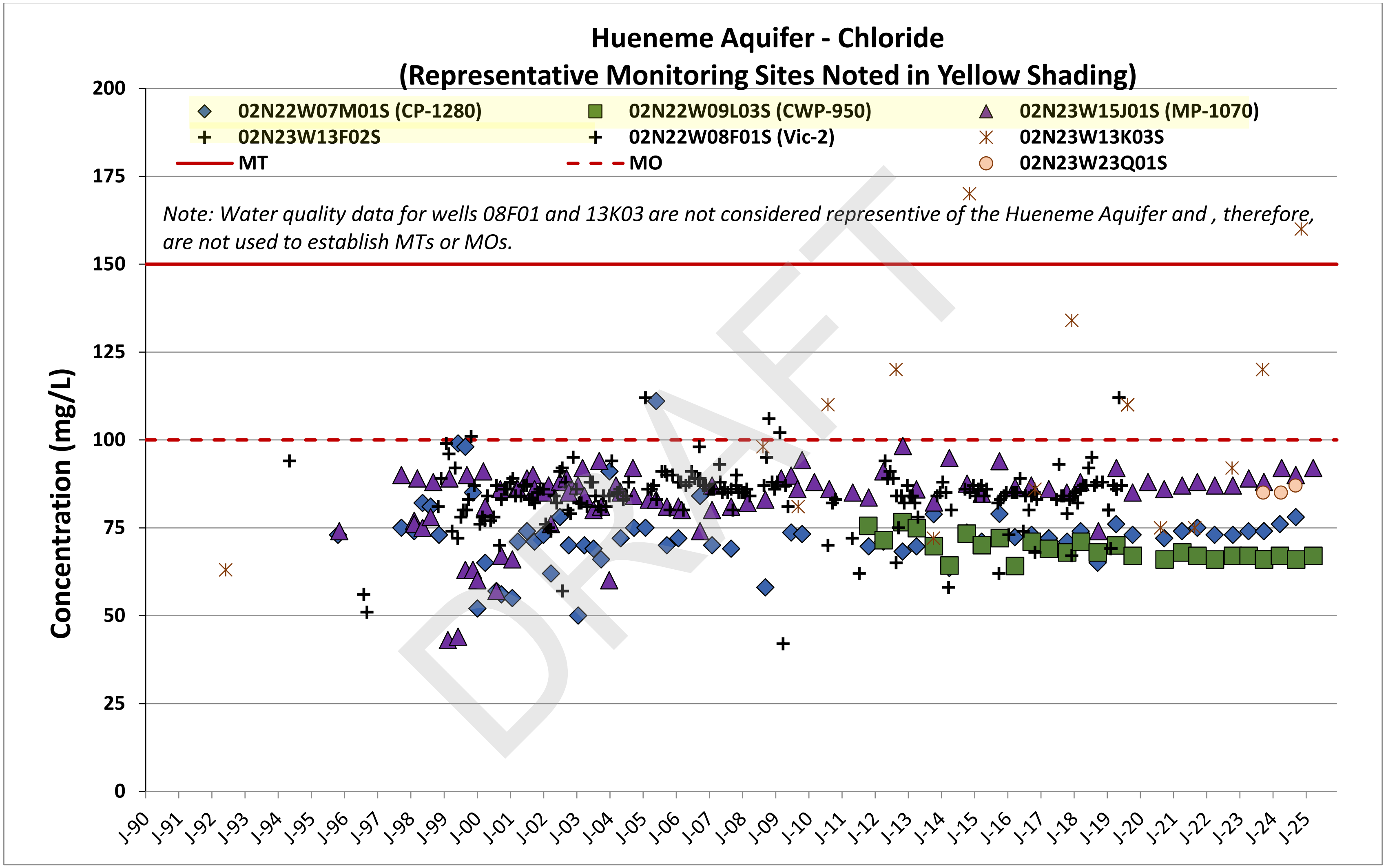

Figure 3.53 Time Series of Chloride Concentrations in the Hueneme Aquifer

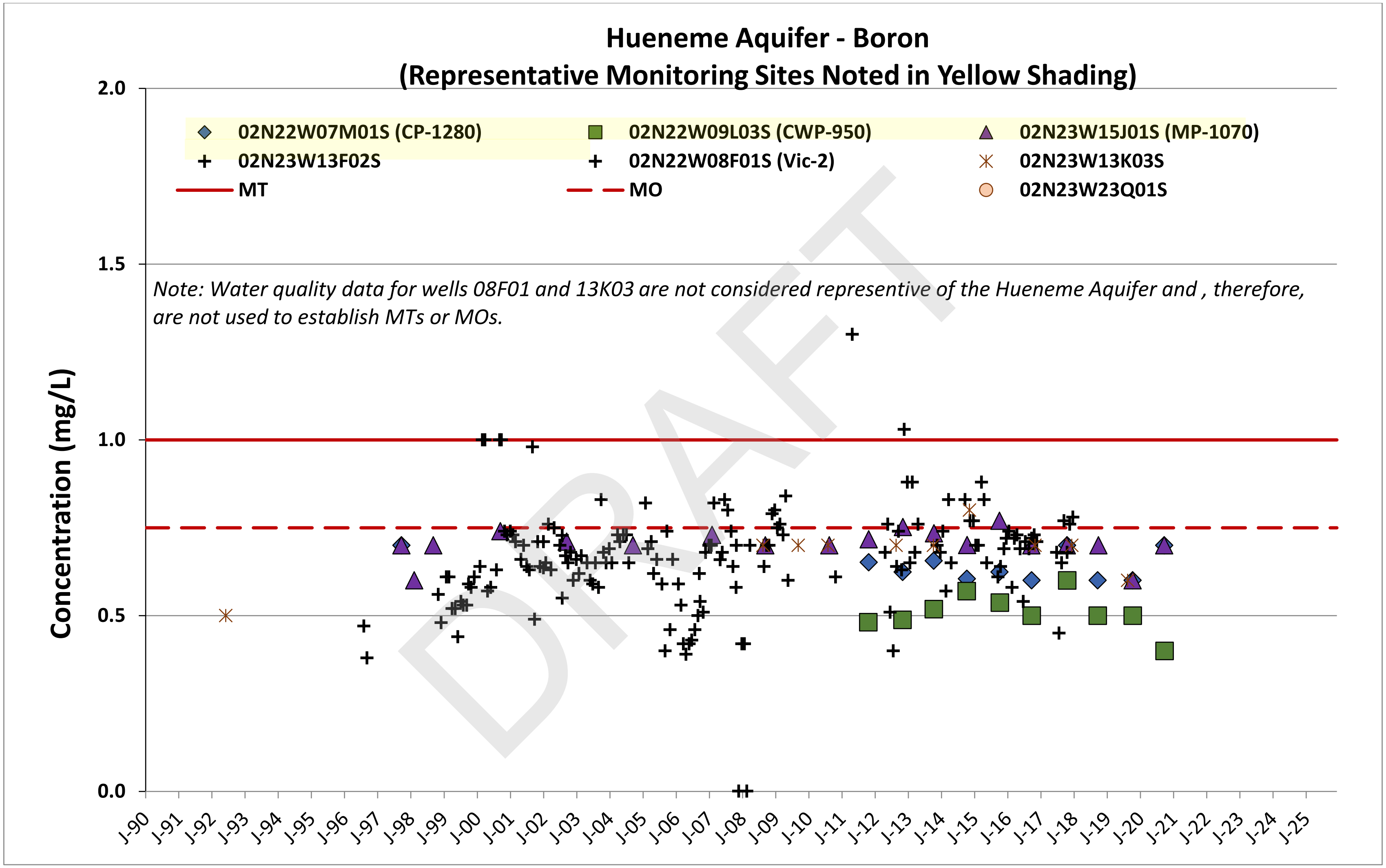

Figure 3.54 Time Series of Boron Concentrations in the Hueneme Aquifer

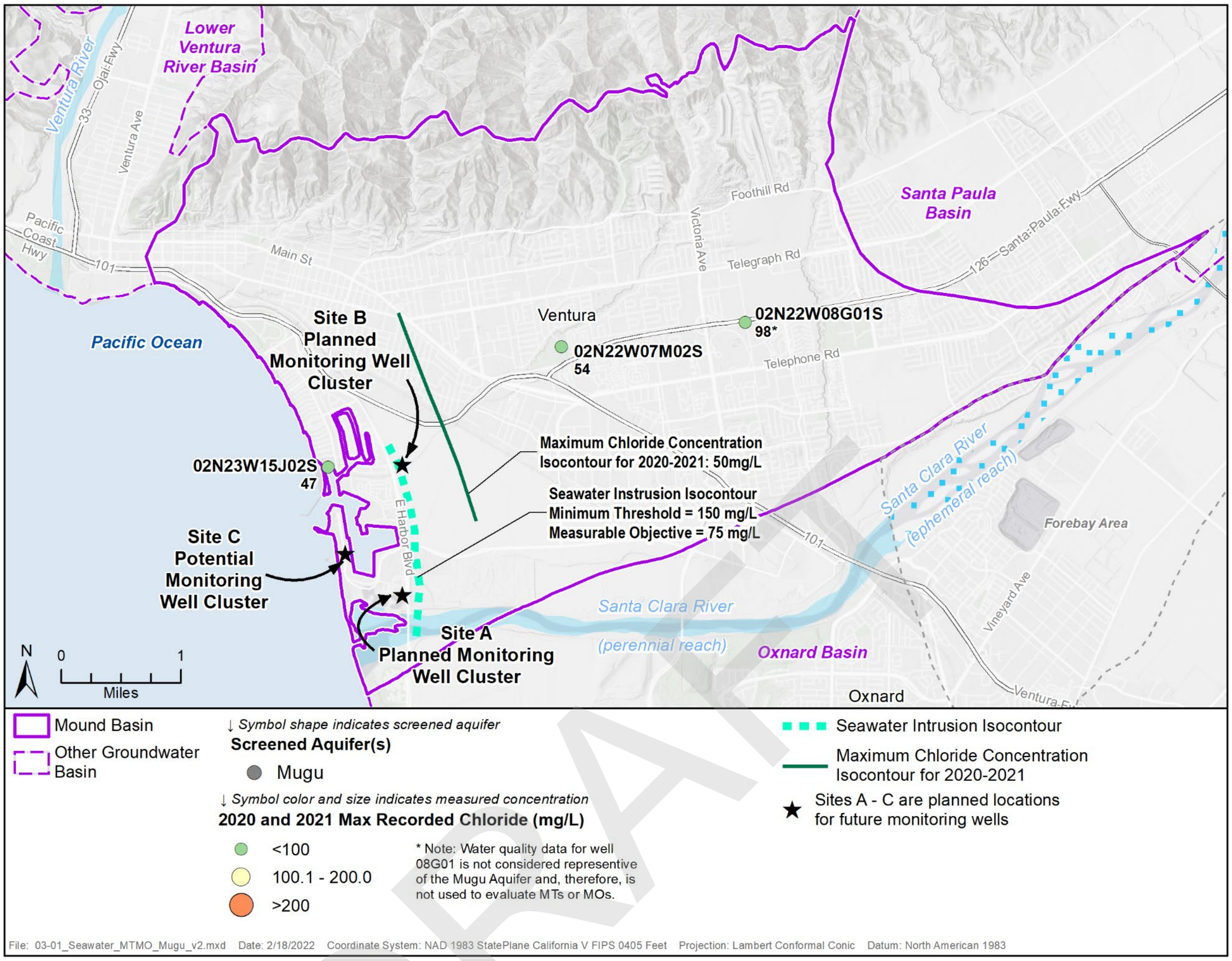

Figure 3.55 **Map Showing Seawater Intrusion Minimum Threshold, Measurable Objective, and Chloride Isocontour, Mugu Aquifer, Water Year 2020**

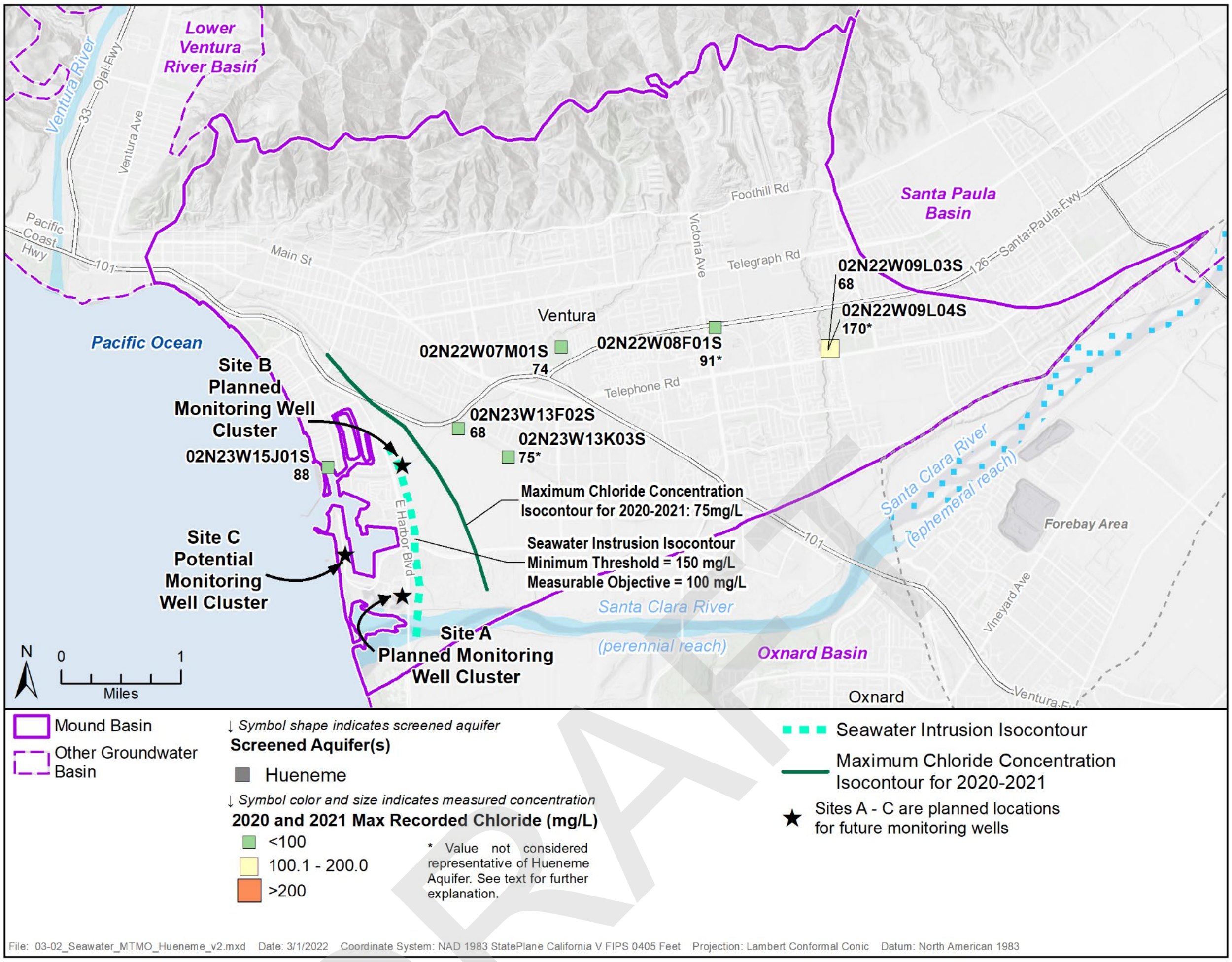

Figure 3.56 **Map Showing Seawater Intrusion Minimum Threshold, Measurable Objective, and Chloride Isocontour, Hueneme Aquifer, Water Year 2020**

