# Salinas Valley Groundwater Basin
# 180/400-Foot Aquifer Subbasin
# Water Year 2022 Annual Report

**Submitted in Support of Groundwater Sustainability Plan Implementation**

Salinas Valley Basin
Groundwater Sustainability Agency

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## ABBREVIATIONS AND ACRONYMS

AF .....................acre-feet
AF/yr. ................acre-feet per year
CCRWQCB.......Central Coast Regional Water Quality Control Board
COC(s) .............Constituent(s) of concern
CSIP .................Castroville Seawater Intrusion Project
DAC .................Disadvantaged Communities
DDW ................Division of Drinking Water
D-TAC .............Drought Operations Technical Advisory Committee
DWR ................California Department of Water Resources
DWSN...............Dry Winter Scenario Narrative
eWRIMS ...........Electronic Water Rights Information Management System
GEMS ...............Groundwater Extraction Management System
GSA..................Groundwater Sustainability Agency
GSP or Plan.......Groundwater Sustainability Plan
GSP Update.......GSP Update to the 180/400-Foot Aquifer Subbasin GSP
ILRP .................Irrigated Lands Regulatory Program
InSAR ...............Interferometric Synthetic-Aperture Radar
ISW ..................interconnected surface water
MCL .................Maximum Contaminant Level
MCWRA ...........Monterey County Water Resources Agency
mg/L .................milligram per liter
MLRP................Multibenefit Land Repurposing Program
RMS .................Representative Monitoring Site
SGMA ...............Sustainable Groundwater Management Act
SMC .................Sustainable Management Criteria/Criterion
SMCL................Secondary Maximum Contaminant Level
SRDF.................Salinas River Diversion Facility
Subbasin............180/400-Foot Aquifer Subbasin
SVBGSA...........Salinas Valley Basin Groundwater Sustainability Agency
SVIHM.............Salinas Valley Integrated Hydrologic Model
SVRP.................Salinas Valley Reclamation Project
SWIG ................Seawater Intrusion Working Group
SWRCB.............State Water Resources Control Board
ug/L ..................micrograms/Liter
UMHOS/CM.....micromhos/centimeter
USGS ................U.S. Geological Survey
WY ...................Water Year

# EXECUTIVE SUMMARY

The Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) is required to submit an annual report for the 180/400-Foot Aquifer Subbasin (Subbasin) to the California Department of Water Resources (DWR) by April 1 of each year following the SVBGSA's 2020 adoption and submittal of its Groundwater Sustainability Plan (GSP or Plan), which DWR approved in June 2021. This Annual Report covers data collected for Water Year (WY) 2022, from October 1, 2021, to September 30, 2022.

As described in the GSP, DWR lists the Subbasin as a high priority subbasin in critical overdraft, which indicates that continuation of present water management practices would probably result in significant adverse impacts. The goal of the 180/400-Foot Aquifer Subbasin GSP is to balance the needs of all water users in the Subbasin while complying with the Sustainable Groundwater Management Act (SGMA).

In 2022, SVBGSA submitted a 2022 Update to the 180/400-Foot Aquifer Subbasin GSP (GSP Update) to DWR. The GSP Update replaces the original 2020 GSP and aligns the 180/400-Foot Aquifer Subbasin with the other 5 SVBGSA GSPs in approach and timing.

In WY 2022, groundwater conditions remained similar to conditions in recent years, with slight changes in conditions related to specific sustainability indicators. WY 2022 is classified as a dry-normal year.

The groundwater data for WY 2022 are summarized below:

- Groundwater extractions for reporting year 2022 (November 1, 2021, through October 31, 2022) were approximately 130,100 acre-feet (AF), which increased from the prior year, but was similar to the average historical extraction.
- Groundwater elevations decreased during this dry-normal water year, with a decline in elevations ranging from 0.2 to 19 feet. Of the Representative Monitoring Site (RMS) wells, 6 had groundwater elevations above their measurable objectives, 47 had elevations between their measurable objectives and minimum thresholds, and 34 were below their minimum thresholds.
- Groundwater storage decreased in WY 2022 and was below the minimum threshold by about 52,000 AF.
- Seawater intrusion did not advance in the 180-Foot Aquifer. It continued to advance inland in the 400-Foot Aquifer, similar to recent years and not as drastic as what occurred historically.

- There were 18 groundwater quality constituents of concern (COC) that exceeded their minimum thresholds WY 2022, none of them due to GSA groundwater management actions. One new constituent—hexavalent chromium—was added to the list of COC for the Subbasin because it had a concentration above the regulatory drinking water standard in WY 2022.
- No subsidence was detected in the Subbasin.
- In the GSP Update, shallow groundwater elevations are used as proxies to assess the interconnected surface water (ISW) Sustainability Management Criteria (SMC). The shallow well used to monitor ISW exceeded its minimum threshold.

As a result, the 180/400-Foot Aquifer Subbasin had 4 undesirable results in WY 2022: chronic lowering of groundwater levels, seawater intrusion, reduction in groundwater storage, and depletion of ISW.

During WY 2022, the SVBGSA has taken numerous actions to implement the GSP. These include:

- **180/400-Foot Aquifer Subbasin Planning:** SVBGSA worked with the 180/400-Foot Aquifer Subbasin Implementation Committee to develop the 2022 GSP Update, submitted to DWR in September 2022. This will enable 5-year evaluations to occur for all SVBGSA subbasins concurrently.
- **GSA policies, operations, and engagement:** SVBGSA continued to regularly engage interested parties through its Board of Directors and committees. It developed a 2-year and 5-year work plan and associated budget and continued to strengthen its relationship with partner agencies. SVBGSA conducted outreach to Underrepresented Communities. Finally, SVBGSA developed a well permit application review processes to comply with Executive Order N-7-22.
- **Data and monitoring** – SVBGSA undertook several efforts to further increase data collection and monitoring, including identifying existing wells that could potentially fill monitoring network data gaps, engaging in discussions to expand the groundwater extraction monitoring program, developing the Salinas Valley Seawater Intrusion Model, continuing support of U.S. Geological Survey (USGS) development of a Salinas Valley groundwater-surface water model, and contracting and then receiving the results of the preliminary investigation of the Deep Aquifers Study. These are critical steps that will enable SVBGSA to plan and implement management actions and projects to reach sustainability goals.
- **Project implementation activities** – SVBGSA developed a sustainability strategy for the 180/400-Foot Aquifer Subbasin that outlines the GSP workstreams underway or planned to reach sustainability, including feasibility studies of the main approaches

to address seawater intrusion, Deep Aquifers Management, and the Multi-benefit Stream Channel Improvements. SVBGSA applied for and received a $7.6 million SGMA Implementation Grant that will support 3 critical feasibility studies and early implementation projects. In addition, during WY 2022:

- The Greater Monterey County Integrated Regional Water Management Group, in collaboration with SVBGSA, was awarded a $10 million grant through Multibenefit Land Repurposing Program (MLRP) to strategically and voluntarily acquire and repurpose the least viable, most flood-prone portions of irrigated agricultural lands in the lower Salinas Valley.
- MCWRA continued to convene MCWRA's Drought Technical Advisory Committee (D-TAC).
- MCWRA continued well destruction to protect domestic drinking water supplies for the Lower Salinas Valley.
- SVBGSA began the Deep Aquifer Study and received recommendations from the preliminary investigation.

# 1 INTRODUCTION

## 1.1 Purpose

The 2014 California Sustainable Groundwater Management Act (SGMA) requires that, following adoption of a Groundwater Sustainability Plan (GSP or Plan), Groundwater Sustainability Agencies (GSAs) annually report on the condition of the basin and show that the GSP is being implemented in a manner that will likely achieve the sustainability goal for the basin. This report fulfills that requirement for the Salinas Valley – 180/400-Foot Aquifer Subbasin (Subbasin) for Water Year (WY) 2022.

The sustainability goal of the 180/400-Foot Aquifer Subbasin is to manage the groundwater resources for long-term community, financial, and environmental benefits to the Subbasin's residents and businesses. The goal of this GSP is to ensure long-term viable water supplies while maintaining the unique cultural, community, and business aspects of the Subbasin. It is the express goal of this GSP to balance the needs of all water users in the Subbasin.

This is the fourth annual report for the Subbasin and includes monitoring data for WY 2022, which is from October 1, 2021, to September 30, 2022. This Annual Report includes a description of basin conditions through text, hydrographs, groundwater elevation contour maps, calculated estimates of change in groundwater in storage, and maps of the distribution of groundwater extraction across the Subbasin. It compares WY 2022 data to SMC as a measure of the Subbasin's groundwater conditions with respect to the sustainability goal that must be reached by the end of 2040.

## 1.2 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan

In 2017, local Groundwater Sustainability Agency (GSA)-eligible entities formed the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) to develop and implement the GSPs for the Salinas Valley. The SVBGSA is a Joint Powers Authority with membership comprising the County of Monterey, Monterey County Water Resources Agency (MCWRA), City of Salinas, City of Soledad, City of Gonzales, City of King, Castroville Community Services District, and Monterey One Water.

The SVBGSA developed the GSP for the 180/400-Foot Aquifer Subbasin, identified as California Department of Water Resources (DWR) subbasin 3-004.01, in coordination with the Marina Coast Water District Groundwater Sustainability Agency and the County of Monterey Ground Water Sustainability Agency, each of which has exclusive jurisdiction over part of the 180/400-Foot Aquifer Subbasin. DWR has designated the 180/400-Foot Aquifer Subbasin as a critically overdrafted basin, which indicates that continuation of present water management practices would probably result in significant adverse impacts.

The SVBGSA developed the GSP for the 180/400-Foot Aquifer Subbasin in concert with the 5 other Salinas Valley Subbasin GSPs that fall partially or entirely under its jurisdiction: the Eastside Aquifer Subbasin (DWR subbasin 3-004.02), the Forebay Aquifer Subbasin (DWR subbasin 3-004.04), the Upper Valley Aquifer Subbasin (DWR subbasin 3-004.05), the Langley Area Subbasin (DWR subbasin 3-004.09), and the Monterey Subbasin (DWR subbasin 3-004.10). This Annual Report covers all the 89,700 acres of the 180/400-Foot Aquifer Subbasin, as shown on Figure 1.

In 2022, SVBGSA submitted a 2022 Update to the 180/400-Foot Aquifer Subbasin GSP (GSP Update), which included a written assessment and amended and replaced the original GSP according to GSP Regulations § 356.4 and § 355.10, respectively The GSPs for the 5 other Salinas Valley subbasins partially or entirely under the authority of SVBGSA were also submitted in 2022. The GSP Update was developed to align all SVBGSA GSPs in approach and timing. The GSP Update incorporates additional data about current conditions, adds clarifications identified during development of the 2022 Salinas Valley GSPs, includes a water budget consistent with the other Salinas Valley GSPs, addresses recommended actions from DWR's review of the original GSP, and incorporates additional regulatory requirements.

## 1.3 Annual Report Organization

This Annual Report corresponds to the requirements of GSP Regulations §356.2. It first outlines the subbasin conditions, including several components of the Regulations: groundwater elevations, groundwater extractions, surface water use, total water use, and change in groundwater storage. The Annual Report then addresses GSP implementation by reporting on actions taken to implement the GSP, and progress toward interim milestones.

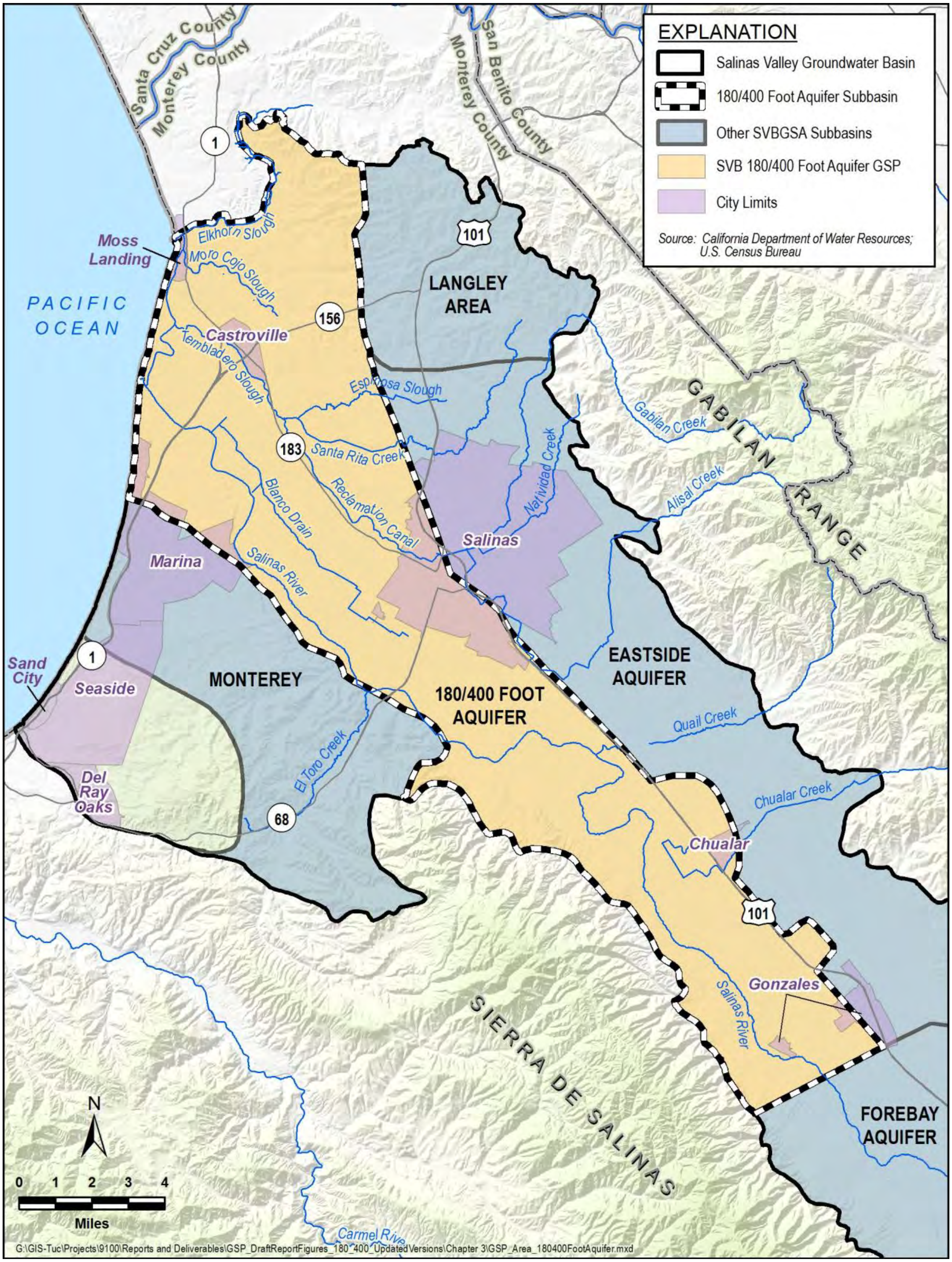


Figure 1. 180/400-Foot Aquifer Subbasin

# 2 SUBBASIN SETTING

The 180/400-Foot Aquifer Subbasin is a high-priority groundwater subbasin in northwestern Monterey County that includes the northern end of the Salinas River Valley. The Salinas River flows into the Subbasin from the south and discharges into Monterey Bay in the north. Subbasin boundaries are determined in part by geologic structures and depositional changes that influence groundwater flow. The northern boundary of the 180/400-Foot Aquifer Subbasin follows the current course of Elkhorn Slough and corresponds to a paleo-drainage of the Salinas River that limits groundwater flow between basins (Durbin, *et al.*, 1978). The boundary with the Langley Subbasin to the northeast is based on a topographic change from the valley floor to an elevated foothill area, but there is no hydraulic barrier to groundwater flow. To the east, hydraulic connectivity is restricted by depositional changes along the border with the Eastside Aquifer. To the southeast, there is hydraulic connectivity with the Forebay Subbasin. To the southwest, the boundary with the Monterey Subbasin is based on topographic rise that coincides with a buried trace of the Reliz fault, which may act as a groundwater flow barrier (Durbin, *et al.,* 1978). There is no sign of the fault affecting groundwater flow in the sediments that contain the 180-Foot Aquifer or the 400-Foot Aquifer based on observed groundwater elevation and seawater intrusion conditions across the Subbasin boundary (HLA, 1994; Feeney and Rosenberg, 2003). However, more data are needed to determine the extent of hydraulic connectivity in all principal aquifers. Finally, there is no hydraulic barrier between the 180/400-Foot Aquifer Subbasin and the Monterey Bay.

## 2.1 Principal Aquifers and Aquitards

Vertically, the shallowest water-bearing sediments are not considered a principal aquifer because they are thin, laterally discontinuous, and a minor source of water. Groundwater in these shallow sediments is hydraulically connected to the Salinas River but poorly connected to the underlying productive principal aquifers: the 180-Foot, 400-Foot, and Deep Aquifers. The base of the shallow sediments is the Salinas Valley Aquitard, which overlies and confines the 180-Foot Aquifer. The 180-Foot Aquifer consists of interconnected sand and gravel beds that are 50 to 150 feet thick. Below the 180-Foot Aquifer, the 180/400-Foot Aquitard confines the 400-Foot Aquifer. The 400-Foot Aquifer is a relatively permeable horizon that is approximately 200 feet thick near Salinas; but in other areas the aquifer is split into multiple permeable zones by clay layers (DWR, 1973). Below the 400-Foot Aquifer, the 400-Foot/Deep Aquitard confines the Deep Aquifers, also referred to as the 900-Foot and 1500-Foot Aquifers. There are limited data available for the Deep Aquifers.

## 2.2 Natural Groundwater Recharge and Discharge

Groundwater can discharge from the aquifer in locations where surface water and groundwater are interconnected and gaining streamflow conditions occur. There are potential locations of interconnected surface water (ISW) mainly along the Salinas River where the Salinas Valley Aquitard does not exist. In areas of interconnection, groundwater dependent ecosystems may depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface and may discharge groundwater through evapotranspiration. Natural groundwater recharge occurs through deep percolation of surface water, excess applied irrigation water, and precipitation.

## 2.3 Precipitation and Water Year Type

Precipitation that falls within the Subbasin contributes to runoff and percolation components of the water budget. The precipitation gage at the Salinas Airport (National Oceanographic and Atmospheric Administration Station USW00023233) recorded 7.38 inches of rainfall in WY 2022. For comparison, the average rainfall from WY 1980 to WY 2022 at this gage is 11.87 inches of precipitation.

The SVBGSA adopted the methodology used by MCWRA for determining the Subbasin's water year type. The MCWRA assigns a water year type of either dry, dry-normal, normal, wet-normal, or wet based on an indexing of annual mean flows at the U.S. Geological Survey (USGS) stream gage on the Arroyo Seco near Soledad (USGS Gage 11152000) (MCWRA, 2005). Using the MCWRA method, WY 2022 was a dry-normal year.

# 3 2022 DATA AND SUBBASIN CONDITIONS

This section details the Subbasin conditions and WY 2022 data. Where WY 2022 data are not available, it includes the most recent data available. The SVBGSA stores monitoring data in a data management system. Monitoring data are included in this Annual Report and are submitted to DWR.

## 3.1 Water Supply and Use

Within the Subbasin, water is used for agricultural, urban, industrial use, and wetlands and native vegetation. Most of the water in the Subbasin is used for agriculture. Only a relatively small amount of water is used by wetlands and native vegetation.

The water supply in the 180/400-Foot Aquifer Subbasin is a combination of groundwater, surface water, and recycled water. Groundwater is the main water source in the Subbasin. The Castroville Seawater Intrusion Project (CSIP) delivers a combination of groundwater, Salinas River water, and recycled water from Monterey One Water to the coastal farmland surrounding Castroville. Some growers also report surface water use to the State Water Resources Control Board (SWRCB). Recycled water is also used to irrigate horse pastures in California American Water Company's Salinas Hills Water System.

### 3.1.1 Groundwater Extraction

Urban and agricultural groundwater extractions are compiled using MCWRA's Groundwater Extraction Management System (GEMS), which collects data from groundwater wells with an internal discharge pipe diameter greater than 3 inches within Zones 2, 2A, and 2B.

Table 1 presents groundwater extractions by water use sector in the 180/400-Foot Aquifer Subbasin, including the method of measurement and accuracy of measurement. Urban use data from MCWRA aggregates municipal wells, small public water systems, and industrial wells. Agricultural use accounted for 91% of groundwater extraction in 2022; urban and industrial use accounted for 9%. It is important to note that the reporting year varies according to user: agricultural pumping is reported to MCWRA for the period November 1 through October 31, whereas urban pumping is reported to MCWRA on a calendar year basis. Domestic pumping, including water systems small enough to not require reporting to the SWRCB, is estimated by multiplying the estimated number of domestic users by a water use factor. The initial water use factor will be 0.39 acre-feet per year (AF/yr.) per dwelling unit. Rural domestic pumping is estimated on a calendar year basis. No groundwater was extracted for managed wetlands or managed recharge. Groundwater use by natural vegetation is assumed to be small and was not estimated for this report. The total reported groundwater extraction in reporting year 2022 was 130,100 AF/yr. in the Subbasin. This total is for the 180/400-Foot Aquifer Subbasin not the MCWRA Pressure Subarea; therefore, the pumping total is not identical to what MCWRA publishes in their annual Groundwater Extraction Summary Reports. Figure 2 illustrates the general location and volume of groundwater extractions in the Subbasin.

Table 1. 2022 Groundwater Extraction by Water Use Sector (in AF/yr.)

<table>
<tr><th>Water Use Sector</th><th>Groundwater Extraction</th><th>Method of Measurement</th><th>Accuracy of Measurement</th></tr>
<tr><td>Rural Domestic</td><td>200</td><td>Multiply estimated number of domestic users by 0.39 AF/yr.</td><td>Other estimates have ranged as high as 0.75 AF/yr.</td></tr>
<tr><td>Urban (including industrial)</td><td>11,300</td><td rowspan="2">MCWRA's Groundwater Reporting Program allows 3 different reporting methods: water flowmeter, electrical meter, or hour meter. For 2022, 84% of extractions were calculated using a flowmeter, 16% electrical meter, and <1%-hour meter.</td><td rowspan="2">MCWRA ordinances 3717 and 3718 require annual flowmeter calibration, and that flowmeters be accurate to within +/- 5%. The same ordinance requires annual pump efficiency tests. SVBGSA assumes an electrical meter accuracy of +/- 5%.</td></tr>
<tr><td>Agricultural</td><td>118,600</td></tr>
<tr><td>Managed Wetlands</td><td>0</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Managed Recharge</td><td>0</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Natural Vegetation</td><td>0</td><td>De minimis and not estimated.</td><td>Unknown</td></tr>
<tr><td>Total</td><td>130,100</td><td></td><td></td></tr>
</table>

Note: Agricultural pumping is reported on a MCWRA reporting year basis whereas urban is reported in calendar-year basis. Rural domestic pumping is estimated on a calendar year basis. N/A = Not Applicable.

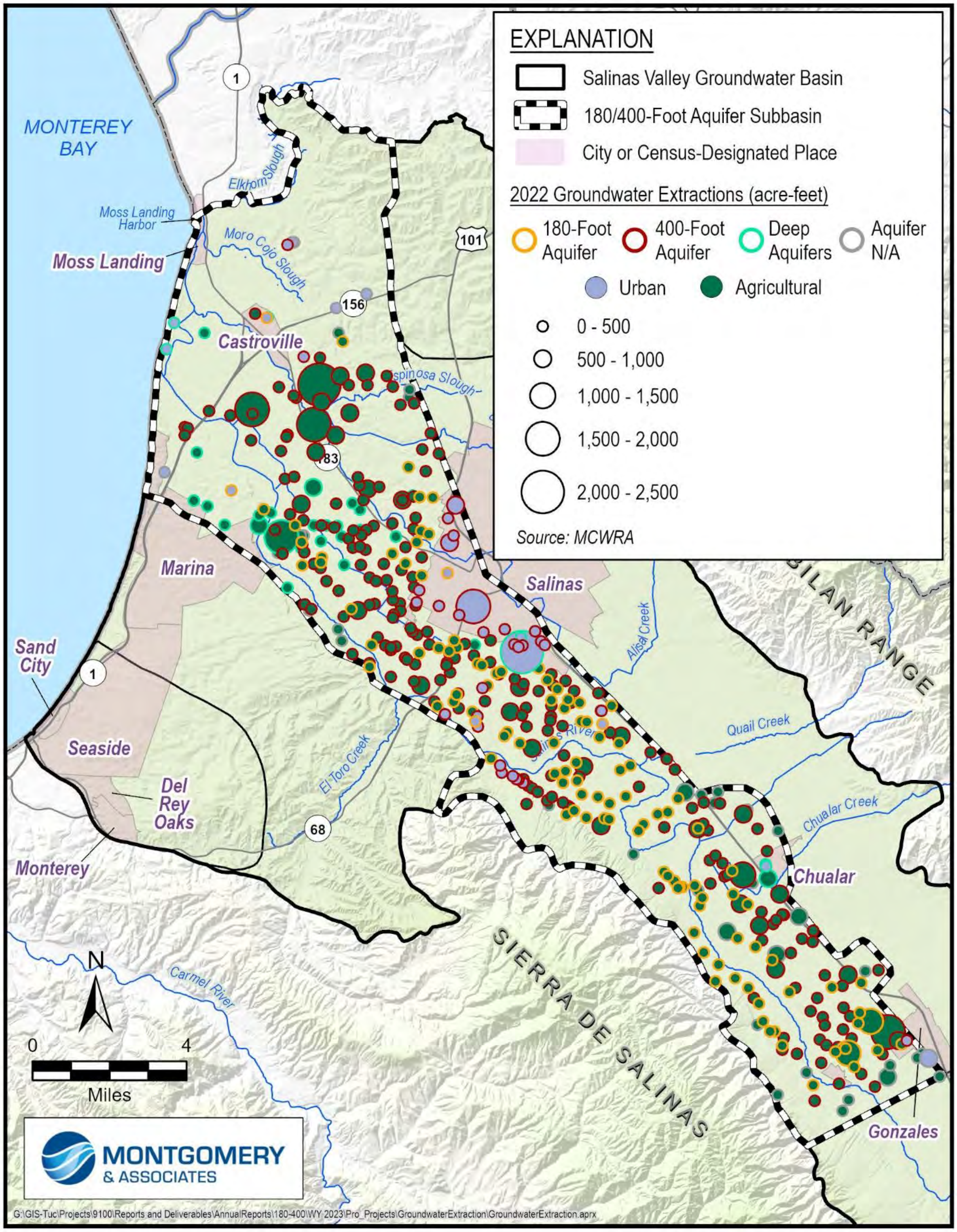


Figure 2. General Location and Volume of Groundwater Extractions

### 3.1.2 Surface Water Supply

Salinas River Watershed diversion data are obtained from the SWRCB's Electronic Water Rights Information Management System (eWRIMS) website. The data are reported annually and include diversions from the Salinas River and its tributaries. Surface water diversions reported to eWRIMS were approximately 7,900 AF/yr in WY 2022. Of these, 7,600 AF/yr were reported as a Statement of Diversion and Use and 300 AF/yr were reported as Appropriative for the Blanco Drain and Reclamation Ditch. There were no diversions at the Salinas River Diversion Facility (SRDF) in WY 2022. All diverted surface water is used for irrigation.

### 3.1.3 Recycled Water Supply

In addition to groundwater and surface water, a third water source type in the 180/400-Foot Aquifer Subbasin is recycled water. Monterey One Water treats and delivers this Salinas Valley Reclamation Project (SVRP) recycled water to the coastal farmland surrounding Castroville through the CSIP system. CSIP deliveries are used for irrigation and are summarized based on water year in Table 2.

Additionally, recycled water from California American Water Company's Indian Springs Reclamation Facility is used to irrigate horse pastures in the Salinas Hills Water System. Approximately 30 acre-feet (AF) of recycled water were used to irrigate in WY 2022.

Table 2. CSIP Water Deliveries (in AF/yr.)

| Delivery Type | WY 2022 |
|---|---|
| **CSIP Wells** | 11,000 |
| **SRDF-River** | 0 |
| **SVRP-Recycled** | 11,100 |
| **Total** | **22,100** |

### 3.1.4 Total Water Use

Total water use is the sum of groundwater extractions, surface water use, and recycled water use and is summarized in Table 3.

Many growers and residents have noted that some irrigation is reported both to the SWRCB as Salinas River diversions and to the MCWRA as groundwater pumping. To avoid double counting, all surface water reported as a Statement of Diversion and Use is excluded from the total water use count for the Subbasin. Therefore, in WY 2022, the total surface water use for the Subbasin, which is inclusive of the diversions made at SRDF and diversions reported to eWRIMS, is adjusted from 7,600 AF/yr to 300 AF/yr. In other words, the total surface water use includes the SRDF river diversions and appropriative surface water diversions reported to eWRIMS. It is possible that not all of the surface water diversions excluded are being reported to both SWRCB and MCWRA, in which case total water use may be up to that amount greater than calculated here. This accounting is done to calculate the total water use and is not meant to imply that SVBGSA classifies any or all the reported diversions as groundwater. SVBGSA will continue to work with stakeholders to refine the method used to resolve double counting.

Total water use was 141,530 AF/yr in WY 2022, as shown in Table 3.

Table 3. Total Water Use by Water Use Sector in WY 2022 (in AF/yr.)

| Water Use Sector | Groundwater Extraction | Surface Water Use | Recycled Water | Method of Measurement | Accuracy of Measurement |
|---|---|---|---|---|---|
| **Rural Domestic** | 200 | 0 | 0 | Estimated | N/A |
| **Urban (including industrial)** | 11,300 | 0 | 30 | Direct | Estimated to be +/- 5%. |
| **Agricultural** | 118,600 | 300 | 11,100 | Direct | Estimated to be +/- 5%. |
| **Managed Wetlands** | 0 | 0 | 0 | N/A | N/A |
| **Managed Recharge** | 0 | 0 | 0 | N/A | N/A |
| **Natural Vegetation** | Unknown | Unknown | Unknown | N/A | N/A |
| **SUBTOTALS** | **130,100** | **300** | **11,130** | | |
| **TOTAL** | **141,530** | | | | |

Note: Agricultural pumping is reported on the MCWRA reporting year basis whereas urban is reported in calendar-year basis. To avoid double counting with groundwater pumping reported to MCWRA, Statement of Diversion and Use surface water diversions reported in Section 3.1.2 are subtracted from the total water use. N/A = Not Applicable.

## 3.2 Groundwater Elevations

The groundwater elevation monitoring network in the 180/400-Foot Aquifer Subbasin GSP Update consists of 91 representative monitoring sites (RMSs) monitored by MCWRA. Since the GSP Update was submitted, 7 wells in the RMS network have been removed from MCWRA's water level monitoring programs. Of these 7 wells, 3 of them were in the 180-Foot Aquifer, 4 were in the 400-Foot Aquifer, and 5 were replaced as summarized in Table 4. Two of the RMSs were not replaced; however, the monitoring network still provides adequate coverage of the principal aquifers in the Subbasin. The Subbasin's updated RMS network now consists of 89 wells shown Figure 3 through Figure 5. The wells selected as RMS replacements are highlighted with a pink star and the old RMSs are marked with a red X. Although the new RMSs are not all near the old RMSs, there were not suitable options near some removed wells and the new wells help produce representative coverage of the principal aquifers.

Table 4. RMS Network Changes

| Replaced RMS | New RMS | Aquifer |
|---|---|---|
| 13S/02E-13N01 | 14S/03E-19G01 | 180-Foot |
| 13S/02E-29D04 | 13S/02E-33R01 | 180-Foot |
| 16S/04E-27B02 | 16S/04E-25C01 | 180-Foot |
| 13S/02E-29D03 | Not replaced | 400-Foot |
| 13S/02E-32A02 | 13S/02E-32J03 | 400-Foot |
| 14S/02E-05F04 | 14S/02E-05K01 | 400-Foot |
| 14S/02E-26J03 | Not replaced | 400-Foot |

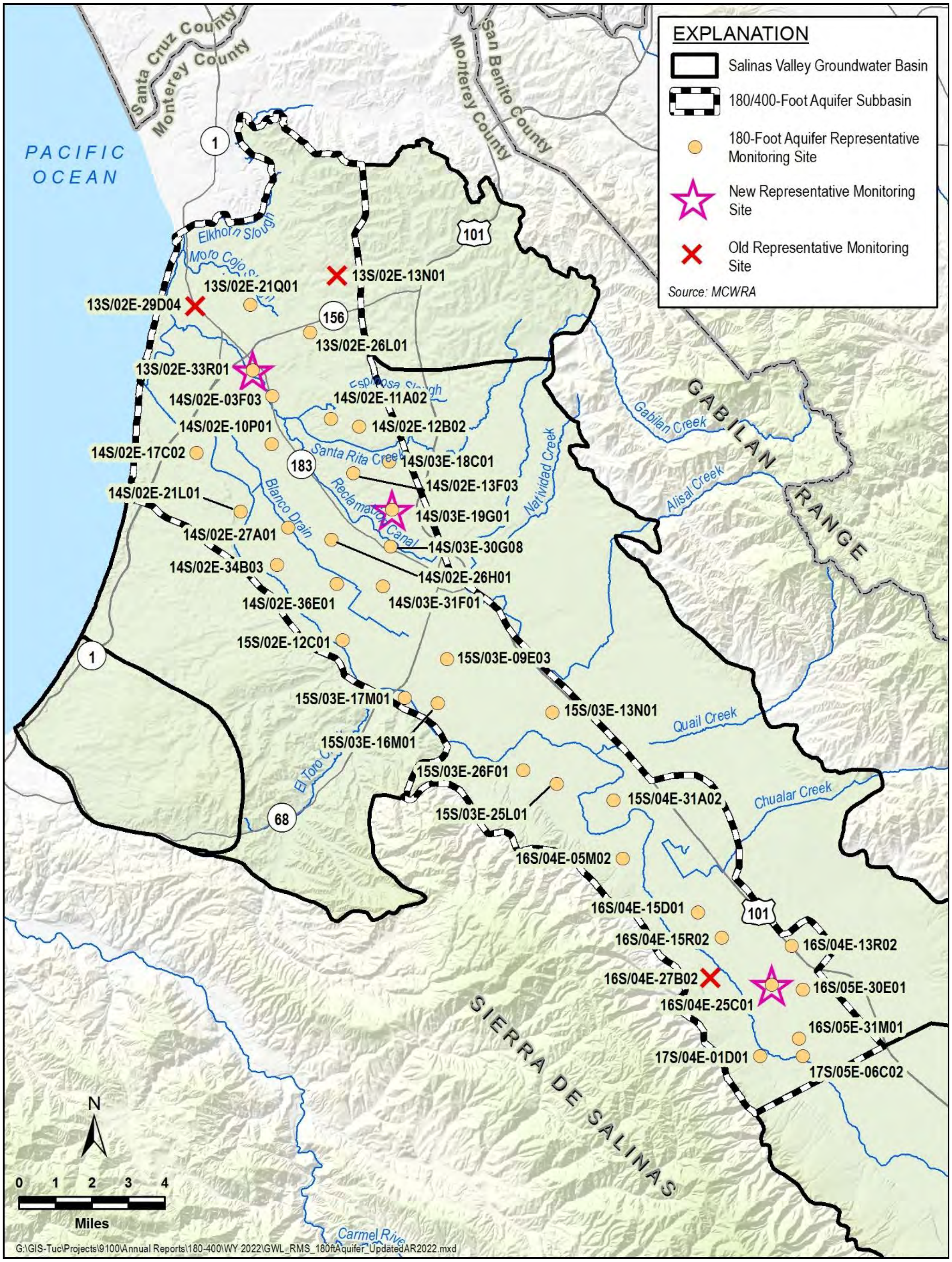


Figure 3. Locations of Representative Groundwater Elevation Monitoring Sites in the 180-Foot Aquifer

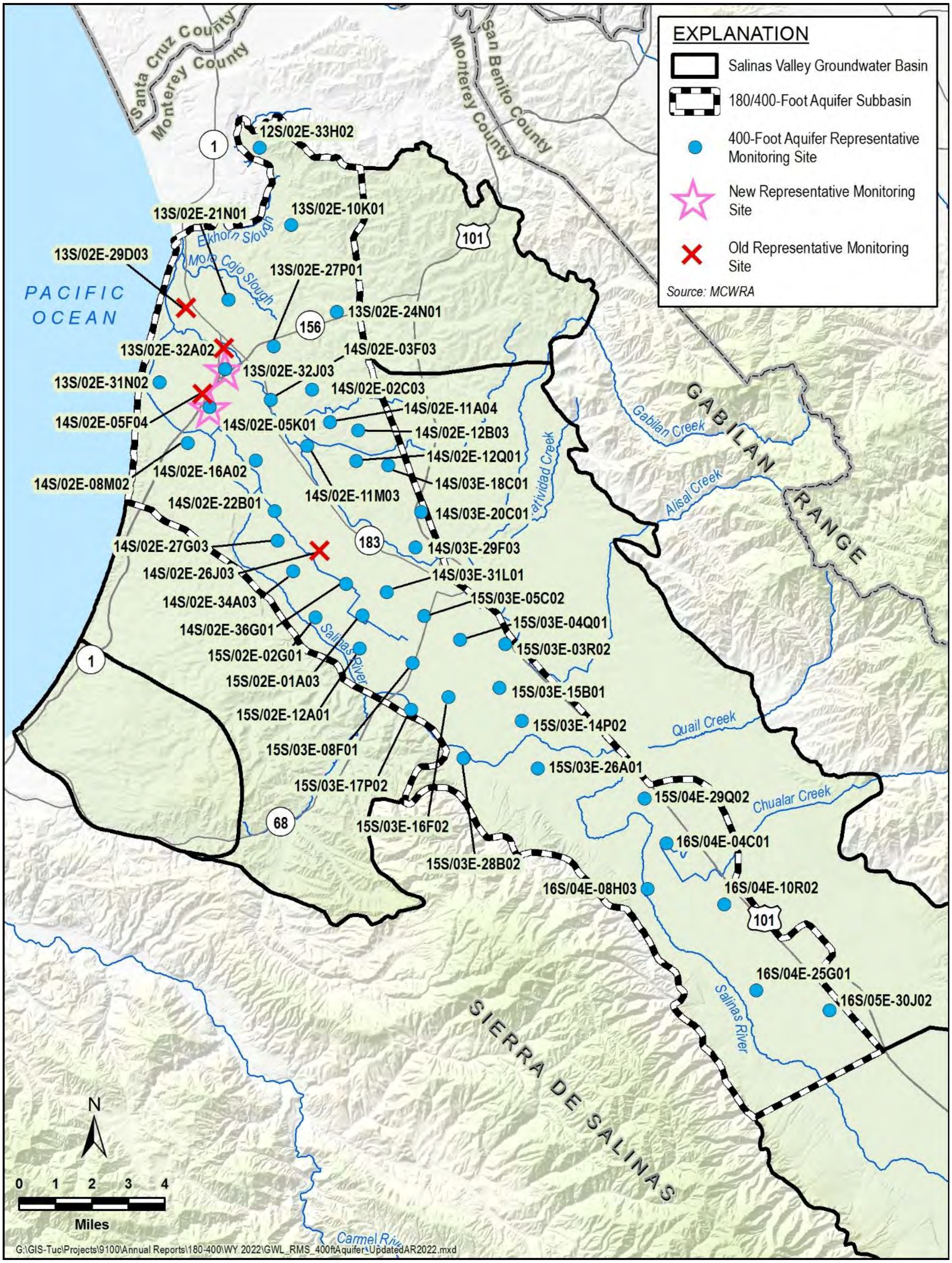


Figure 4. Locations of Representative Groundwater Elevation Monitoring Sites in the 400-Foot Aquifer

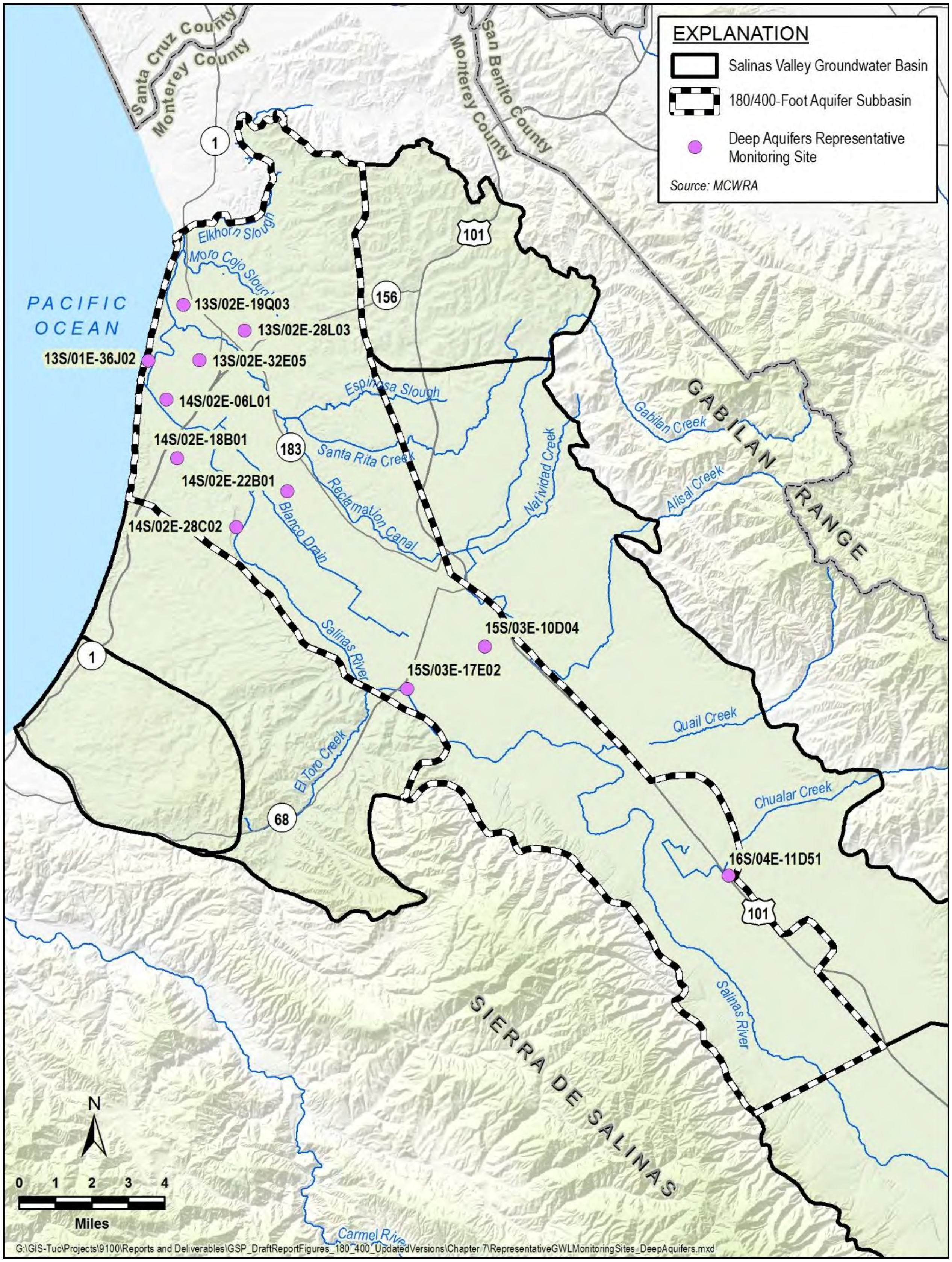


Figure 5. Locations of Representative Groundwater Elevation Monitoring Sites in the Deep Aquifers

Fall 2022 groundwater elevation data are presented in Table 5. In accordance with the GSP Update, this report uses groundwater elevations measured in the fall which are neutral groundwater conditions that are generally not heavily influenced by either summer irrigation pumping or winter rainfall recharge. These groundwater elevations are also used to compare to SMC, as described in Section 4.2.1. Fall groundwater elevation measurements are made from November to December and used to produce groundwater elevation contours. These fall contours are further discussed in Section 3.2.1. Figure 6 shows the approximate annual change in groundwater levels for the RMS wells. It shows that groundwater levels have declined in almost all of the Deep Aquifers RMS wells, and in the 180-Foot and 400-Foot Aquifers, groundwater levels have both increased and decreased across the Subbasin. Wells that MCWRA did not sample during the fall event do not have a water level measurement for WY 2022. During GSP implementation, the SVBGSA is working to get biannual measurements for every RMS and to fill data gaps in the monitoring networks with additional wells.

Table 5. Groundwater Elevation Data (in feet)

| Monitoring Site | WY 2022 Groundwater Elevation |
|---|---|
| **180-Foot Aquifer** | |
| 13S/02E-21Q01 | 0.6 |
| 13S/02E-26L01 | -0.3 |
| 13S/02E-33R01 | -1.0 |
| 14S/02E-03F04 | -7.8 |
| 14S/02E-10P01 | -11.7 |
| 14S/02E-11A02 | -10.9 |
| 14S/02E-12B02 | -12.0 |
| 14S/02E-13F03 | -9.9 |
| 14S/02E-17C02 | 2.7 |
| 14S/02E-21L01 | -6.1 |
| 14S/02E-26H01 | -11.3 |
| 14S/02E-27A01 | -13.1 |
| 14S/02E-34B03 | -14.5 |
| 14S/02E-36E01 | -17.1 |
| 14S/03E-18C01 | 9.5 |
| 14S/03E-19G01 | -16.7 |
| 14S/03E-30G08 | -13.2 |
| 14S/03E-31F01 | -9.4 |
| 15S/02E-12C01 | -8.5 |
| 15S/03E-09E03 | -11.4 |
| 15S/03E-13N01 | -5.4 |

| Monitoring Site | WY 2022 Groundwater Elevation |
|---|---|
| 15S/03E-16M01 | -7.0 |
| 15S/03E-17M01 | -5.4 |
| 15S/03E-25L01 | 0.4 |
| 15S/03E-26F01 | -5.5 |
| 15S/04E-31A02 | 10.8 |
| 16S/04E-05M02 | 28.9 |
| 16S/04E-13R02 | 48.9 |
| 16S/04E-15D01 | 38.4 |
| 16S/04E-15R02 | 47.1 |
| 16S/04E-25C01 | 61.2 |
| 16S/05E-30E01 | 69.3 |
| 16S/05E-31M01 | 72.7 |
| 17S/04E-01D01 | 71.5 |
| 17S/05E-06C02 | 79.9 |
| **400-Foot Aquifer** | |
| 12S/02E-33H02 | Not sampled |
| 13S/02E-10K01 | -3.9 |
| 13S/02E-21N01 | -4.3 |
| 13S/02E-24N01 | -4.0 |
| 13S/02E-27P01 | -24.2 |
| 13S/02E-31N02 | -1.9 |
| 13S/02E-32J03 | -5.2 |
| 14S/02E-02C03 | -35.1 |
| 14S/02E-03F03 | -17.0 |
| 14S/02E-05K01 | -6.3 |
| 14S/02E-08M02 | -5.4 |
| 14S/02E-11A04 | -30.7 |
| 14S/02E-11M03 | -23.5 |
| 14S/02E-12B03 | -30.4 |
| 14S/02E-12Q01 | -9.3 |
| 14S/02E-16A02 | -15.5 |
| 14S/02E-22L01 | -13.7 |
| 14S/02E-27G03 | -9.8 |
| 14S/02E-34A03 | -11.8 |
| 14S/02E-36G01 | -13.8 |
| 14S/03E-18C02 | -18.4 |
| 14S/03E-20C01 | -32.0 |
| 14S/03E-29F03 | -22.0 |

| Monitoring Site | WY 2022 Groundwater Elevation |
|---|---|
| 14S/03E-31L01 | -9.0 |
| 15S/02E-01A03 | -14.6 |
| 15S/02E-02G01 | -29.5 |
| 15S/02E-12A01 | -18.4 |
| 15S/03E-03R02 | -12.0 |
| 15S/03E-04Q01 | -12.0 |
| 15S/03E-05C02 | Not sampled |
| 15S/03E-08F01 | -15.1 |
| 15S/03E-14P02 | -12.7 |
| 15S/03E-15B01 | -11.1 |
| 15S/03E-16F02 | -10.1 |
| 15S/03E-17P02 | -19.0 |
| 15S/03E-26A01 | -5.9 |
| 15S/03E-28B02 | 1.0 |
| 15S/04E-29Q02 | 10.9 |
| 16S/04E-04C01 | 27.6 |
| 16S/04E-08H03 | 28.0 |
| 16S/04E-10R02 | 39.5 |
| 16S/04E-25G01 | 59.5 |
| 16S/05E-30J02 | 71.9 |
| **Deep Aquifers** | |
| 13S/01E-36J02 | -11.6 |
| 13S/02E-19Q03 | -10.9 |
| 13S/02E-28L03 | Not sampled |
| 13S/02E-32E05 | -16.7 |
| 14S/02E-06L01 | -14.3 |
| 14S/02E-18B01 | Not sampled |
| 14S/02E-22A03 | -52.1 |
| 14S/02E-28C02 | -45.5 |
| 15S/03E-10D04 | -22.7 |
| 15S/03E-17E02 | -12.8 |
| 16S/04E-11D51 | 33.6 |

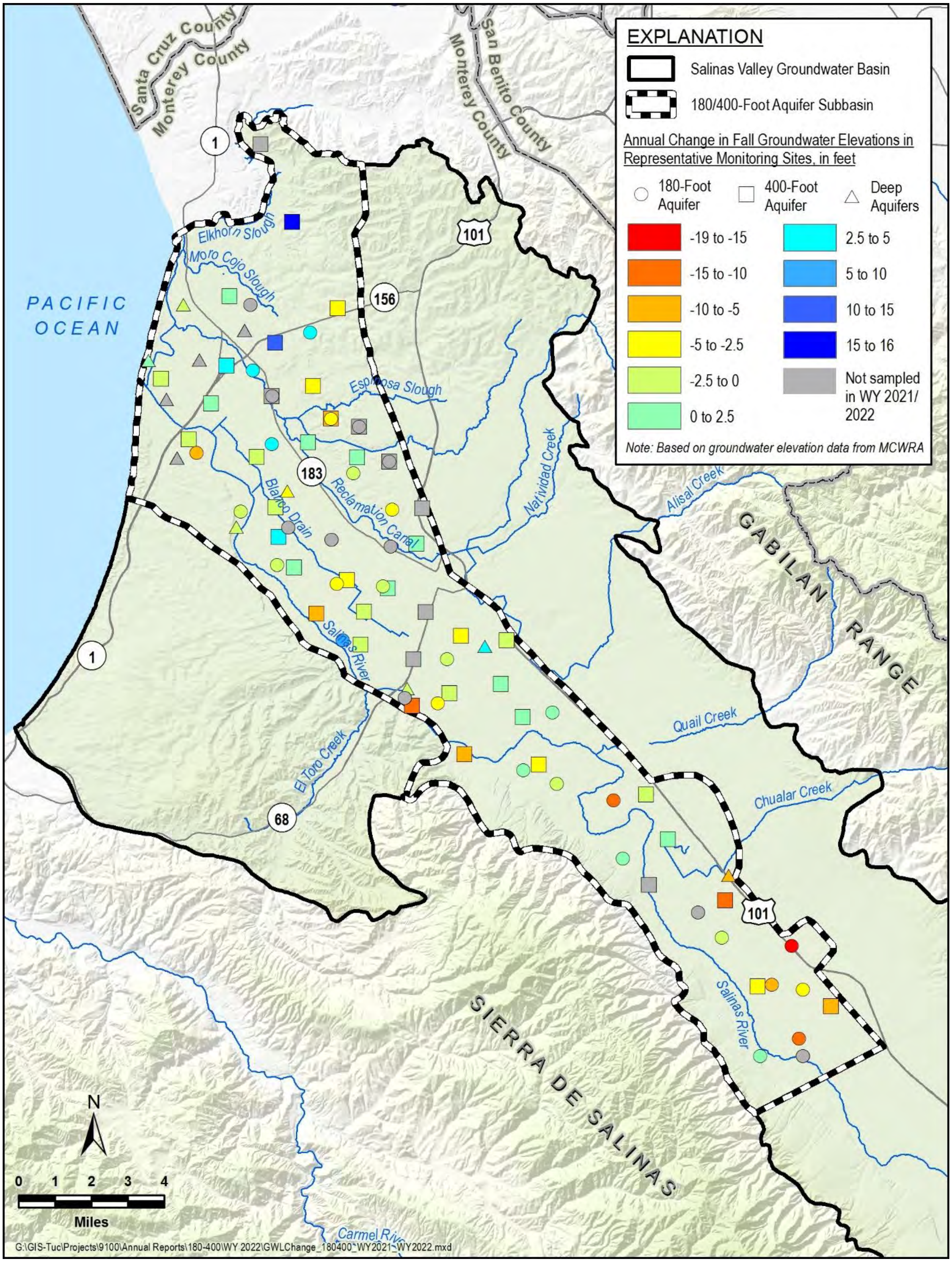


Figure 6. Annual Change in Fall Groundwater Elevations in Representative Monitoring Sites

### 3.2.1 Groundwater Elevation Contours

The SVBGSA received groundwater elevation contour maps from MCWRA for the 180/400 Foot Aquifer Subbasin for August and fall 2022. The August contours represent seasonal low conditions due to agricultural pumping, and the fall contours represent seasonal high conditions, even though they are neutral. The true seasonal high usually occurs between January and March (MCWRA, 2015); however, the GSP Update adopts fall groundwater elevations as the seasonal high because SMC monitoring is based on MCWRA's existing monitoring networks for which groundwater elevations are collected in the fall.

Groundwater elevation contours for seasonal high and low groundwater conditions in the 180-Foot Aquifer are shown on Figure 7 and Figure 8, respectively. Groundwater elevation contours for seasonal high and low groundwater conditions in the 400-Foot Aquifer are shown on Figure 9 and Figure 10, respectively. The contours indicate that groundwater flow directions are similar in the 180- and 400-Foot Aquifers during both seasonal low and seasonal high conditions. However, groundwater elevations in the 400-Foot Aquifer are lower than groundwater elevations in the 180-Foot Aquifer. Figure 7 through Figure 10 show a groundwater depression trending toward the City of Salinas roughly from the west. This depression is related to a pumping trough northeast of Salinas in the Eastside Subbasin. In this area, groundwater flow gradients are not parallel to the Valley's long axis, but rather are cross-valley toward the pumping trough in the Eastside Subbasin. The pumping trough is more pronounced in August than in the fall due to the seasonal groundwater pumping trends in the Basin. In the 400-Foot Aquifer, pumping depressions also occur in the northeastern part of the Subbasin closer to the boundary with the Langley Subbasin and near the border with the Ord Area of the Monterey Subbasin in August. In the fall contours, the northeastern depression is still present, and there is a more distinct pumping depression on the southwestern side of Salinas. These reached down to -100 and -40 feet below sea level, respectively. The contours show that both during the August and fall measurements, groundwater levels near the coast were below sea level at approximately -10 and -20 feet, respectively.

Contours are not extended across all portions of the Subbasin due to data limitations; this is a data gap that will be addressed during GSP implementation. The MCWRA does not produce groundwater elevation maps of the Deep Aquifers. Insufficient data currently exist to map flow directions and groundwater elevations representative of the Deep Aquifers. This is a data gap that SVBGSA is working to address during GSP implementation.

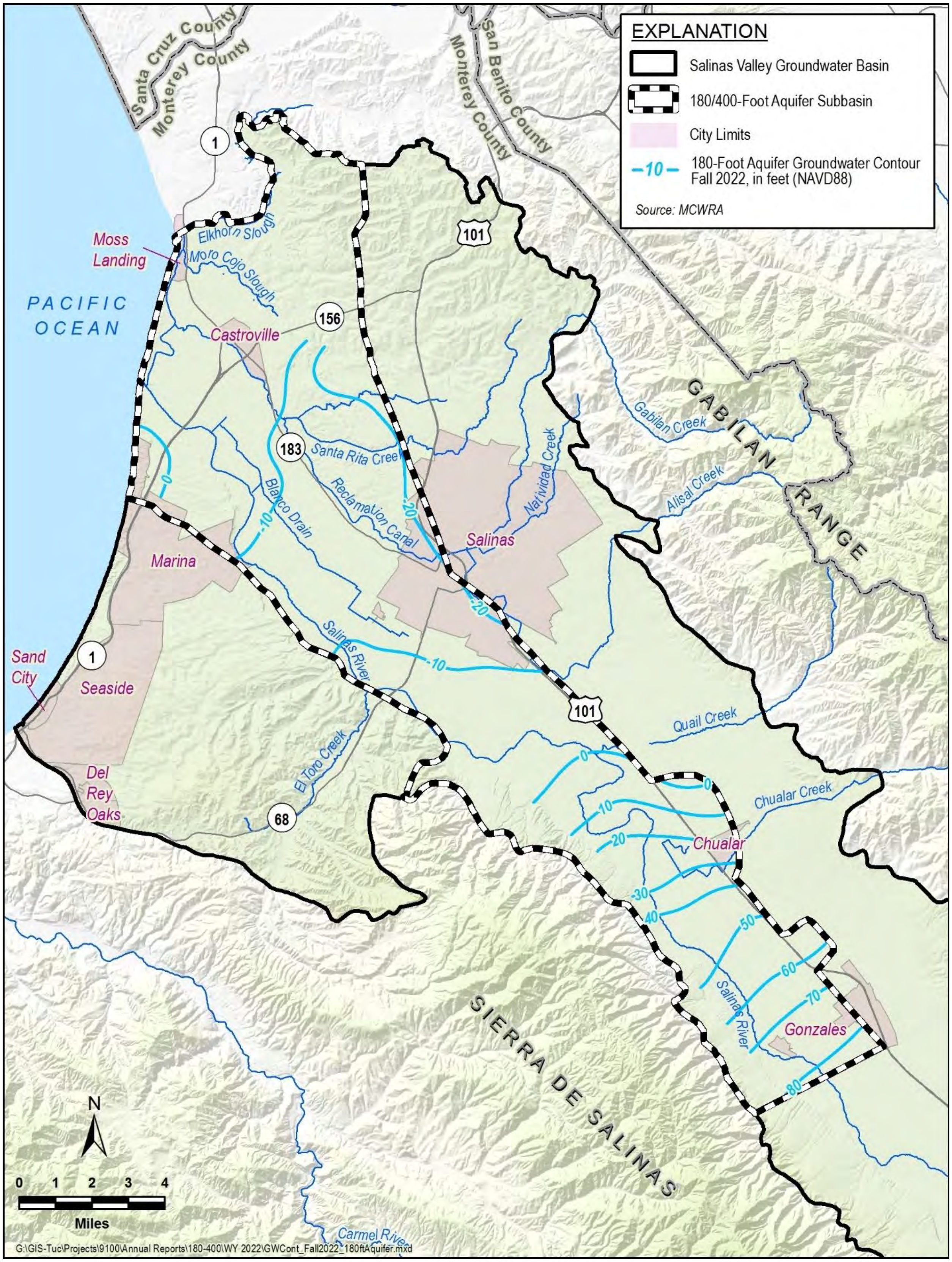


Figure 7. Seasonal High Groundwater Elevation Contour Map for 180-Foot Aquifer

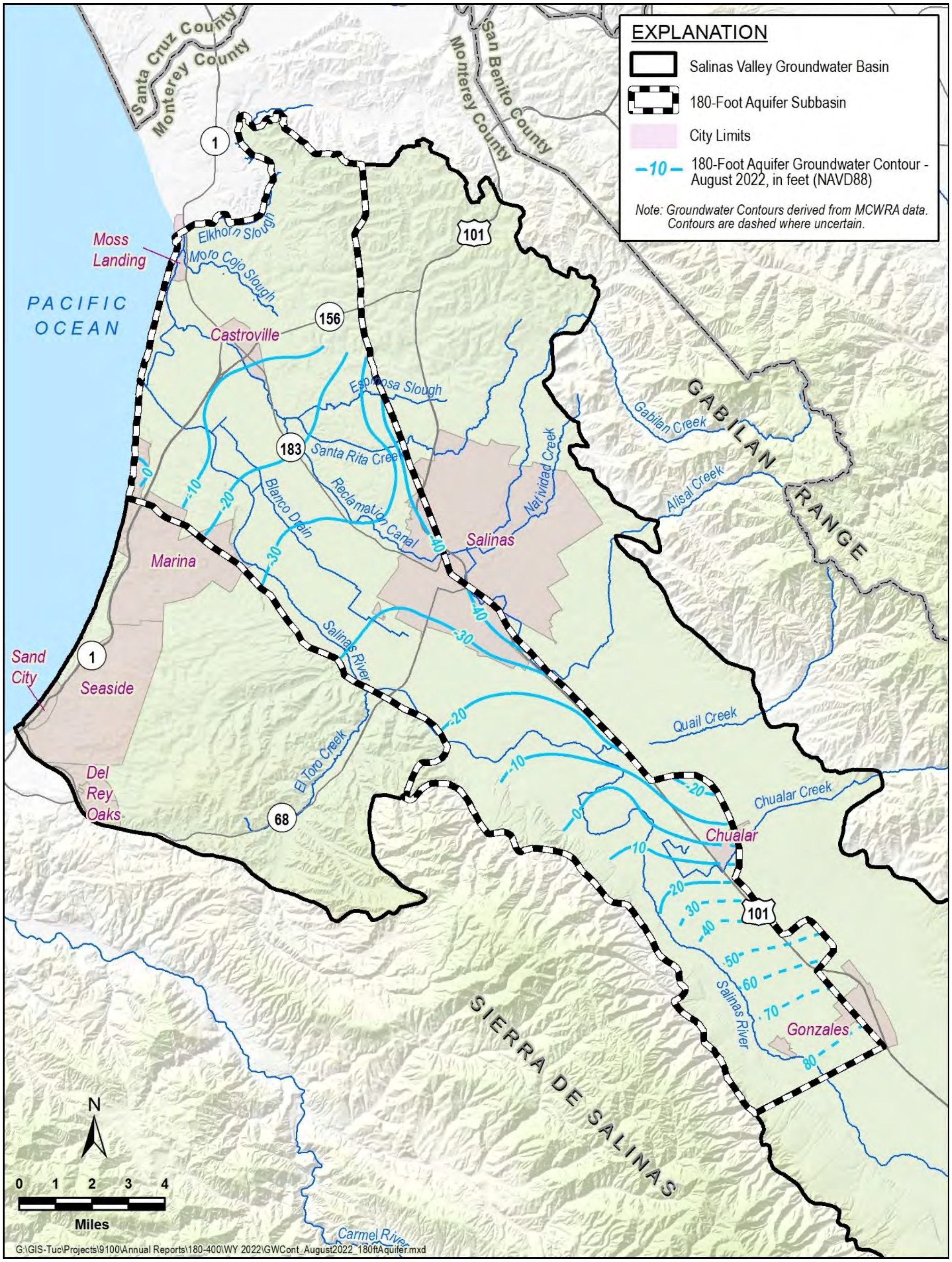


Figure 8. Seasonal Low Groundwater Elevation Contour Map for 180-Foot Aquifer

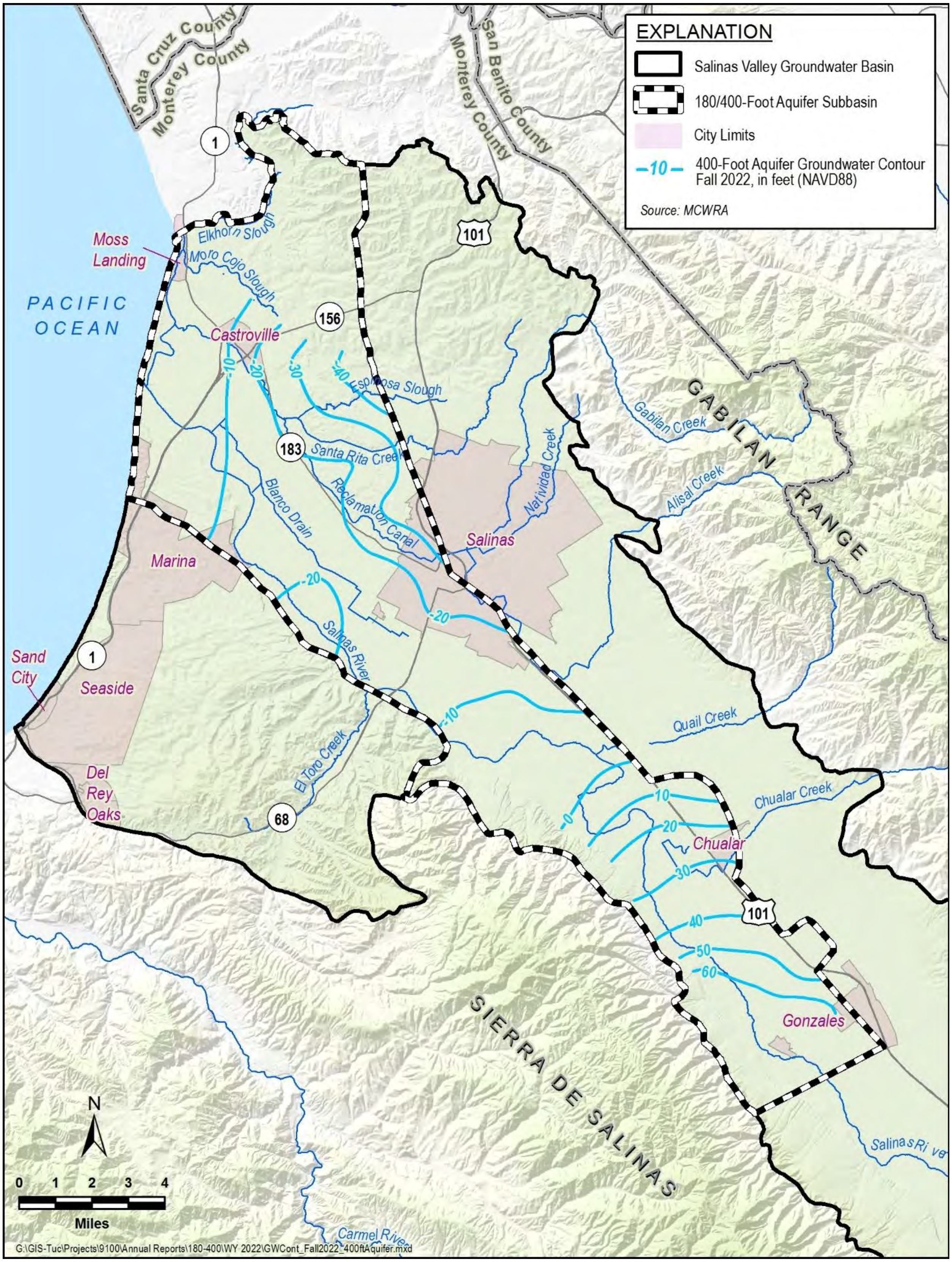


Figure 9. Seasonal High Groundwater Elevation Contour Map for 400-Foot Aquifer

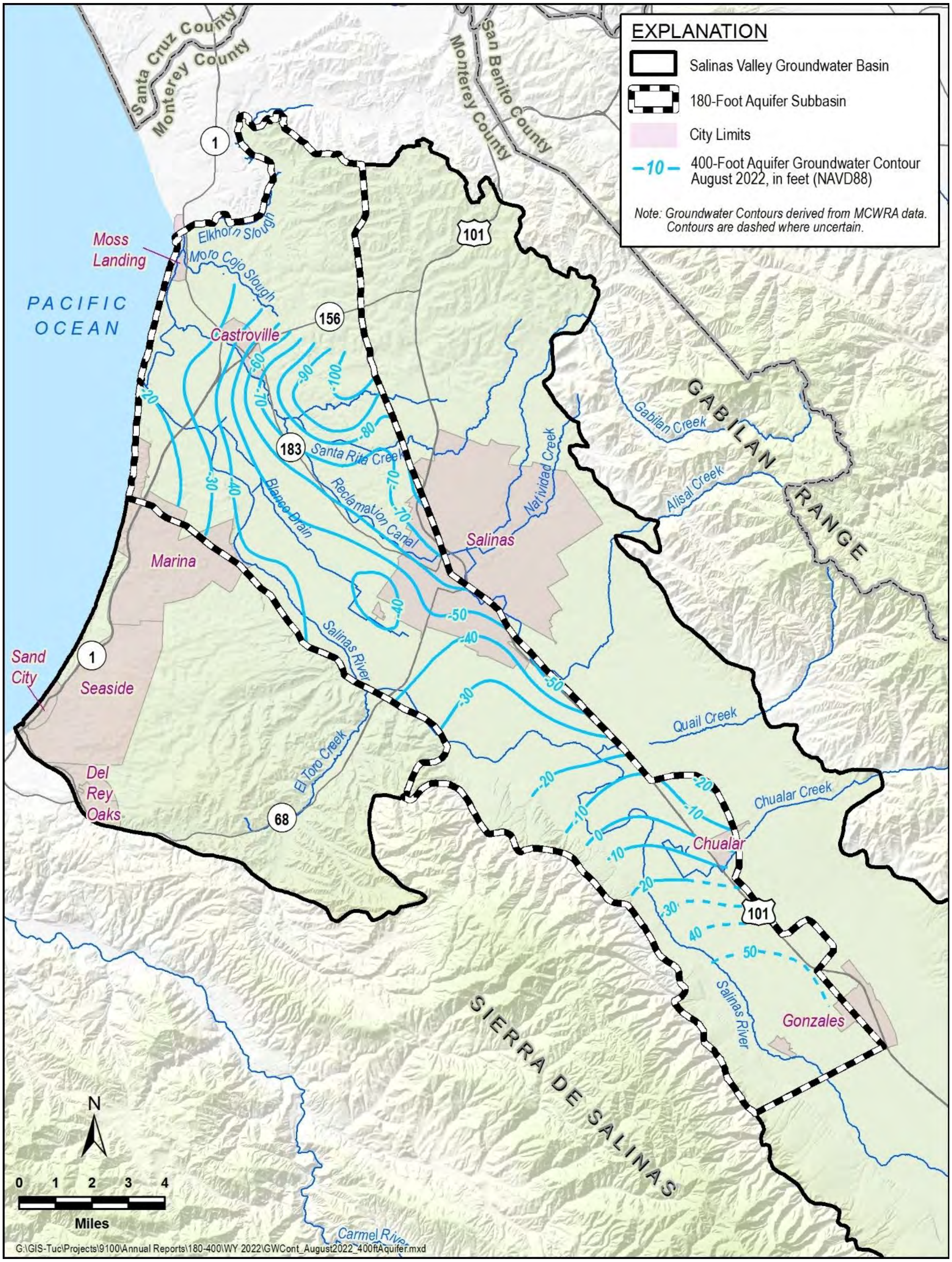


Figure 10. Seasonal Low Groundwater Elevation Contour Map for 400-Foot Aquifer

### 3.2.2 Groundwater Elevation Hydrographs

Temporal trends in groundwater elevations can be assessed with hydrographs that plot changes in groundwater elevations over time. Hydrographs for selected monitoring wells within the 180-Foot Aquifer, 400-Foot Aquifer, and Deep Aquifers are shown on Figure 11 through Figure 13, respectively. These hydrographs were selected to show characteristic trends in groundwater elevation in each aquifer. The hydrographs indicate that groundwater elevations in the 180-Foot and 400-Foot Aquifers have generally declined throughout the Subbasin since 2019. Meanwhile, groundwater elevations for the Deep Aquifers have continued to decrease with too little data to establish any spatial pattern. Since WY 2021, groundwater elevations decreased in most wells with a decline in elevations ranging from about 0.2 to 19 feet in the 180-Foot Aquifer, 0.6 to 12 feet in the 400-Foot Aquifer, and 0.2 to 9 feet in the Deep Aquifers. Hydrographs for all RMSs are included in Appendix A.

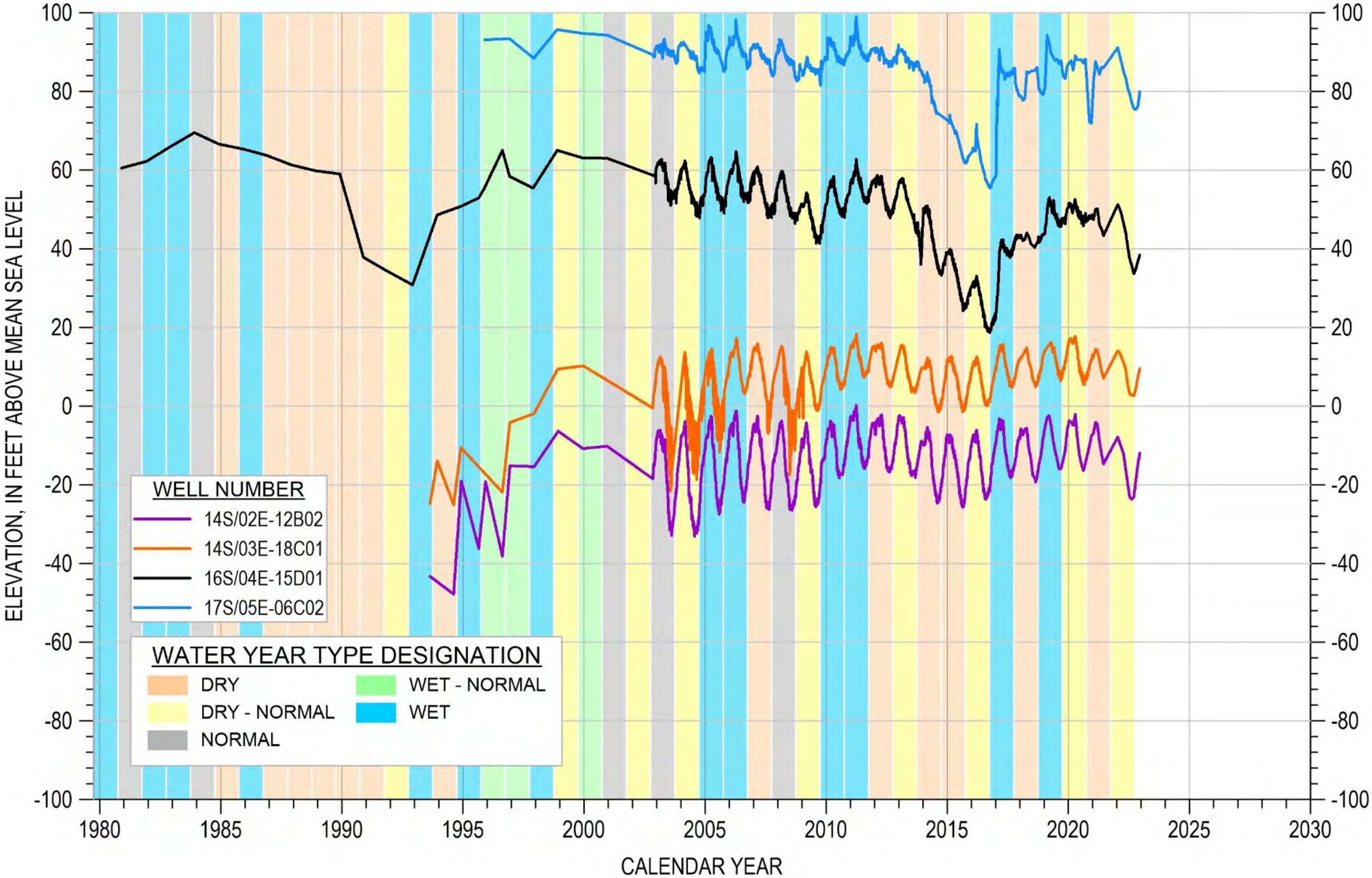


Figure 11. Groundwater Elevation Hydrographs for Selected Monitoring Wells in 180-Foot Aquifer

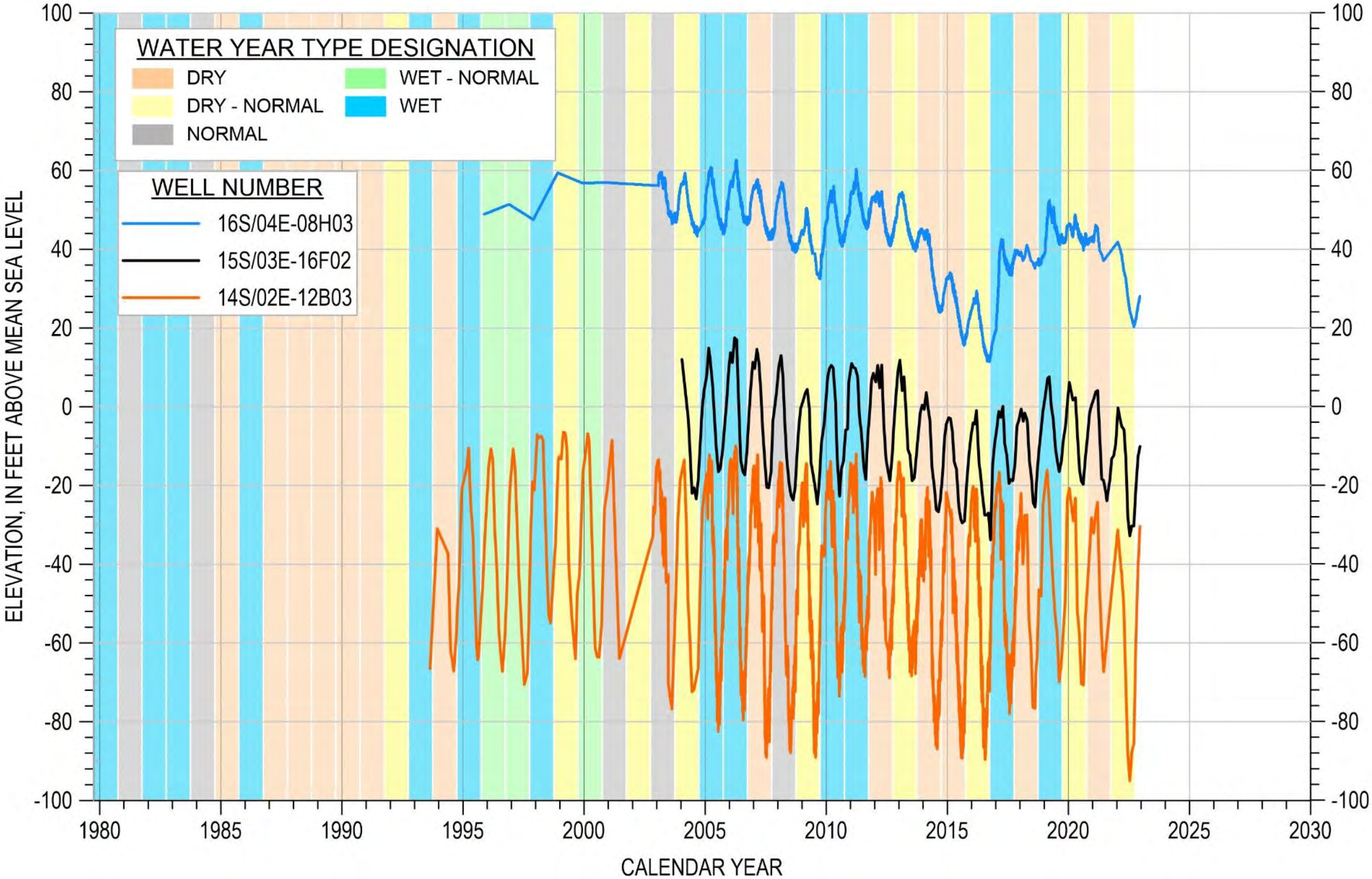


Figure 12. Groundwater Elevation Hydrographs for Selected Monitoring Wells in 400-Foot Aquifer

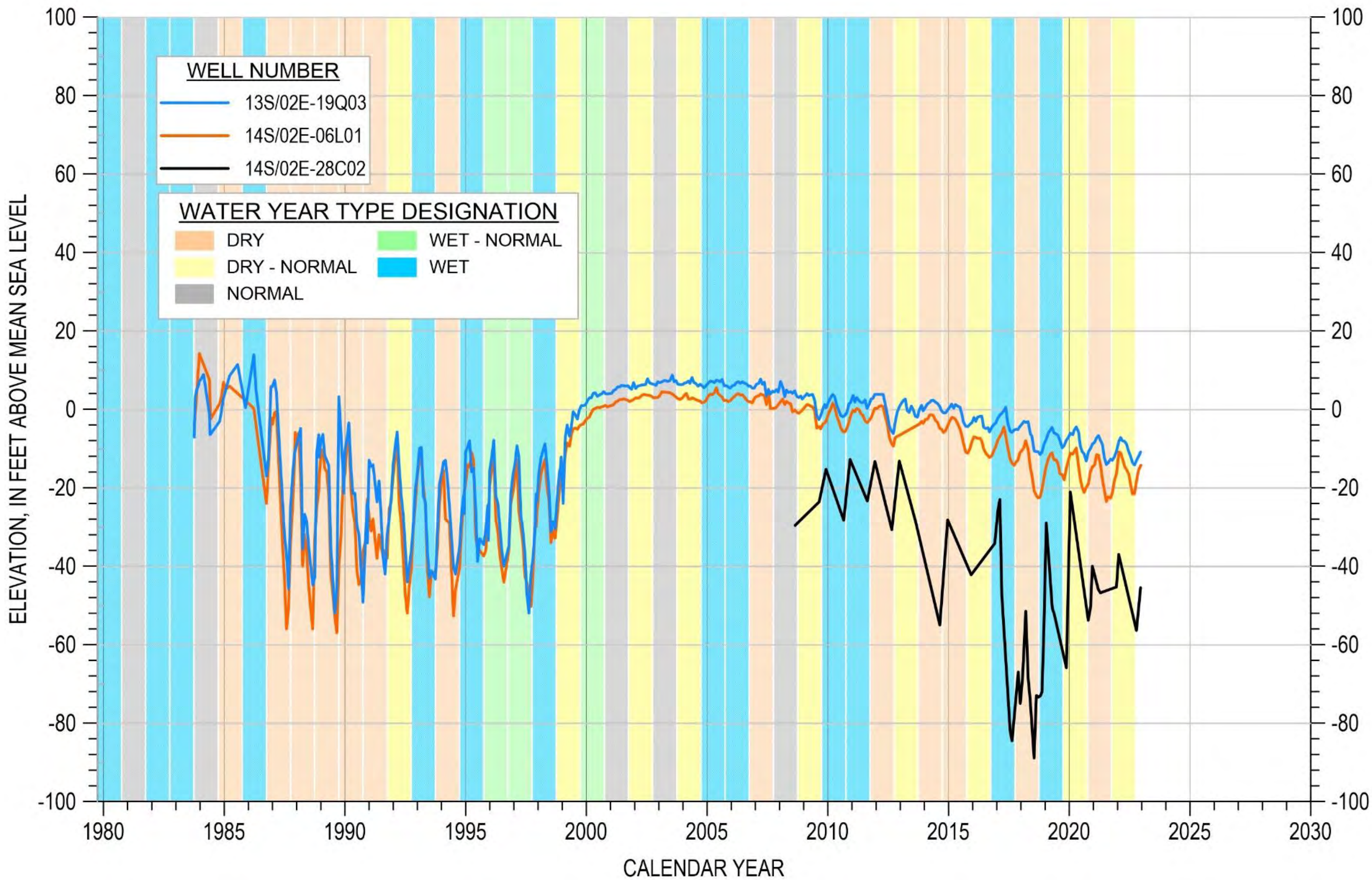


Figure 13. Groundwater Elevation Hydrograph for Selected Monitoring Well in Deep Aquifers

## 3.3 Seawater Intrusion

MCWRA annually prepares contours of seawater intrusion for the 180/400-Foot Aquifer Subbasin and the adjacent Monterey Subbasin. The mapped extent of seawater intrusion is based on the 500 milligram per liter (mg/L) chloride isocontour. Figure 14 and Figure 15 show the 2022 seawater intrusion contours for the 180-Foot and 400-Foot Aquifers, respectively, for the 180/400-Foot Aquifer Subbasin. The MCWRA seawater intrusion contours for the Monterey Subbasin are not included in these figures because Marina Coast Water District assesses seawater intrusion in the Monterey Subbasin using a different methodology. Figure 14 shows that the seawater intrusion area in the 180-Foot Aquifer has not increased since WY 2020. Figure 15 shows that seawater intrusion in the 400-Foot Aquifer increased from WY 2021 to WY 2022 as highlighted by the red areas. Seawater intrusion in the 400-Foot Aquifer advanced along the southern half of the main front where August groundwater elevations decreased about 5 to 10 feet, along both sides of the connection between the 2 large seawater intrusion islands, and on the southern side of the large seawater intrusion island toward the pumping depression by the border with the Ord Area where August groundwater elevations decreased about 2 to 20 feet. Although advancement of the seawater intrusion front has slowed compared to historical years in the 180-Foot Aquifer, seawater intrusion is still advancing in the Subbasin. In the 400-Foot Aquifer, the seawater intrusion rate has decreased slightly from a 420 acre increase in WY 2021 to a 390 acre increase in WY 2022.

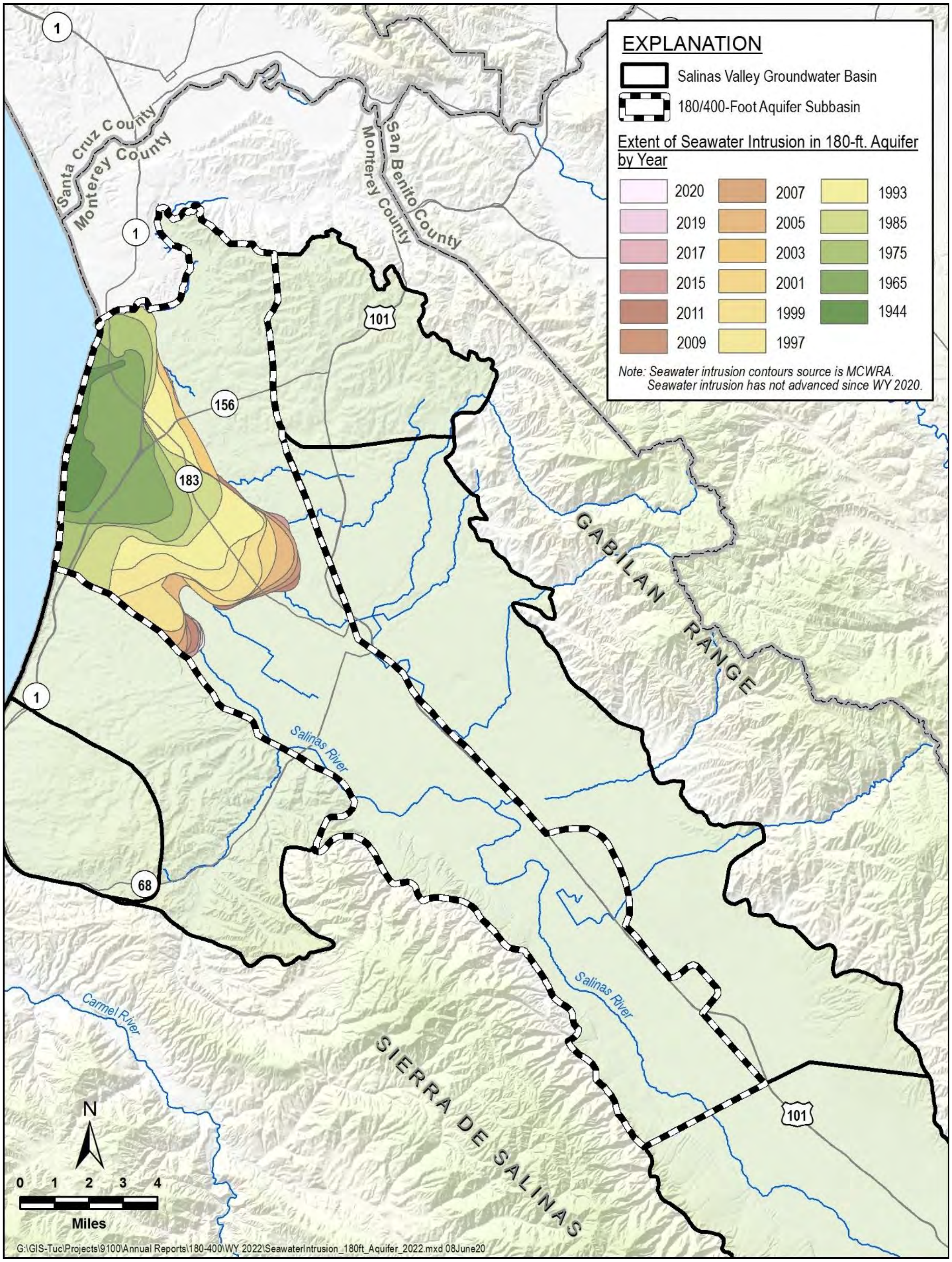


Figure 14. 2022 Seawater Intrusion Contours for the 180-Foot Aquifer

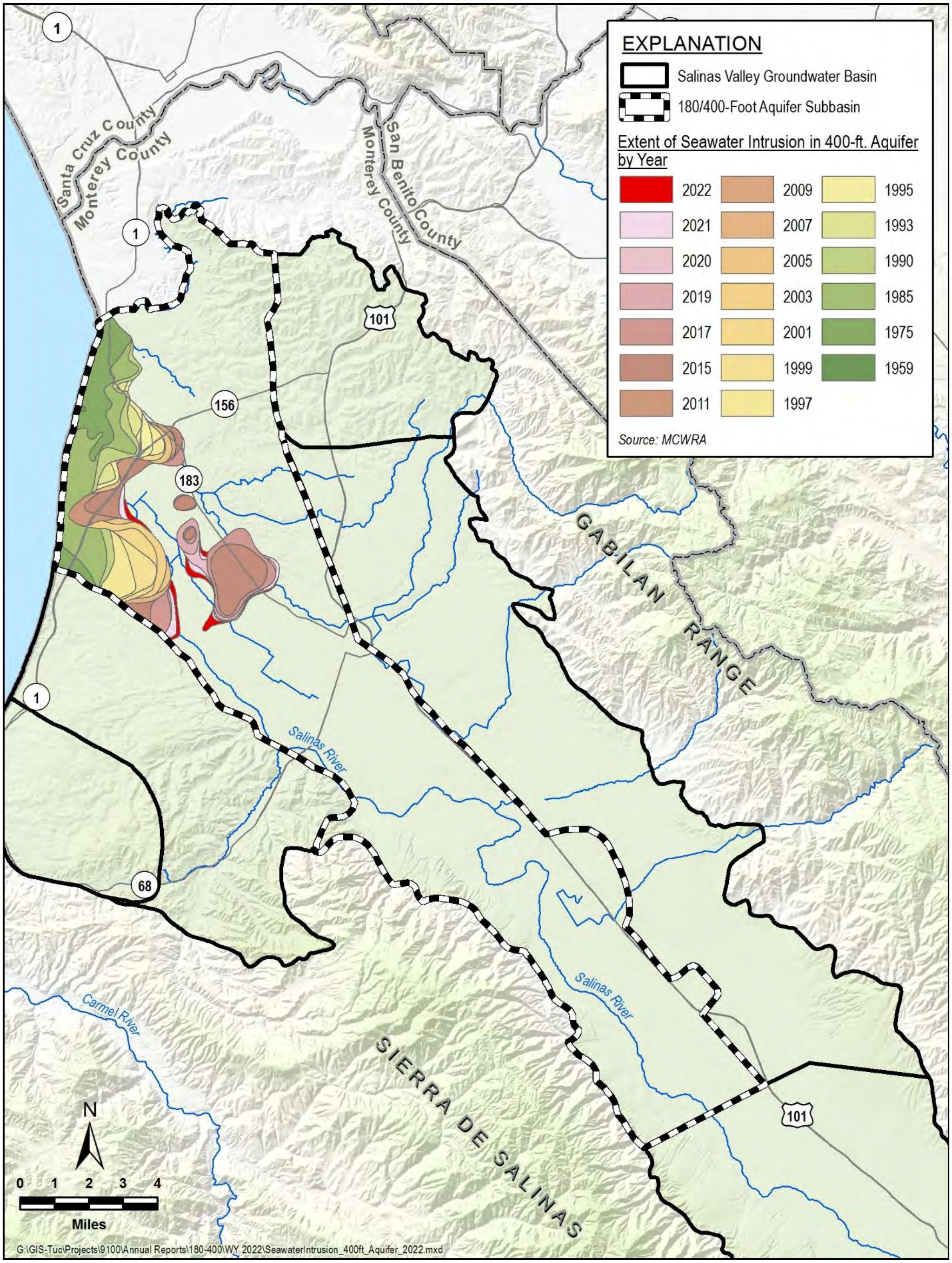


Figure 15. 2022 Seawater Intrusion Contours for the 400-Foot Aquifer

## 3.4 Change in Groundwater Storage

The Subbasin GSP adopted the concept of change in usable groundwater storage, defined as the annual average increase or decrease in groundwater that can be safely used for municipal, industrial, or agricultural purposes. Change in usable groundwater storage is the sum of change in storage due to groundwater elevation changes and the change in storage due to seawater intrusion. The change in storage due to groundwater elevations and the change in storage due to seawater intrusion are calculated separately.