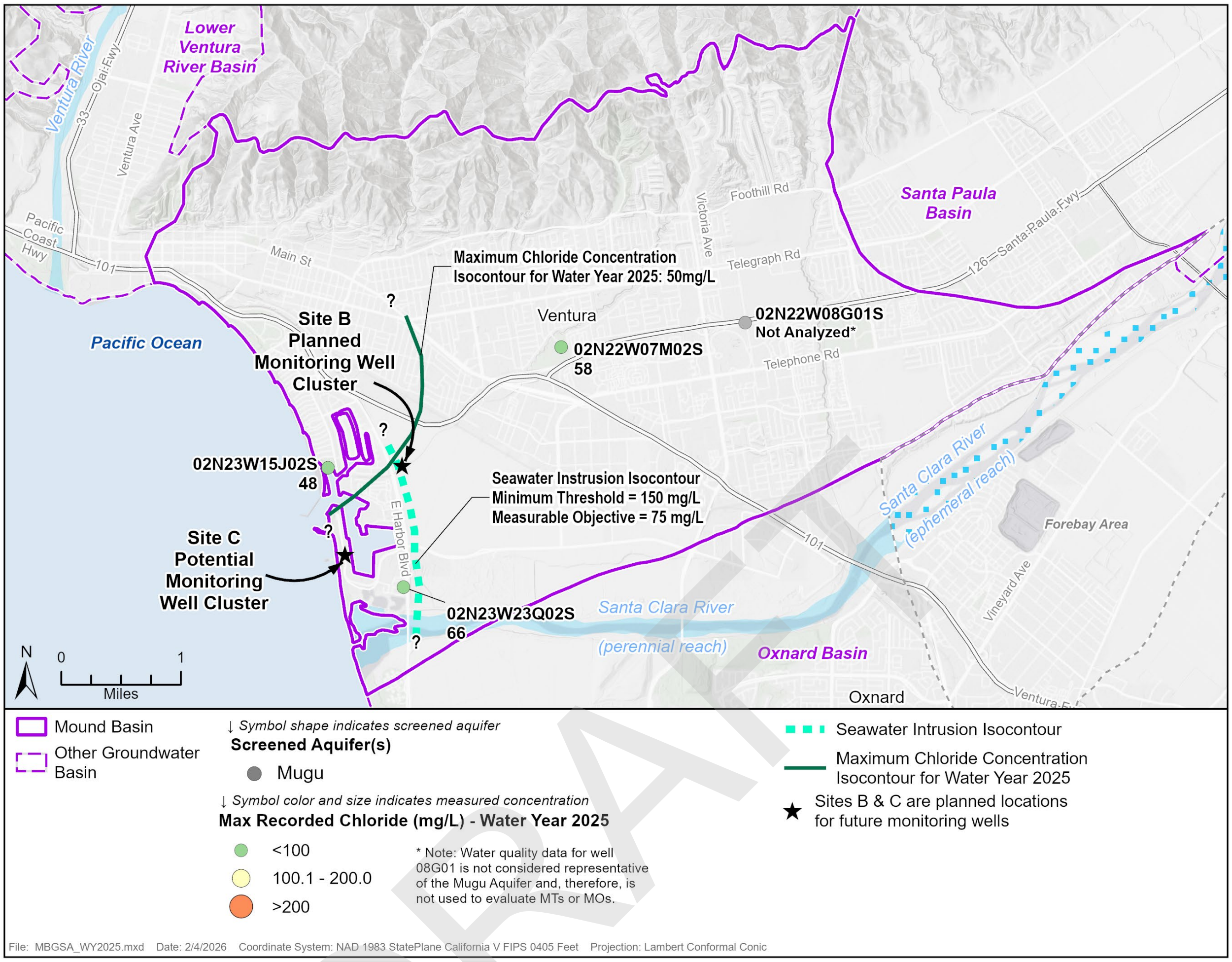

Figure 3.57 Map Showing Seawater Intrusion Minimum Threshold, Measurable Objective, and Chloride Isocontour, Mugu Aquifer, Water Year 2025

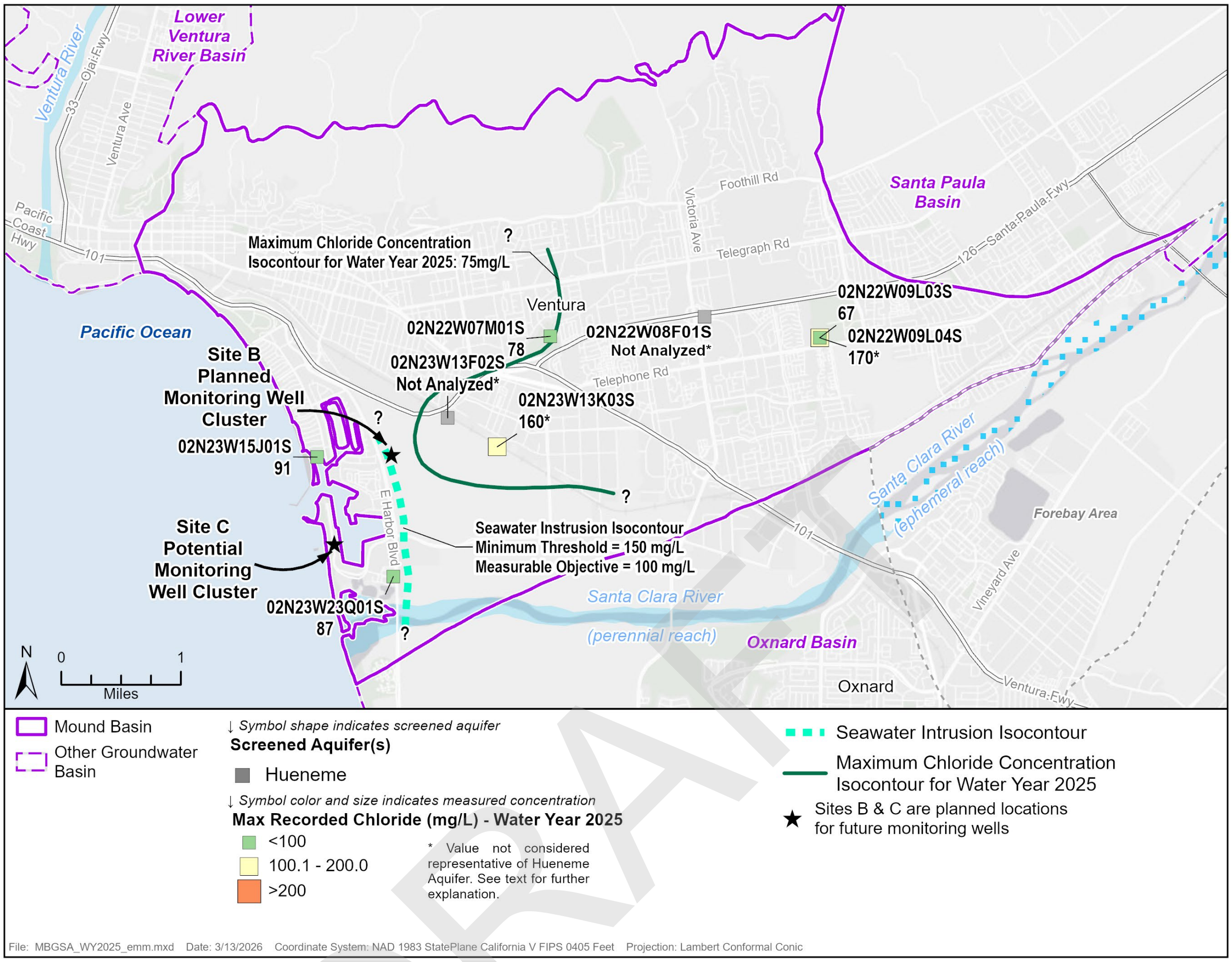

Figure 3.58 Map Showing Seawater Intrusion Minimum Threshold, Measurable Objective, and Chloride Isocontour, Hueneme Aquifer, Water Year 2025