### 3.4.1 Change in Groundwater Storage Due to Groundwater Elevation Changes

The change in groundwater storage due to change in groundwater elevations is only calculated for the portion of the Subbasin that is not seawater intruded. Change in groundwater elevations within the seawater intruded area is accounted for in the estimate for change in groundwater storage due to seawater intrusion described in Section 3.4.2, and thus is not included in this estimation. The observed groundwater elevation changes outside the seawater intrusion area provide a measure of the amount of useable groundwater that has moved into and out of storage during each year, not accounting for seawater intrusion.

The storage change due to groundwater elevation changes is calculated by multiplying the annual change in groundwater elevation by a storage coefficient and the non-seawater intruded land area of the Subbasin. As described in Sections 5.2.2 and 8.6.2.1 of the GSP Update, the change in storage is calculated in 2 ways: (1) for individual aquifers and (2) for the Subbasin as a whole. GSP Regulations require that the change in storage is reported for individual principal aquifers in annual reports. However, to appropriately compare annual change in storage to the updated reduction in storage SMC in the GSP Update, a single calculation for the Subbasin is necessary.

Both approaches calculate average change in groundwater elevations in the Subbasin the same way, but they differ in how they calculate the storage coefficient and land area.

**Annual Change in Average Groundwater Elevations:** The annual change in average groundwater elevations is calculated using the fall groundwater elevation contours produced by MCWRA. MCWRA uses groundwater elevations from November to December to produce these contours. Fall measurements occur at the end of the irrigation season and before groundwater levels rise due to seasonal recharge by winter rains. These measurements record annual changes in storage reflective of groundwater recharge and withdrawals in the Subbasin. Currently, MCWRA only generates contours for the 180-Foot and 400-Foot Aquifers.

Average annual change in groundwater elevations in the 180-Foot Aquifer from WY 2021 to WY 2022 was estimated by subtracting the fall 2021 groundwater elevations shown on Figure 16 from the fall 2022 groundwater elevations (Figure 7). The estimated change in storage due to groundwater elevation changes, in AF per acre, is depicted on Figure 17. Similarly, for the

400-Foot Aquifer, Figure 18 shows the fall 2021 groundwater elevation contours that are subtracted from the fall 2022 groundwater elevation contours (Figure 9) to calculate the average annual groundwater elevation change shown on Figure 19. Since the groundwater elevation contours do not extend across the entire Subbasin, the storage change was not calculated in the areas that were not contoured, as indicated by the areas without color on Figure 17 and Figure 19. There is little pumping in the non-contoured area compared to the rest of the Subbasin, and therefore the actual change in storage may be slightly higher or lower depending on average change in groundwater levels in the non-contoured area.

For the Subbasin-wide calculation, the change in groundwater elevations from fall 2021 to fall 2022 are averaged together for the 180-Foot and 400-Foot Aquifers.

**Storage Coefficient:** To calculate the change in storage for individual aquifers, storage coefficients of 0.012 and 0.005 for the 180-Foot and 400-Foot Aquifers, respectively, are used. These storage coefficients are derived from aquifer property information specified in the Salinas Valley Integrated Hydrologic Model (SVIHM[1]), a provisional groundwater model under development by the USGS, and they will likely change when the SVIHM is finalized.

To calculate the total change in storage for the Subbasin as a whole, a storage coefficient of 0.078 is used, which is considered reflective of all aquifers, including the shallow sediments and the unconfined portions of the 180-Foot Aquifer, which would have higher storage coefficients than the confined aquifers. This number is an average of the storage coefficient of 0.036 for the Pressure Subarea from Monterey County's *State of the Basin Report* (Brown and Caldwell, 2015) and the initial specific yield estimate of 0.12 used in the SVIHM for the unconfined portions of the Subbasin.

**Non-Seawater Intruded Land Area:** The area for the aquifer-specific calculation was determined by subtracting the 2022 seawater intruded area from the area of the contoured portion of each individual aquifer.

For the whole Subbasin calculation, the area was estimated by subtracting the total volume of seawater intruded groundwater from the total amount of water that can be held in storage above the bottom of the 400-Foot Aquifer. This volume was then divided by the depth to the bottom of the 400-Foot Aquifer to calculate an area. Calculating area in this manner accounts for the aquitards and shallow sediments, which hold some water and are factored into the whole subbasin storage coefficient of 0.078.

[1] These data (model and/or model results) are preliminary or provisional and are subject to revision. This model and model results are being provided to meet the need for timely best science. The model has not received final approval by the USGS. No warranty, expressed or implied, is made by USGS or the U.S. Government as to the functionality of the model and related material nor shall the fact of release constitute any such warranty. The model is provided on the condition that neither USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the model.

**Annual Change in Storage Calculation:** A summary of components used for estimating change in groundwater storage due to groundwater elevation changes is shown in Table 6. The storage loss due to changes in groundwater elevations using the aquifer-specific approach is 2,200 AF/yr. in the 180-Foot Aquifer and 1,100 AF/yr. in the 400-Foot Aquifer. The storage loss using the Subbasin-wide approach is approximately 20,600 AF/yr. The total storage change in the individual aquifers do not sum to the Subbasin-wide storage change. The remaining loss in storage possibly occurs in the Deep Aquifers or in the shallow sediments above the 180-Foot Aquifer, which are not designated as principal aquifers. The Deep Aquifers are not included in either calculation because the limited groundwater elevation data available for the Deep Aquifers are likely not representative of the change in storage occurring in the Deep Aquifers. The change in storage calculation for the Deep Aquifers is a data gap that will be evaluated in the future as more data and information are collected during GSP implementation. The negative signs in Table 6 indicate decline in groundwater levels or loss in storage. These storage losses are added to storage loss due to seawater intrusion in Section 3.4.3.

Table 6. Parameters Used for Estimating Annual Change in Groundwater Storage Due to Groundwater Elevation Changes Outside of Seawater Intruded Area

| Component | Aquifer Specific Calculation | | Whole Subbasin Calculation |
|---|---|---|---|
| | 180-Foot Aquifer | 400-Foot Aquifer | |
| **Area of contoured portion of Subbasin minus seawater intruded area (acres)** | 51,000 | 58,100 | 76,000 |
| **Storage coefficient** | 0.012 | 0.005 | 0.078 |
| **Average change in groundwater elevations (feet)** | -3.43 | -3.52 | -3.47 |
| **Change in groundwater storage (AF)** | **-2,200** | **-1,100** | **-20,600** |
| **Total annual change in groundwater storage due to changes in groundwater elevations (AF/yr.)** | **-3,300** | | **-20,600** |

Note: Negative values indicate loss, positive values indicate gain.

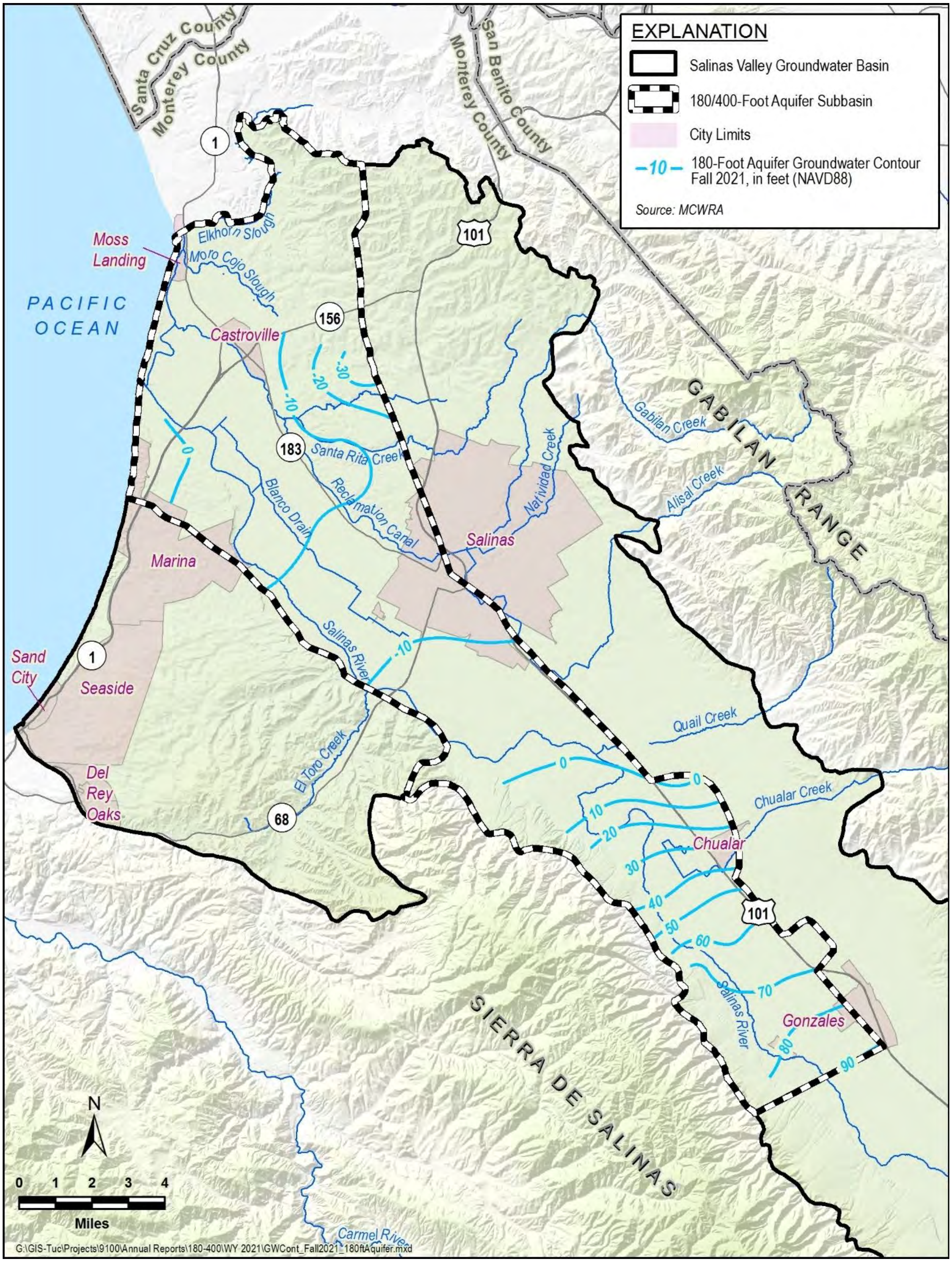


Figure 16. Fall 2021 Groundwater Elevation Contour Map for 180-Foot Aquifer

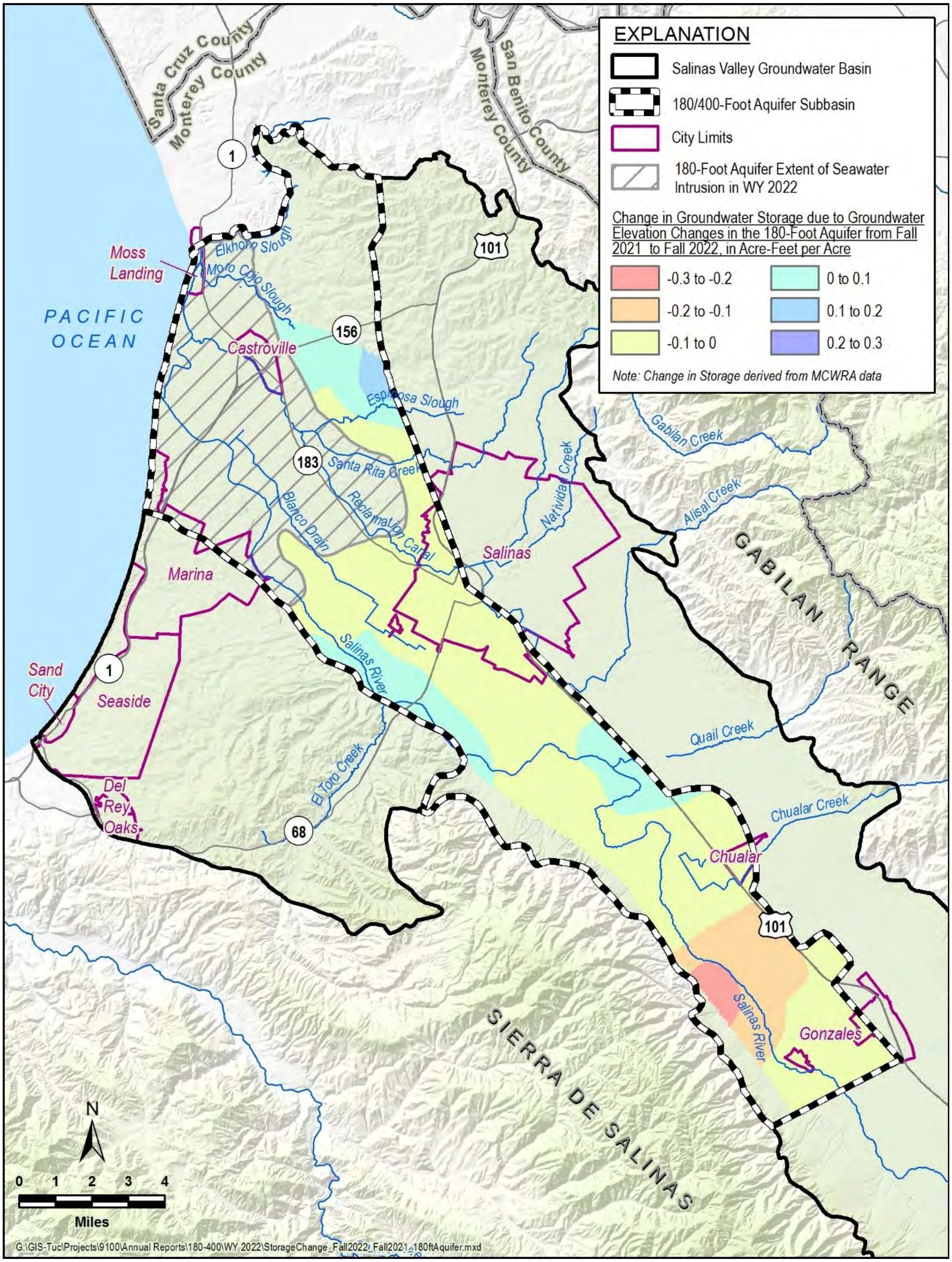


Figure 17. Estimated Annual Change in Groundwater Storage Between WY 2021 and WY 2022 in the 180-Foot Aquifer

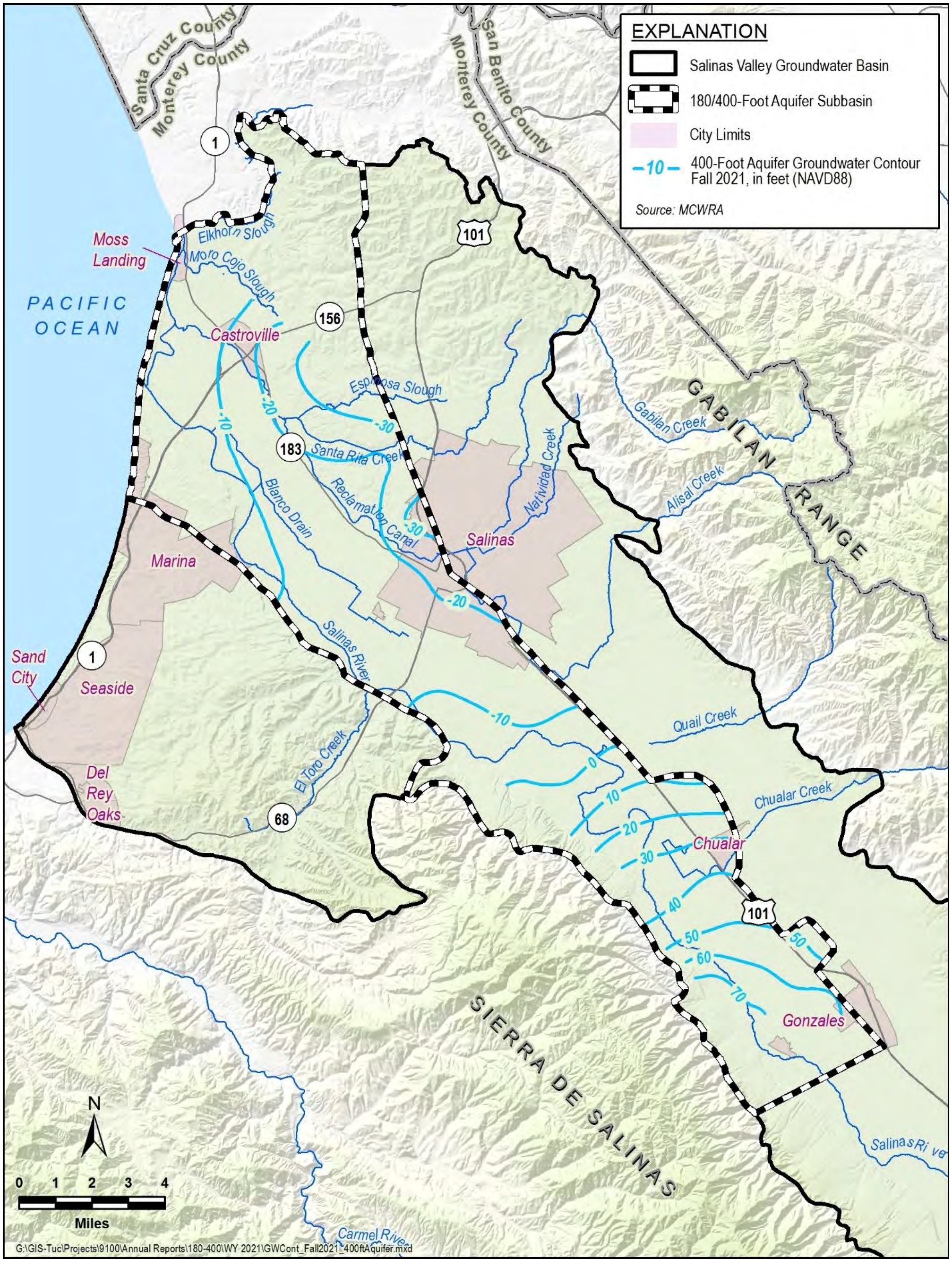


Figure 18. Fall 2021 Groundwater Elevation Contour Map for 400-Foot Aquifer

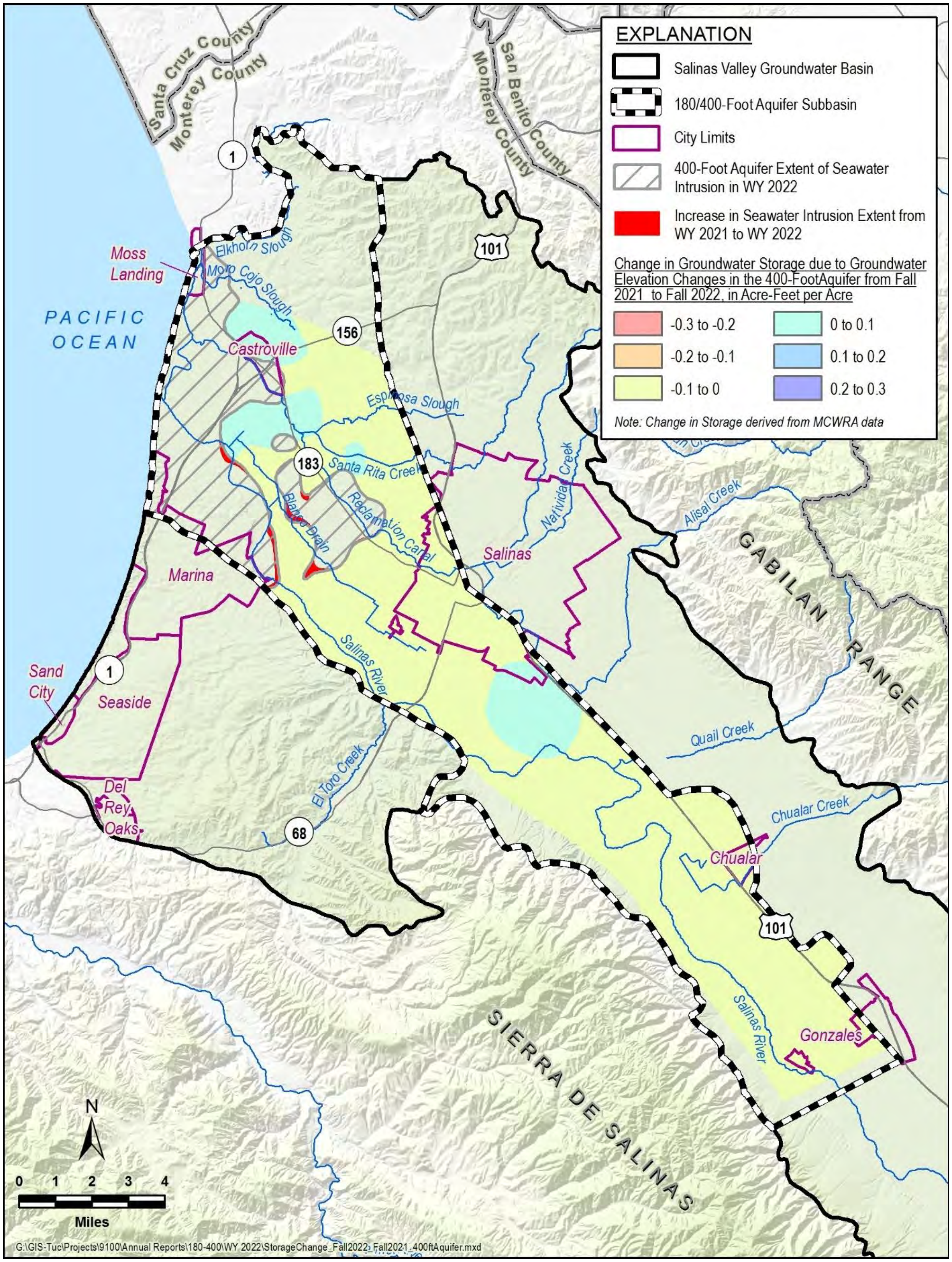


Figure 19. Estimated Annual Change in Groundwater Storage Between WY 2021 and WY 2022 in the 400-Foot Aquifer

### 3.4.2 Change in Groundwater Storage due to Seawater Intrusion

Groundwater storage loss due to seawater intrusion is estimated based on the change in seawater intrusion area from WY 2021 to WY 2022, as mapped by MCWRA. As described in Section 3.3 of this report, there was no increase in seawater intrusion in the 180-Foot Aquifer in WY 2022 so the change in storage due to seawater intrusion occurred only in the 400-Foot Aquifer. The area of change from 2021 to 2022, shown as the red shaded area on Figure 19, was multiplied by an assumed aquifer thickness and effective porosity of 0.12 to estimate the average annual loss of groundwater storage due to seawater intrusion. Storage coefficients are more representative of the quantity of the water that can be drained from an aquifer. Since seawater is moving into the aquifer, an effective porosity is more appropriate for this calculation. Average aquifer thickness is approximately 150 feet in the 180-Foot Aquifer and 200 feet in the 400-Foot Aquifer, based on descriptions in the GSP. Average annual groundwater storage loss due to seawater intrusion in the Subbasin from 2021 to 2022 is approximately 9,300 AF/yr., all of which occurred in the 400-Foot Aquifer. A summary of parameters used for estimating change in groundwater storage due to seawater intrusion is shown in Table 7.

Table 7. Parameters Used for Estimating Loss in Groundwater Storage Due to Seawater Intrusion

| Component | 180-Foot Aquifer | 400-Foot Aquifer |
|---|---|---|
| **Change in seawater intrusion area (acres)** | 0 | -389 |
| **Effective Porosity** | 0.12 | 0.12 |
| **Approximate aquifer thickness (feet)** | 150 | 200 |
| **Change in groundwater storage (AF)** | 0 | -9,300 |
| **Total average annual change in groundwater storage due to seawater intrusion (AF/yr.)** | **-9,300** | |

Note: Increases in acreage intruded by seawater are indicated by negative values. Negative values indicate loss, positive values indicate gain.

### 3.4.3 Total Change in Groundwater Storage

The total change in groundwater storage is the sum of the changes in groundwater storage due to groundwater elevation changes and seawater intrusion from WY 2021 to WY 2022. The estimated total average annual change in groundwater storage is summarized in Table 8. As explained in Section 3.4.1, the storage changes in the individual aquifers do not sum to the estimated change in storage in the whole Subbasin (outside the seawater intruded area). The difference between the storage changes could be due to loss in storage that occurs in the Deep Aquifers or in the shallow sediments above the 180-Foot Aquifer.

Table 8. Total Average Annual Change in Groundwater Storage

| Component | *Aquifer Specific Calculation* | | Whole Subbasin Calculation |
|---|---|---|---|
| | 180-Foot Aquifer | 400-Foot Aquifer | |
| **Annual storage change due to groundwater elevation changes (AF/yr.)** | -2,200 | -1,100 | -20,600 |
| **Annual storage change due to seawater intrusion (AF/yr.)** | **0** | **-9,300** | **-9,300** |
| **Total annual storage change (AF/yr.)** | **-12,600** | | **-29,900** |

Note: Negative values indicate loss, positive values indicate gain.

GSP Regulations also require that annual and cumulative changes in groundwater storage and groundwater use along with water year type data are plotted together, as shown on Figure 20. The annual and cumulative groundwater storage changes included on Figure 20 are based on Subbasin-wide average groundwater elevation changes. This figure includes groundwater extraction from 1995 to 2022, the 1995 to 2016 average historical extraction, and the 2070 projected extraction from Chapter 6 of the GSP. As the last year in a 3-year drought, 2022 pumping increased slightly since the previous reporting year, and is now slightly higher than the historical average pumping but lower than the projected pumping. The orange line represents cumulative storage change since 1944 (i.e., zero is the amount of groundwater in storage in 1944, and each year the annual change in storage is added to produce the cumulative change in storage). The green line represents the annual change in storage from the previous year. The 1995 annual change in storage value is based on change in storage from 1994. In WY 2022, the cumulative change in storage continued to decrease, as shown by the orange line and annual change in storage increased slightly as shown by green line. Figure 20 includes limited data for the Deep Aquifers. As more data becomes available for the Deep Aquifers, the plot will be refined accordingly.

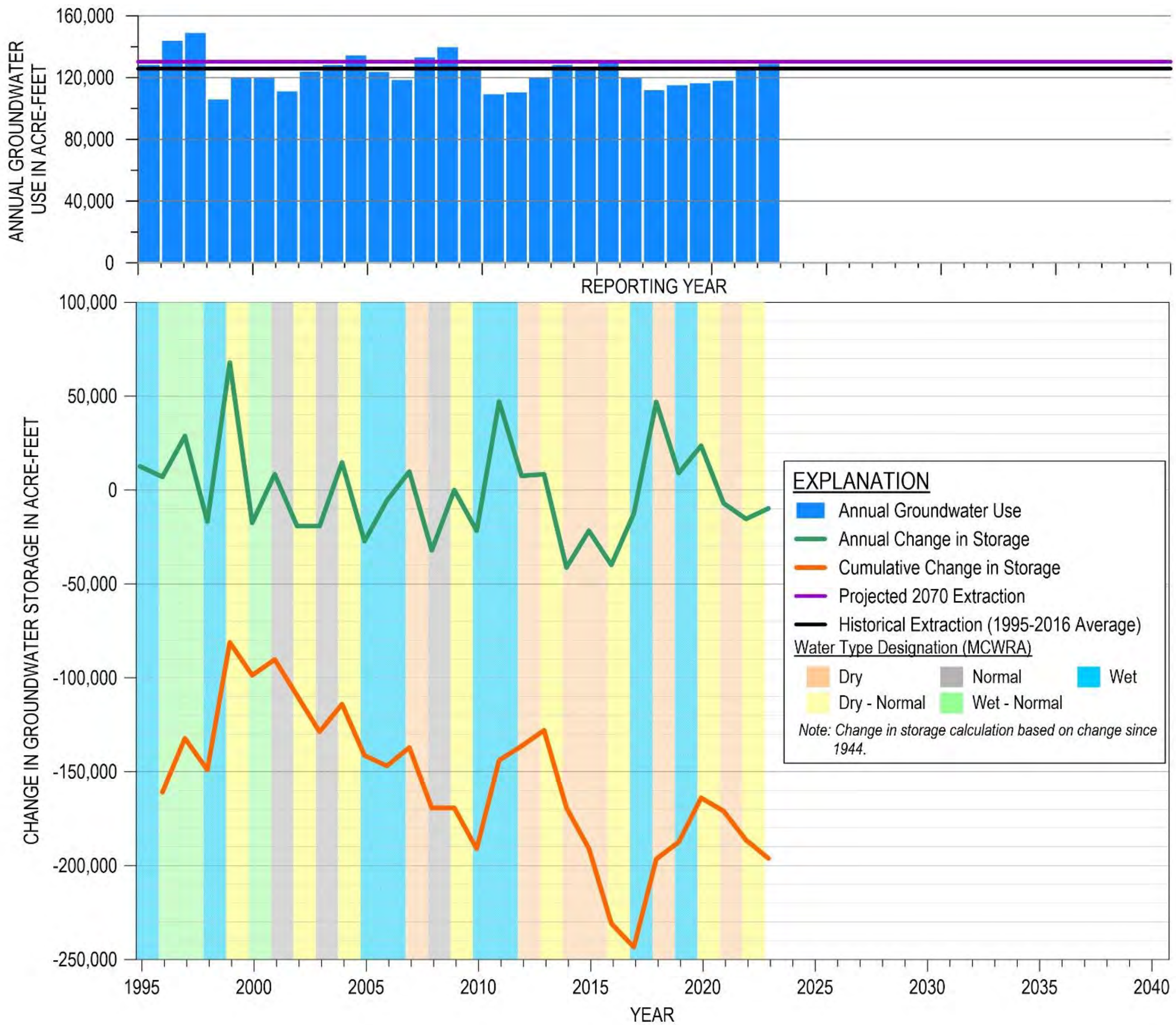


Figure 20. Groundwater Use and Annual and Cumulative Change in Groundwater Storage

## 3.5 Groundwater Quality

Degradation of groundwater quality is measured in 3 sets of wells: public water system supply wells, on-farm domestic wells, and irrigation wells. Data collected by SWRCB Division of Drinking Water (DDW) is used to evaluate groundwater quality in public water system supply wells. Under the Irrigated Lands Regulatory Program (ILRP), water quality degradation is monitored for on-farm domestic wells and irrigation wells. Water quality data for both programs can be found on SWRCB's GAMA groundwater information system. The constituents of concern (COCs) for public water system supply wells and domestic wells have a Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (SMCL) established by the State's Title 22 Regulations. The COCs for irrigation wells include those that may lead to reduced crop production and are outlined in the Central Coast Regional Water Quality Control Board (CCRWQCB)'s Basin Plan (2019). As discussed in the GSP Update, a new analysis was completed and includes an expanded list of COCs and only the last sample for each COC and each well are considered. Table 9 and Figure 21 show the number of wells that were sampled in WY 2022 and that have concentrations above the regulatory standard for the COCs listed in the GSP Update. The COCs that had wells with higher concentrations than their regulatory limit include 1,2,3-trichloropropane, arsenic, hexavalent chromium, manganese, nitrate, specific conductance, and total dissolved solids. One new constituent—hexavalent chromium —was not included in the GSP Update because there were no wells with concentrations above the regulatory standard at that time, but 1 well rose above the regulatory standard in WY 2022.

Table 9. WY 2022 Groundwater Quality Data

| Constituents of Concern (COC) | Regulatory Standard | Standard Units | Number of Wells Sampled for COC in WY 2022 | Number of Wells Sampled in WY 2022 with COC Concentrations Above the Regulatory Standard |
|---|---|---|---|---|
| DDW Wells | | | | |
| **1,2,3-Trichloropropane** | 0.005 | ug/L | 29 | 2 |
| **1,2,4-Trichlorobenzene** | 4 | ug/L | 13 | 0 |
| **1,2-Dibromo-3-chloropropane** | 0.2 | ug/L | 0 | 0 |
| **Aluminum** | 1000 | ug/L | 8 | 0 |
| **Arsenic** | 10 | ug/L | 11 | 1 |
| **Benzo(a)Pyrene** | 0.2 | mg/L | 6 | 0 |
| **Chloride** | 500 | mg/L | 8 | 0 |
| **Chromium, Hexavalent (Cr6)** | 10 | ug/L | 1 | 1 |
| **Di(2-ethylhexyl) phthalate** | 4 | ug/L | 6 | 0 |
| **Dinoseb** | 7 | ug/L | 8 | 0 |
| **Fluoride** | 2 | mg/L | 8 | 0 |
| **Heptachlor** | 0.01 | ug/L | 1 | 0 |

| Constituents of Concern (COC) | Regulatory Standard | Standard Units | Number of Wells Sampled for COC in WY 2022 | Number of Wells Sampled in WY 2022 with COC Concentrations Above the Regulatory Standard |
|---|---|---|---|---|
| **DDW Wells** | | | | |
| **Hexachlorobenzene** | 1 | ug/L | 1 | 0 |
| **Iron** | 300 | ug/L | 11 | 0 |
| **Manganese** | 50 | ug/L | 10 | 1 |
| **Methyl-tert-butyl ether (MTBE)** | 13 | ug/L | 13 | 0 |
| **Nitrate (as nitrogen)** | 10 | mg/L | 46 | 8 |
| **Perchlorate** | 6 | ug/L | 6 | 0 |
| **Selenium** | 20 | ug/L | 8 | 0 |
| **Specific Conductance** | 1600 | umhos/cm | 12 | 1 |
| **Tetrachloroethene** | 5 | ug/L | 13 | 0 |
| **Total Dissolved Solids** | 1000 | mg/L | 9 | 1 |
| **Vinyl Chloride** | 0.5 | ug/L | 13 | 0 |
| **ILRP On-Farm Domestic Wells** | | | | |
| **Chloride** | 500 | mg/L | 0 | 0 |
| **Iron** | 300 | ug/L | 0 | 0 |
| **Manganese** | 50 | ug/L | 0 | 0 |
| **Nitrite** | 1 | mg/L | 0 | 0 |
| **Nitrate (as nitrogen)** | 10 | mg/L | 5 | 0 |
| **Nitrate + Nitrite (sum as nitrogen)** | 10 | mg/L | 0 | 0 |
| **Specific Conductance** | 1600 | umhos/cm | 0 | 0 |
| **Sulfate** | 500 | mg/L | 0 | 0 |
| **Total Dissolved Solids** | 1000 | mg/L | 0 | 0 |
| **ILRP Irrigation Wells** | | | | |
| **Chloride** | 350 | mg/L | 0 | 0 |
| **Iron** | 5000 | ug/L | 0 | 0 |
| **Manganese** | 200 | ug/L | 0 | 0 |

mg/L= milligram/Liter
ug/L = micrograms/Liter
umhos/cm = micromhos/centimeter

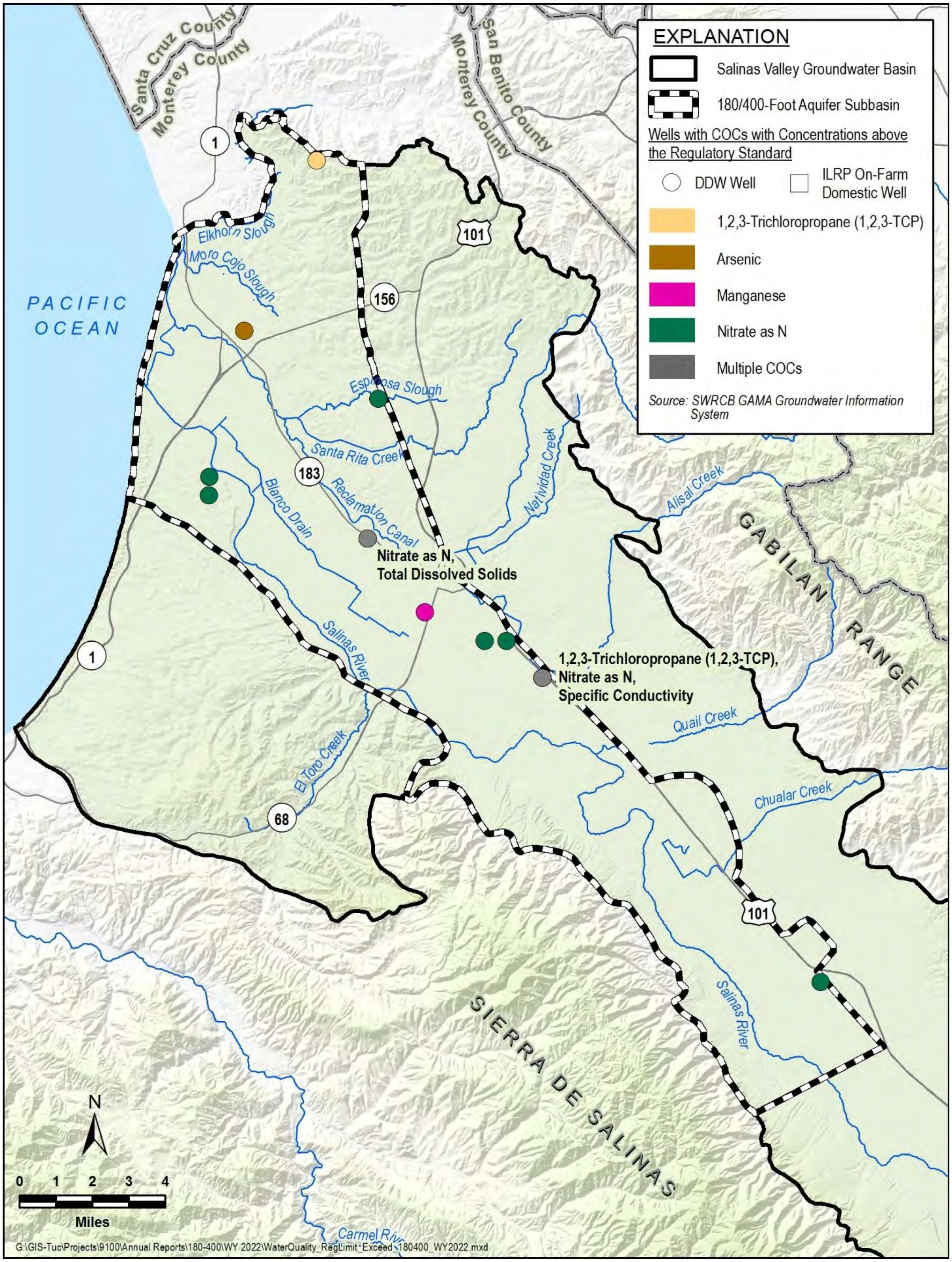


Figure 21. Wells with COC Concentrations Above the Regulatory Standard Sampled in WY 2022

## 3.6 Subsidence

Subsidence is measured using Interferometric Synthetic-Aperture Radar (InSAR) data. These data are provided by DWR on the SGMA data viewer portal (DWR, 2022). Figure 22 shows the annual subsidence for the 180/400-Foot Aquifer Subbasin from October 2021 to October 2022. Data continue to show negligible subsidence. All land movement was within the estimated error of measurement of +/- 0.1 foot.

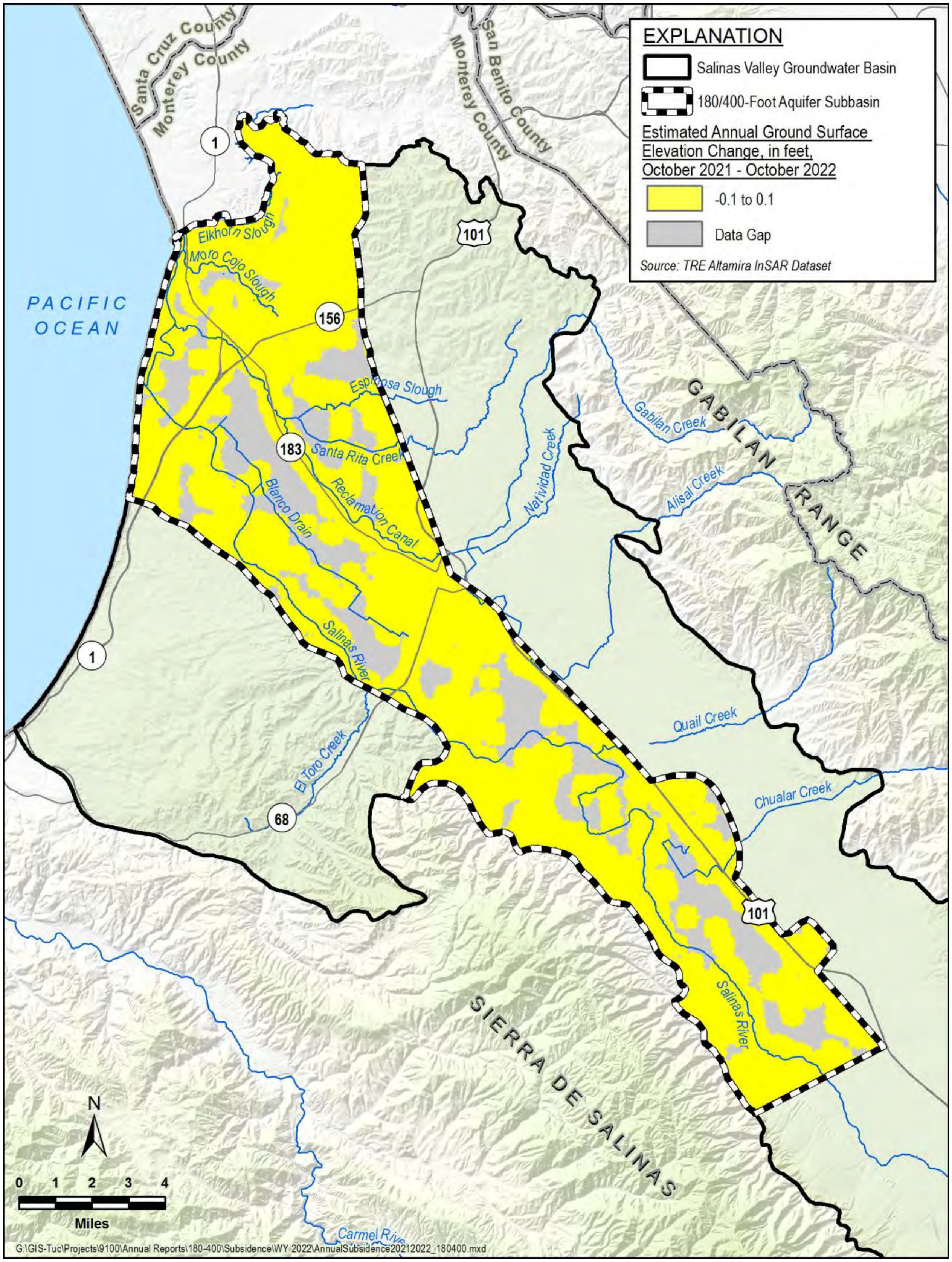


Figure 22. Annual Subsidence

## 3.7 Depletion of Interconnected Surface Water

The GSP Update updated the original GSP with more refined mapping of locations of ISW and rate of depletion. As described in Section 4.4.5.1 of the GSP Update, locations of ISW in the 180/400-Foot Aquifer Subbasin are mainly along the Salinas River and in part along some of its tributaries. ISW is monitored using shallow groundwater elevations near locations of ISW as a proxy for depletion of ISW. Seepage from a stream to the underlying aquifer is proportional to the difference between water elevation in the stream and groundwater elevations at locations away from the stream. Assuming the elevation in the stream is relatively stable, changes in interconnectivity between the stream and the underlying aquifer are determined by changes in groundwater levels in the aquifer. The proxy relationship is established in Section 8.11.2.1.1 of the GSP.

The Salinas Valley Aquitard extends across much of the Subbasin and inhibits hydraulic connection between the stream and the underlying principal aquifers where groundwater pumping occurs, and therefore, the GSP Update and this Annual Report assumes that ISW in the Subbasin occurs along stream reaches located outside the mapped extent of the Aquitard. The ISW monitoring network consists of a shallow well, which is also an RMS well. This well will be supplemented with a new shallow well that will be installed along the Salinas River. Table 10 lists the 2021 and 2022 shallow groundwater elevations, and the annual change in shallow groundwater elevations for the ISW monitoring well in the Subbasin. Shallow groundwater elevations decreased in the monitoring well, indicating further depletion of ISW during WY 2022 at locations of ISW described in the GSP. Figure 23 shows the location of the ISW RMS well and the estimated spatial extent of the Salinas Valley Aquitard. One well (16S/04E-08H02) was removed from the ISW monitoring network because the well is located within the extent of the Salinas Valley Aquitard.

Table 10. Shallow Groundwater Elevation Data (in feet)

| Monitoring Well | WY 2021 Groundwater Elevation | WY 2022 Groundwater Elevation | Annual Change |
|---|---|---|---|
| **16S/05E-31P02** | 88.1 | 78.1 | -10.0 |

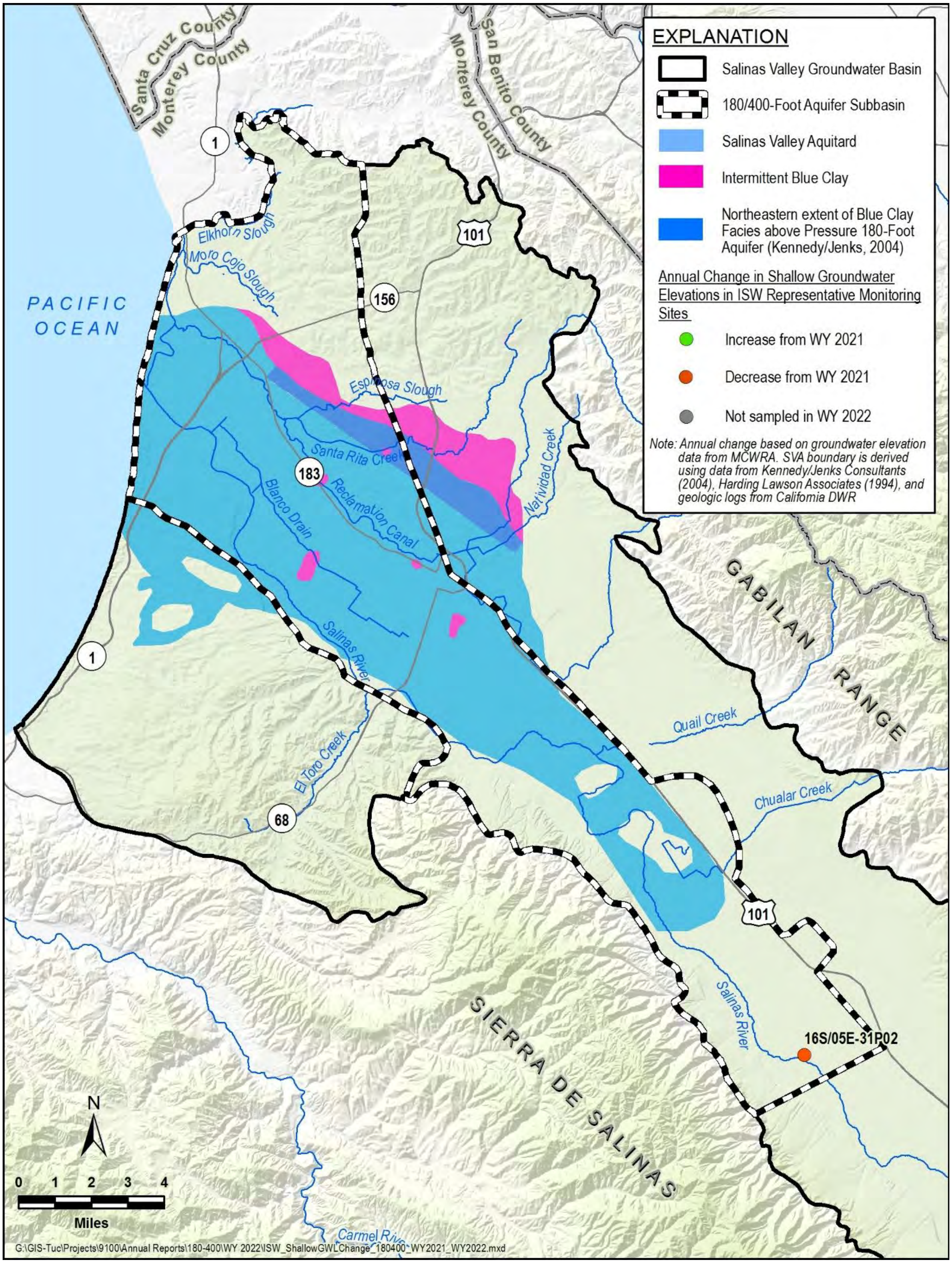


Figure 23. Annual Change in Shallow Groundwater Elevations in ISW Representative Monitoring Sites

# 4 ANNUAL PROGRESS TOWARD IMPLEMENTATION OF THE GSP

## 4.1 WY 2022 Groundwater Management Activities

This section details groundwater management activities that have occurred in WY 2022. These include activities of SVBGSA, MCWD, and MCWRA that promote groundwater sustainability and are important for reaching the GSP sustainability goal. This section begins with an overview of SVBGSA's sustainability strategy for the 180/400-Foot Aquifer Subbasin, which builds on and further details the Road Map included in the GSP.

In WY 2022, SVBGSA, MCWD, and MCWRA undertook 4 main categories of activities to begin GSP implementation and further groundwater sustainability goals: GSA policies, operations, and engagement; data and monitoring; planning; and sustainability strategy and activities.

### 4.1.1 GSA Policies, Operations, and Engagement

SVBGSA focused much of its effort during WY 2022 on developing GSA policies, standardizing GSA operations, and strengthening engagement to provide a strong base for GSP implementation.

**Subbasin-level:** SVBGSA continued robust stakeholder engagement and strengthened collaboration with key agencies and partners. SVBGSA worked throughout the year with the 180/400-Foot Aquifer Subbasin Implementation Committee to develop the 2022 Update to the GSP and submit it to DWR in September 2022. Completing the 2022 Update as an amendment to the GSP enables SVBGSA to complete future 5-year periodic evaluations and updates of the Subbasin concurrently with the other SVBGSA subbasins. SVBGSA held 11 meetings of the 180/400-Foot Aquifer Subbasin Implementation Committee during WY 2022 to develop the 2022 Update and lead subbasin-specific GSP implementation activities. The Committee has 17 subbasin committee members.

**SVBGSA Agency-level:** During WY 2022, SVBGSA streamlined its committee structure. The SVBGSA Board of Directors transitioned the responsibilities of the Seawater Intrusion Working Group (SWIG) and Integrated Implementation Committee to the existing Advisory Committee, and the responsibilities of the SWIG Technical Advisory Committee to a new, broader Groundwater Technical Advisory Committee. SVBGSA continued its engagement across all Salinas Valley subbasins through its Board of Directors and Advisory Committee, holding 12 Board meetings and 9 Advisory Committee meetings over the course of WY 2022.

**SVBGSA Work Plan, Budget, and Operating Fee:** SVBGSA developed a 2-year and 5-year work plan and associated budget, which set the basis for the annual operating fee. The Board of

Directors passed a portion the fee increase. During the budget discussions, the Board directed staff to determine whether the regulatory fee needed to be applied for some projects and management actions at a specific subbasin level. As a result of the partial funding, some workstreams moved forward while others remained unfunded, slowing implementation of certain activities.

**Well Permitting:** Governor Gavin Newsom released Executive Order N-7-22 on March 28, 2022. The Executive Order creates a role for GSAs in the groundwater well permitting process during droughts. Specifically, a well permitting agency shall not "approve a permit for a new groundwater well or for alteration of an existing well in a basin subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well in proposed to be located that groundwater extraction by the proposed well would not be inconsistent with any sustainable groundwater management program established in any applicable Groundwater Sustainability Plan adopted by the Groundwater Sustainability Agency and would not decrease the likelihood of achieving a sustainability goal for the basin covered by such a plan." In addition, a proposed well cannot cause subsidence that would adversely impact or damage nearby infrastructure. SVBGSA worked with County agencies involved in well permitting, interested parties, and its Board of Directors to develop a process to comply with the Executive Order.

**Coordination with Partner Agencies:** SVBGSA and MCWRA increased coordination and collaboration through weekly meetings between agency leads and consultants. This resulted in increased awareness of each other's activities, objectives, and challenges. MCWRA and SVBGSA finalized the Memorandum of Understanding that outlines the roles of the 2 agencies and how they will coordinate through the implementation of the GSPs.

SVBGSA conducted meetings throughout the year to reach out to additional agencies and stakeholders to coordinate. These included meetings with:

- Monterey County Health Department on data and the existing well permitting and water quality monitoring programs
- CCRWQCB to discuss the Water Quality Coordination Group
- Integrated Regional Water Management Plan, including coordinating with CCWG on watershed coordinator grant
- Monterey One Water to coordinate on Regional Treatment Plant improvements that could support reduced groundwater extraction for the CSIP

**Outreach:** Underrepresented Communities are an important stakeholder for the SVBGSA to develop meaningful and long-term relationships with regard to groundwater sustainability. Outreach to Underrepresented Communities included 2 different methods of communication for making workshop materials more accessible. For the first in-person workshop since GSP implementation, SVBGSA offered Spanish interpretation services for attendees both in person and online. In addition, SVBGSA informational workshops are archived on a YouTube channel which is easily accessible to interested parties. A workshop on demand management was also translated and presented in Spanish with the video archived for accessible viewing.

SVBGSA worked very closely with the Watershed Coordinator for the Lower Salinas/Gabilan watershed. SVBGSA intends to learn from and apply lessons learned and outreach tools from the Lower Salinas/Gabilan watershed to the rest of the Salinas Basin. The Watershed Coordinator is collaborating with the League of United Latin American Citizens and developing materials to reach residents to increase their general understanding of water resources. A 'Water 101' will help residents build a foundation for better voicing their needs regarding particular projects and management actions. In addition, the Watershed Coordinator is working with the North Monterey County School District in hopes of scheduling future groundwater related educational programs, co-funded by the SVBGSA.

### 4.1.2 Data and Monitoring

SVBGSA also undertook several efforts to further increase data collection and monitoring. During WY 2022:

- SVBGSA reviewed MCWRA and DWR databases to identify any potential existing wells that could fill data gaps, and reviewed the data gaps with interested parties.
- SVBGSA and MCWRA began discussions on expanding and enhancing the GEMS program. This effort will primarily take place in 2022 and 2023. These early discussions focused on understanding the challenges to changing the program and steps involved.
- SVBGSA's technical consultant, Montgomery & Associates, continued development of the Salinas Valley Seawater Intrusion Model, which will enable assessment of projects and management actions to address seawater intrusion.
- SVBGSA continued to support the USGS through the Cooperative Agreement for the development of the SVIHM.
- SVBGSA received bids for the Deep Aquifers Study and selected Montgomery & Associates. During WY 2022, M&A conducted the preliminary investigation, through which it reviewed existing data and found that the Deep Aquifers extends into the Forebay Aquifer Subbasin. The boundary of the Deep Aquifers will be refined with additional data during the remainder of the Study.

### 4.1.3 Planning

SVBGSA worked throughout WY 2022 with the 180/400-Foot Aquifer Subbasin Implementation Committee to develop the 2022 GSP Update. This included updating data, developing a water budget using the same tool as the 2022 SVBGSA GSPs, the SVIHM, and updating project descriptions, as necessary. In addition, SVBGSA addressed the DWR recommended corrective actions that it could, and revised SMC according to lessons learned during the development of 2022 GSPs. SVBGSA submitted the GSP in September 2022.

In addition to the 2022 GSP Update, SVBGSA developed an Integrated Implementation Plan to tie the SVBGSA GSPs together. It described how the Salinas Valley's groundwater system functions holistically, outlined a Valley-wide water budget, and provided an integrated understanding of current groundwater conditions and SGMA sustainability goals.

### 4.1.4 Sustainability Strategy and Activities

The 180/400-Foot Aquifer Subbasin GSP included a high-level Road Map for Refining and Implementing Management Actions and Projects. The Road Map organizes management actions and projects identified in Chapter 9 of the GSP into a general priority order for implementation. These include implementation actions that contribute to groundwater management and GSP implementation but do not directly help the Subbasin maintain sustainability. Activities in the implementation strategy build on GSA policies, operations, and engagement; data and monitoring; and planning activities.

The management actions and projects identified in the GSP are sufficient for reaching sustainability in the 180/400-Foot Aquifer Subbasin within 20 years and maintaining sustainability for an additional 30 years; however, not all will need to be implemented. They will be integrated with projects for the other Salinas Valley subbasins as appropriate during GSP implementation. The management actions and projects described in this GSP have been identified as beneficial for the 180/400-Foot Aquifer Subbasin. The impacts of management actions and projects on other subbasins will be analyzed and taken into consideration as part of the project selection process. Prior to implementation, they will be evaluated in the context of this Subbasin and the entire Valley.

While SVBGSA, MCWRA, and M1W are moving forward with shovel-ready projects to optimize current infrastructure and continue existing programs, SVBGSA has a more comprehensive sustainability strategy to reach sustainability across all 6 sustainability indicators. Figure 24 builds on the general Road Map in the GSP to show SVBGSA's main initial workstreams for implementing the GSP. SVBGSA will conduct feasibility studies on the main approaches to addressing seawater intrusion – the Seawater Extraction Barrier and Desalting Plant, Aquifer Storage and Recovery, and Demand Management. The feasibility studies will culminate in a Project Update Report that will enable comparison between the approaches, feedback from interested parties, and consideration of project combinations. SVBGSA also plans to consider expansion of CSIP to understand its viability and whether it could help provide water supply reliability while reducing groundwater extraction. GSP implementation in the coastal area is complicated by the layered aquifer system. Concurrent with the feasibility studies, the Deep Aquifers Study is underway to better understand the Deep Aquifers and their relationship to the overlying and adjacent aquifers. Finally, SVBGSA will support existing programs under the Multi-Benefit Stream Channel Improvement project, with a focus on modeling to understand the potential groundwater benefit from vegetation removal and sediment management.

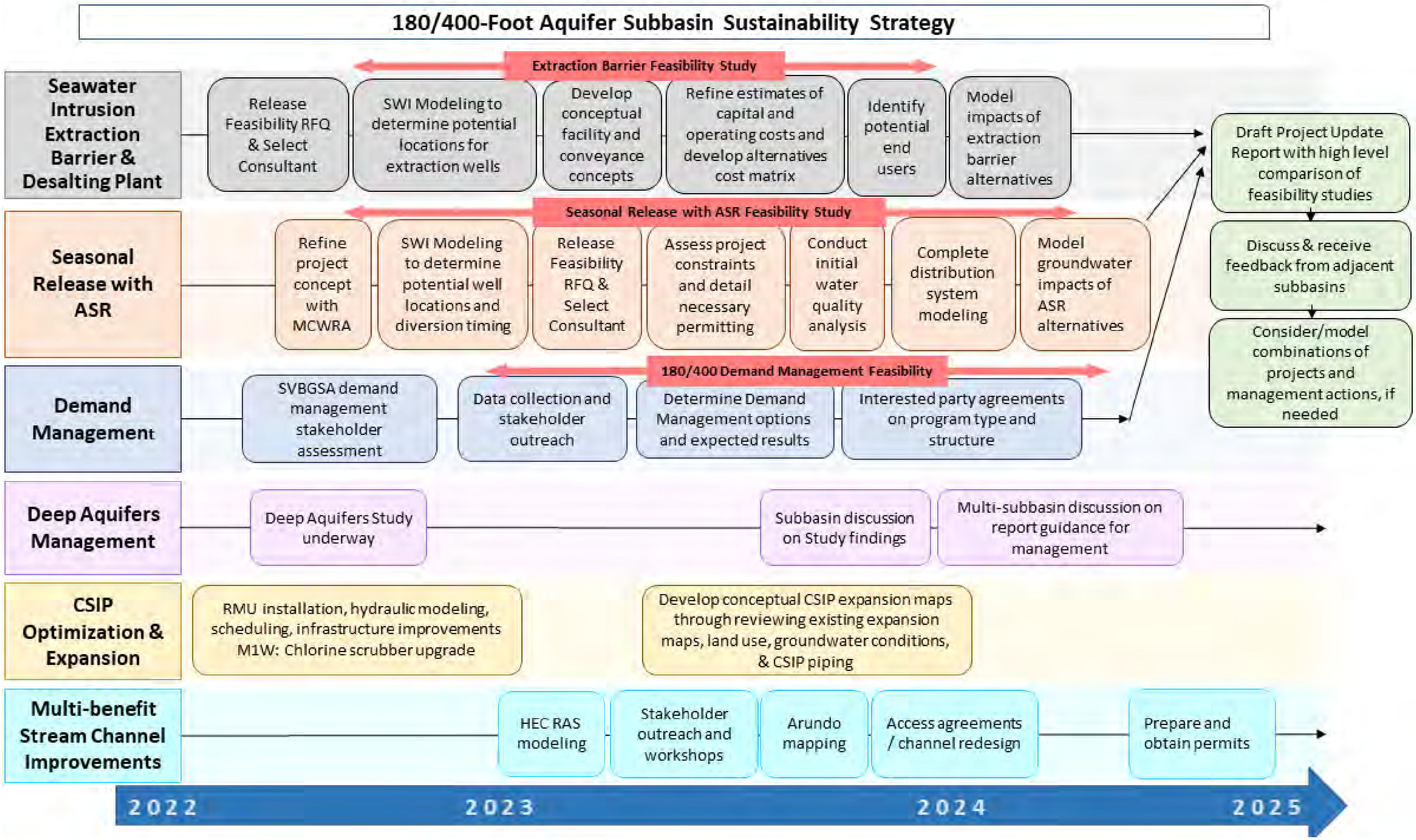


Figure 24. 180/400-Foot Aquifer Sustainability Strategy

During WY 2022, SVBGSA, MCWRA, and M1W moved forward with actions that will positively impact groundwater conditions and assess feasibility of additional actions. More specifically, actions undertaken in WY 2022 that contributed to groundwater sustainability include:

**DWR Round 1 SGMA Implementation Grant:** SVBGSA applied for and received a $7.6 million grant for GSP implementation. The grant will provide funding for filling data gaps, continued engagement of interested parties, early implementation projects, and feasibility studies for the main strategies to reach sustainability. Key highlights with respect to SVBGSA's sustainability strategy include:

- **CSIP optimization improvements –** with grant funding, MCWRA will develop a hydraulic model, irrigation scheduling, and piping improvements that will enable CSIP to be managed to increase reliance on recycled and surface water and decrease groundwater extraction.
- **M1W improvements –** M1W will upgrade the Regional Treatment Plant chlorine scrubbers to reduce winter maintenance shutdowns when the system has to rely solely on groundwater.
- **Feasibility studies –** SVBGSA will complete feasibility studies of 3 main approaches to address seawater intrusion, including conceptual engineering designs, groundwater modeling, and assessment of project constraints.

**Salinas Valley Multibenefit Land Repurposing Program:** In collaboration with SVBGSA, the Greater Monterey County Integrated Regional Water Management Group was awarded a $10 million grant through Multibenefit Land Repurposing Program (MLRP) to strategically and voluntarily acquire and repurpose the least viable, most flood-prone portions of irrigated agricultural lands in the lower Salinas Valley. The multibenefit land repurposing concept supports the strategic transition of least productive, most flood prone irrigated land to new, lower water uses that will help reestablish sustainable groundwater supplies – while also providing benefits to landowners, adjacent communities and freshwater ecosystems. Focusing on the 180/400-Foot Aquifer, Eastside, and Langley Subbasins, this grant will support acquisition of portions of agricultural ranches where interested landowners wish to transition farmlands to projects that increase recharge and storage, reduce flooding, and enhance water quality and base flow.

**Deep Aquifers Study:** SVBGSA and cooperative funding partners contracted Montgomery & Associates to undertake a scientific study to better understand the extent, groundwater conditions, and water budget of the Deep Aquifers of the Salinas Valley. The Deep Aquifers Study includes a preliminary investigation that assessed existing data, additional data collection, and development of a final report. In August 2022, SVBGSA received the preliminary investigation results, which included recommended interim monitoring and management actions.

**Well destruction:** During WY 2022, MCWRA continued to implement its agreement with the SWRCB for the *Protection of Domestic Drinking Water Supplies for the Lower Salinas Valley* project. In August 2022, MCWRA requested additional time to complete the project which, if provided, will extend project implementation through December 2023.

**Drought Technical Advisory Committee (D-TAC):** MCWRA formed a D-TAC to provide technical input and advice regarding the operations of Nacimiento and San Antonio Reservoirs when drought triggers occur. During WY 2022, MCWRA convened the D-TAC to develop a proposed reservoir release schedule for the April to December period. The D-TAC also worked on formulating a Dry Winter Scenario Narrative (DWSN) for the January – March period following the release schedule period with the purpose of recommending release actions in the event of continuation of dry conditions in the following winter. The DWSN was finalized in April 2022. The D-TAC will be activated in future years if 2 reservoir storage depletion triggers are met and winter inflow fails to replenish reservoir storage about either of those triggers.

## 4.2 Sustainable Management Criteria

The 180/400-Foot Aquifer Subbasin GSP includes descriptions of significant and unreasonable conditions, minimum thresholds, interim milestones, measurable objectives, and undesirable results for each of DWR’s 6 sustainability indicators. The SVBGSA determined locally defined significant and unreasonable conditions based on public meetings and staff discussions. The SMC are individual criterion that will each be met simultaneously, rather than in an integrated manner. A brief comparison of the data presented in Section 3 and the SMC criteria are included for each sustainability indicator in the following sections. Since SVBGSA submitted the GSP Update in September 2022, this annual report assesses Reduction in Groundwater Storage and Depletion of ISW SMC according to the revised SMC in the GSP Update.

Significant and unreasonable conditions occur due to inadequate groundwater management and qualitatively describe groundwater conditions deemed insufficient by subbasin planning committees. Minimum thresholds are quantitative indicators of the Subbasin’s locally defined significant and unreasonable conditions. An undesirable result is a combination of minimum threshold exceedances that shows a significant and unreasonable condition across the Subbasin as a whole. Measurable objectives are the goals that reflect the Subbasin’s desired groundwater conditions for each sustainability indicator and provide operational flexibility above the minimum thresholds. The GSP and annual reports must demonstrate that groundwater management will not only avoid undesirable results, but can reach measurable objectives by 2040. DWR uses interim milestones every 5 years to review progress from current conditions to the measurable objectives.

Since the GSP addresses long-term groundwater sustainability, some of the metrics for the sustainability indicators may not be applicable in each individual future year. The GSP is developed to avoid undesirable results—under average hydrogeologic conditions—with long-term, deliberate groundwater management. Average hydrogeologic conditions are the anticipated future groundwater conditions in the Subbasin, averaged over the planning horizon and accounting for anticipated climate change. Pursuant to SGMA Regulations (California Water Code § 10721(w)(1)), "Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods." Therefore, groundwater levels may temporarily exceed minimum thresholds during prolonged droughts, which could be more extreme than those that have been anticipated based on historical data and anticipated climate change conditions. Such temporary exceedances do not constitute an undesirable result. Future groundwater conditions are based on historical precipitation, evapotranspiration, and streamflow, as well as reasonably anticipated climate change and sea level rise. The average hydrogeologic conditions include reasonably anticipated wet and dry periods.

The 2 solid green lines on Figure 25 show the anticipated average precipitation for 2030 and 2070, accounting for reasonable future climatic change (DWR, 2018). Measured annual precipitation from WY 2019 through WY 2022 are shown as blue dots, and the dashed blue line shows the average measured precipitation since GSP implementation. This figure shows that precipitation in WY 2022 was below the average hydrologic conditions for the Subbasin represented by the average precipitation after GSP implementation. Furthermore, average precipitation since GSP implementation has not risen to the anticipated future average conditions. As a result, it is not anticipated that all measurable objectives have been achieved this year because these measurable objectives were based on managing to average future climatic conditions. This does not mean that minimum thresholds should be exceeded. However, WY 2022 was classified as dry-normal, and therefore it is more likely that groundwater levels are low. Areas with current minimum threshold exceedances should be monitored, and should demonstrate progress toward interim milestones and measurable objectives as conditions approach expected average conditions.

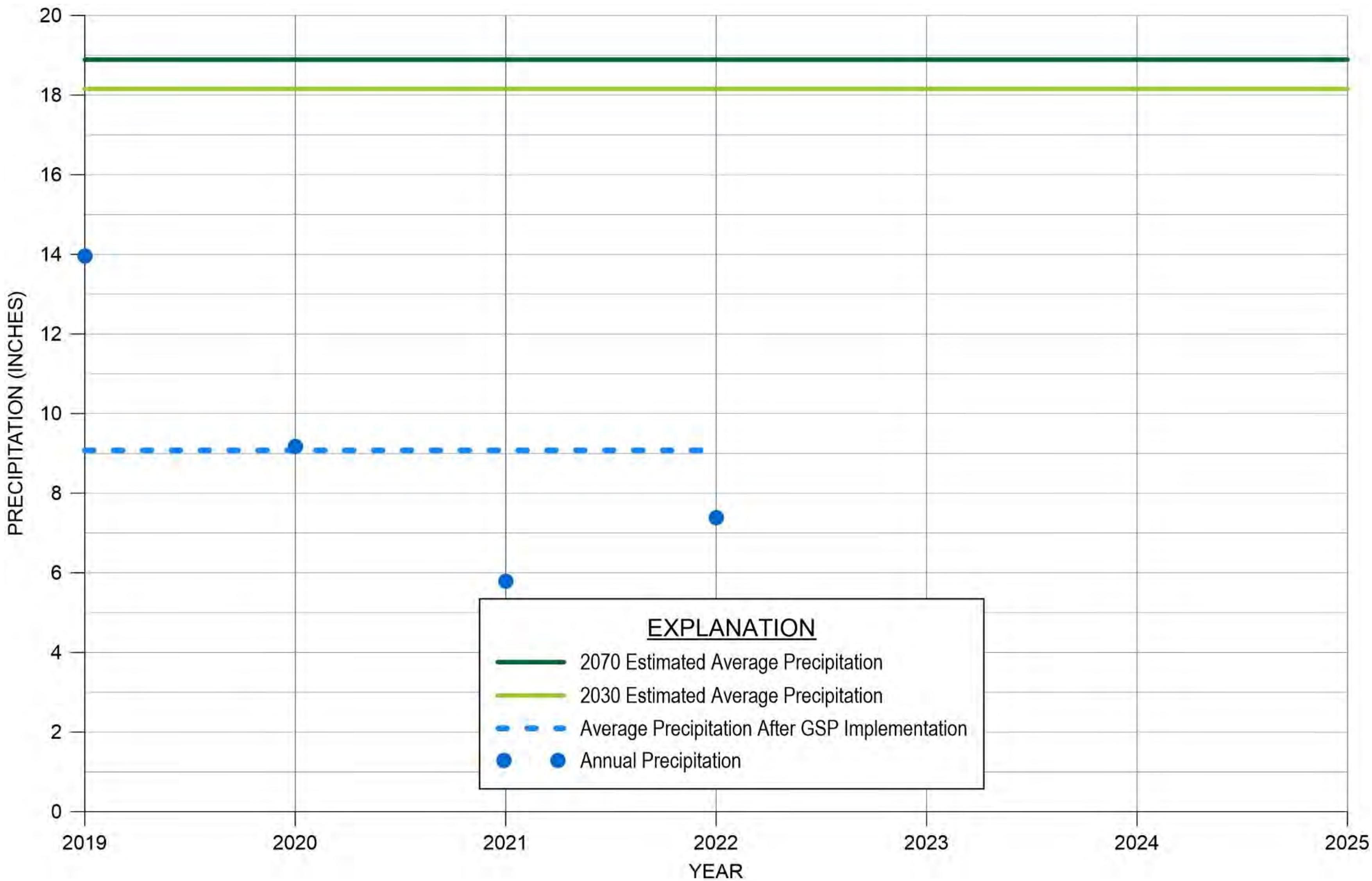


Figure 25. Comparison of Average Precipitation Since GSP Implementation and Estimated Future Average Precipitation

### 4.2.1 Chronic Lowering of Groundwater Levels SMC

#### 4.2.1.1 Minimum Thresholds

Section 8.6.2.1 of the 180/400-Foot Aquifer Subbasin GSP Update describes the information and methodology used to establish minimum thresholds for chronic lowering of groundwater levels. In the 180/400-Foot Aquifer Subbasin, the minimum threshold was set to 1 foot above 2015 groundwater elevations. The minimum threshold values for each well within the groundwater elevation monitoring network are provided in Table 11. Fall 2022 groundwater elevation data are color-coded on this table: red cells mean the groundwater elevation is below the minimum threshold, yellow cells mean the groundwater elevation is above the minimum threshold but below the measurable objective, and green cells mean the groundwater elevation is above the measurable objective. Groundwater elevations are also compared against the groundwater level SMC on Figure 26. The red cells below show that 13 wells in the 180-Foot Aquifer, 14 wells in the 400-Foot Aquifer, and 7 wells in the Deep Aquifers, exceeded their minimum thresholds in WY 2022.

Table 11. Groundwater Elevation Data, Minimum Thresholds, and Measurable Objectives (in feet)

| Below Minimum Threshold | Above Minimum Threshold | Above Measurable Objective |
|---|---|---|

| Monitoring Site | Minimum Threshold | WY 2022 Groundwater Elevation | Interim Milestone at Year 2025 | Measurable Objective (Goal to Reach at 2040) |
|---|---|---|---|---|
| **180-Foot Aquifer** | | | | |
| **13S/02E-21Q01** | 6.4 | 0.6 | 8.6 | 8.5 |
| **13S/02E-26L01** | -6.2 | -0.3 | -3.9 | -3.0 |
| **13S/02E-33R01** | -8.0 | -1.0 | -6.5 | -3 |
| **14S/02E-03F04** | -7.9 | -7.8 | -5.0 | -4.5 |
| **14S/02E-10P01** | -17.8 | -11.7 | -16.2 | -6.4 |
| **14S/02E-11A02** | -10.6 | -10.9 | -7.7 | -6.0 |
| **14S/02E-12B02** | -10.8 | -12.0 | -6.2 | -2 |
| **14S/02E-13F03** | -11.2 | -9.9 | -7.4 | -5.7 |
| **14S/02E-17C02** | 5.5 | 2.7 | 9.9 | 11.5 |
| **14S/02E-21L01** | -6.0 | -6.1 | -4.2 | -1.8 |
| **14S/02E-26H01** | -12.3 | -11.3 | -8.7 | -6.2 |
| **14S/02E-27A01** | -9.9 | -13.1 | -6.3 | -3.1 |
| **14S/02E-34B03** | -21.8 | -14.5 | -10.8 | -4.8 |
| **14S/02E-36E01** | -15.7 | -17.1 | -10.2 | -3.3 |
| **14S/03E-18C01** | 7.6 | 9.5 | 12.0 | 12.4 |
| **14S/03E-19G01** | -16.0 | -16.7 | -10.1 | -3.3 |

| Monitoring Site | Minimum Threshold | WY 2022 Groundwater Elevation | Interim Milestone at Year 2025 | Measurable Objective (Goal to Reach at 2040) |
|---|---|---|---|---|
| **14S/03E-30G08** | -17.4 | -13.2 | -12.0 | -8.5 |
| **14S/03E-31F01** | -11.4 | -9.4 | -6.0 | -2.2 |
| **15S/02E-12C01** | -13.0 | -8.5 | -11.0 | -3.0 |
| **15S/03E-09E03** | -15.1 | -11.4 | -2.6 | 2.9 |
| **15S/03E-13N01** | -10.0 | -5.4 | -5.4 | 12.8 |
| **15S/03E-16M01** | -6.0 | -7.0 | 5.6 | 11.5 |
| **15S/03E-17M01** | -4.6 | -5.4 | 6.5 | 11.9 |
| **15S/03E-25L01** | -2.7 | 0.4 | 16.4 | 24.6 |
| **15S/03E-26F01** | -8.1 | -5.5 | 3.4 | 12.5 |
| **15S/04E-31A02** | 16.6 | 10.8 | 33.4 | 41.5 |
| **16S/04E-05M02** | 18.7 | 28.9 | 38.8 | 47.9 |
| **16S/04E-13R02** | 63.9 | 48.9 | 77.0 | 85.3 |
| **16S/04E-15D01** | 30.6 | 38.4 | 50.9 | 58.6 |
| **16S/04E-15R02** | 35.0 | 47.1 | 57.4 | 64.3 |
| **16S/04E-25C01** | 55.2 | 61.2 | 74.9 | 79.8 |
| **16S/05E-30E01** | 60.7 | 69.3 | 79.1 | 85.0 |
| **16S/05E-31M01** | 70.0 | 72.7 | 89.4 | 94.8 |
| **17S/04E-01D01** | 75.9 | 71.5 | 81.1 | 100.9 |
| **17S/05E-06C02** | 65.1 | 79.9 | 76.8 | 91.5 |
| **400-Foot Aquifer** | | | | |
| **12S/02E-33H02** | -3.0* | Not sampled | 2.5 | 3.0 |
| **13S/02E-10K01** | -19.3 | -3.9 | -19.3 | -16 |
| **13S/02E-21N01** | -6.3 | -4.3 | -5.3 | -3 |
| **13S/02E-24N01** | -7.0 | -4.0 | -1.5 | 0.0 |
| **13S/02E-27P01** | -44.5 | -24.2 | -26.6 | -20.8 |
| **13S/02E-31N02** | -5.0 | -1.9 | -1.5 | -0.4 |
| **13S/02E-32J03** | -14.2 | -5.2 | -8.7 | -7 |
| **14S/02E-02C03** | -29.9 | -35.1 | -26.8 | -20.0* |
| **14S/02E-03F03** | -13.5 | -17.0 | -10.2 | -5.2 |
| **14S/02E-05K01** | -15.9 | -6.3 | -2.6 | -1.5 |
| **14S/02E-08M02** | -5 | -5.4 | -2.7 | -1 |
| **14S/02E-11A04** | -25.1 | -30.7 | -24.4 | -17.5 |
| **14S/02E-11M03** | -30 | -23.5 | -23.0 | -20 |
| **14S/02E-12B03** | -27.8 | -30.4 | -25.8 | -18.5 |
| **14S/02E-12Q01** | -13.6 | -9.3 | -10.5 | -9.3 |
| **14S/02E-16A02** | -19.6 | -15.5 | -12.9 | -7.9 |
| **14S/02E-22L01** | -22.9 | -13.7 | -10.3 | -3.1 |
| **14S/02E-27G03** | -17.1 | -9.8 | -12.5 | -8.3 |

| Monitoring Site | Minimum Threshold | WY 2022 Groundwater Elevation | Interim Milestone at Year 2025 | Measurable Objective (Goal to Reach at 2040) |
|---|---|---|---|---|
| **14S/02E-34A03** | -12.4 | -11.8 | -11.9 | -7.5 |
| **14S/02E-36G01** | -13.7 | -13.8 | -7.4 | -0.1 |
| **14S/03E-18C02** | -19.7 | -18.4 | -16.9 | -12.5 |
| **14S/03E-20C01** | -41 | -32.0 | -39.5 | -35 |
| **14S/03E-29F03** | -26 | -22.0 | -21.0 | -15 |
| **14S/03E-31L01** | -9 | -9.0 | -7.5 | -3 |
| **15S/02E-01A03** | -15.3 | -14.6 | -9.7 | -0.7 |
| **15S/02E-02G01** | -28 | -29.5 | -20.1 | -11.2 |
| **15S/02E-12A01** | -17.1 | -18.4 | -11.5 | -4.7 |
| **15S/03E-03R02** | -17 | -12.0 | -6.3 | -1 |
| **15S/03E-04Q01** | -11 | -12.0 | -4.5 | 0 |
| **15S/03E-05C02** | -16 | Not sampled | -13.3 | -5 |
| **15S/03E-08F01** | -17.8 | -15.1 | -12.9 | -5.2 |
| **15S/03E-14P02** | -11.7 | -12.7 | -3.6 | 8.4 |
| **15S/03E-15B01** | -14.1 | -11.1 | -2.7 | 5.8 |
| **15S/03E-16F02** | -6.5 | -10.1 | 1.6 | 5 |
| **15S/03E-17P02** | -17 | -19.0 | -6.5 | -2 |
| **15S/03E-26A01** | -4.5 | -5.9 | 7.6 | 15 |
| **15S/03E-28B02** | -0.5 | 1.0 | 6.8 | 15 |
| **15S/04E-29Q02** | 5.8 | 10.9 | 21.5 | 33.9 |
| **16S/04E-04C01** | 11.7 | 27.6 | 37.6 | 47.2 |
| **16S/04E-08H03** | 24.6 | 28.0 | 45.8 | 54.7 |
| **16S/04E-10R02** | 40.7 | 39.5 | 58.1 | 67.2 |
| **16S/04E-25G01** | 51.3 | 59.5 | 71.8 | 76.4 |
| **16S/05E-30J02** | 67.2 | 71.9 | 84.9 | 90.7 |
| **Deep Aquifers** | | | | |
| **13S/01E-36J02** | -4.2 | -11.6 | -6.7 | 2.0* |
| **13S/02E-19Q03** | -2.4 | -10.9 | -5.1 | 6.3 |
| **13S/02E-28L03** | -40.0* | Not sampled | -27.8 | -29.0* |
| **13S/02E-32E05** | -9.2 | -16.7 | -10.6 | 1.6 |
| **14S/02E-06L01** | -7.2 | -14.3 | -10.3 | 3.0 |
| **14S/02E-18B01** | -35.0* | Not sampled | -27.0 | -25.0* |
| **14S/02E-22A03** | -80.0* | -52.1 | -92.4 | -60.0* |
| **14S/02E-28C02** | -41.2 | -45.5 | -33.8 | -15.0* |
| **15S/03E-10D04** | -20.0* | -22.7 | -18.8 | -10.0* |
| **15S/03E-17E02** | -15.0* | -12.8 | -13.0 | -10.0* |
| **16S/04E-11D51** | 43.0* | 33.6 | 48.9 | 50.0* |

*Groundwater elevation was estimated.

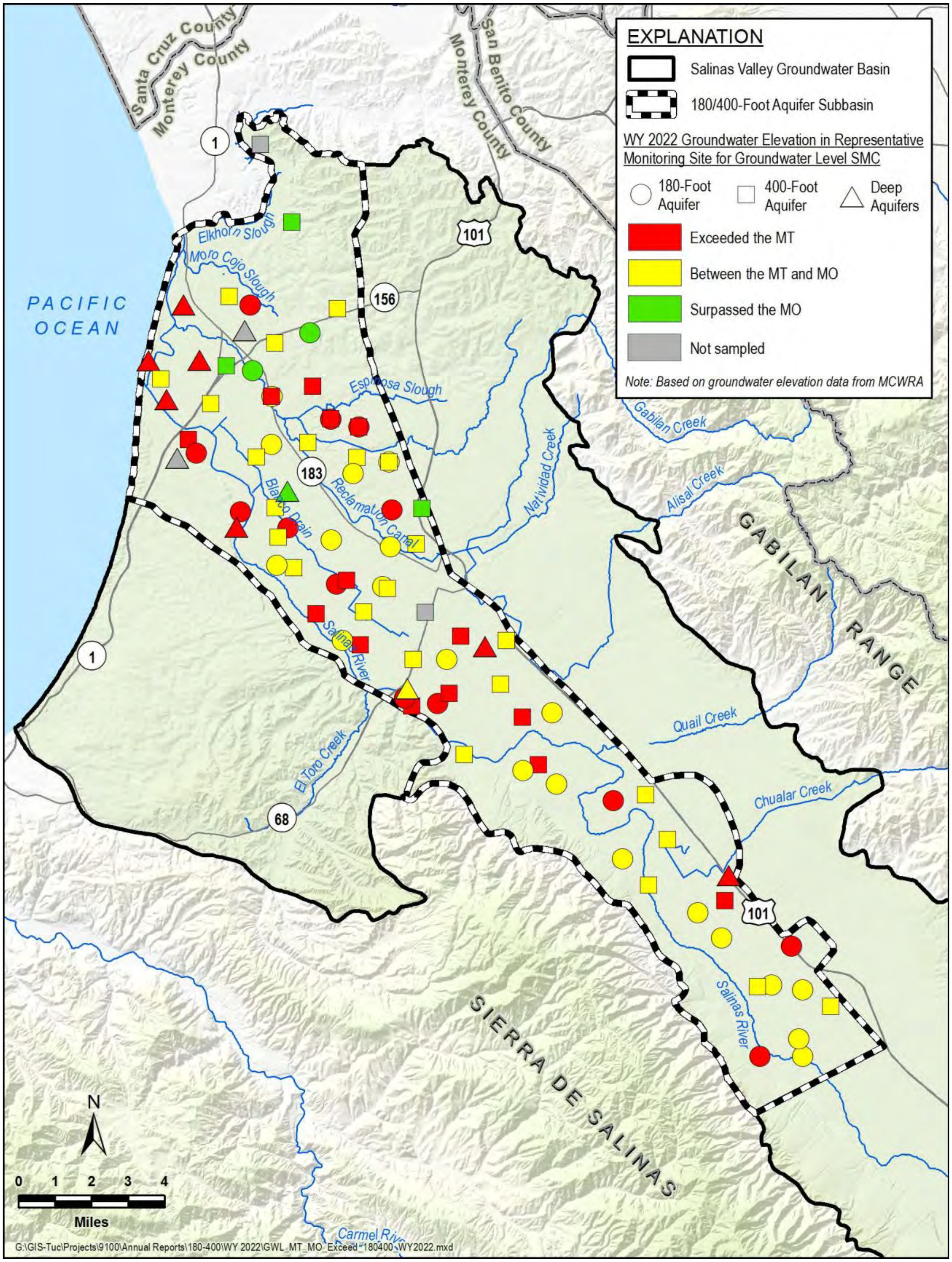


Figure 26. Groundwater Elevations Compared to the Minimum Thresholds and Measurable Objectives

#### 4.2.1.2 Measurable Objectives and Interim Milestones

The measurable objectives for chronic lowering of groundwater levels represent target groundwater elevations that are higher than the minimum thresholds. These measurable objectives provide operational flexibility to ensure that the Subbasin can be managed sustainably over a reasonable range of hydrologic variability. Measurable objectives for the chronic lowering of groundwater levels are summarized in Table 11. Two RMS wells in the 180-Foot Aquifer, 3 in the 400-Foot Aquifer, and 1 in the Deep Aquifers had groundwater elevations higher than their measurable objective in WY 2022 and are represented by the green cells in Table 11.

To show progress toward measurable objectives, DWR assesses interim milestones at 5-year intervals. The 2025 interim milestones for groundwater elevations are also shown in Table 11. The WY 2022 groundwater elevations in 22 wells are already higher than the 2025 interim milestones.

#### 4.2.1.3 Undesirable Result

The chronic lowering of groundwater levels undesirable result is a quantitative combination of groundwater elevation minimum threshold exceedances. For the Subbasin, the groundwater elevation undesirable result is:

> *More than 15% of the groundwater elevation minimum thresholds are exceeded in any single aquifer.*

Table 11 shows that groundwater levels in 37% of the RMS wells in the 180-Foot Aquifer, 34% in the 400-Foot Aquifer, and 78% in the Deep Aquifers exceeded their minimum thresholds. Therefore, all the principal aquifers have an undesirable result. Groundwater elevation minimum threshold exceedances, compared with the undesirable result, are shown on Figure 27. If a value is in the shaded red area, it constitutes an undesirable result. This graph will be updated annually with new data to demonstrate the sustainability indicator's direction toward sustainability.

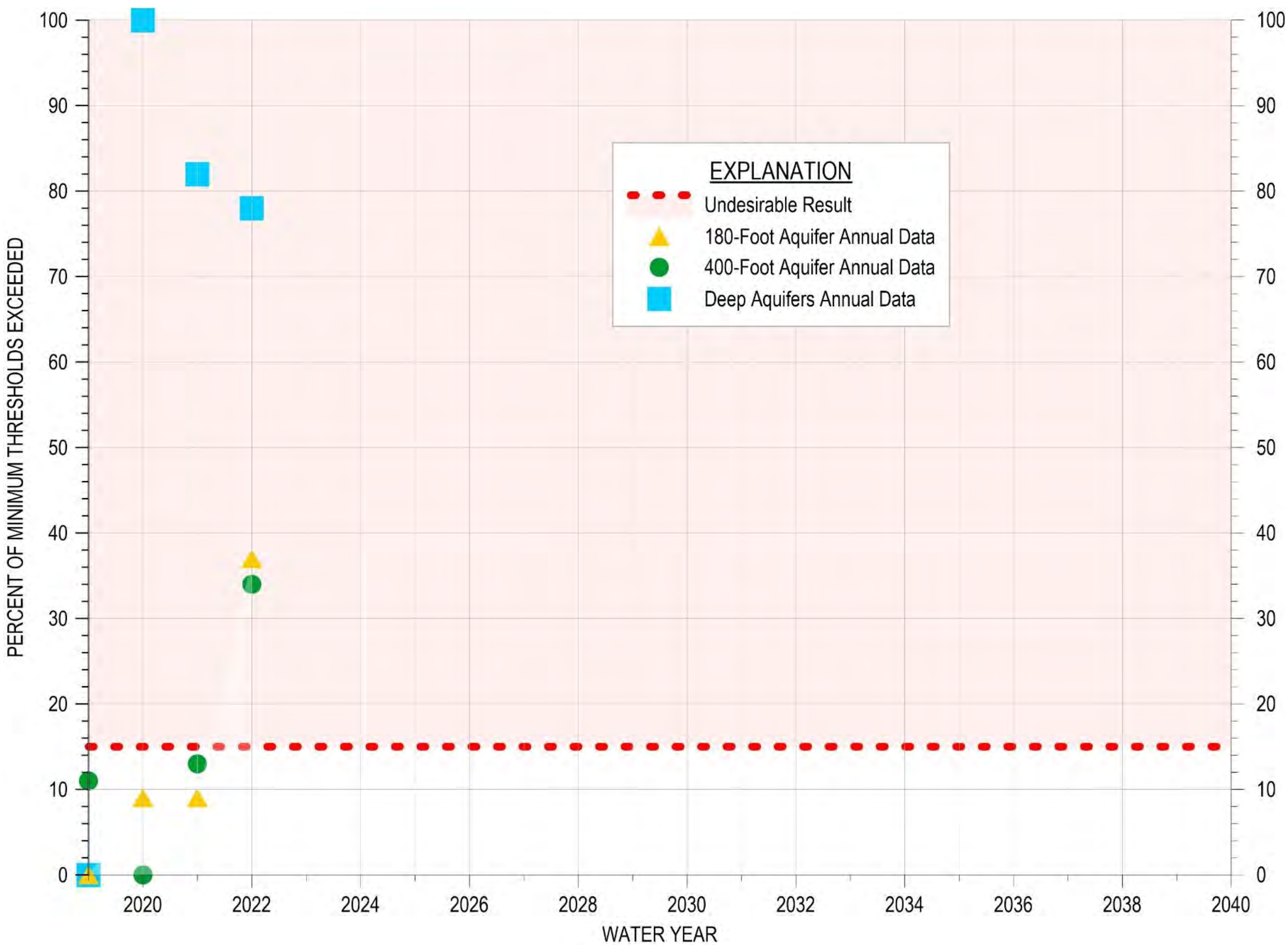


Figure 27. Groundwater Elevation Exceedances Compared to the Undesirable Result

### 4.2.2 Reduction in Groundwater Storage SMC

#### 4.2.2.1 Minimum Thresholds

The metric used to measure the reduction in storage SMC was changed in the GSP Update. The minimum threshold for reduction in groundwater storage is set to the amount of groundwater that is in storage when groundwater elevations and seawater intrusion are at their minimum thresholds. The minimum threshold for reduction in storage is 626,000 AF below the measurable objective. Total change in groundwater storage between minimum threshold conditions and measurable objective conditions is the sum of the storage change due to groundwater elevations (90,000 AF) and the storage change due to seawater intrusion (536,000 AF). Section 8.7.2.1 of the GSP Update describes the information and methodology used to establish the minimum threshold for reduction of groundwater storage. The amount of groundwater in storage was below the minimum threshold by approximately 52,000 AF in WY 2022. Although pumping is not the metric for establishing change in groundwater storage, the GSA is committed to pumping at or less than the Subbasin's long-term sustainable yield.

#### 4.2.2.2 Measurable Objective and Interim Milestones

The measurable objective for reduction in groundwater storage is 0 when groundwater elevations are at their measurable objectives. Section 8.7.3.1 of the GSP Update describes the information and methodology used to establish the measurable objective for reduction of groundwater storage. In WY 2022, the amount of groundwater in storage was 678,000 AF below the measurable objective.

#### 4.2.2.3 Undesirable Result

The reduction of storage undesirable result is:

> *There is an exceedance of the minimum threshold.*

In WY 2022 the groundwater in storage was below the minimum threshold; therefore, an undesirable result exists. Figure 28 shows the volume of groundwater needed to reach the measurable objective compared to the change in storage undesirable result. If a value is in the shaded red area, it constitutes an undesirable result. This graph will be updated annually with new data to demonstrate the sustainability indicator's direction toward sustainability.

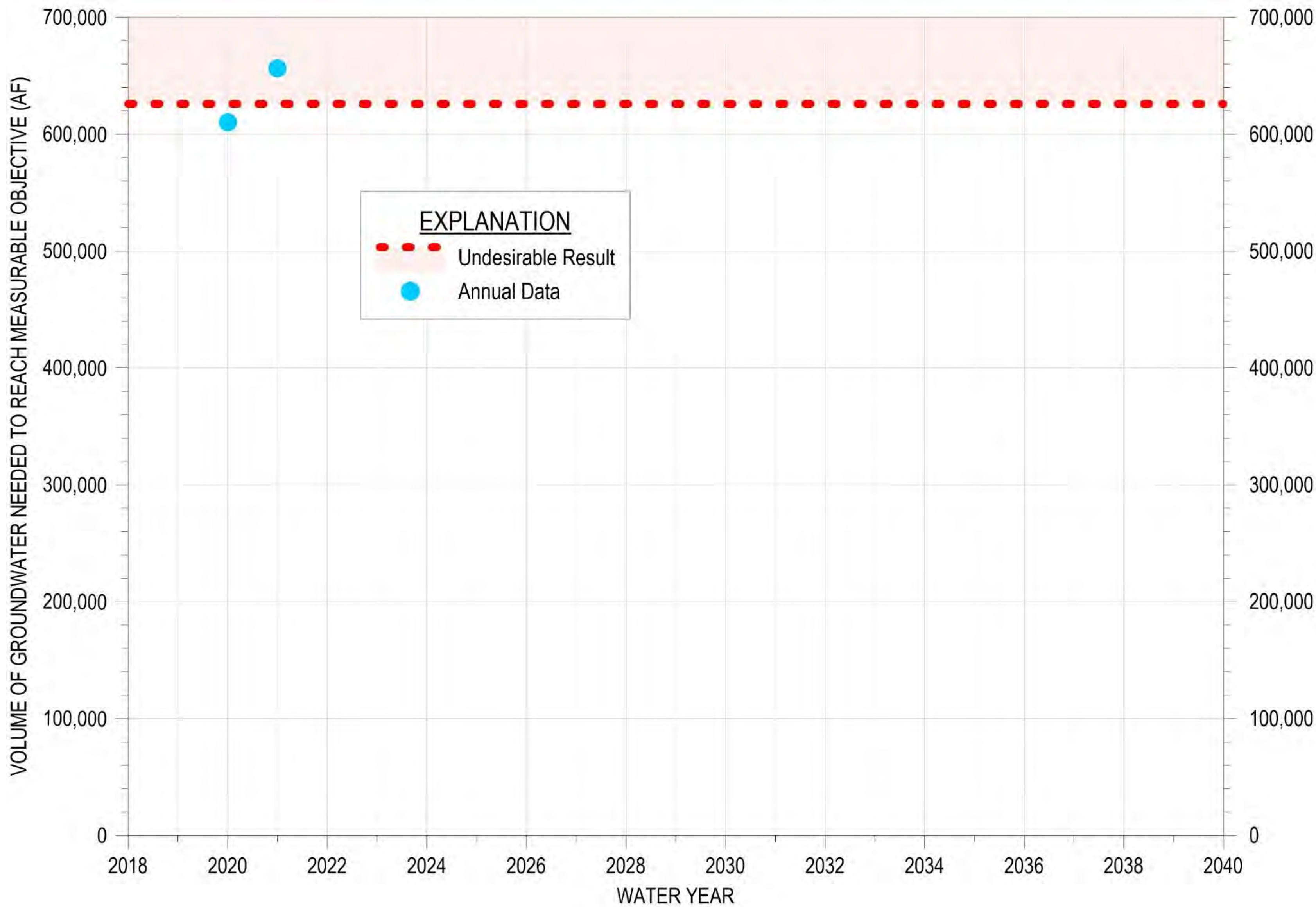


Figure 28. Groundwater in Storage Compared to the Undesirable Result

### 4.2.3 Seawater Intrusion SMC

#### 4.2.3.1 Minimum Thresholds

The minimum threshold for seawater intrusion is defined by a chloride concentration isocontour of 500 mg/L for each principal aquifer where seawater intrusion may lead to undesirable results. Section 8.8.2.1 of the GSP Update describes the information and methodology used to establish minimum thresholds for seawater intrusion. In the 180/400-Foot Aquifer Subbasin, the 2017 extent of the 500 mg/L chloride concentration isocontour as mapped by MCWRA is adopted as the seawater intrusion minimum threshold for both the 180-Foot and 400-Foot Aquifers, depicted as the red lines on Figure 29 and Figure 30. The line defined by Highway 1 is adopted as the seawater intrusion minimum threshold for the Deep Aquifers.

As described in Section 3.3, seawater intrusion in the 180-Foot Aquifer did not increase in WY 2022 but did increase slightly in the 400-Foot Aquifer. Figure 29 and Figure 30 show that the WY 2022 seawater intrusion extent in the 180-Foot Aquifer and 400-Foot Aquifer exceed the 2017 extents, and therefore exceed the minimum thresholds.

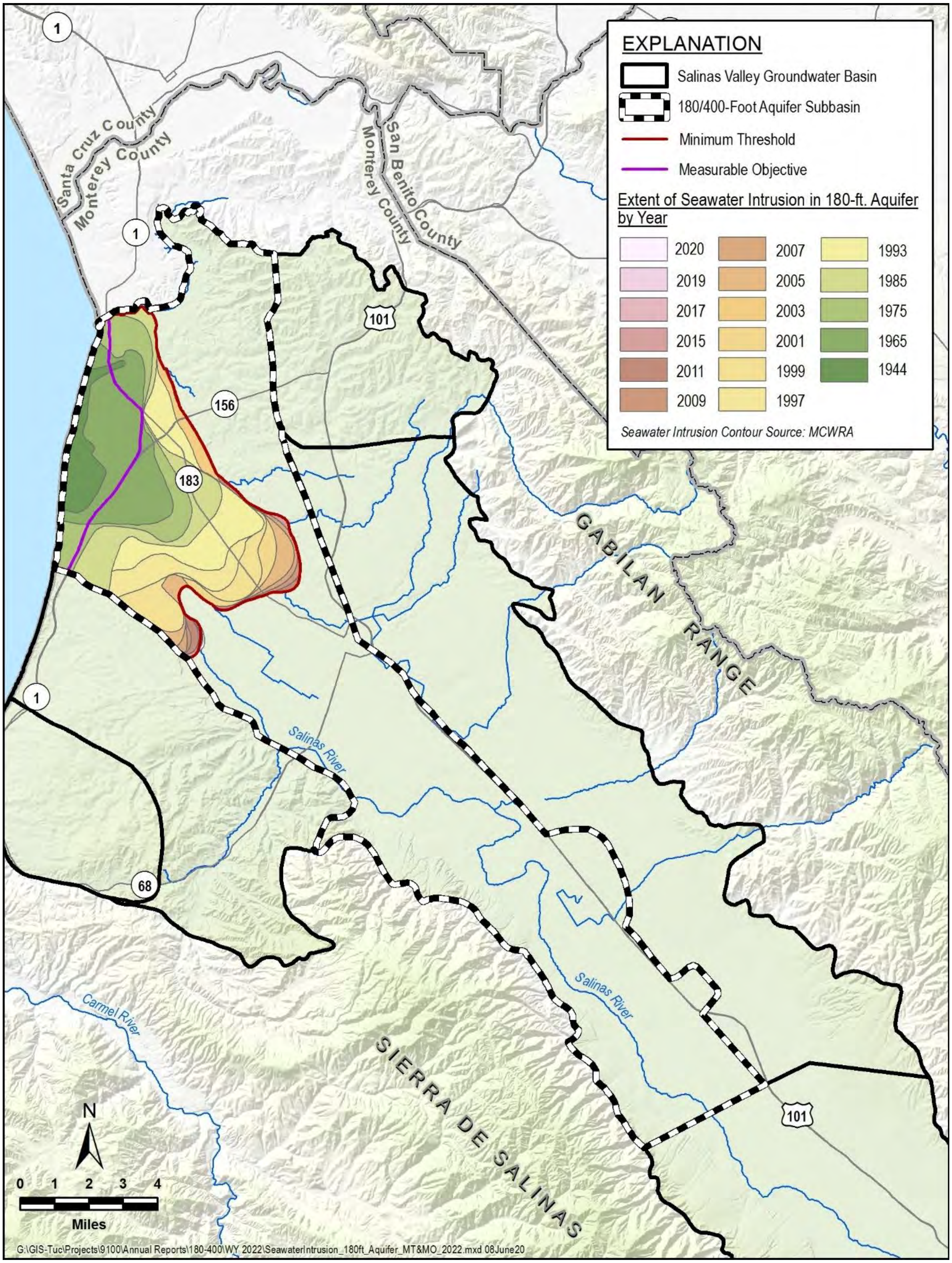


Figure 29. 180-Foot Aquifer Seawater Intrusion Compared to the Minimum Threshold and Measurable Objective

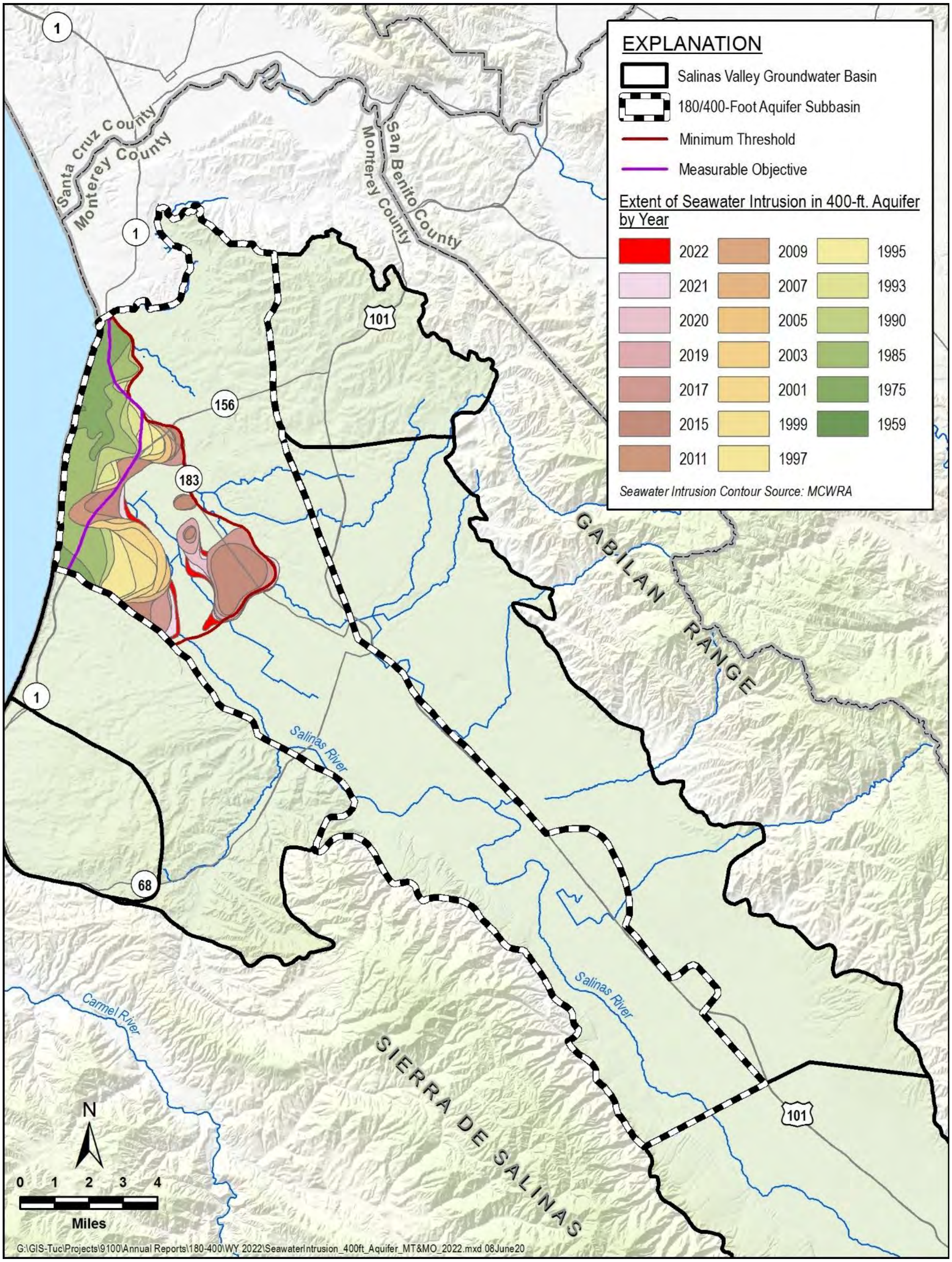


Figure 30. 400-Foot Aquifer Seawater Intrusion Compared to the Minimum Threshold and Measurable Objective

#### 4.2.3.2 Measurable Objectives and Interim Milestones

The seawater intrusion measurable objective for the seawater intrusion SMC is set to the line defined by Highway 1; therefore, to reach measurable objectives, the 500 mg/L chloride isocontour has to be pushed back to the purple lines on Figure 29 and Figure 30.

To show progress toward measurable objectives, DWR assesses interim milestones at 5-year intervals. The interim milestones for seawater intrusion are:

- 5-Year: identical to current conditions
- 10-year: one-third of the way to the measurable objective
- 15-year: two-thirds of the way to the measurable objective

Because seawater intrusion in both the 180-Foot Aquifer and 400-Foot Aquifer in WY 2022 is still exceeding the minimum thresholds, seawater intrusion is not yet progressing toward the interim milestones. The extent of seawater intrusion did not increase in the 180-Foot Aquifer but did increase in the 400-Foot Aquifer within the Subbasin. The slowing rate of intrusion in the 180-Foot Aquifer indicates could make it easier to move toward measurable objectives in future years.

#### 4.2.3.3 Undesirable Result

The seawater intrusion undesirable result is a quantitative combination of chloride concentrations minimum threshold exceedances. There is only one minimum threshold for each of the 3 aquifers. Because even localized seawater intrusion is not acceptable, the subbasin-wide undesirable result is zero exceedances of minimum thresholds. For the Subbasin, the seawater intrusion undesirable result is:

*On average in any one year there shall be no exceedances of any minimum threshold.*

Figure 29 and Figure 30 show that the 2022 extent of seawater intrusion in the 180-Foot Aquifer and 400-Foot Aquifer exceeded the 2017 extents, and therefore cause an undesirable result. Insufficient data are available to map the extent of seawater intrusion in the Deep Aquifers. This is a data gap that the SVBGSA will address during GSP implementation.

### 4.2.4 Degraded Groundwater Quality SMC

#### 4.2.4.1 Minimum Thresholds

The degraded groundwater quality minimum thresholds were established for each COC based on the number of supply wells monitored that had higher concentrations than the regulatory standards for drinking water and irrigation water during the last sampling event.

Section 8.9.2.1 of the GSP Update describes the information and methodology used to establish minimum thresholds for degraded groundwater quality. The minimum threshold values for each COC for the wells within the groundwater quality monitoring network are provided in Table 12. Table 12 also shows the wells with concentrations higher than the regulatory standard in WY 2022 discussed in Section 3.5, and the running total of wells with concentrations higher than the regulatory standard, which are used to assess the minimum thresholds. Only the latest sample for each COC at each well is used for the running total. The minimum thresholds are set to no additional wells with concentrations higher than the regulatory standard for each constituent, as compared to the 2019 baseline. The SMC are based on the total number of wells in order to assess subbasin-wide conditions; so if a single well rises above a COC's regulatory standard and another falls below, there is no change in the number of wells with concentrations above the regulatory standard. These conditions were determined to be significant and unreasonable because COC concentrations above the regulatory standard may cause a financial burden on groundwater users. Public water systems with COC concentrations above the MCL or SMCL are required to add treatment to the drinking water supplies or drill new wells. Agricultural wells with COCs that significantly reduce crop production may reduce grower's yields and profits.

As the GSP established a minimum threshold for each COC, there is an exceedance of the minimum threshold if there are more wells with concentrations above the regulatory standard than there were in 2017. In WY 2022, 18 COCs exceeded their groundwater quality minimum thresholds. The last column in Table 12 includes the number of wells above the 2019 baseline that had higher concentrations than the regulatory standard. If a COC has more wells with concentrations above the regulatory standard than the minimum threshold, it is highlighted in orange to indicate an exceedance. The negative numbers in the last column indicate a drop in the total number of wells with concentrations above the regulatory limit, as compared to 2019 when the minimum threshold was established.

In November 2022, SWRCB provided DWR with its assessment of degradation of groundwater quality SMC for high and medium priority subbasins like the 180/400-Foot Aquifer Subbasin. SWRCB reviewed the COC listed in the GSP Update and suggested adding gross alpha radioactivity to the list of COC for the Subbasin. Although this constituent had higher concentrations of the regulatory standard in the past, it was not above the regulatory standard in the latest sampling for wells in the representative monitoring network. SVBGSA will continue to monitor this constituent and will add it as a COC for the Subbasin if it rises above the regulatory standard in wells in the monitoring network.

Compared to WY 2021, the same COCs exceeded their minimum thresholds. However, iron and manganese both had additional wells with concentrations above the regulatory limit.

Table 12. Minimum Thresholds and Measureable Objectives for Degradation of Groundwater Quality

| Constituent of Concern (COC) | Minimum Threshold/ Measurable Objective (Baseline number of wells with COC concentrations above the Regulatory Standard in 2017) | Number of Wells Sampled in WY 2022 with COC Concentrations Above the Regulatory Standard | Total Number of Wells with COC Concentrations Above the Regulatory Standard in Most Recent Sample | Number of Wells with COC Concentrations above Minimum Threshold (negative if fewer than MT) |
|---|---|---|---|---|
| **DDW Wells** | | | | |
| 1,2,3-Trichloropropane | 11 | 2 | 13 | 2 |
| 1,2,4-Trichlorobenzene | 1 | 0 | 1 | 0 |
| 1,2-Dibromo-3-chloropropane | 9 | 0 | 9 | 0 |
| Aluminum | 1 | 0 | 1 | 0 |
| Arsenic | 1 | 1 | 2 | 1 |
| Benzo(a)Pyrene | 2 | 0 | 2 | 0 |
| Chloride | 2 | 0 | 3 | 1 |
| Chromium, Hexavalent (Cr6) | 0 | 1 | 1 | 1 |
| Di(2-ethylhexyl)phthalate | 2 | 0 | 2 | 0 |
| Dinoseb | 2 | 0 | 2 | 0 |
| Fluoride | 1 | 0 | 1 | 0 |
| Heptachlor | 2 | 0 | 2 | 0 |
| Hexachlorobenzene | 2 | 0 | 2 | 0 |
| Iron | 2 | 0 | 7 | 5 |
| Manganese | 1 | 1 | 7 | 6 |
| Methyl-tert-butyl ether (MTBE) | 3 | 0 | 3 | 0 |
| Nitrate (as nitrogen) | 4 | 8 | 15 | 11 |
| Perchlorate | 0 | 0 | 0 | 0 |
| Selenium | 2 | 0 | 2 | 0 |
| Specific Conductance | 2 | 1 | 5 | 3 |
| Tetrachloroethene | 1 | 0 | 1 | 0 |
| Total Dissolved Solids | 4 | 1 | 7 | 3 |
| Vinyl Chloride | 34 | 0 | 34 | 0 |
| **ILRP On-Farm Domestic Wells** | | | | |
| Chloride | 9 | 0 | 9 | 0 |
| Iron | 7 | 0 | 11 | 4 |
| Manganese | 1 | 0 | 3 | 2 |
| Nitrate (as nitrogen) | 36 | 0 | 49 | 13 |
| Nitrate + Nitrite (sum as nitrogen) | 4 | 0 | 9 | 5 |
| Nitrite | 1 | 0 | 1 | 0 |
| Specific Conductance | 35 | 0 | 41 | 6 |

| Constituent of Concern (COC) | Minimum Threshold/ Measurable Objective (Baseline number of wells with COC concentrations above the Regulatory Standard in 2017) | Number of Wells Sampled in WY 2022 with COC Concentrations Above the Regulatory Standard | Total Number of Wells with COC Concentrations Above the Regulatory Standard in Most Recent Sample | Number of Wells with COC Concentrations above Minimum Threshold (negative if fewer than MT) |
|---|---|---|---|---|
| **Sulfate** | 2 | 0 | 3 | 1 |
| **Total Dissolved Solids** | 33 | 0 | 44 | 11 |
| **ILRP Irrigation Wells** | | | | |
| **Chloride** | 19 | 0 | 27 | 8 |
| **Iron** | 2 | 0 | 2 | 0 |
| **Manganese** | 0 | 0 | 1 | 1 |

#### 4.2.4.2 Measurable Objectives and Interim Milestones

The measurable objectives for degradation of groundwater quality represent a target number of wells with COC concentrations above the regulatory standard and are set at the 2017 baseline to aim for no degradation. Because SGMA does not require the improvement of groundwater quality, the 180/400-Foot Aquifer GSP and GSP Update include measurable objectives identical to the minimum thresholds, as defined in Table 12. Interim milestones are also set at the minimum threshold levels. Although there were 18 groundwater quality minimum threshold exceedances in WY 2022, the groundwater quality data already meet the 2025 interim milestones because these exceedances are not a result of GSA groundwater management actions.

#### 4.2.4.3 Undesirable Result

The degradation of groundwater quality undesirable result is a quantitative combination of groundwater quality minimum threshold exceedances. Any groundwater quality degradation as a direct result of GSP implementation is unacceptable. Some groundwater quality changes are expected to occur independent of SGMA activities; because these changes are not related to SGMA activities they do not constitute an undesirable result. The degradation of groundwater quality undesirable result is:

> *Future or new minimum thresholds exceedances are caused by a direct result of GSA groundwater management action(s), including projects or management actions and regulation of groundwater extraction.*

This undesirable result statement was revised as part of the GSP Update based on DWR's GSP review and recommended corrective actions. Table 12 shows that 18 constituents exceeded their minimum thresholds in WY 2022, compared to the WY 2017 baseline. Since SVBGSA has yet to implement any projects or management actions in the Subbasin, these exceedances are not due to GSA actions. Therefore, the groundwater quality exceedances do not cause an undesirable result. The groundwater quality minimum threshold exceedances, compared with the undesirable results, are shown on Figure 31. If a value is in the shaded red area due to GSA action, it would constitute an undesirable result. This graph is updated annually with new data to demonstrate the sustainability indicator's direction toward sustainability.

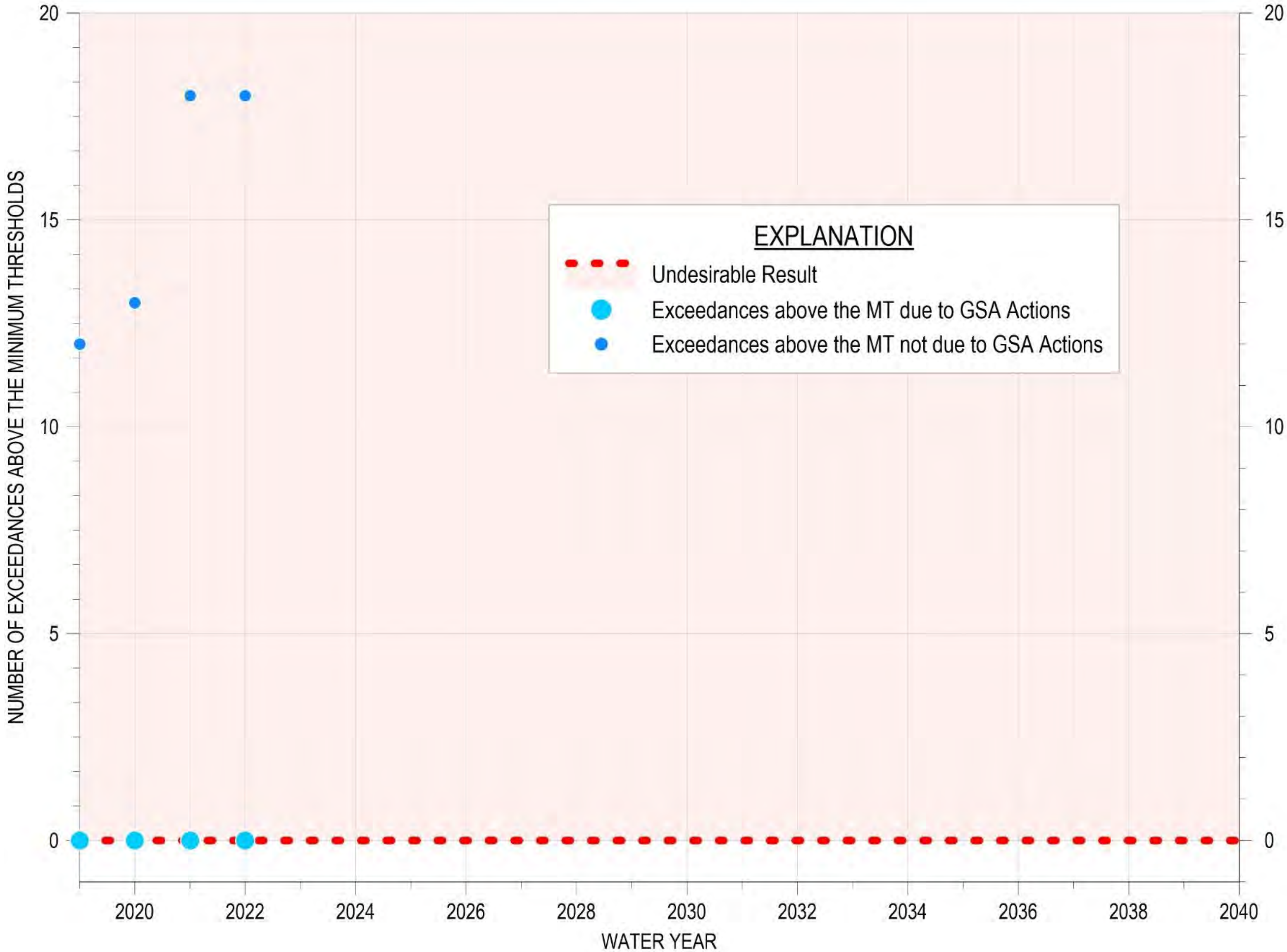


Figure 31. Groundwater Quality Minimum Threshold Exceedences Compared to the Undesirable Result

### 4.2.5 Land Subsidence SMC

#### 4.2.5.1 Minimum Thresholds

Accounting for measurement errors in the InSAR data, the minimum threshold for land subsidence in the GSP is zero net long-term subsidence, with no more than 0.1 foot per year of estimated land movement to account for InSAR errors. Section 8.10.2.1 of the GSP Update describes the information and methodology used to establish minimum thresholds for subsidence. A single minimum threshold is set for the entire Subbasin. Annual subsidence data from October 2020 to October 2022 demonstrated less than the minimum threshold of 0.1 foot/year, as shown on Figure 19.

#### 4.2.5.2 Measurable Objectives and Interim Milestones

The measurable objectives for land subsidence represent target subsidence rates in the Subbasin. Because the minimum thresholds of zero net long-term subsidence are the best achievable outcome, the measurable objectives are identical to the minimum thresholds: zero net long-term subsidence, with no more than 0.1 foot per year of estimated land movement to account for InSAR errors. Figure 19 demonstrates that data from October 2021 to October 2022 showed less than the measurable objective of no more than 0.1 foot per year of measured subsidence is being met. The interim milestones are identical to minimum threshold of 0.1 foot per year. The latest subsidence data shows that the 2025 subsidence interim milestone is already being met.

#### 4.2.5.3 Undesirable Result

The land subsidence undesirable result is a quantitative combination of subsidence minimum threshold exceedances. For the 180/400-Foot Subbasin, no long-term subsidence that impacts infrastructure is acceptable. Therefore, the land subsidence undesirable result is:

> *There is an exceedance of the minimum threshold for land subsidence due to lowered groundwater elevations.*

Data from October 2021 to October 2022 showed subsidence was below the minimum threshold of 0.1 foot per year. The latest land subsidence, therefore, does not lead to an undesirable result. Maximum annual measured subsidence in the Subbasin, compared with the subsidence undesirable result, is shown on Figure 32. If a value is in the shaded red area, it would constitute an undesirable result.

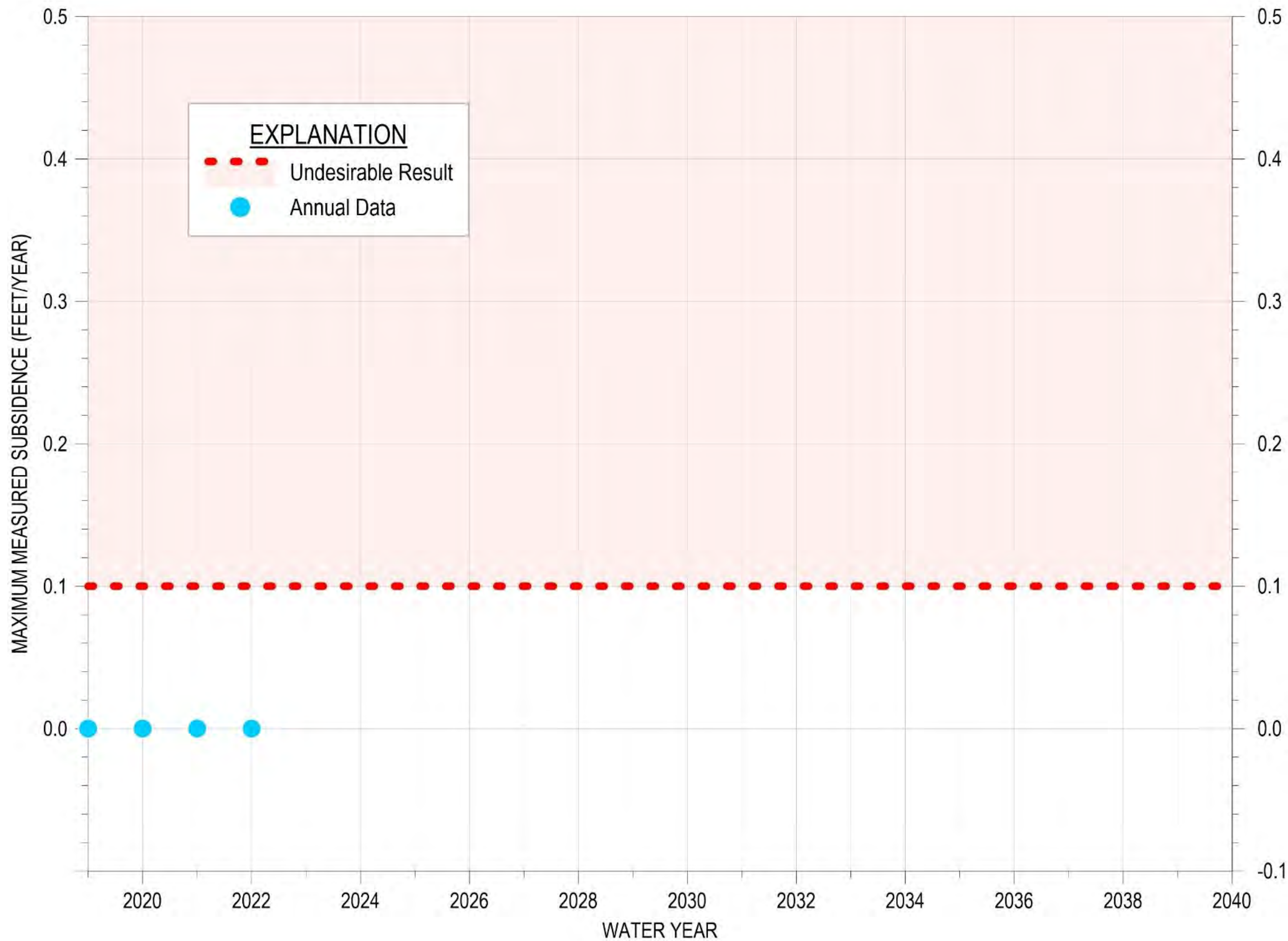


Figure 32. Maximum Measured Subsidence Compared to the Undesirable Result

### 4.2.6 Depletion of Interconnected Surface Water SMC

#### 4.2.6.1 Minimum Thresholds

The GSP Update changed the metric used to measure the ISW SMC, shifting to the approach taken in other Salinas Valley subbasins. The minimum thresholds for depletion of ISW are established by proxy using shallow groundwater elevations and are established to maintain consistency with chronic lowering of groundwater elevation minimum thresholds as described in Section 8.11.2.1 of the GSP Update. ISW minimum thresholds were set to 1 foot above 2015 shallow groundwater elevations and are included in Table 13. Shallow groundwater elevation data are color-coded on this table: red cells mean the groundwater elevation is below the minimum threshold, yellow cells mean the groundwater elevation is above the minimum threshold but below the measurable objective, and green cells mean the groundwater elevation is above the measurable objective. In WY 2022, the existing monitoring well was below its minimum threshold. When the new monitoring well is drilled to fill the data gap, SMC will be determined using interpolated values from the groundwater elevation contour maps.

Minimum thresholds are not established for times when flow in a river is due to conservation releases from a reservoir. Conservation releases are meant to recharge the Salinas Valley groundwater basin; therefore, depletion of conservation releases is a desired outcome, and the minimum thresholds and measurable objectives do not apply to these flows.

Table 13. Shallow Groundwater Elevation Data, ISW Minimum Thresholds, and ISW Measurable Objectives (in feet)

| Below Minimum Threshold | Above Minimum Threshold | Above Measurable Objective |
|---|---|---|

| Monitoring Site | Minimum Threshold | WY 2022 Groundwater Elevation | Interim Milestone at Year 2025 | Measurable Objective (Goal to Reach at 2040) |
|---|---|---|---|---|
| 16S/05E-31P02 | 80.0* | 78.1 | 90.6 | 94.7 |

*Groundwater elevation estimated.

#### 4.2.6.2 Measurable Objectives and Interim Milestones

The measurable objectives for depletion of ISW target groundwater elevations are higher than the minimum thresholds. The measurable objectives are established to maintain consistency with the chronic lowering of groundwater elevation minimum thresholds, which are also established based on groundwater elevations. The measurable objective for the existing monitoring well is listed in Table 13 and is set to 2003 shallow groundwater elevations. The ISW monitoring well did not surpass its measurable objective.

Table 13 also lists the 2025 interim milestone. To show progress toward measurable objectives, DWR assesses interim milestones at 5-year intervals. The WY 2022 groundwater elevation for the ISW monitoring well was not higher than the 2025 interim milestones.

#### 4.2.6.3 Undesirable Result

The depletion of ISW undesirable result is a quantitative combination of minimum threshold exceedances. The undesirable result for depletion of ISW is:

> *There is an exceedance of the minimum threshold in a shallow groundwater monitoring well used to monitor interconnected surface water.*

Streamflow depletion in the Subbasin is complicated by many factors, such as reservoir releases, recharge of the aquifer from streamflow, losses to vegetation, and ET. The ISW SMC applies to depletion of ISW from groundwater use. For SGMA compliance purposes, the default assumption is that any depletions of surface water beyond the level of depletion that occurred prior to 2015 as evidenced by reduction in groundwater levels, represent depletions that are significant and unreasonable. Any additional depletions of surface water flows caused by groundwater conditions in excess of conditions as they were in 2015 would likely be an undesirable result that must be addressed under SGMA. There is currently no biological opinion or habitat conservation plan that indicates additional protection is needed for species protected under the Endangered Species Act; however, if it is determined that additional protection is needed and streamflow loss is due not to surface water flows but to groundwater extraction, SVBGSA will adapt as necessary to adhere to environmental laws.

Table 13 shows that there was an exceedance of the ISW minimum threshold; therefore, the WY 2022 shallow groundwater elevations constitute an undesirable result. The ISW minimum threshold exceedances, compared with the undesirable results, are shown on Figure 33. If a value is in the shaded red area, it constitutes an undesirable result. This graph is updated annually with new data to demonstrate the sustainability indicator's direction toward sustainability.

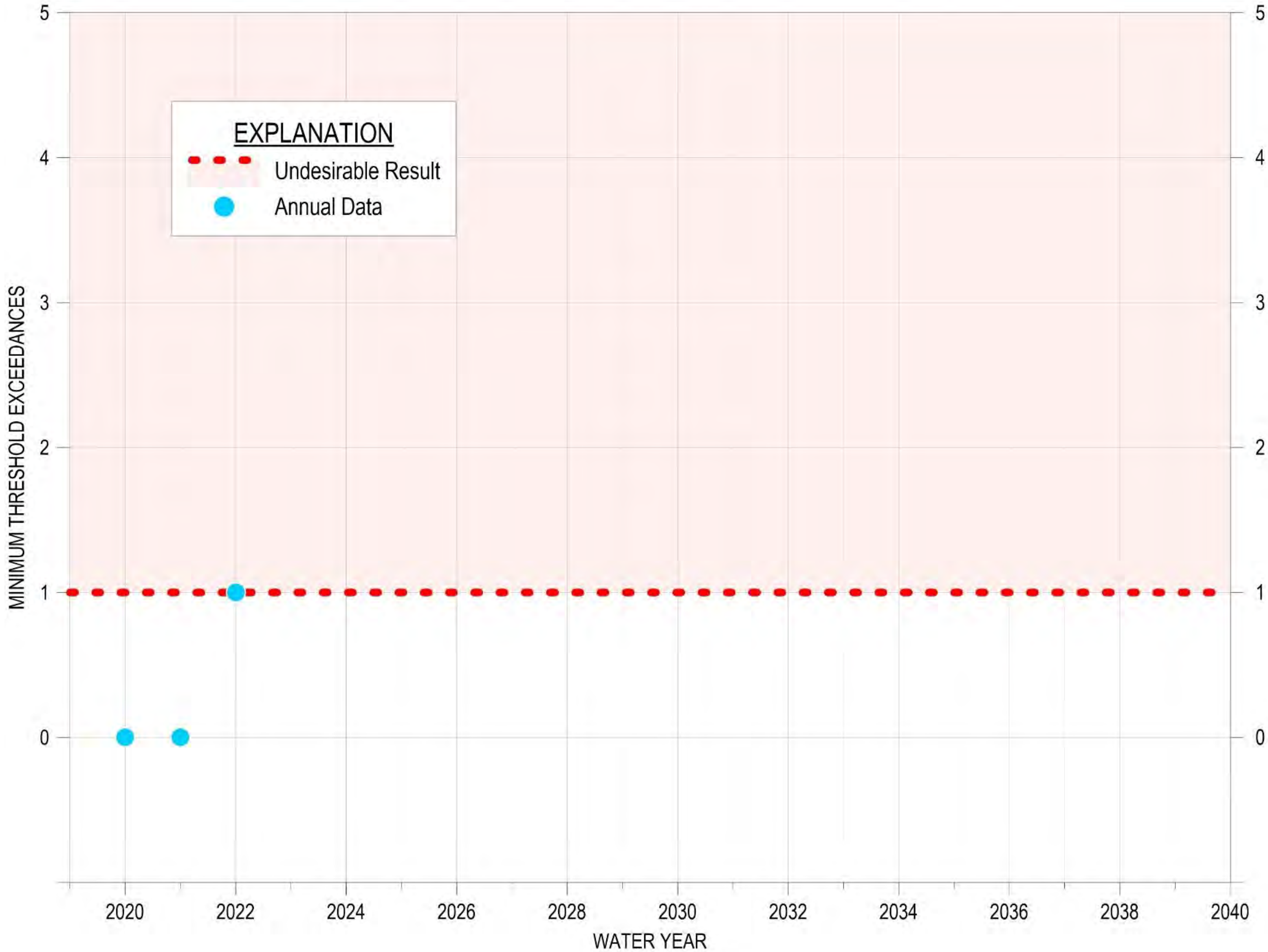


Figure 33. Shallow Groundwater Elevation Exceedances Compared to the Undesirable Result

# 5 CONCLUSION

This 2022 Annual Report updates data and information for the 180/400-Foot Aquifer Subbasin GSP from WY 2021 to WY 2022 with the best available data. It covers GSP implementation activities up to September 30, 2022. All GSP implementation and annual reporting meets the regulations set forth in the SGMA GSP Regulations.

In WY 2022, the 180/400-Foot Aquifer Subbasin continued to have undesirable results for Chronic Lowering of Groundwater Levels, Reduction in Groundwater Storage, and Seawater Intrusion. In addition, with the ability to assess Depletion of ISW due to the GSP Update's revised method and available data, it also has an undesirable result. WY 2022 was classified as dry-normal. Groundwater elevations generally continued to decrease in WY 2022, with more wells exceeding the minimum thresholds than the prior year. In addition to the Deep Aquifers, the 180-Foot and 400-Foot Aquifers had Groundwater Level undesirable results. Reduction in Groundwater Storage SMC continued to have an undesirable result in WY 2022. In WY 2022 seawater intrusion in the Subbasin did not increase in the 180-Foot Aquifer but continued to intrude into the 400-Foot Aquifer. Groundwater quality data showed 18 exceedances of minimum thresholds; however, none were caused by a direct result of GSA groundwater management action(s), and therefore did not constitute an undesirable result. Negligible subsidence was observed in WY 2022. Finally, the groundwater elevation in the shallow monitoring well used to monitor ISW was below its minimum threshold, constituting an undesirable result.

In WY 2022, the SVBGSA finalized and submitted the 180/400-Foot Aquifer Subbasin 2022 GSP Update, working together with the 180/400-Foot Aquifer Subbasin Implementation Committee. SVBGSA continued to actively engage stakeholders through its Board of Directors and committees, worked on filling data gaps, and began activities to implement the GSP. SVBGSA applied for and received a $7.6 million SGMA Implementation Grant that will support early implementation projects and 3 feasibility studies needed to identify the most appropriate method to address seawater intrusion. In addition, SVBGSA started and received preliminary investigation results from the Deep Aquifer Study, MCWRA continued to convene the D-TAC, and the Greater Monterey County Integrated Regional Water Management Group, in collaboration with SVBGSA, was awarded a $10 million MLRP grant to acquire and repurpose the least viable, most flood-prone portions of irrigated agricultural lands in the lower Salinas Valley.

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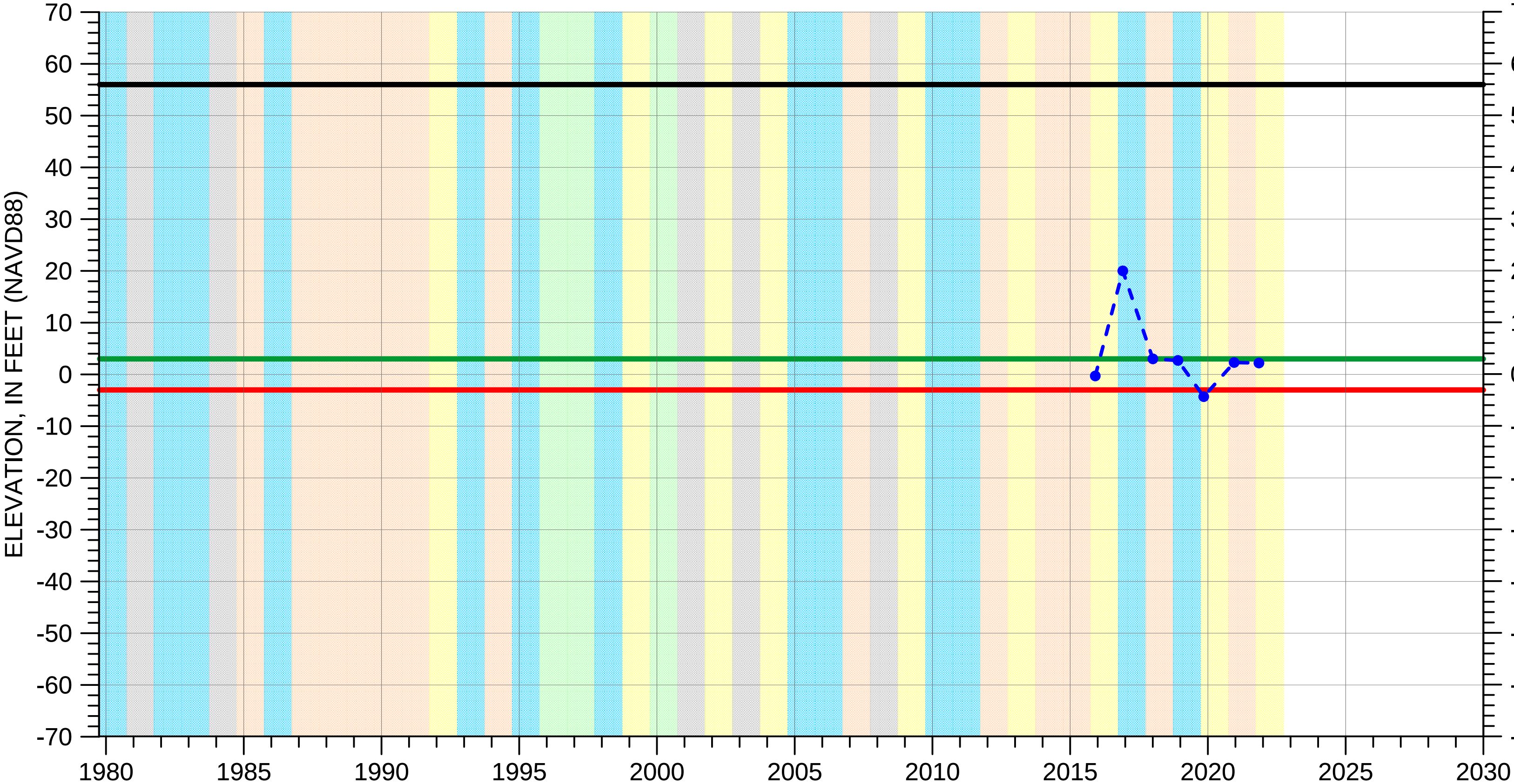
# APPENDIX A. HYDROGRAPHS OF REPRESENTATIVE MONITORING SITE WELLS

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 12S/02E-33H02

180/400-Foot Aquifer Subbasin

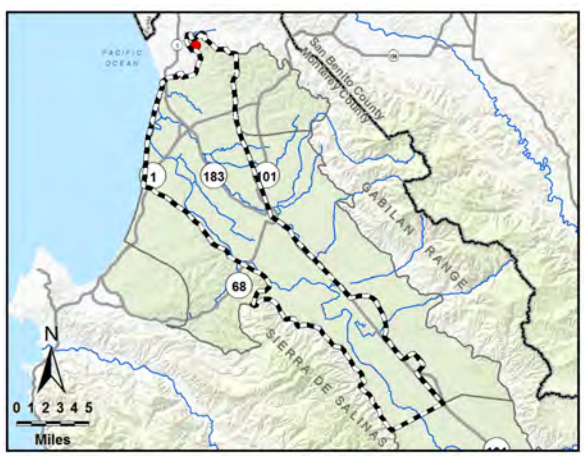


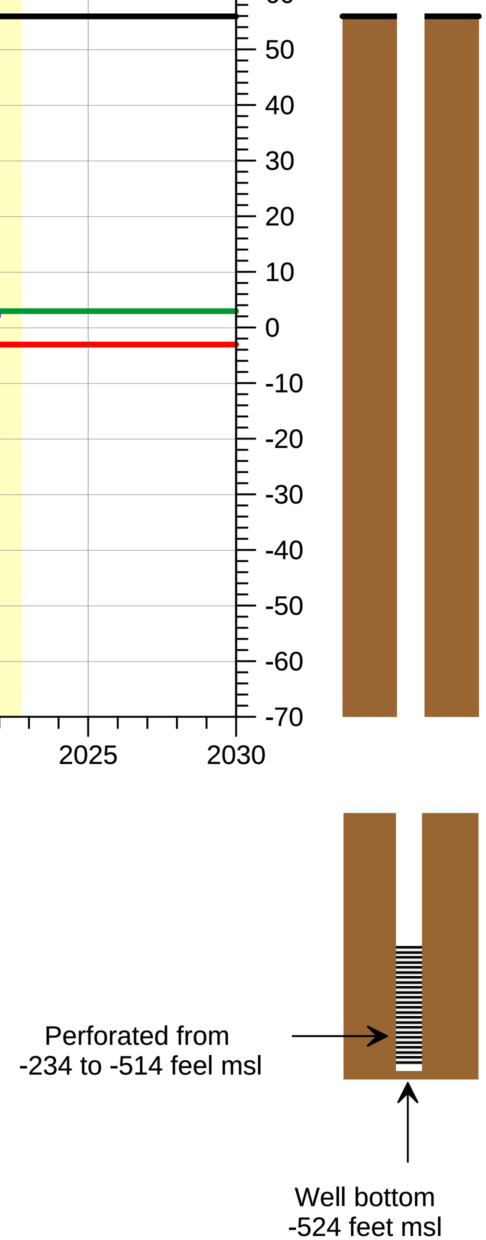

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

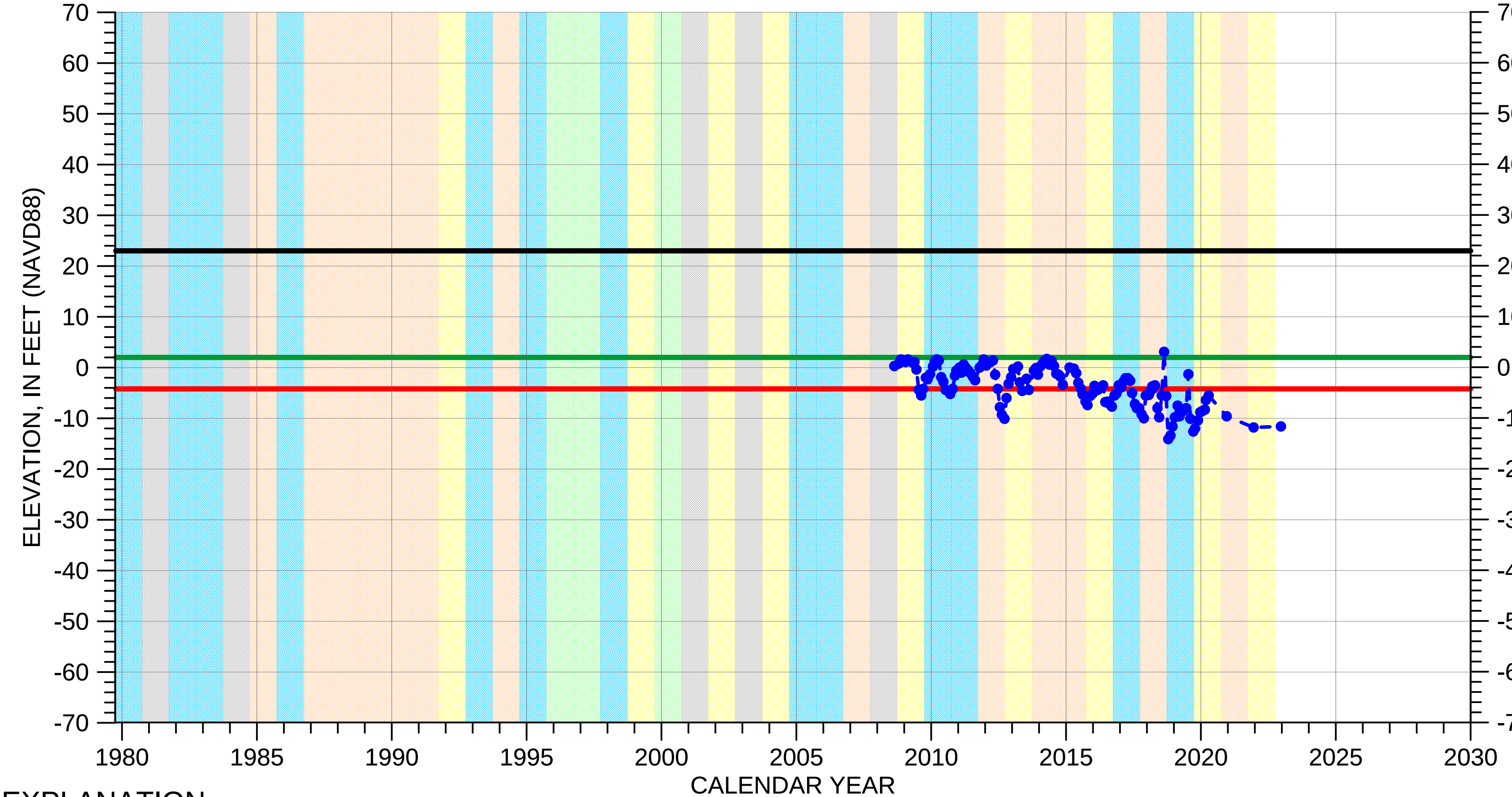


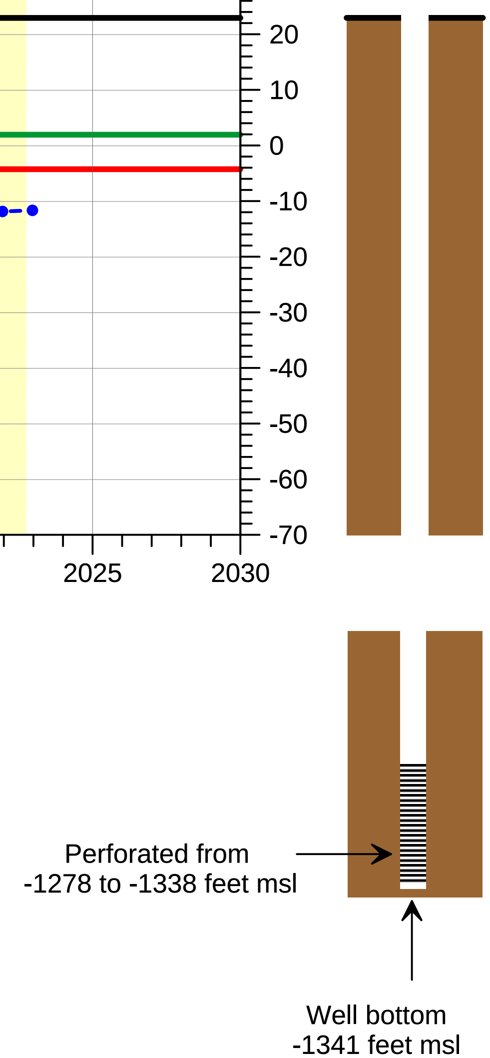




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\12S_02E-33H02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/01E-36J02**

180/400-Foot Aquifer Subbasin



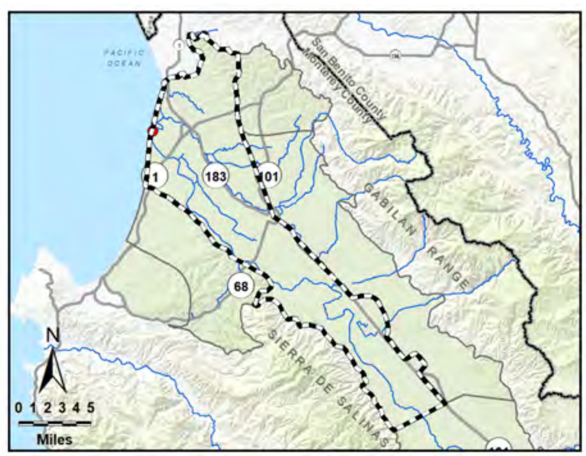




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

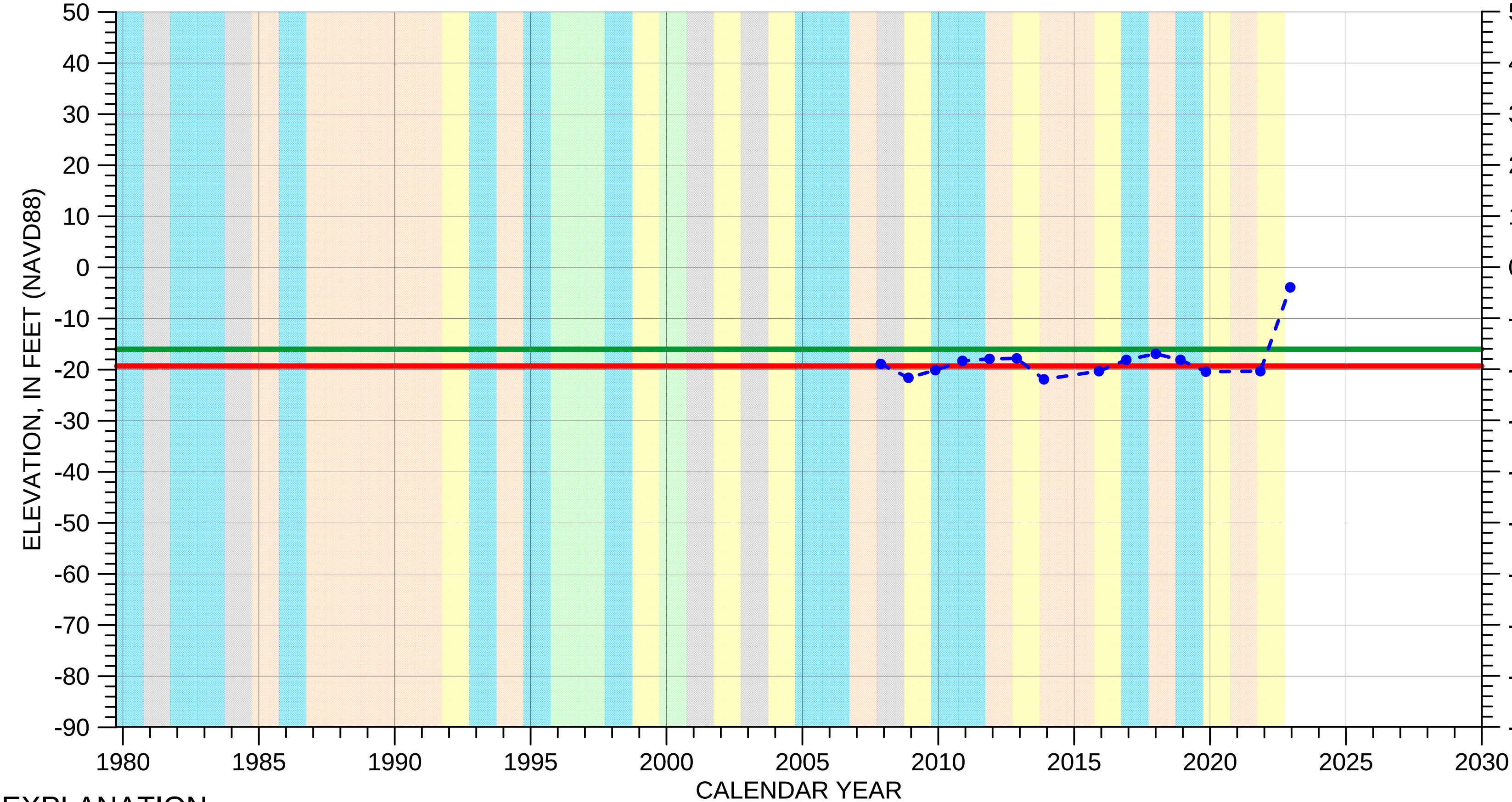
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_01E-36J02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-10K01**

180/400-Foot Aquifer Subbasin

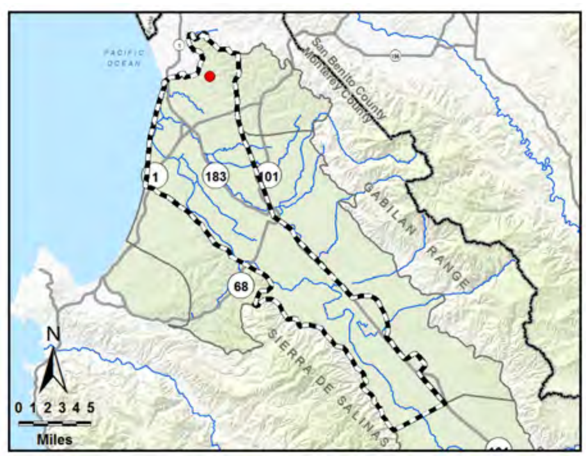


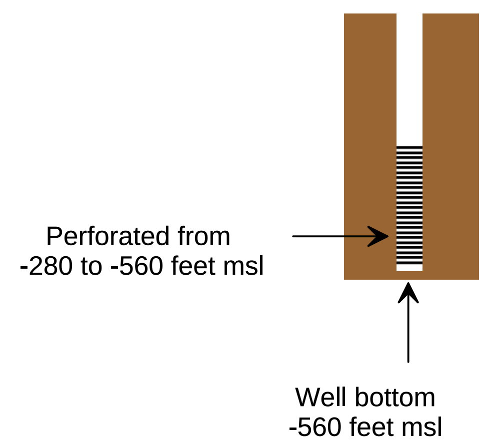

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (100 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

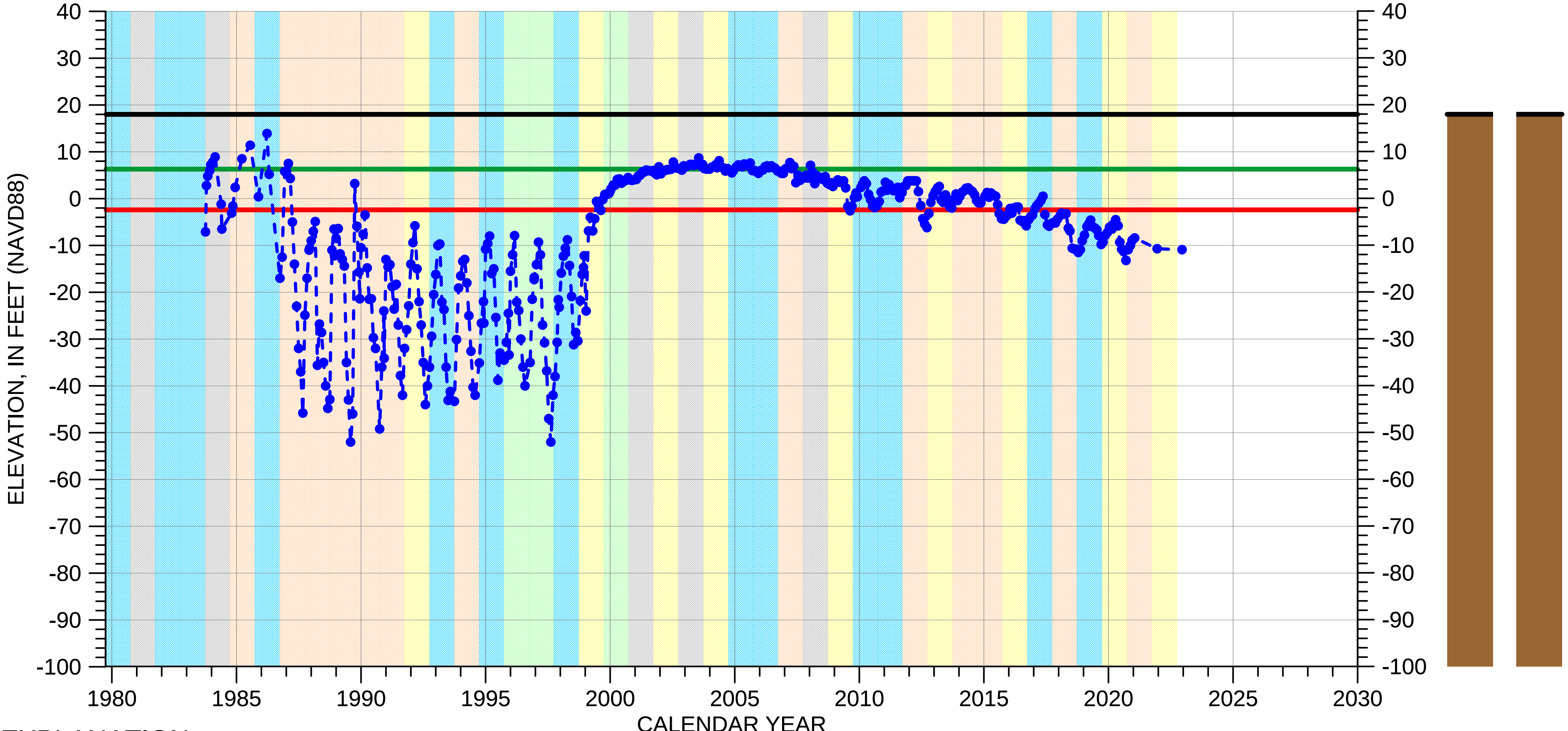
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-10K01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-19Q03** 180/400-Foot Aquifer Subbasin

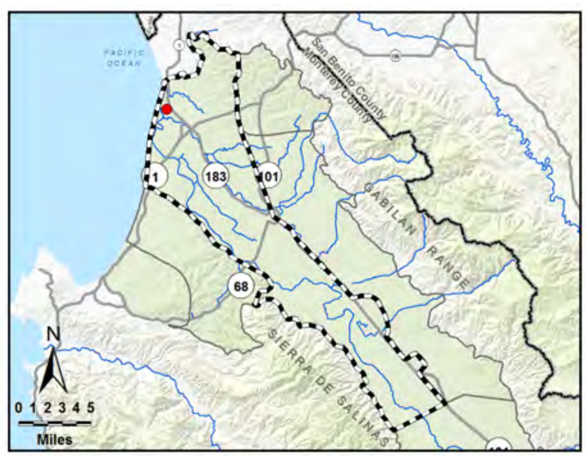


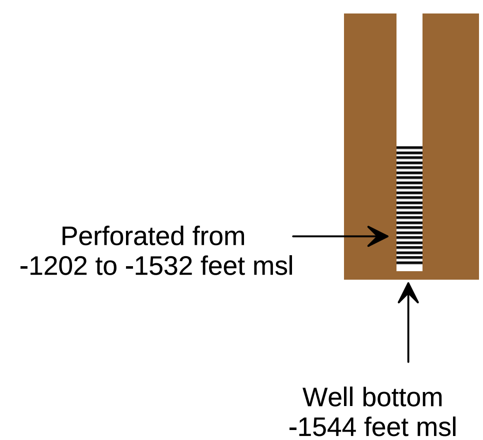

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

| | |
|---|---|
| DRY | WET - NORMAL |
| DRY - NORMAL | WET |
| NORMAL | |

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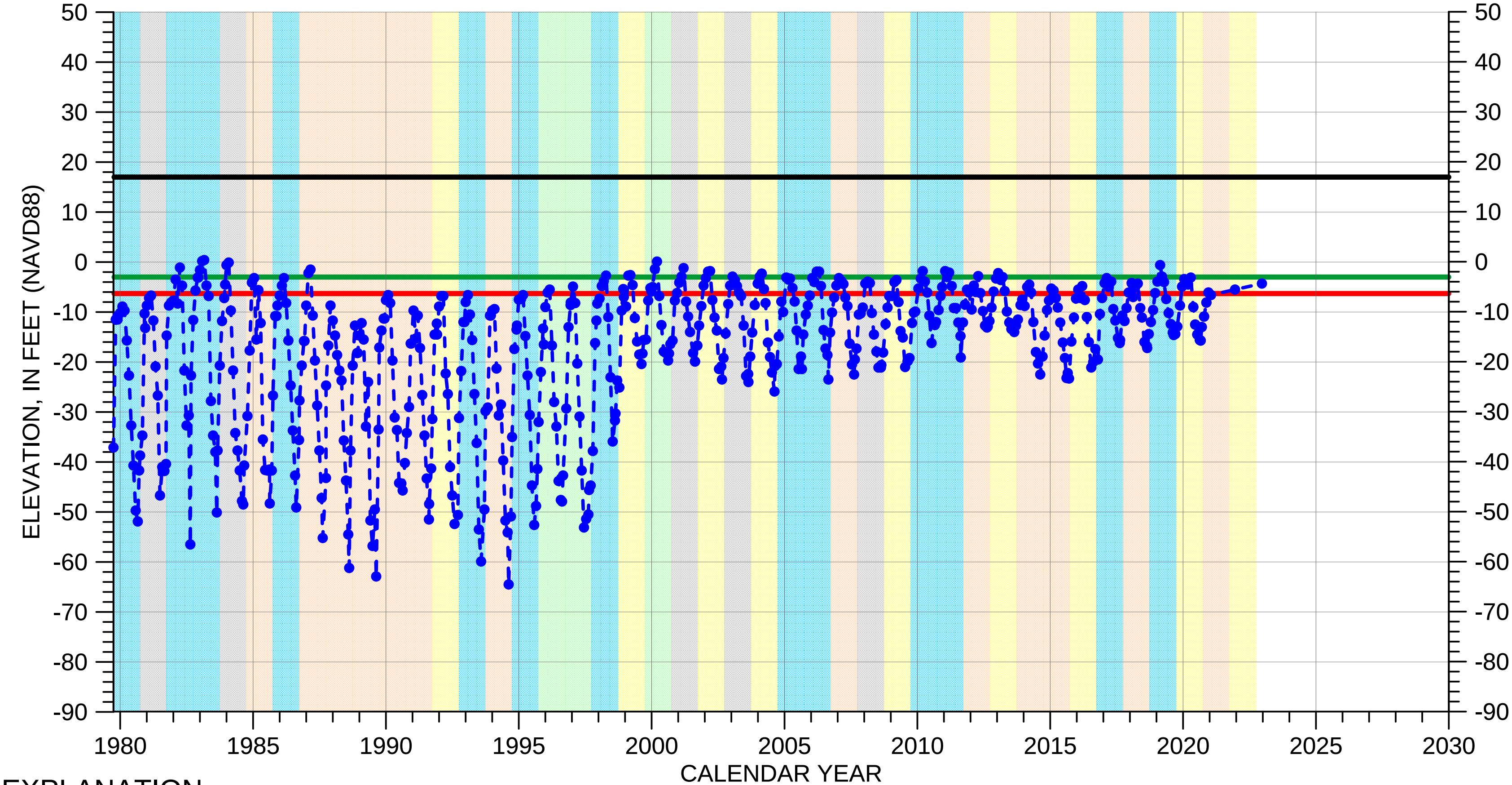
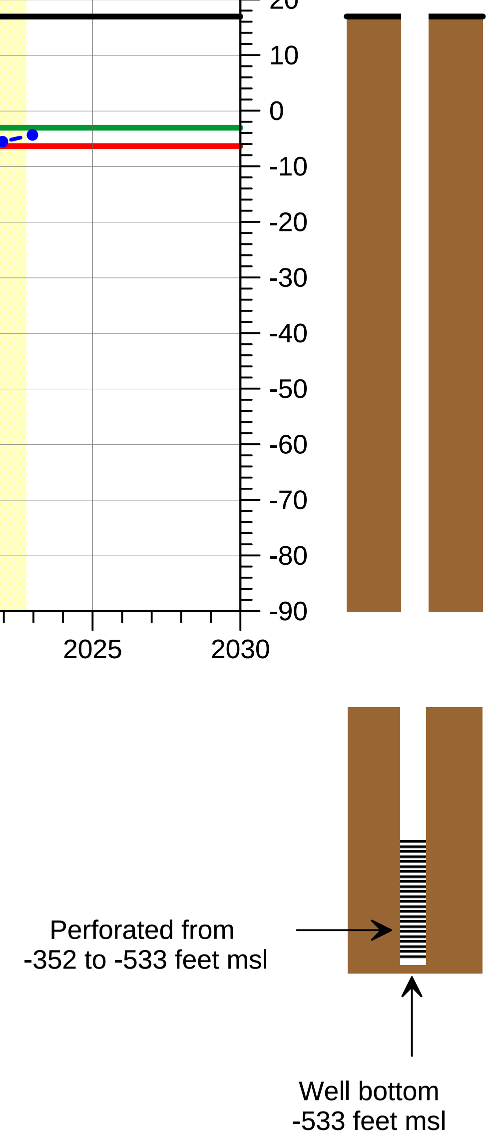
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-21N01

180/400-Foot Aquifer Subbasin



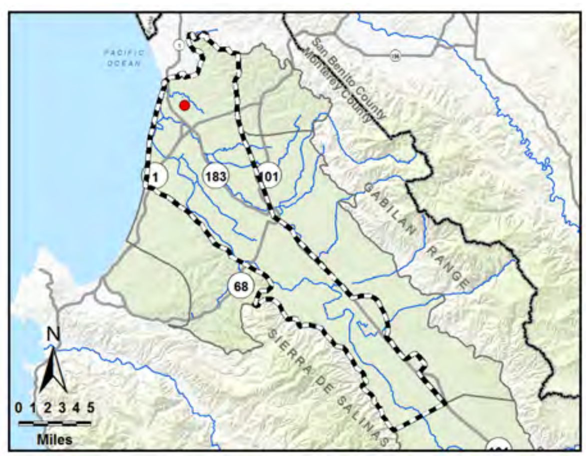




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

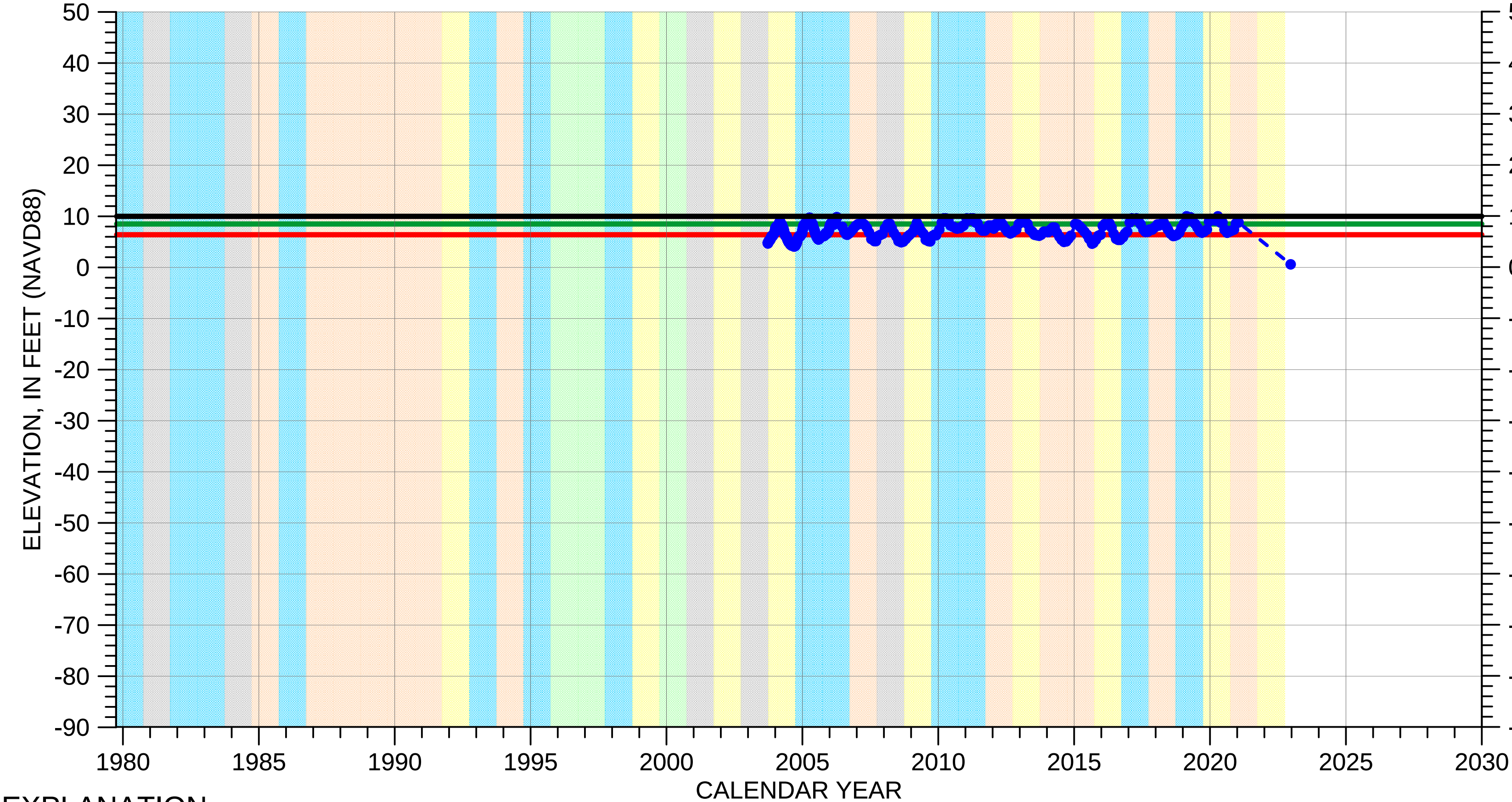
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-21N01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-21Q01

180/400-Foot Aquifer Subbasin

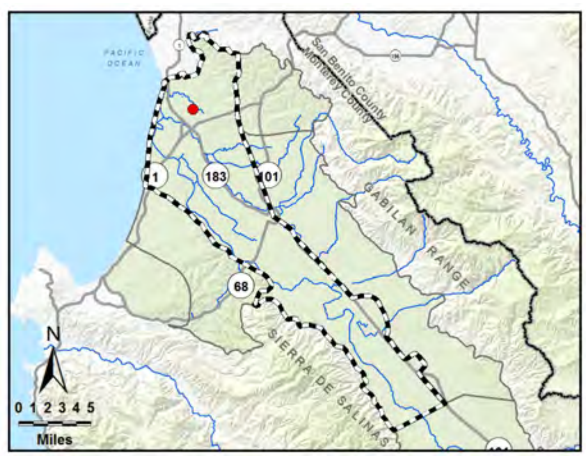


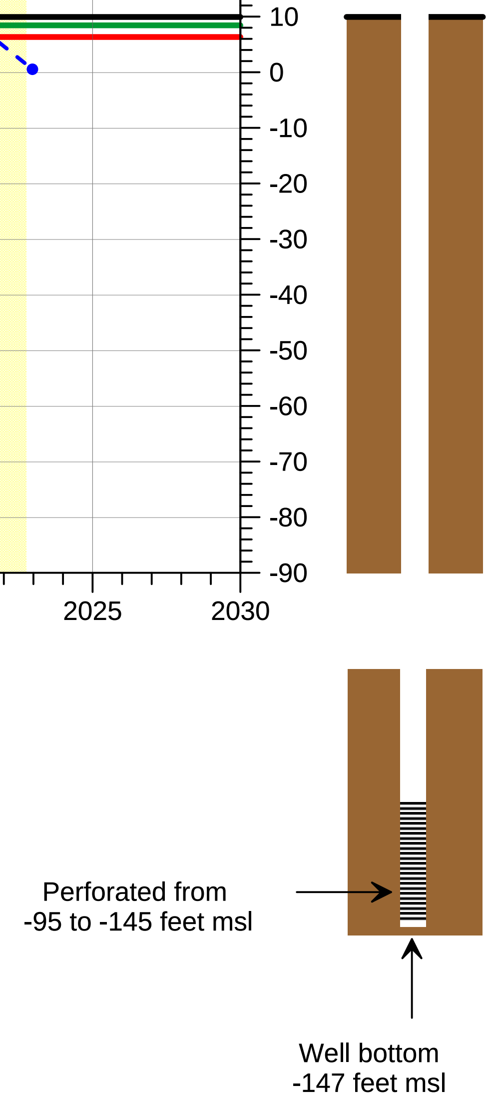

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

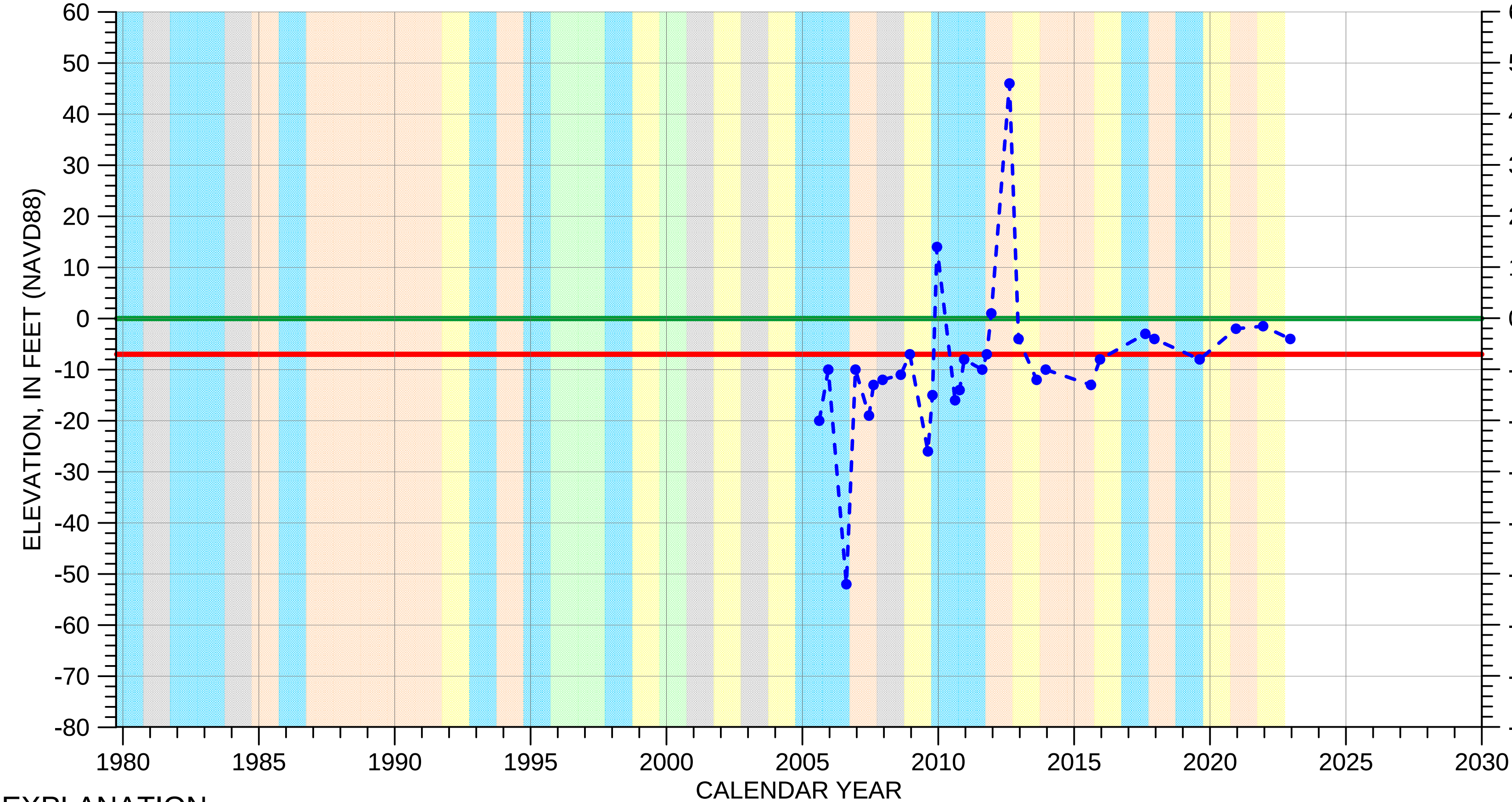



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-21Q01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-24N01

180/400-Foot Aquifer Subbasin

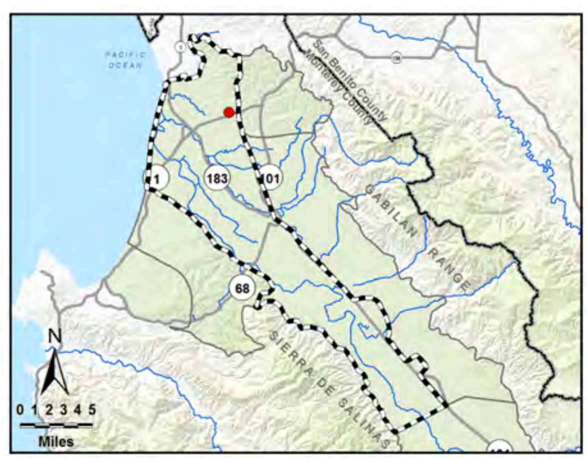


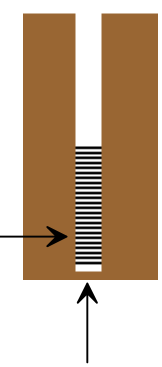

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (162 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