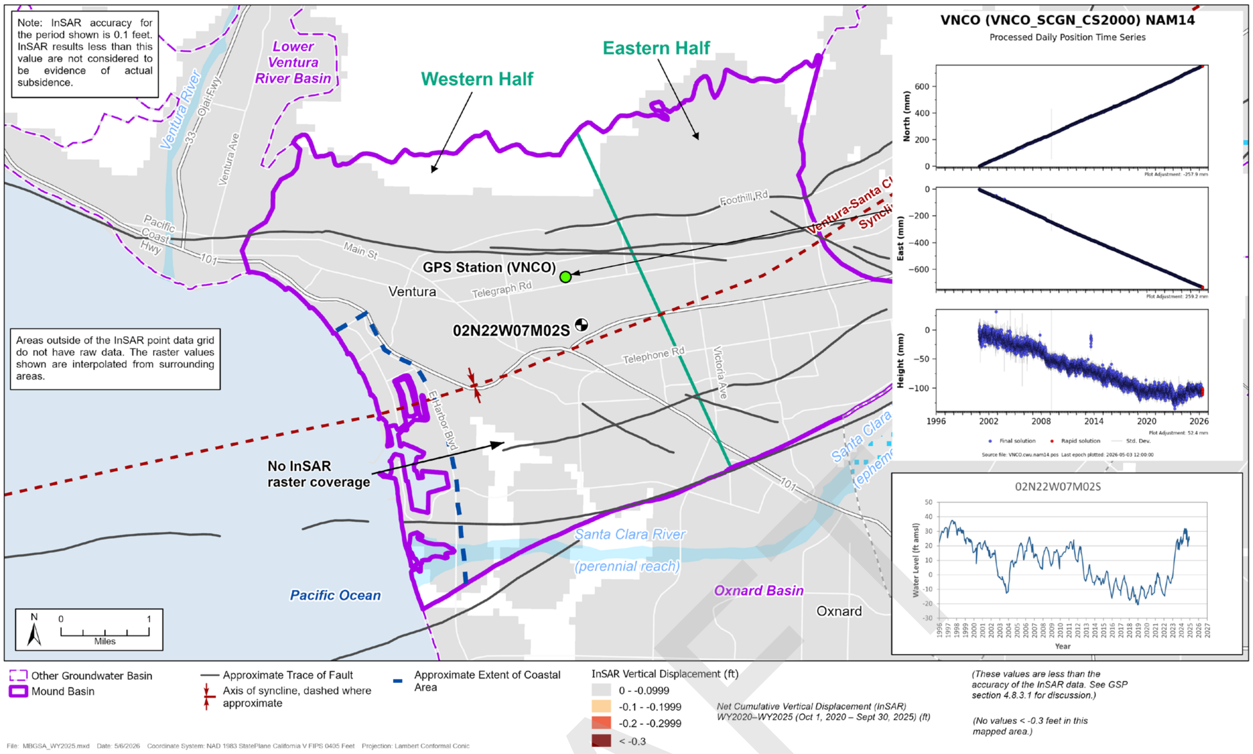

Figure 3.59 Subsidence Map for Mound Basin Between Water Years 2020 and 2025

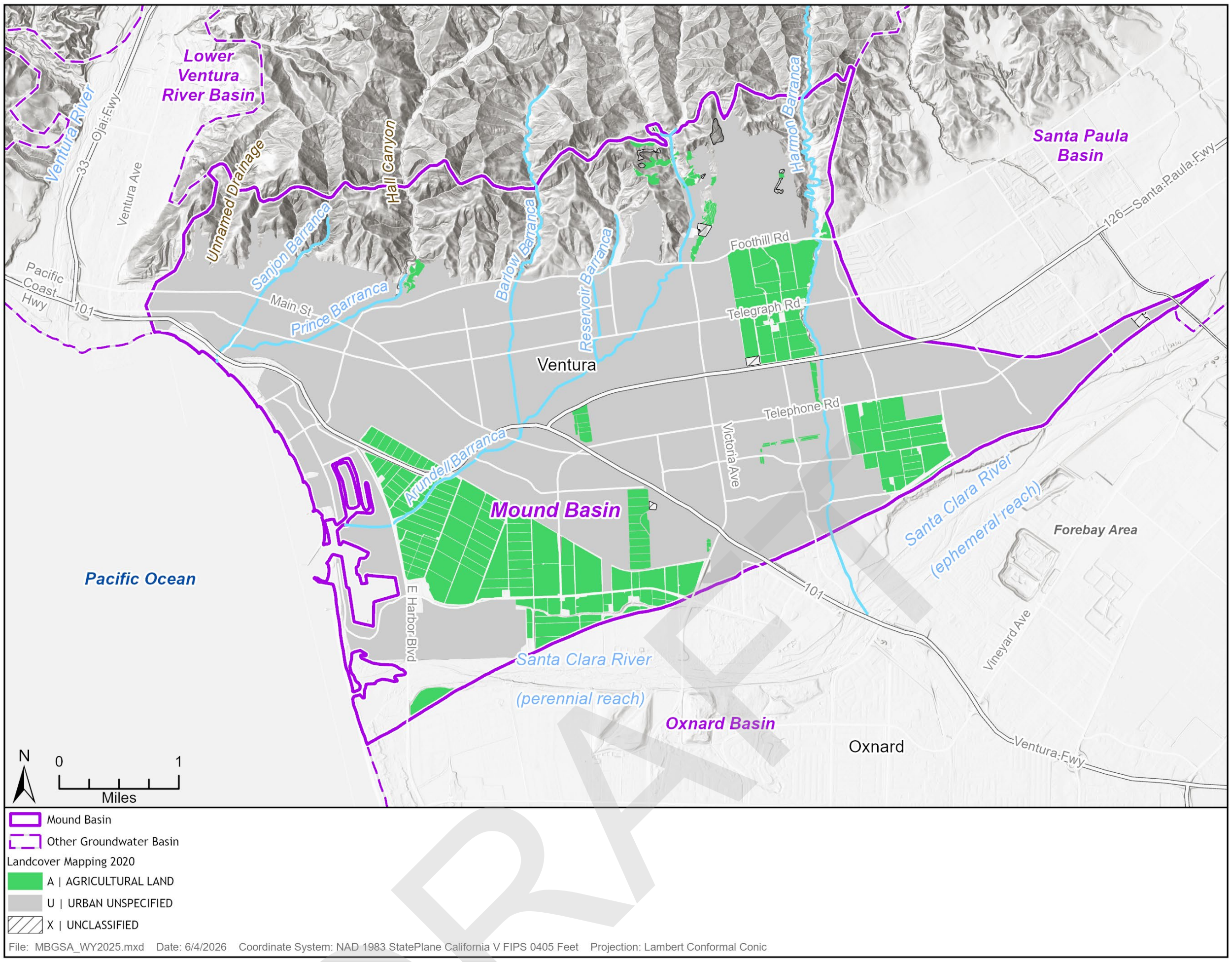

Figure 5.1 DWR Land Use Mapping (Water Year 2020)

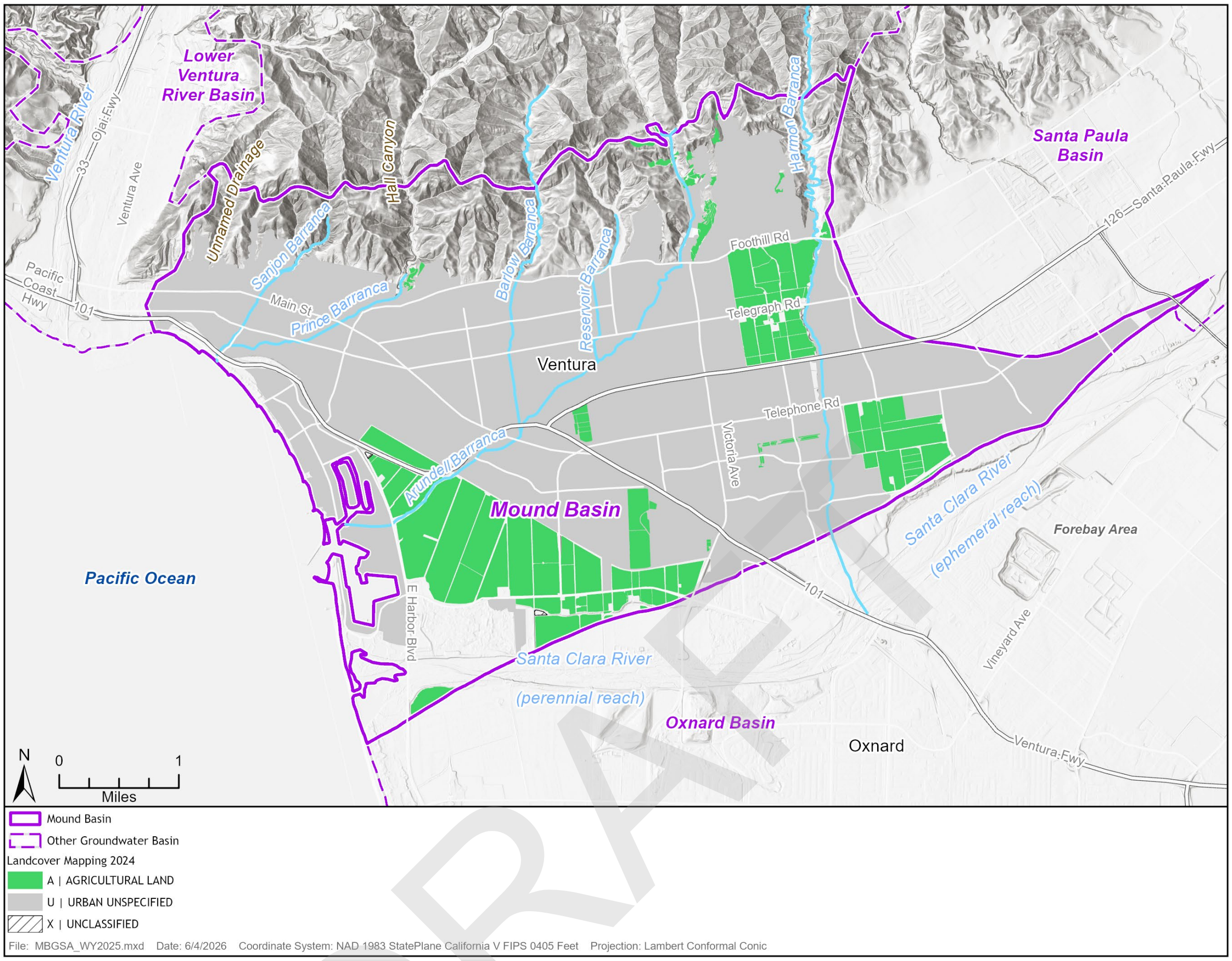

Figure 5.2 DWR Land Use Mapping (Water Year 2024)

APPENDIX A
Evaluation of Interconnected Surface Water in the Mound Basin

DRAFT TECHNICAL MEMORANDUM

To: Bryan Bondy, Executive Director, Mound Basin Groundwater Sustainability Agency (MBGSA)

From: Trevor Jones, PhD, Steven Humphrey, PG, CHG, Abhishek Singh, PhD, PE

Date: May 8, 2026

Re: Evaluation of Interconnected Surface Water in the Mound Basin

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1.0 Introduction

Since adoption of the Groundwater Sustainability Plan (GSP) in 2021, the Mound Basin Groundwater Sustainability Agency (MBGSA) has undertaken several actions to improve understanding of interconnected surface waters in the Subbasin, including:

- Constructing a new clustered monitoring well near the Santa Clara River Estuary;
- Coordinating with monitoring entities to support continued shallow groundwater monitoring; and
- Enhancing the groundwater monitoring program to provide higher-frequency groundwater level and quality data than were available during development of the GSP.

These new monitoring data, together with information on Santa Clara River flows and estuary conditions collected by the Ventura County Watershed Protection District and City of Ventura, provide an expanded basis to verify the conclusions presented in the GSP that groundwater pumping from the Mugu and Hueneme aquifer do not cause a material depletion of surface waters in the Basin. This technical memorandum summarizes the newly available data and evaluates whether they support the GSP findings regarding depletion of interconnected surface waters.

2.0 New Information Collected Since Adoption of the GSP

2.1 Groundwater Monitoring Data

INTERA compiled groundwater elevation and groundwater quality data from a network of 15 wells distributed across the Mound Basin (Basin) (Figure 1; Table 1). This network expands upon the set of wells evaluated in the GSP's interconnected surface water analyses to include the newly constructed MBGSA clustered monitoring well at the Ventura Water Reclamation Facility (VWRF), as well as four additional wells completed in the Hueneme aquifer (Table 1). The VWRF monitoring well consists of three collocated wells separately completed in the shallow alluvial deposits, Mugu aquifer, and Hueneme aquifer. Importantly, this well is proximal to the Santa Clara River Estuary and provides a direct means of evaluating the hydraulic connectivity between the shallow alluvial deposits, which are connected to local surface water bodies, and the Basin's principal aquifers.

Groundwater elevation data from these wells include measurements ranging from sub-daily pressure transducer records to monthly manual water-level measurements. These high-frequency groundwater level data provide insight into the sub-seasonal responses of each hydrostratigraphic unit to climate conditions, Santa Clara River flows, and groundwater extractions. Groundwater quality data were compiled for each well and generally consist of periodic groundwater samples analyzed for general mineral composition. These water quality data characterize local geochemical composition and salinity and, importantly, enable quantitative comparison of water types and isotopic signatures among different hydrogeologic units in the Subbasin.

Table 1. Groundwater Monitoring Network

Local Well Name	Depth (ft. bgs)	Screen Interval (ft. bgs)	Aquifer	Record of Measurement
02N23W23MW8 (GW-8)	25.9		Shallow	2015 – 2016, 2022 – Current
02N23W23MW9 (GW-9)	26.3		Shallow	
02N23W23MW10 (GW-10)	25.8		Shallow	
02N23W23MW11 (GW-11)	25.9		Shallow	
02N23W23Q03S*	110	30 – 105	Shallow	2023 – Current
02N23W15J02S	660	480 – 660	Mugu	2000 – Current
02N22W19M04S	500	343 – 493	Mugu	2011 – Current
02N23W23Q02S*	540	310 – 530	Mugu	2023 – Current
02N22W07M02S	790	710 – 780	Mugu	2000 – Current
02N23W24G01S	932	742 – 754	Hueneme	1962 – Current
02N23W23Q01S*	1,200	670 – 680	Hueneme	2023 – Current
02N22W07M01S	1,280	1,200 – 1,280	Hueneme	2000 – Current
02N22W09K04S	548	521 – 794	Hueneme	2000 – Current
02N22W16K01S	354	292 – 345	Hueneme	2000 – Current
02N23W15J01S	1,110	970 – 1,070	Hueneme	2000 – Current

Notes: ft. bgs = feet below ground surface.

* New MBGSA clustered monitoring well at VWRF. Constructed in July 2022.

2.2 Santa Clara River Flow Data

Ventura County Watershed Protection District (VCWPD) operates and maintains stream gaging stations on the Santa Clara River. Station 723[1], located in the adjacent Oxnard Subbasin, is approximately 1.5 miles upstream of the Santa Clara River Estuary and provides an estimate of Santa Clara River flows entering the Subbasin (Figure 1). For the post-GSP adoption period, VCWPD has published Santa Clara River flow data for water years 2023, 2024, and part of 2022.[2] INTERA compiled these data to evaluate the relationship between Santa Clara River flows and groundwater levels in the shallow alluvial deposits and principal aquifers.

[1] https://vcwatershed.net/hydrodata/get-station/?siteid=723#top

[2] As of January 7, 2026, VCWPD reports that stream flows measured at Station 723 are missing (M) for water years 2020, 2021, and part of 2022.

2.3 Santa Clara River Estuary Data

Through their VenturaWaterPure program, the City of Ventura (City) plans to expand use of reclaimed water within its service area. The VenturaWaterPure program will utilize treated effluent from the VWRF that is currently discharged to the Santa Clara River Estuary. To assess the ecological effects of reducing VRWF discharges to the estuary, the City is implementing the Santa Clara River Estuary Pre-Construction Assessment Program (PCAP)[3]. The PCAP establishes baseline conditions in the estuary and includes monitoring of physical characteristics, water quality, and habitat conditions.

Beginning in water year 2022, the City has published PCAP reports documenting estuary conditions (Ventura Water, 2023, 2024, 2025). For this evaluation, INTERA compiled data from these reports to assess the physical mechanisms controlling estuary water levels and the hydraulic connection between the estuary, shallow alluvial deposits, and principal aquifers.

3.0 Observed Hydrologic and Hydrogeologic Conditions

3.1 Santa Clara River and Estuary

3.1.1 Santa Clara River Flows

Since water year 2019, the end of the GSP reporting period, the Basin has experienced variable climate conditions. Water years 2020 and 2022 were classified as near normal, water year 2021 was classified as dry, and water years 2023 and 2024 were classified as wet (MBGSA, 2022, 2023, 2024, 2025).

During water years 2023 and 2024, the Subbasin received an average of approximately 27 inches of rainfall per year, representing about 175% of the long-term historical average. These wet conditions resulted in substantial flows in the Santa Clara River, with daily flows at Station 723 averaging approximately 690 cubic feet per second (cfs) and peaking at more than 48,400 cfs (measured in January 2023; Figure 2). The January 2023 peak was the highest flow recorded at this station and the total annual flows in 2023 and 2024 averaged approximately 499,000 acre-feet per year, or nearly four times the average annual flows recorded from 2008 to 2017.

3.1.2 Santa Clara River Estuary

Despite the variability in Santa Clara River flows measured at Station 723, surface water levels in the Santa Clara River Estuary were generally similar across water years 2022 through 2024 (Table 2). This similarity is primarily attributable to the physical condition of the sand berm that periodically separates or connects the estuary from the Pacific Ocean, thereby controlling estuary water levels (Ventura Water 2023, 2024, 2025).

During water years 2022, 2023, and 2024, the estuary sand berm remained open for approximately 60 days, 290 days, and 300 days, respectively (Ventura Water, 2023, 2024, and 2025). The prolonged

[3] https://www.cityofventura.ca.gov/2196/Santa-Clara-River-Estuary-Monitoring

periods of berm openness in water years 2023 and 2024 reflect the wetter-than-average hydrologic conditions and high Santa Clara River flows observed during those years (Figure 2).