Perforated from
-138 to -438 feet msl

Well bottom
-438 feet msl

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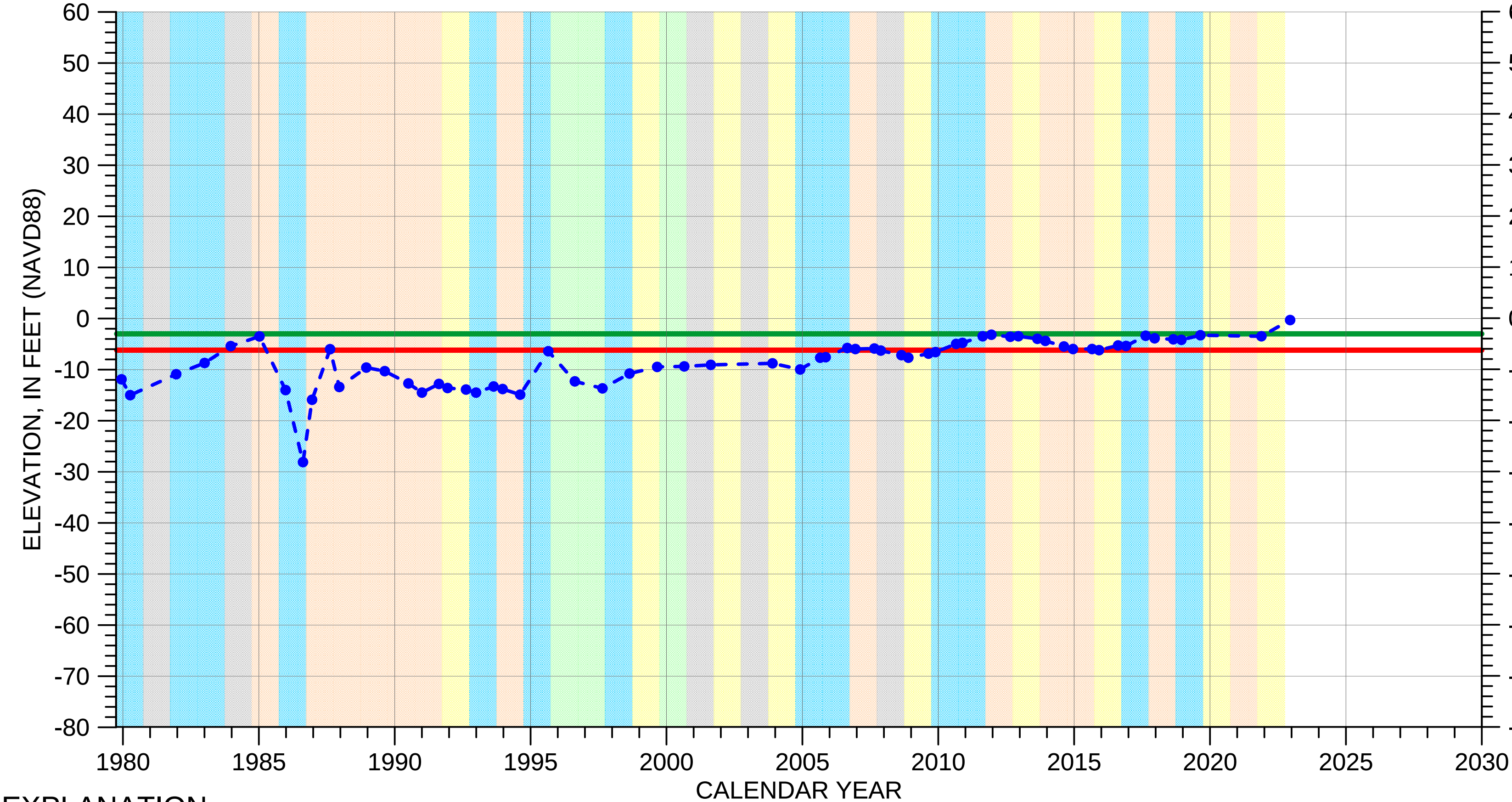
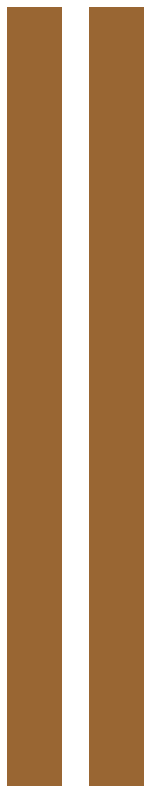
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-26L01**

180/400-Foot Aquifer Subbasin



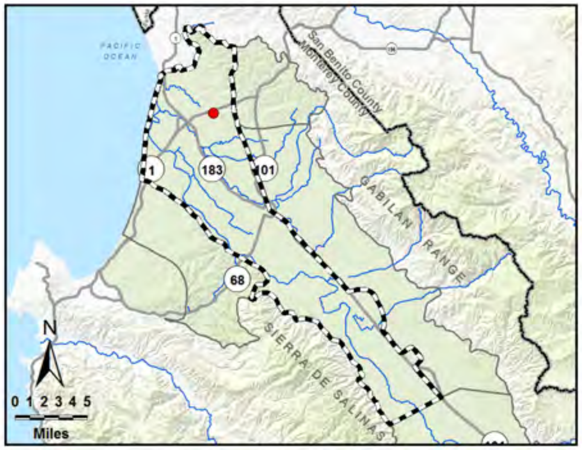



EXPLANATION

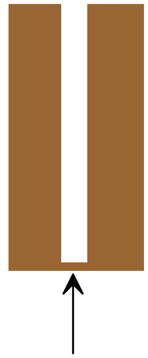
- Groundwater Elevation
- Suspect Measurement
- Land Surface (109 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




Perforated interval unknown

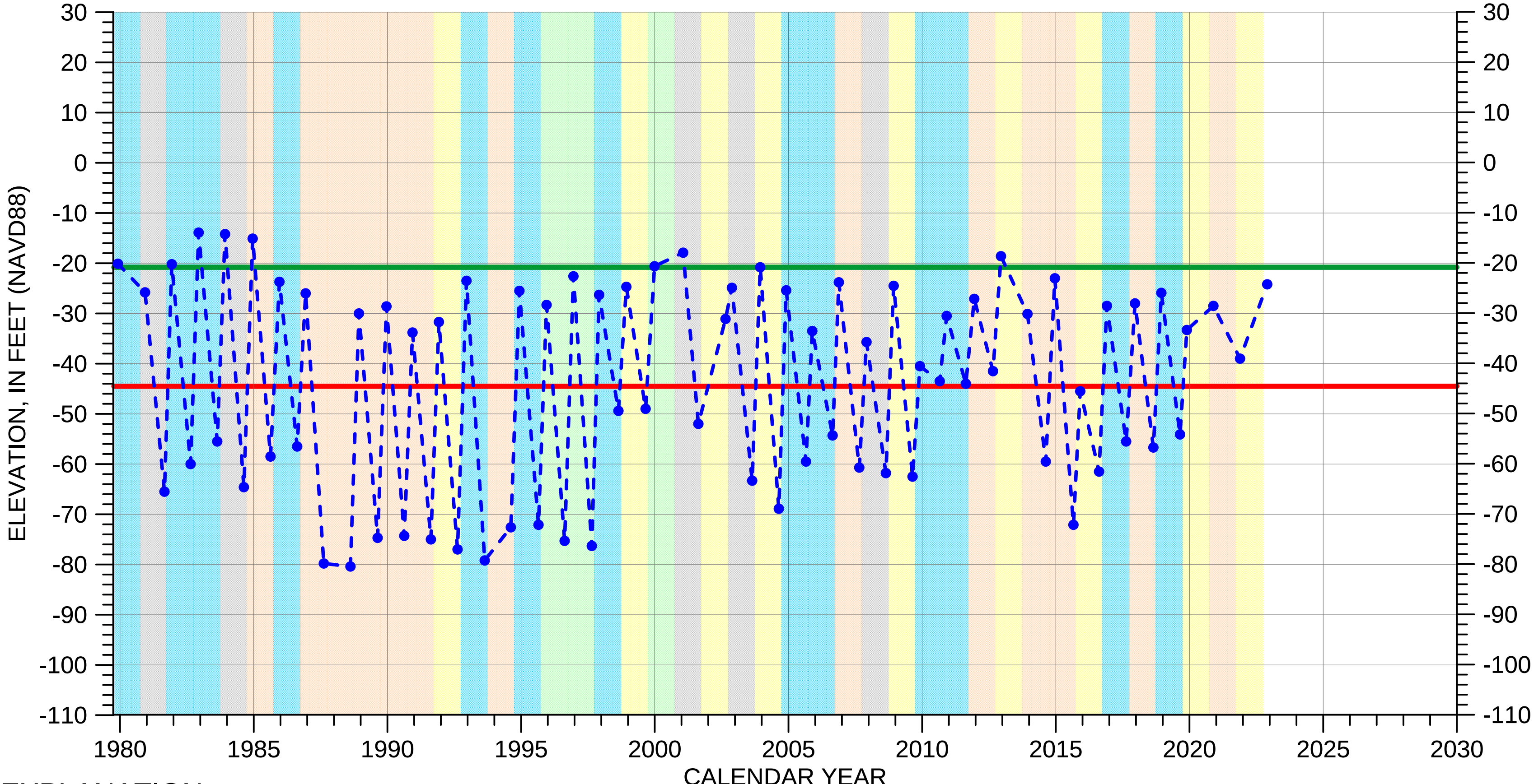


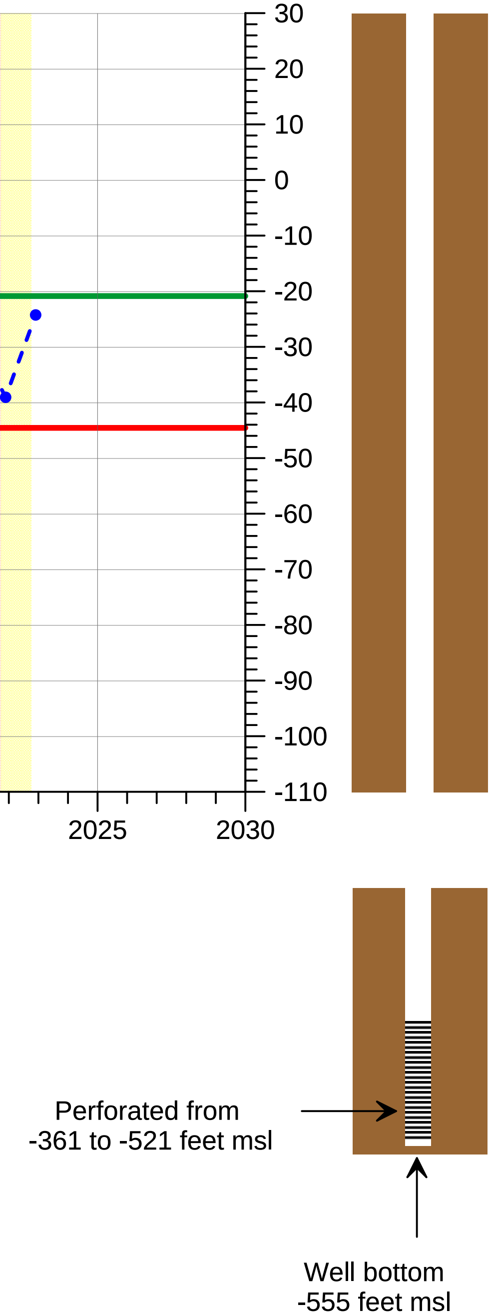
Well bottom
-141 feet msl

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-26L01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-27P01**

180/400-Foot Aquifer Subbasin



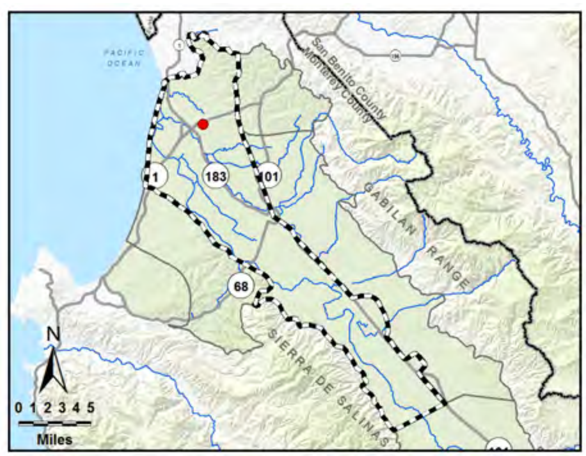




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (55 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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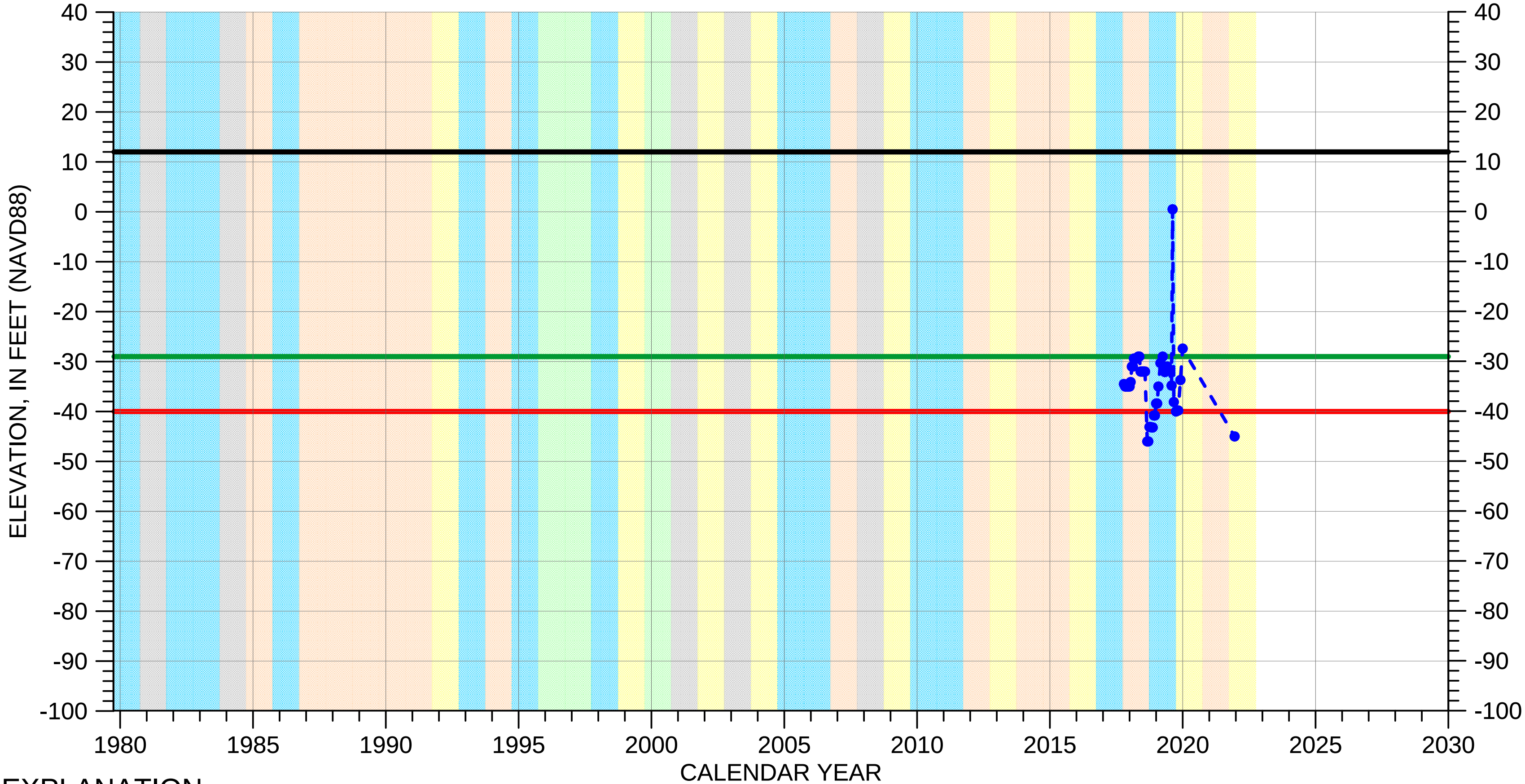
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-28L03

180/400-Foot Aquifer Subbasin

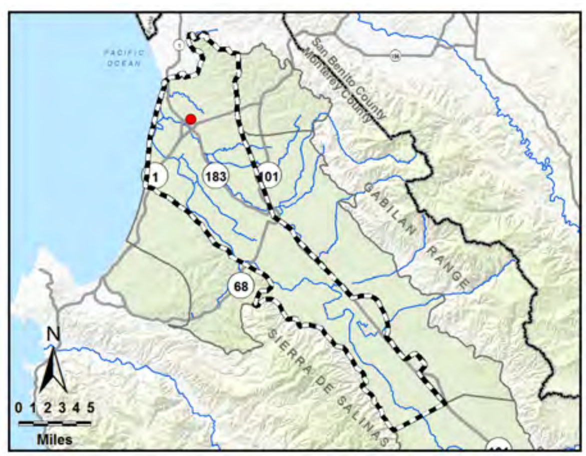



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

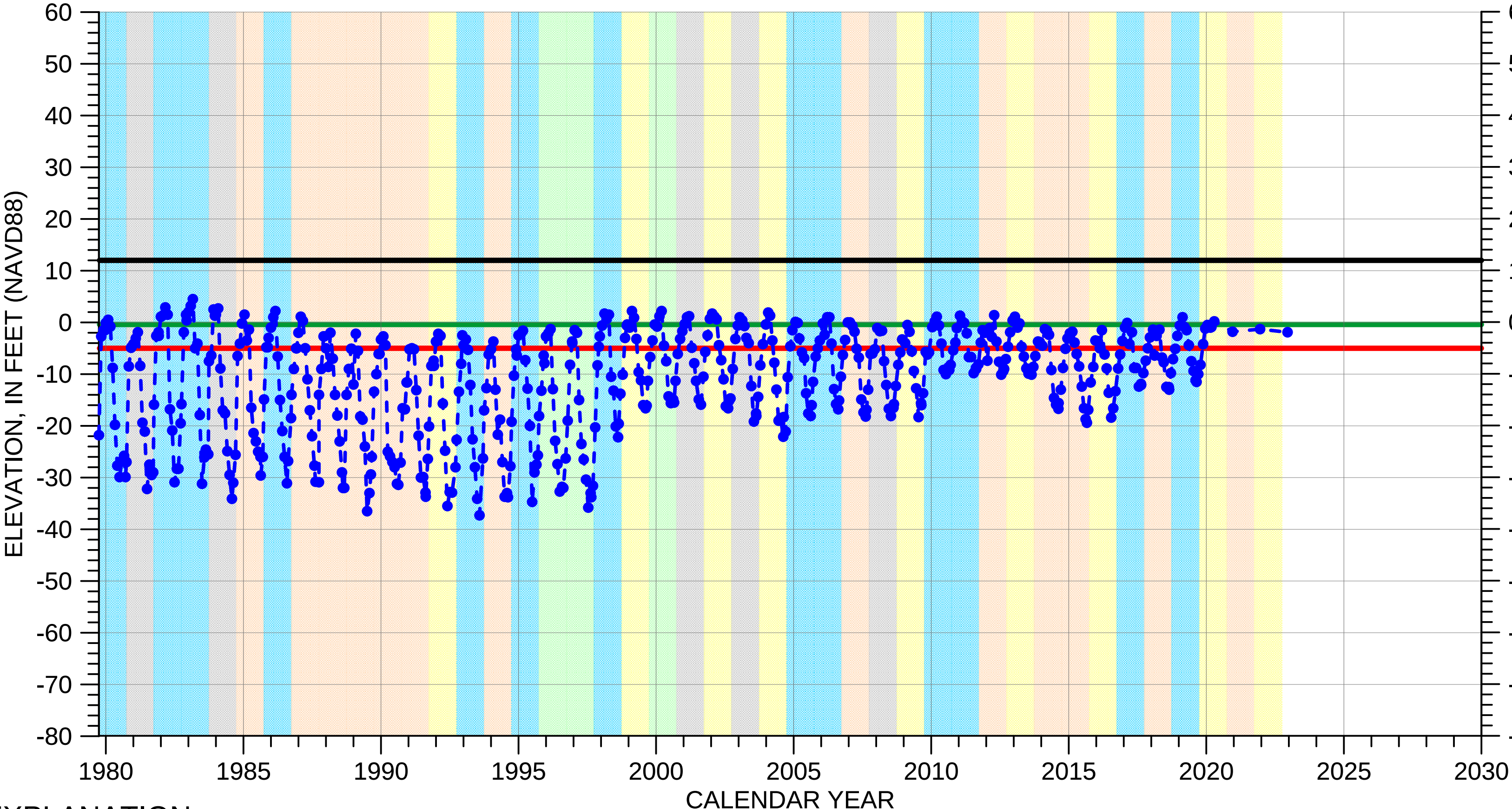


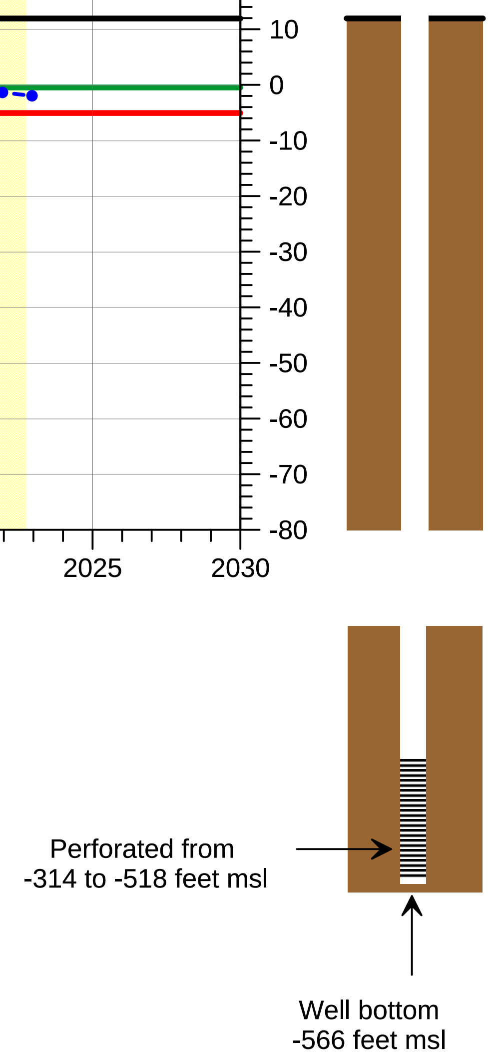


C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-28L03.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-31N02**

180/400-Foot Aquifer Subbasin



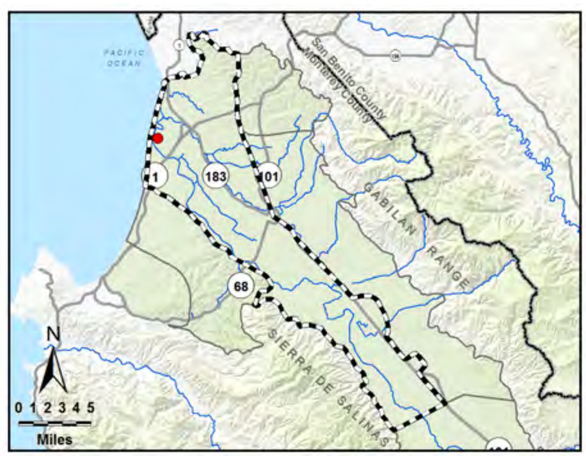




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

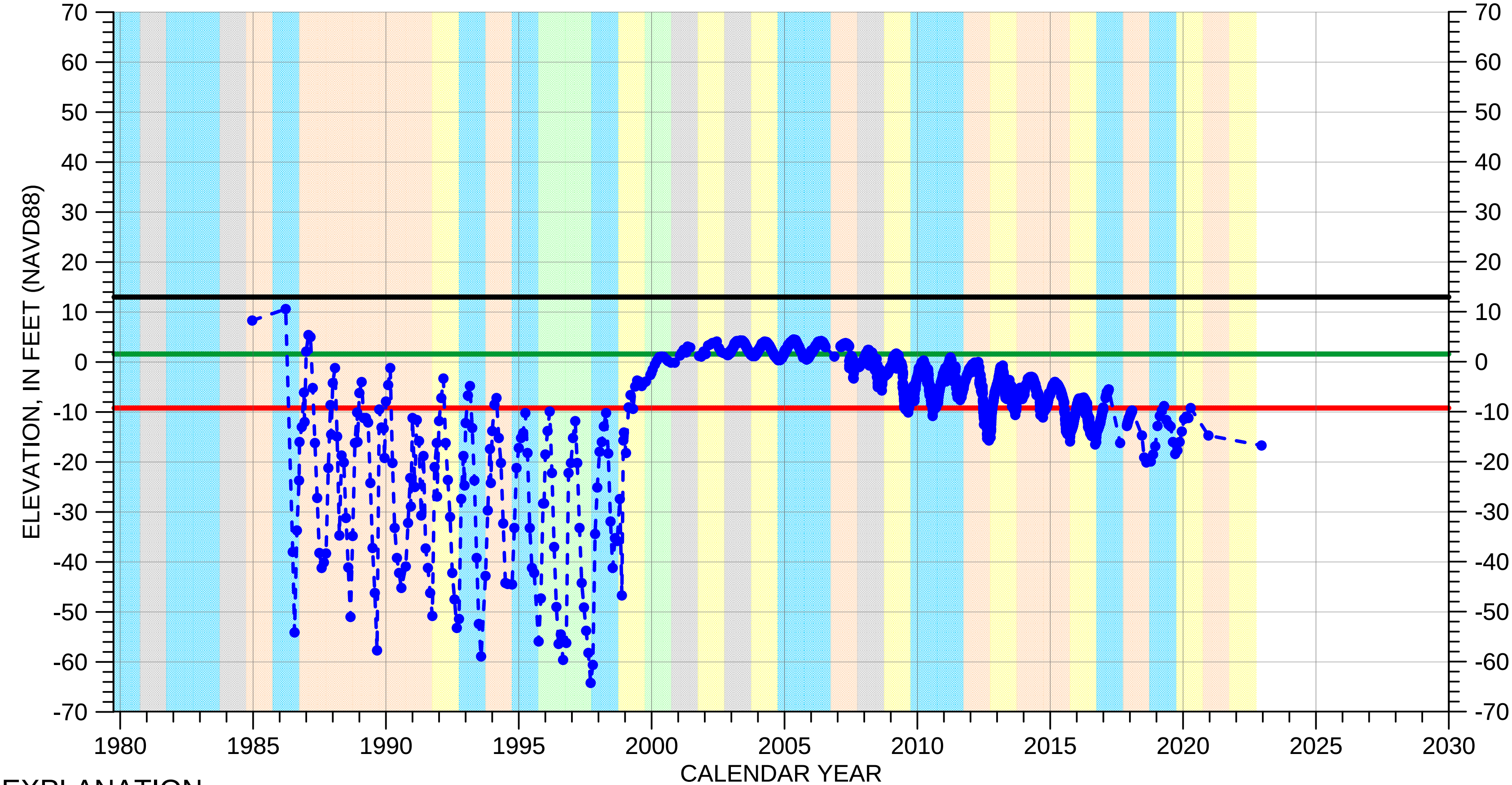
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

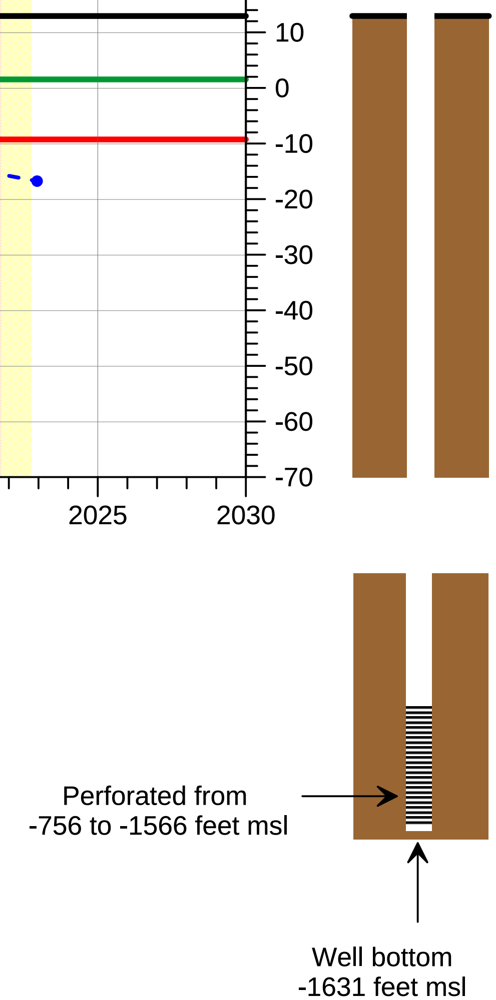



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-31N02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-32E05**

180/400-Foot Aquifer Subbasin



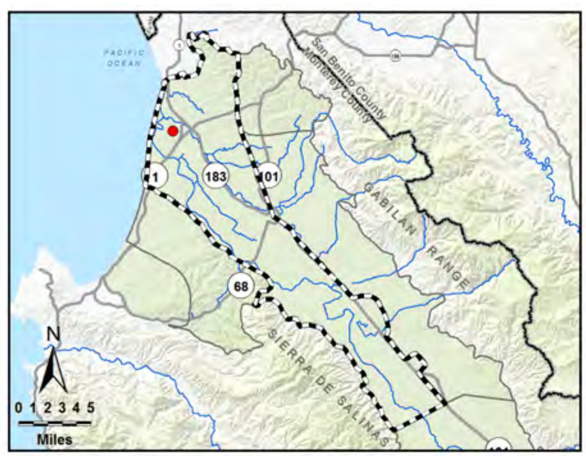




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

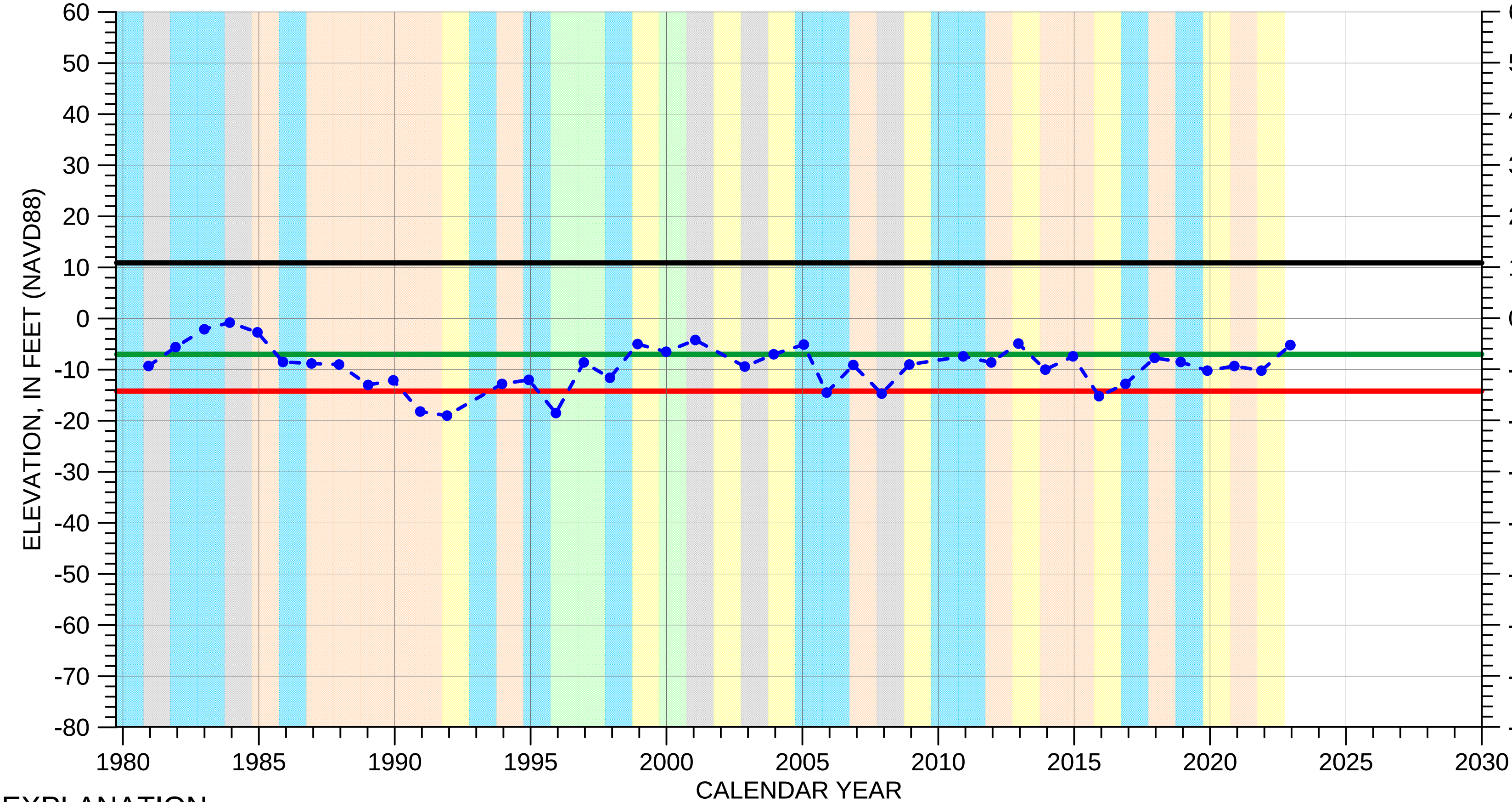
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

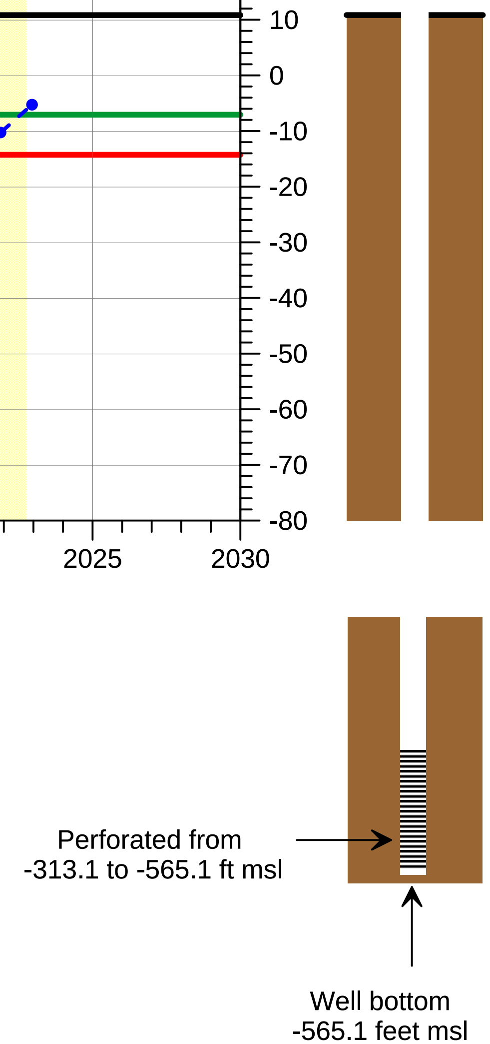



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-32E05.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-32J03

180/400-Foot Aquifer Subbasin



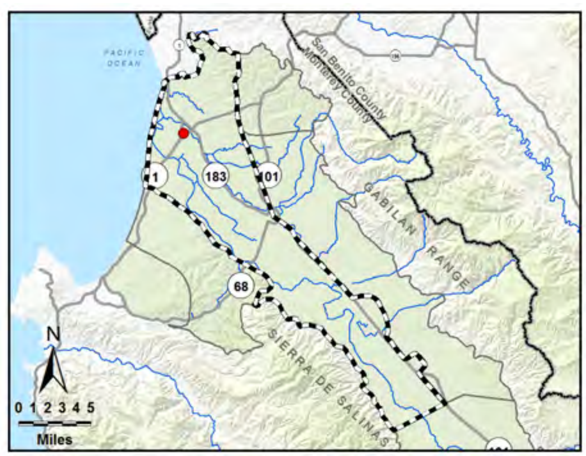




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

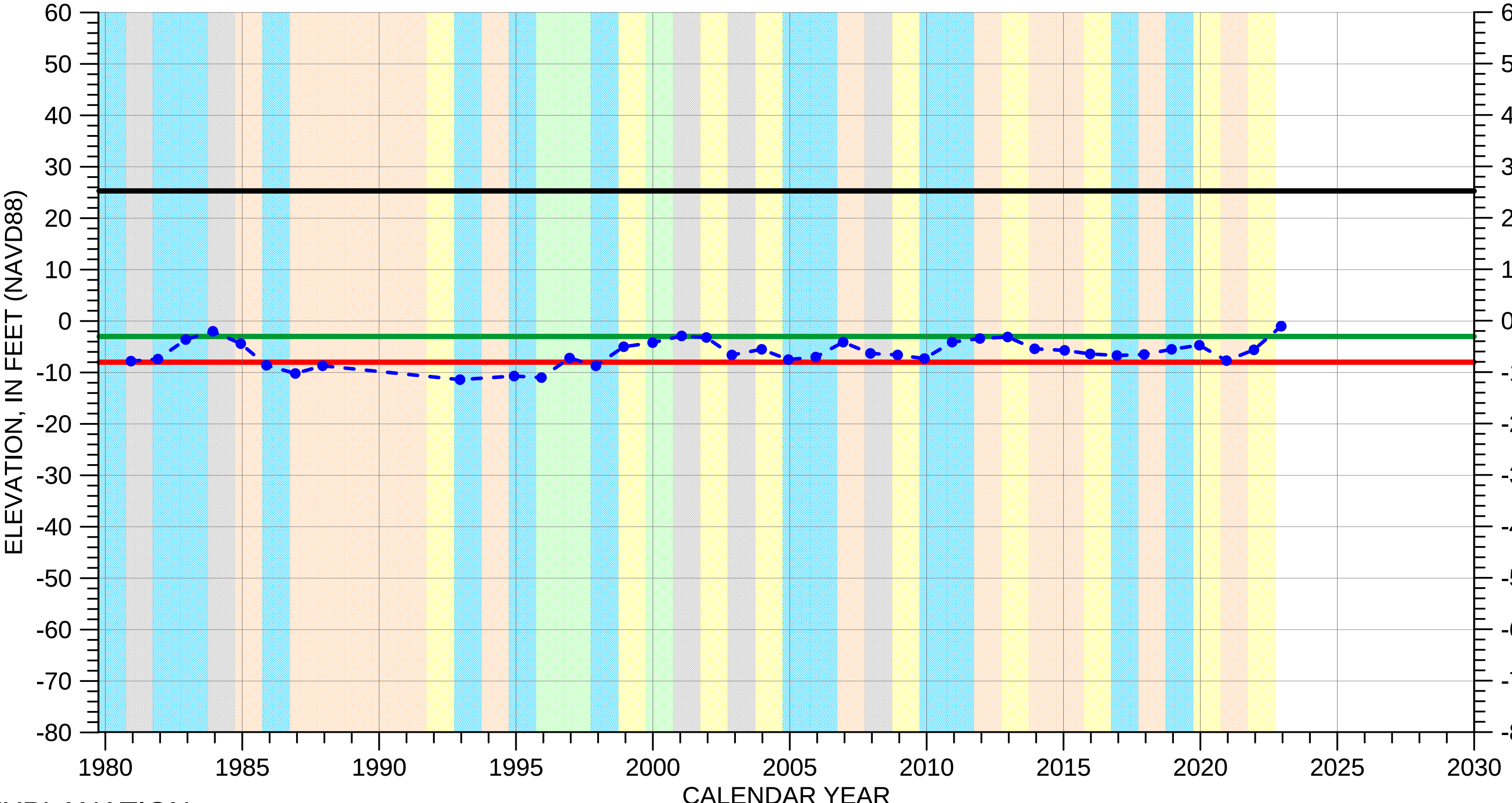
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-32J03.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 13S/02E-33R01**

180/400-Foot Aquifer Subbasin

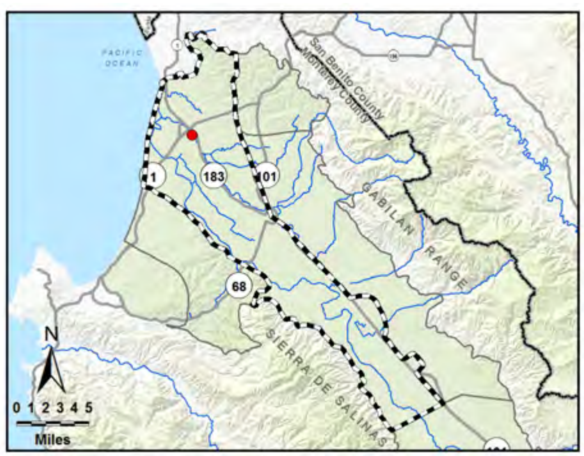



## EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



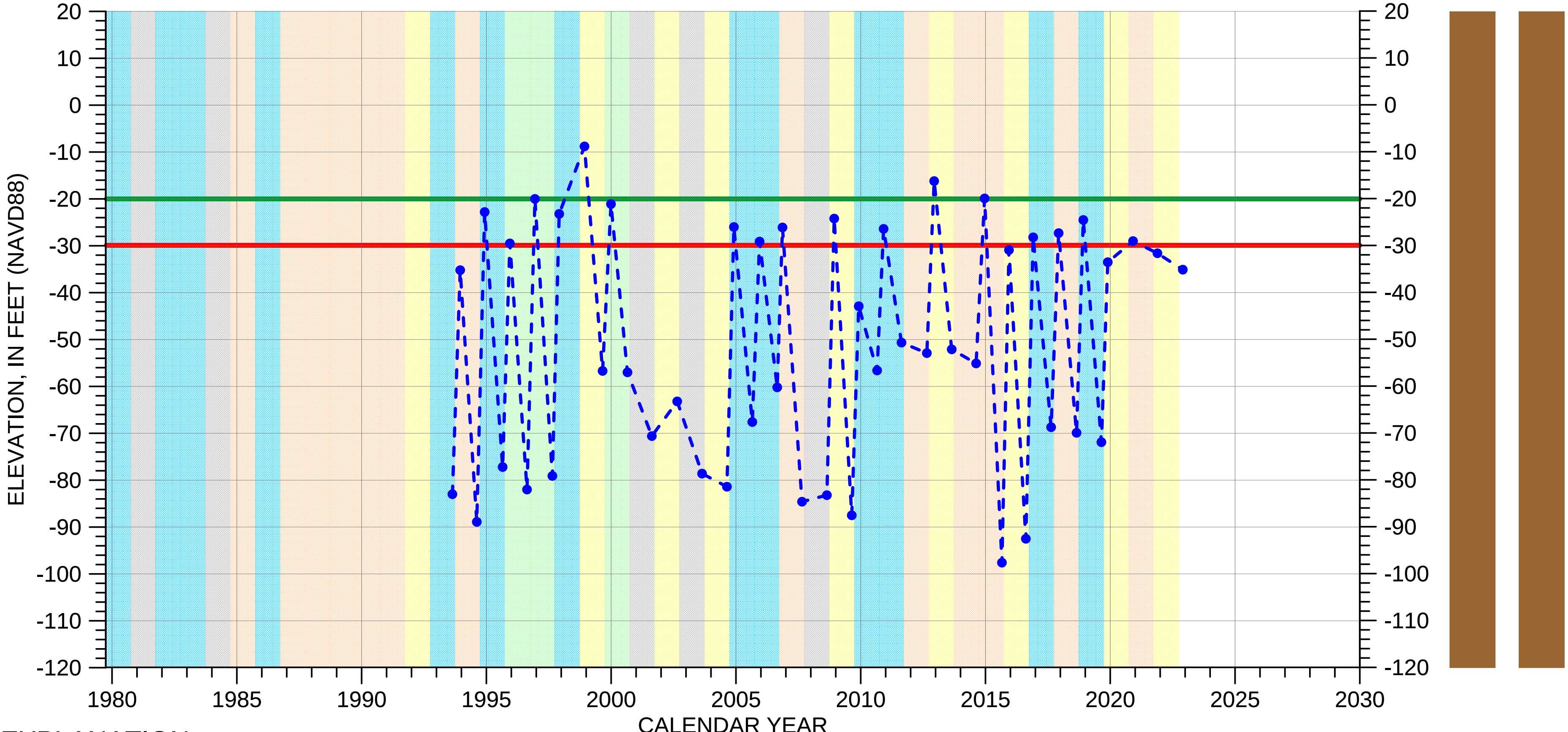

Perforated interval unknown

Well bottom elevation unknown

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\13S_02E-33R01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-02C03

180/400-Foot Aquifer Subbasin

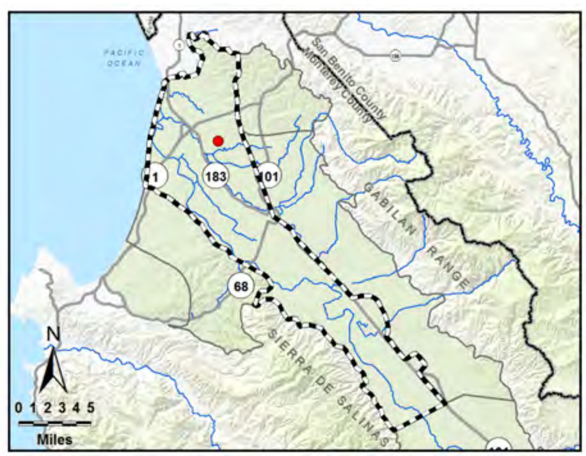


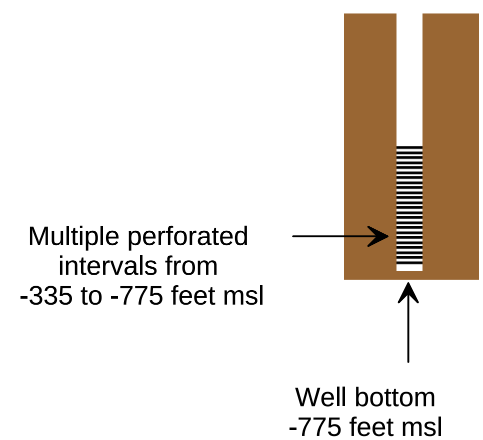

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (66 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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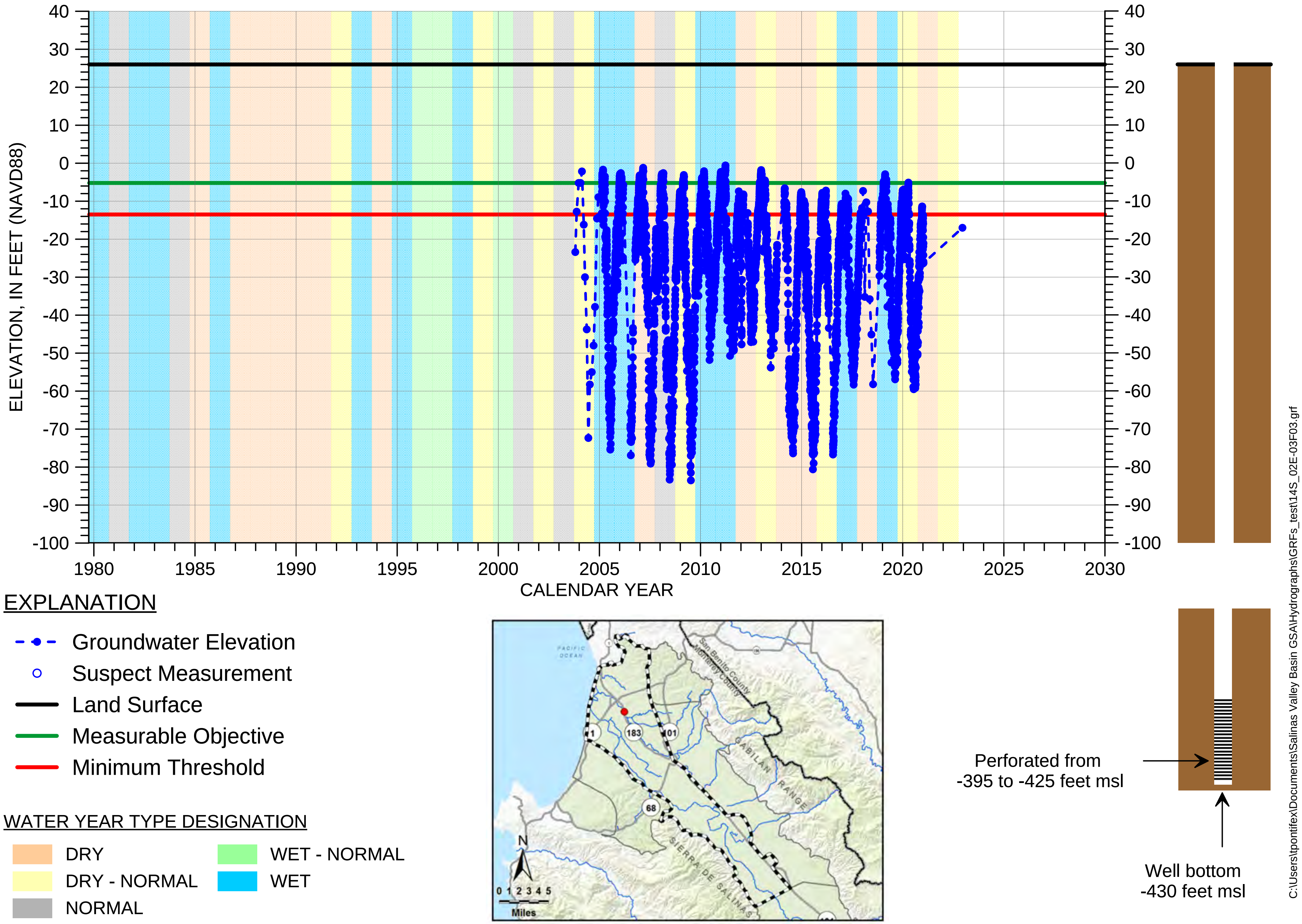
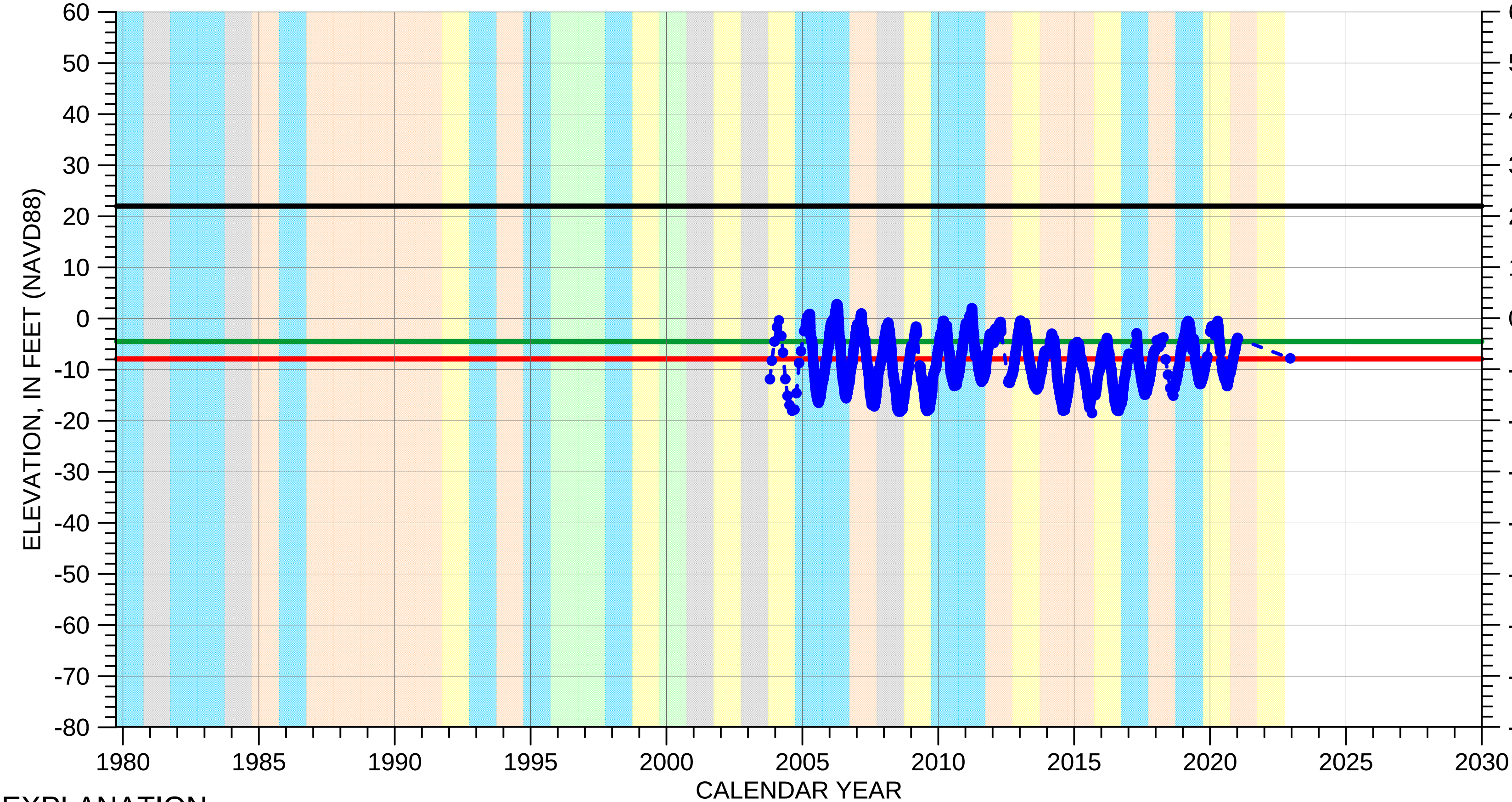
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-03F03

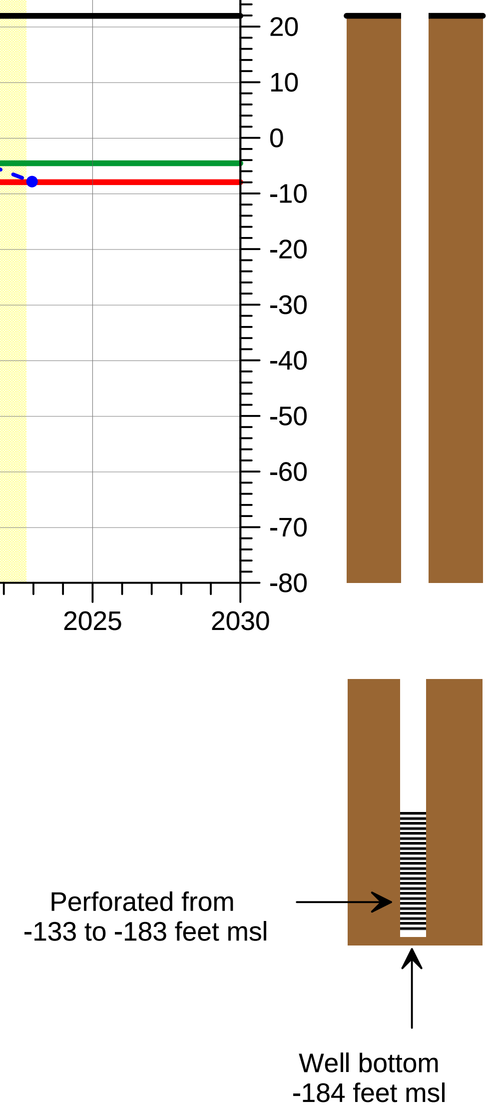
180/400-Foot Aquifer Subbasin



## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-03F04

180/400-Foot Aquifer Subbasin



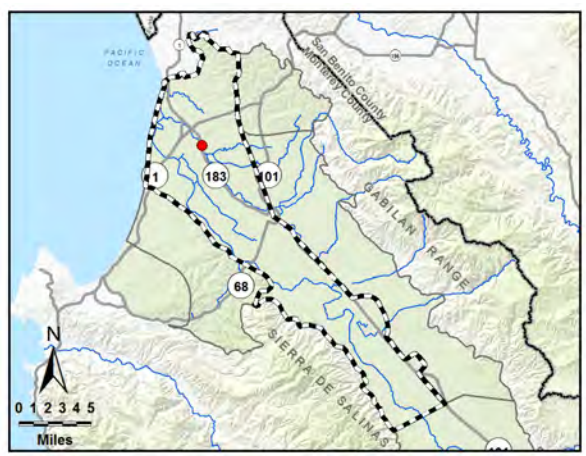




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

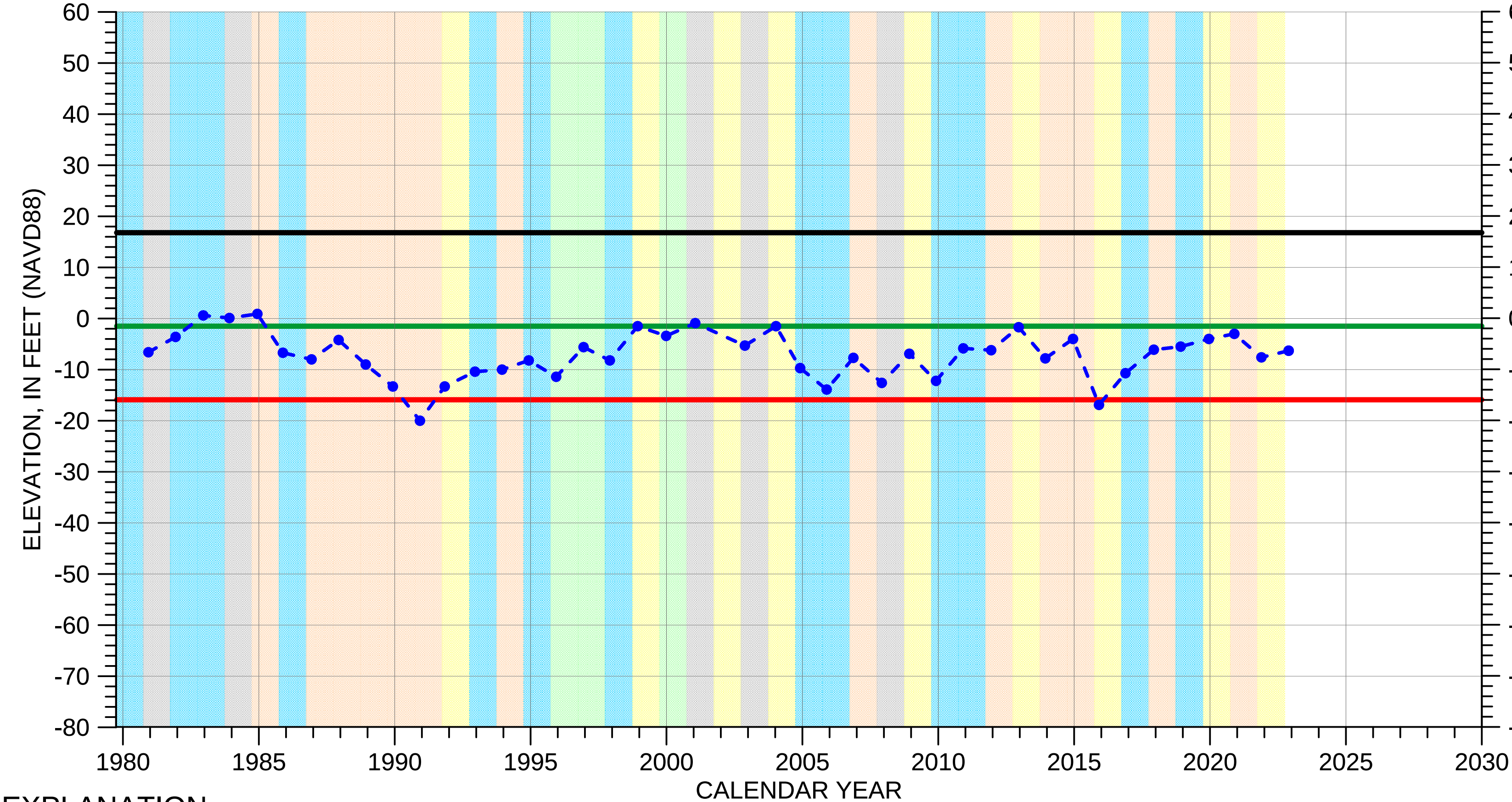
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

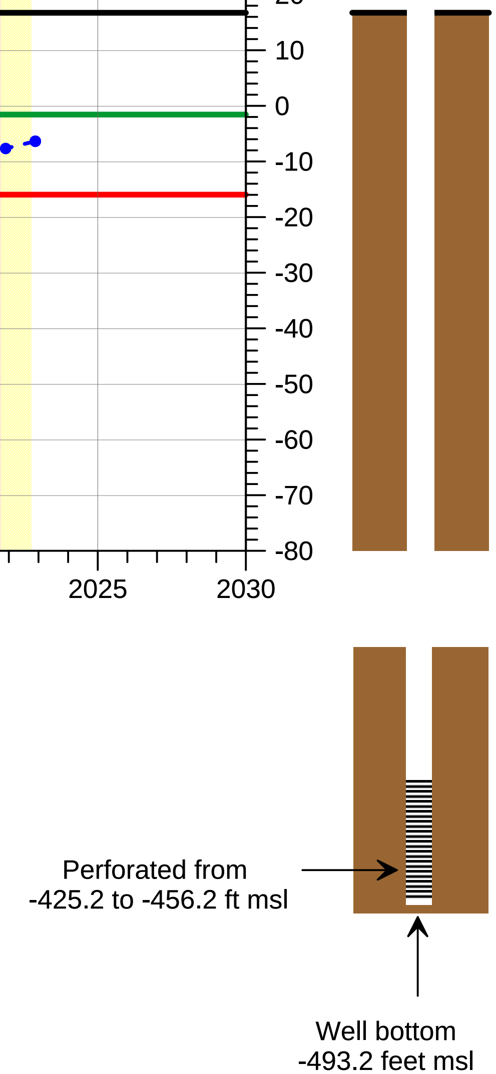



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-03F04.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-05K01**

180/400-Foot Aquifer Subbasin



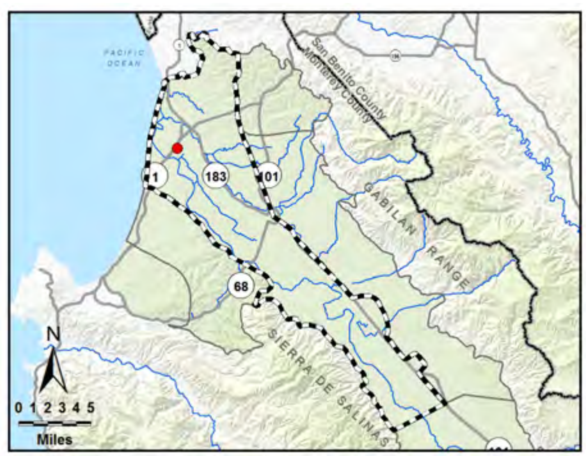




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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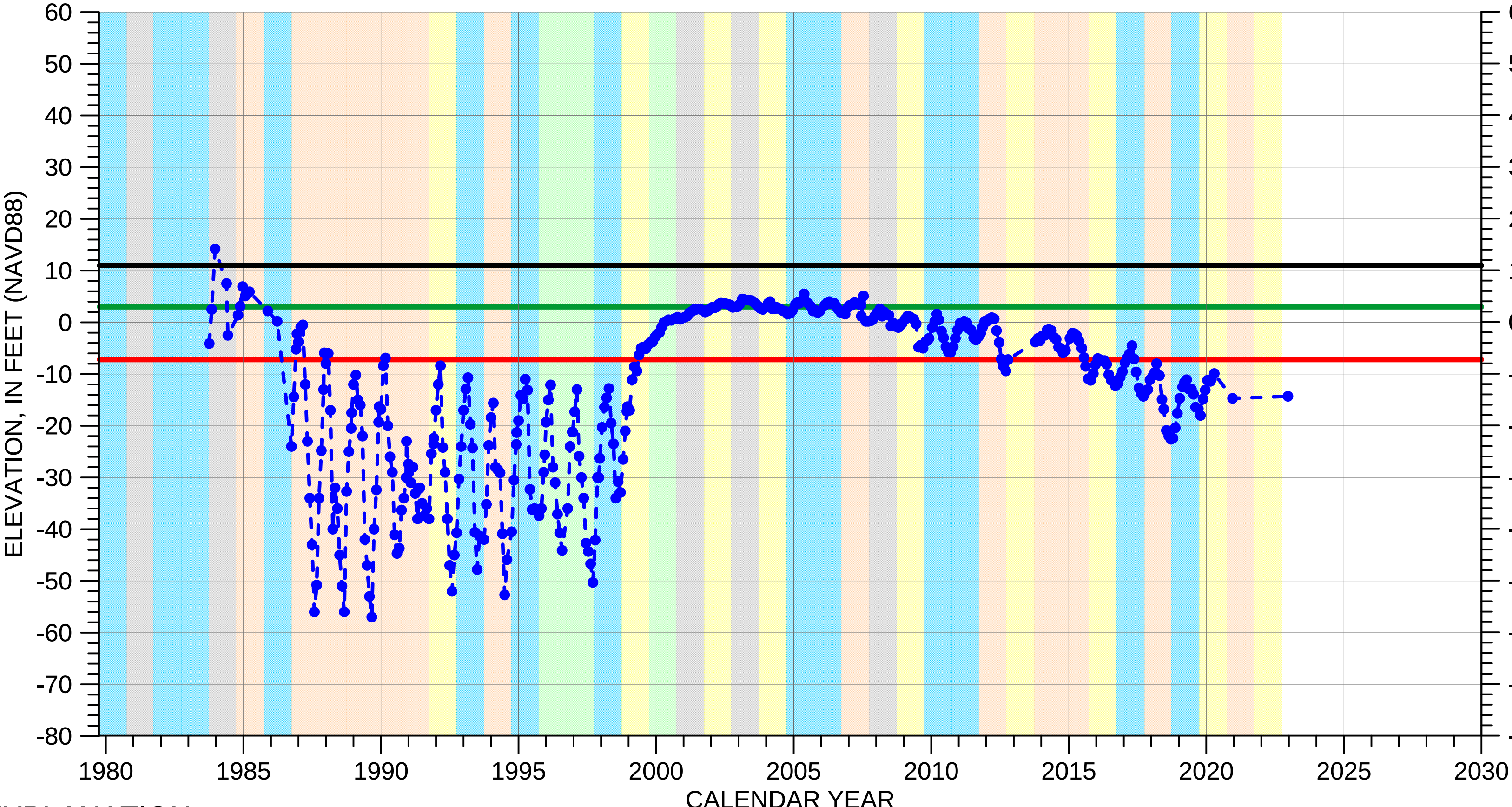
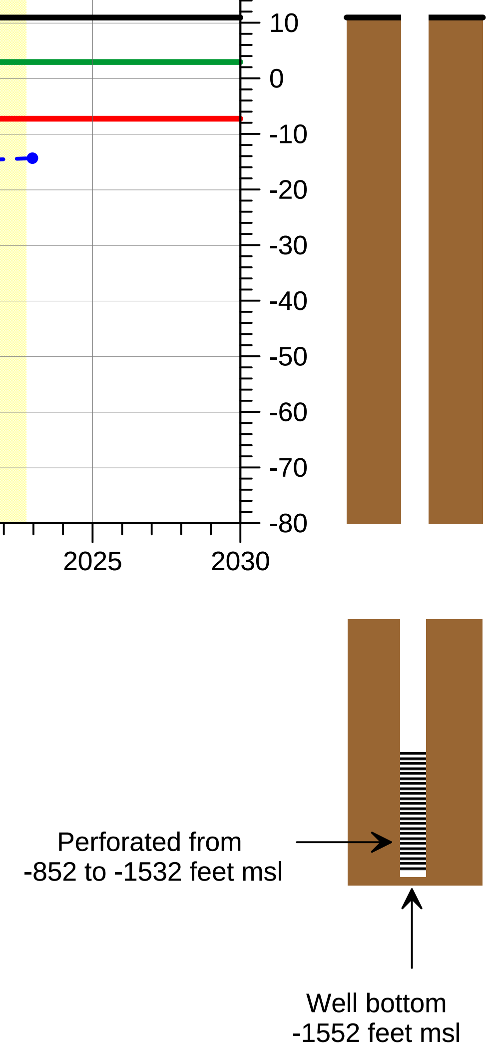
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-06L01

180/400-Foot Aquifer Subbasin



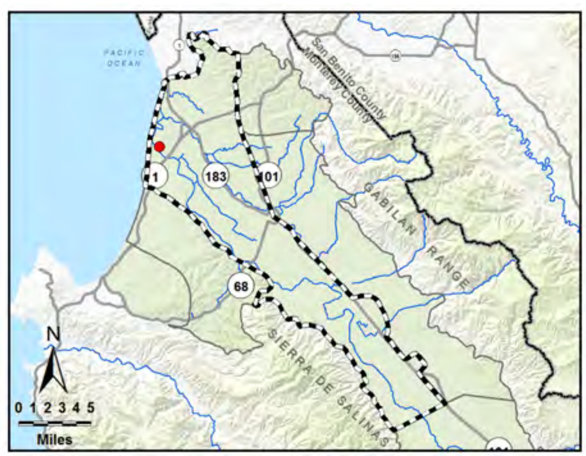




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

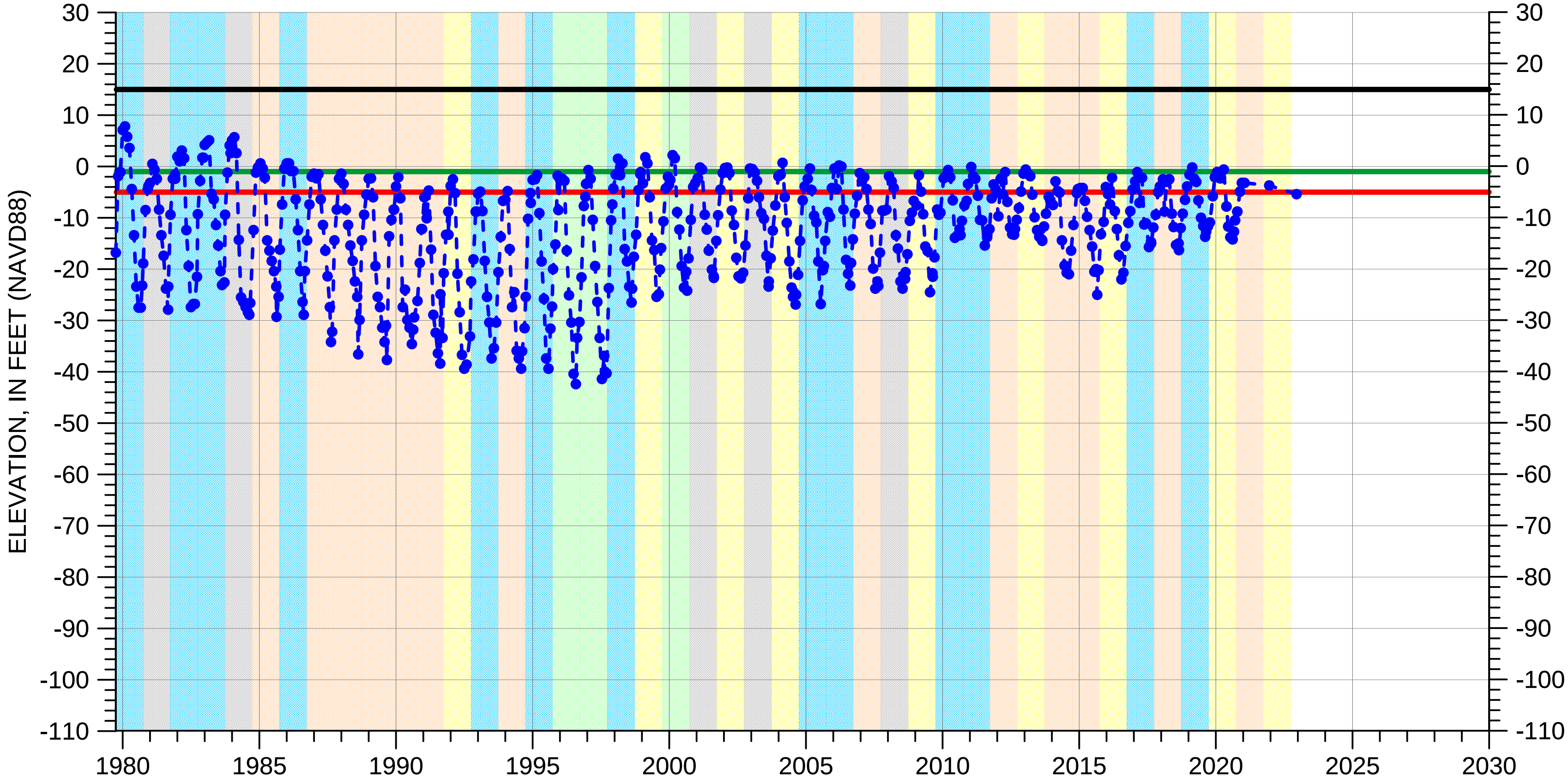
| | |
|---|---|
| DRY | WET - NORMAL |
| DRY - NORMAL | WET |
| NORMAL | |




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-06L01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-08M02

180/400-Foot Aquifer Subbasin

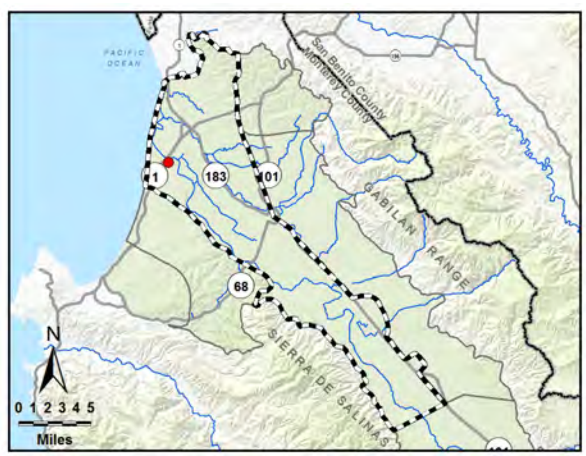


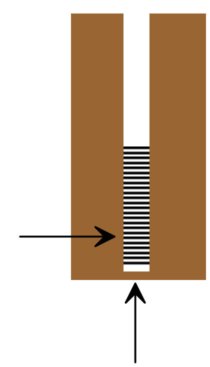

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



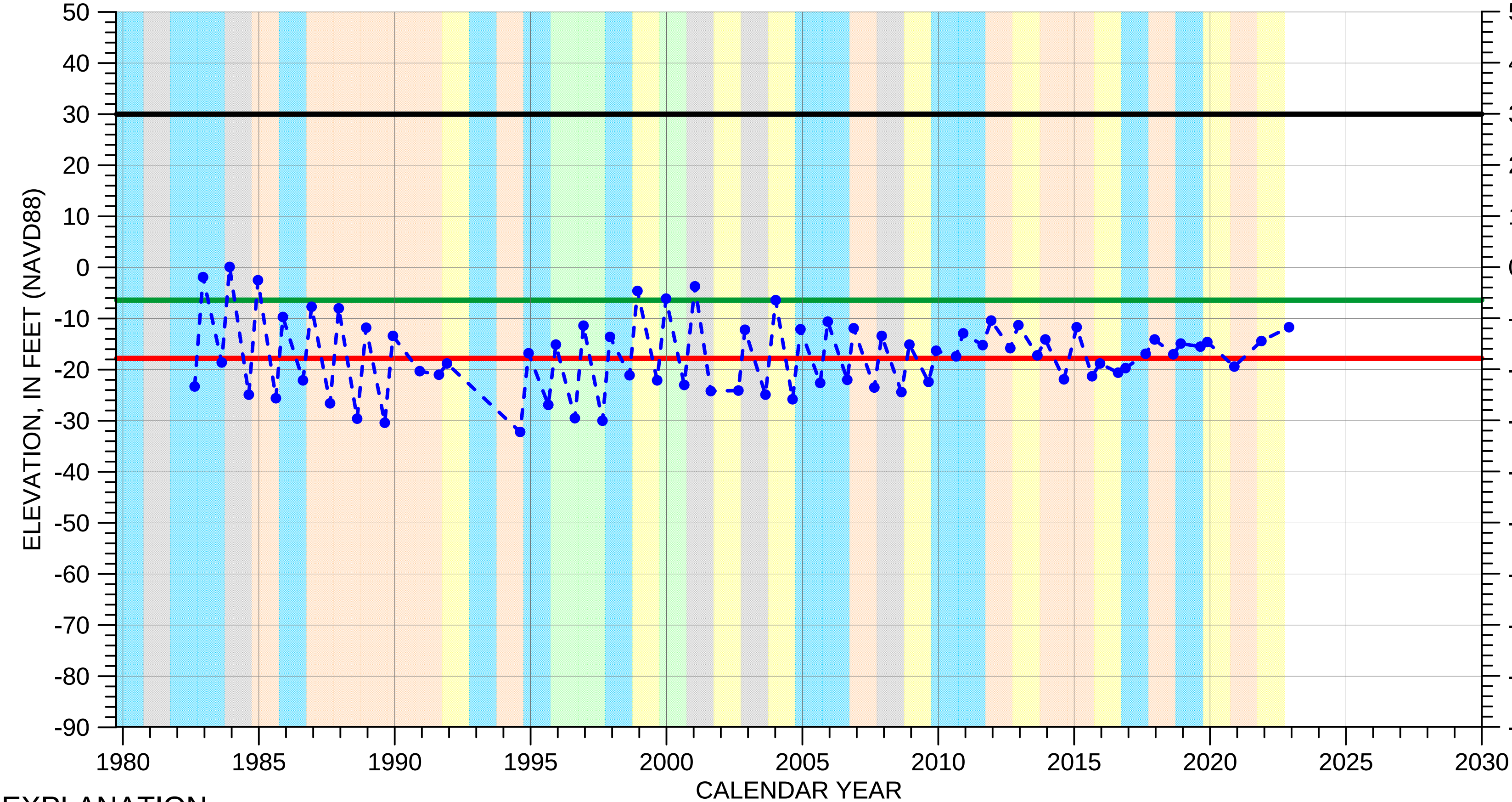
Perforated from
-299 to -441 feet msl

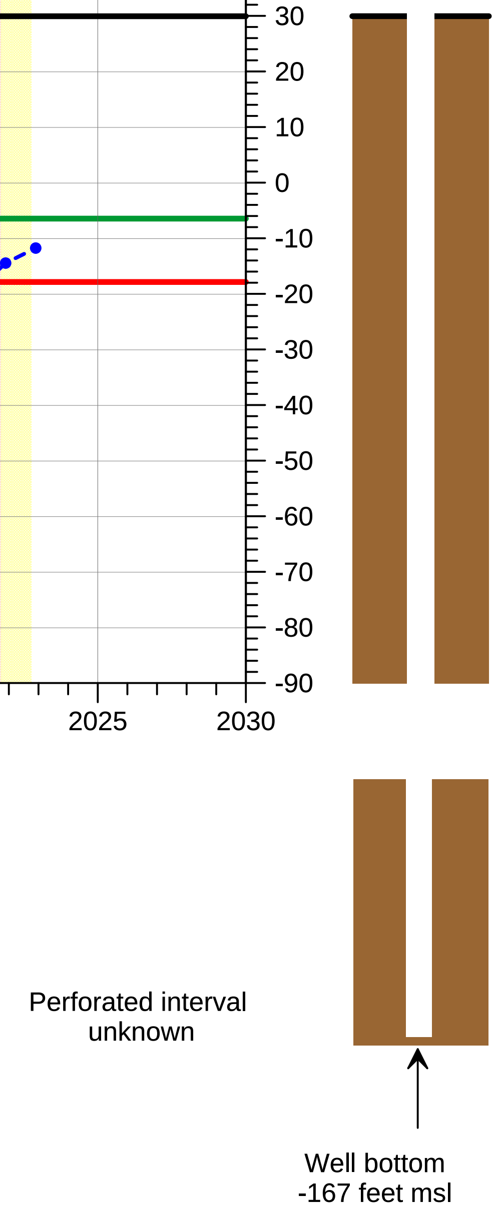
Well bottom
-485 feet msl

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-08M02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-10P01**

180/400-Foot Aquifer Subbasin



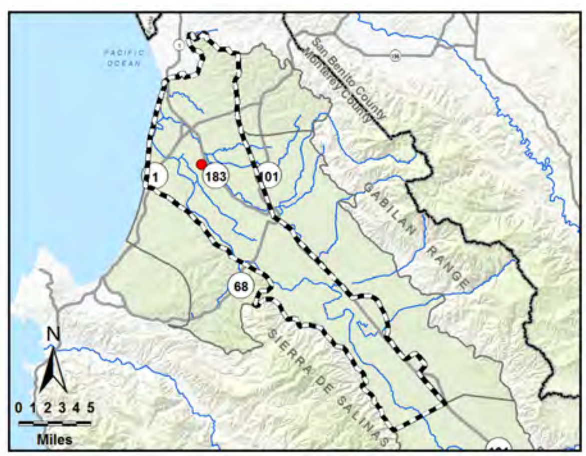




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

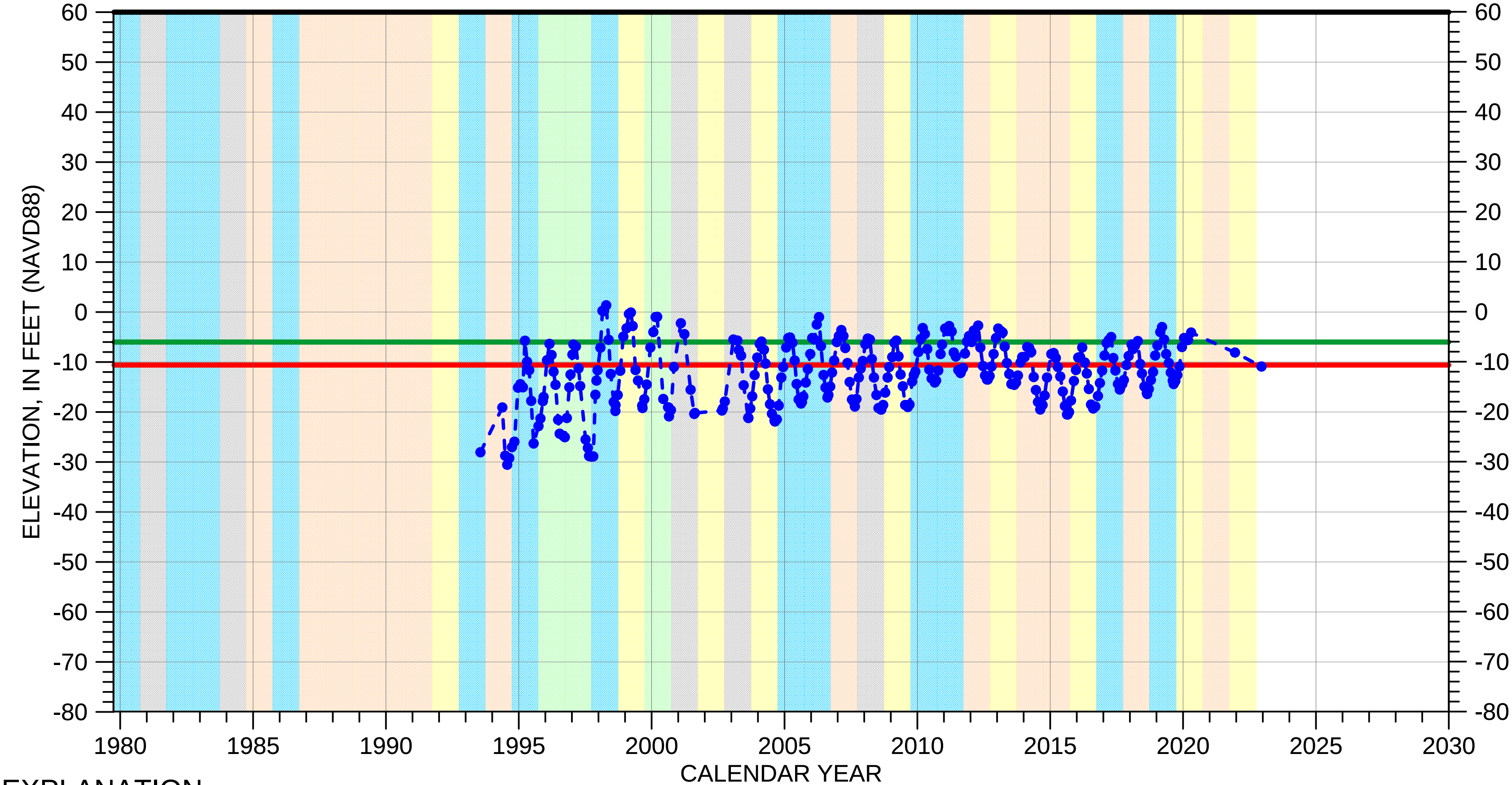
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

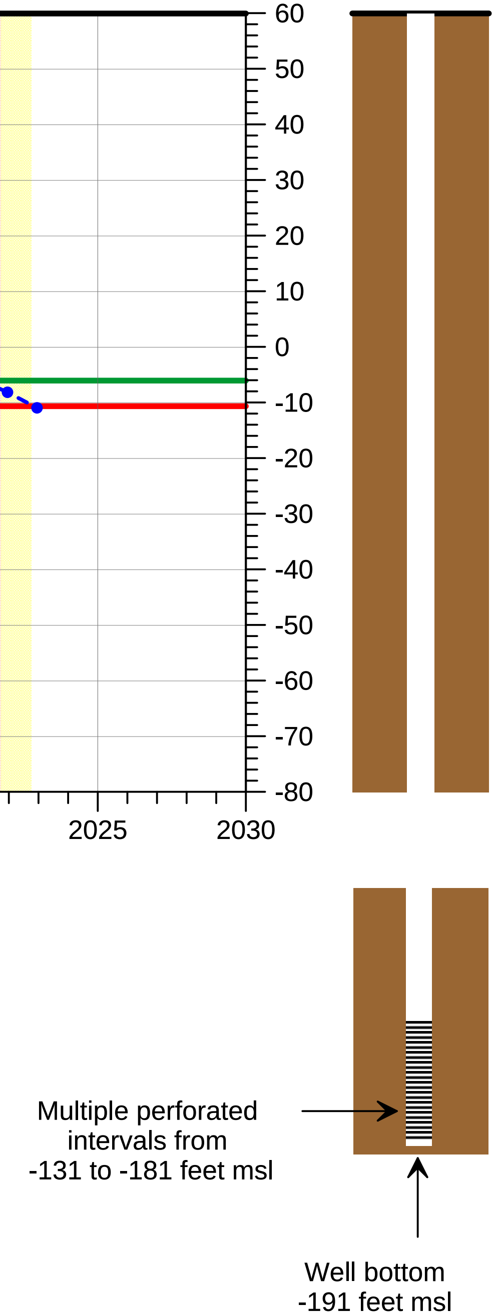



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-10P01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-11A02**

180/400-Foot Aquifer Subbasin



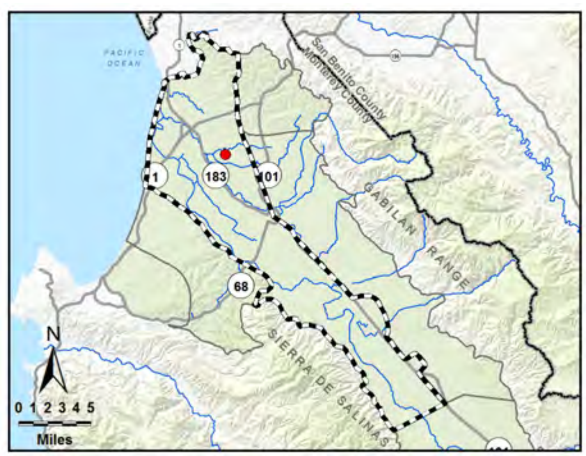




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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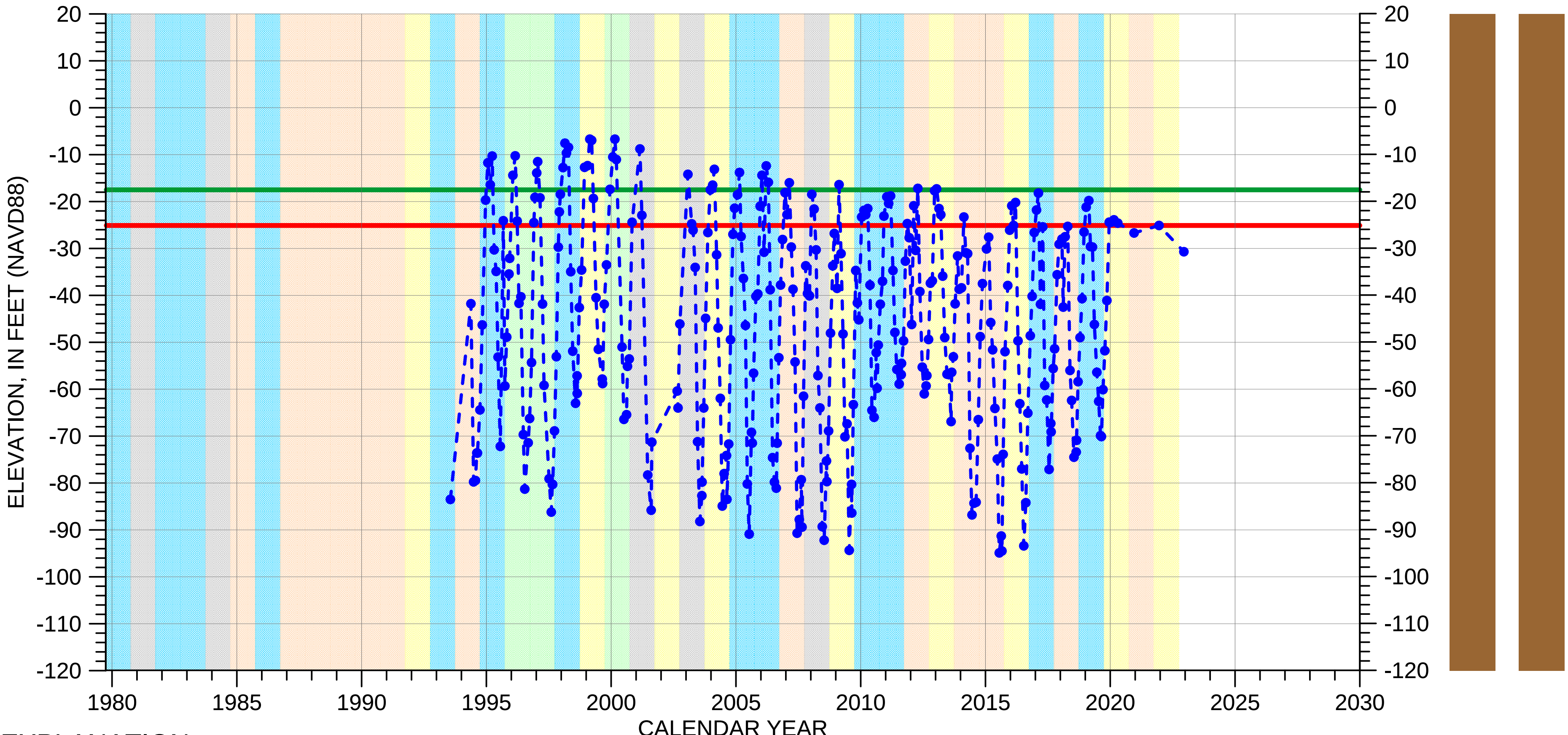
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-11A04** 180/400-Foot Aquifer Subbasin