Table 2. Santa Clara River Estuary Surface Water Levels

Water Year	Water Year Type	Maximum Surface Water Level (ft. NAVD88)	Minimum Surface Water Level (ft. NAVD88)
2022	Near Normal	12.3	4.3
2023	Wet	12.9	3.9
2024	Wet	12.85	3.8

Source: City of Ventura (2023, 2024, 2025)

3.2 Groundwater Conditions

3.2.1 Groundwater Elevation and Quality Trends

3.2.1.1 Shallow Alluvial Deposits

Groundwater elevations in the shallow alluvial deposits underlying the Santa Clara River and its estuary varied geographically and in response to flow conditions.

Near the upper reaches of the Santa Clara River within the Basin, groundwater levels at MW-8 varied from a low of approximately 14.5 feet relative to the North American Vertical Datum of 1988 (ft NAVD88) in September 2022 to a high of approximately 23.8 ft NAVD88 in February 2024. The groundwater high corresponded to the historically elevated flows recorded at Santa Clara River Station 723 (Figure 3). During spring and summer 2023, groundwater levels at MW-8 gradually declined by approximately 2.5 to 5 feet. These groundwater level declines are well correlated with the gradual recession in Santa Clara River flows over the same period (Figure 3).

Farther west, near the Santa Clara River Estuary, groundwater levels at MW-9 and MW-10 showed similar responsiveness to Santa Clara River flows during the wet 2023 and 2024 water years but exhibited distinctly different behavior compared to MW-8 prior to peak flow events (Figure 3). For example, in spring 2022, groundwater levels at both MW-9 and MW-10 increased from approximately 5.8 ft. NAVD88 to approximately 11.4 ft. NAVD88 (Figure 3). Over this same period, groundwater levels at MW-8 declined from approximately 16.0 ft NAVD88 to 14.7 ft. NAVD88 (Figure 3). Estuary berm condition data indicate that the groundwater level increases at MW-9 and MW-10 coincided with periods of estuary berm closure, during which the estuary was hydraulically disconnected from the Pacific Ocean and surface water levels increased (Figure 3). Similar groundwater level increases at MW-9 and MW-10 were observed during berm closure in late October and November 2024 (Figure 3). In contrast, groundwater levels at MW-8 showed minimal sensitivity to estuary berm conditions.

These data indicate that groundwater elevations in the shallow alluvial deposits are driven by changes in Santa Clara River flows and physical conditions of the estuary berm.

Groundwater samples collected from wells 02N22W23MW10, 02N22W23Q03S, 02N23W23MW11, and 02N23W23MW8 indicate that groundwater in the shallow alluvial deposits is high in salinity and predominantly sodium-sulfate type (Figure 4).

3.2.1.2 Principal Aquifers

3.2.1.2.1 Mugu Aquifer

Groundwater elevations in the Mugu aquifer have steadily increased across the Subbasin since adoption of the GSP (Figure 5). In the central portion of the basin, groundwater elevations at well 02N22W07M02S increased from a low of approximately -21.2 ft NAVD88 in October 2019 to a high of approximately 31.9 ft NAVD88 in March 2025 (Figure 5). Near Ventura Harbor, groundwater elevations at well 02N23W15J02S, groundwater elevations exhibited similar recovery, increasing from approximately -13.2 ft NAVD88 in October 2019 to approximately 22.1 ft NAVD88 in March 2025 (Figure 5).

Near the Santa Clara River Estuary, groundwater elevations measured at the new MBGSA well, 02N23W23Q02S, closely tracked changes observed at 02N23W15J02S. Groundwater elevations increased from approximately -2.3 ft NAVD88 in May 2023 before becoming artesian in April 2024. Artesian conditions persisted at this location through April 2025 (Figure 5).

Along the boundary with the Oxnard Subbasin, groundwater elevations were more responsive to water year type. During the near-normal 2019 and 2020 water years, groundwater elevations at well 02N20W19M04S increased by approximately 30 feet. Groundwater elevations declined by approximately 20 feet during the subsequent dry 2021 water year, followed by rapid recovery of nearly 65 feet during the near-normal and wet 2022 through 2024 water years. These climate-driven responses are consistent with groundwater trends observed in the adjacent Oxnard Subbasin, where the hydrostratigraphically continuous Mugu aquifer is directly recharged by spreading at basins in the Oxnard Forebay (FCGMA, 2024).

Groundwater quality samples collected from wells in the Mugu aquifer show distinctly different water quality characteristics than the shallow alluvial deposits, with overall lower salinity and higher calcium composition (Figure 4).

3.2.1.2.2 Hueneme Aquifer

Similar groundwater elevation trends to the Mugu have persisted across the Hueneme aquifer since adoption of the GSP. At wells 02N20W07M01S, 02N23W24G01S, 02N22W09K04S, and 02N23W15J01S, groundwater elevations recovered by approximately 30 to 40 feet (Figure 6). Near the Santa Clara River Estuary, groundwater elevations at well 02N23W23Q01S increased from approximately -0.7 ft NAVD88 and transitioned to artesian in April 2024 (Figure 6). Like the Mugu aquifer, this well was artesian through April 2025.

Consistent with the Mugu aquifer, groundwater elevations in the Hueneme aquifer near the boundary with the Oxnard Subbasin were responsive to water year type. Between October 2018 and June 2020, groundwater elevations at well 02N22W16K01S increased by approximately 35 feet (Figure 6), followed by a decline of nearly 28 feet duri47ng the drier-than-average 2022 water year. Subsequent wet conditions in water years 2023 and 2024 resulted in more than 80-feet of recovery at this well, consistent with the increases measured at well 02N20W19M04S, which is screened in the Mugu (Figures 5 and 6).

These climate-driven responses are consistent with groundwater trends observed in the adjacent Oxnard Subbasin, where the hydrostratigraphically continuous Hueneme aquifer is directly recharged by spreading at basins in the Oxnard Forebay (FCGMA, 2024).

Water quality samples indicate that water quality composition is similar between the Hueneme and Mugu aquifers (Figure 4).

4.0 Evaluation of GSP Findings

The groundwater elevation, surface water flow, and estuary condition data indicate that groundwater elevations in the shallow alluvial deposits, which are connected to the Santa Clara River, and the Subbasin's principal aquifers exhibit distinctly different behaviors:

- In the shallow alluvial deposits, groundwater elevations are controlled by flows in the Santa Clara River and physical status of the sand berm that connects the estuary with the Pacific Ocean.
- In the Mugu and Hueneme aquifers, groundwater elevations are controlled by groundwater extraction trends (MBGSA, 2021) and, locally, by underflows to and from the adjacent subbasins.

The limited hydraulic communication between shallow alluvial deposits and the principal aquifers is most clearly shown when comparing groundwater elevation data across completions at MBGSA's new clustered monitoring well (Figure 7). At this location, groundwater elevations show two different trends throughout time:

- Between May 2023 and October 2023, groundwater elevations in the shallow completion steadily declined by approximately 1.5 feet, while groundwater levels in the Mugu and Hueneme aquifers increased by approximately 5 feet.
- Between March 2024 and May 2025, groundwater conditions in the Mugu and Hueneme aquifer were artesian, while groundwater elevations in the shallow alluvial deposit varied in response to estuary berm status.

Further, groundwater quality data collected from this well cluster also show distinct differences, with groundwater in the shallow alluvial deposits showing much higher salinity and sulfate concentrations than groundwater measured in the Mugu and Hueneme aquifers (Figure 7).

These new data support the GSP's conclusions that there is no material depletion of interconnected surface water within the Subbasin.

5.0 References

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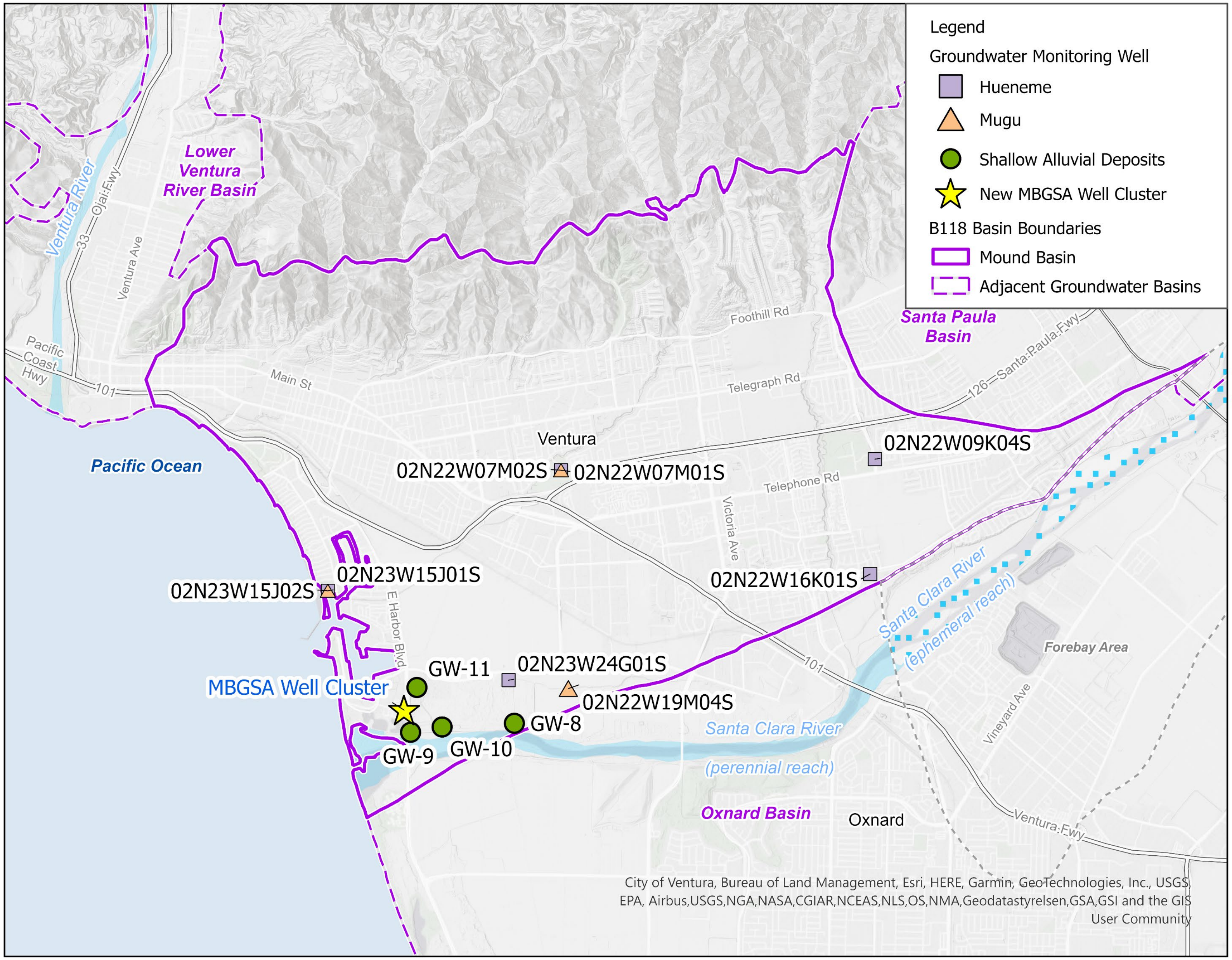

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Figure 1
Monitoring Network
Evaluation of Interconnected Surface Water in the Mound Subbasin

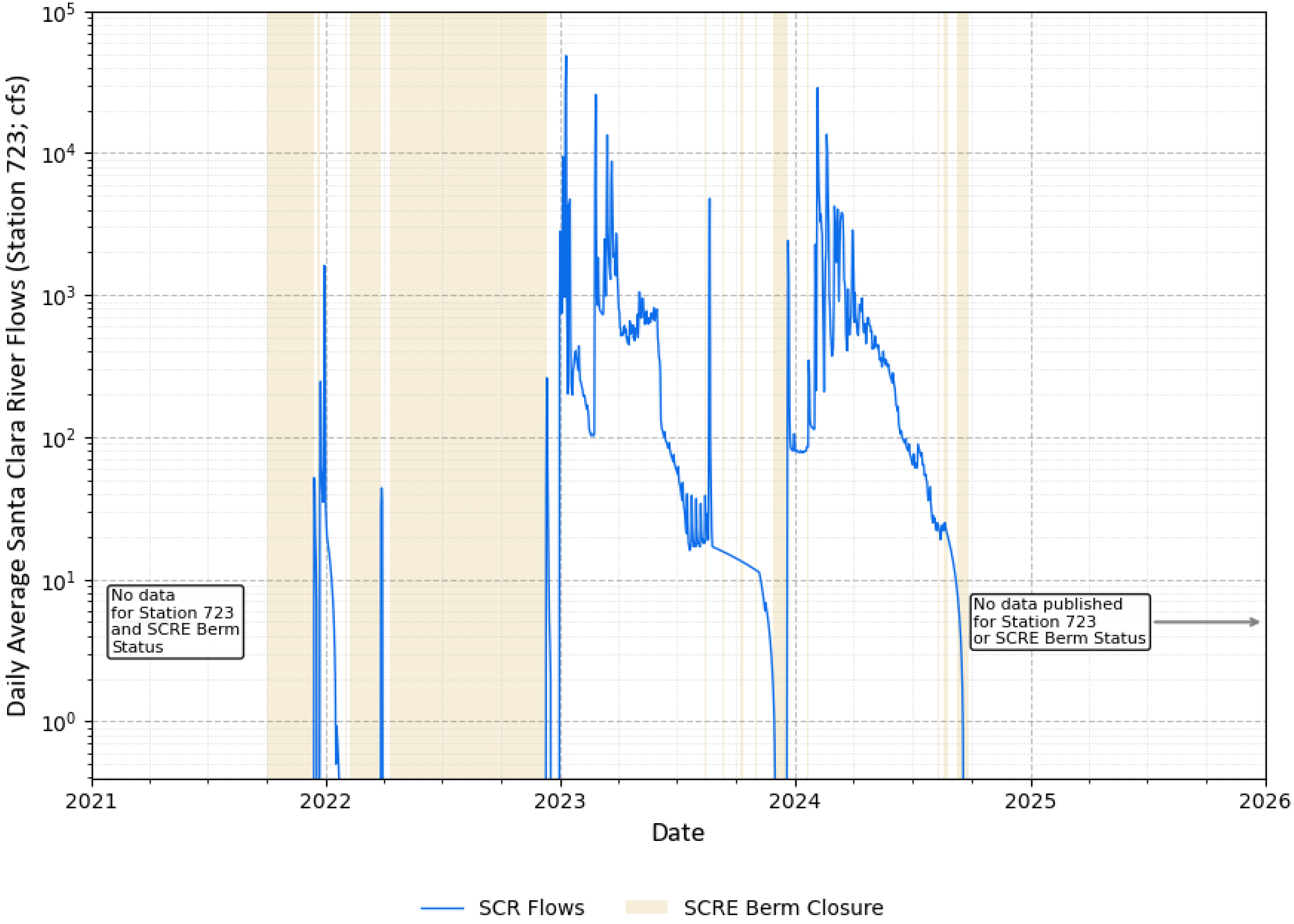

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Figure 2
Measured Santa Clara River Flows and Estuary Conditions
Evaluation of Interconnected Surface Water in the Mound Subbasin

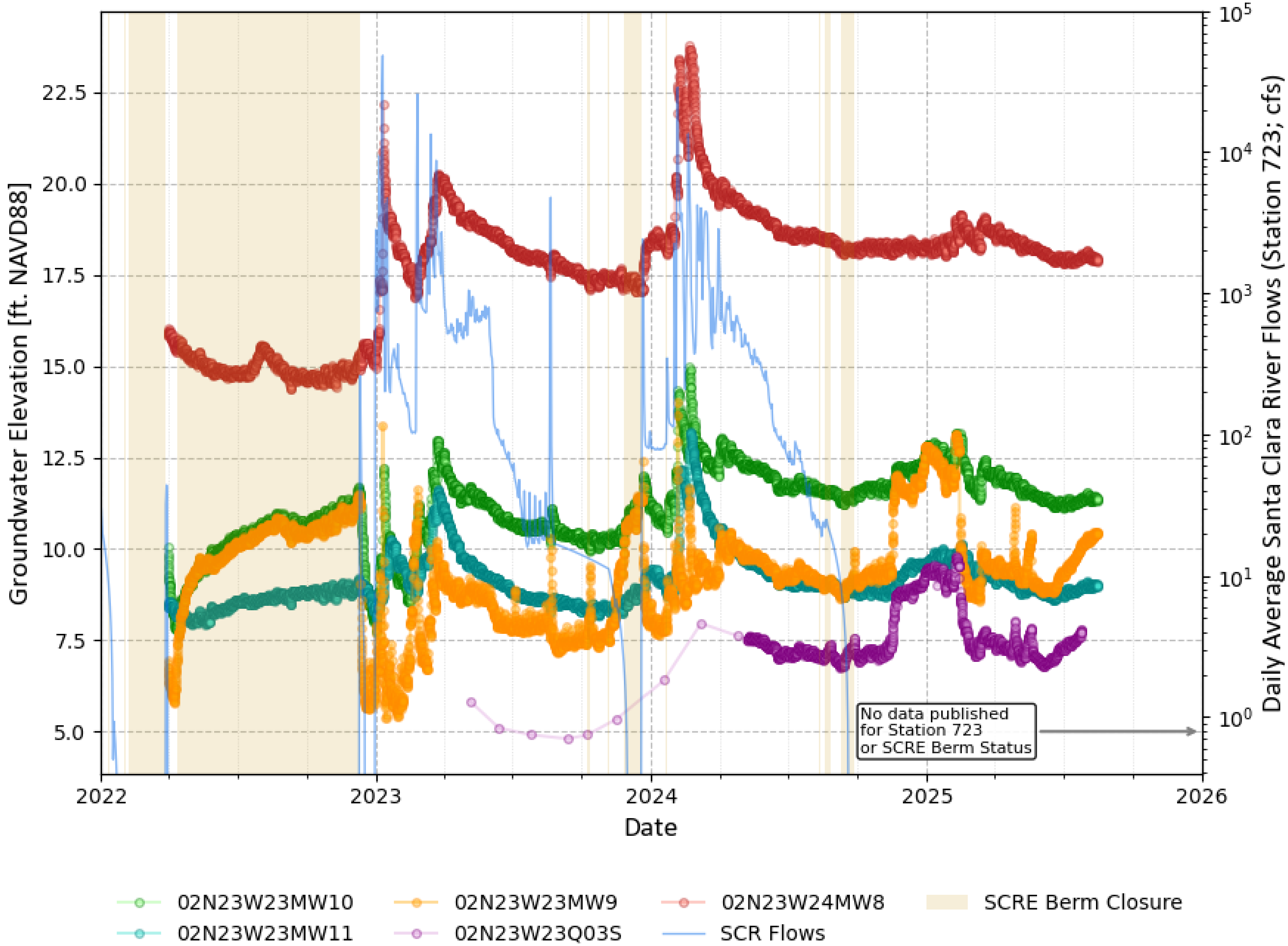

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Figure 3

Shallow Alluvial Deposits Groundwater Level Characteristics

Evaluation of Interconnected Surface Water in the Mound Subbasin

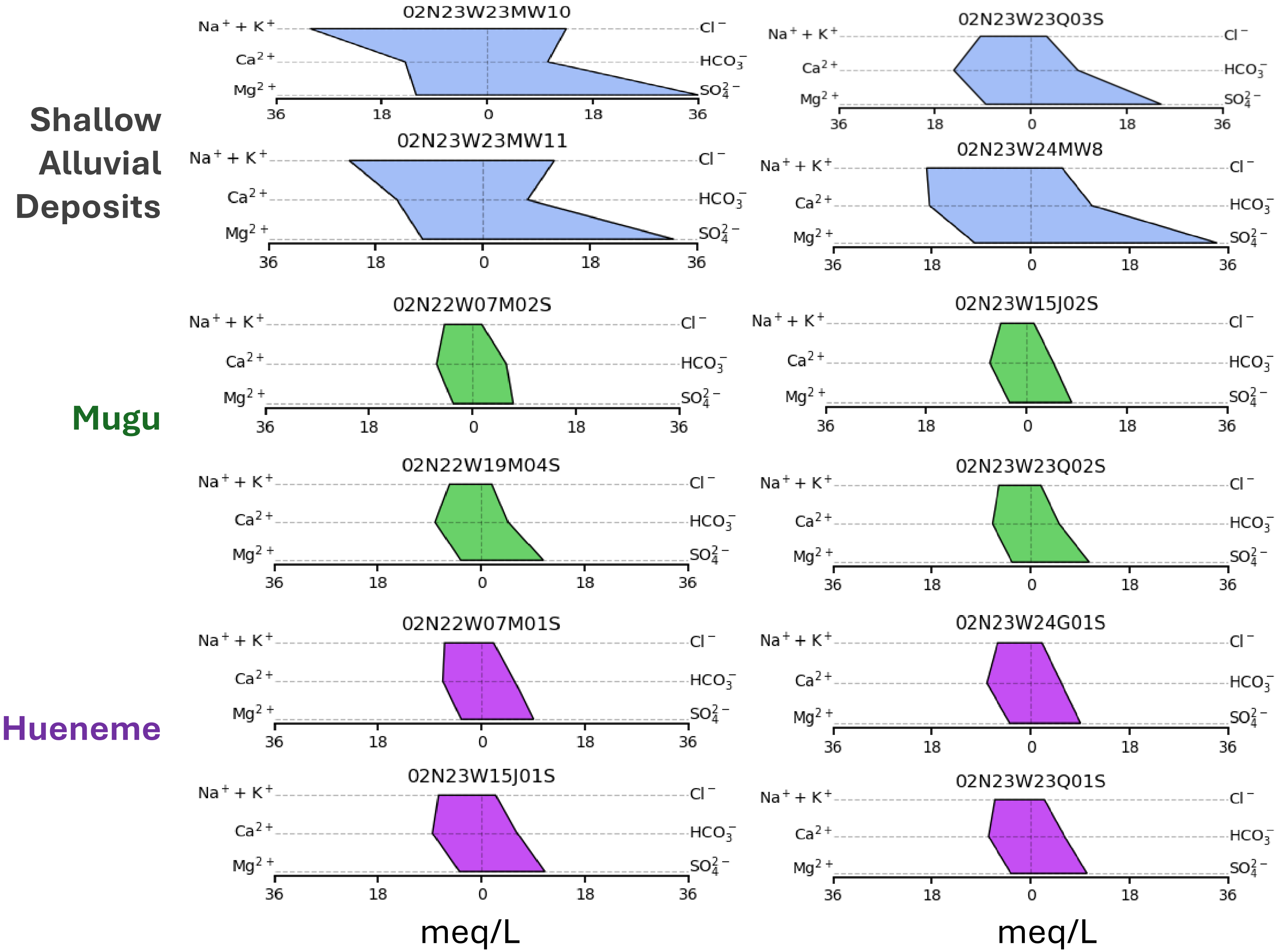

Figure 4

Shallow Alluvial Deposits Water Quality Characteristics

Evaluation of Interconnected Surface Water in the Mound Subbasin

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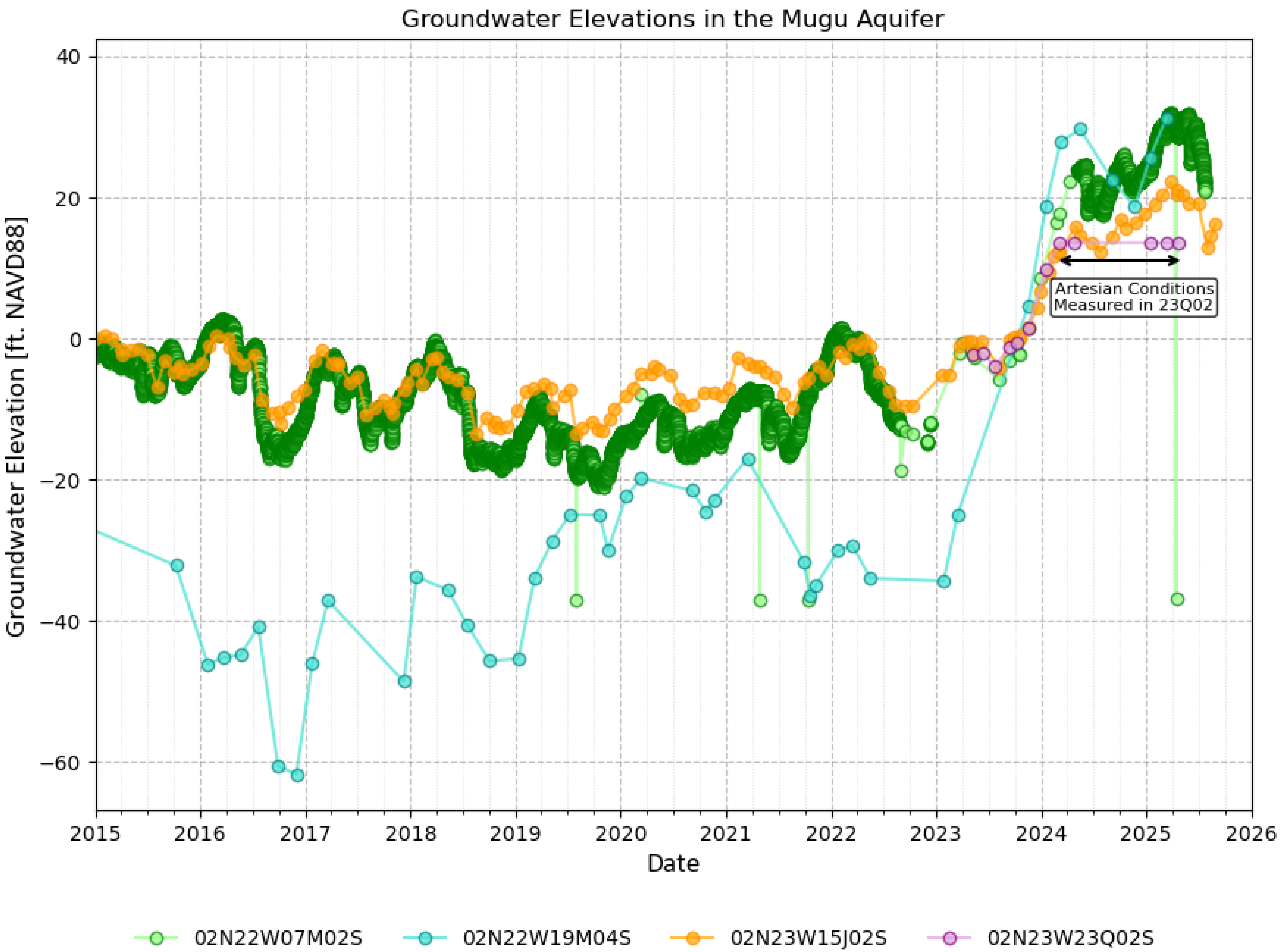

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Figure 5
Mugu Aquifer Groundwater Level Characteristics
Evaluation of Interconnected Surface Water in the Mound Subbasin