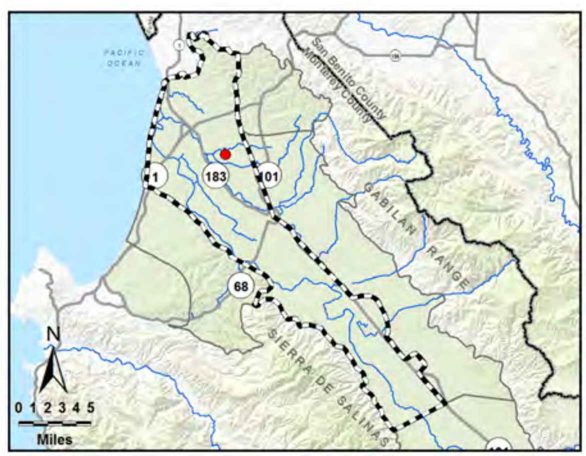



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (59 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

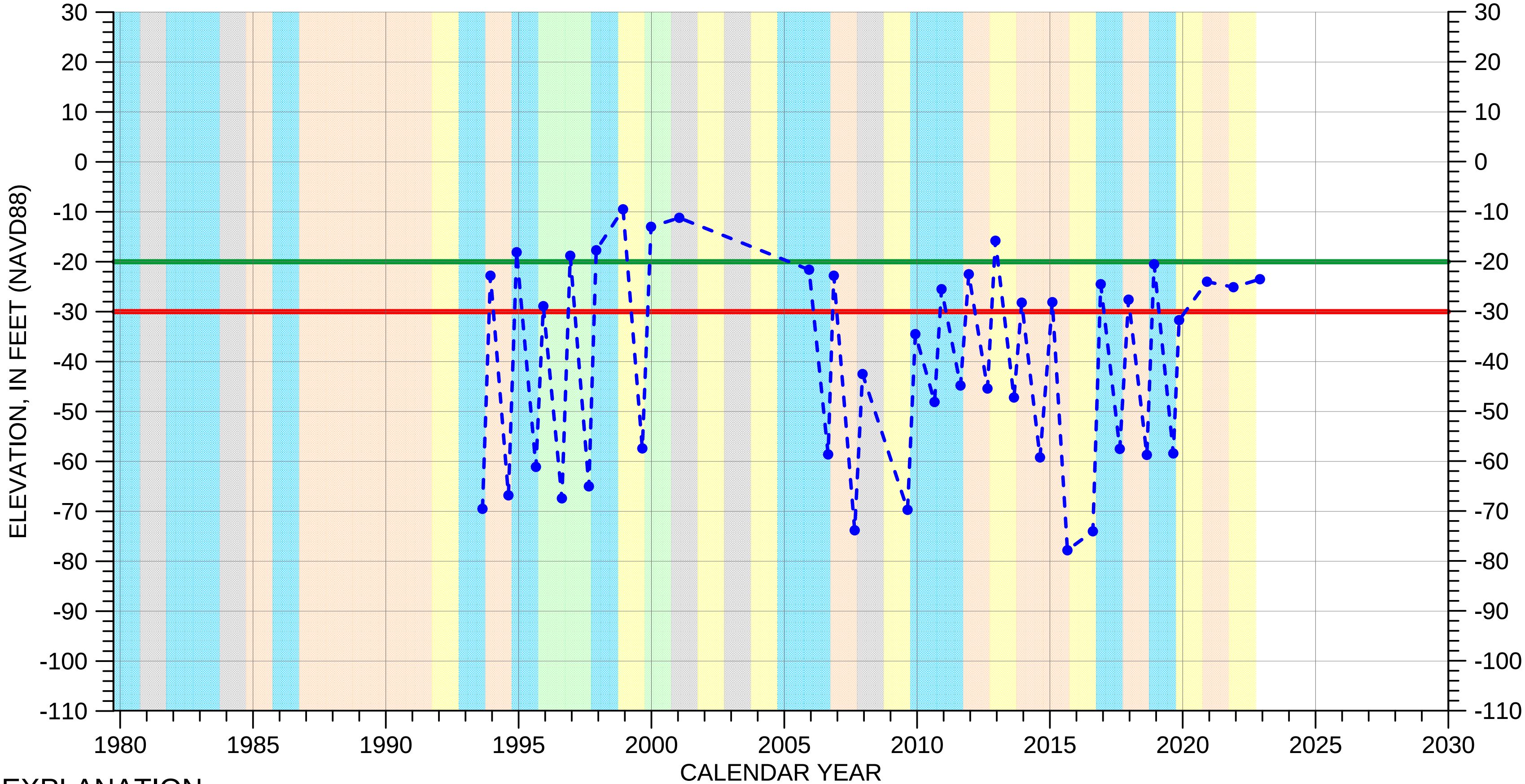
| | |
|---|---|
| DRY | WET - NORMAL |
| DRY - NORMAL | WET |
| NORMAL | |




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-11A04.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-11M03

180/400-Foot Aquifer Subbasin

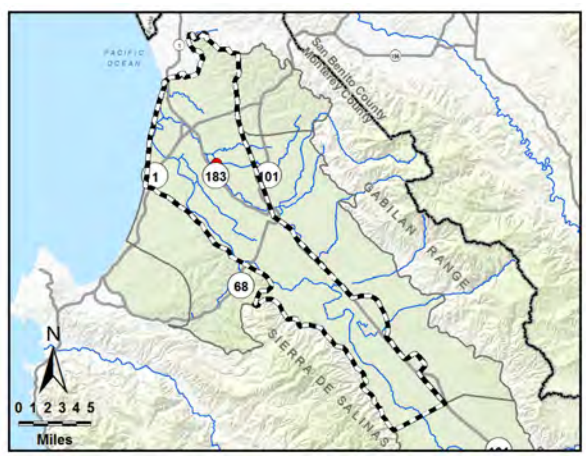


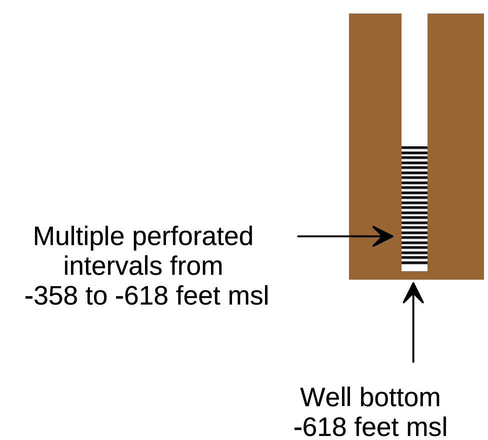

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (38 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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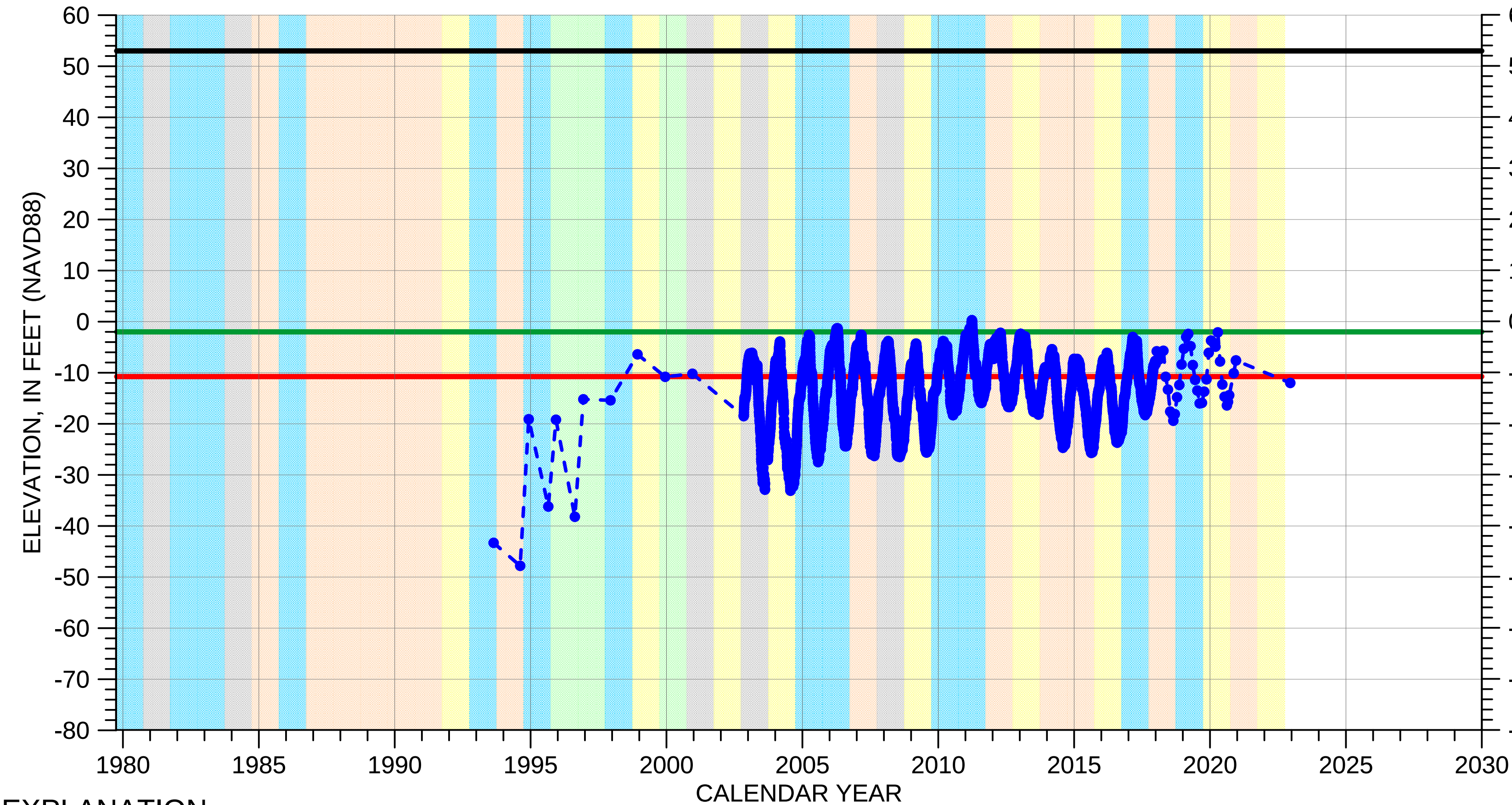
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-12B02**

180/400-Foot Aquifer Subbasin




EXPLANATION

Groundwater Elevation

Suspect Measurement

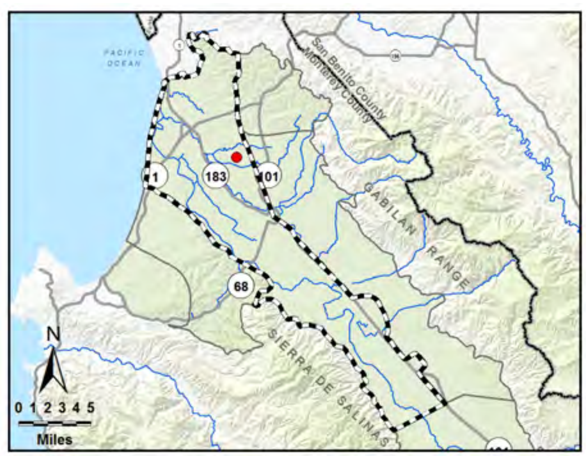
Land Surface

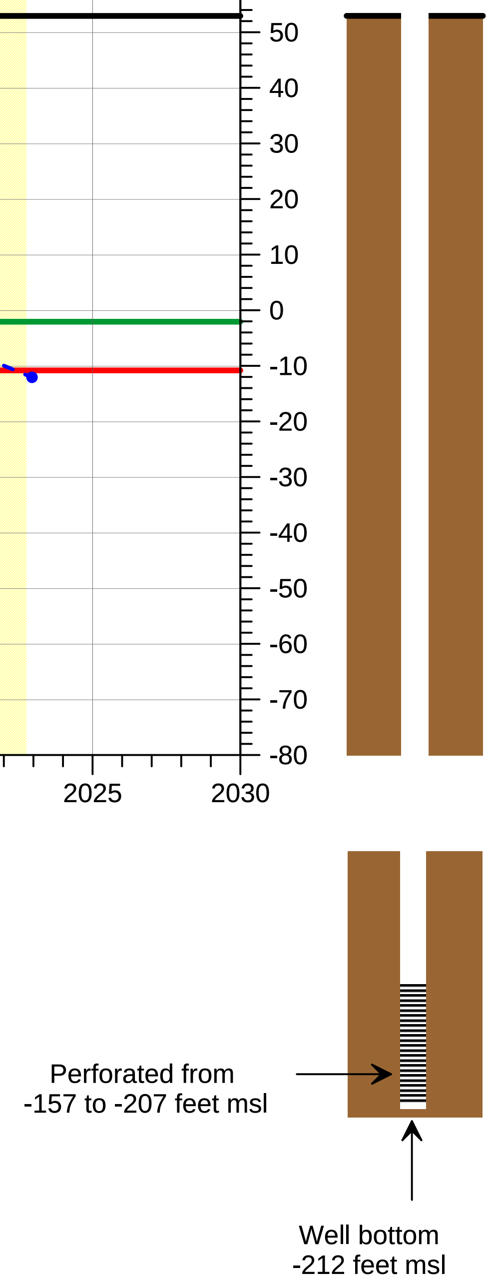
Measurable Objective

Minimum Threshold

WATER YEAR TYPE DESIGNATION

DRY
DRY - NORMAL
NORMAL
WET - NORMAL
WET

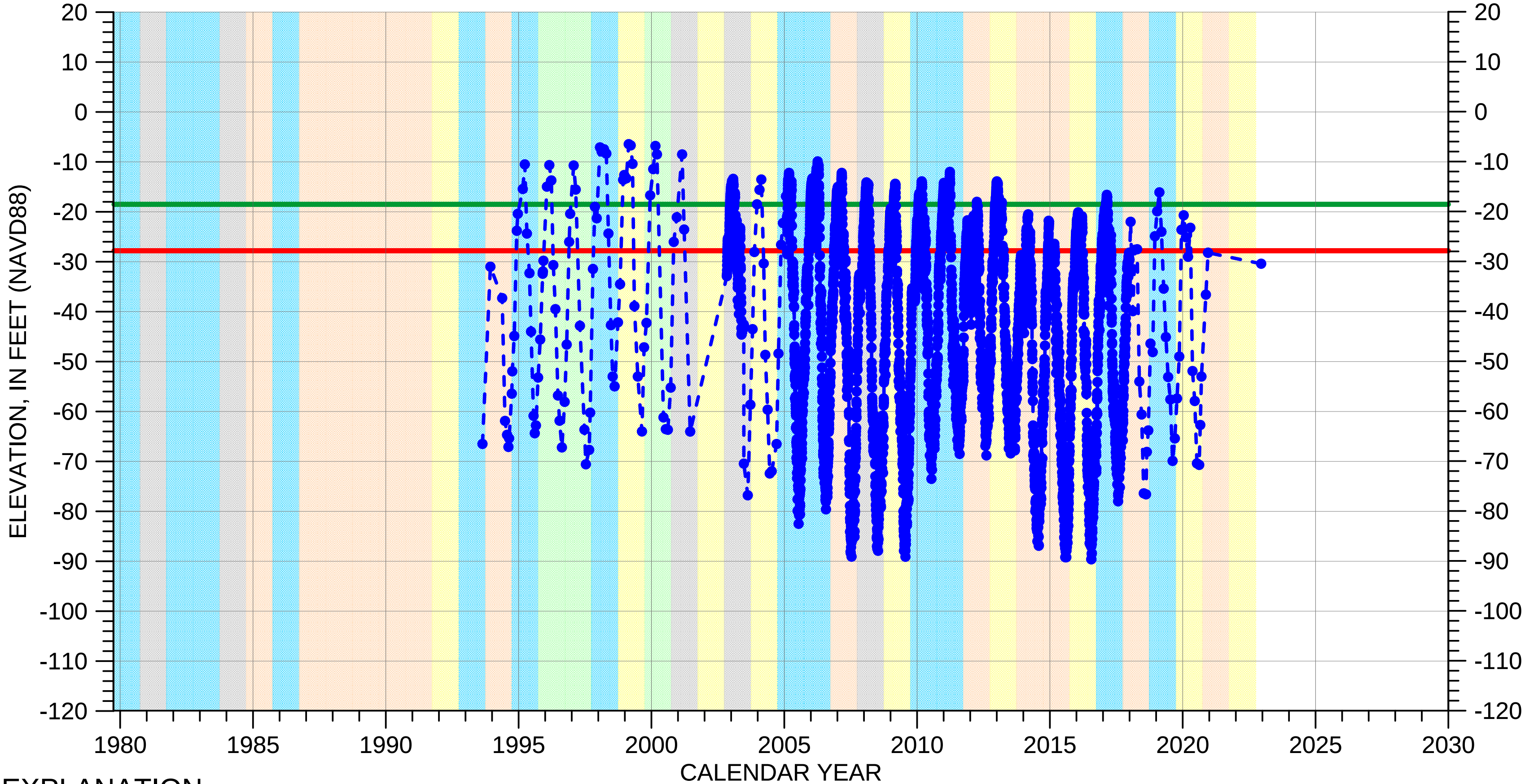



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-12B02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-12B03**

180/400-Foot Aquifer Subbasin

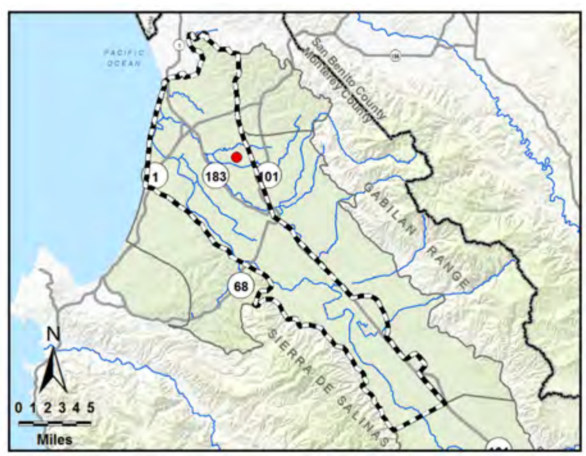


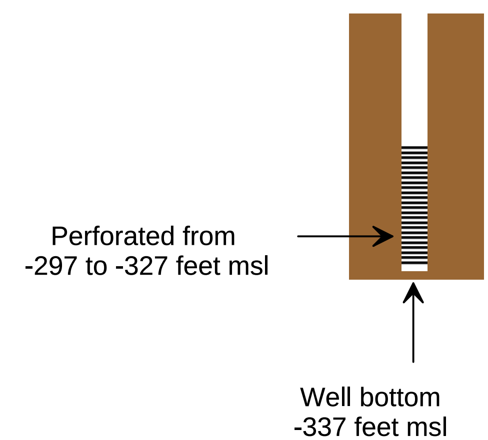

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (53 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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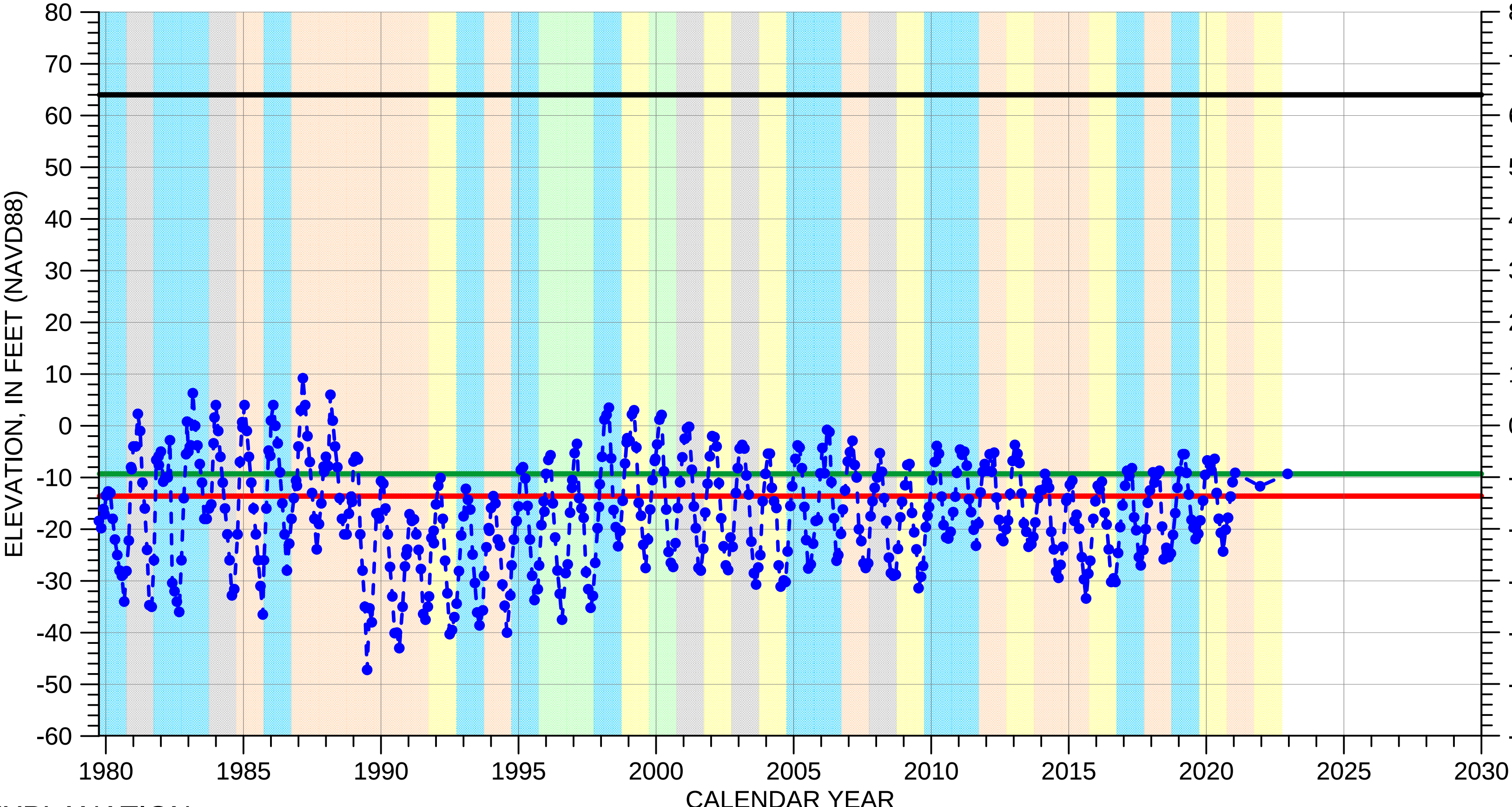
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-12Q01

180/400-Foot Aquifer Subbasin

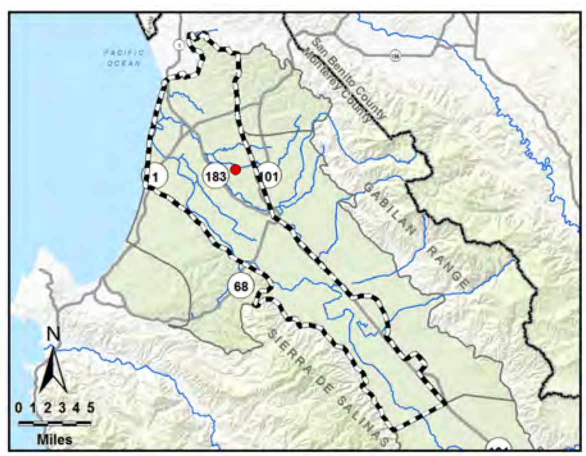


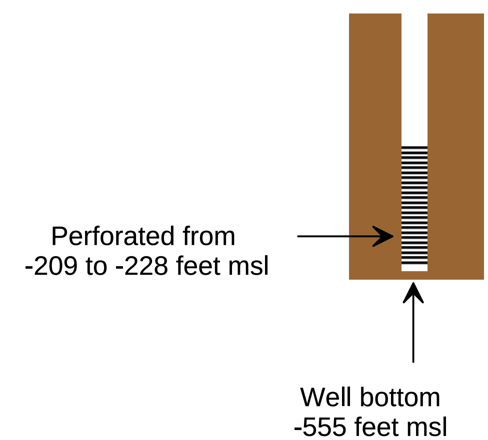

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

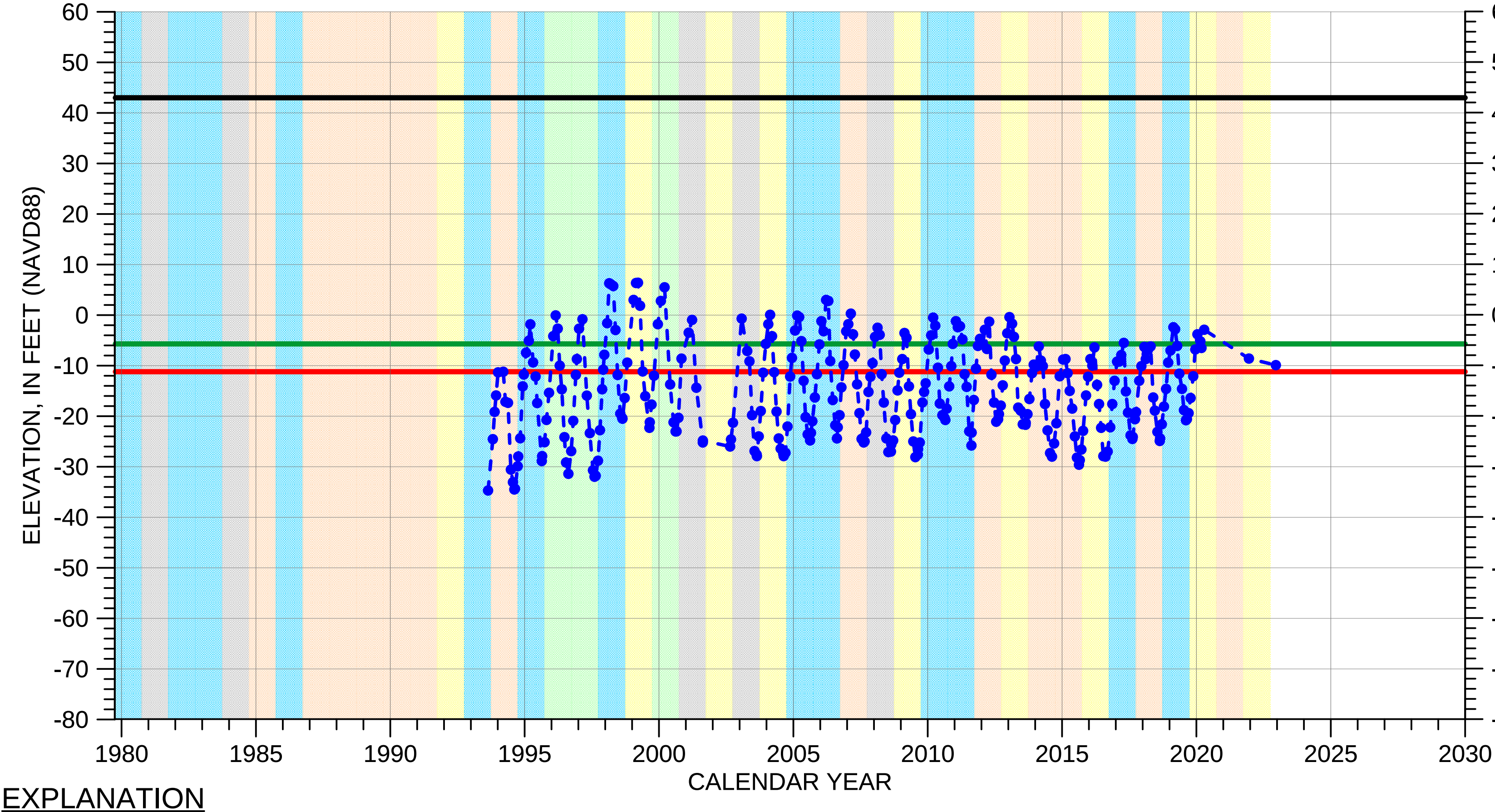


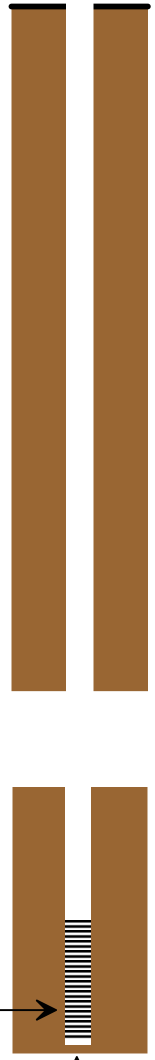




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-12Q01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-13F03

180/400-Foot Aquifer Subbasin



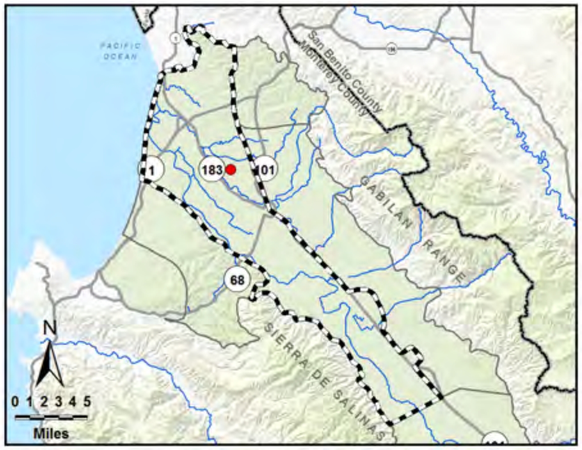




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

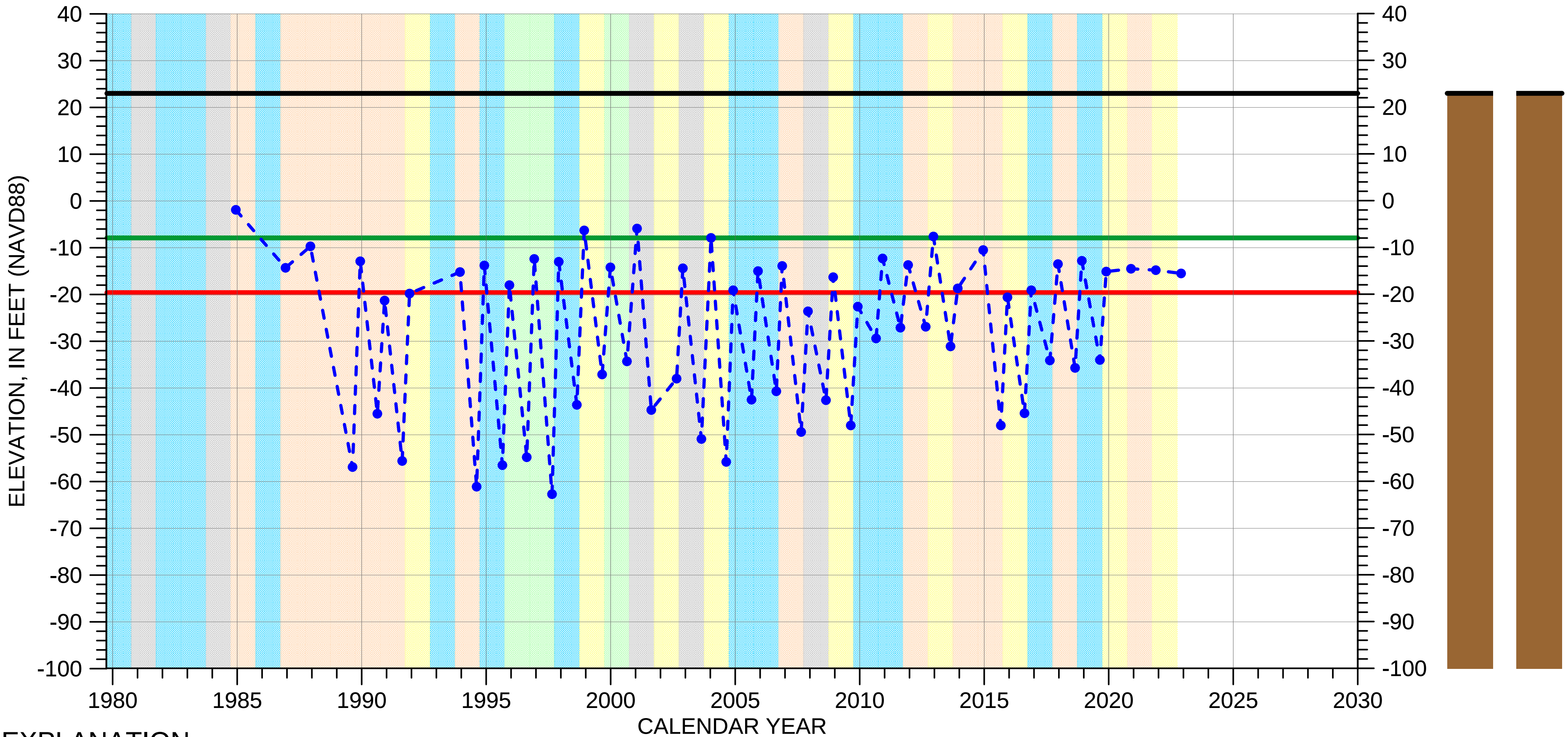
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-13F03.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-16A02**

180/400-Foot Aquifer Subbasin

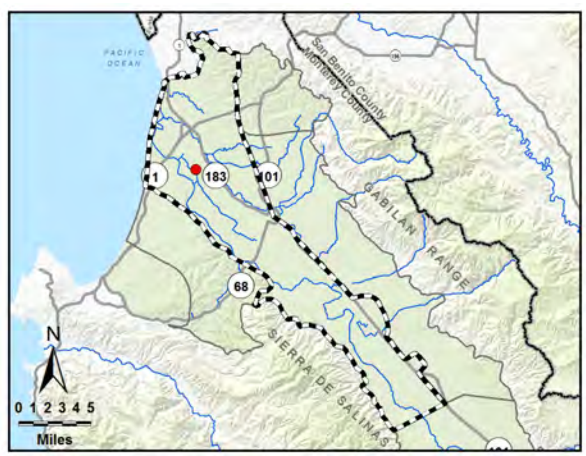


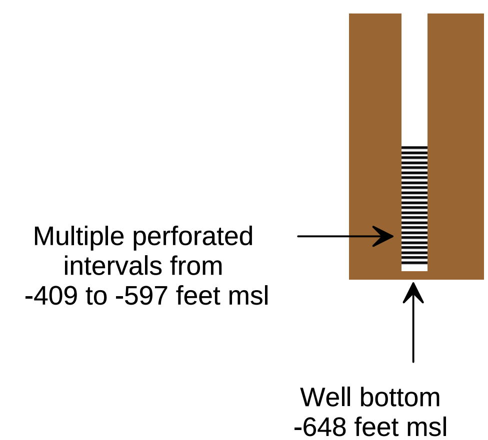

## EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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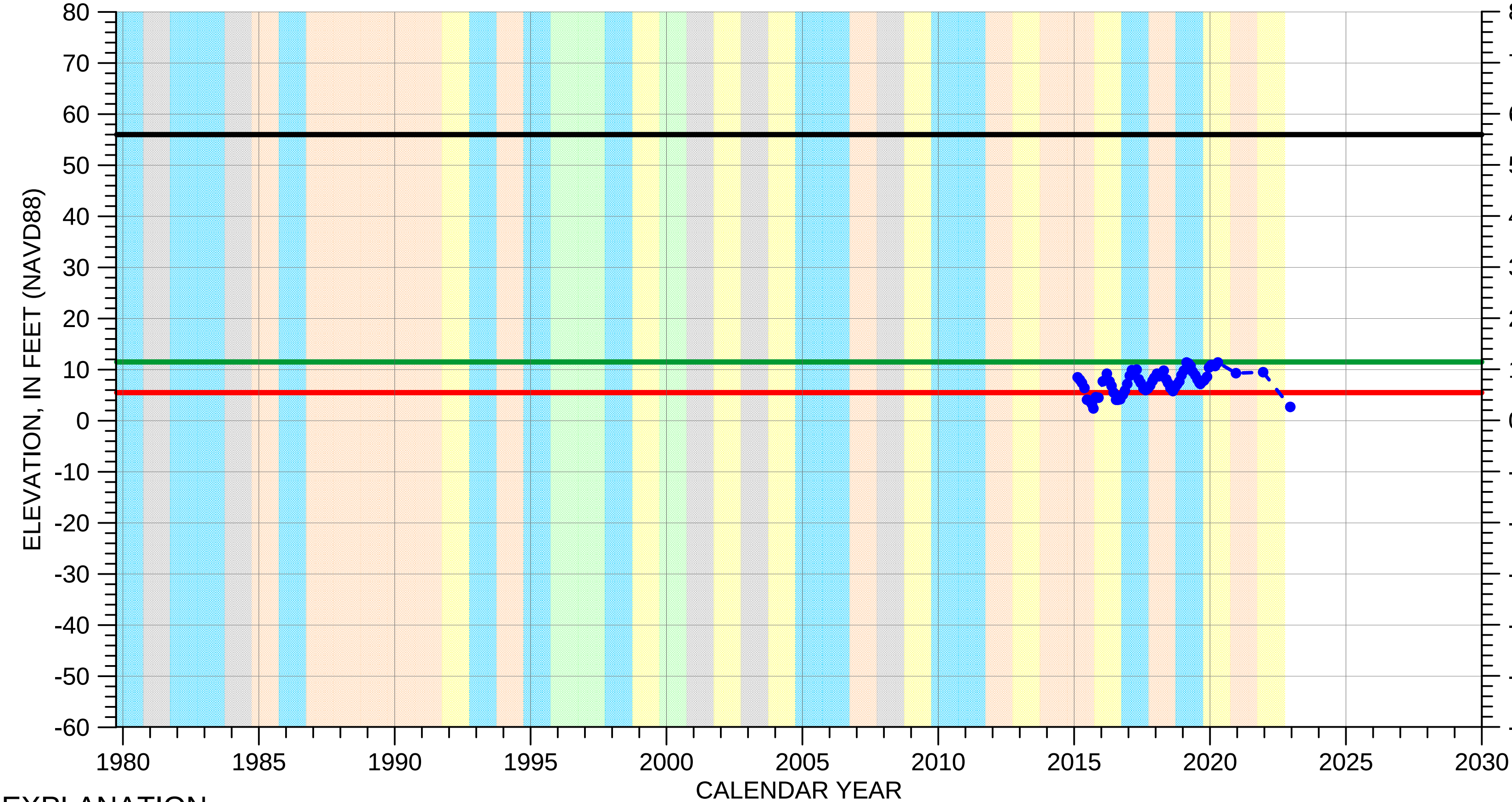
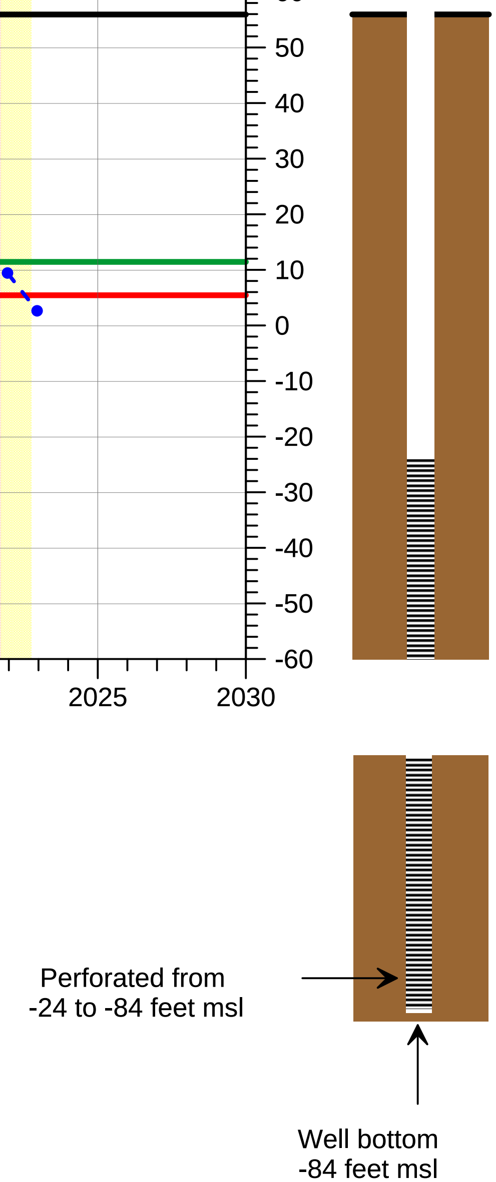
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-17C02**

180/400-Foot Aquifer Subbasin



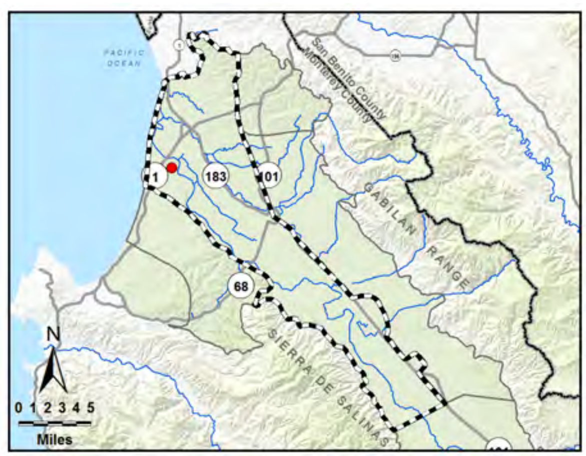




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

| | |
|---|---|
| DRY | WET - NORMAL |
| DRY - NORMAL | WET |
| NORMAL | |

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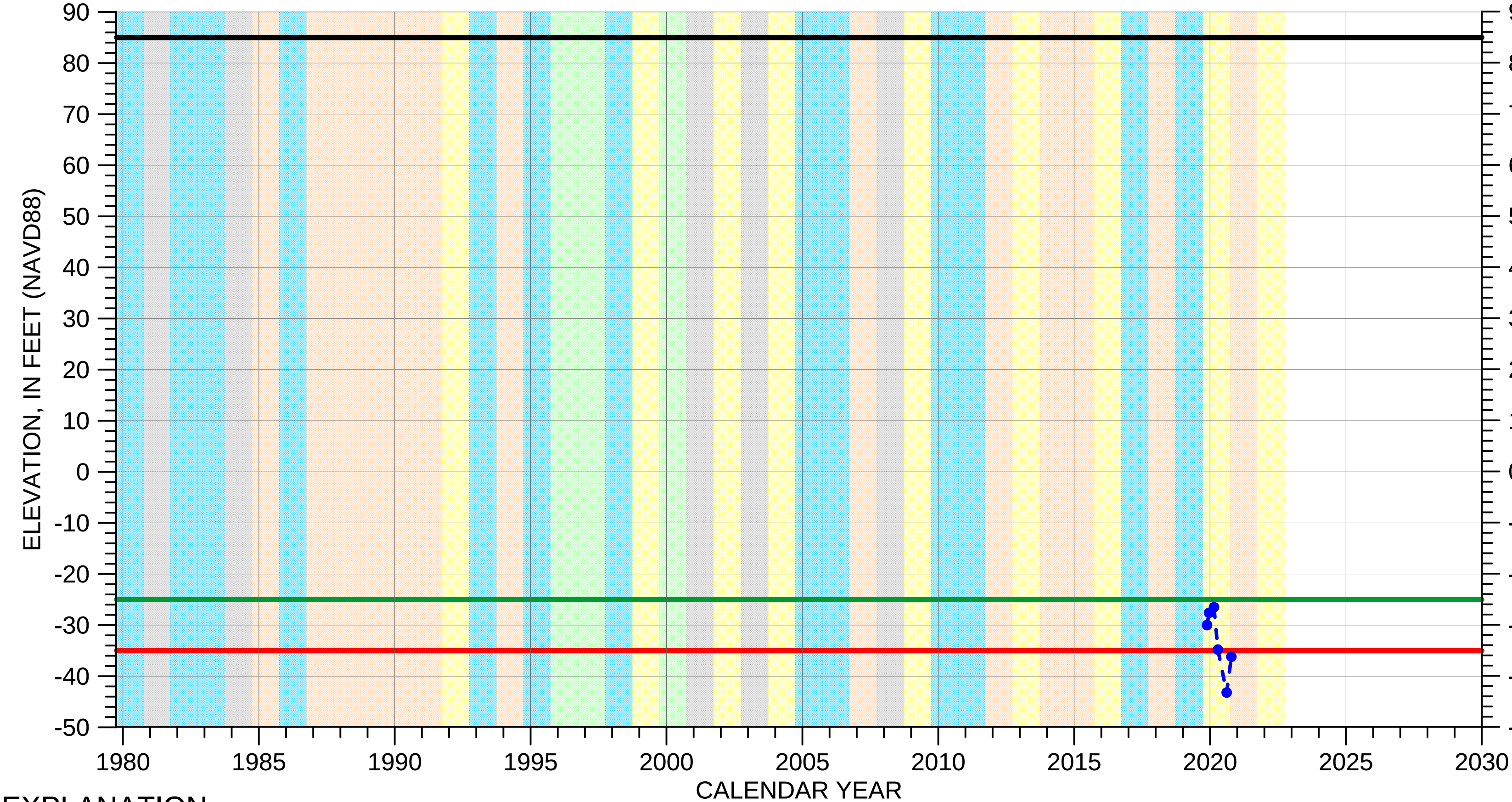
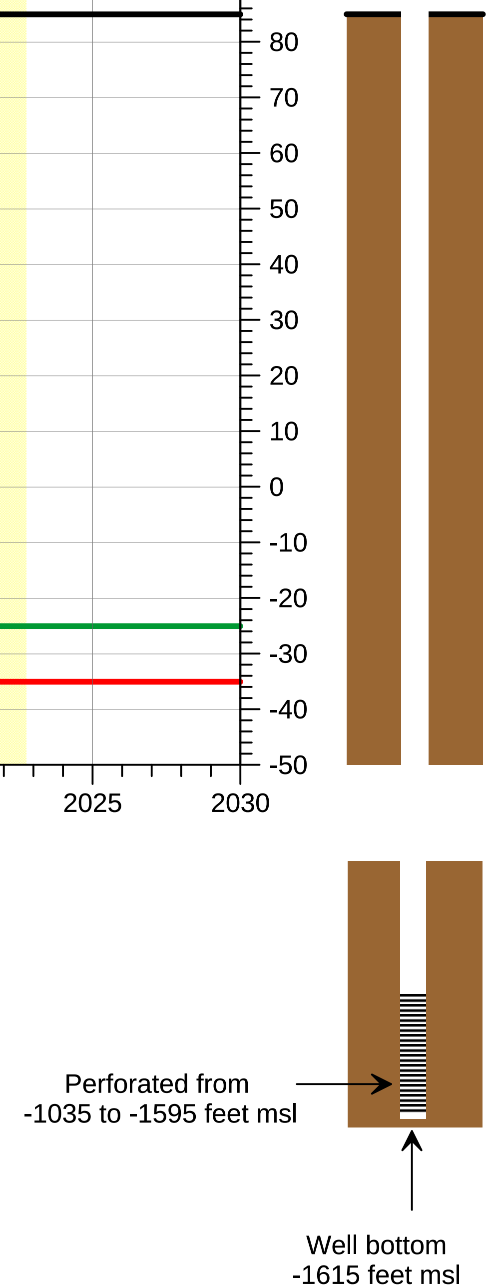
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-18B01**

180/400-Foot Aquifer Subbasin



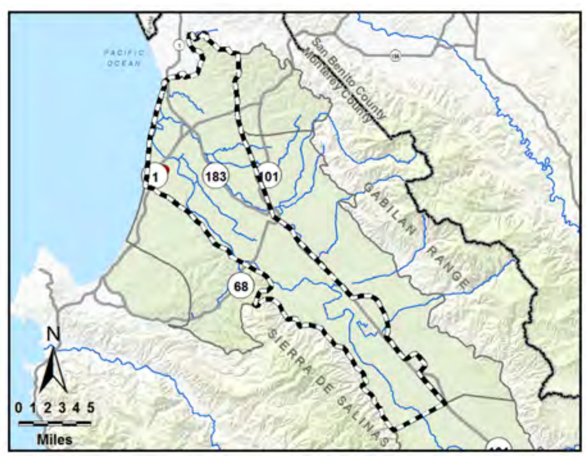




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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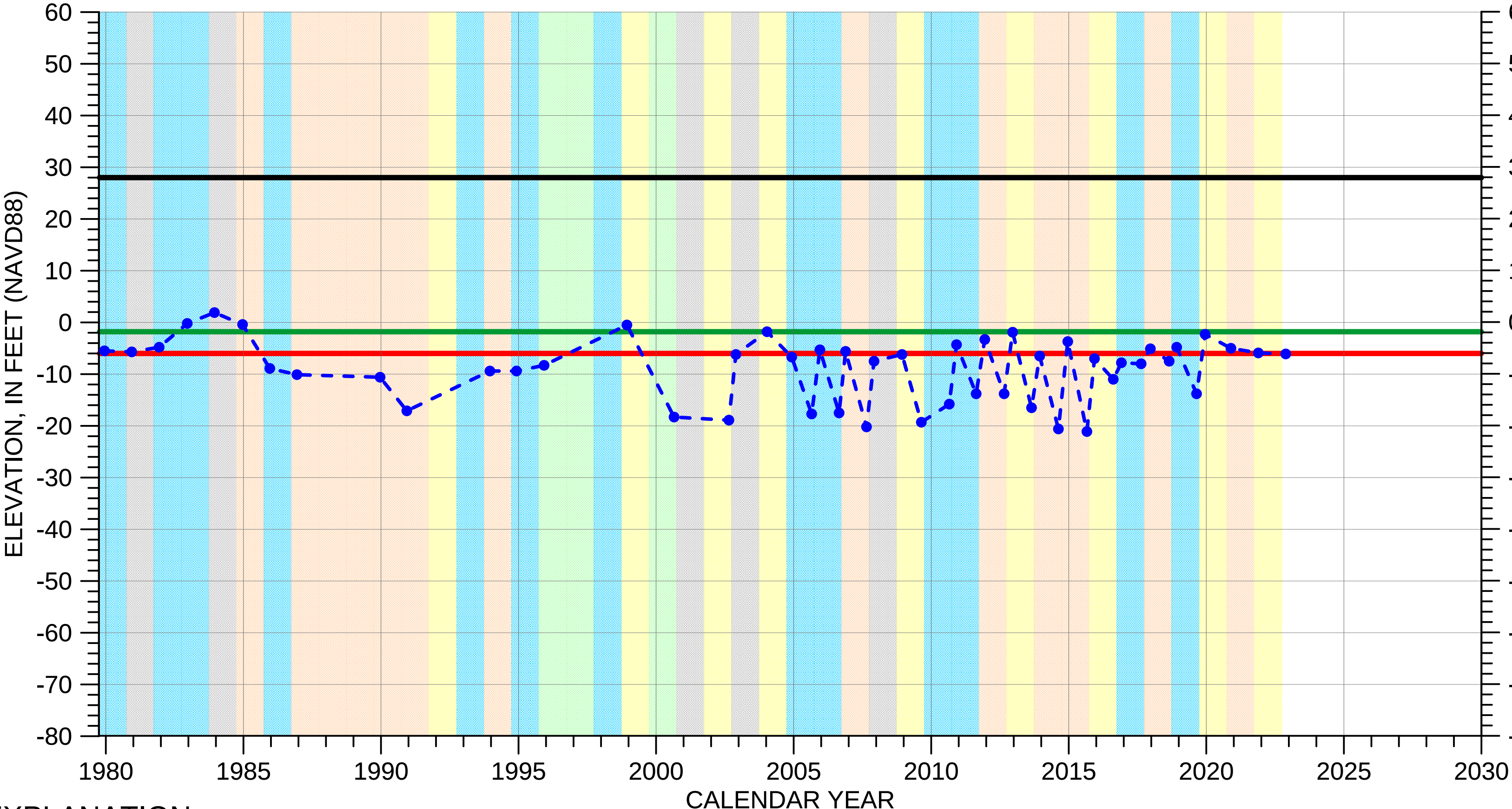
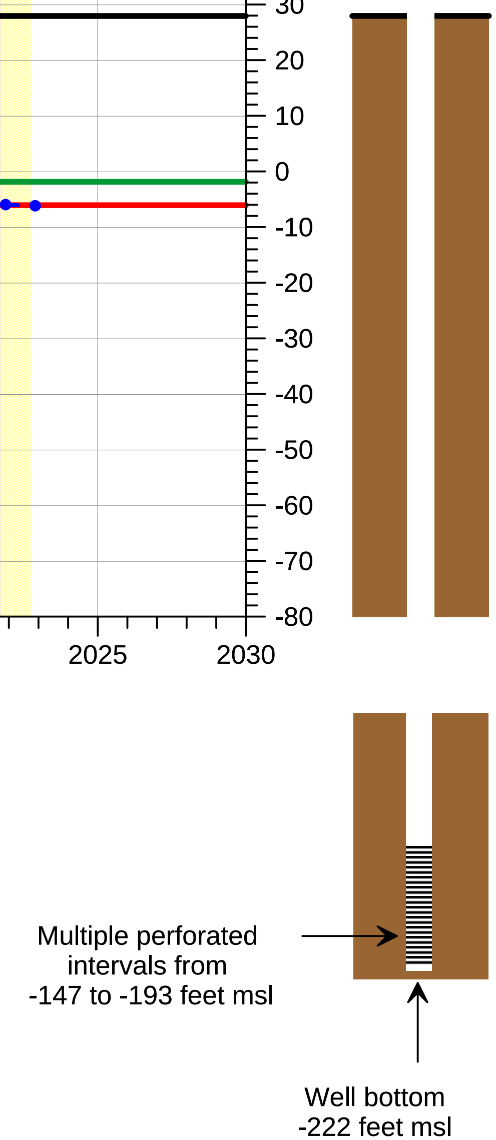
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-21L01**

180/400-Foot Aquifer Subbasin



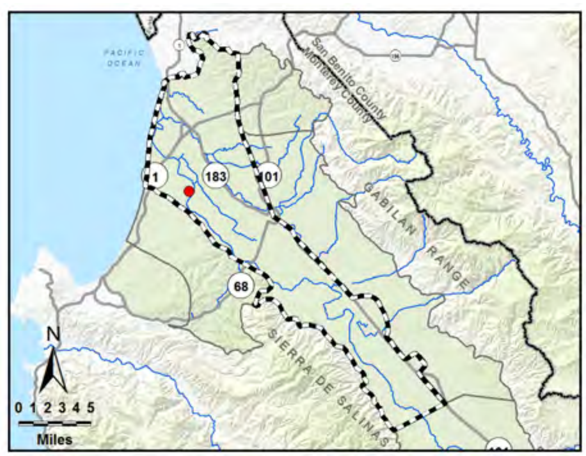

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-21L01.grf

## EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

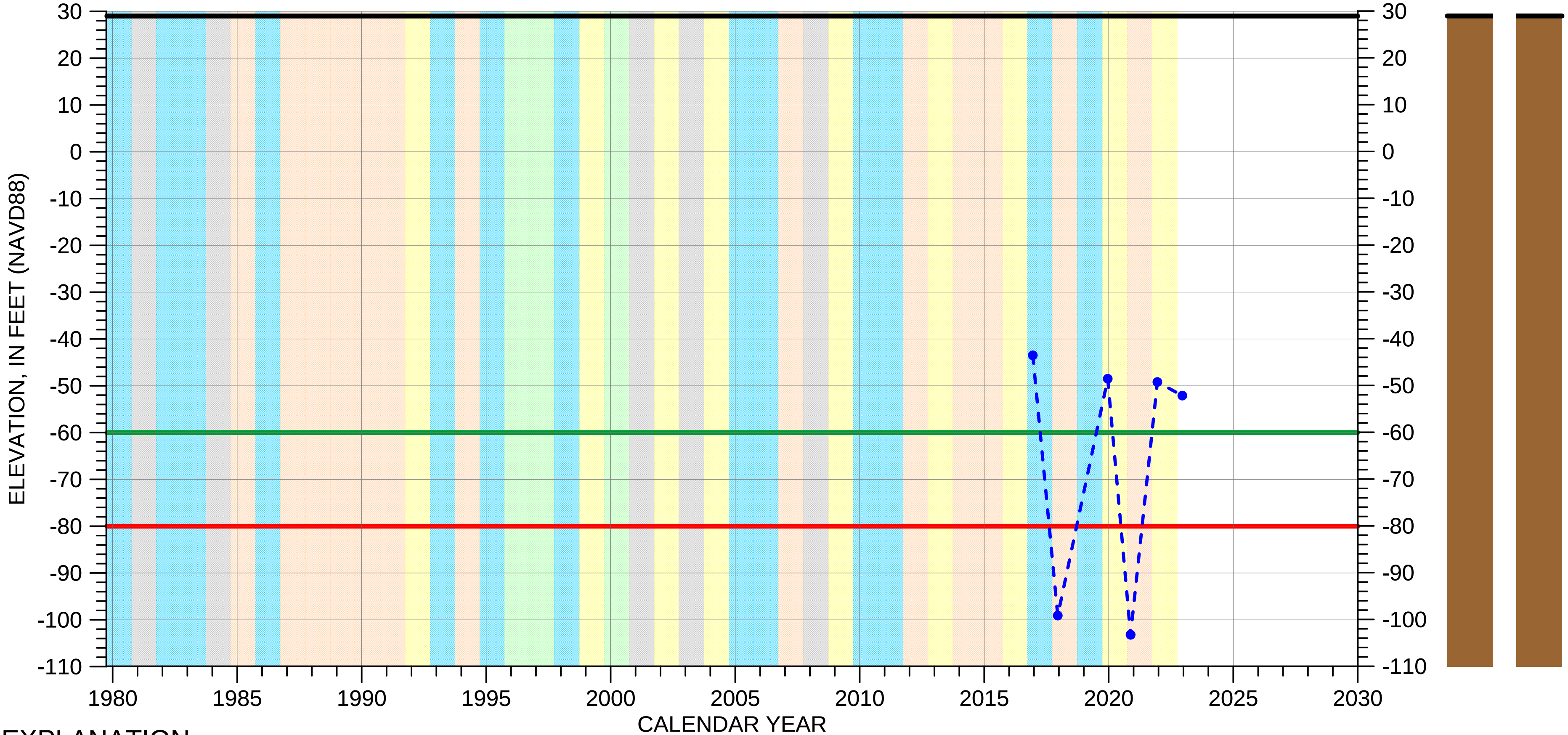
### WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-22A03**

180/400-Foot Aquifer Subbasin




EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface

Measurable Objective

Minimum Threshold

WATER YEAR TYPE DESIGNATION

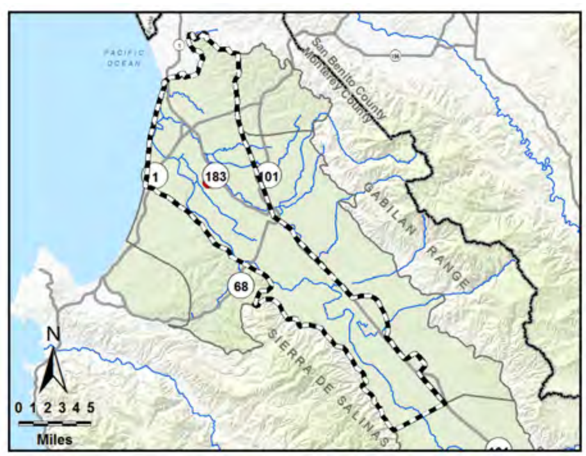
DRY

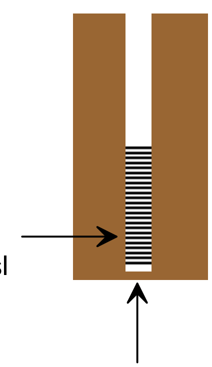
DRY - NORMAL

NORMAL

WET - NORMAL

WET



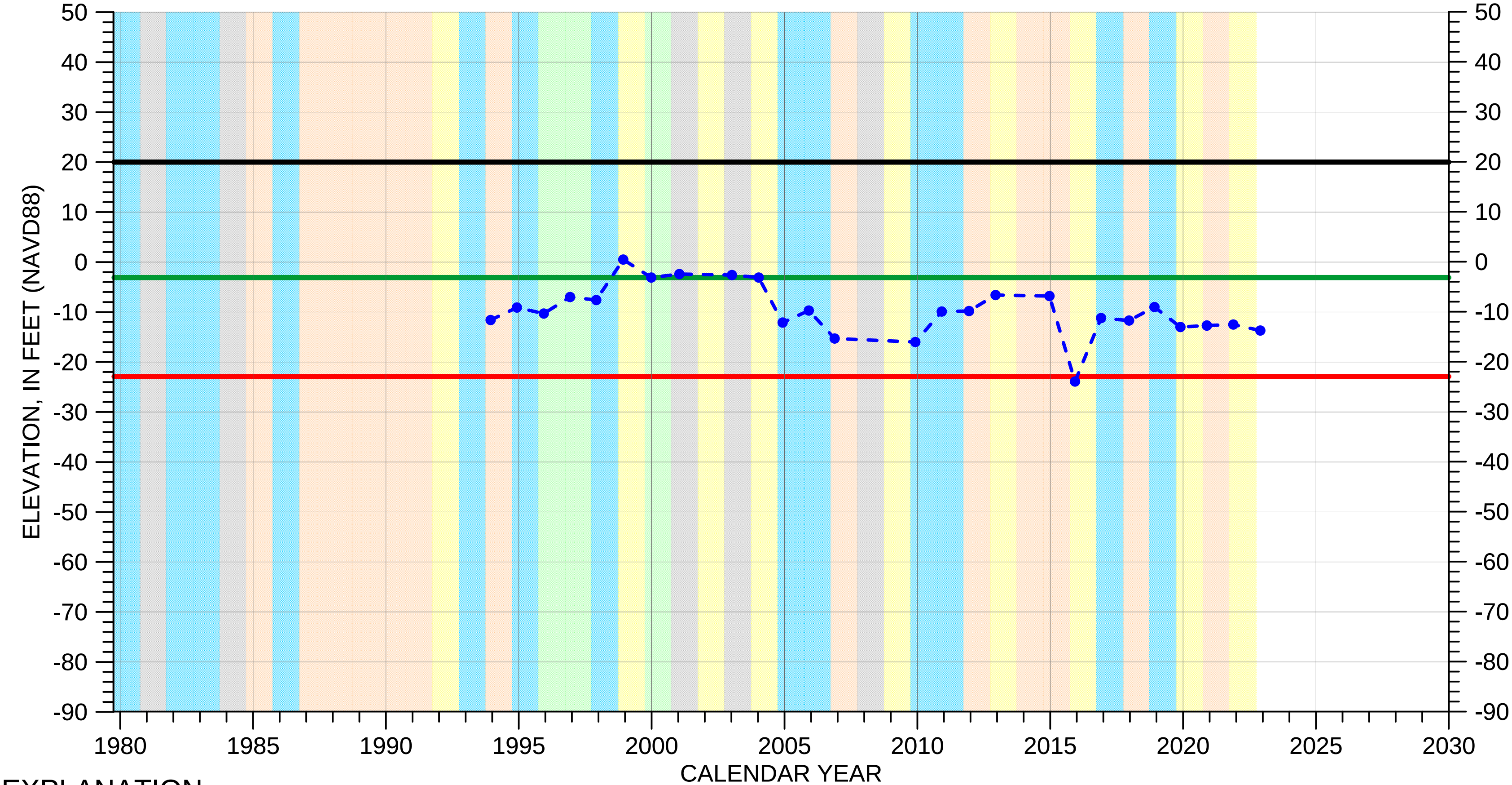
Perforated from
-951 to -1611 feet msl

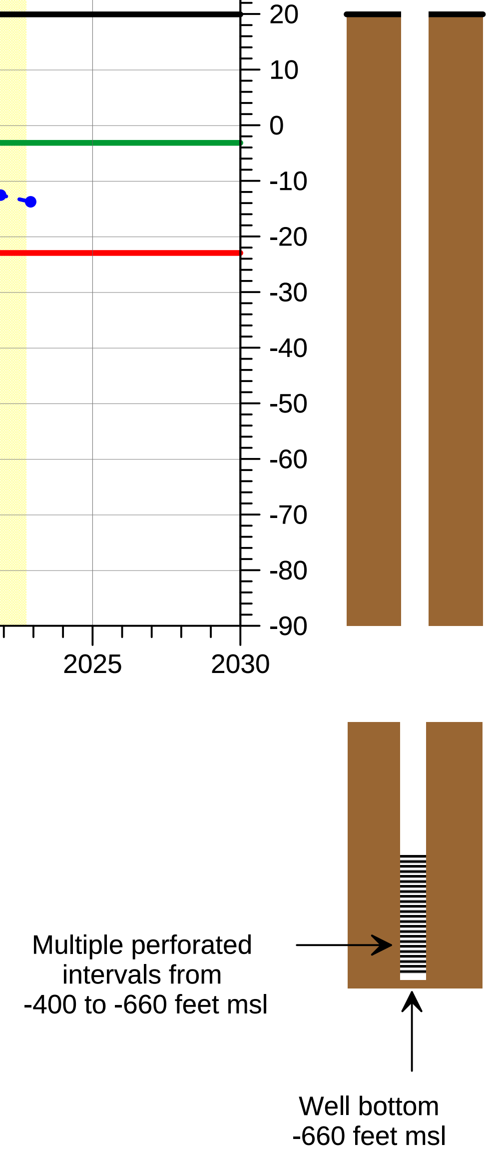
Well bottom
-1611 feet msl

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-22A03.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-22L01**

180/400-Foot Aquifer Subbasin



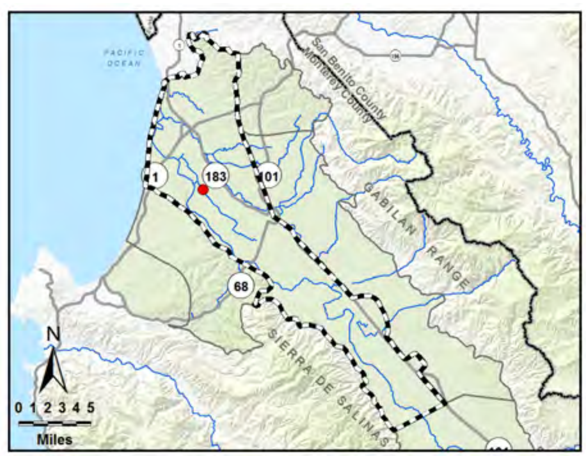




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

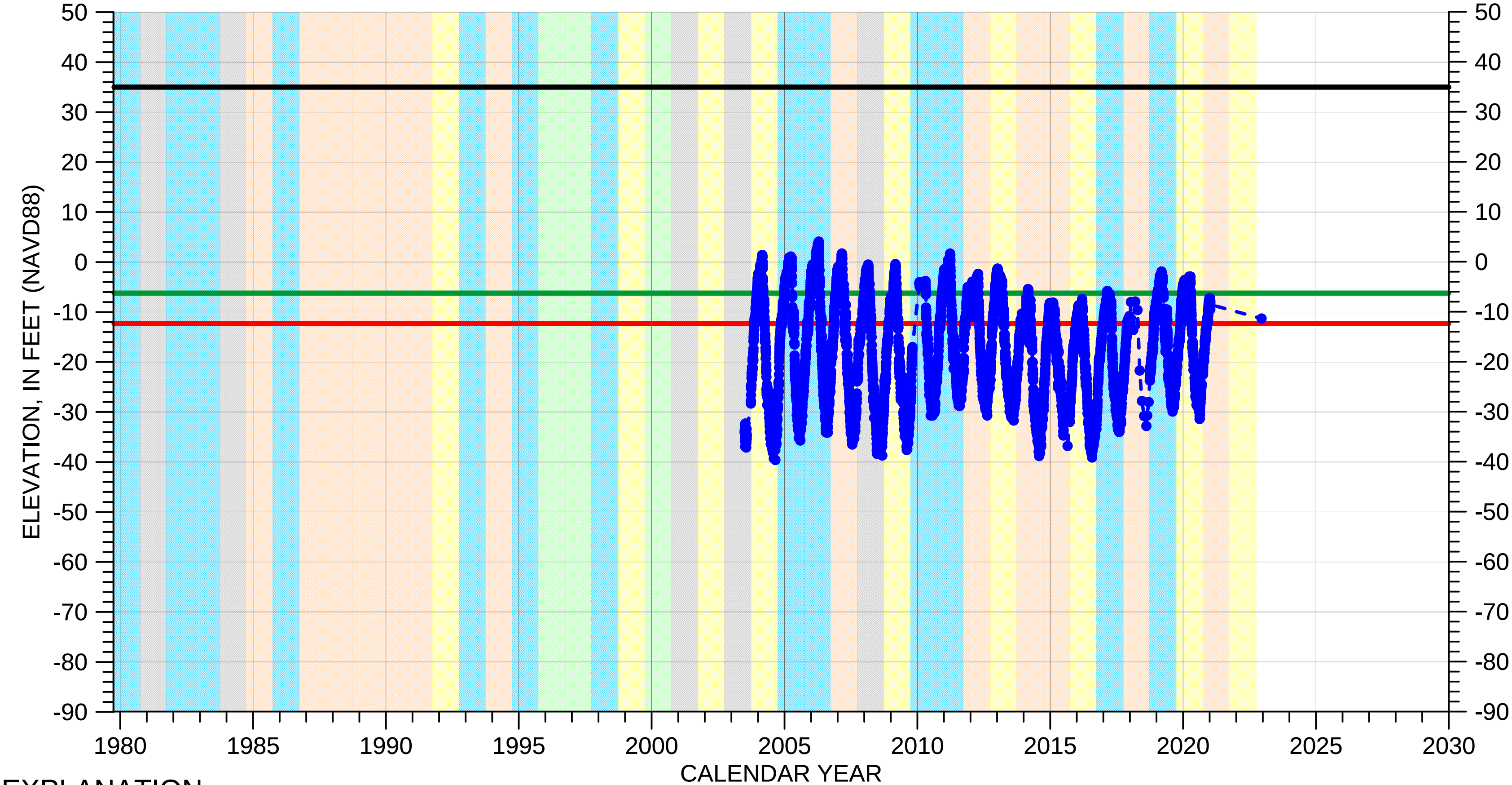
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

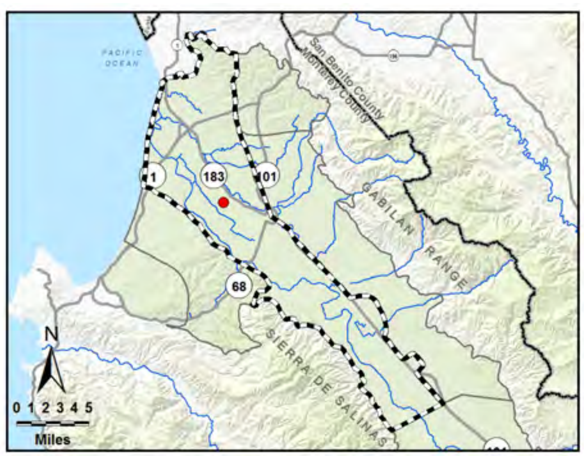


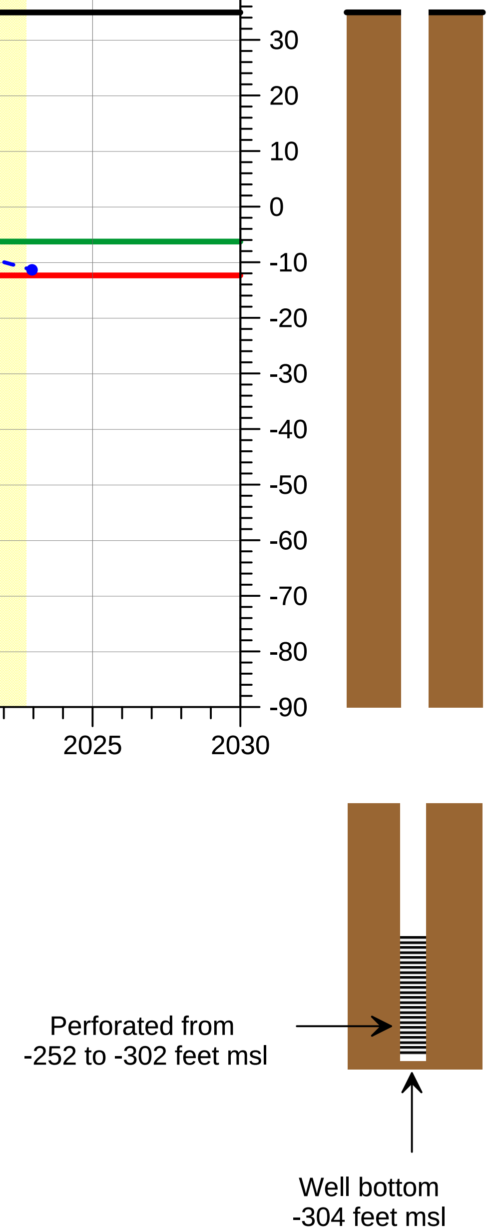

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-22L01.grf

HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-26H01

180/400-Foot Aquifer Subbasin






EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

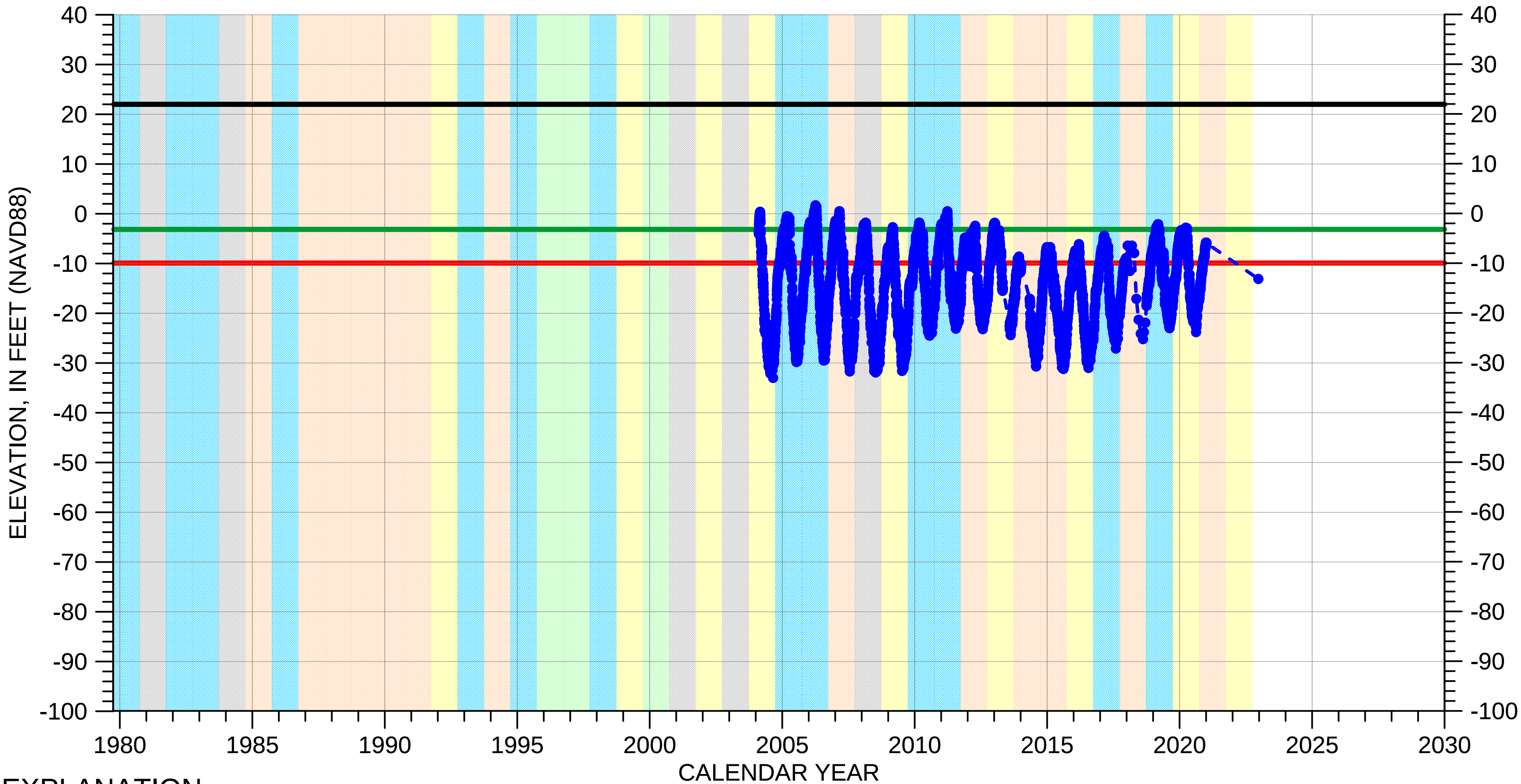
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-26H01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-27A01**

180/400-Foot Aquifer Subbasin

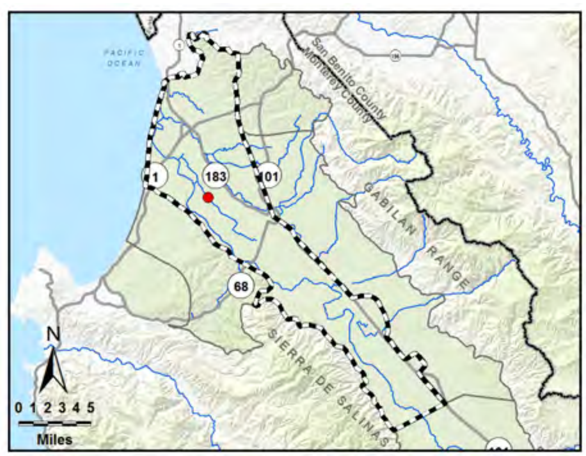


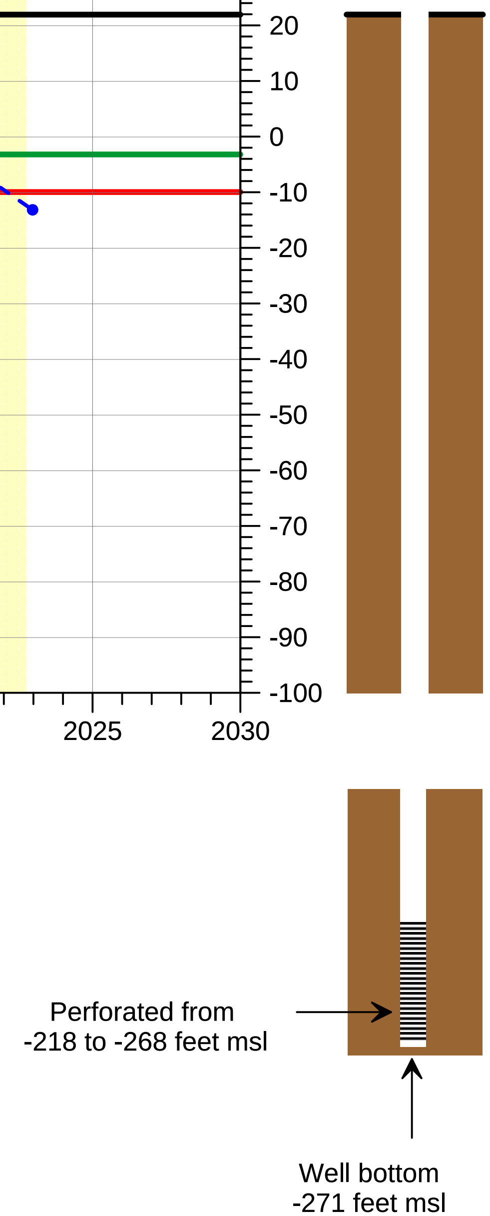

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

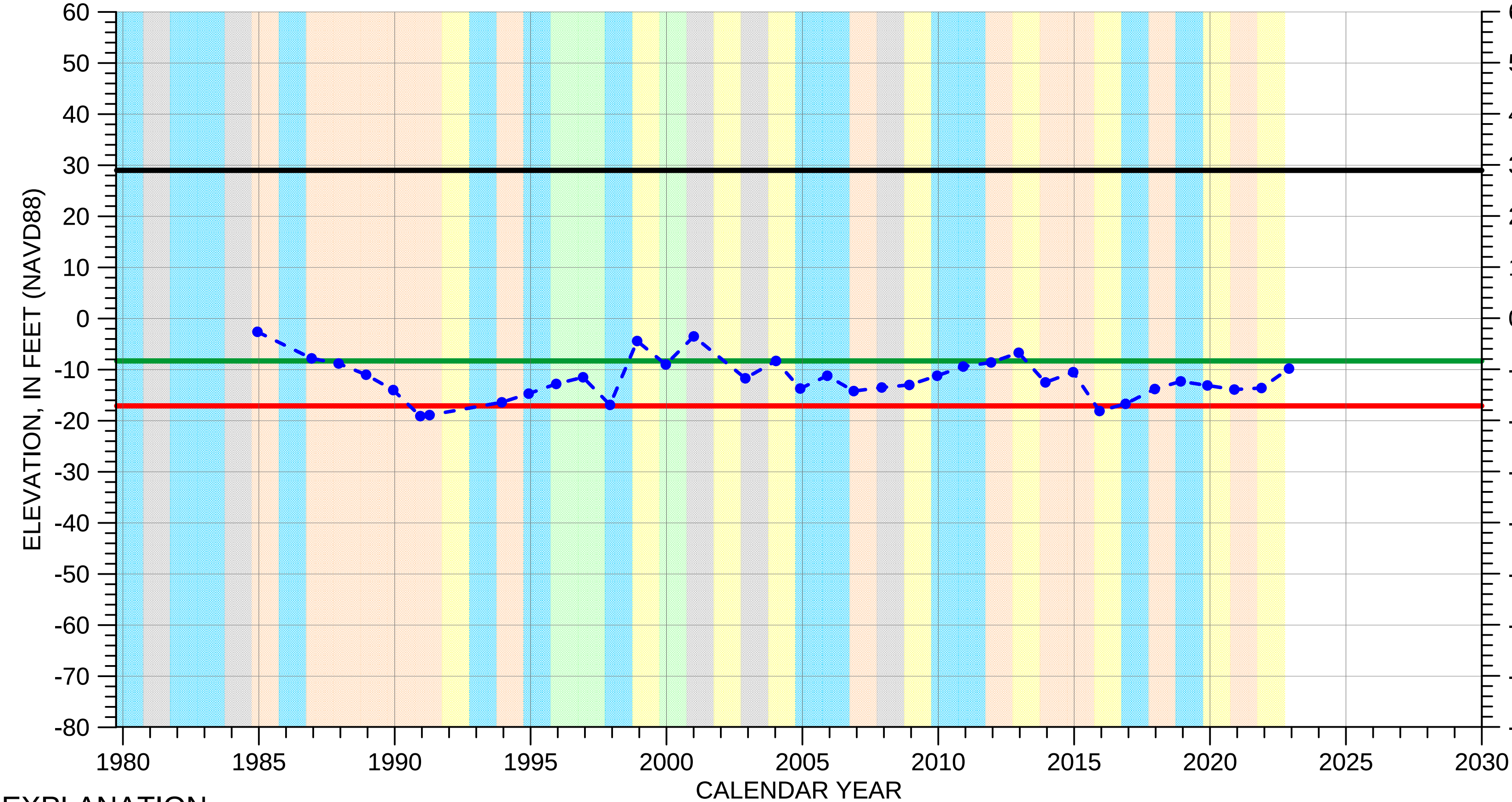



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-27A01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-27G03**

180/400-Foot Aquifer Subbasin




EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface

Measurable Objective

Minimum Threshold

WATER YEAR TYPE DESIGNATION

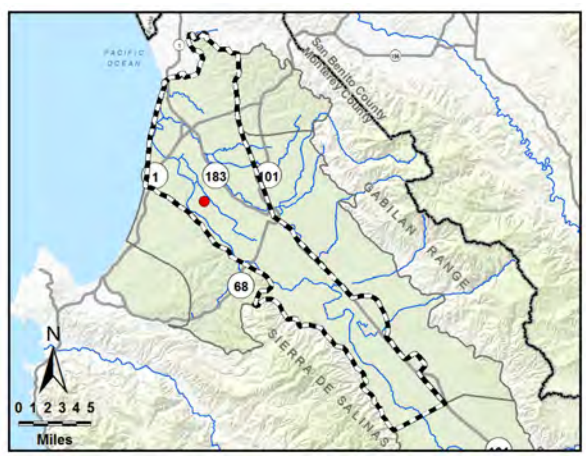
DRY

DRY - NORMAL

NORMAL

WET - NORMAL

WET




Multiple perforated intervals from -250 to -342 feet msl

Well bottom -469 feet msl

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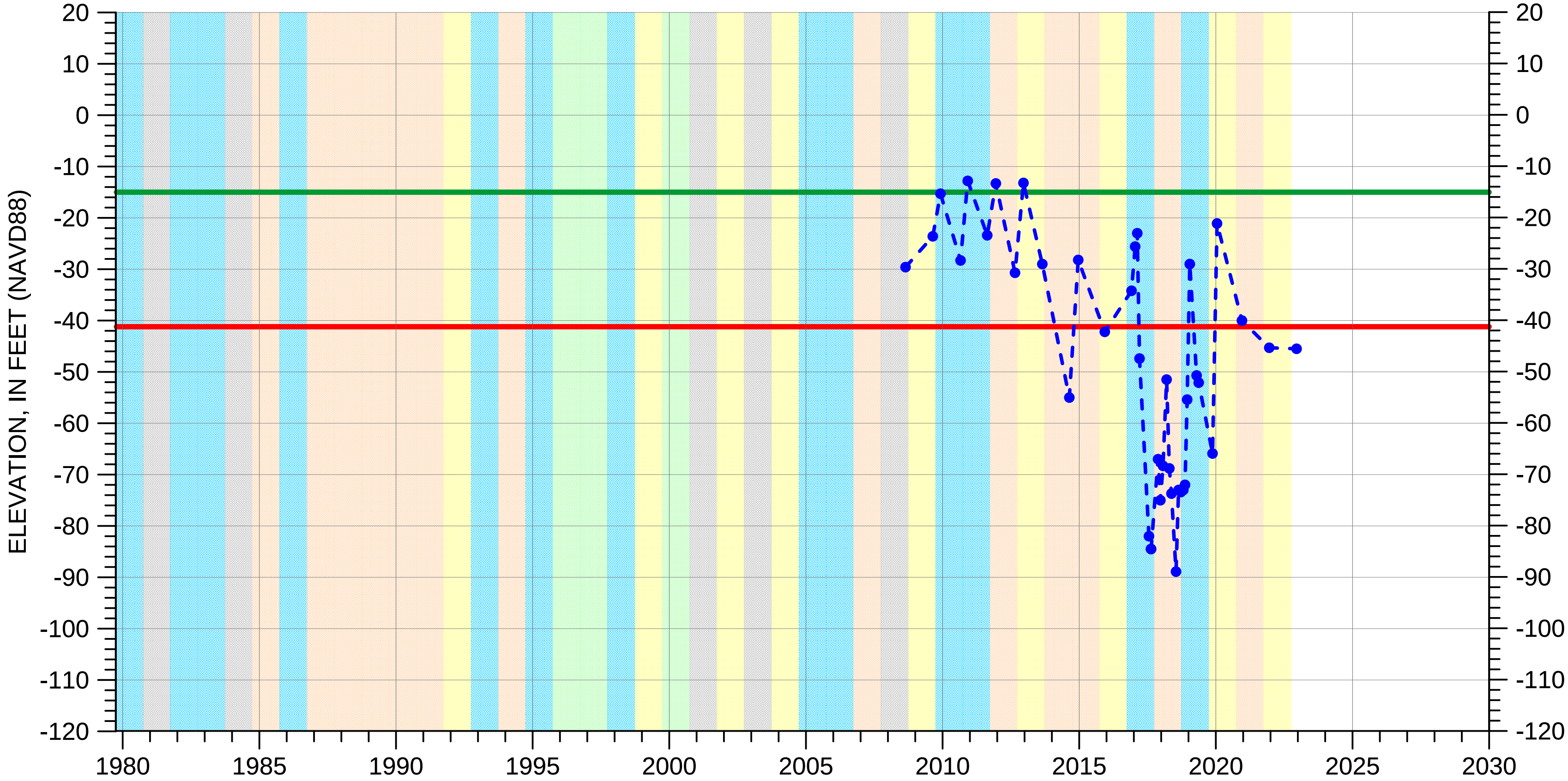
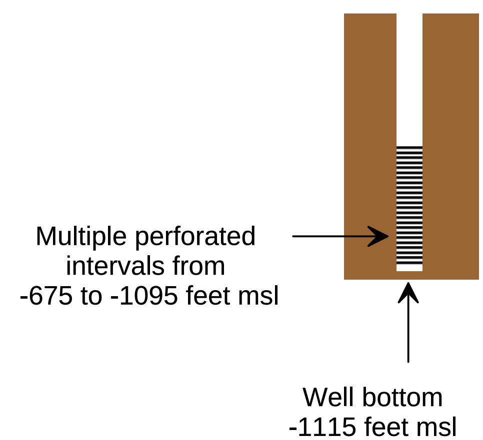
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-28C02**