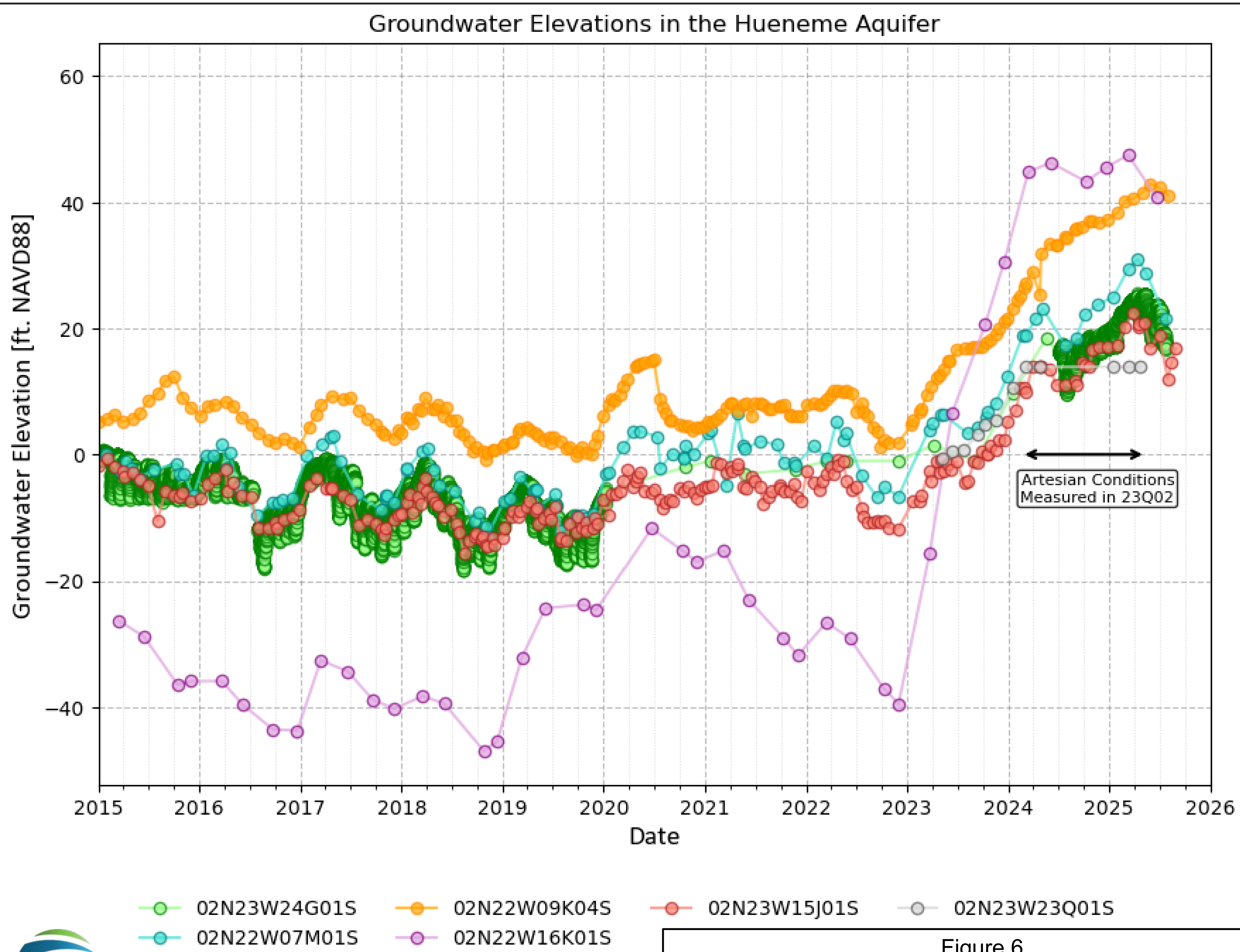

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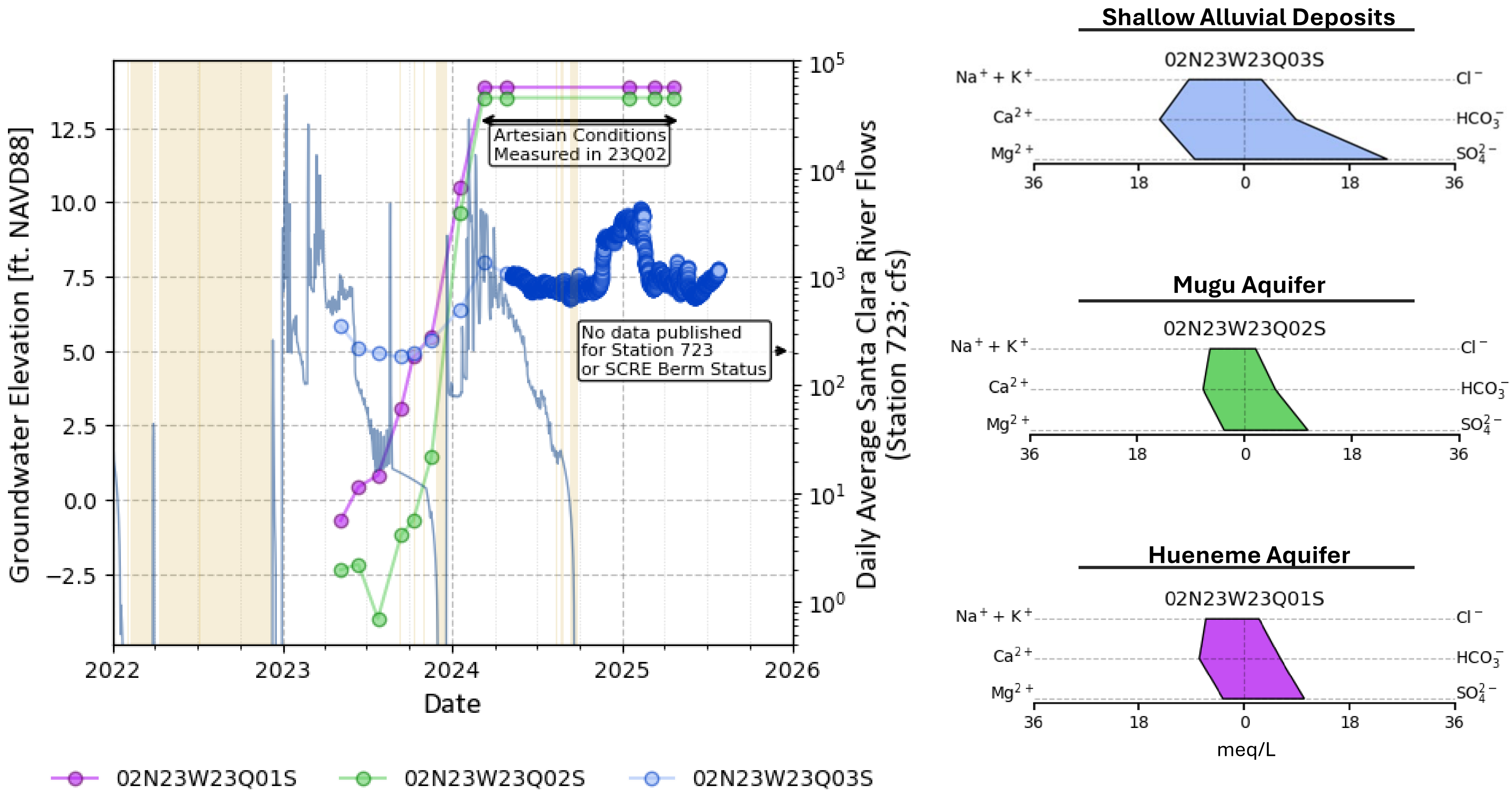
Figure 6
Hueneme Aquifer Groundwater Level Characteristics
Evaluation of Interconnected Surface Water in the Mound Subbasin



DRAFT

Figure 7

Groundwater Level and Quality Characteristics: New MBGSA Clustered Monitoring Well

Evaluation of Interconnected Surface Water in the Mound Subbasin

APPENDIX B
Summary of Groundwater Monitoring Network

		Relevant Monitoring Network																						
State Well Identification Number	Aquifers Monitored	Groundwater Levels/Storage	Degraded Water Quality	Seawater Intrusion	Land Subsidence	Local Well Identifier	CASGEM Master Site Code	Year Well Constructed	Easting Coordinate[a]	Northing Coordinate[a]	Ground Surface Elevation (feet msl)[b]	Reference Point Elevation (feet msl)[b]	Reference Point Description	Reported (Original) Well Use	Well Pumping Status	Well Configuration	Depth of Screened Interval(s) (feet bgs)[c]	Borehole Depth (feet bgs)[c]	Total Well (Casing) Depth (feet bgs)[c]	Casing Diameter (inches)	Frequency of Groundwater Elevation Measurement 2020-2025	Frequency of Groundwater Quality Sampling 2020-2025	Measurement or Sampling Entity[d]
02N22W07M02S	Mugu	X	X	X	X	CP-780	342703N1192342W002	1995	6,188,662	1,922,431	164.56	164.06	Ground surface (flush-mount vault)	Monitoring	---	Cluster	710-780	790	790	2	Monthly	Semiannually	United
02N22W07P01S	Mugu	X			X	---	not currently in CASGEM	2000	6,190,044	1,920,430	150 (approx.)	150.21	Top of casing cover plate (at 1/2" access hole)	Irrigation	Active	Single casing	460-580	580	580	10	Monthly	---	United
02N22W08G01S	Mugu[e]	X	X	X	X	Mound #1	not currently in CASGEM	2000	6,196,790	1,923,509	260 (approx.)	261.61	Lip of sounder access port	Municipal Supply	Active	Single casing	580-650	720	660	18	Monthly	Monthly	City of Ventura
~~02N22W08P01S~~[f]	~~Mugu~~	~~X~~	~~X~~	~~X~~	~~X~~	~~---~~	~~342658N1192109W001~~	~~1932~~	~~6,195,769~~	~~1,921,338~~	~~215.29~~	~~213.79~~	~~Lip of sounder access port~~	~~Irrigation~~	~~Inactive~~	~~Single casing~~	~~160-321~~	~~364~~	~~321~~	~~10~~	~~Quarterly~~	~~---~~	~~VCWPD~~
02N22W19M04S	Mugu	X			X	---	not currently in CASGEM	2004	6,188,984	1,912,787	48.18	49.68	Lip of 1" access port at base of pump pedestal	Irrigation	Active	Single casing	343-493	500	500	12	Bimonthly	---	United
02N23W15J02S	Mugu	X	X	X	X	MP-660	342533N1192690W001	1995	6,178,364	1,917,108	8.73	8.23	Ground surface (flush-mount vault)	Monitoring	---	Cluster	480-660	660	660	2	Monthly	Semiannually	United
02N23W23Q02S[g]	Mugu	X	X	X		MBGSA 530, VTA WWTP		2021	6,181,732	1,911,836	13.53	13.53	Ground surface (flush-mount vault)	Monitoring	---	Cluster	310-330, 390-430, 500-530	540	540				United
02N22W07M01S	Hueneme	X	X	X	X	CP-1280	342703N1192342W001	1995	6,188,662	1,922,431	164.56	164.06	Ground surface (flush-mount vault)	Monitoring	---	Cluster	1,200-1,280	1,280	1,280	2	Monthly	Semiannually	United
02N22W08F01S	Hueneme		X	X	X	Victoria #2	not currently in CASGEM	1994	6,195,468	1,923,287	245 (approx.)	245.82	Lip of sounder access port	Municipal Supply	Active	Single casing	580-640, 900-940, 1,060-1,180	1,310	1,190	14	---	Monthly	City of Ventura
02N22W09K04S	Hueneme	X				---	342703N1191881W001	1935	6,202,524	1,922,919	244.89	244.49	Lip of 2" sounder access pipe	Irrigation	Inactive	Single casing	521-794	548	548	14	Monthly	---	United
02N22W09L03S	Hueneme	X	X	X	X	CWP-950	342688N1191952W001	2008	6,200,555	1,922,367	253.25	251 .25	Lip of 2" PVC casing	Monitoring	---	Cluster	890-950	1,480	950	3	Monthly	Semiannually	United
02N22W09L04S	Hueneme	X	X	X	X	CWP-510	342688N1191952W002	2008	6,200,555	1,922,367	253.25	251.25	Lip of 2" PVC casing	Monitoring	---	Cluster	480-510	510	510	2	Monthly	Semiannually	United
02N22W10N03S	Hueneme	X			X	Well 2	not currently in CASGEM	2002	6,205,442	1,921,235	185 (approx.)	187.07	Lip of 2" sounder access pipe	Irrigation	Active	Single casing	200-280	280	280	12	Bimonthly	---	United
02N23W13F02S	Hueneme[h]		X	X		---	not currently in CASGEM	1990	6,184,131	1,918,834	60 (approx.)	60.85	Lip of sounder access port	Irrigation	Active	Single casing	521-982	997	982	14	---	Annually	United
02N22W16K01S	Hueneme	X			X	---	342564N1191892W001	1934	6,202,316	1,917,850	150.74	149.37	Lip of sounder access port	Industrial	Active	Single casing	292-345	354	354	12	Quarterly	---	VCWPD
02N22W17M02S	Hueneme	X			X	---	342555N1192173W001	2001	6,193,835	1,917,580	143.44	145.04	Lip of 2" sounder access pipe	Irrigation	Active	Single casing	550-850	853	850	14	Bimonthly	---	United
02N22W17Q05S	Hueneme	X			X	---	342491N1192078W001	1965	6,196,677	1,915,235	88.60	89.60	Top of casing cover plate (at access hole)	Irrigation	Inactive	Single casing	365-483	506	500	not reported	Bimonthly	---	United
02N22W20E01S	Hueneme	X			X	Olivas-Victoria	342459N1192169W001	1991	6,193,910	1,914,098	74.15	72.15	Lip of 1" access port at base of pump pedestal	Irrigation	Active	Single casing	462-592, 612-723, 737-818	818	818	10	Monthly	---	United
02N23W13K03S	Hueneme	X	X	X	X	---	342552N1192422W001	1977	6,186,323	1,917,561	68.71	68.71	Lip of sounder access port	Irrigation	Active	Single casing	800-1,200	1,200	1,200	16	Quarterly	Annually	VCWPD
02N23W13K04S	Hueneme	X			X	---	not currently in CASGEM	1981	6,186,689	1,917,396	70 (approx.)	70.66	Lip of 2" sounder access pipe	Irrigation	Active	Single casing	800-1,200	1,215	1,200	14	Quarterly	---	United
02N23W15J01S	Hueneme	X			X	MP-1070	342533N1192676W001	1995	6,178,365	1,917,106	8.73	8.23	Ground surface (flush-mount vault)	Monitoring	---	Cluster	970-1,070	1,110	1,070	2	Monthly	Semiannually	United
02N23W24G01S	Hueneme	X			X[h]	Olivas (old)	not currently in CASGEM	1948	6,186,343	1,913,155	25 (approx.)	26.30	Lip of 3" access port at base of pump pedestal	Municipal Supply	Inactive	Single casing	742-754, 795-825, 898-927	932	932	not reported	Quarterly	---	United
02N23W23Q01S[g]	Hueneme	X	X	X		MBGSA 1140, VTA WWTP		2021	6,181,732	1,911,836	13.88	13.88	Ground surface (flush-mount vault)	Monitoring	---	Cluster	680-740, 960-1010, 1080-1140	1,200	1,200				United

Notes

[a] Coordinate system is North American Datum 1983 (NAD83), State Plane, California Zone 5, in feet.