180/400-Foot Aquifer Subbasin



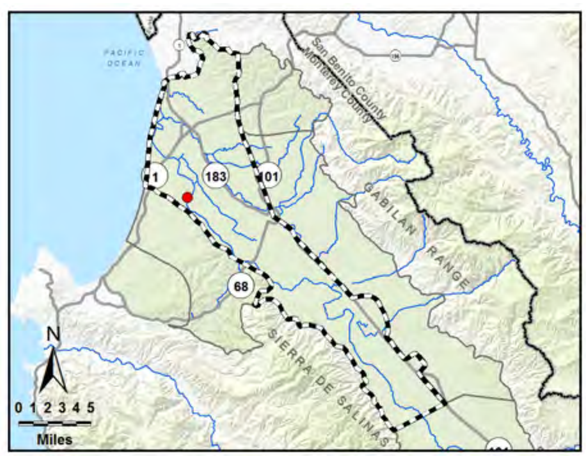




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (45 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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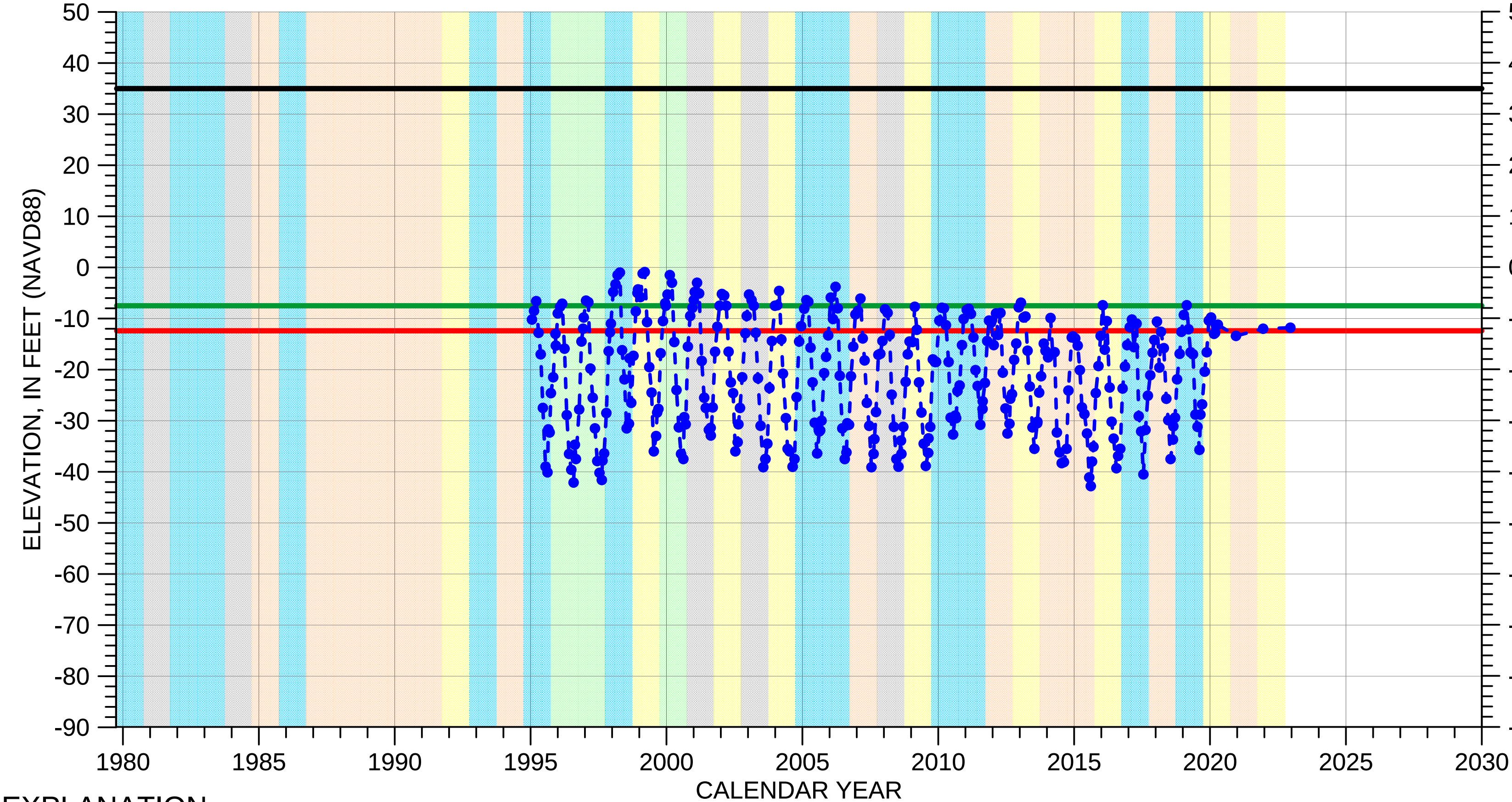
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-34A03

180/400-Foot Aquifer Subbasin

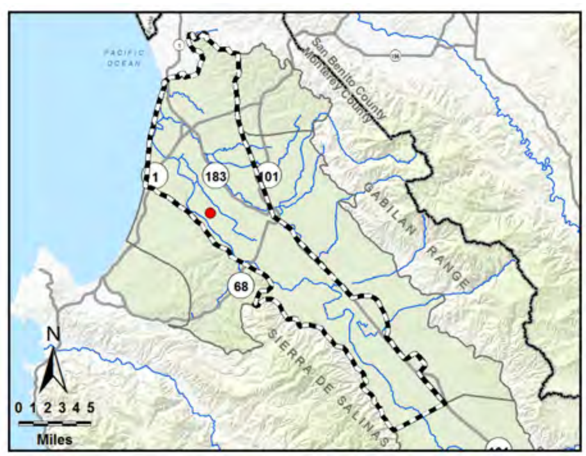


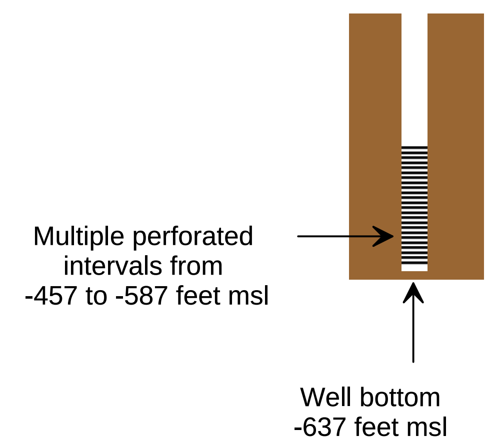

### EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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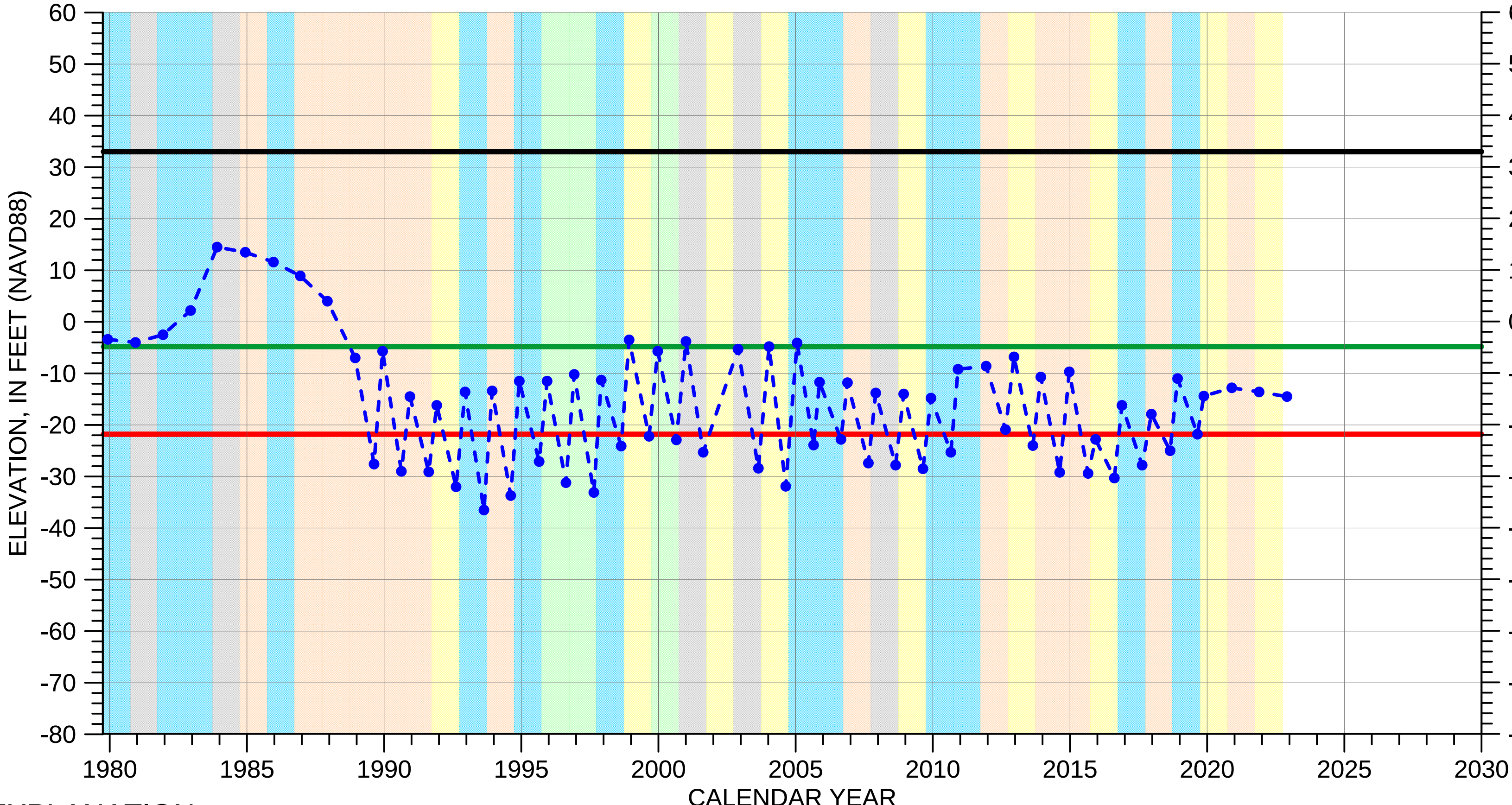
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-34B03**

180/400-Foot Aquifer Subbasin

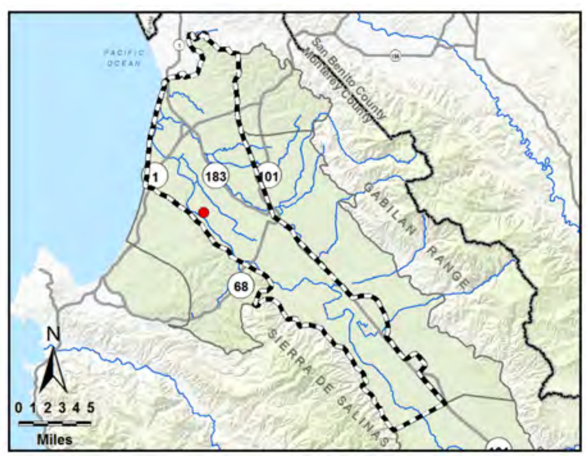



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




Multiple perforated intervals from -275 to -313 feet msl

Well bottom -315 feet msl

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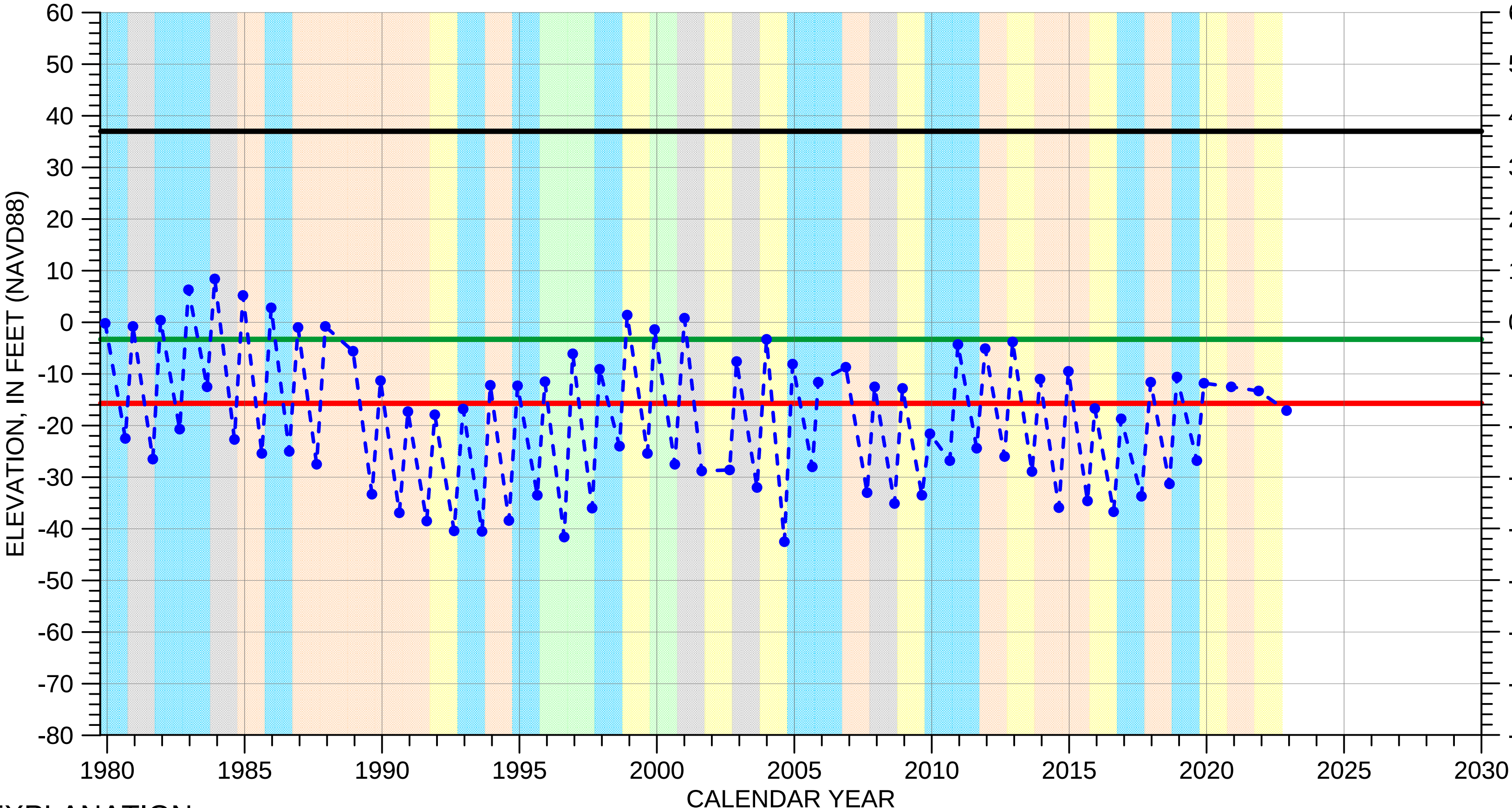
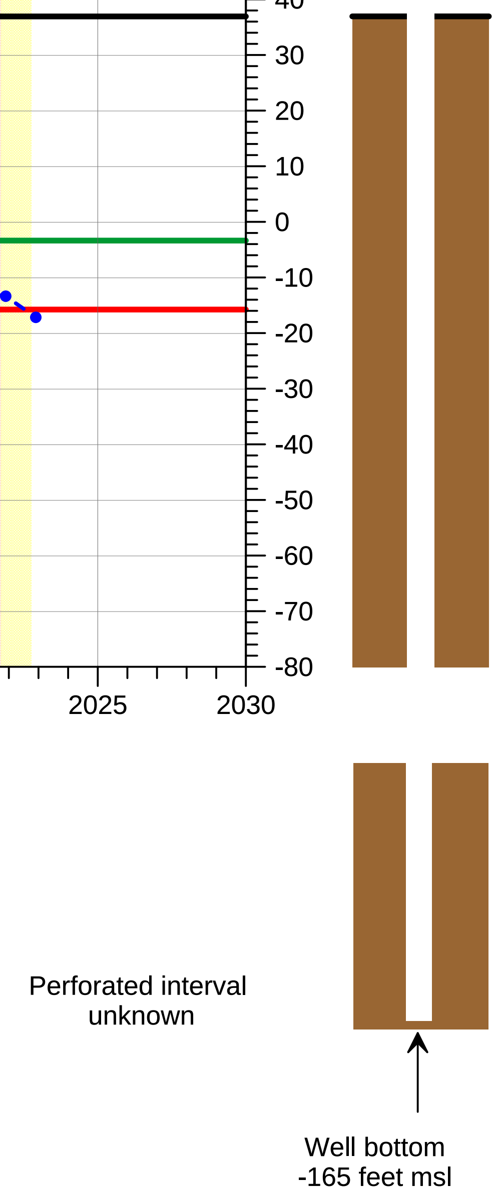
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-36E01**

180/400-Foot Aquifer Subbasin



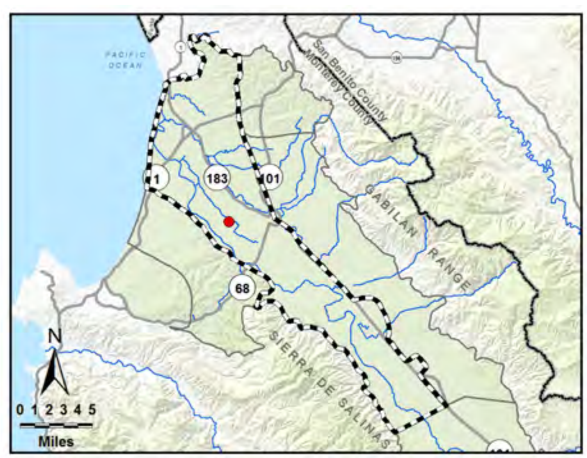




## EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

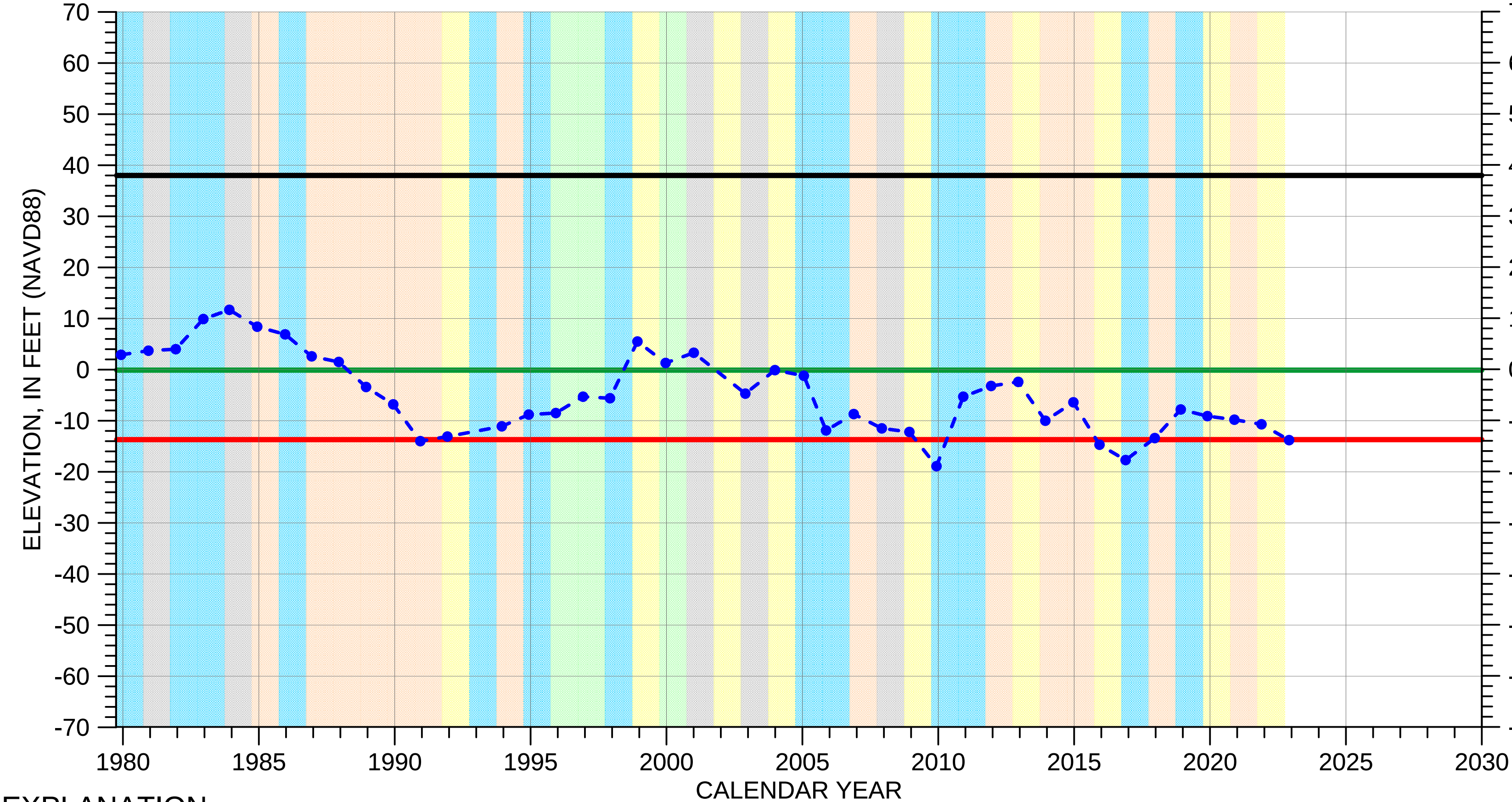
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

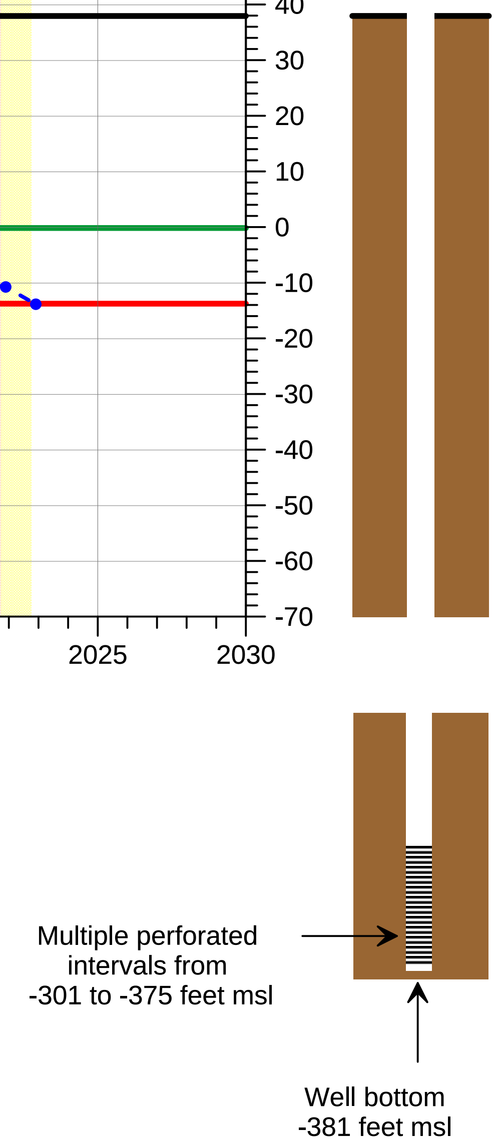



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-36E01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/02E-36G01**

180/400-Foot Aquifer Subbasin



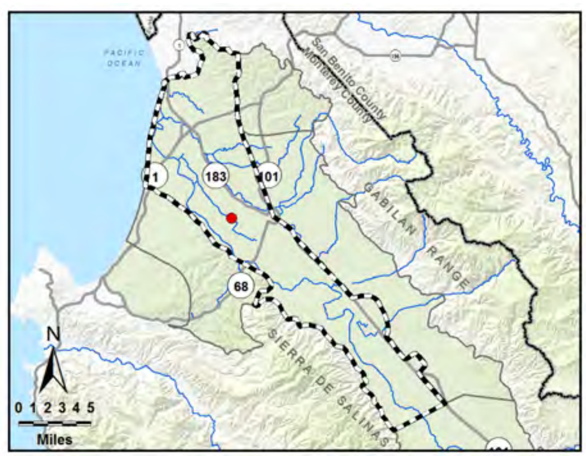




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

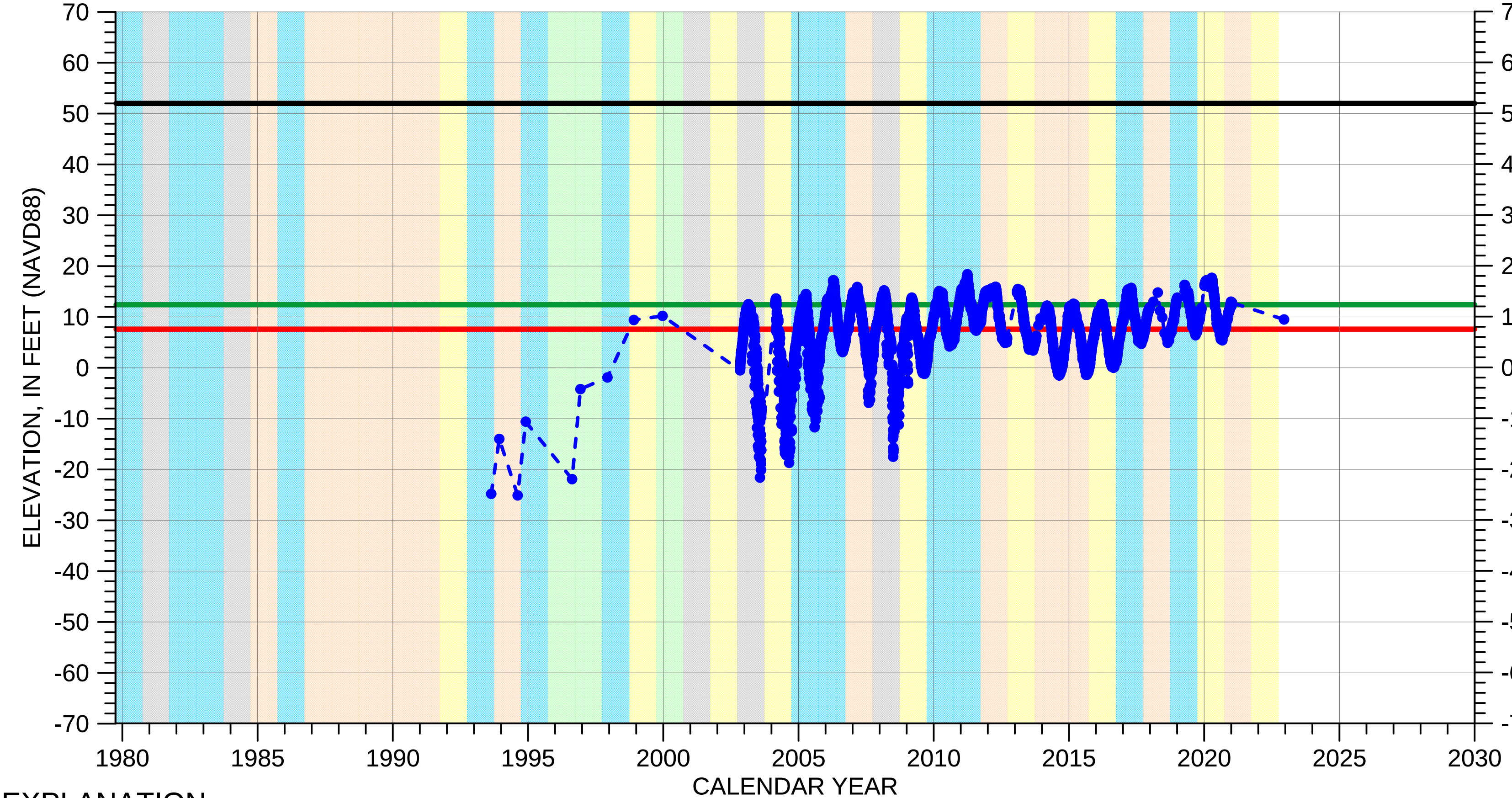
| | |
|---|---|
| DRY | WET - NORMAL |
| DRY - NORMAL | WET |
| NORMAL | |




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_02E-36G01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-18C01**

180/400-Foot Aquifer Subbasin



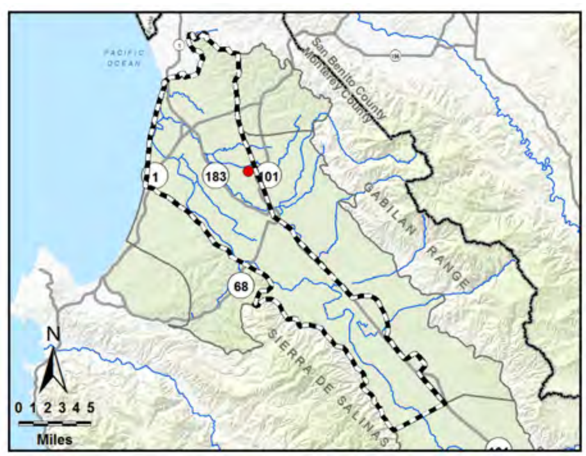


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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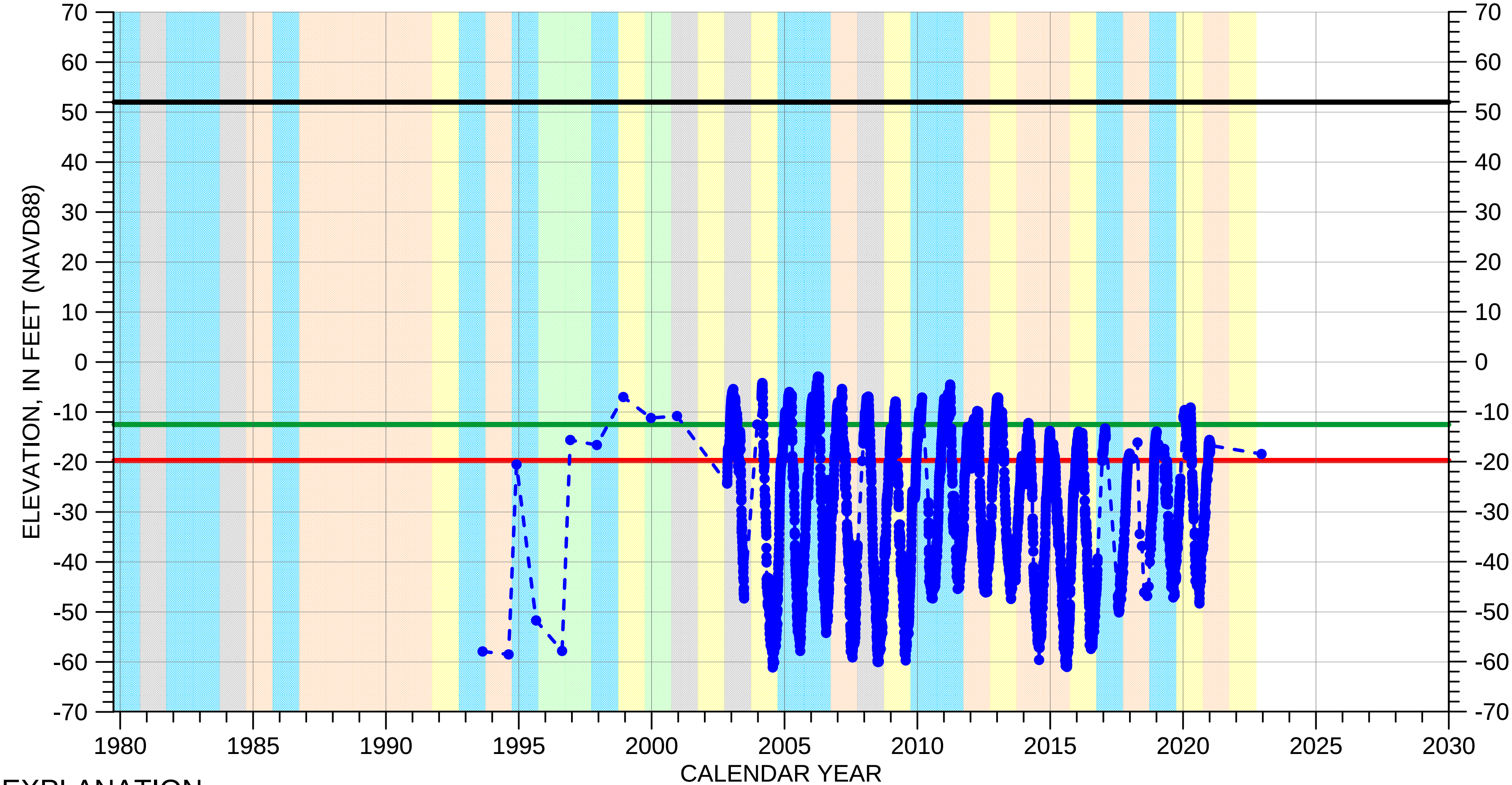
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-18C02**

180/400-Foot Aquifer Subbasin




Perforated from -218 to -333 feet msl

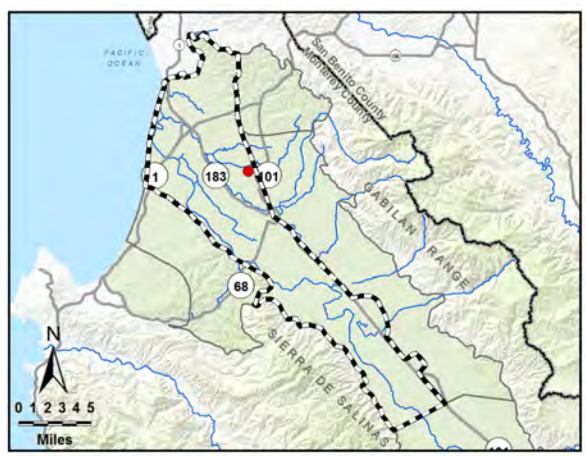
Well bottom -343 feet msl

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

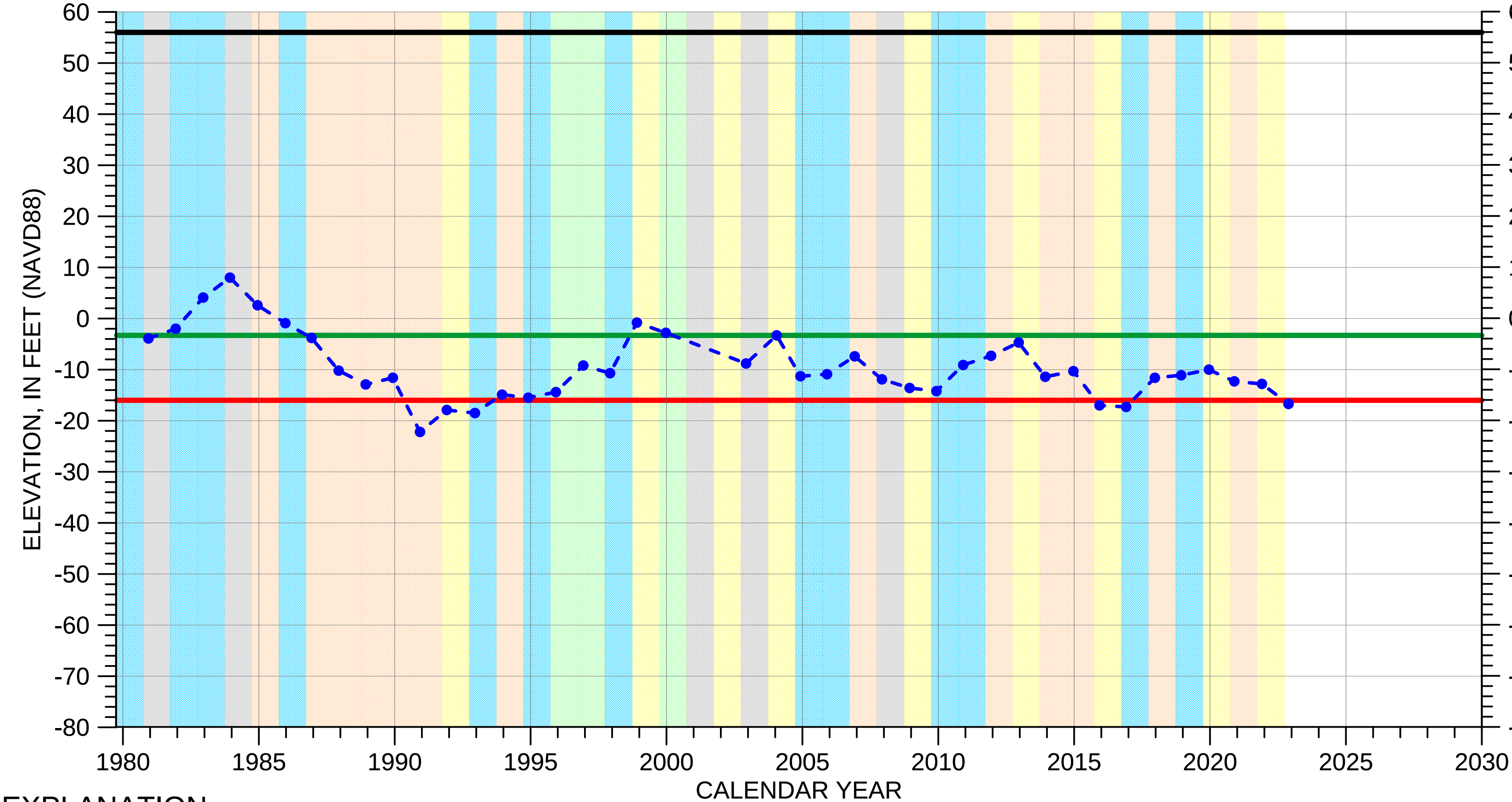
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_03E-18C02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-19G01**

180/400-Foot Aquifer Subbasin

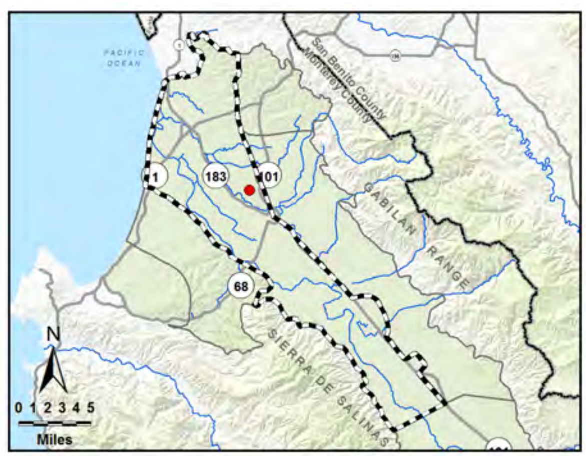



## EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



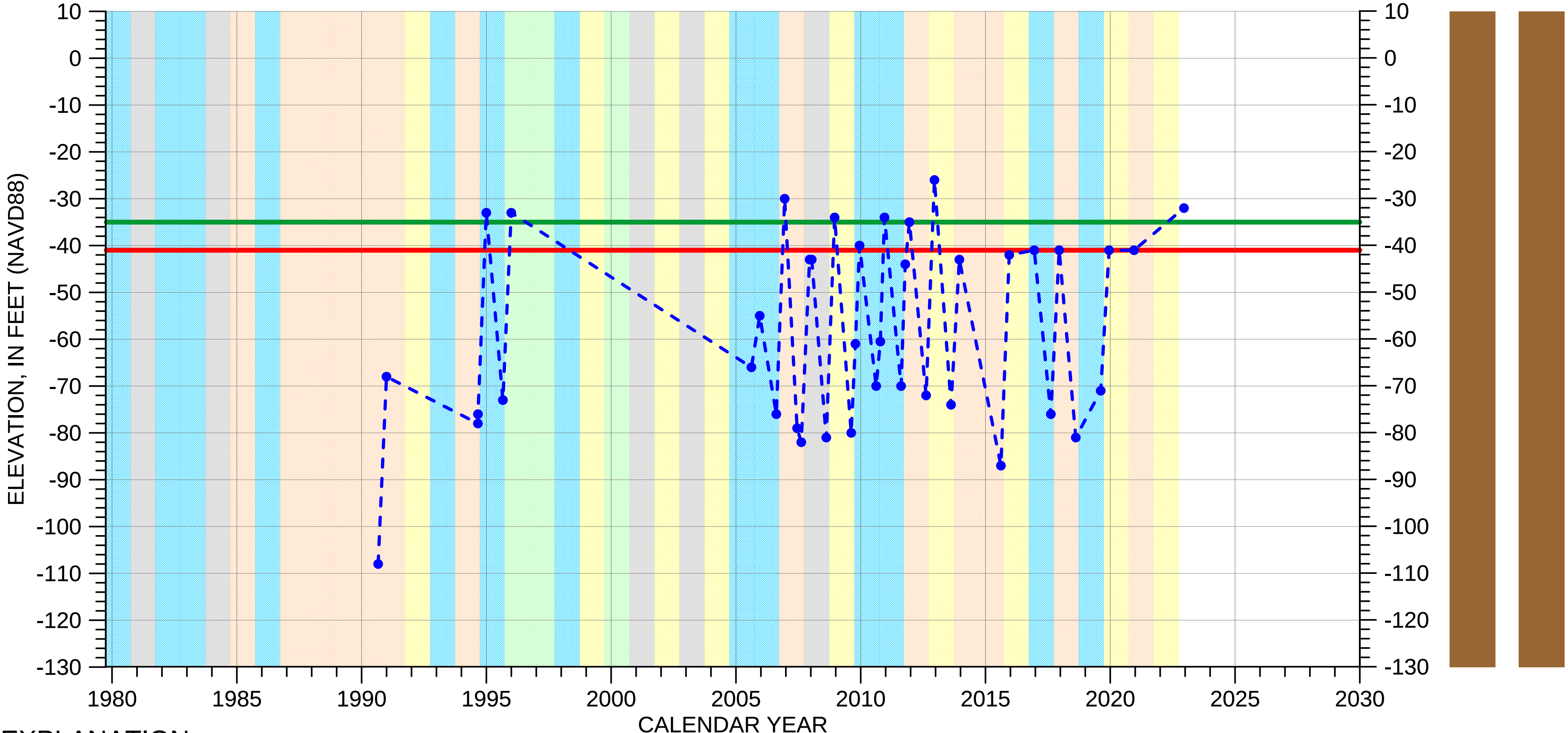

Perforated interval unknown

Well bottom elevation unknown

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_03E-19G01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-20C01**

180/400-Foot Aquifer Subbasin

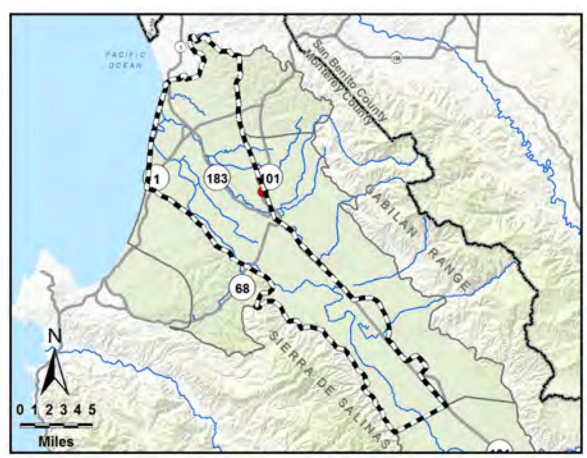


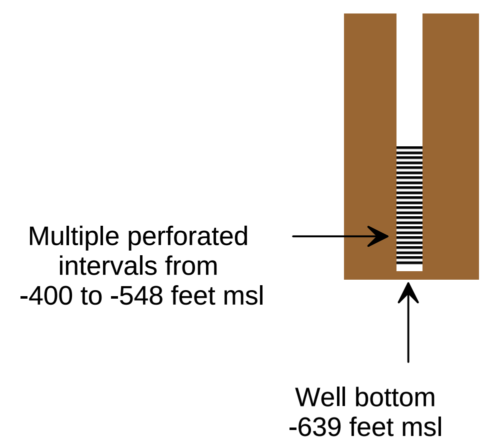

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface (63 FT MSL)
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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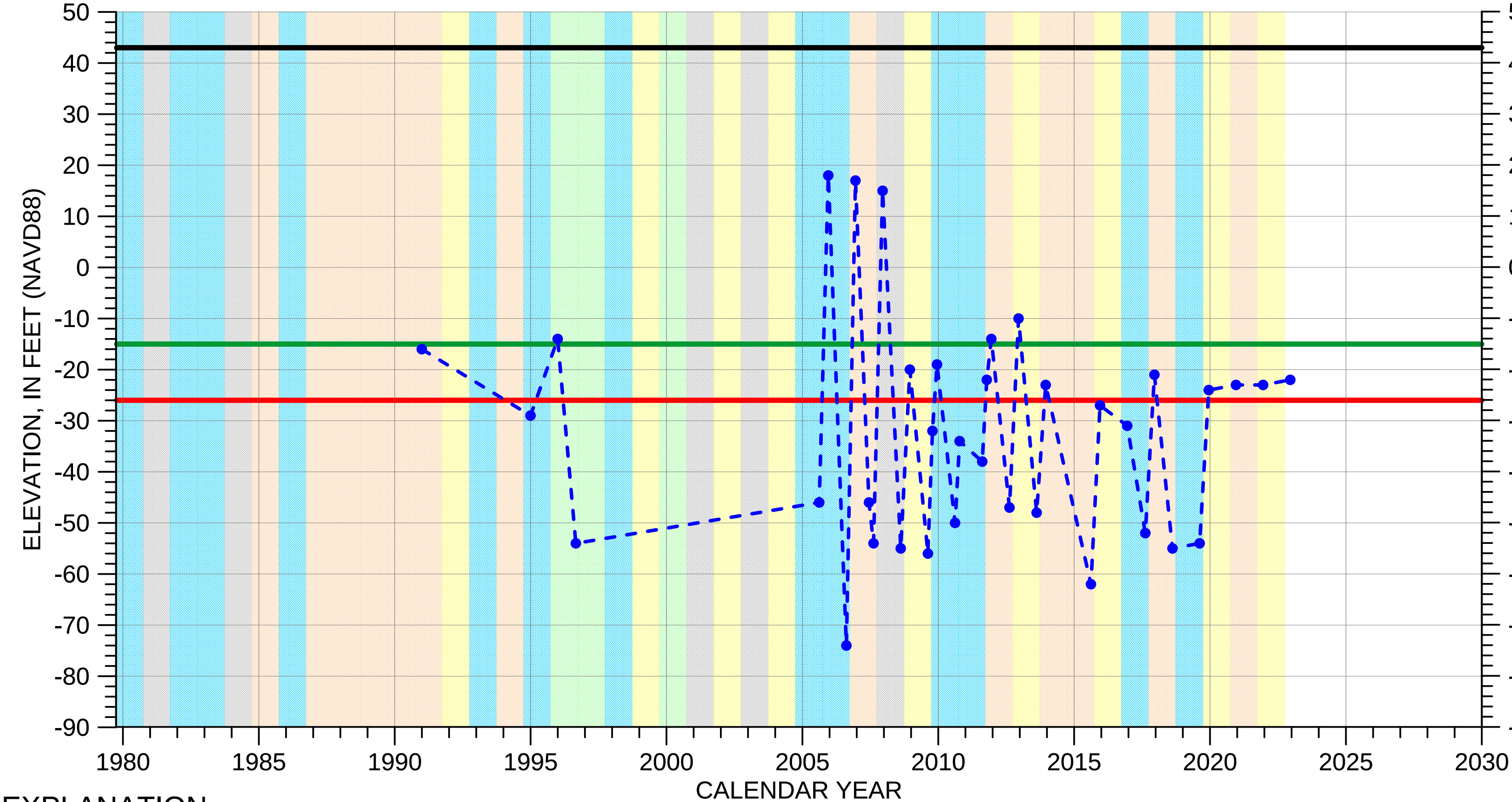
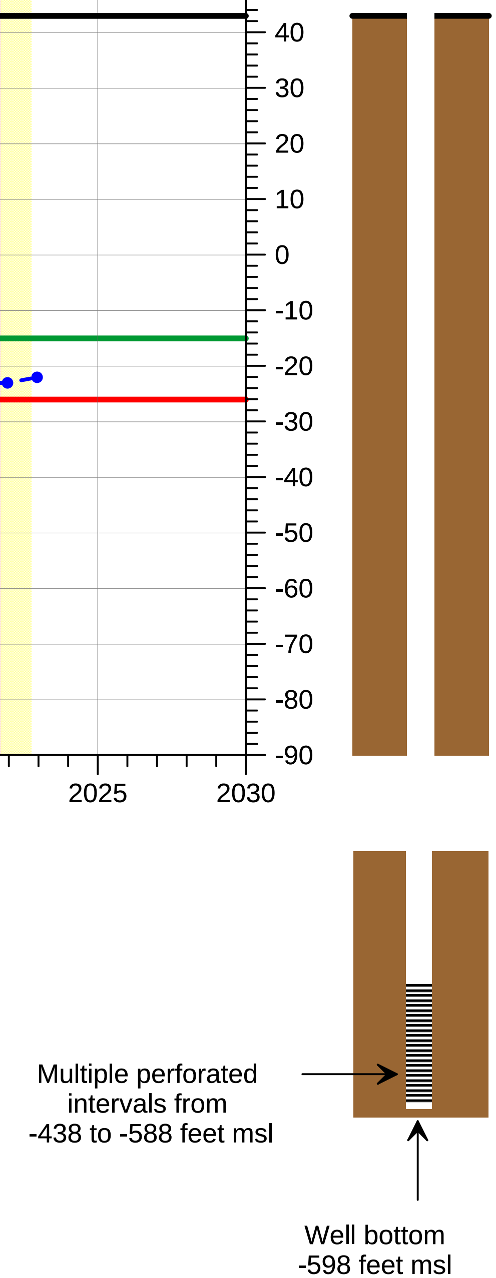
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-29F03**

180/400-Foot Aquifer Subbasin

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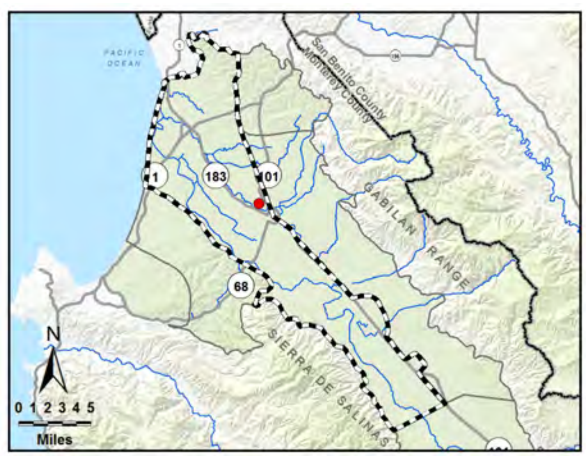
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

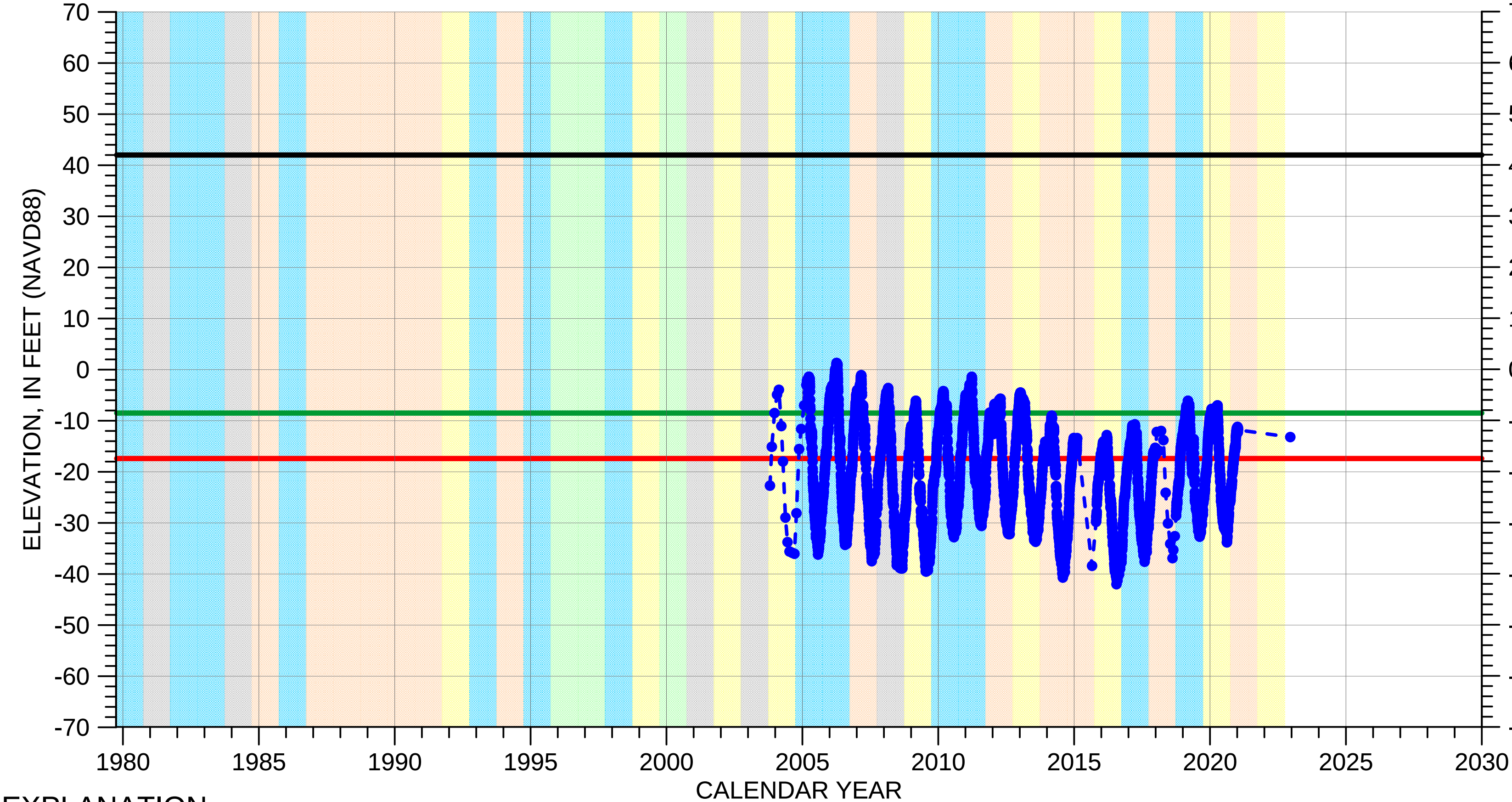
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-30G08

180/400-Foot Aquifer Subbasin

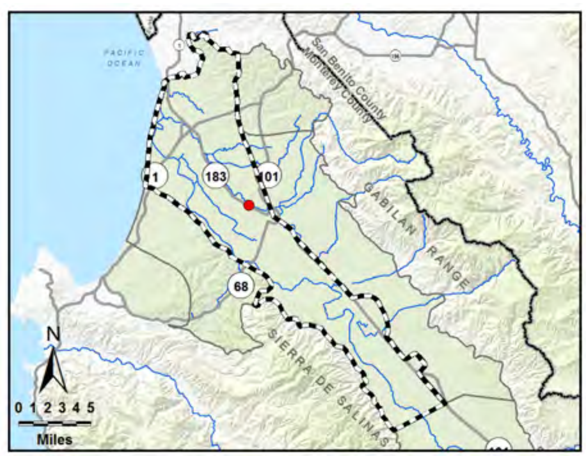


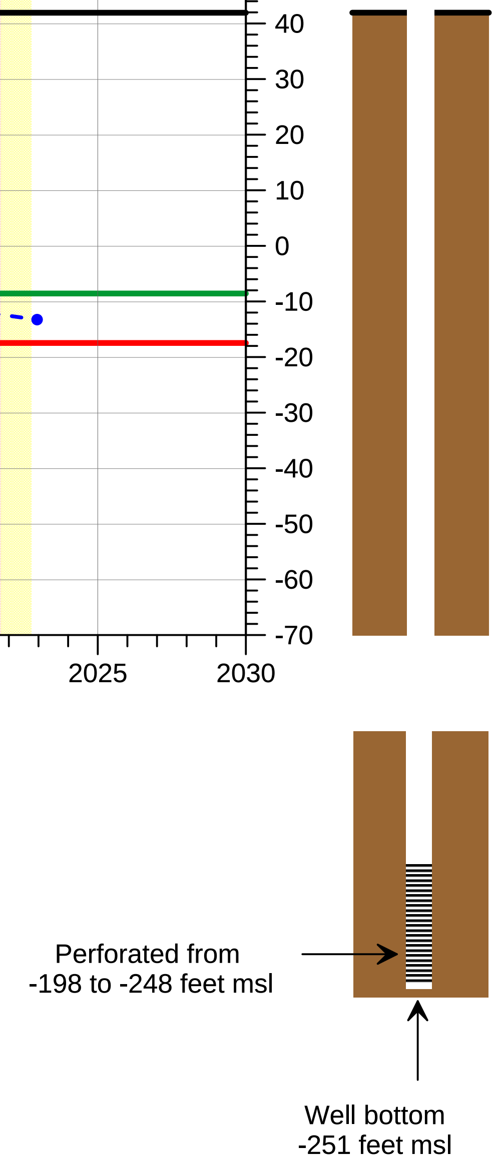

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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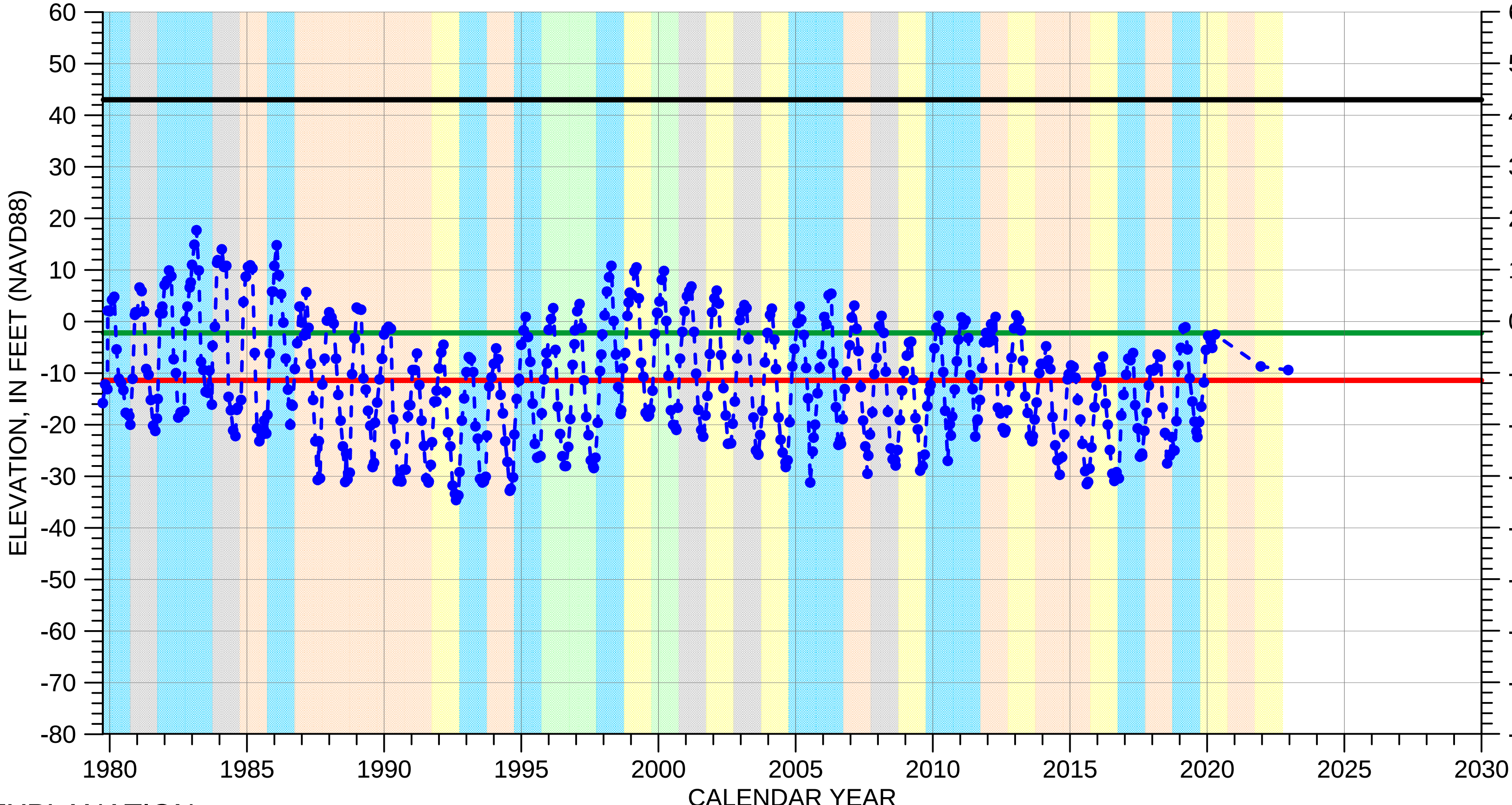
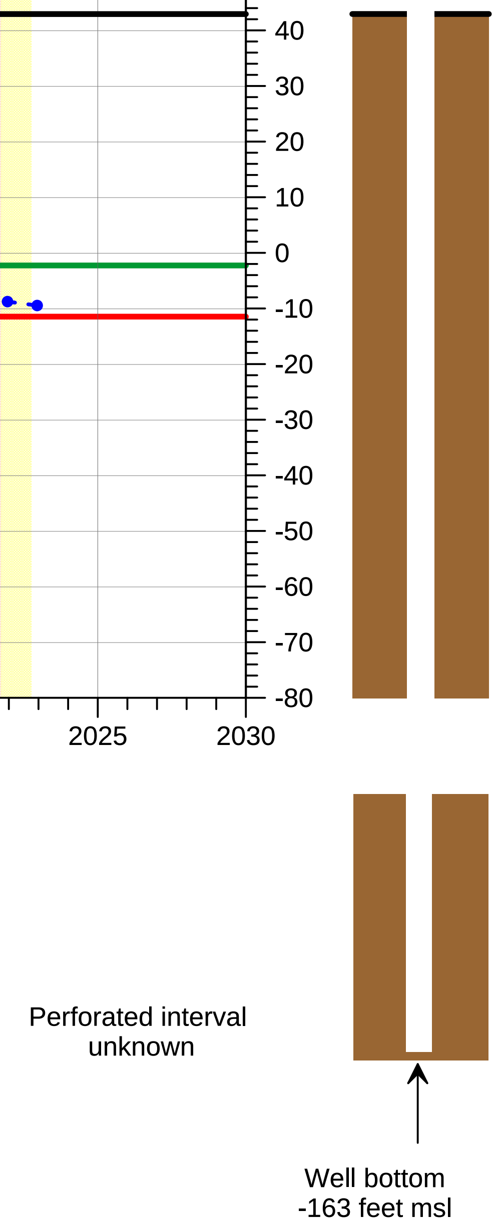
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-31F01

180/400-Foot Aquifer Subbasin



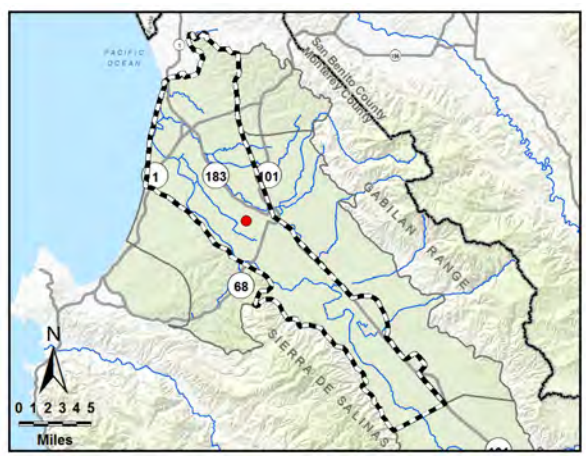




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

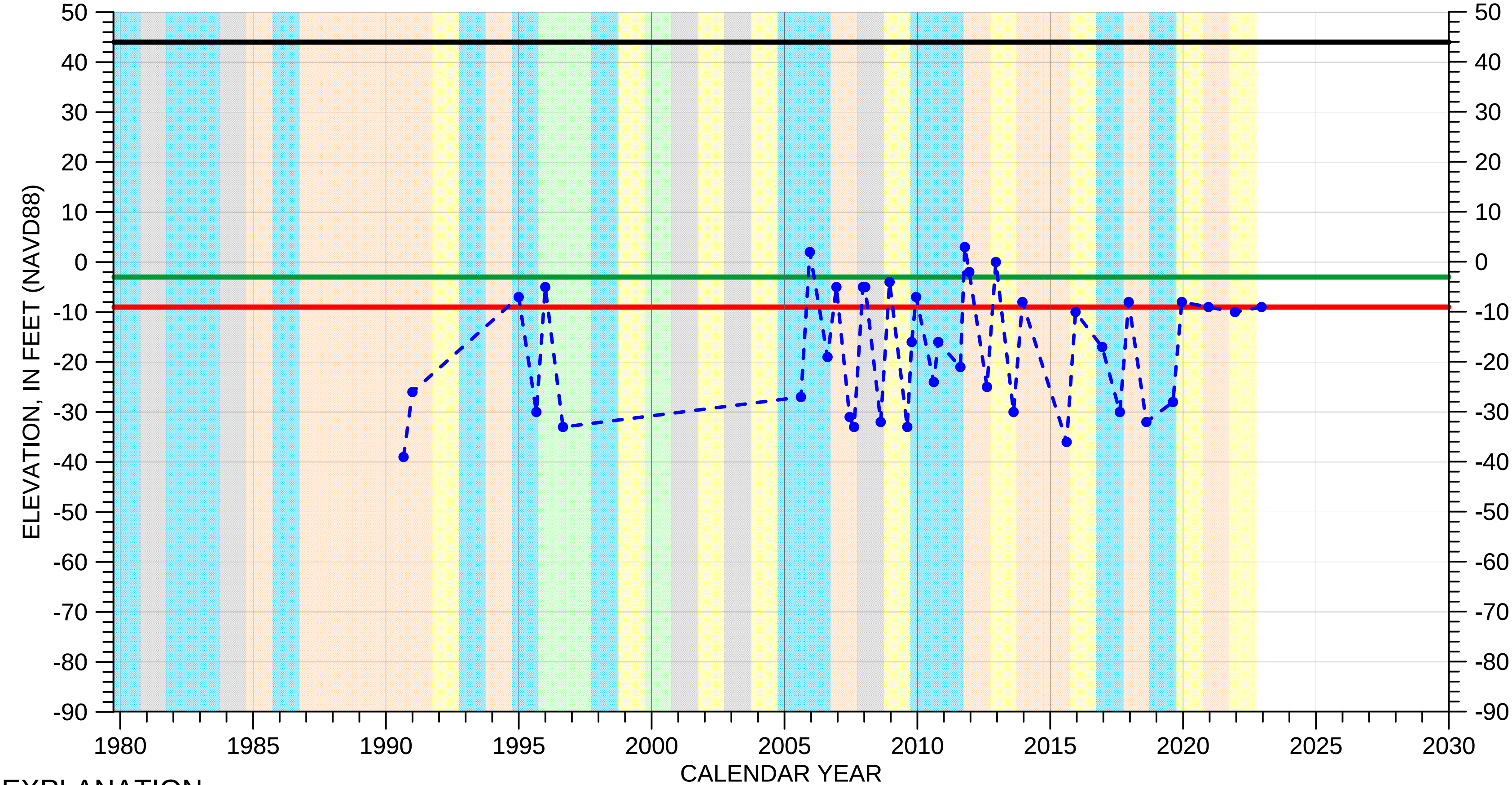
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\14S_03E-31F01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 14S/03E-31L01**

180/400-Foot Aquifer Subbasin

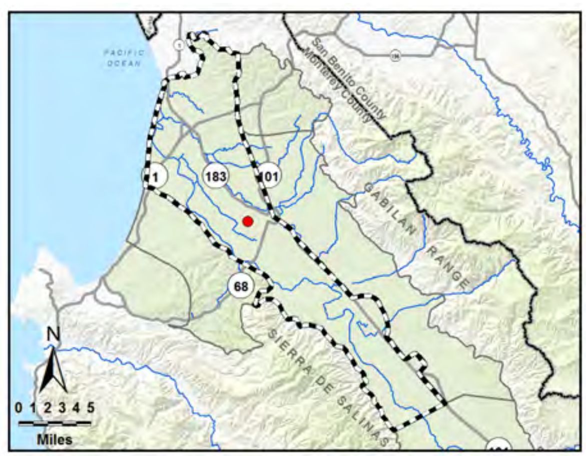


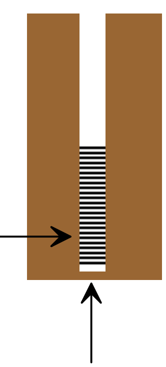

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



Multiple perforated intervals from -286 to -586 feet msl

Well bottom -596 feet msl

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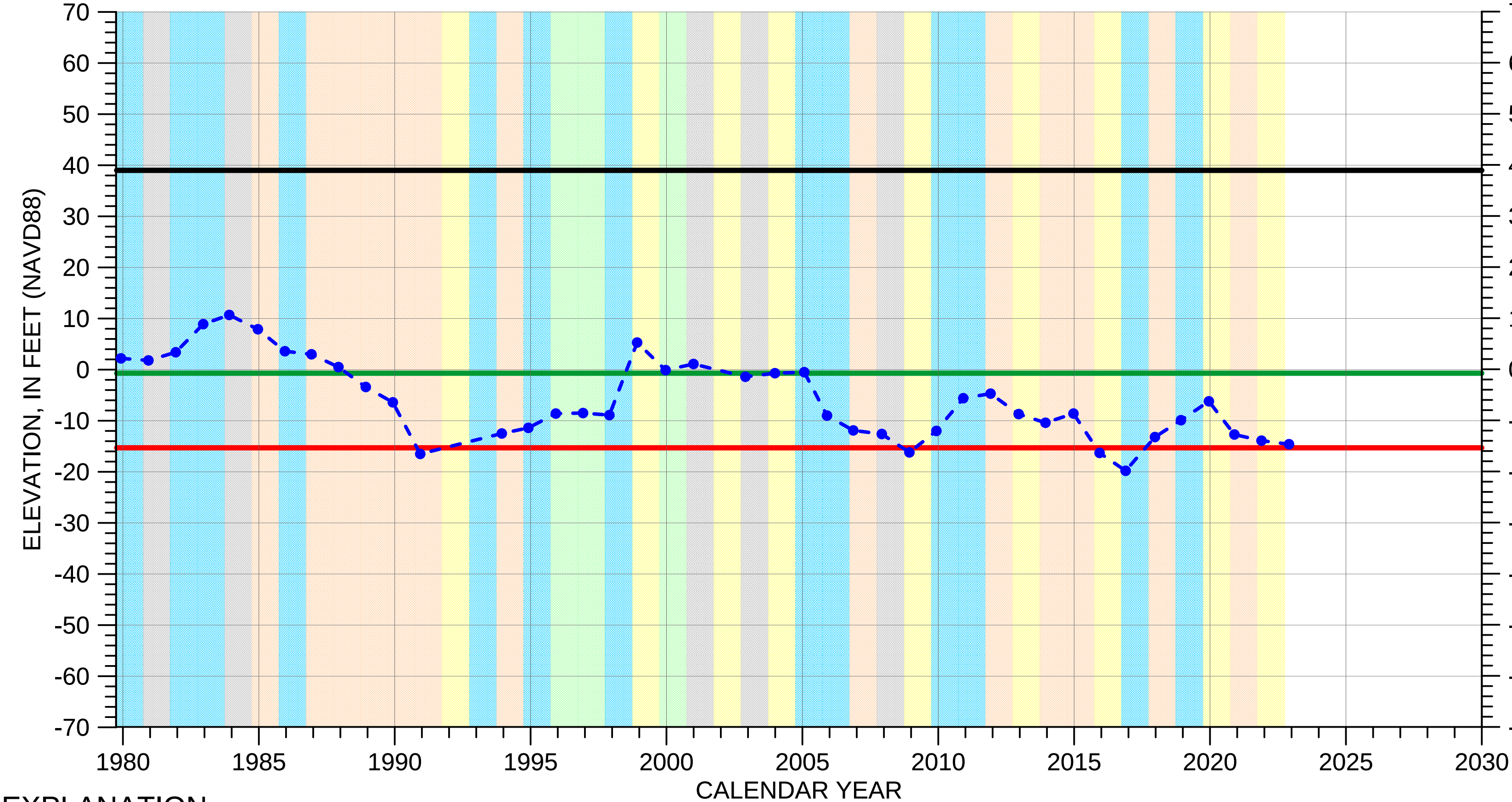
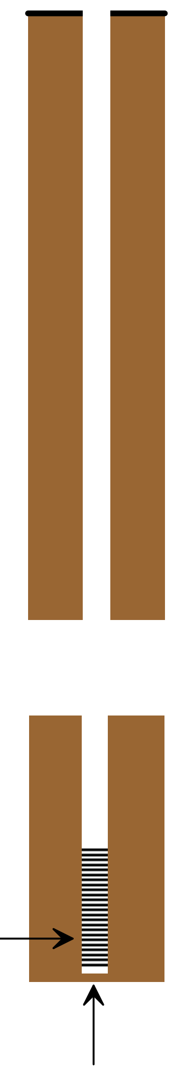
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/02E-01A03**

180/400-Foot Aquifer Subbasin



Multiple perforated intervals from -300 to -439 feet msl

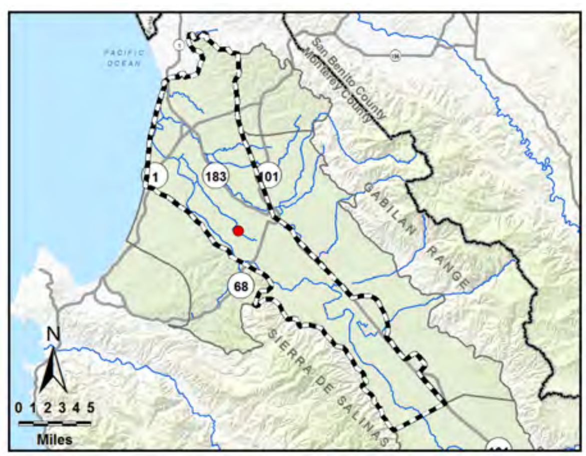
Well bottom -444 feet msl

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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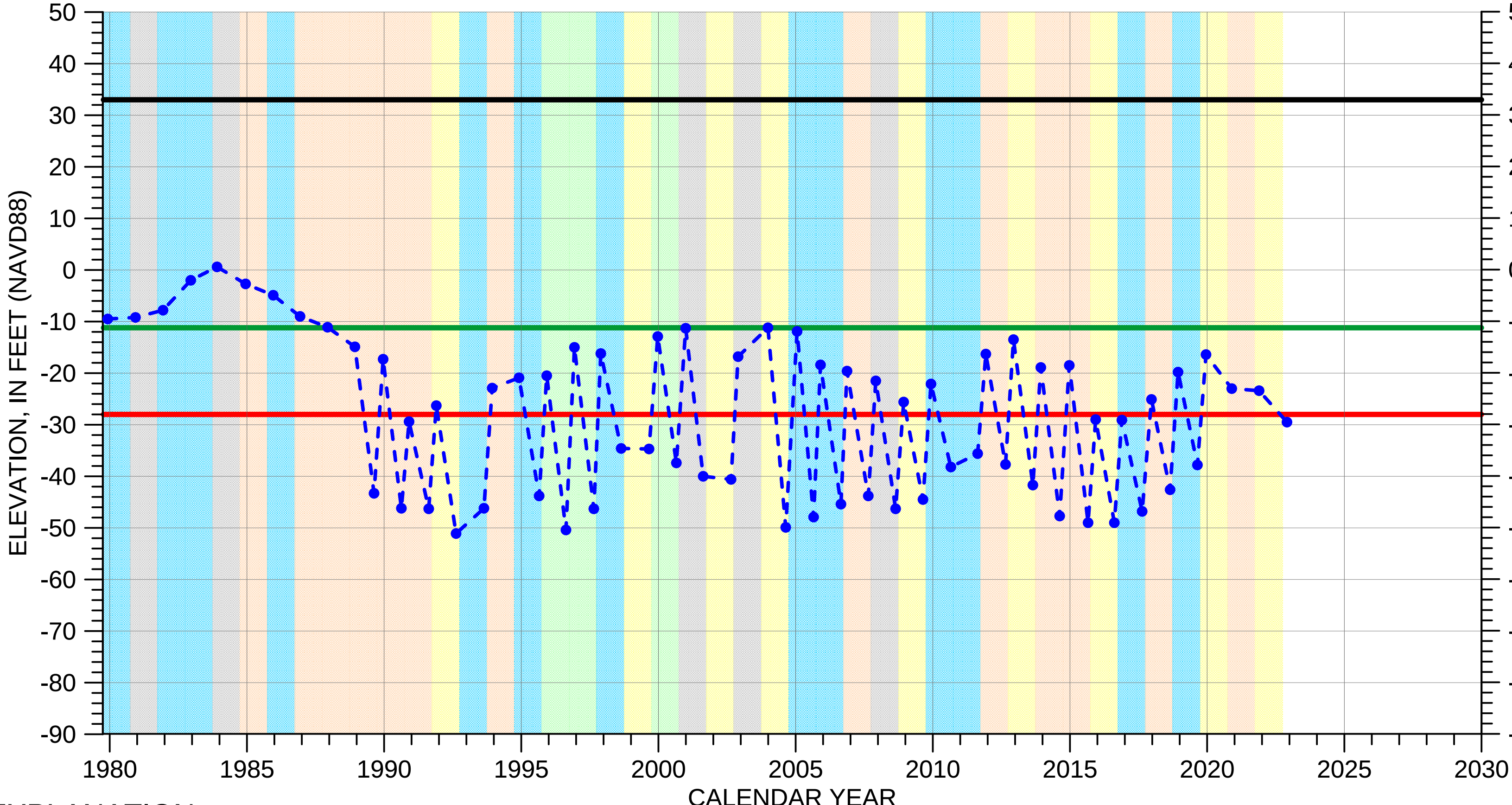
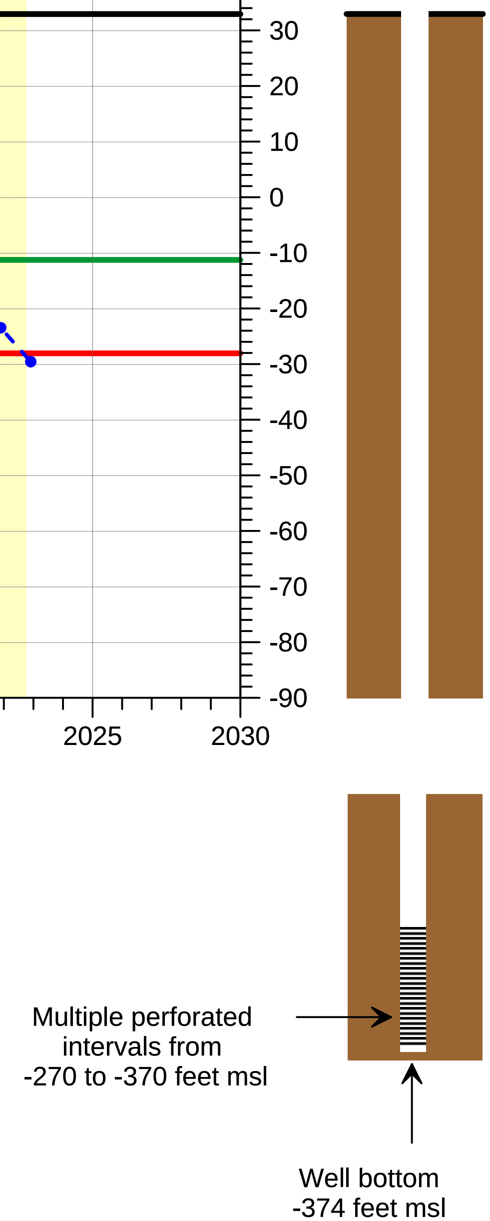
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/02E-02G01

180/400-Foot Aquifer Subbasin



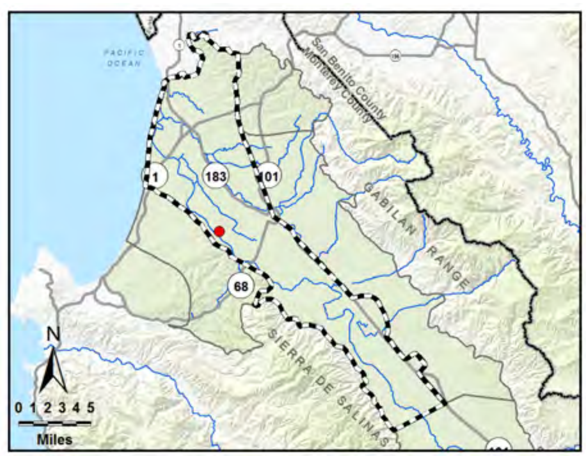




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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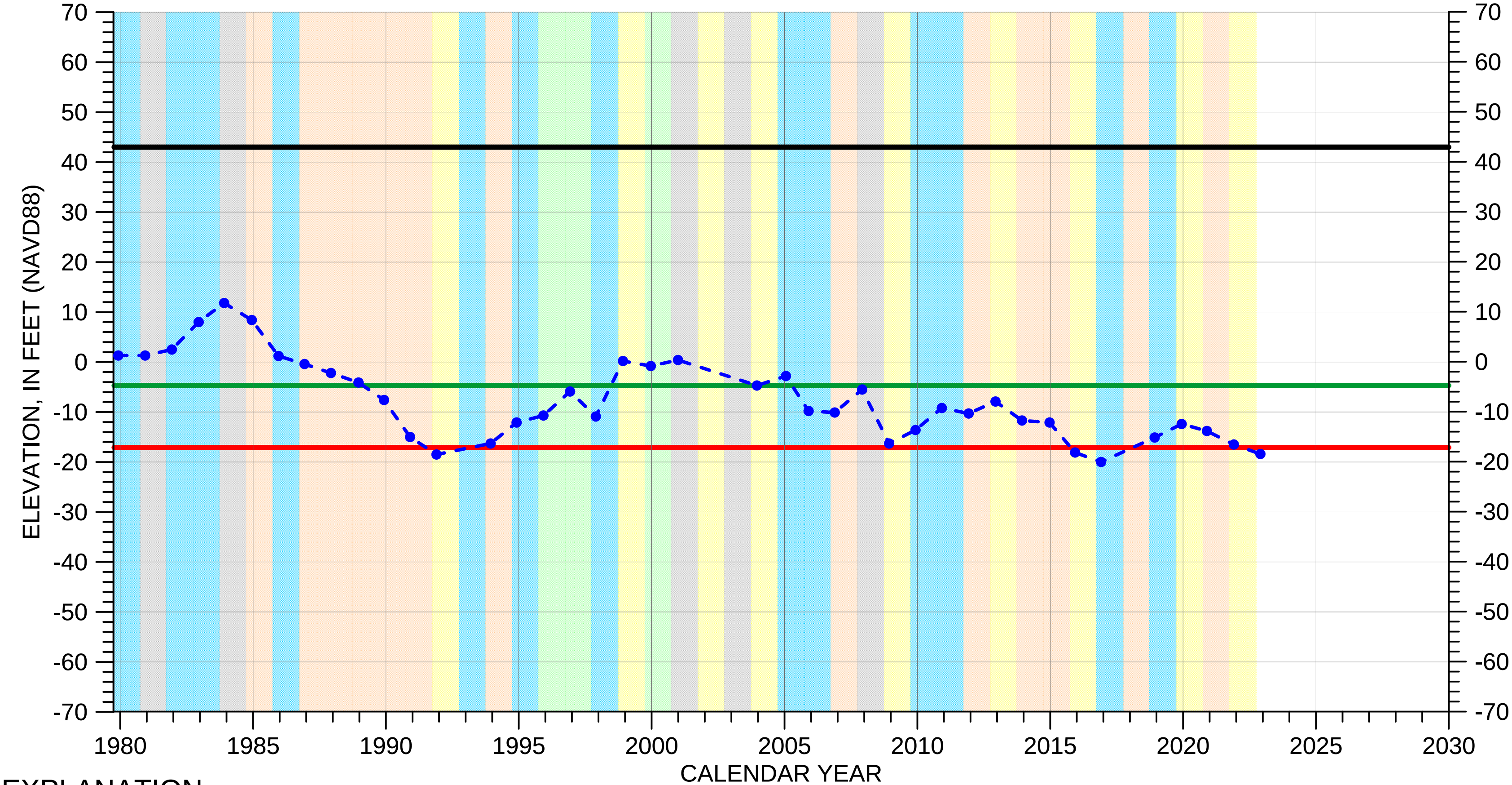
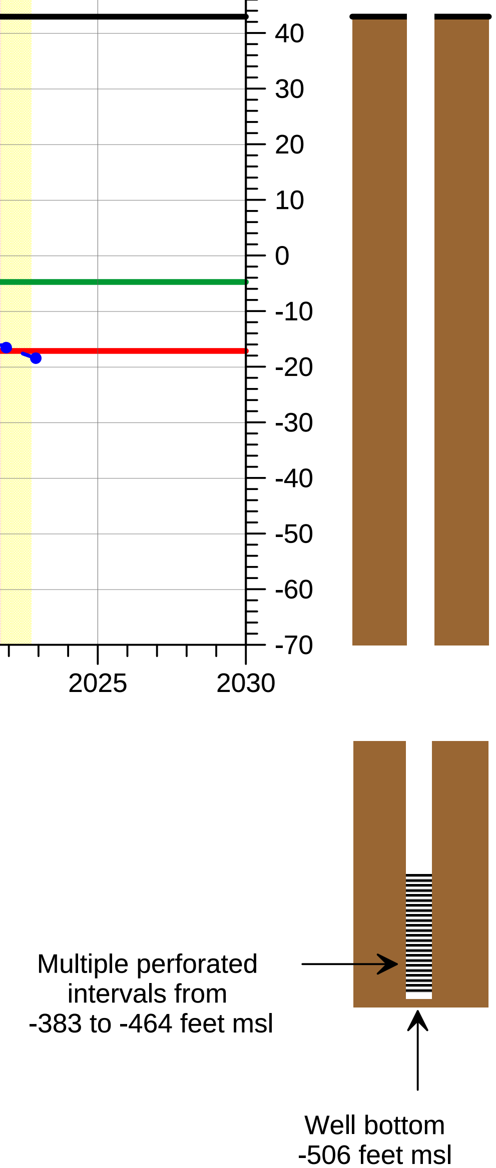
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/02E-12A01**