[b] feet msl =Feet above mean sea level, from light detecting and ranging (LiDAR) data to an accuracy of 0.5 feet or better (except where listed as "approx."), referenced to North American Vertical Datum 1988 (NAVD88).

[c] feet bgs =Feet below ground surface, reported by driller (updated by video survey by United Water Conservation District in some wells)

[d] United = United Water Conservation District; VCWPD = Ventura County Watershed Protection District

[e] This well may be partially screened in the Hueneme Aquifer.

[f] Well was destroyed in 2020 and is no longer part of the monitoring network.

[g] Well was constructed in 2022

[h] Subsidence rates are measured using InSAR at this well.

APPENDIX C
Correspondence with Environmental Stakeholders and Interested Parties Related to Depletion of Interconnected Surface Waters and Beneficial Users

Bryan Bondy

From: Bryan Bondy
Sent: Wednesday, December 3, 2025 2:39 PM
To: Bryan Bondy
Cc: Mound Basin GSA Admin; Conner Everts
Subject: Mound Basin GSA GSP Surface Water Beneficial Users
Attachments: Pages from 1_MBGSA_GSP_FINAL_FULLREPORT_20211214 (1).pdf; Newsletter Vol 3 Issue 1_Final.pdf

Dear Resource Agency or Interested Party Representative,

Mound Basin Groundwater Sustainability Agency (MBGSA) is reaching out to resource agencies and interested parties to collaborate and coordinate with you concerning the identification of beneficial uses and users of surface water within the Mound Basin. You are receiving this email because you or someone else from your organization provided comments on the Mound Basin groundwater sustainability plan (GSP) in 2021. We have identified your organization as one that may have useful information relevant to the identification of beneficial uses and users of surface water within the Mound Basin.

This outreach part of MBGSA's process to complete a periodic evaluation of the Mound Basin GSP. Part of the GSP period evaluation involves describing new information that has been obtained since the GSP was adopted. To this end, we are reaching out to determine whether you have any new information concerning the beneficial uses and users of surface water within the Mound Basin. We kindly request that you review the surface water beneficial uses and users described in the GSP, which can be found in the highlighted sections of the GSP appendix H (please see *attachment to this email*), and please let us know if you have any information concerning any new beneficial uses or users identified since the GSP was adopted in late 2021.

We thank you in advance for any information that you may have.

Lastly, I have also attached our most recent newsletter, which described the GSP evaluation process and invites you to our first GSP evaluation workshop scheduled for December 18, 2025. Please see the newsletter or our website for more information. We hope to see you there.

In the meantime, please feel free to contact me with any questions.

Best Regards,

--
Bryan Bondy, PG, CHG
Executive Director
MBGSA
805-212-0484

MoundBasin
GROUNDWATER SUSTAINABILITY AGENCY

APPENDIX D
Updated Stakeholder and Engagement Plan

STAKEHOLDER ENGAGEMENT PLAN

MOUND BASIN

(4-004.03) VENTURA COUNTY, CALIFORNIA

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA) PROGRAM

PREPARED BY THE MOUND BASIN GROUNDWATER SUSTAINABILITY AGENCY

UPDATED AND ADOPTED NOVEMBER 27, 2023

Table of Contents

1 INTRODUCTION

This Stakeholder Engagement Plan (Engagement Plan) summarizes the strategies to educate and involve stakeholders (those individuals and representatives of organizations who have a direct stake in the outcome of the planning process) and other interested parties in the implementation, assessment, and updating of the Groundwater Sustainability Plan (GSP) for the Mound Basin – Department of Water Resources (DWR) Basin No. 4-004.03 (Figure 1).

SGMA provides a framework to regulate groundwater for the first time in California's history. SGMA's intent is to strengthen local management of specified groundwater basins that are most critical to the state's water needs by regulating groundwater and land use management activities. SGMA also aims to preserve the jurisdictional authorities of cities, counties and water agencies within groundwater basins while protecting existing surface water and groundwater rights. Additionally, SGMA requires and directs GSAs to encourage active involvement of stakeholders and interested parties in the process to sustainability manage the basin.

The Mound Basin Groundwater Sustainability Agency (MBGSA or Agency), a Groundwater Sustainability Agency (GSA), was formed by three local agencies: County of Ventura (County), City of San Buenaventura (City), and United Water Conservation District (UWCD). There was extensive stakeholder engagement during that process. The governing board consists of one representative from each of those agencies plus two stakeholder directors representing environmental and agricultural interests. The GSA is responsible for developing and implementing GSP for the Mound Basin to achieve long-term groundwater sustainability. The GSP was be prepared in accordance with the Sustainable Groundwater Management Act (SGMA) and was adopted by MBGSA on November 18, 2021 and approved by DWR on October 26.

2 PURPOSE

The purpose of the outreach activities described in this Engagement Plan is to encourage the active involvement of individual stakeholders and stakeholder organizations, and other interested parties in the implementation, assessment, and updating of the GSP for the Mound Basin. The projects and management actions necessary to implement the GSP could affect individuals and groups who have a stake in ensuring the basin is sustainably managed as required by SGMA.

In an effort to understand and involve stakeholders and their interests in the decision- making and activities, the MBGSA prepared and regularly updates this Engagement Plan to encourage broad, enduring and productive involvement during the GSP development and, now, the implementation phase. This Engagement Plan assists the MBGSA in providing timely information to stakeholders and receive input from interested parties. This Engagement Plan identifies stakeholders who have an interest in groundwater in the Mound Basin, and recommends outreach, education, and communication strategies for engaging those stakeholders. The plan also includes an approach for evaluating the overall success of stakeholder engagement and education of both stakeholders and the public. In consideration of the interests of all beneficial uses and users of groundwater in the basin, this Engagement Plan has been developed pursuant to California Water Code Section 10723.2. Additionally, this Engagement Plan has been developed to encourage the active involvement of diverse social, cultural, and economic elements of the population within the Mound Basin, in accordance with GSP Regulations Section 354.10.

3 GENERAL INFORMATION

The following personnel will serve as contacts for the public during GSA formation and GSP preparation.

3.1 Clerk of the Board

For general information about MBGSA and the GSP status, contact:

Jackie Lozano, Clerk of the Board, (805) 525-4431, email jackiel@unitedwater.org.

3.2 Executive Director

MBGSA's Executive Director will be available for stakeholders and the public seeking specific detailed information about the GSP, contact:

Bryan Bondy, Executive Director, (805) 212-0484, email bryan@moundbasingsa.org.

4 OUTREACH ACTIVITIES

MBGSA implemented the following outreach activities to maximize stakeholder involvement during the development of the GSP and will continue throughout GSP implementation.

4.1 Public Notices

To ensure that the general public is apprised of local activities and allow stakeholders to access information, SGMA specifies several public notice requirements for GSAs. Refer to Table 1 in Appendix A for a summary of statutory requirements. Three sections of the California Water Code require public notice before establishing a GSA, adopting (or amending) a GSP, or imposing or increasing fees:

- Section 10723(b). "Before electing to be a groundwater sustainability agency, and after publication of notice pursuant to Section 6066 of the Government Code, the local agency or agencies shall hold a public hearing in the county or counties overlying the basin." In accordance with California Water Code Section 10723(b), the following was noticed to the public: On June 22, 2017, the MBGSA held a public hearing to consider becoming a GSA for the Mound Basin. The public hearing was noticed in the *Ventura County Star* in accordance with Government Code Section 6066.
- Section 10728.4. "A groundwater sustainability agency may adopt or amend a groundwater sustainability plan after a public hearing, held at least 90 days after providing notice to a city or county within the area of the proposed plan or amendment. …" A public hearing notice was printed in the *Ventura County Star* on November 3, 2021 in accordance with Government Code Section 6066 prior to adopting the GSP. Public notices will be printed in the *Ventura County Star* or other appropriate publication prior to holding public hearings for any future GSP amendments.
- Section 10730(b)(1). "Prior to imposing or increasing a fee, a groundwater sustainability agency shall hold at least one public meeting, at which oral or written presentations may be made as part of the meeting....(3) At least 10 days prior to the meeting, the groundwater sustainability agency shall make available to the public data upon which the proposed fee is based." Public hearing notices have been printed in the *Ventura County Star* in accordance with Government Code Section 6066 prior to adopting groundwater extraction fees each year.
- Future noticing will occur as required by SGMA.

4.2 Stakeholder Identification

Pursuant to Water Code Sections 10723.8(a)(4) and 10723.2, the Agency will consider the interests of all beneficial uses and users of groundwater, as well as those responsible for implementing a GSP.

MBGSA engaged stakeholders during development of the Agency to serve as the GSA. For example, during development of the joint powers authority agreement ("JPA Agreement") forming the Agency, the signatory members held numerous public meetings to discuss important terms to be included in the JPA Agreement. The signatory members also held multiple stakeholder outreach meetings to engage and educate stakeholders within the Mound Basin about the SGMA requirements the JPA Agreement, and the Agency's intention to form a GSA for the Mound Basin. In addition to the Agency's public outreach efforts, it also designated two seats on its five-seat Board of Directors for Stakeholder Directors: one seat is reserved for an Agricultural Stakeholder Director and one seat is reserved for an Environmental Stakeholder Director.

The Agency plans to continue its practice of seeking broad stakeholder engagement in management of the Mound Basin's groundwater resources as it implements the GSP.

SGMA mandates that a GSA establish and maintain a list of persons interested in receiving notices regarding GSP preparation and implementation, meeting announcements, and availability of draft plans, maps, and other relevant documents. The MBGSA compiled a list of interested persons for this purpose that has been maintained since the initial GSA formation efforts. The list of stakeholders and interested parties include, but are not limited to, the following:

a) Holders of overlying groundwater rights, including:

   1) Agricultural well owners - There are agricultural users of groundwater operating on land overlying the Basin. To account for these users' interests, the Agency designated a seat on its five-member governing board to be filled by an Agricultural Stakeholder Director. The Agricultural Stakeholder Director is appointed from nominations received by the Mound Basin Ag Water Group (MBAWG) or the Ventura County Farm Bureau. The Agricultural Stakeholder Director is responsible for engaging the Basin's agricultural users of groundwater and representing their interests before the Agency.

   2) Domestic well owners - There are no domestic wells in the Basin.

   3) Industrial well owners - Two industrial wells have been identified in the basin: Saticoy Lemon Association (lemon packing facility cooperative) and Ivy Lawn Cemetery Association. Given Saticoy Lemon Association's ties to agriculture, the Agricultural Stakeholder Director is responsible for engaging this stakeholder. The Executive Director is responsible for engaging Ivy Lawn Memorial.

   4) Other - The County of Ventura operates a well for landscape irrigation at the County Government Center. The County is represented on the Agency's Board of Directors.

b) Municipal Well Operators - The Agency is a joint powers authority created by three local public agencies. One of the Agency's signatory members—the City of San Buenaventura operates municipal wells within the Basin and is represented on the Agency's Board of Directors.

c) Public water systems

1) Ventura Water (City of San Buenaventura)

The City of San Buenaventura is a signatory member to the JPA Agreement forming the Agency and is represented on the Agency's Board of Directors.

d) Local land use planning agencies - Both the County of Ventura ("County") and the City of San Buenaventura have land use planning authority on land overlying the Basin. Both are signatory members to the JPA Agreement forming the Agency and are represented on the Agency's Board of Directors.

e) Environmental - There are several environmental organizations dedicated to preserving and maintaining environmental values operating within the boundaries of the Basin. To account for these users' interests, the Agency designated a seat on its five-member governing board to be filled by an Environmental Stakeholder Director. The Environmental Stakeholder Director is appointed from nominations received from local environmental nonprofit organizations supportive of the Basin's groundwater sustainability. The Environmental Stakeholder Director is responsible for engaging stakeholders within the Basin and representing environmental interests before the Agency.

f) Surface Water Users There are no permitted or licensed surface water diversions within the Basin.

g) The federal government - No land overlying the Mound Basin is managed by the Federal Government.

h) California Native American Tribes – There are no tribal trust lands located within the Basin. However, the Mound Basin lies within the traditional tribal territory of the Chumash. The Agency has contacted the tribal representative to encourage engagement with MBGSA.

i) Disadvantaged communities - There are no disadvantaged communities served by private domestic wells or small community water systems located within the Basin. The City of San Buenaventura (City) serves the areas indicated by DWR as Disadvantaged Communities (DACs) and Severely Disadvantaged Communities (SDACs). Outreach to DAC's is accomplished via bill stuffers or other means through the City's water department (Ventura Water), including materials provided in Spanish.

j) Entities listed in Section 10927 that are monitoring and reporting groundwater elevations in all or a part of a groundwater basin managed by the groundwater sustainability agency. The County is the designated California Statewide Groundwater Elevation Monitoring ("CASGEM") entity for the Basin. The County is a signatory member to the JPA Agreement forming the Agency and represented on the Agency's Board of Directors.

k) Casitas Municipal Water District (CMWD) - CMWD is a wholesale water agency that provides a portion of the potable water supplied by Ventura Water within the Basin. CMWD does not operate any facilities in the Basin. CMWD's service area overlaps with a western portion of the Basin.

MBGSA has worked cooperatively with partner agencies, stakeholders, and interested parties to develop and, now, implement the GSP for the Mound Basin and will maintain a list of stakeholders and interested parties.

A person can be added to the interested parties list by submitting an inquiry via the MBGSA website: http://moundbasingsa.org/contact-us/ or by contacting the Clerk of the Board.

4.3 Integrated Regional Water Management

The Watershed Coalition of Ventura County (WCVC) prepared an Integrated Regional Water Management Plan in 2006 and has been updated multiple times since. The Santa Clara River Watershed Committee, a sub organization of WCVC, is actively involved in the community on a wide range of issues affecting the watershed, including the Mound Basin. Since this group provides a forum for the discussion of issues that are important to the community, it is important for this group to be well informed about groundwater management in the Mound Basin. Representatives from the MBGSA attend committee meetings and provide updates and receive feedback from Council members.

4.4 Public Hearings/Meetings

4.4.1 Planning Commission

As appropriate, updates on SGMA implementation will be provided to the City of Ventura Planning Commission and the Ventura County Planning Commission and the public will be invited to listen.

4.4.2 Public Meetings

Comprehensive stakeholder involvement includes regularly scheduled public meetings to aid in implementing, assessing, and updating the GSP. Logical subdivisions of the GSP will be the subject of public meetings to receive comments prior approving any updates. In addition to signing up to receive information about GSP implementation at the MBGSA webpage, interested parties may participate in the implementation of the GSP by attending and participating in public meetings (Water Code Section 10727.8(a)). Public meetings are generally been held at Ventura City Hall, 501 Poli Street, Ventura, California 93001. Future public meetings will generally be held at this location, although some meetings may be moved to other locations depending on meeting room availability. Each meeting will have a scheduled time for public comments. Information about upcoming meetings can be found on the MBGSA website: http://moundbasingsa.org.

4.4.3 Local Agency Meetings

To ensure their constituency is kept informed of GSP implementation progress, the Directors representing MBGSA member agencies, which consist of County of Ventura, City of San Buenaventura, and United Water Conservation District provide periodic updates during their regularly scheduled board meetings. These meetings offer a chance for the public to receive information and provide comment. Information about upcoming meetings is provided on the following agency websites, or by the means each agency currently meets its legal noticing requirements, whichever is appropriate:

http://cityofventura.ca.gov

http://ventura.org (Board of Supervisors)

https://www.unitedwater.org/

4.5 Direct Mailings/Email

Public meetings and project information is disseminated through email, from the Agency office, or direct mail under special circumstances if requested. This communication provides information for the community, public agencies, and other interested persons/organizations about milestones, meetings, and the progress of GSP implementation. Property owners with groundwater wells within the basin have been notified via email and/or direct mailings about the establishment of an interested persons list and the opportunity to receive future notices.

4.6 Newsletters/Columns

Periodic GSP newsletters are developed and sent to the interested parties and posted on the website. Periodic updates may be provided to the *Ventura County Star* newspapers to advise, educate, and inform the public on SGMA implementation.

4.7 MBGSA Website

Regular updates on the GSP implementation are provided on the MBGSA website. This information includes maps, timelines, frequently asked questions, groundwater information, and schedules/agenda of upcoming meetings and milestones. This information is accessible on the MBGSA website: http://moundbasingsa.org. MBGSA staff updates the website regularly and invites users to request information or be added to the interested persons list.

4.8 Database

To distribute information about GSP development, an email list of interested persons and stakeholders is maintained. The database is updated regularly to add names of attendees at public meetings along with those requesting information via email or the through the MBGSA website.

4.9 Tribal Engagement

There are no tribal trust lands located within the Basin. However, the Mound Basin lies within the traditional tribal territory of the Chumash. MBGSA contacted Tribal Elder, Julie Tumamait, and Tribal representative Walter Viar during GSP development to encourage tribal participation.

4.10 Prioritized Collaboration With Regulatory Agencies and Interested Parties Concerning Depletions of Interconnected Surface Water

In accordance with Recommended Corrective Action No. 5(d), of DWR's GSP Assessment Staff Report dated October 26, 2023, MBGSA will prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the MBGSA jurisdictional area.

4.11 Additional Opportunities

Additional opportunities for stakeholder participation (e.g., an advisory committee) will be considered as GSP implementation progresses and as stakeholder interests evolve.

5 EVALUATION

To determine the level of success of the Engagement Plan, the MBGSA implements the following measures:

5.1 Attendance/Participation

A record of those attending public meetings is maintained. MBGSA utilizes sign-in sheets and requests feedback from attendees to determine adequacy of public education and productive engagement in the GSP implementation process. Meeting minutes are also prepared and are provided on the MBGSA website once approved.

5.2 Polling

Polls are used to determine how stakeholders are receiving notices about GSP status and meetings and if any stakeholder categories require additional outreach. Polls are also used to determine topics of most interest and the level of information that is desired for specific topics. Outreach methods are tailored based on polling responses.

5.3 Plan Update

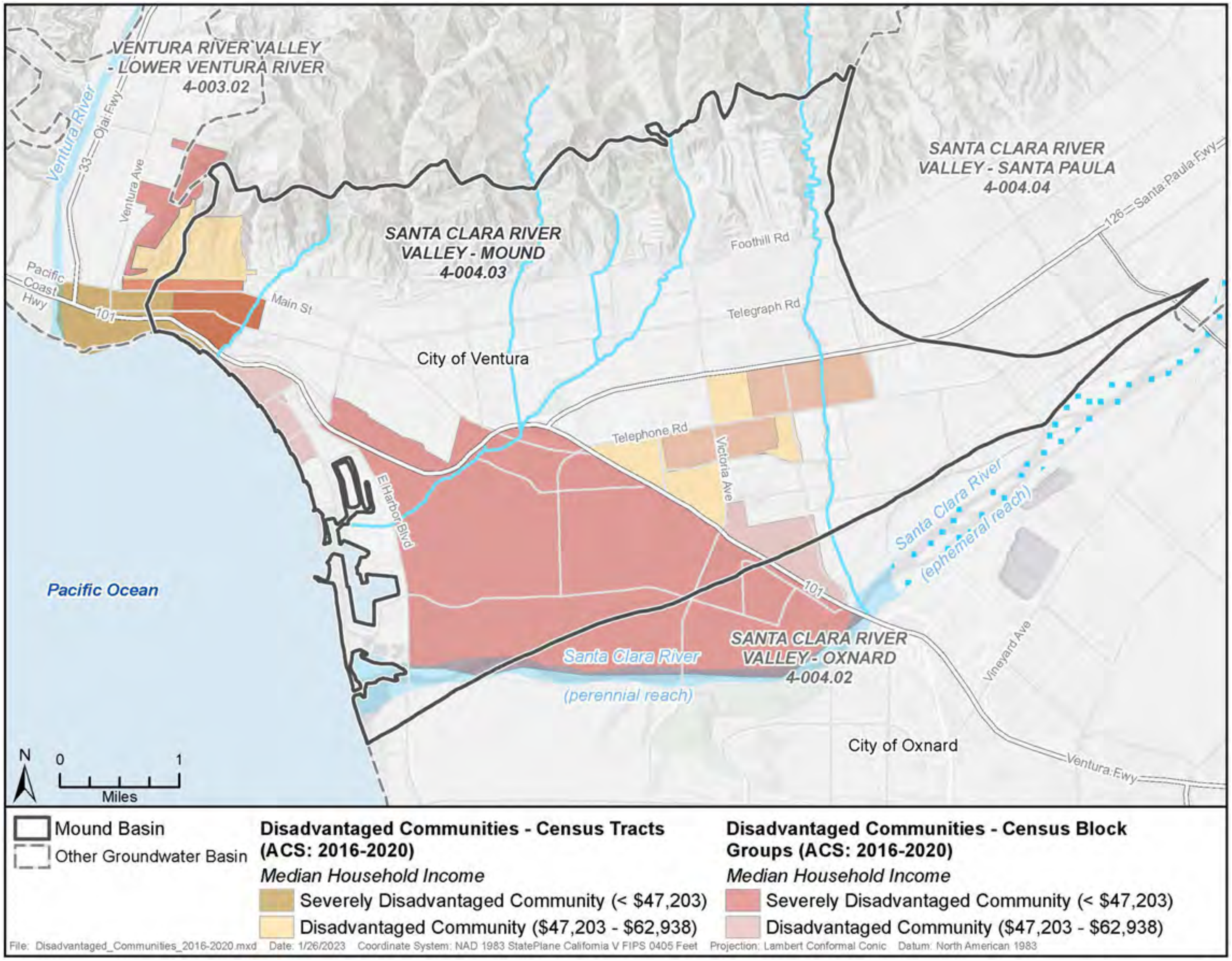
This Plan will be updated annually.

APPENDIX A

TABLE 1

During GSA Formation:	
“Before electing to be a groundwater sustainability agency... the local agency or agencies shall hold a public hearing.”	Water Code Sec. 10723 (b)
“A list of interested parties [shall be] developed [along with] an explanation of how their interests will be considered.”	Water Code Sec. 10723.8.(a)(4)
During GSP Development and Implementation:	
“A groundwater sustainability agency may adopt or amend a groundwater sustainability plan after a public hearing.”	Water Code Sec. 10728.4
“Prior to imposing or increasing a fee, a groundwater sustainability agency shall hold at least one public meeting.”	Water Code Sec. 10730(b)(1)
“The groundwater sustainability agency shall establish and maintain a list of persons interested in receiving notices regarding plan preparation, meeting announcements, and availability of draft plans, maps, and other relevant documents.”	Water Code Sec. 10723.4
“Any federally recognized Indian Tribe... may voluntarily agree to participate in the preparation or administration of a groundwater sustainability plan or groundwater management plan... A participating Tribe shall be eligible to participate fully in planning, financing, and management under this part.”	Water Code Sec. 10720.3(c)
“The groundwater sustainability agency shall make available to the public and the department a written statement describing the manner in which interested parties may participate in the development and implementation of the groundwater sustainability plan.”	Water Code Sec. 10727.8(a)
Throughout SGMA Implementation:	
“The groundwater sustainability agency shall consider the interests of all beneficial uses and users of groundwater.”	Water Code Sec. 10723.2
“The groundwater sustainability agency shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin.”	Water Code Sec. 10727.8(a)

FIGURE 1


VENTURA RIVER VALLEY
- LOWER VENTURA RIVER
4-003.02
SANTA CLARA RIVER
VALLEY - MOUND
4-004.03
SANTA CLARA RIVER
VALLEY - SANTA PAULA
4-004.04
SANTA CLARA RIVER
VALLEY - OXNARD
4-004.02
Ventura River
Ojai Fwy
Ventura Ave
Pacific Coast Hwy
Main St
Foothill Rd
Telegraph Rd
Telephone Rd
Victoria Ave
E Harbor Blvd
Santa Paula Fwy
City of Ventura
City of Oxnard
Pacific Ocean
Santa Clara River
(perennial reach)
Santa Clara River
(ephemeral reach)
Vineyard Ave
Ventura Fwy
N
0
1
Miles
Mound Basin
Other Groundwater Basin
Disadvantaged Communities - Census Tracts (ACS: 2016-2020)
Median Household Income
Severely Disadvantaged Community (< $47,203)
Disadvantaged Community ($47,203 - $62,938)
Disadvantaged Communities - Census Block Groups (ACS: 2016-2020)
Median Household Income
Severely Disadvantaged Community (< $47,203)
Disadvantaged Community ($47,203 - $62,938)
File: Disadvantaged_Communities_2016-2020.mxd Date: 1/26/2023 Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet Projection: Lambert Conformal Conic Datum: North American 1983

APPENDIX E
Periodic Evaluation
Kickoff Newsletter

MoundBasin
GROUNDWATER SUSTAINABILITY AGENCY

https://www.moundbasingsa.org/

Winter Newsletter
December 2025
Volume 3, Issue 1

GSP Periodic Evaluation Public Workshop No. 1
Thursday December 18, 2025 1 p.m.

This workshop will present information about the periodic evaluation of the Mound Basin Groundwater Sustainability Plan. This workshop is a key opportunity ask questions and provide feedback periodic evaluation of the GSP for your groundwater basin.

Your active participation is highly encouraged!

Groundwater Sustainability Plan Periodic Evaluation Underway

Groundwater Sustainability Agencies (GSAs) are required to perform a periodic evaluation of their Groundwater Sustainability Plan (GSP) at least once every five years. The first periodic evaluation of the Mound Basin GSP must be submitted to the State of California Department of Water Resources (DWR) by November 2026. The periodic evaluation process is underway and MBGSA is seeking your input.

Your Groundwater Sustainability Plan (GSP) implementation team will be performing the GSP periodic evaluation, which is intended to address the following:

- Describe new information that has been obtained since the GSP was adopted.
- Describe the status of each GSP section, including any changes and whether they impact basin management.
- Explain how GSP corrective actions provided by DWR have been addressed.
- Explain whether and how actions taken by MBGSA have informed changes to basin management.
- Describe whether there is a need to change any part of the GSP that would lead to a GSP Amendment.

MBGSA is seeking your input during the GSP periodic evaluation process. A draft period evaluation document will be issued in mid-2026 for public comment. The MBGSA Board of Directors are expected to adopt the periodic evaluation document no later than early November 2026. **Please join us at our first workshop on December 18, 2025. Comments may be submitted at any time during the process using MBGSA's online comment submission form available on the MBGSA website at: https://www.moundbasingsa.org/public-comments-invited/. Feel free to contact us with any questions at admin@moundbasingsa.org.**

Get Involved!

At the core of SGMA is the idea that locals should make groundwater management decisions, not the State. Your input is critical for ensuring the Mound Basin GSP reflects local values.

Contact the MBGSA Clerk of the Board Jackie Lozano at: admin@moundbasingsa.org to be added to our interested parties list!