180/400-Foot Aquifer Subbasin



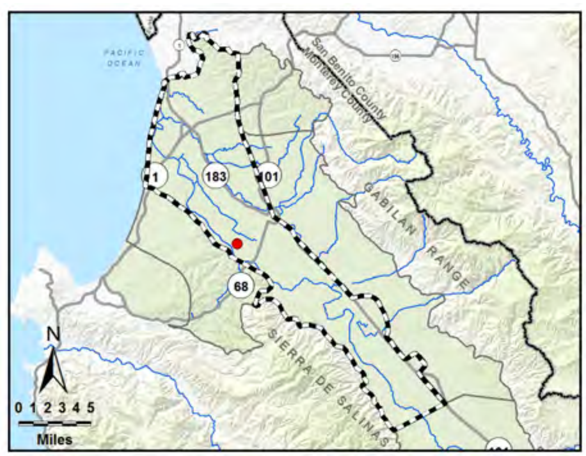




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

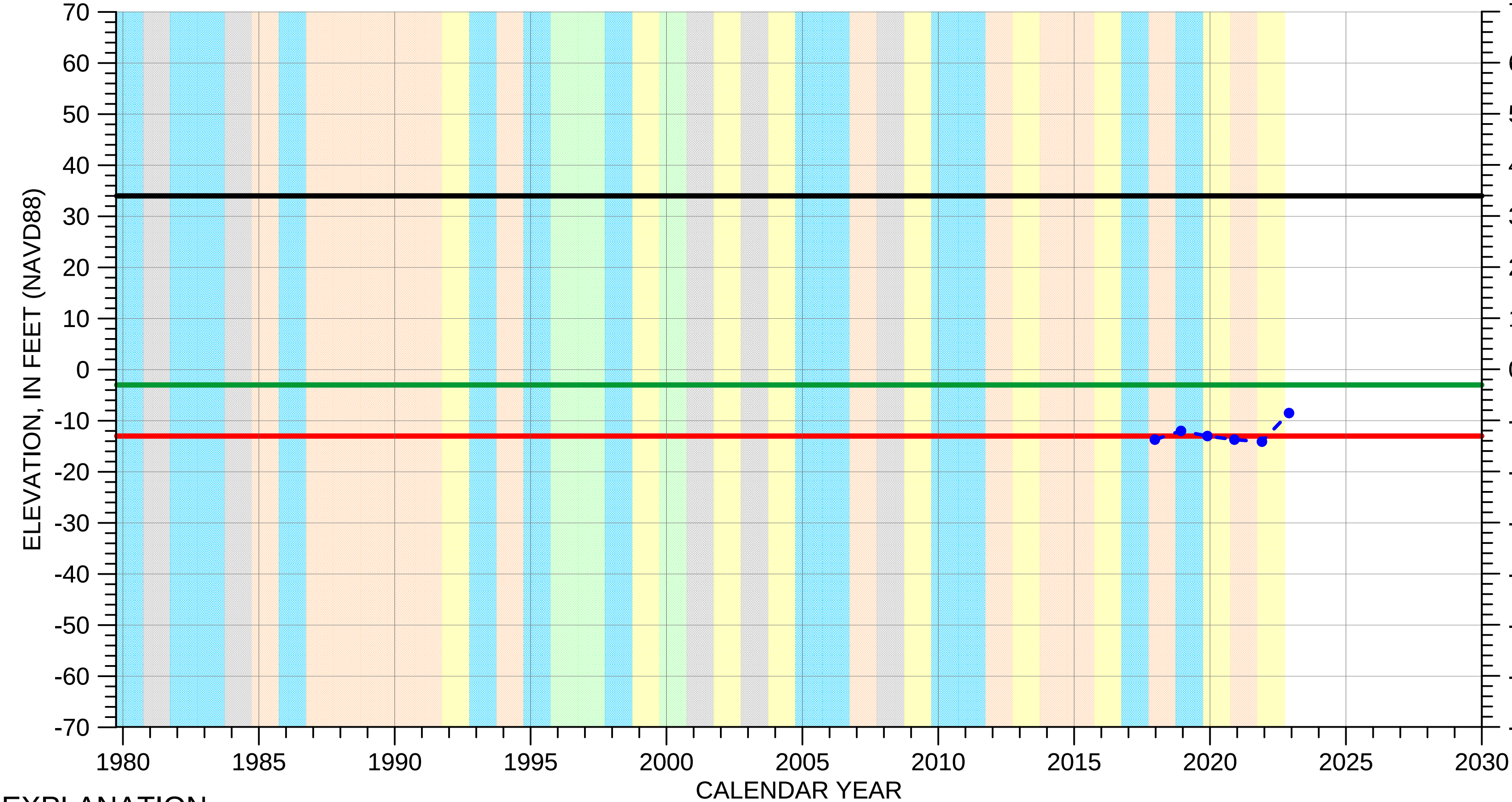
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

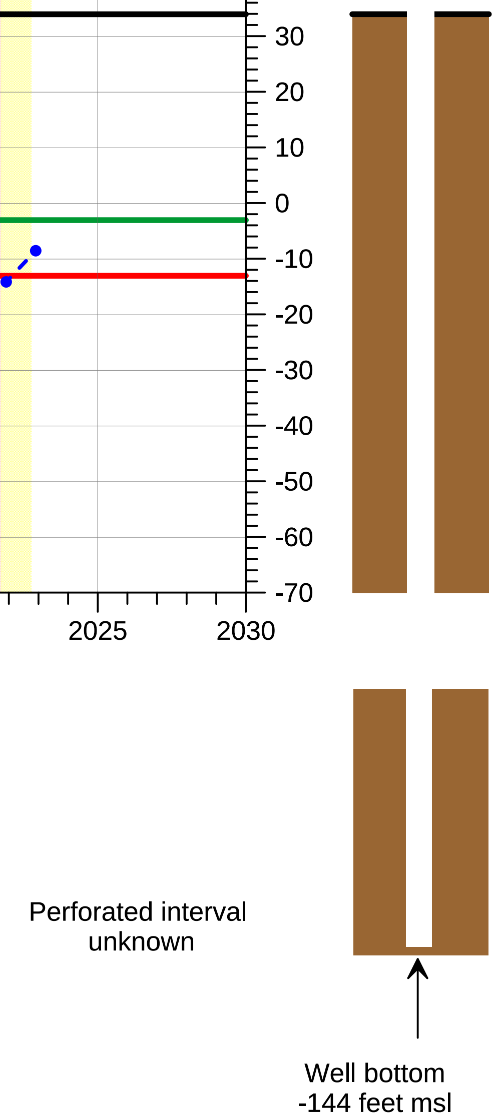



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_02E-12A01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/02E-12C01**

180/400-Foot Aquifer Subbasin



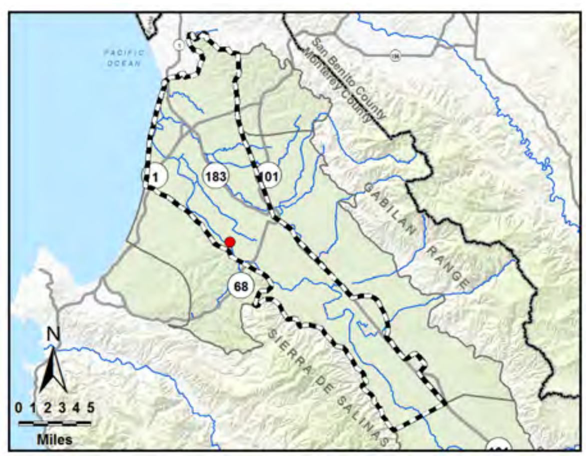




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

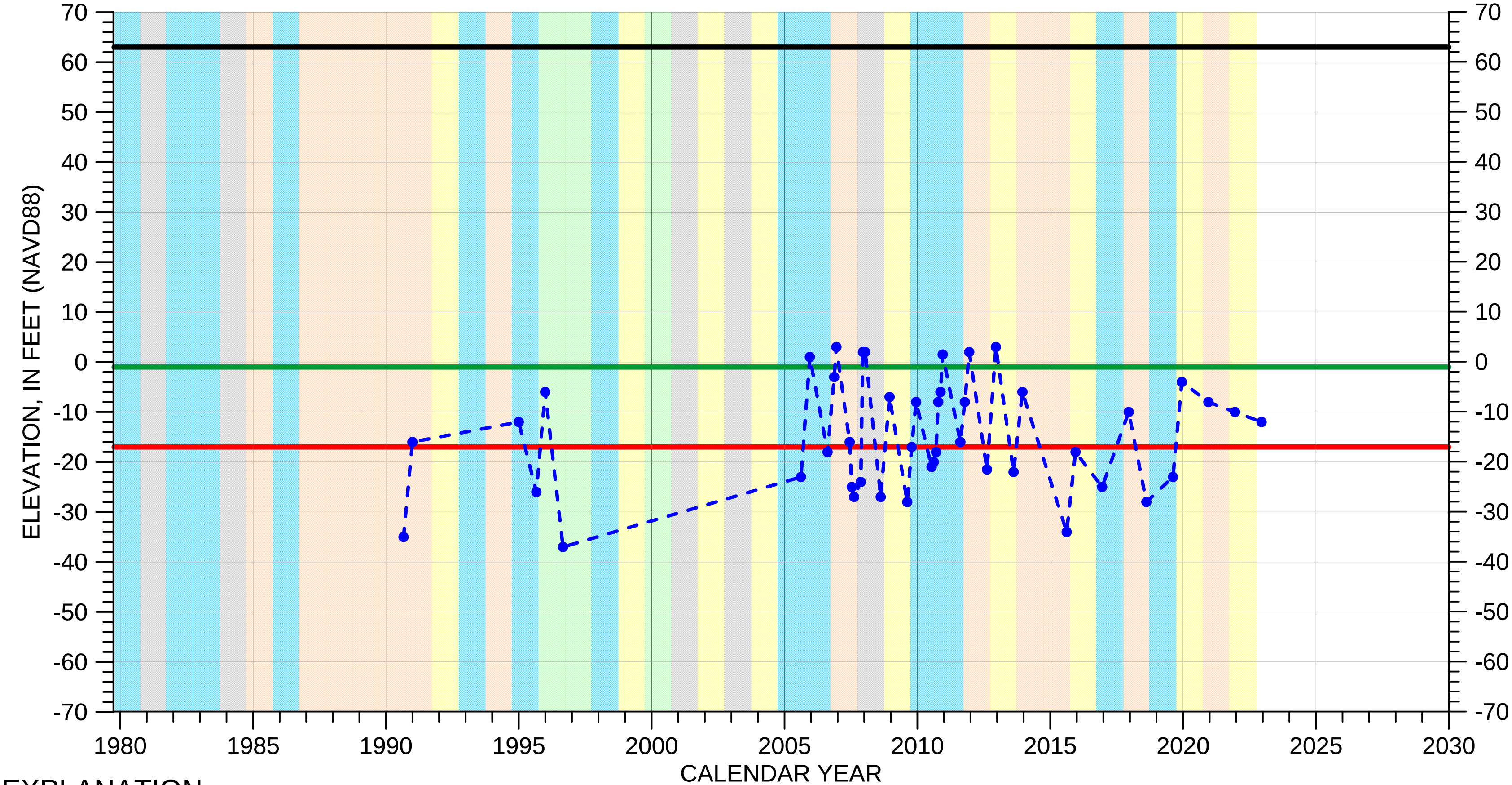
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

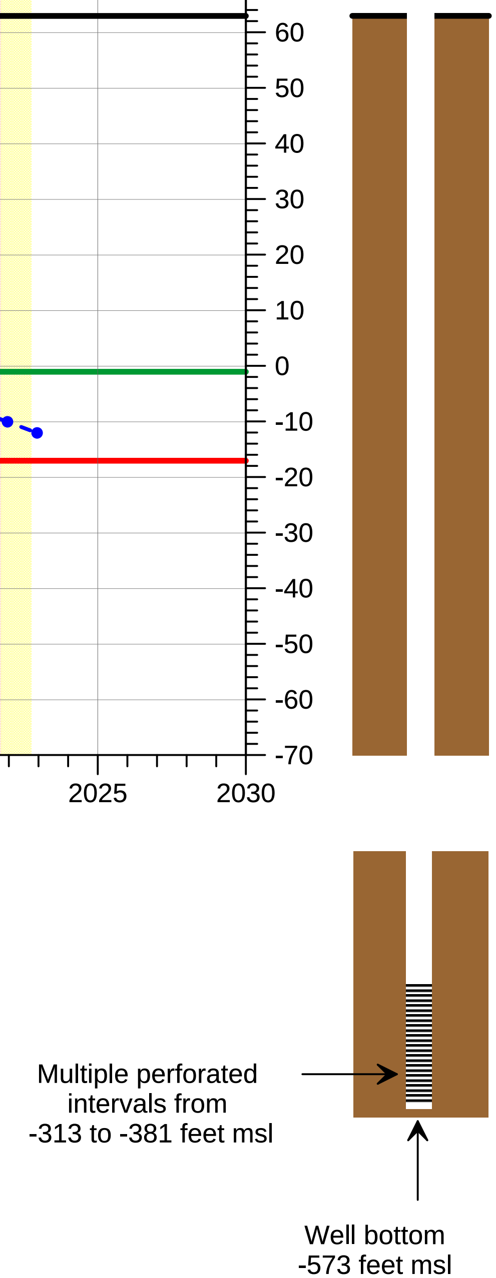



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_02E-12C01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-03R02**

180/400-Foot Aquifer Subbasin



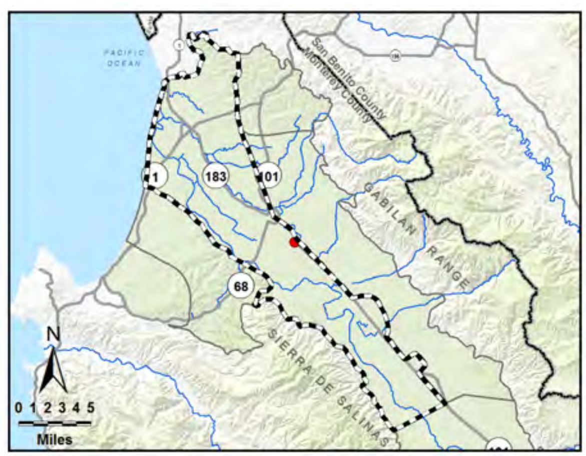

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-03R02.grf

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

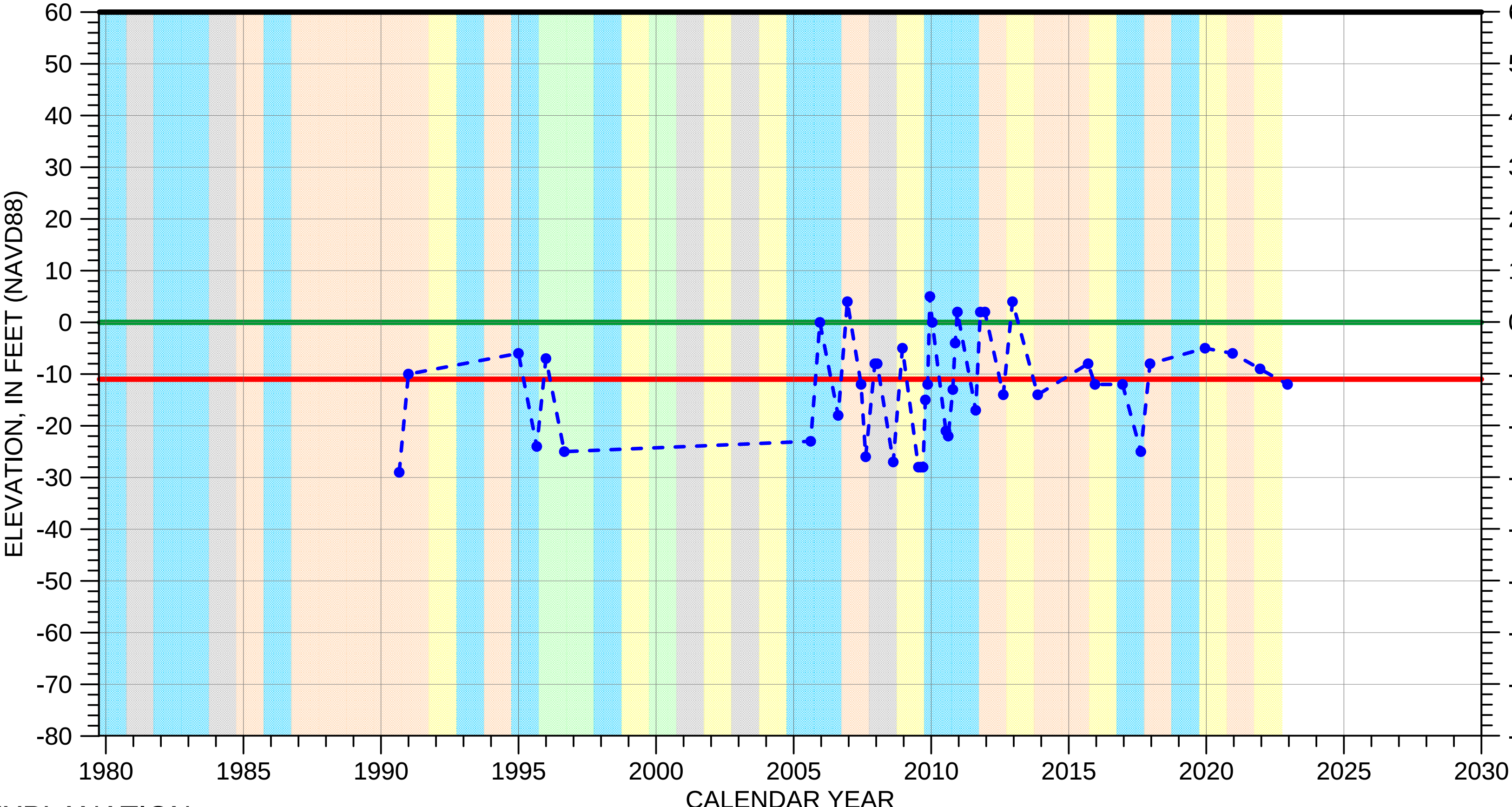
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-04Q01**

180/400-Foot Aquifer Subbasin




Multiple perforated intervals from -248 to -458 feet msl

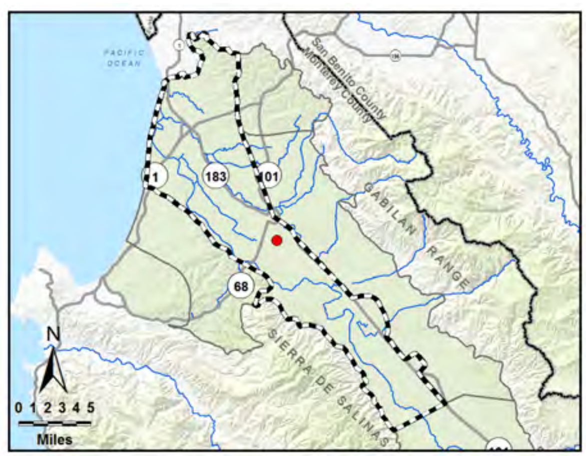
Well bottom -478 feet msl

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

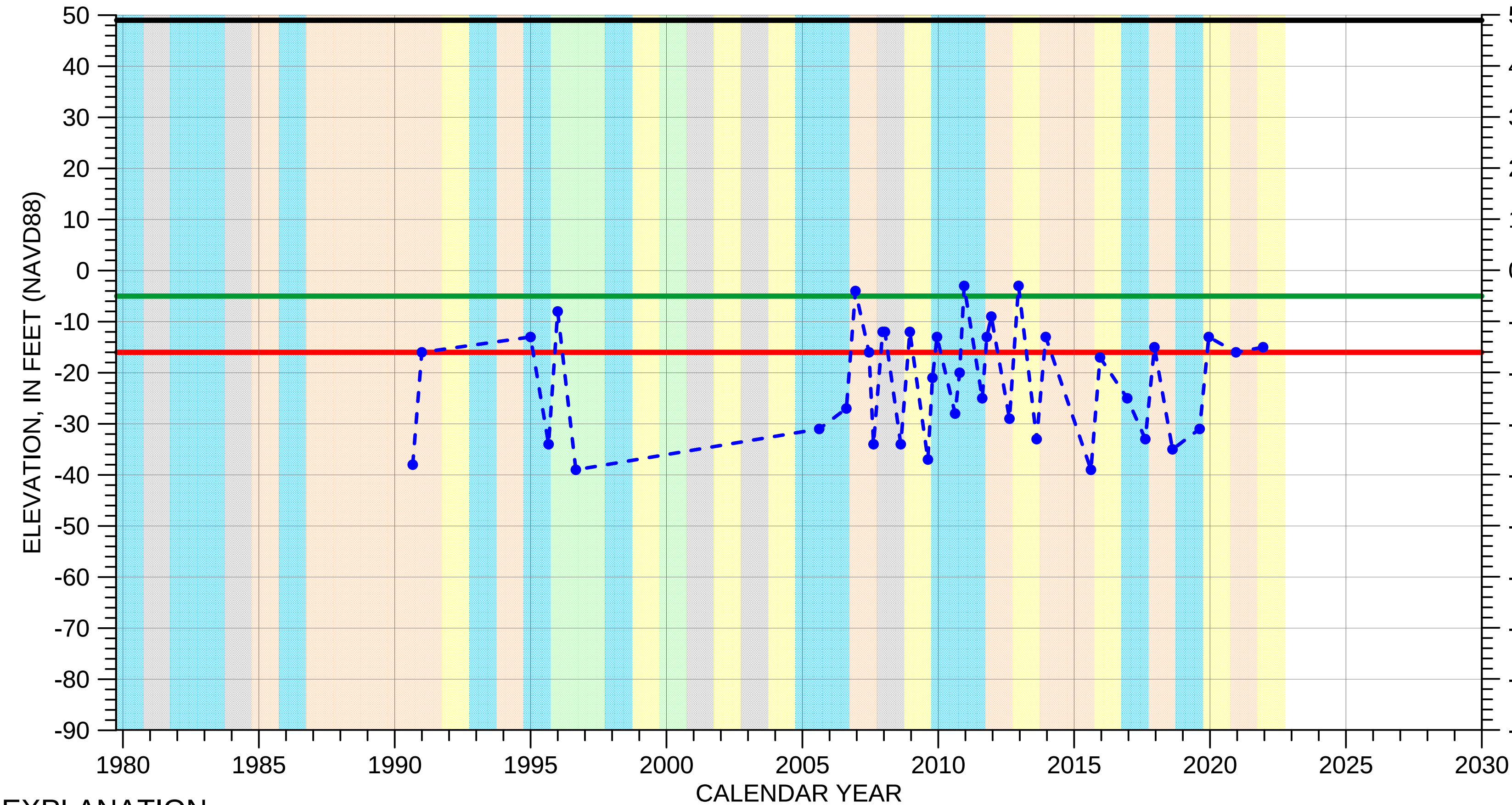
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-04Q01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-05C02

180/400-Foot Aquifer Subbasin

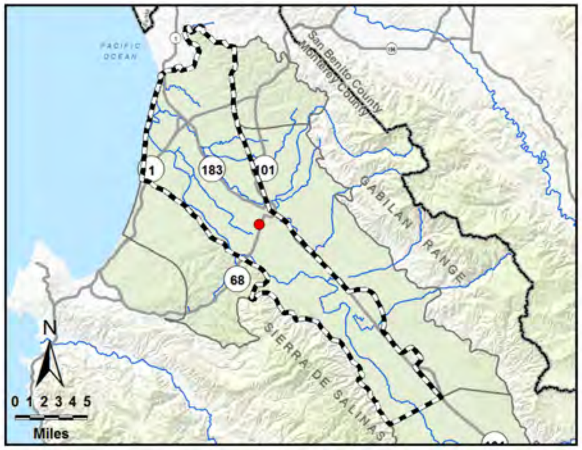


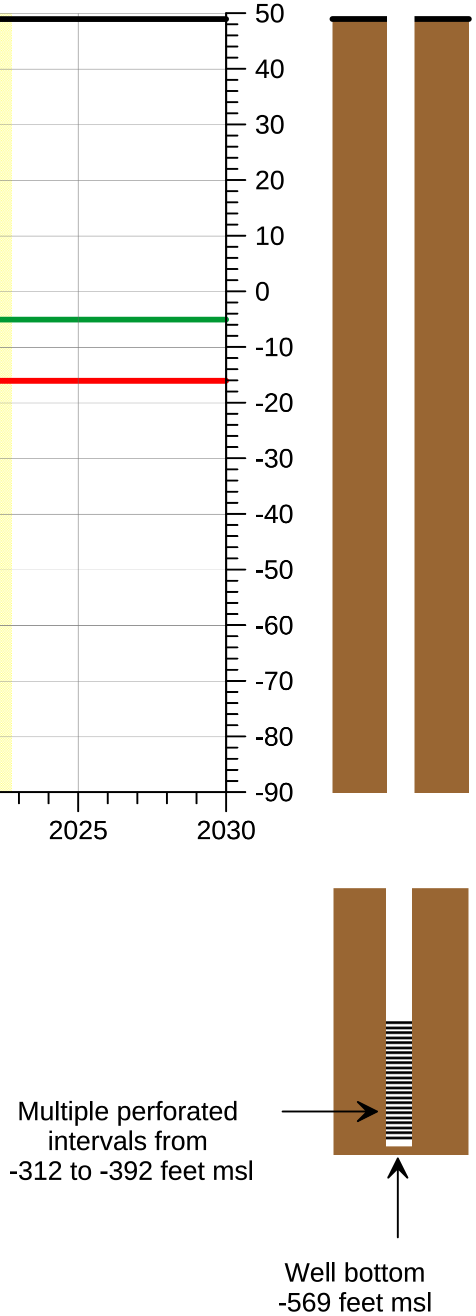

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

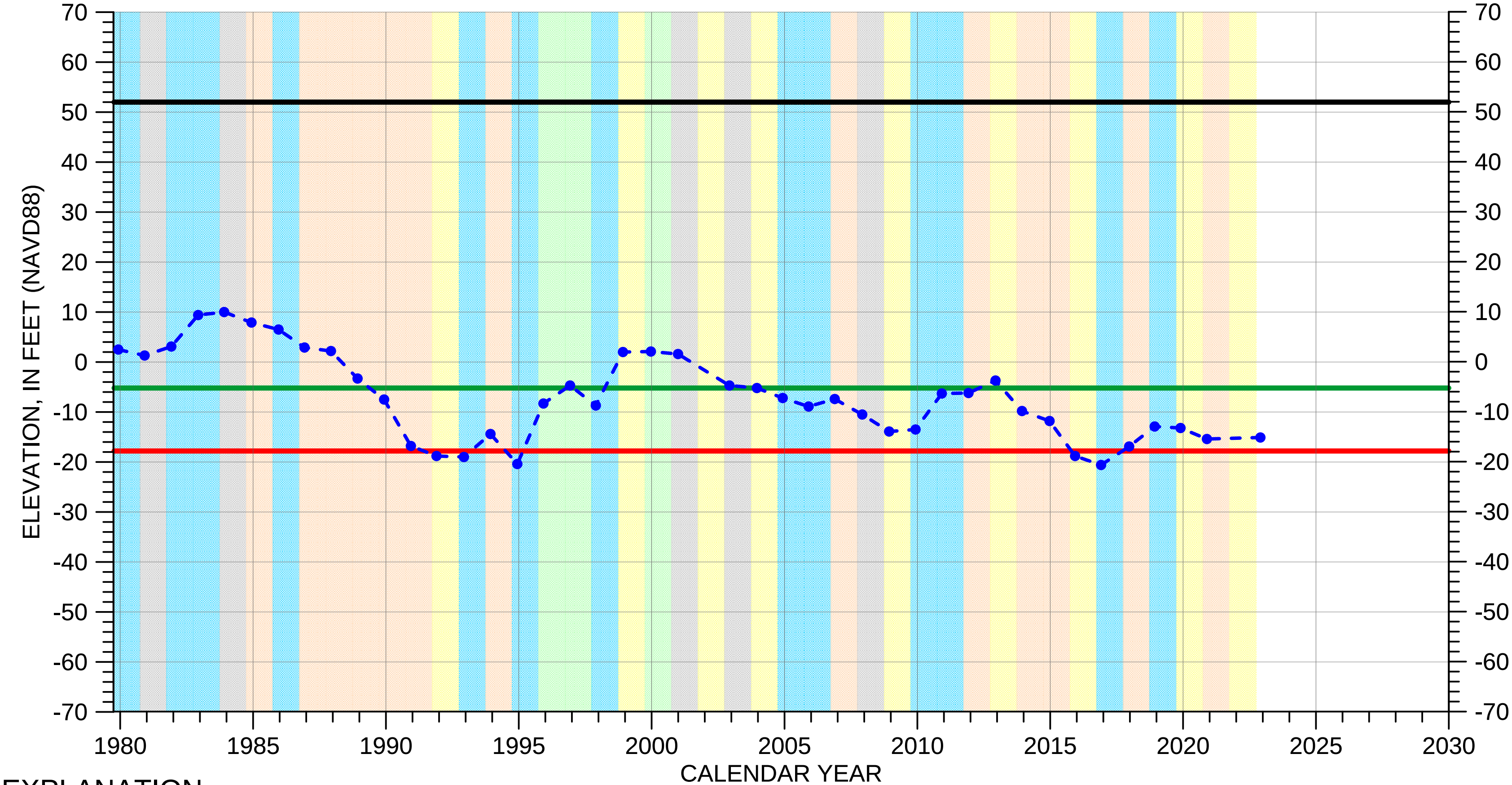


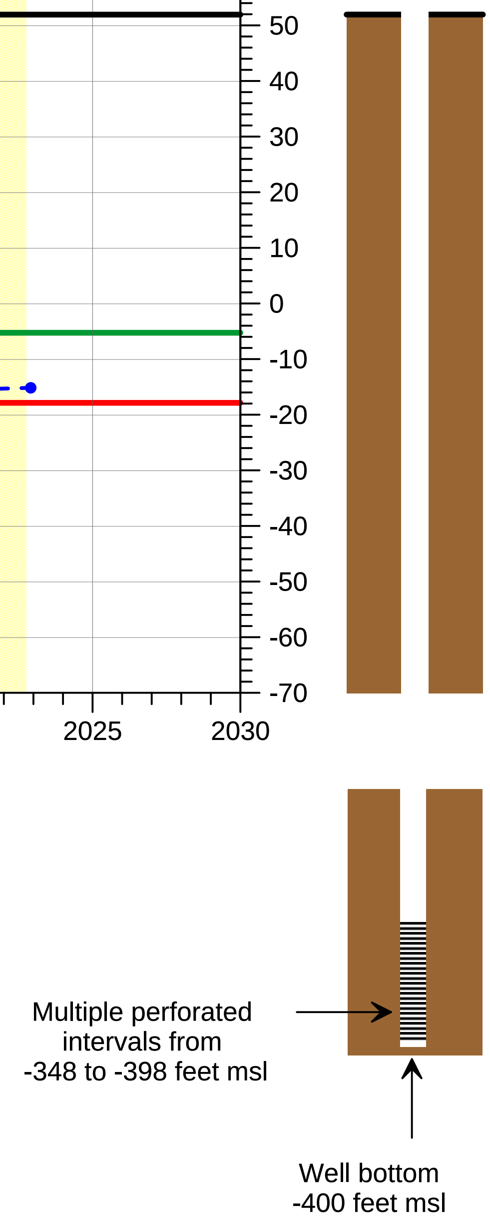




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-05C02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-08F01**

180/400-Foot Aquifer Subbasin



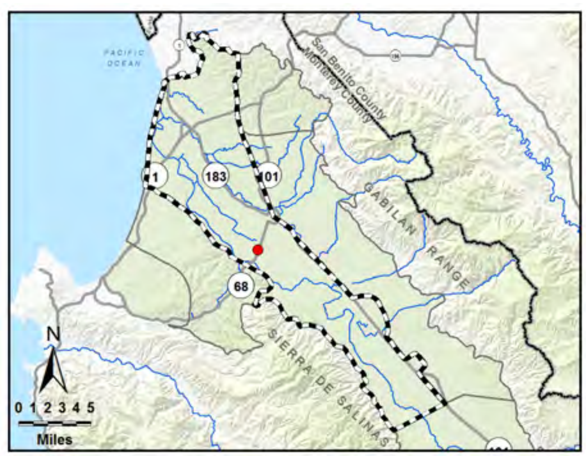




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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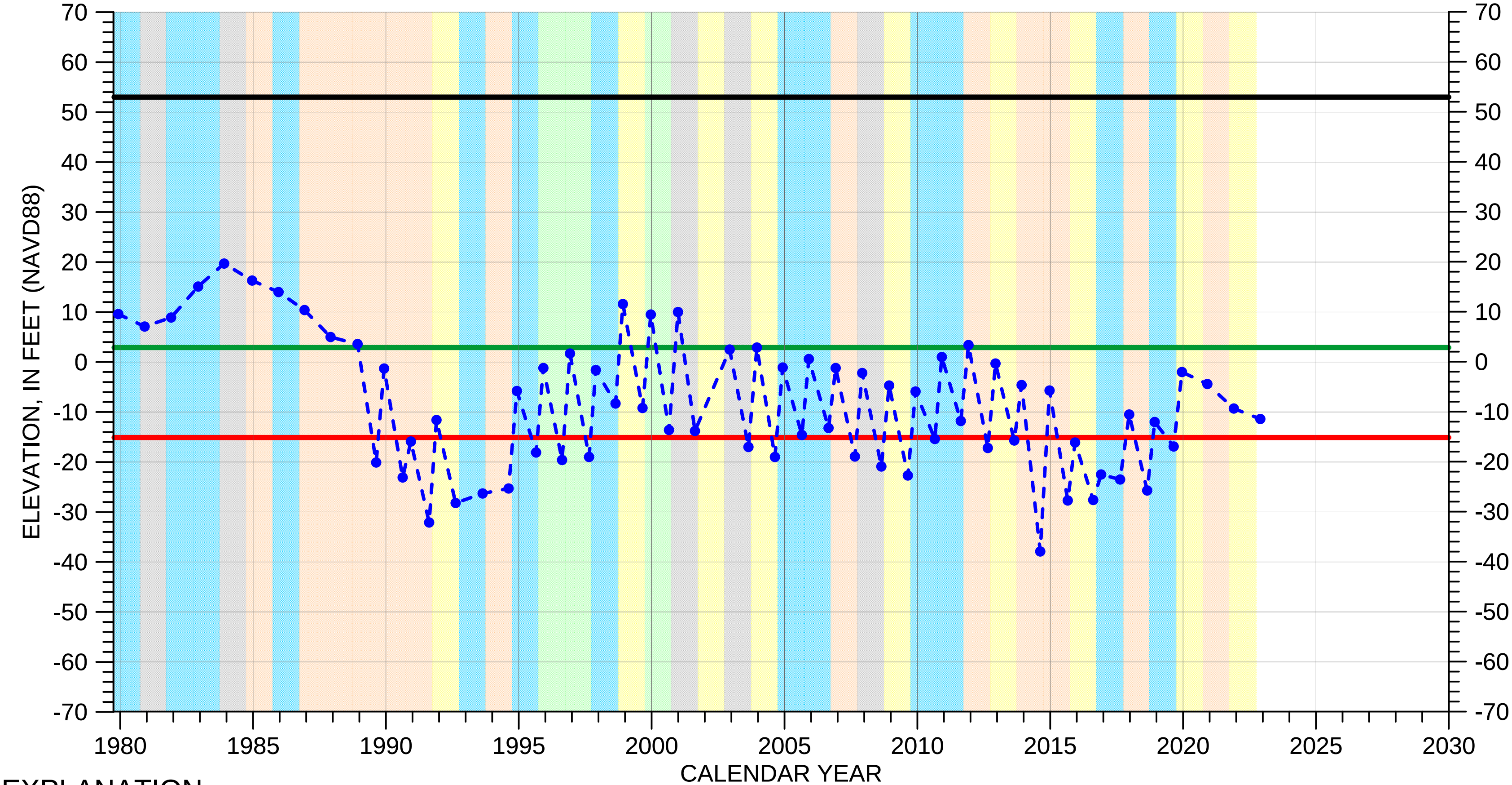
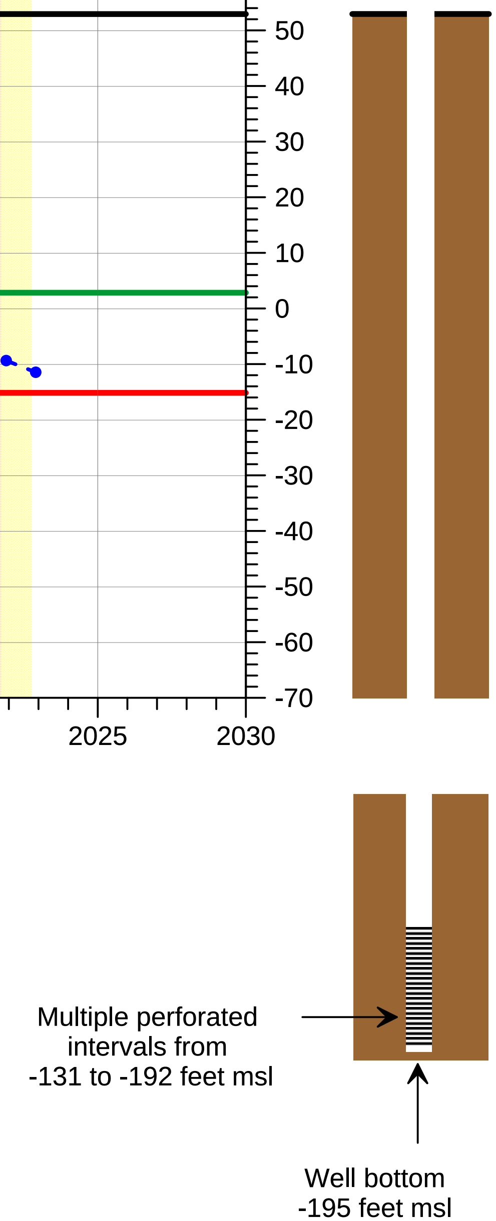
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-09E03**

180/400-Foot Aquifer Subbasin



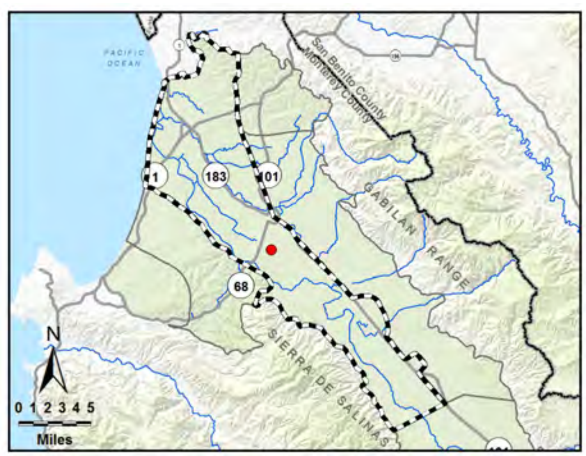




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

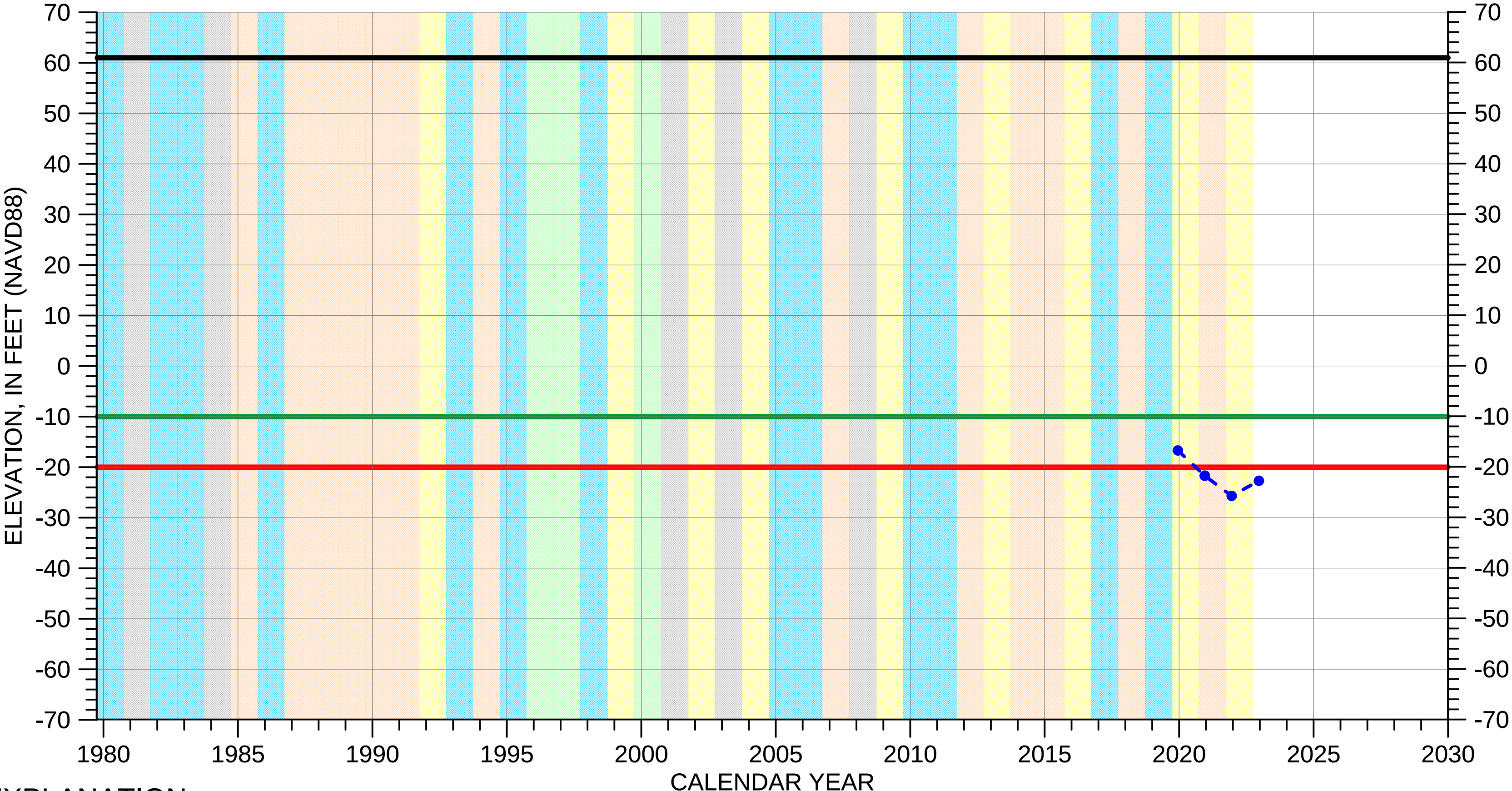
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-09E03.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-10D04

180/400-Foot Aquifer Subbasin

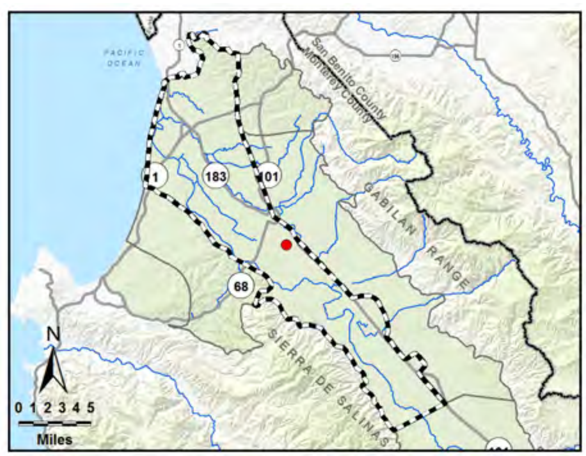


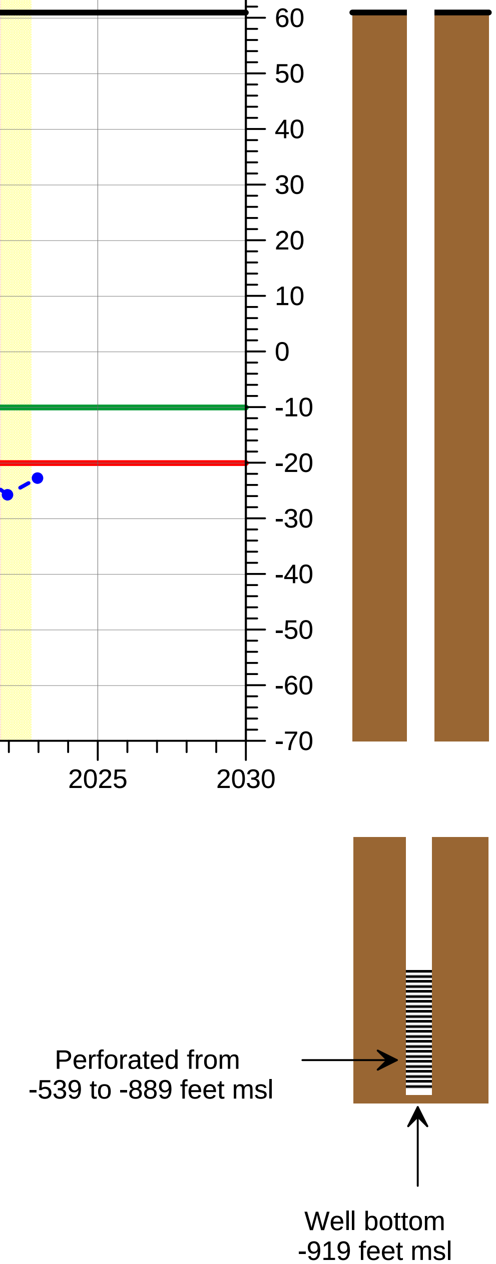

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

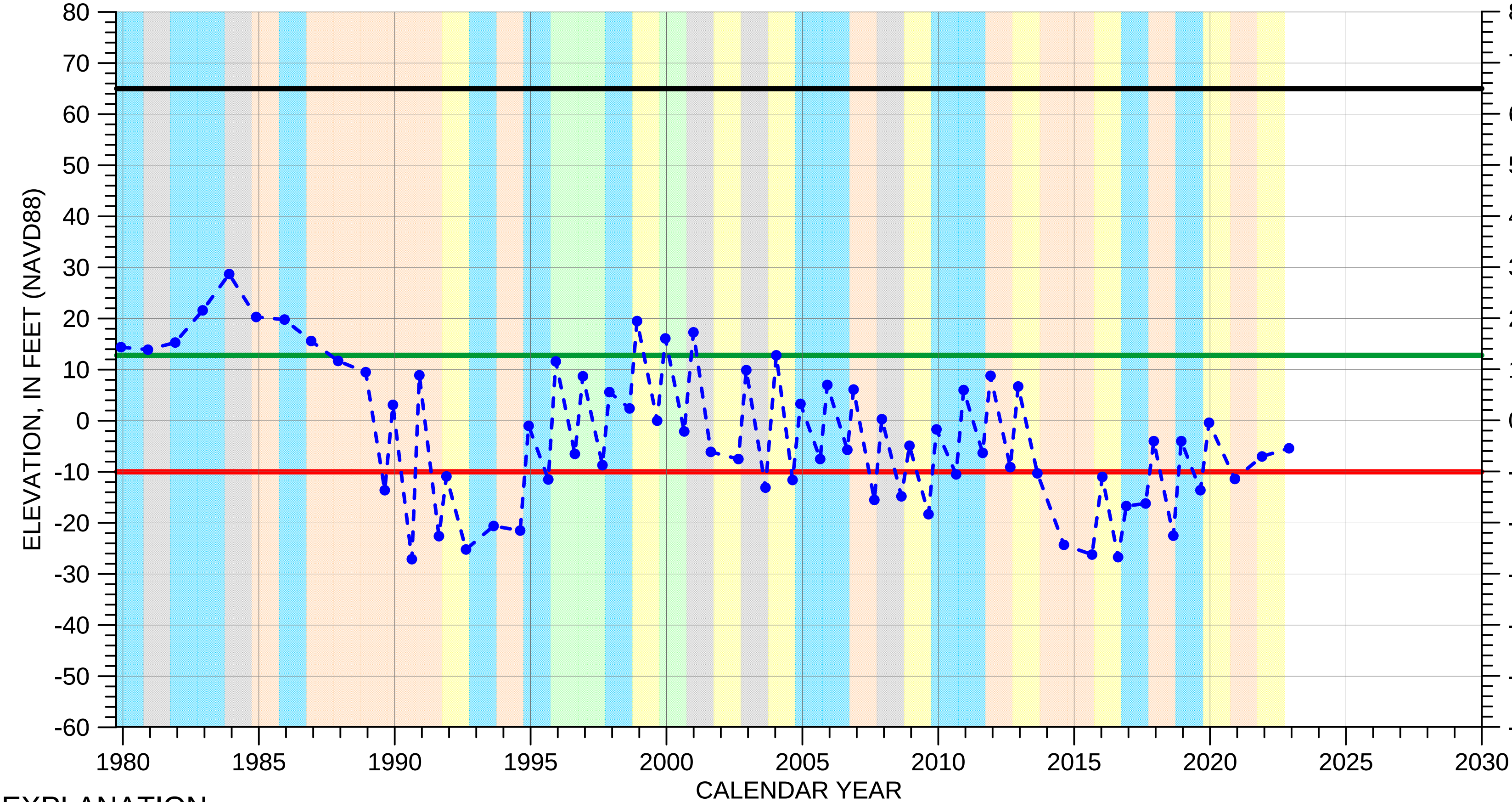



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-10D04.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-13N01

180/400-Foot Aquifer Subbasin

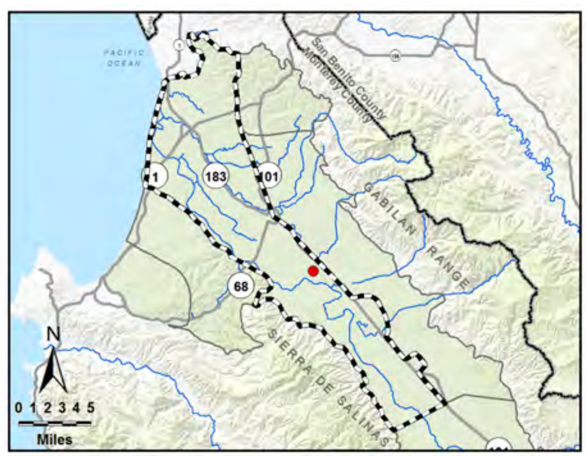


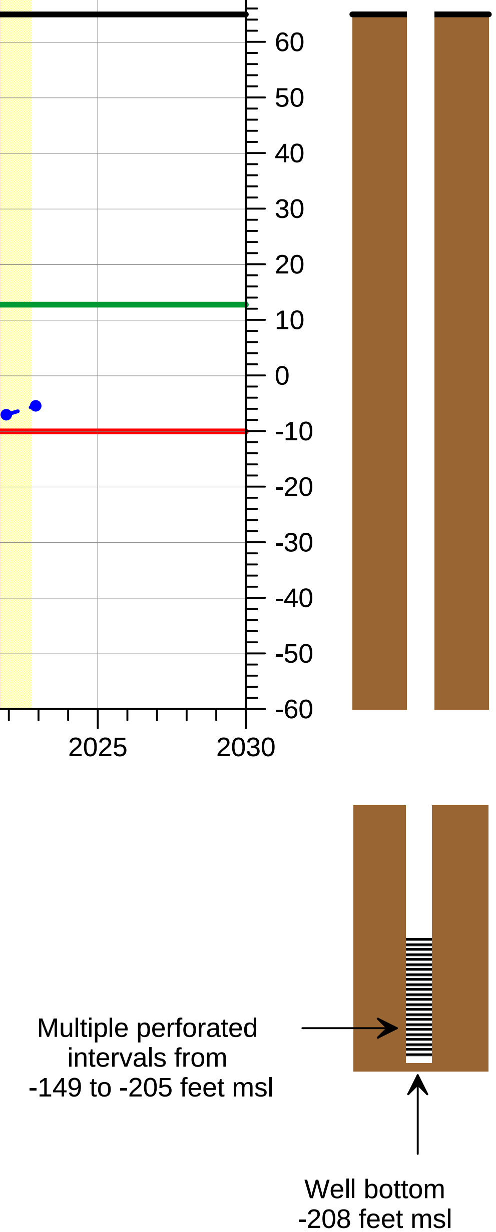

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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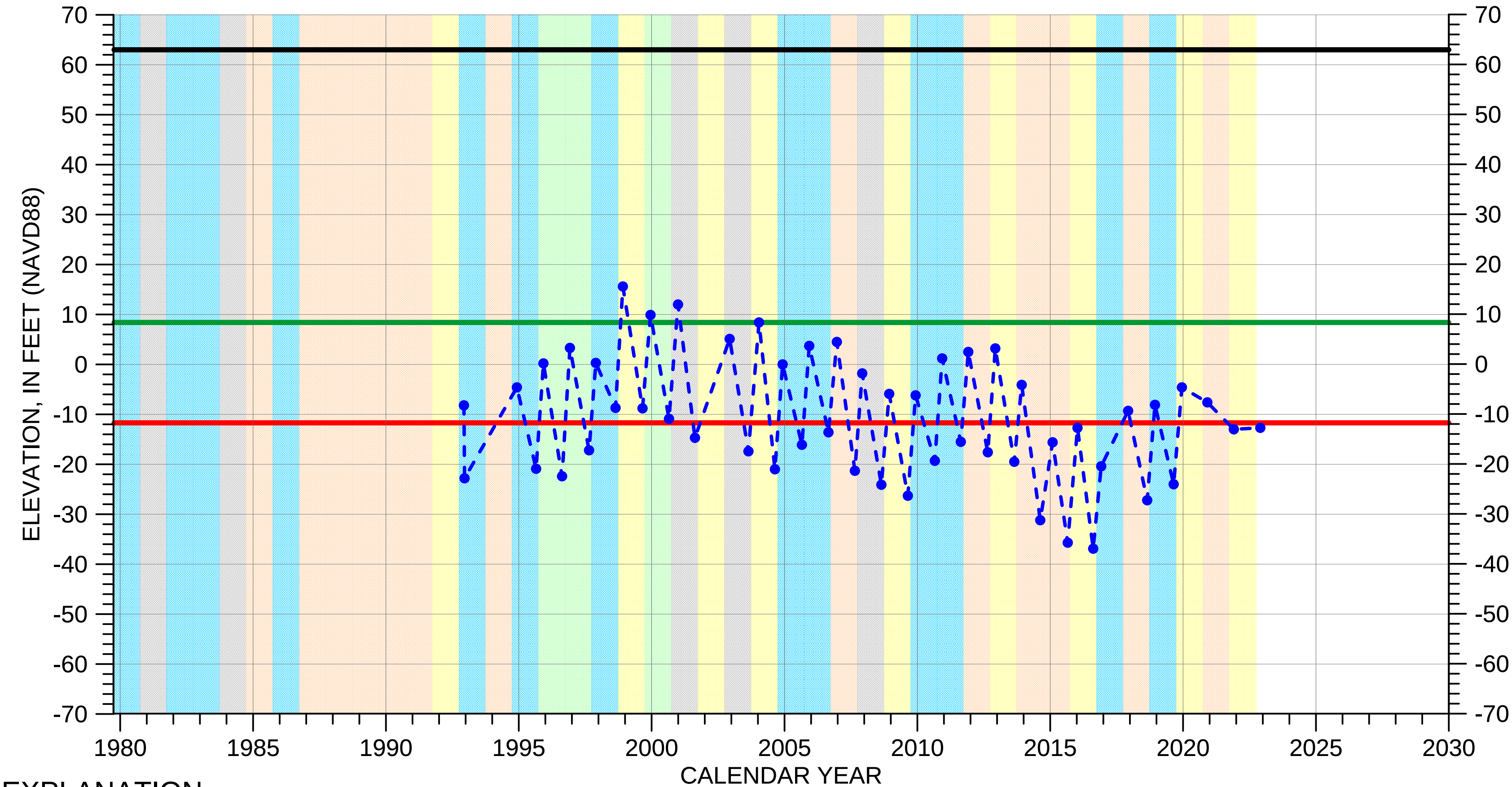
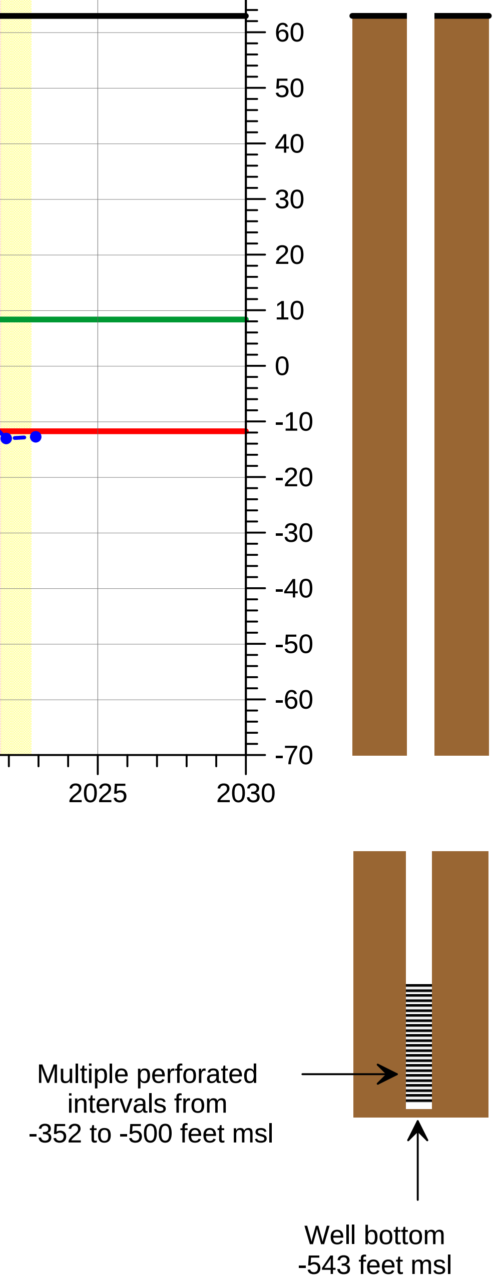
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-14P02

180/400-Foot Aquifer Subbasin



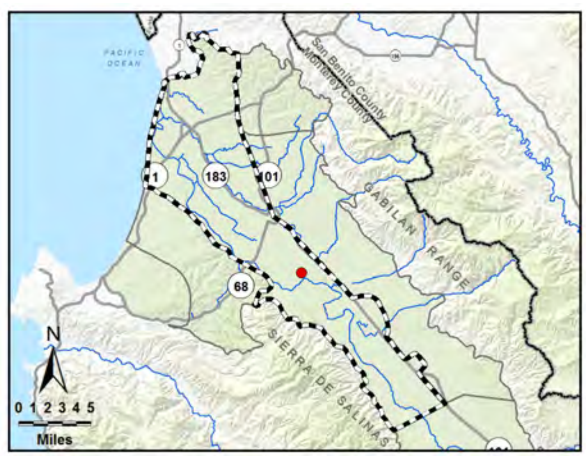




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

| | |
|---|---|
| DRY | WET - NORMAL |
| DRY - NORMAL | WET |
| NORMAL | |

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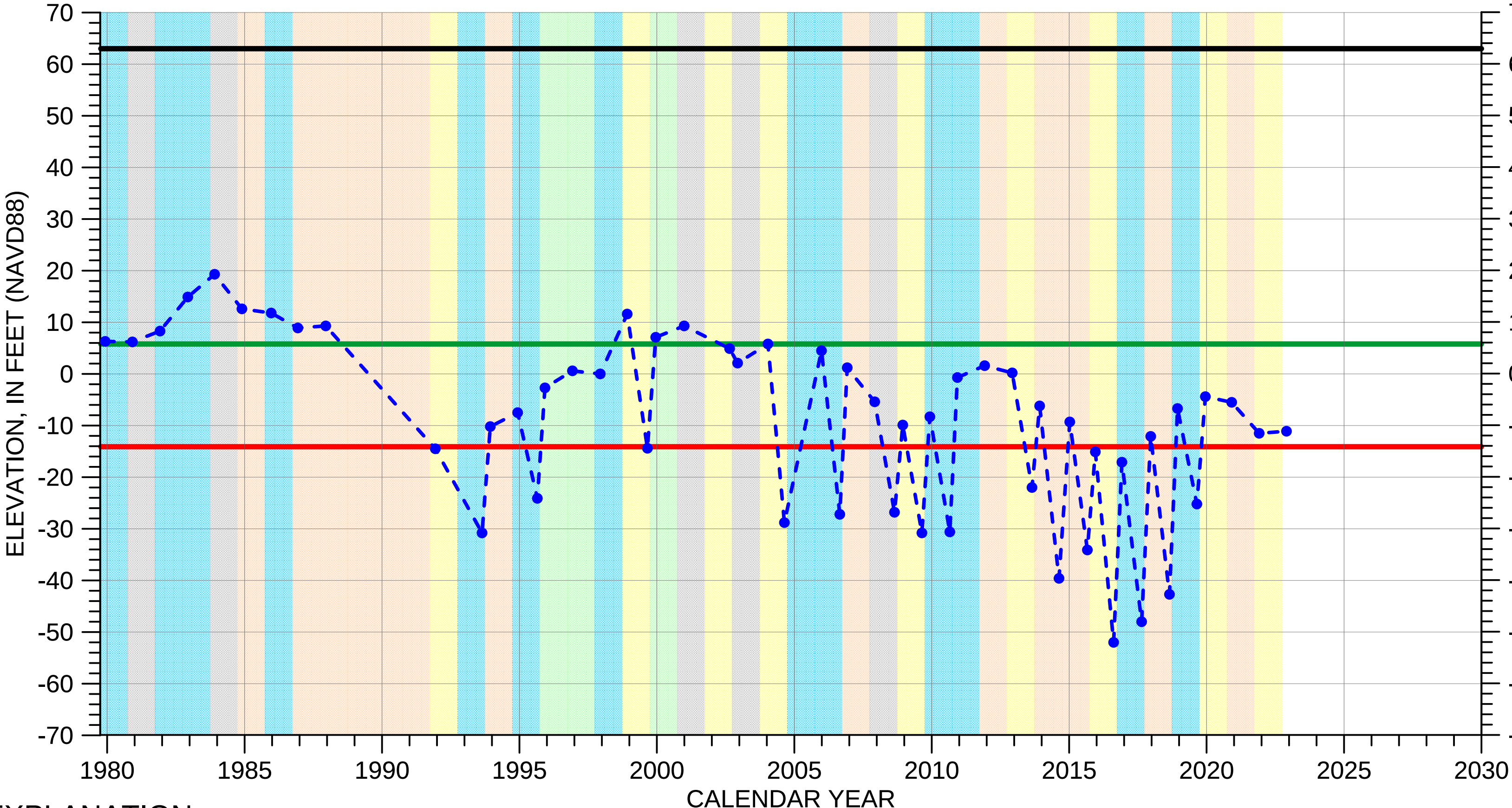
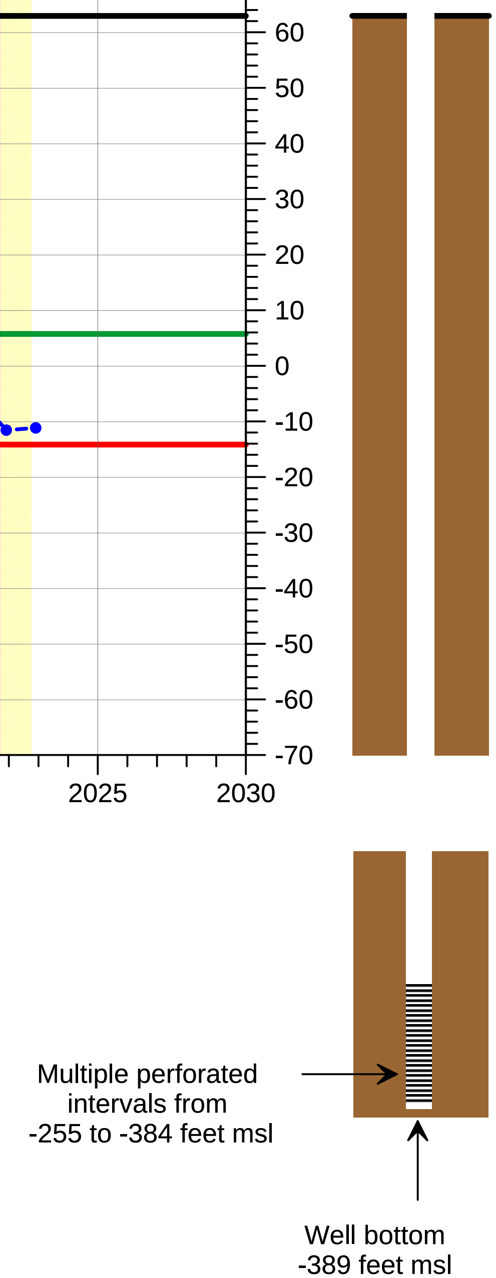
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-15B01

180/400-Foot Aquifer Subbasin



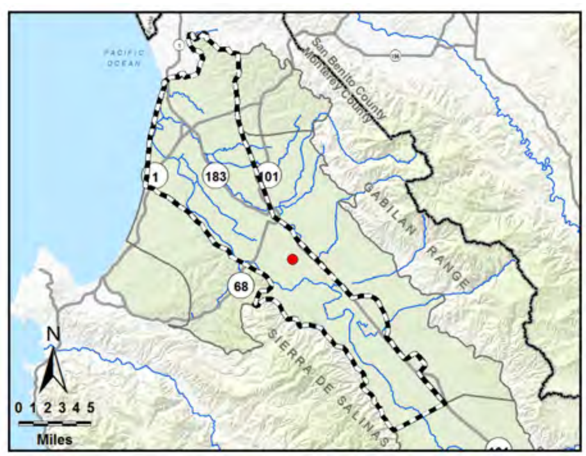




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

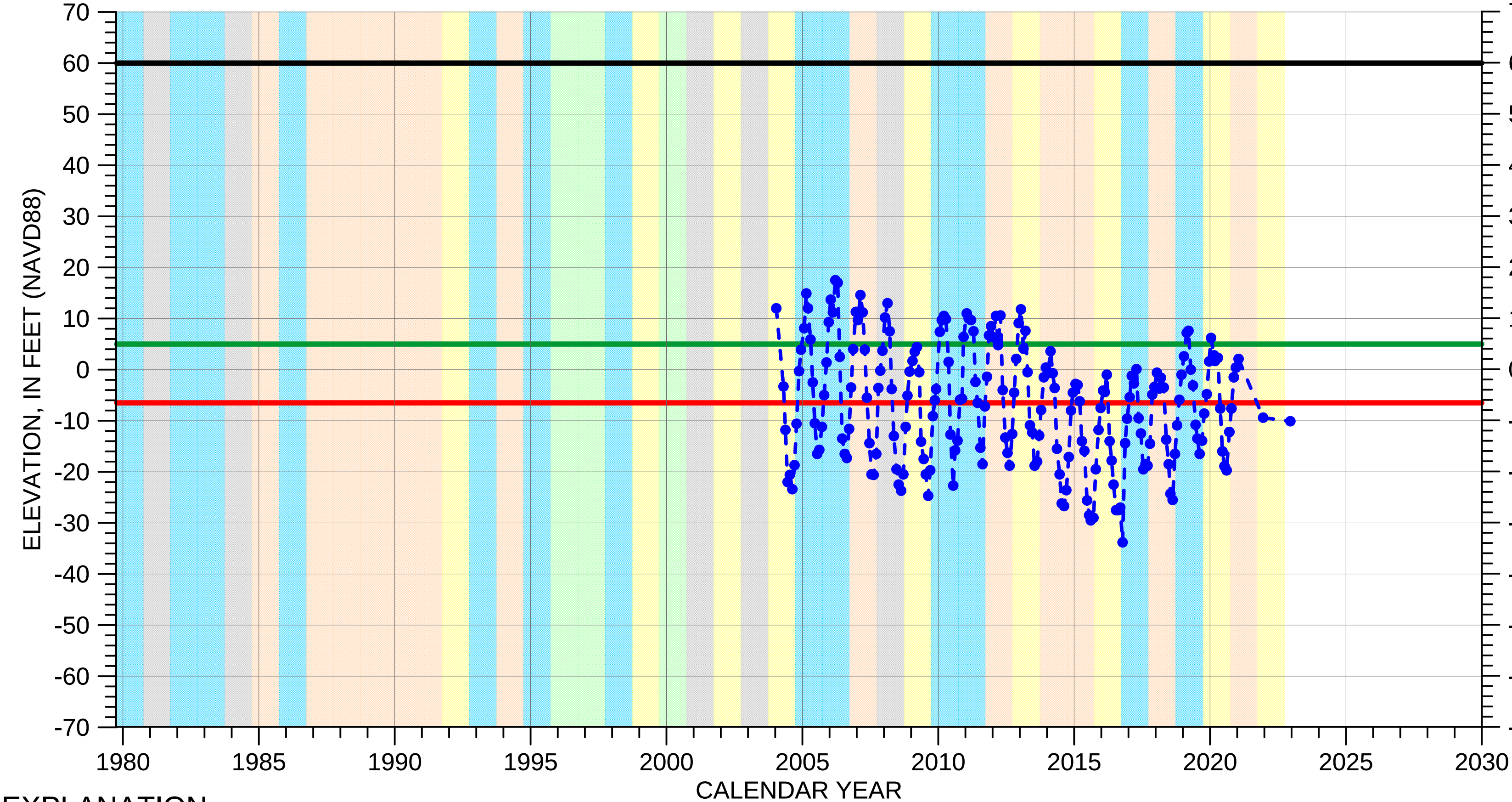
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

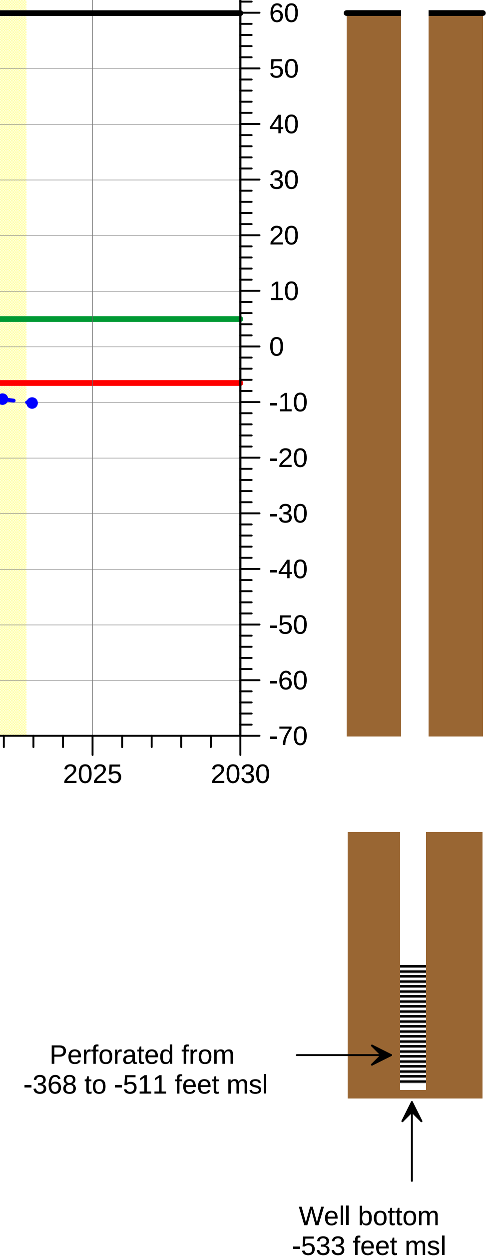



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-15B01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-16F02**

180/400-Foot Aquifer Subbasin



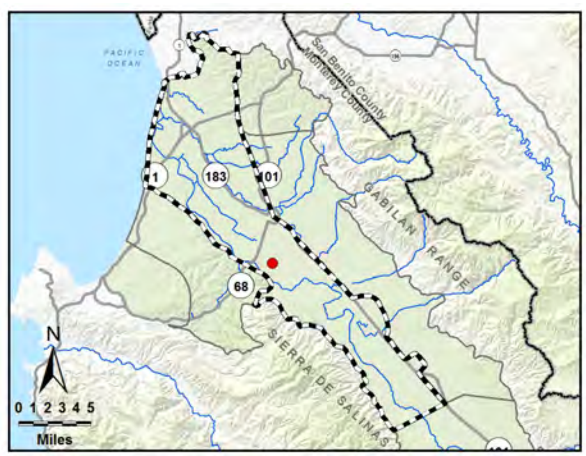




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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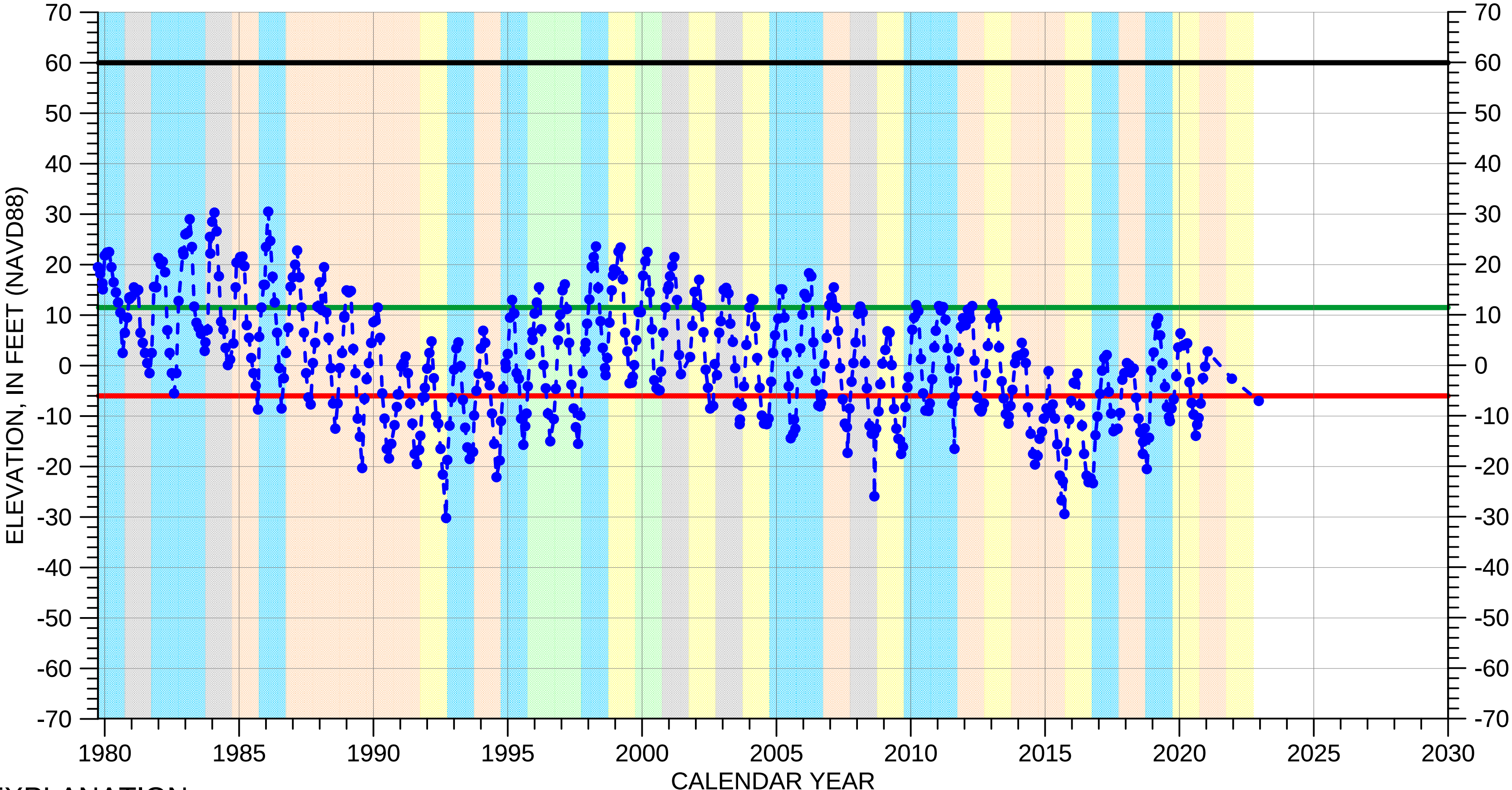
## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-16M01

180/400-Foot Aquifer Subbasin

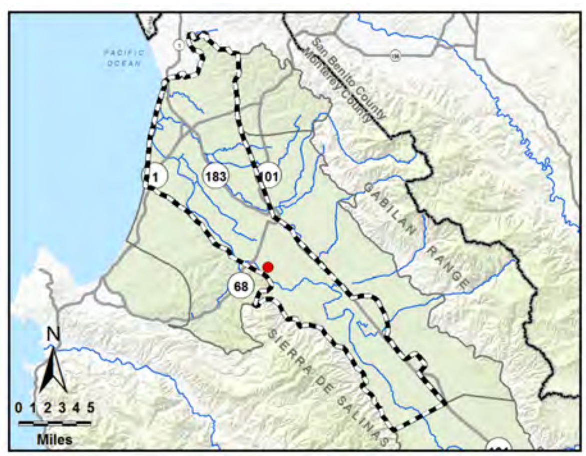



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

| | |
|---|---|
| DRY | WET - NORMAL |
| DRY - NORMAL | WET |
| NORMAL | |



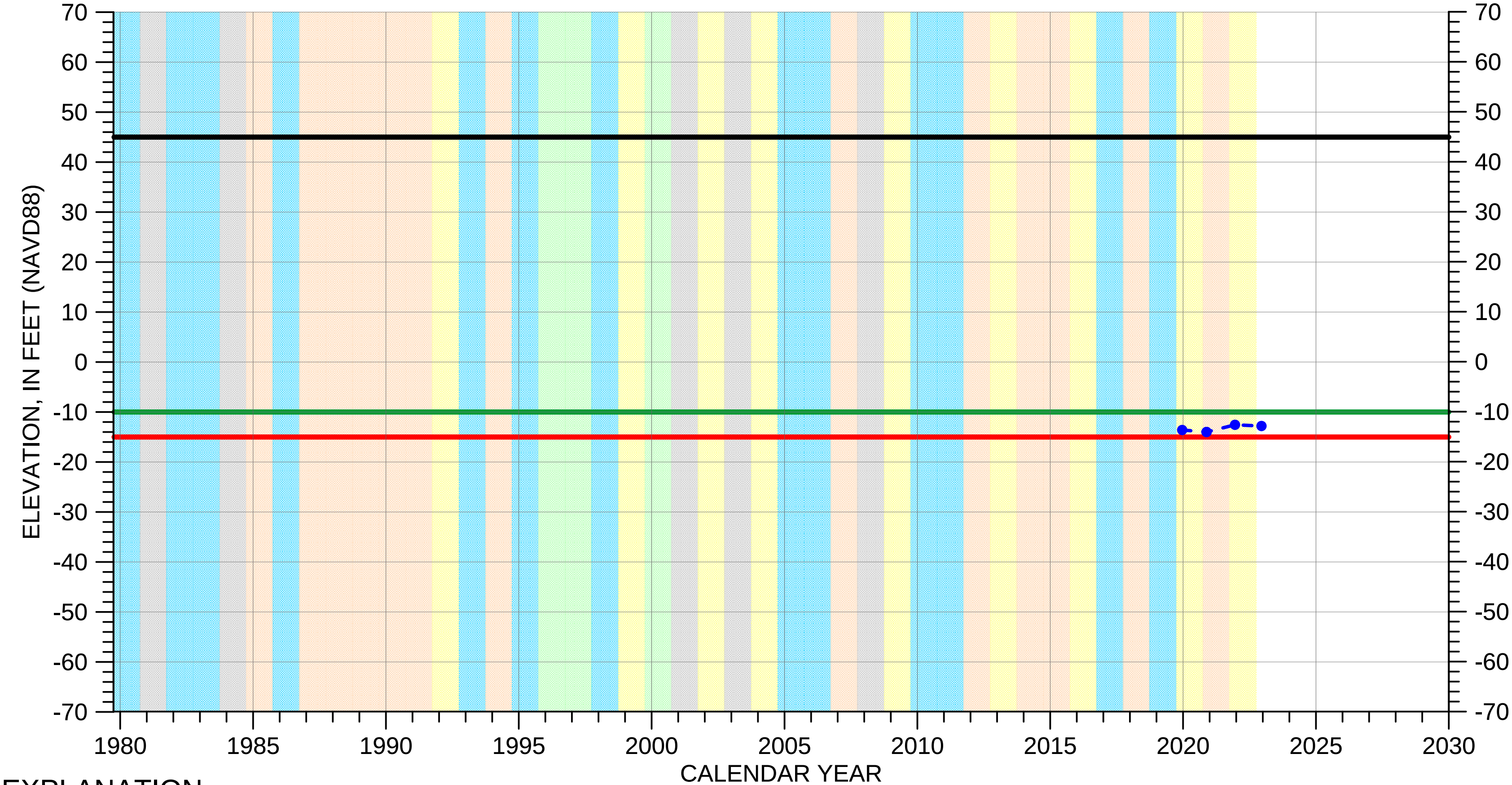

Perforated interval unknown

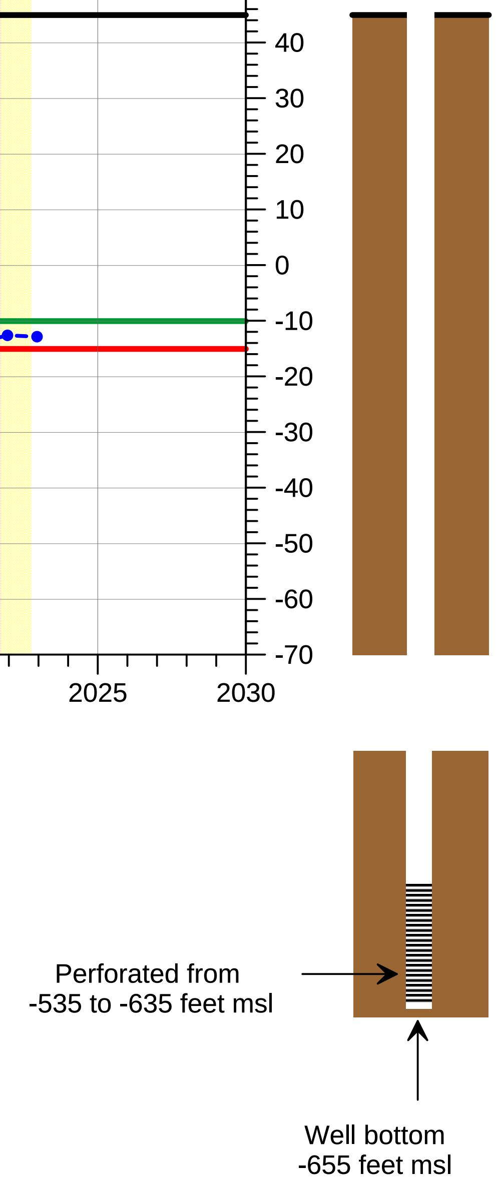
Well bottom elevation unknown

C:\Users\pontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-16M01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-17E02

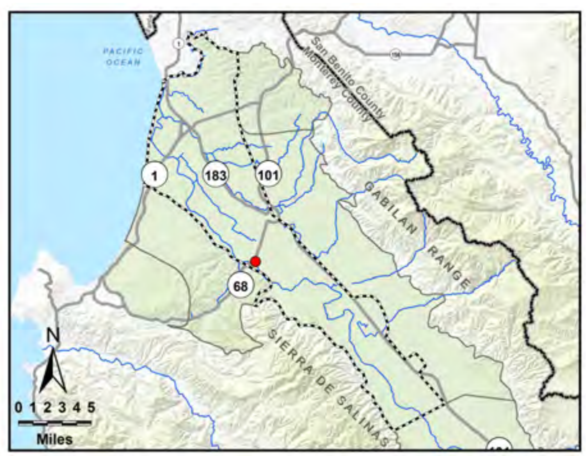
180/400-Foot Aquifer Subbasin




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold



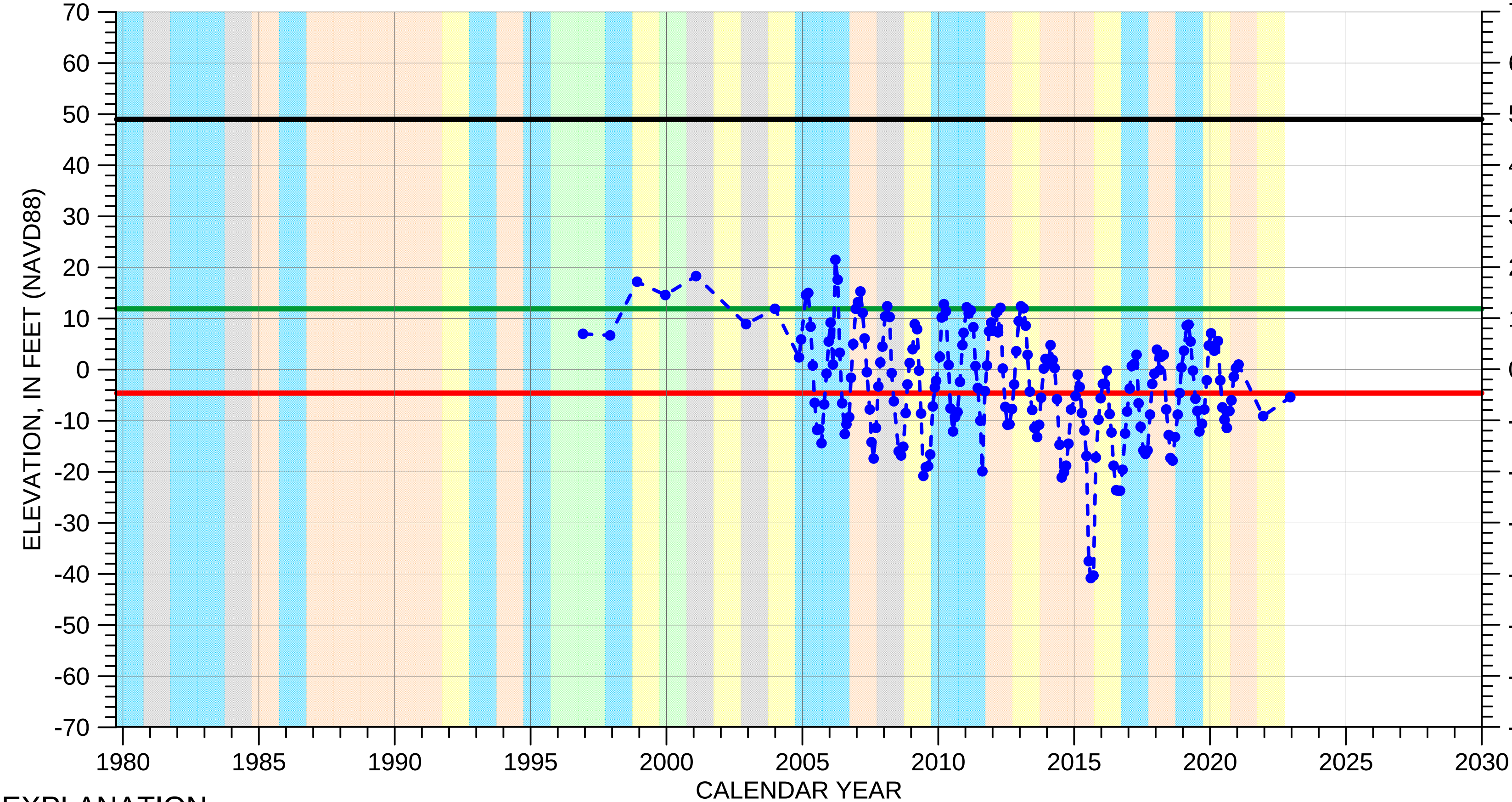

WATER YEAR TYPE DESIGNATION

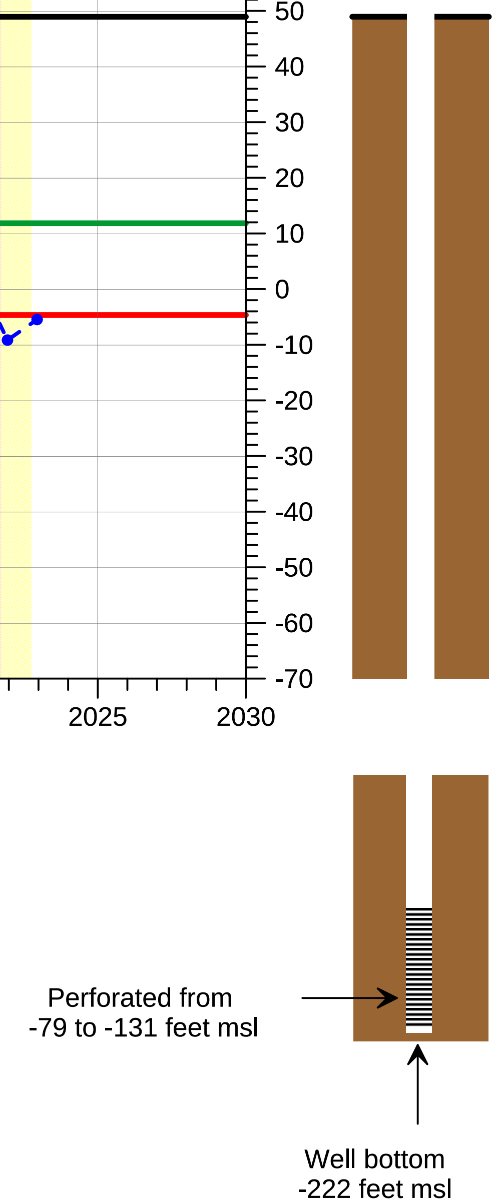
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-17E02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-17M01**

180/400-Foot Aquifer Subbasin



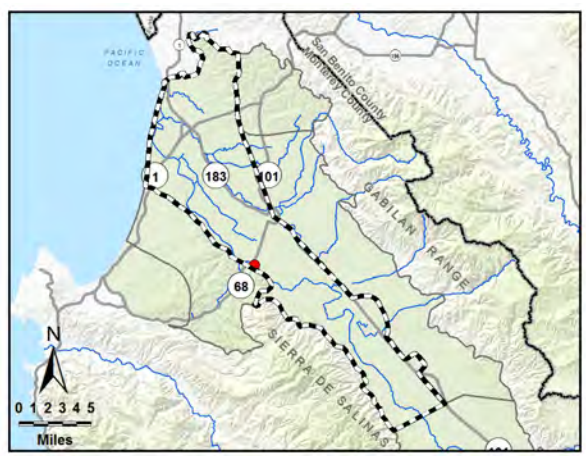




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

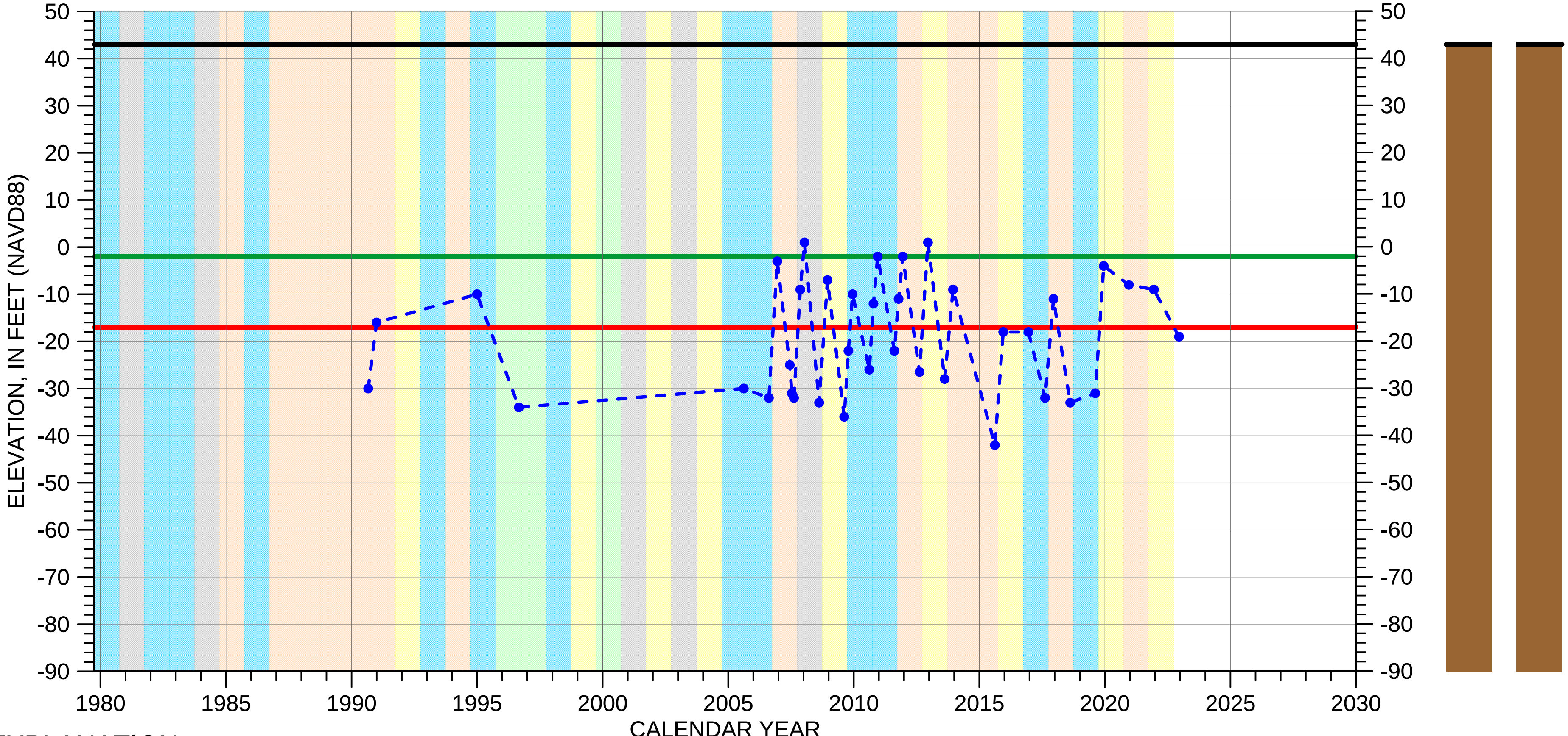
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-17M01.grf

## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-17P02

180/400-Foot Aquifer Subbasin

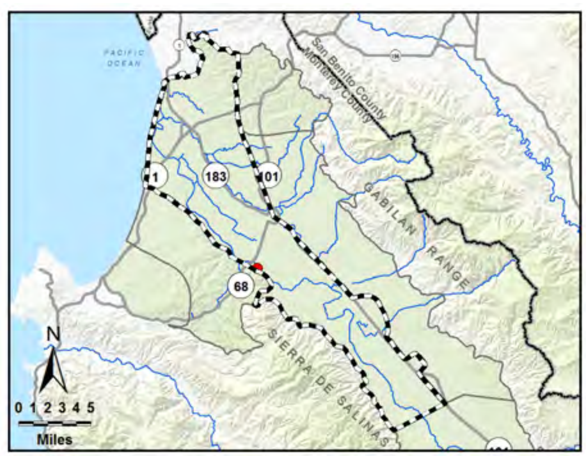


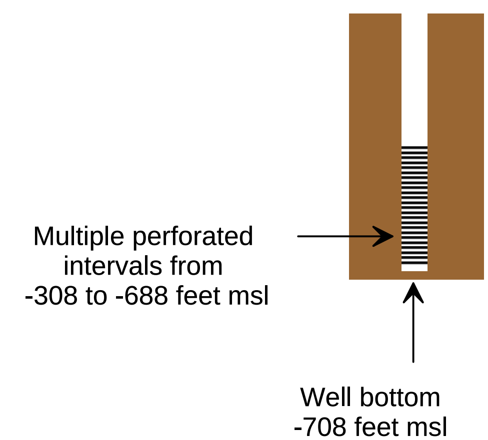

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

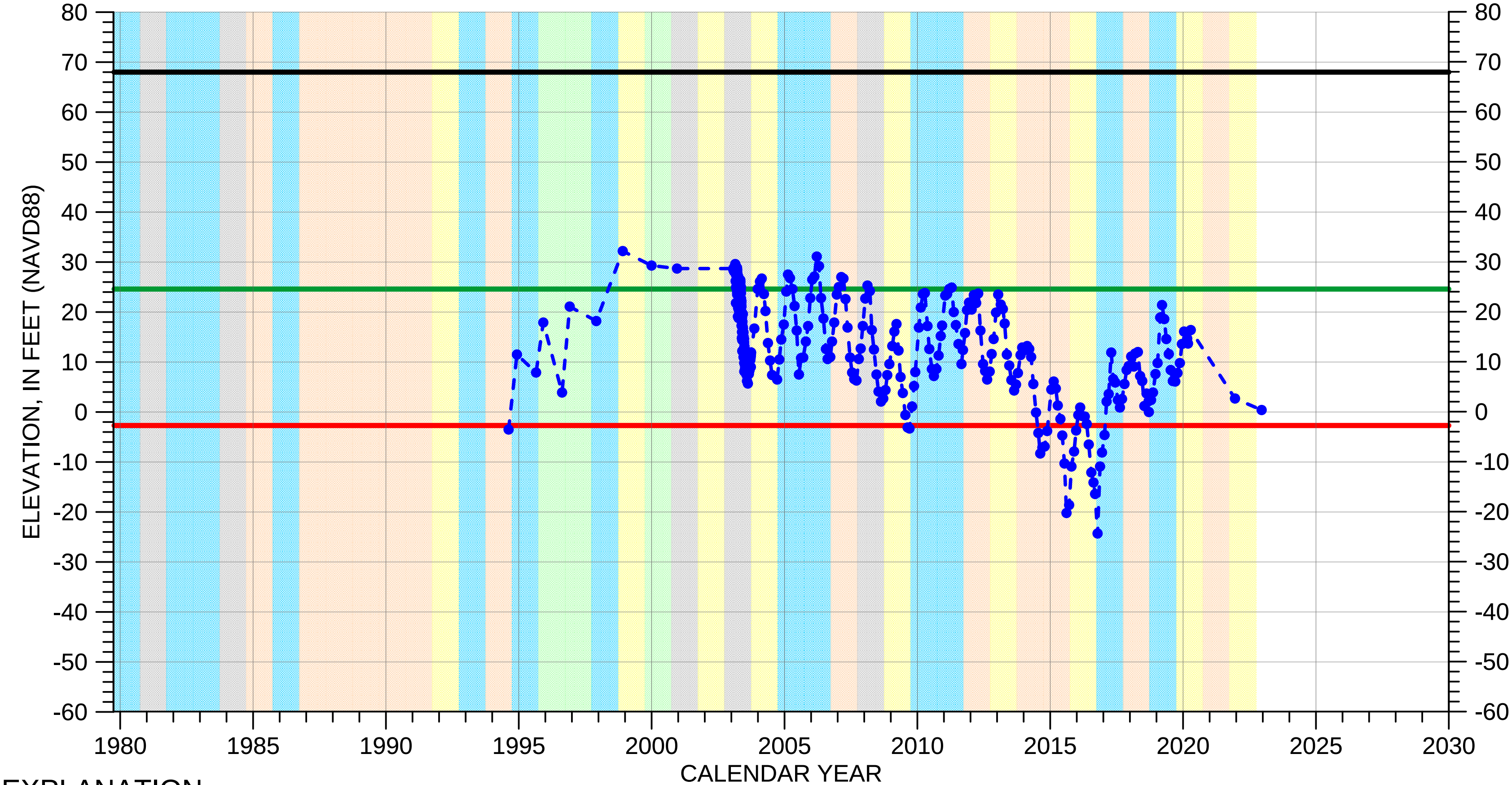



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-17P02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-25L01**

180/400-Foot Aquifer Subbasin

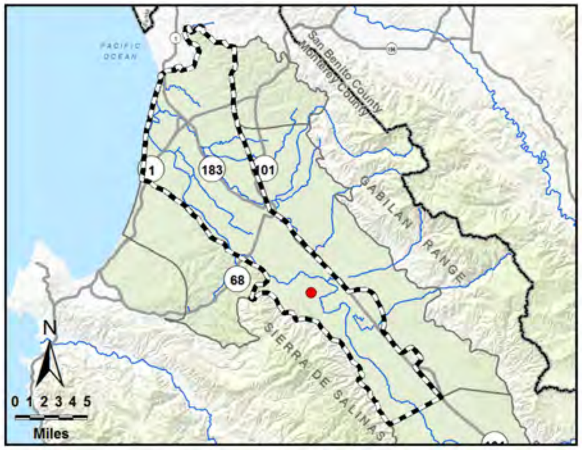



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

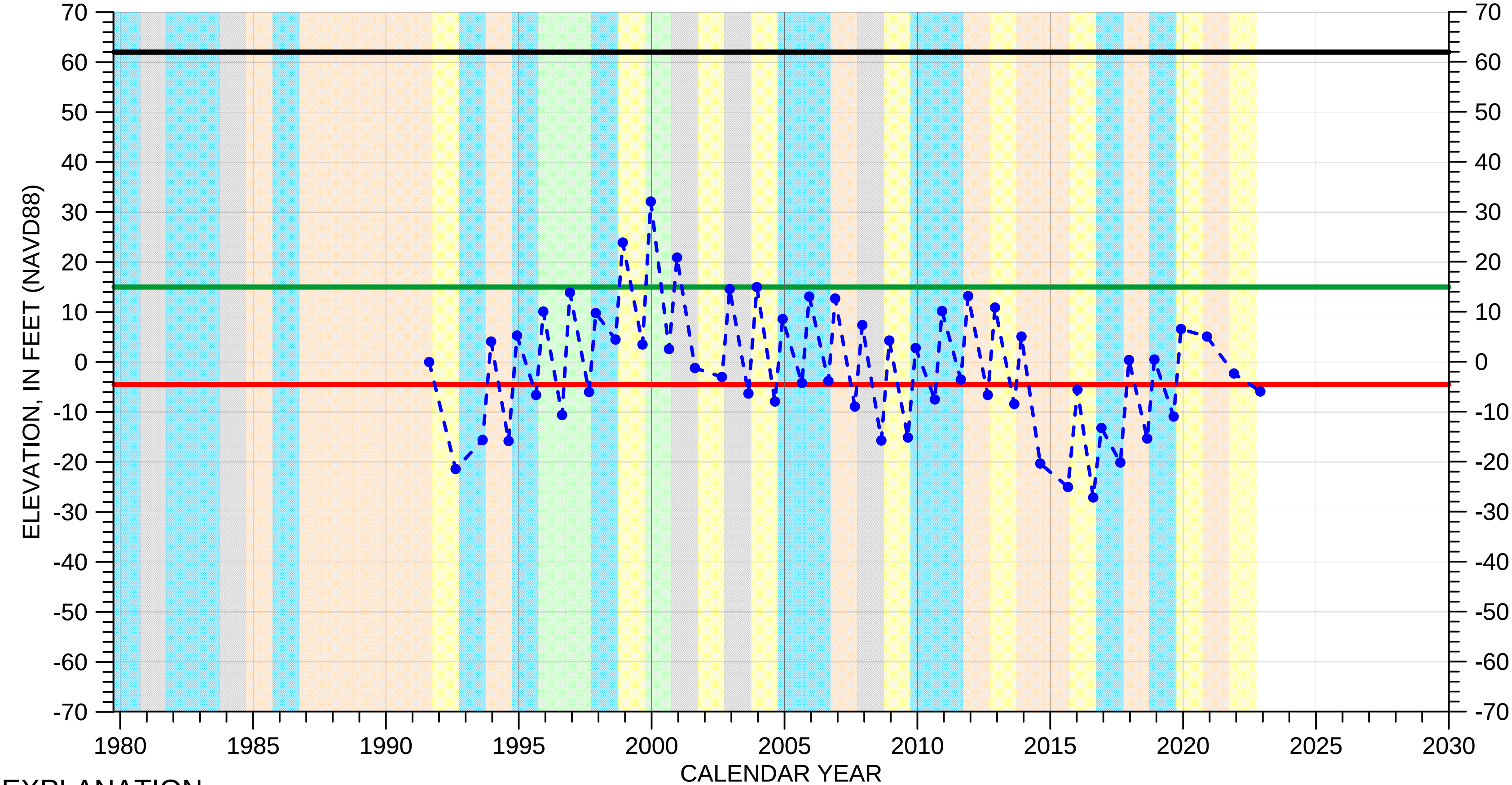


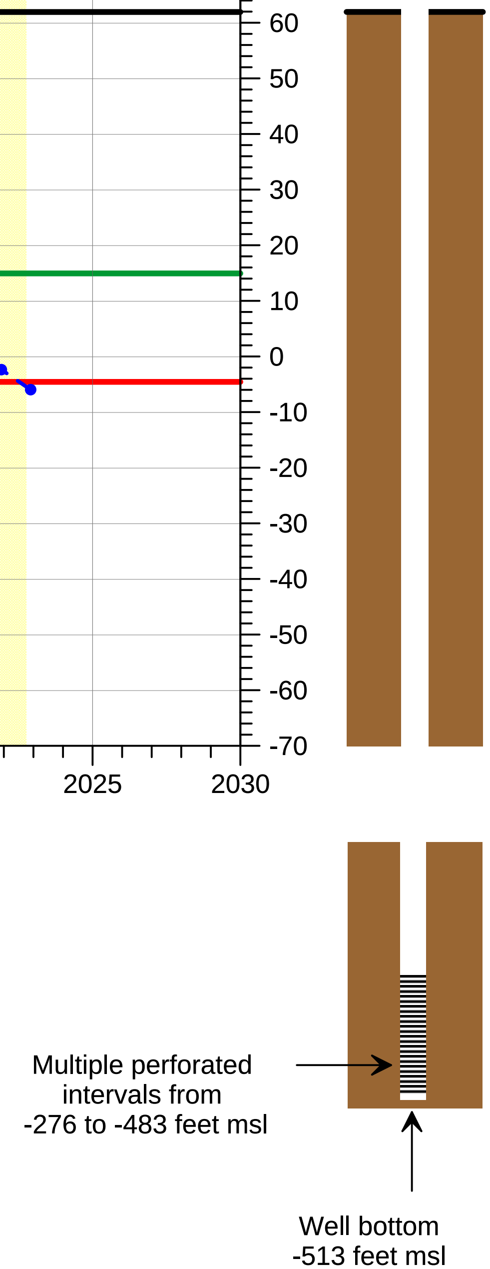


C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-25L01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-26A01**

180/400-Foot Aquifer Subbasin



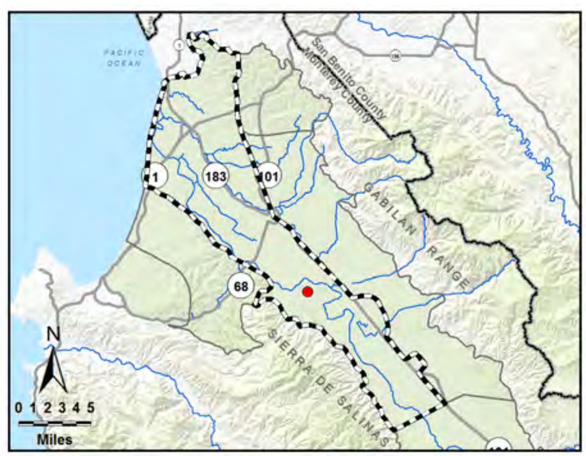




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

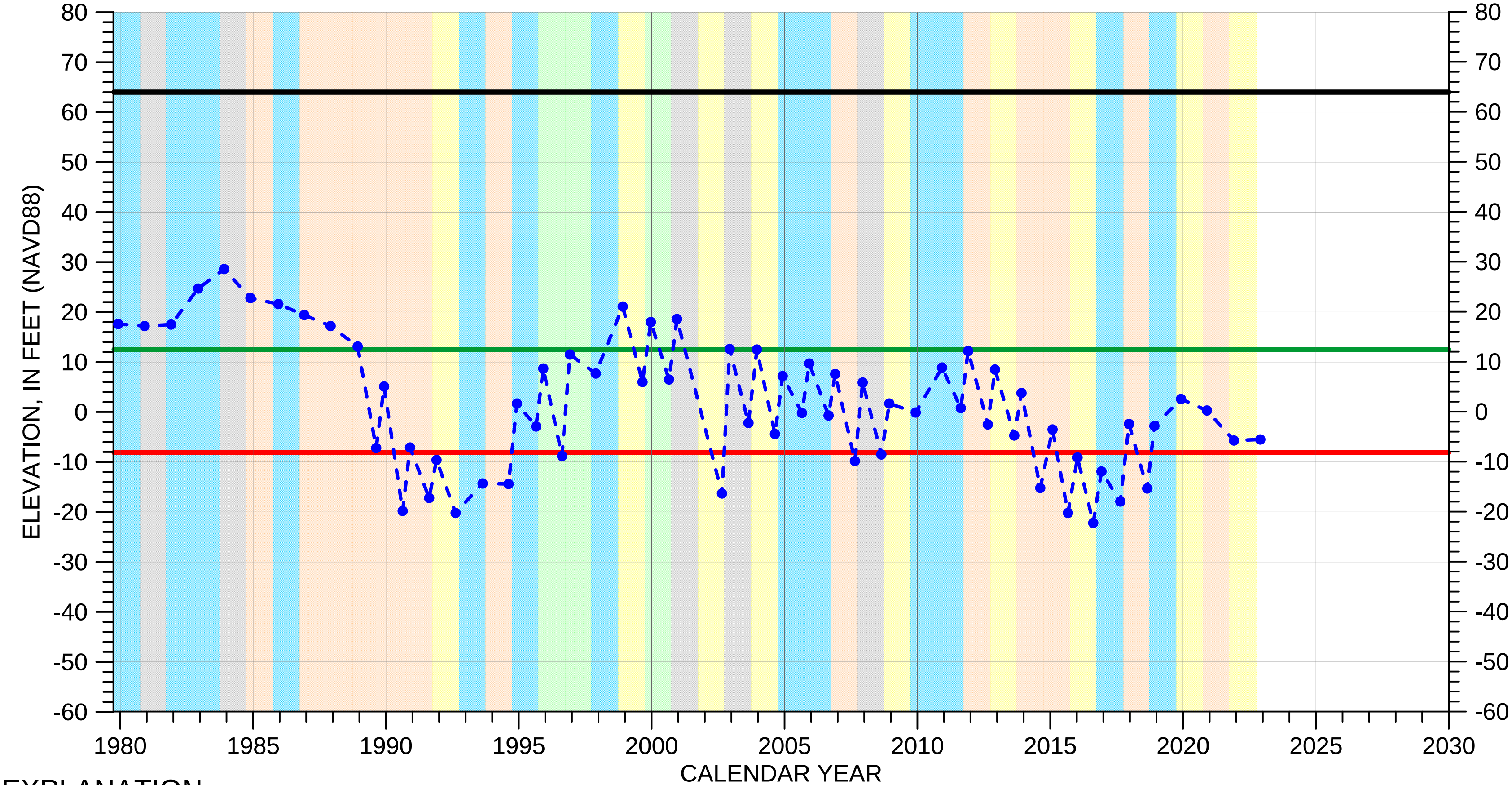
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

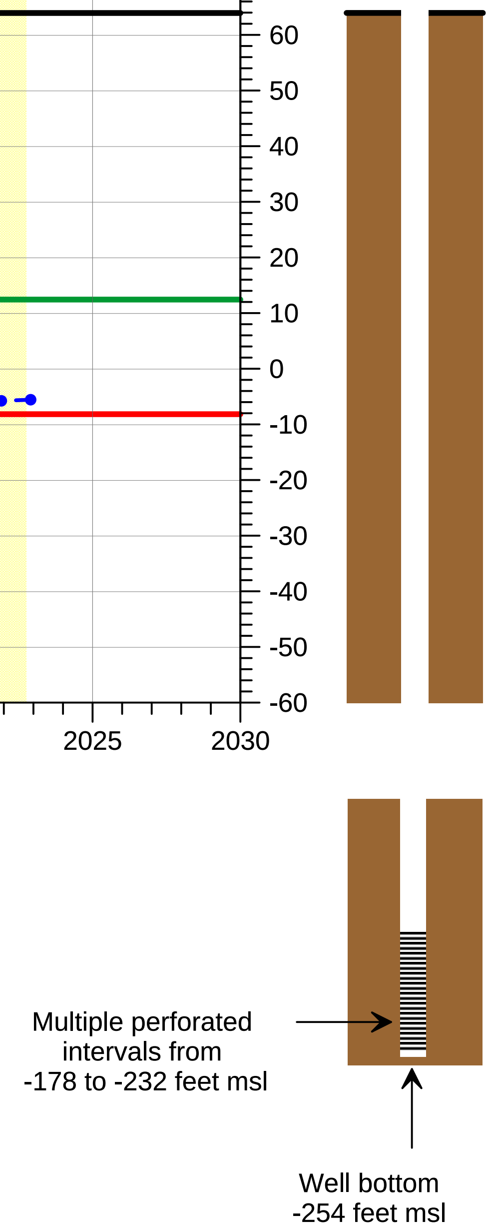



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-26A01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-26F01**

180/400-Foot Aquifer Subbasin



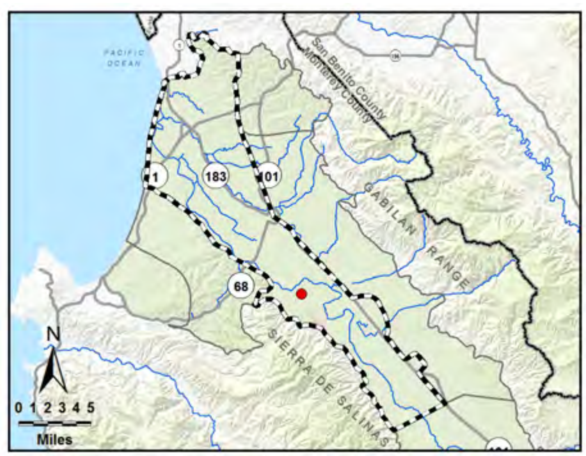




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

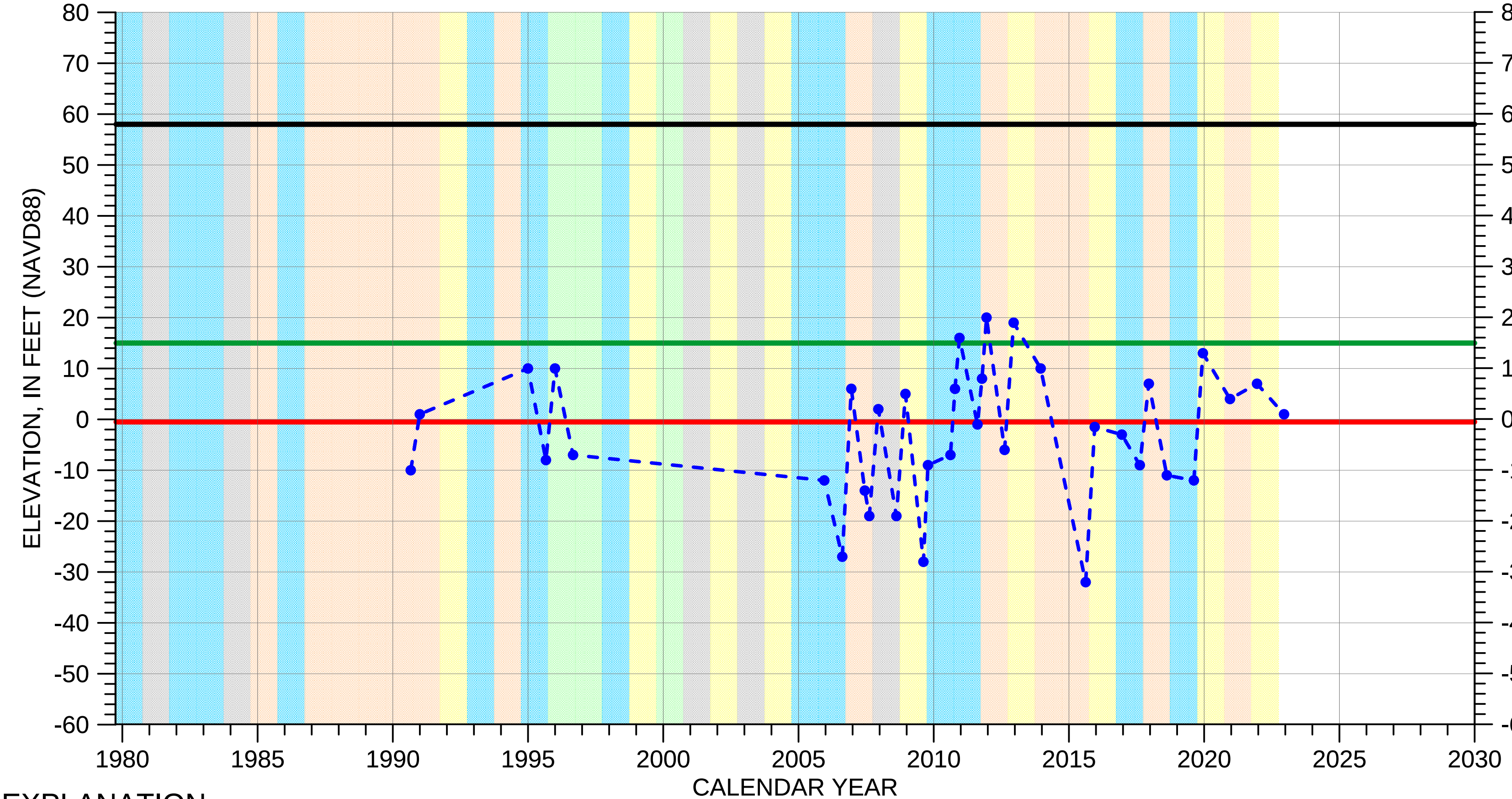
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-26F01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/03E-28B02**

180/400-Foot Aquifer Subbasin

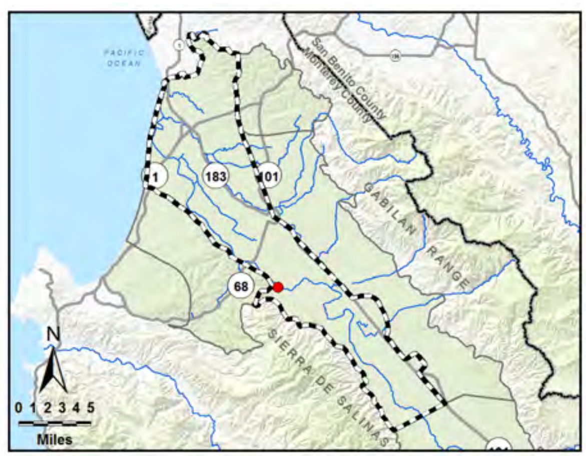


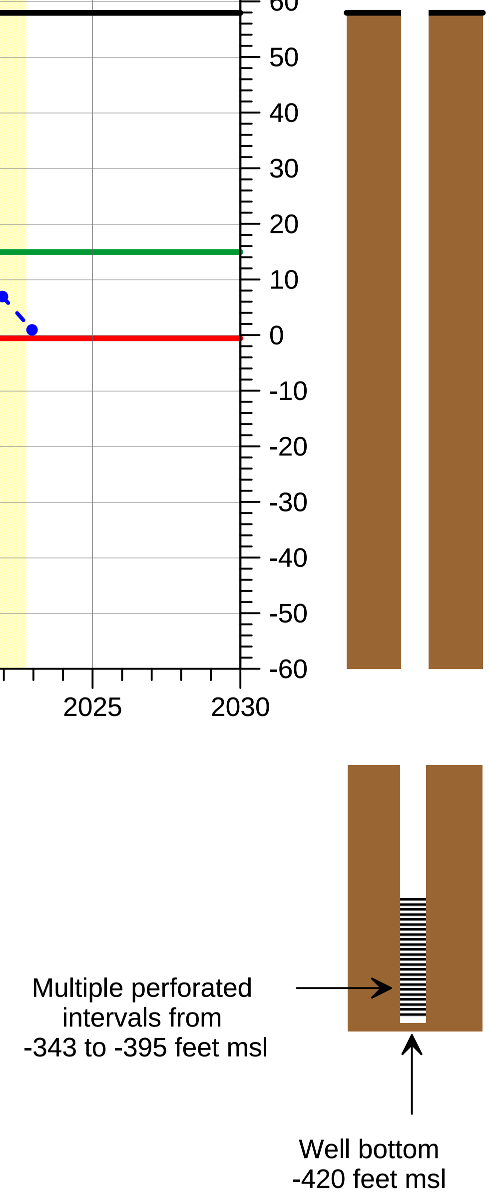

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

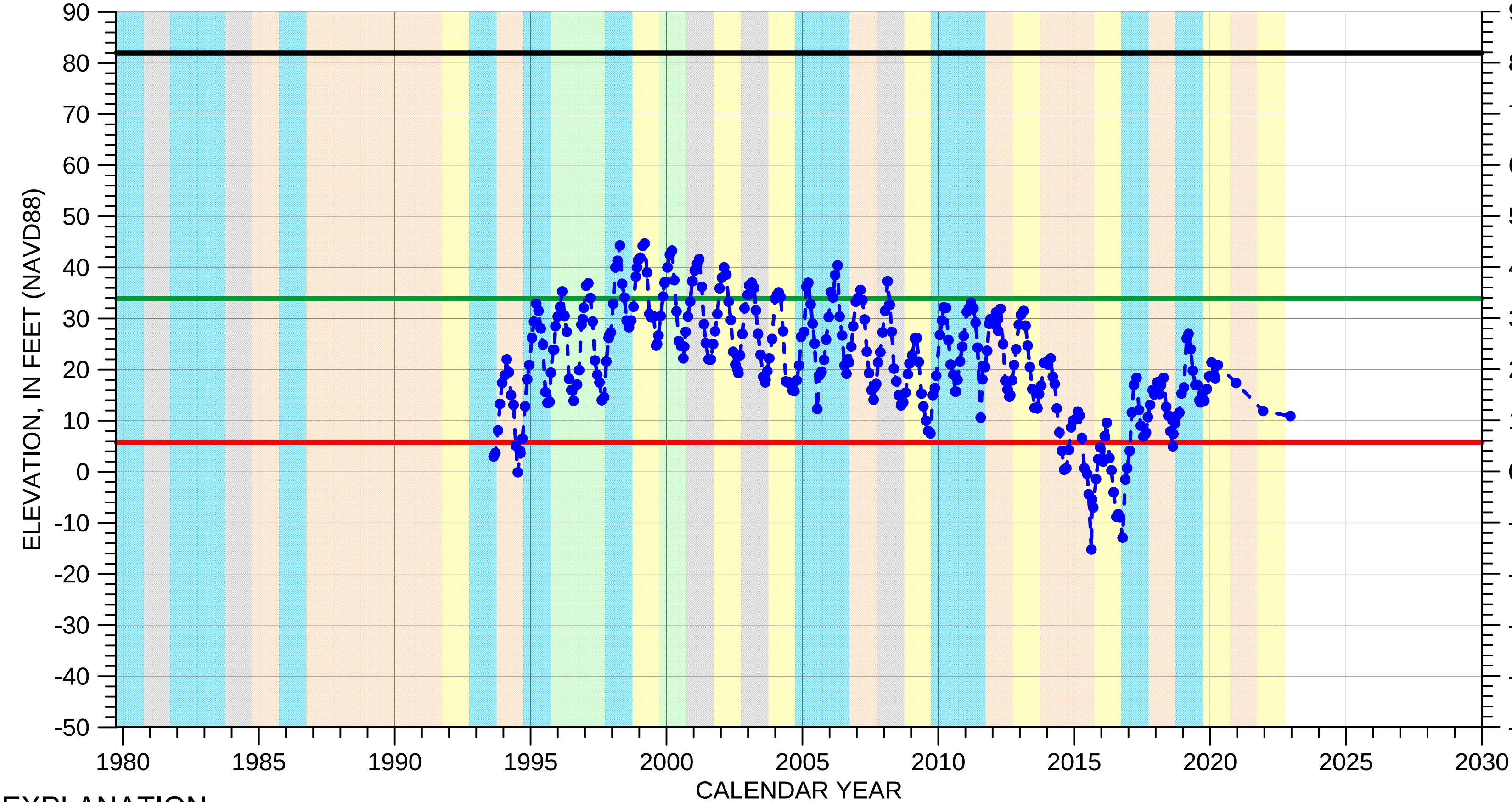


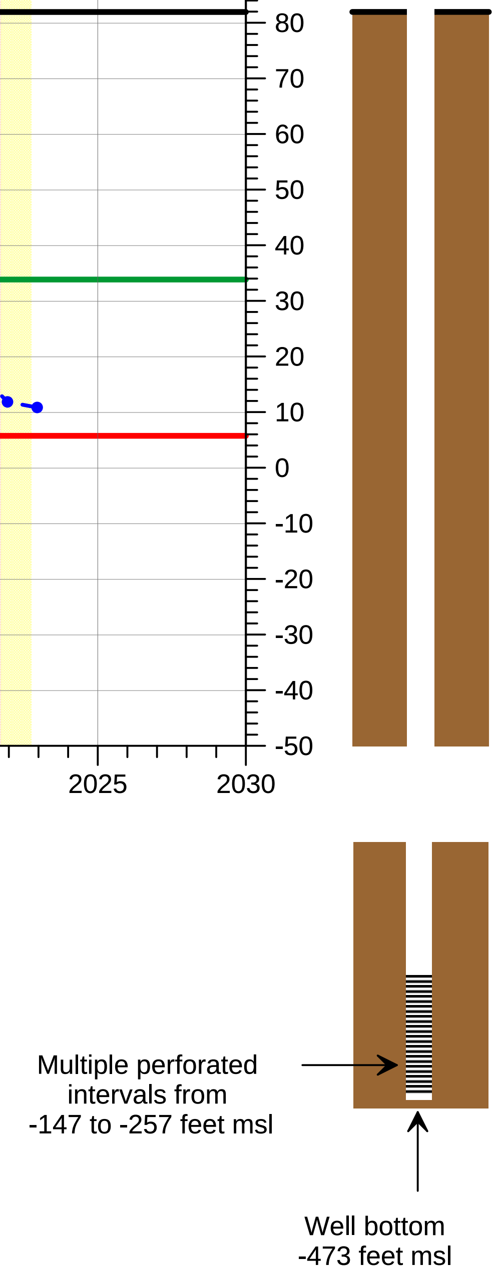




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_03E-28B02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-29Q02**

180/400-Foot Aquifer Subbasin



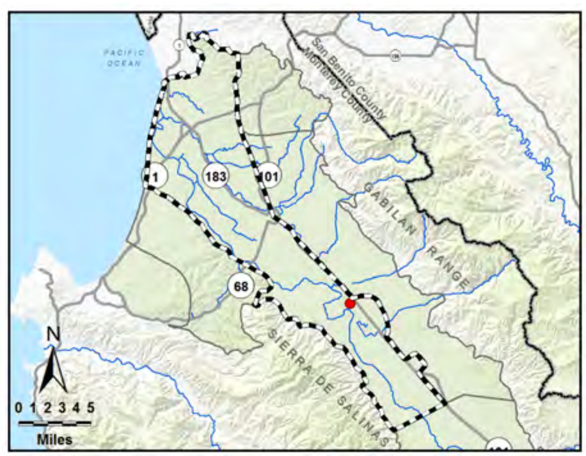




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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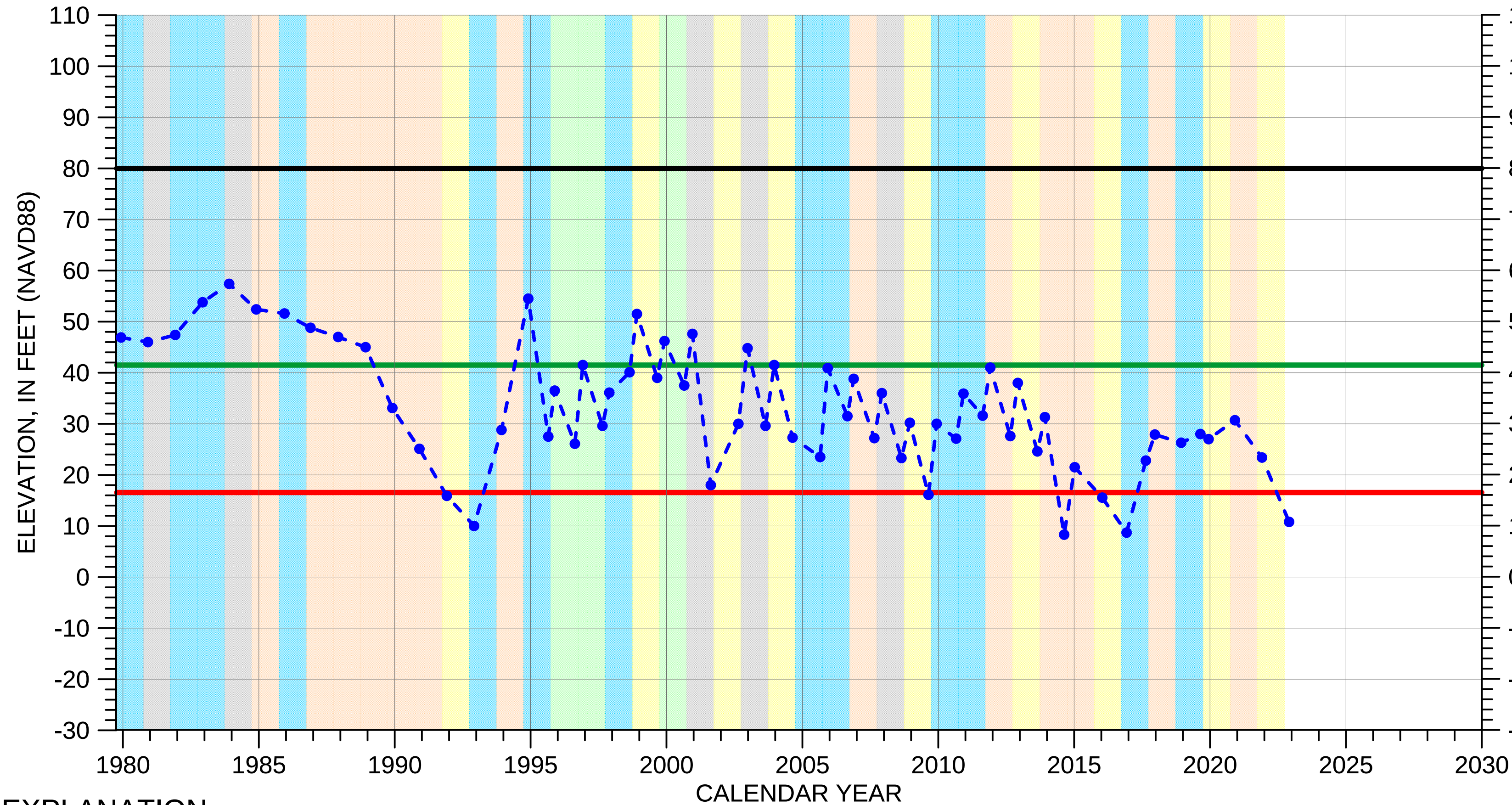
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 15S/04E-31A02**

180/400-Foot Aquifer Subbasin



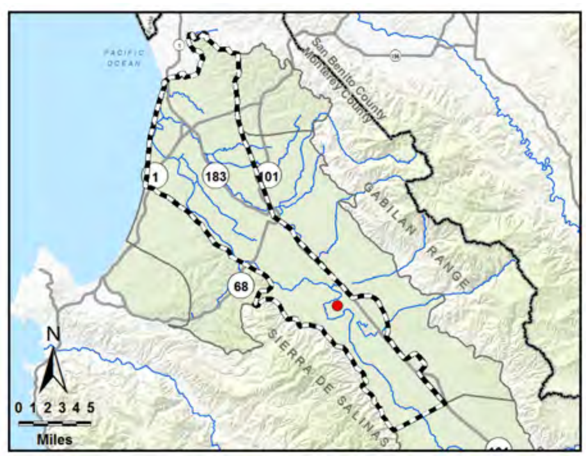


EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

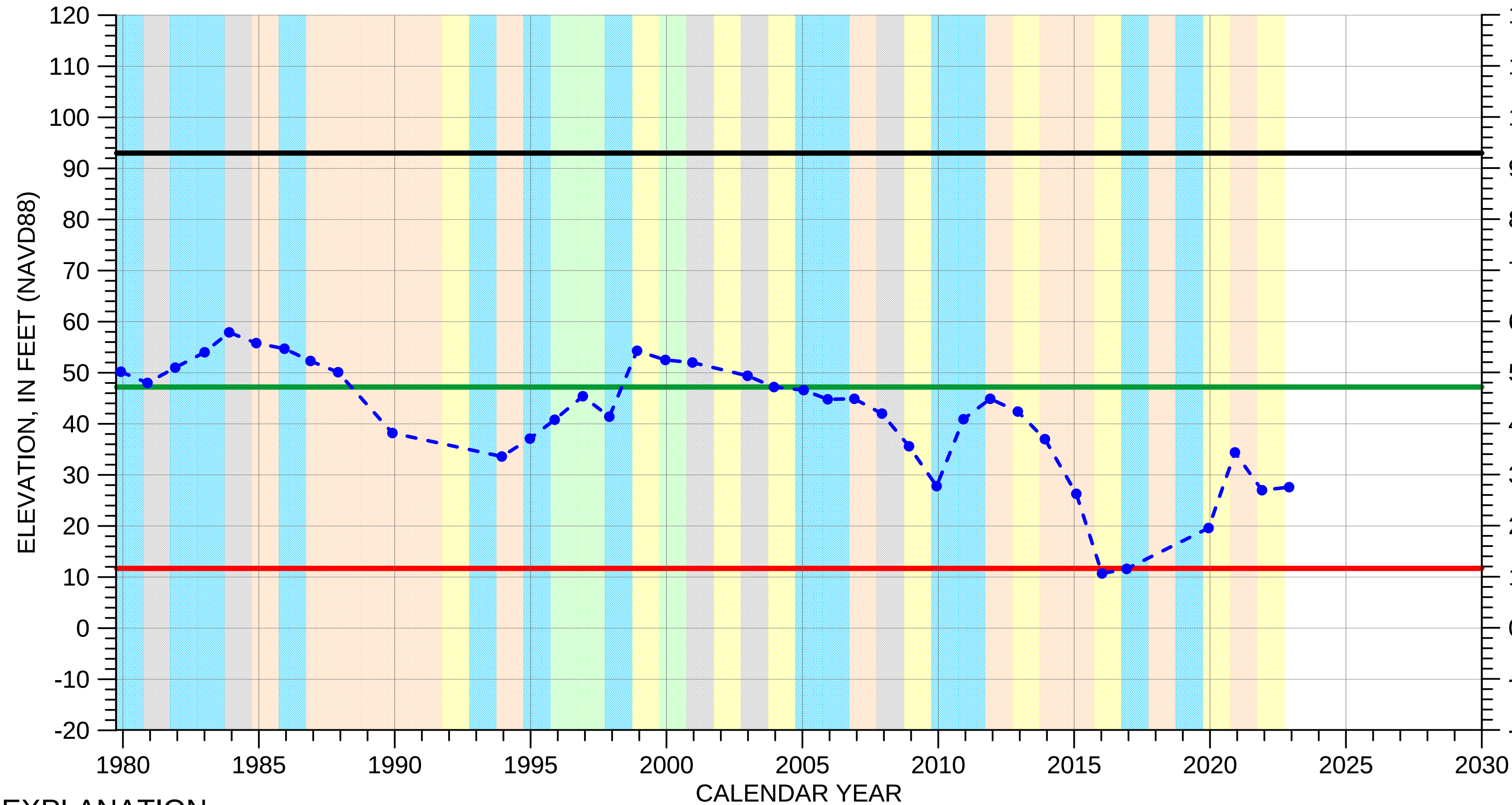
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

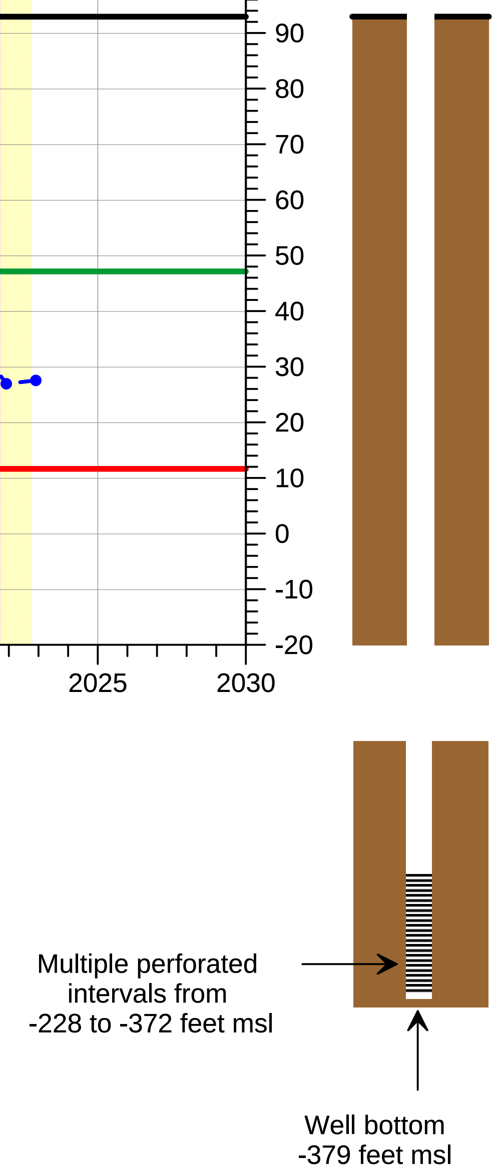



C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\15S_04E-31A02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-04C01**

180/400-Foot Aquifer Subbasin



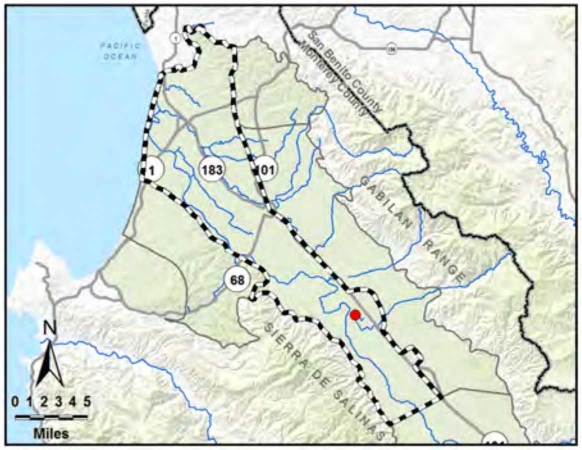

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\16S_04E-04C01.grf

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

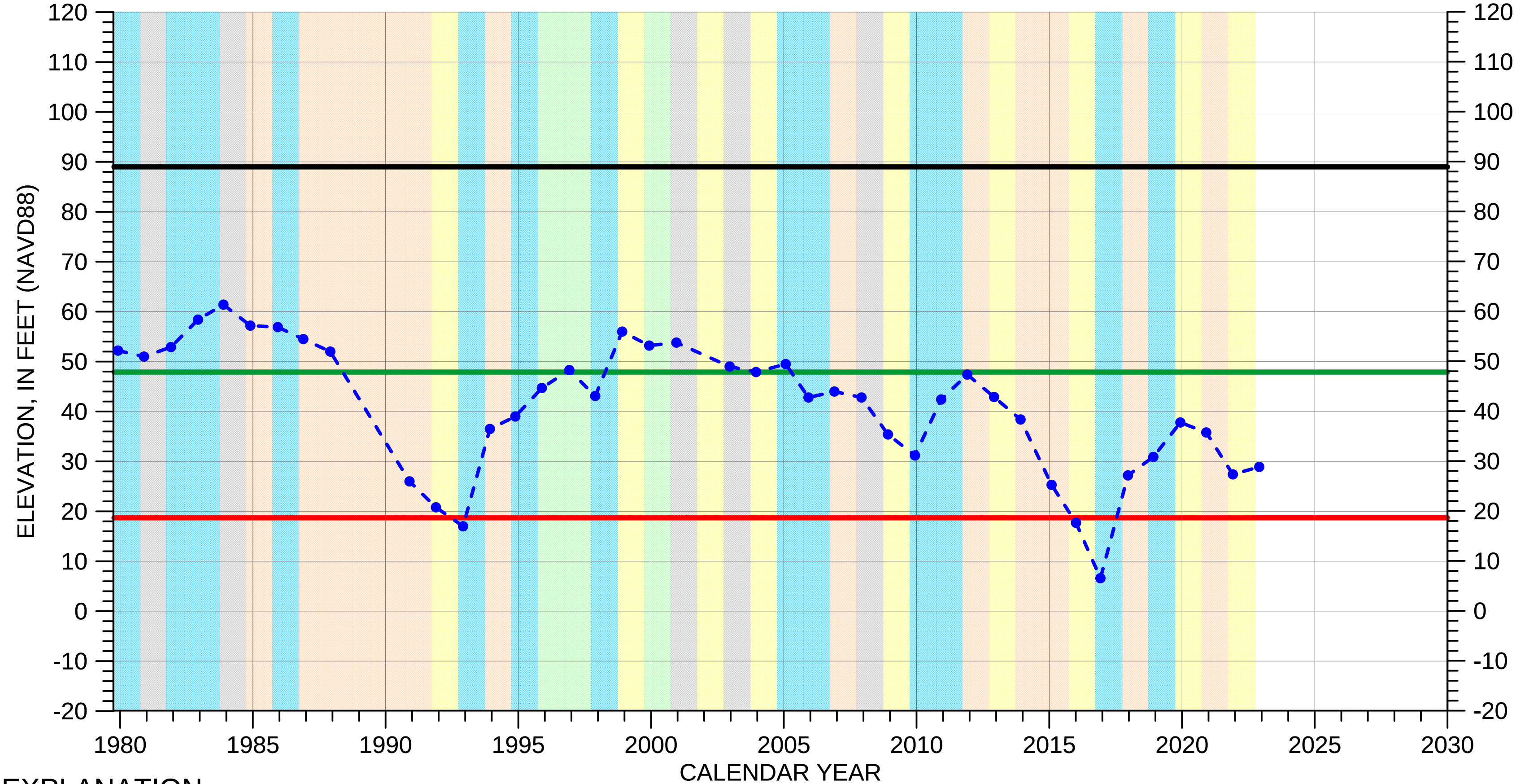
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-05M02**

180/400-Foot Aquifer Subbasin




Perforated interval unknown

Well bottom
-178 feet msl

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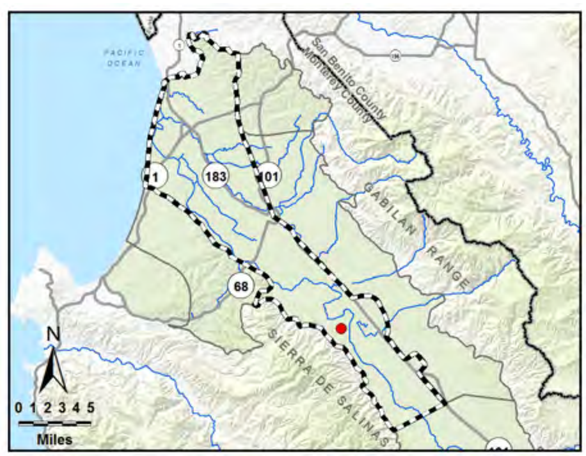
EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

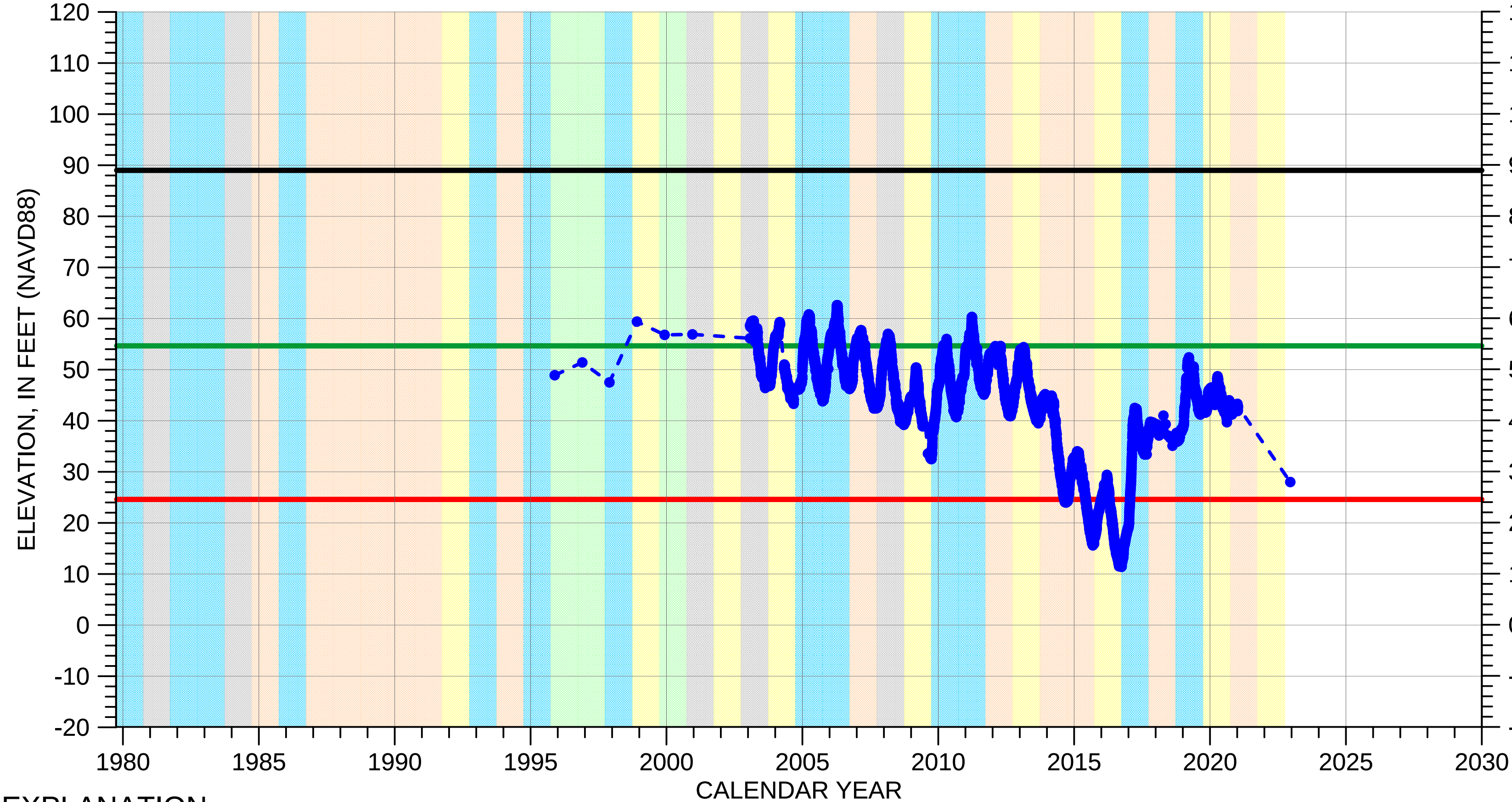
WATER YEAR TYPE DESIGNATION

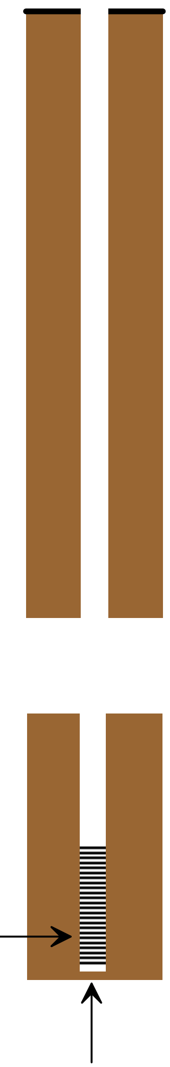
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-08H03**

180/400-Foot Aquifer Subbasin



Perforated from
-152 to -202 feet msl

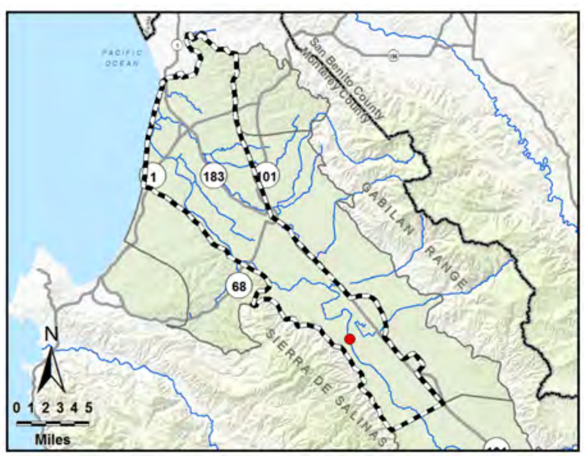
Well bottom
-207 feet msl

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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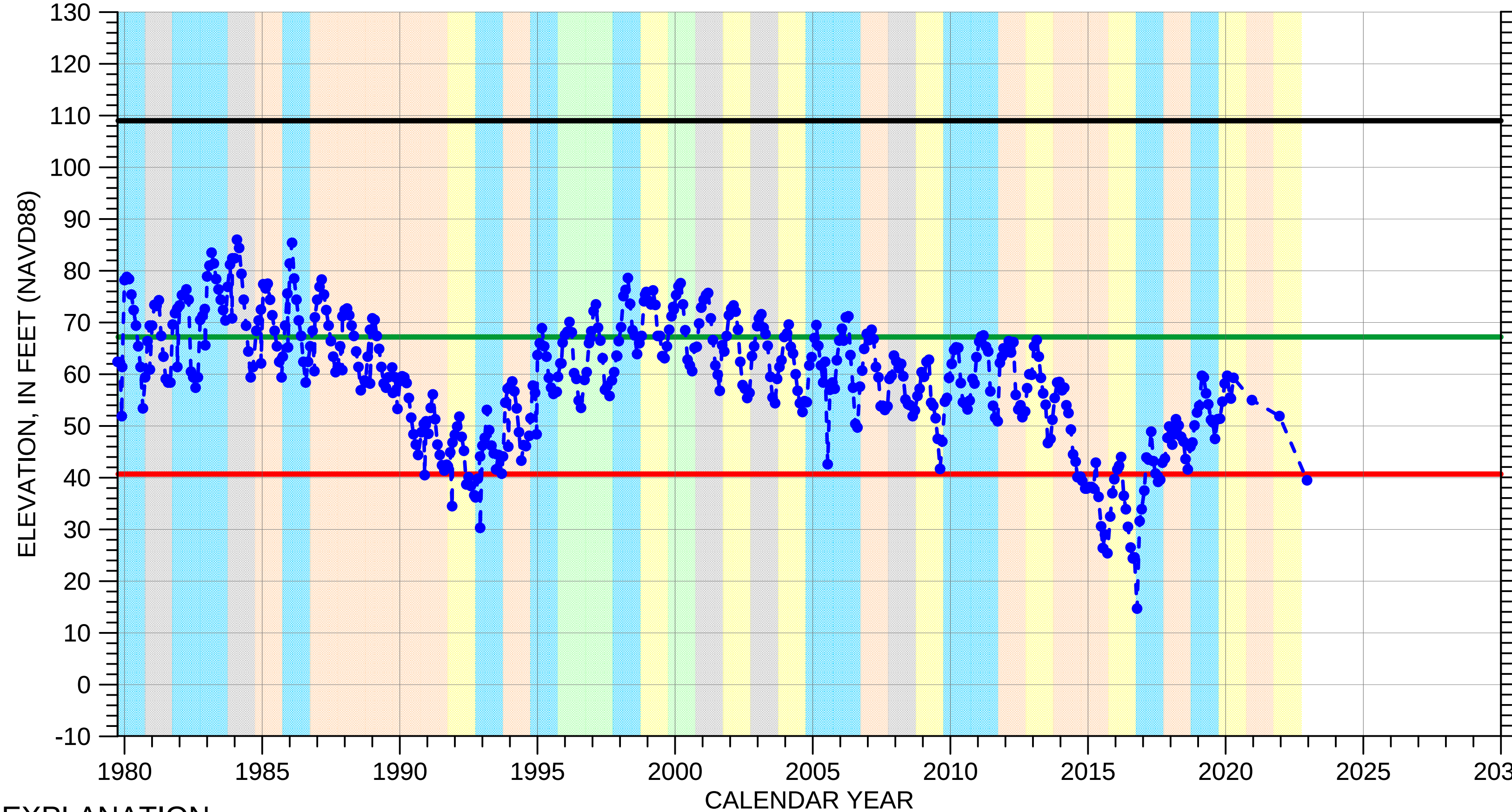
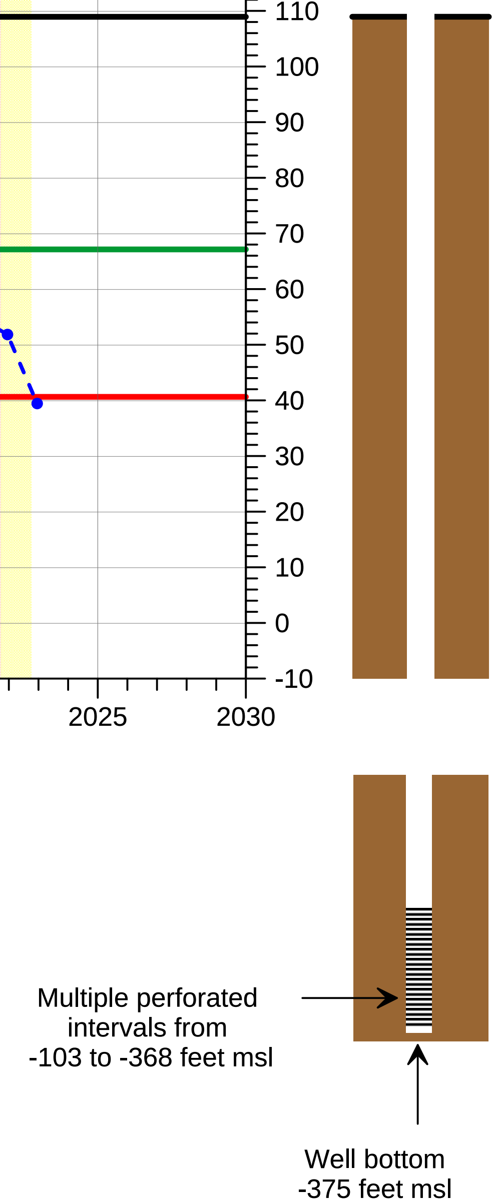
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-10R02**

180/400-Foot Aquifer Subbasin



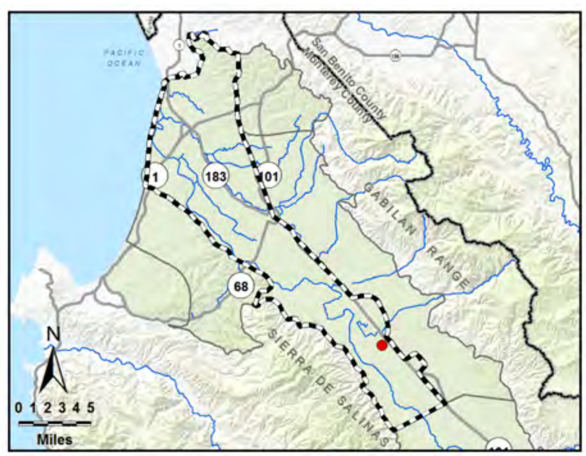




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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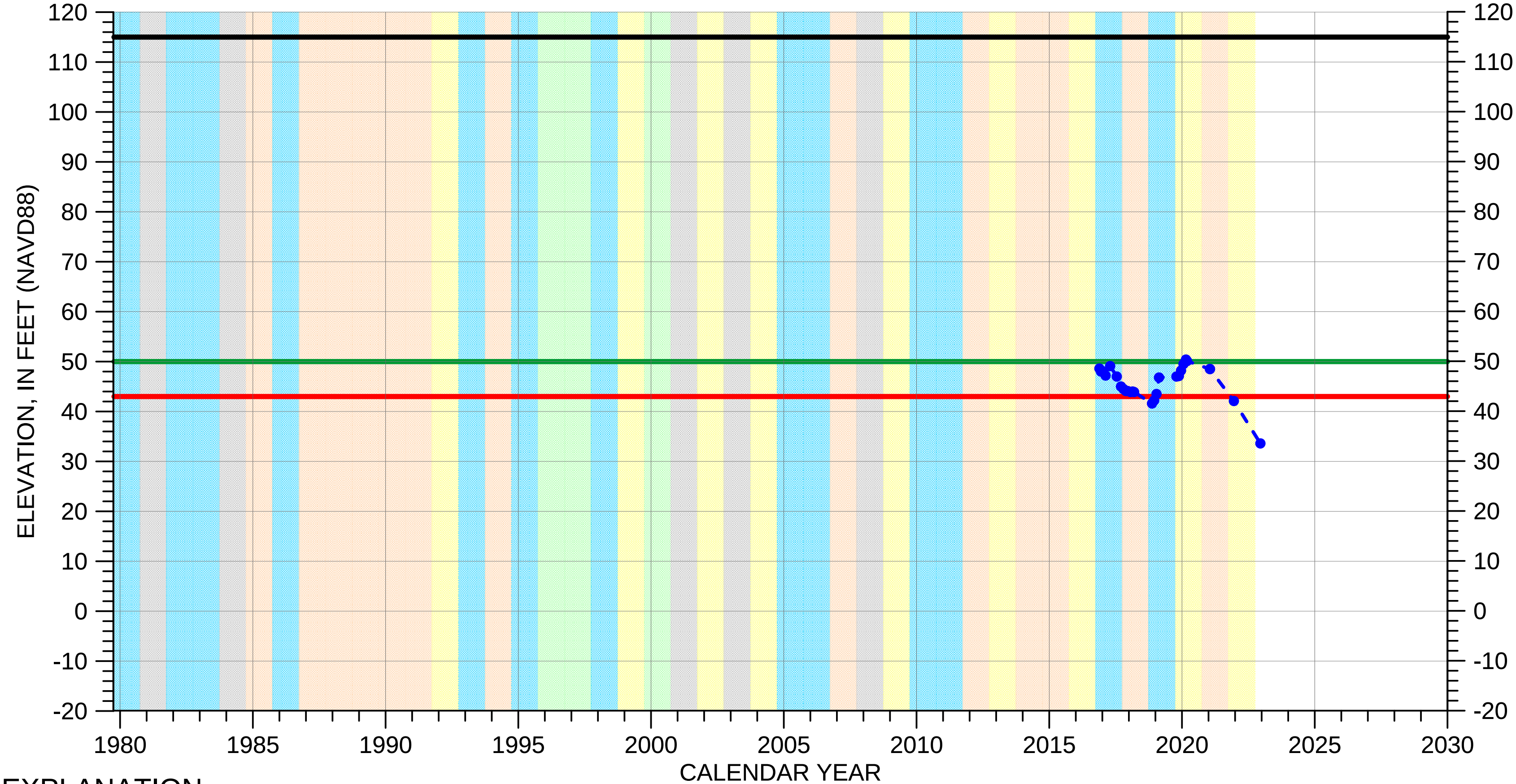
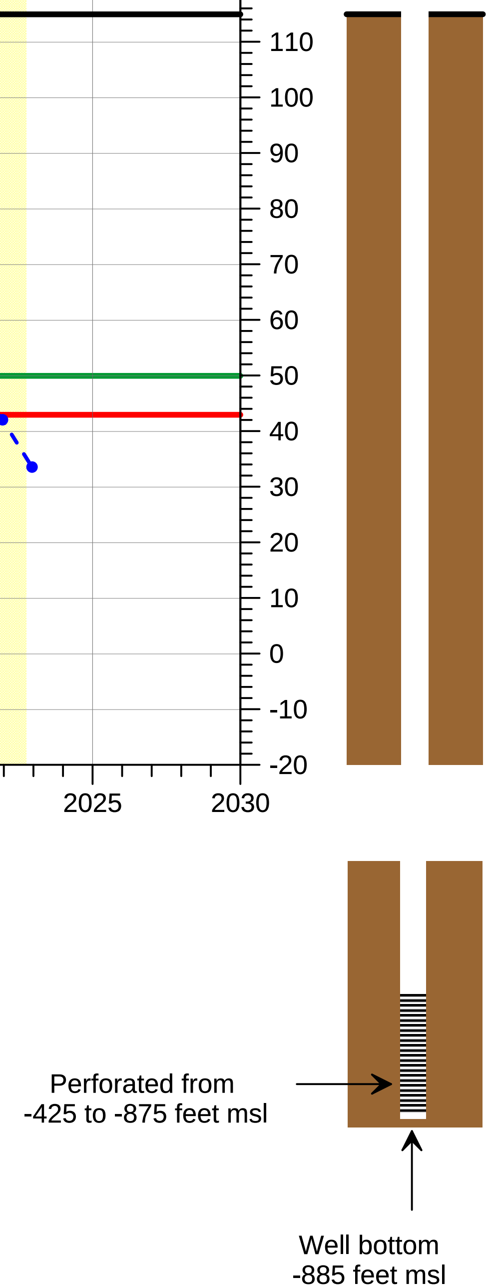
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-11D51**

180/400-Foot Aquifer Subbasin



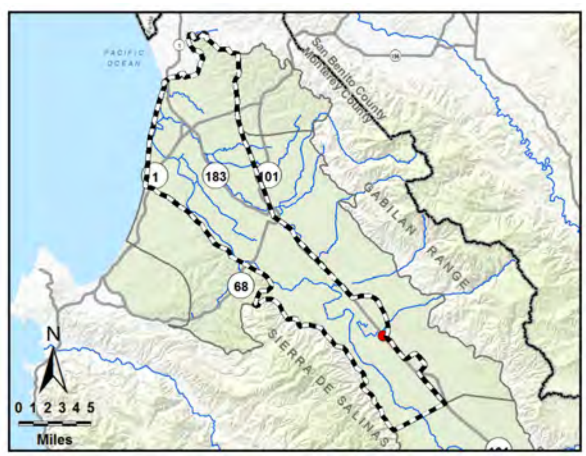




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

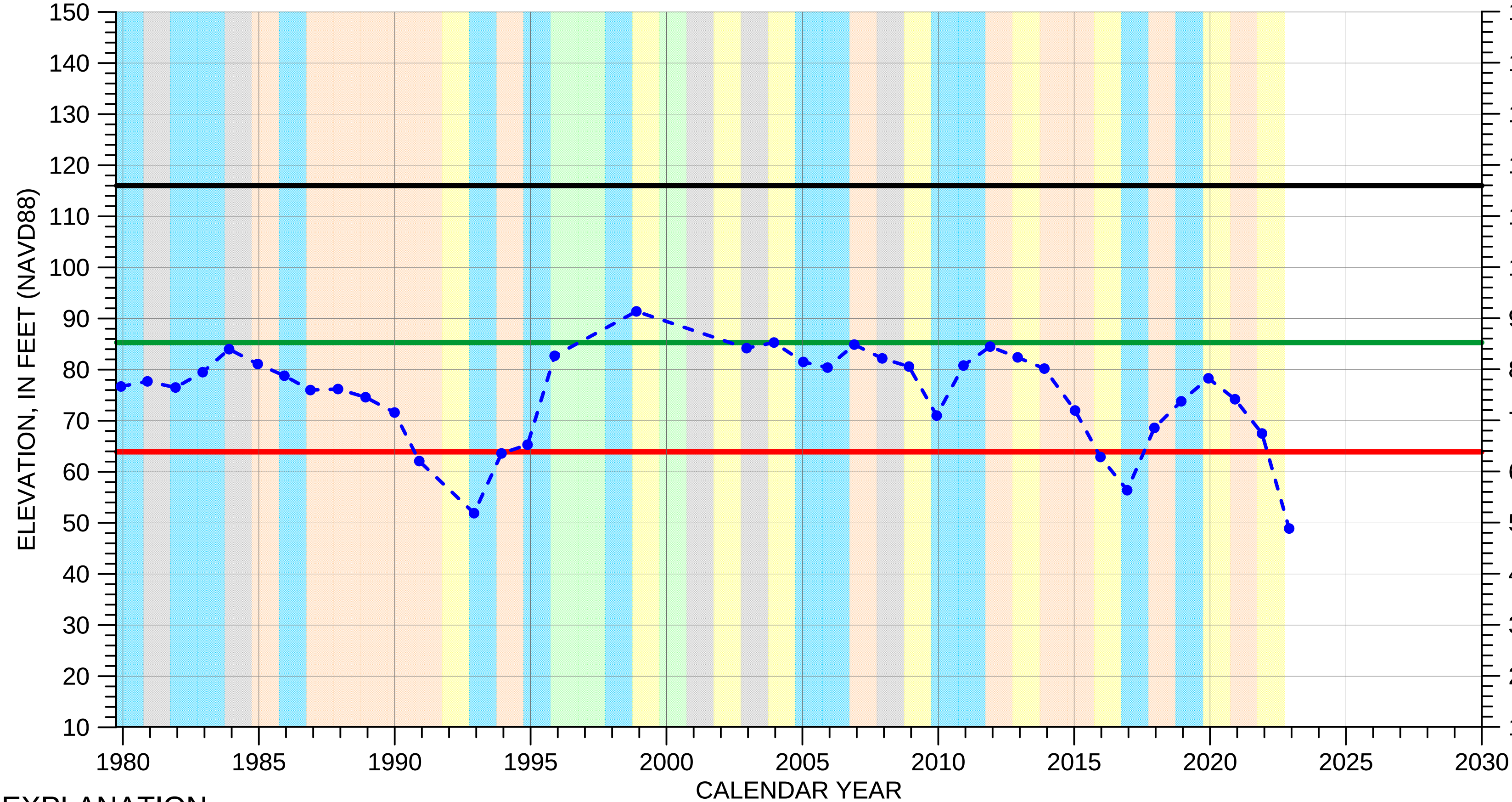
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\16S_04E-11D51.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-13R02**

180/400-Foot Aquifer Subbasin

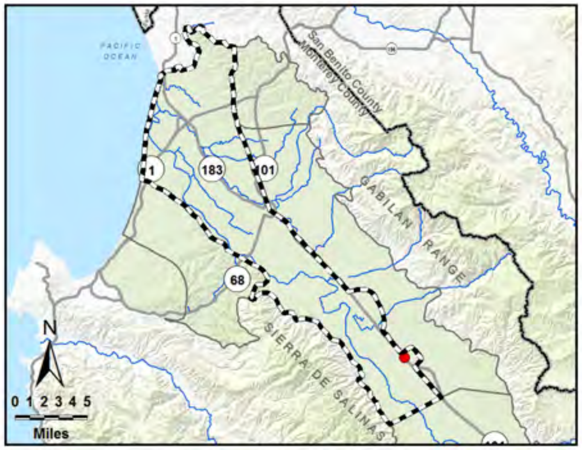


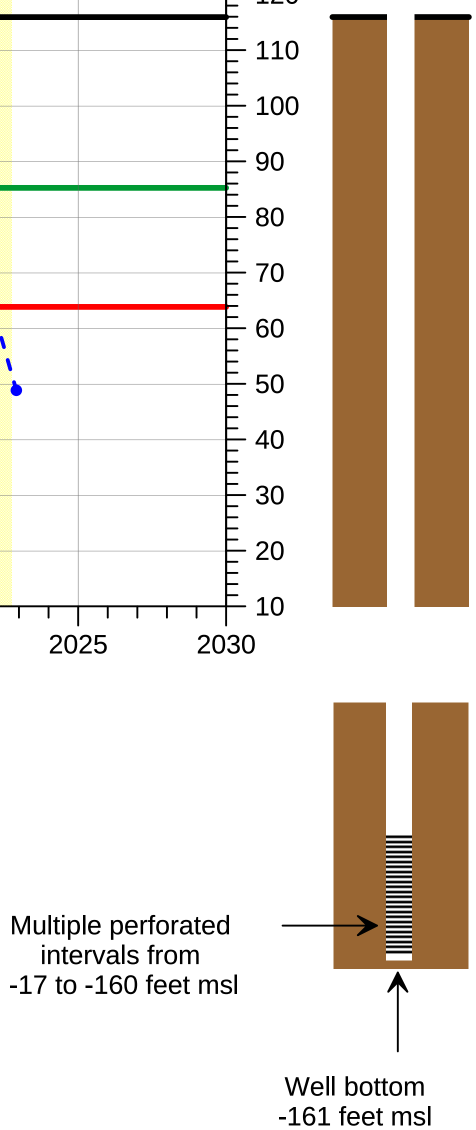

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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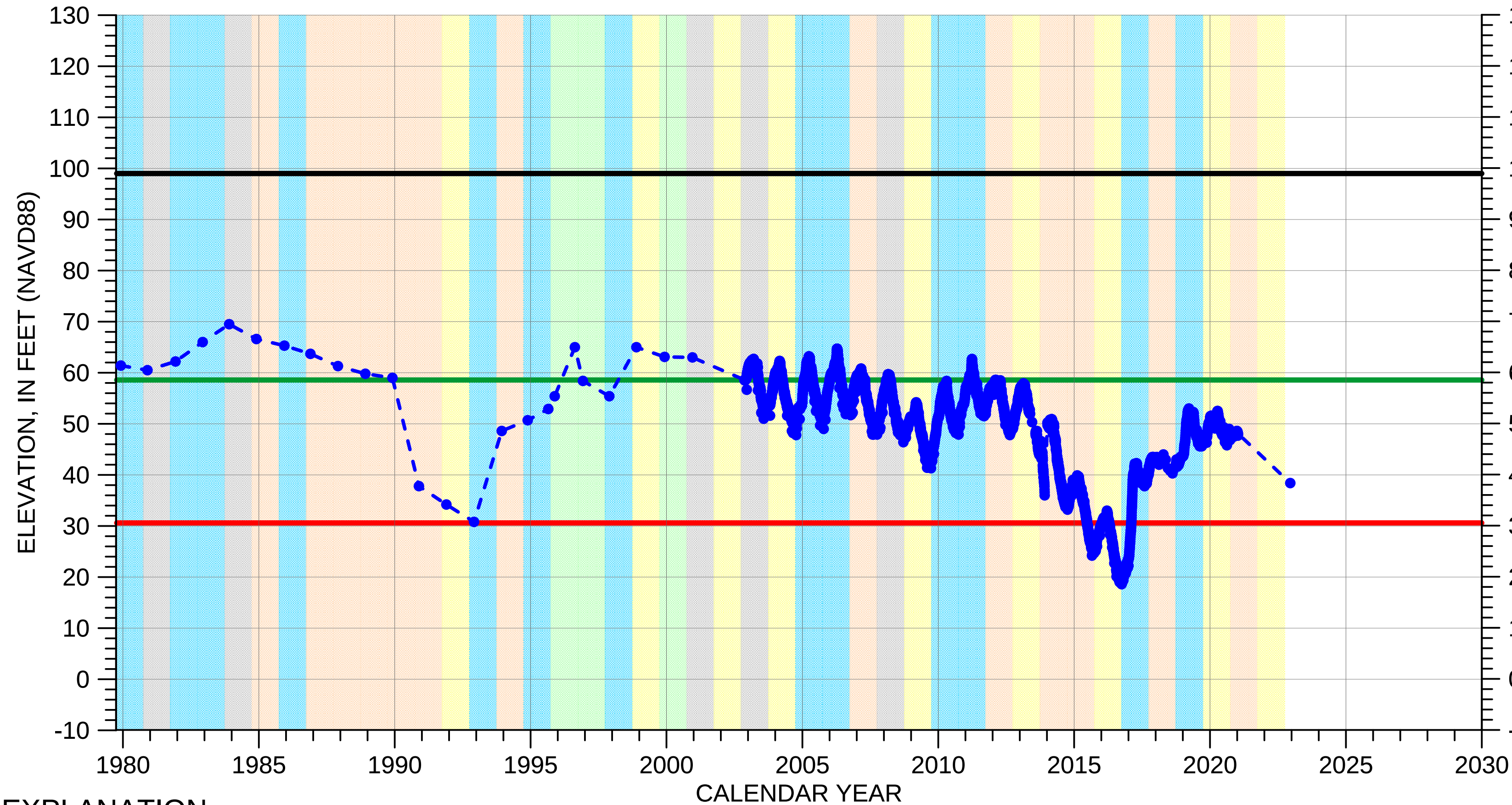
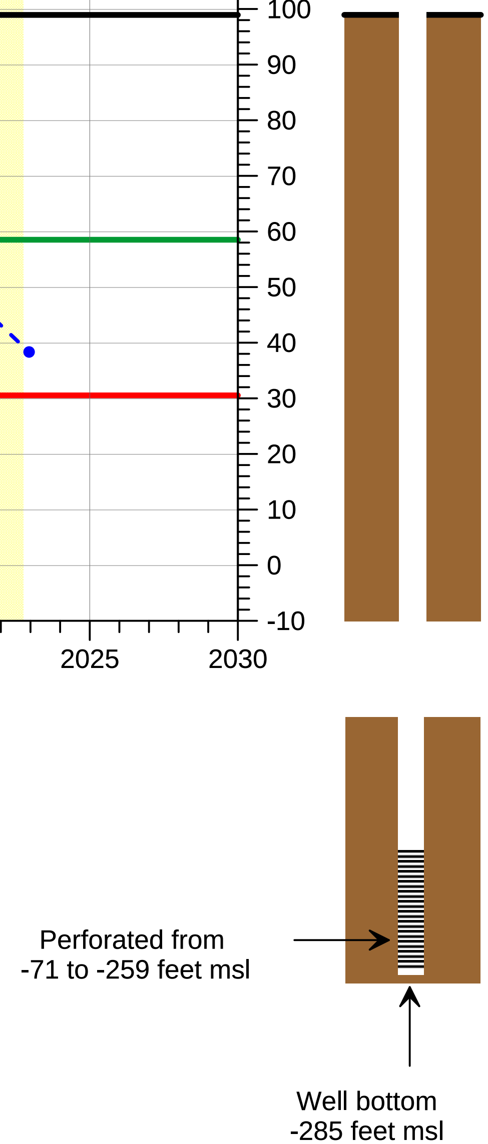
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-15D01**

180/400-Foot Aquifer Subbasin



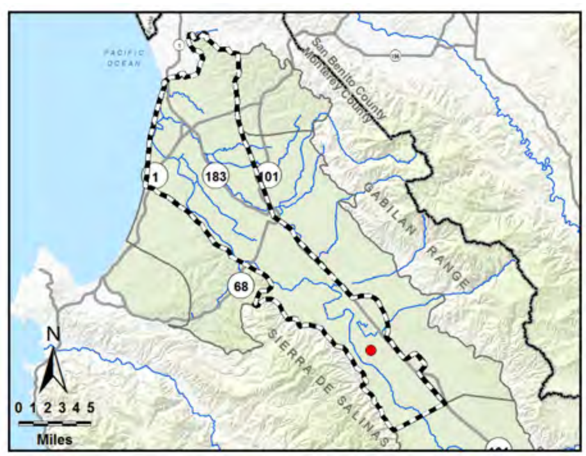




EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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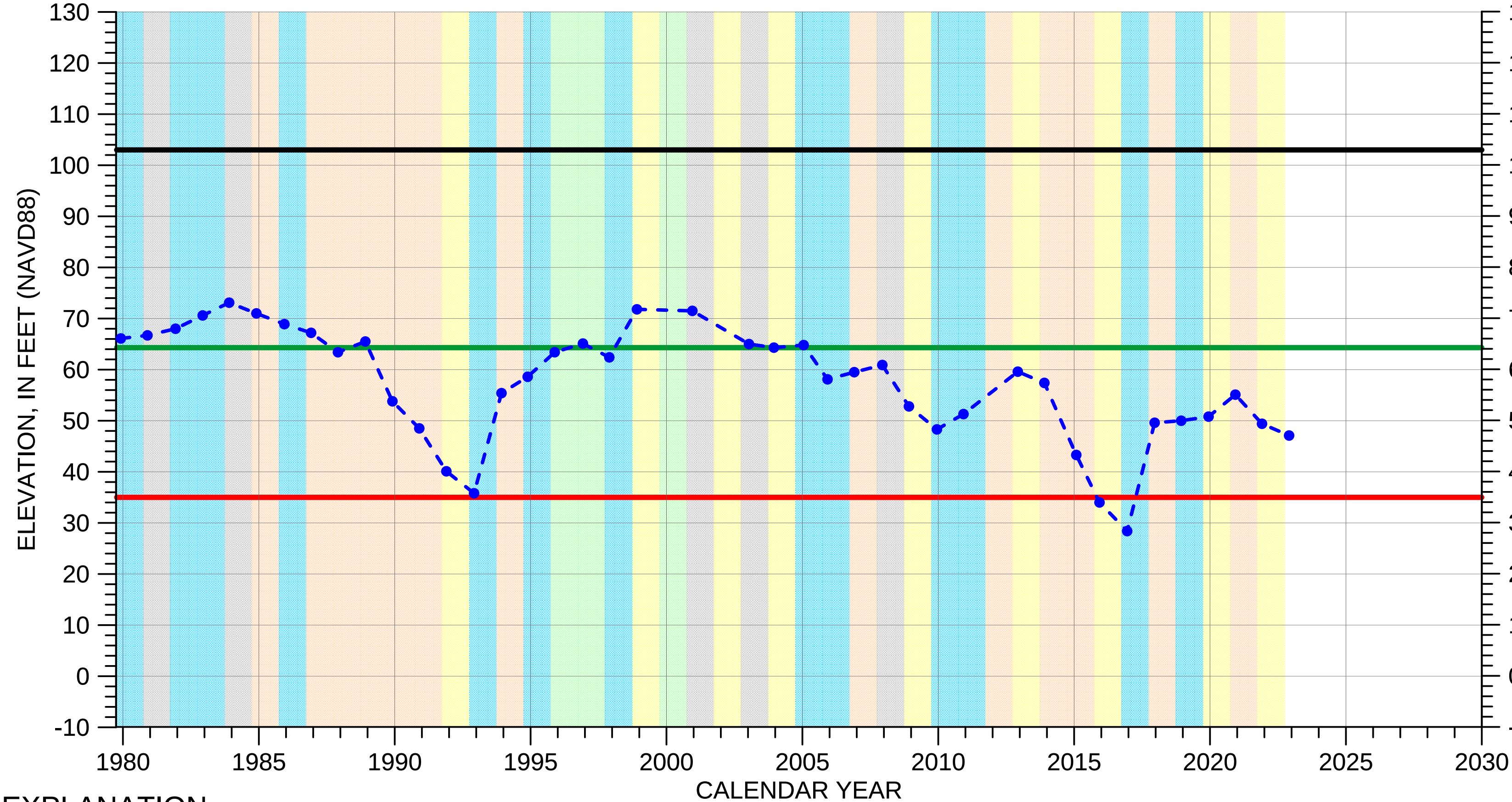
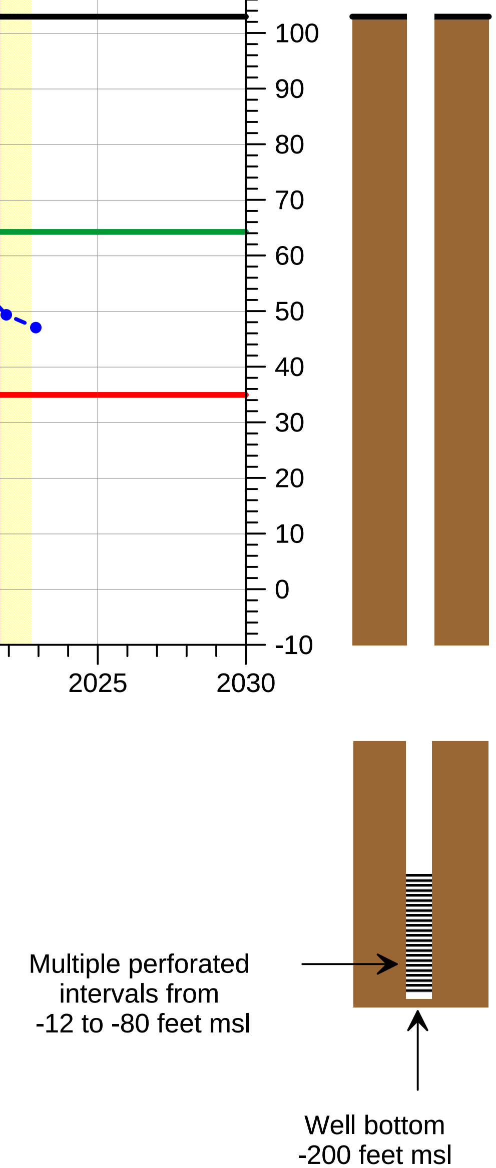
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-15R02**

180/400-Foot Aquifer Subbasin



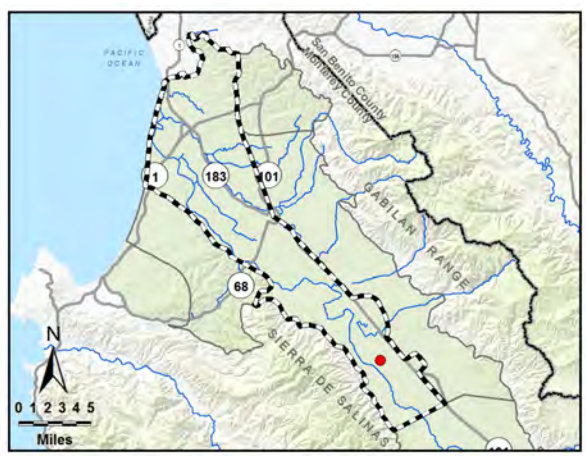




## EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

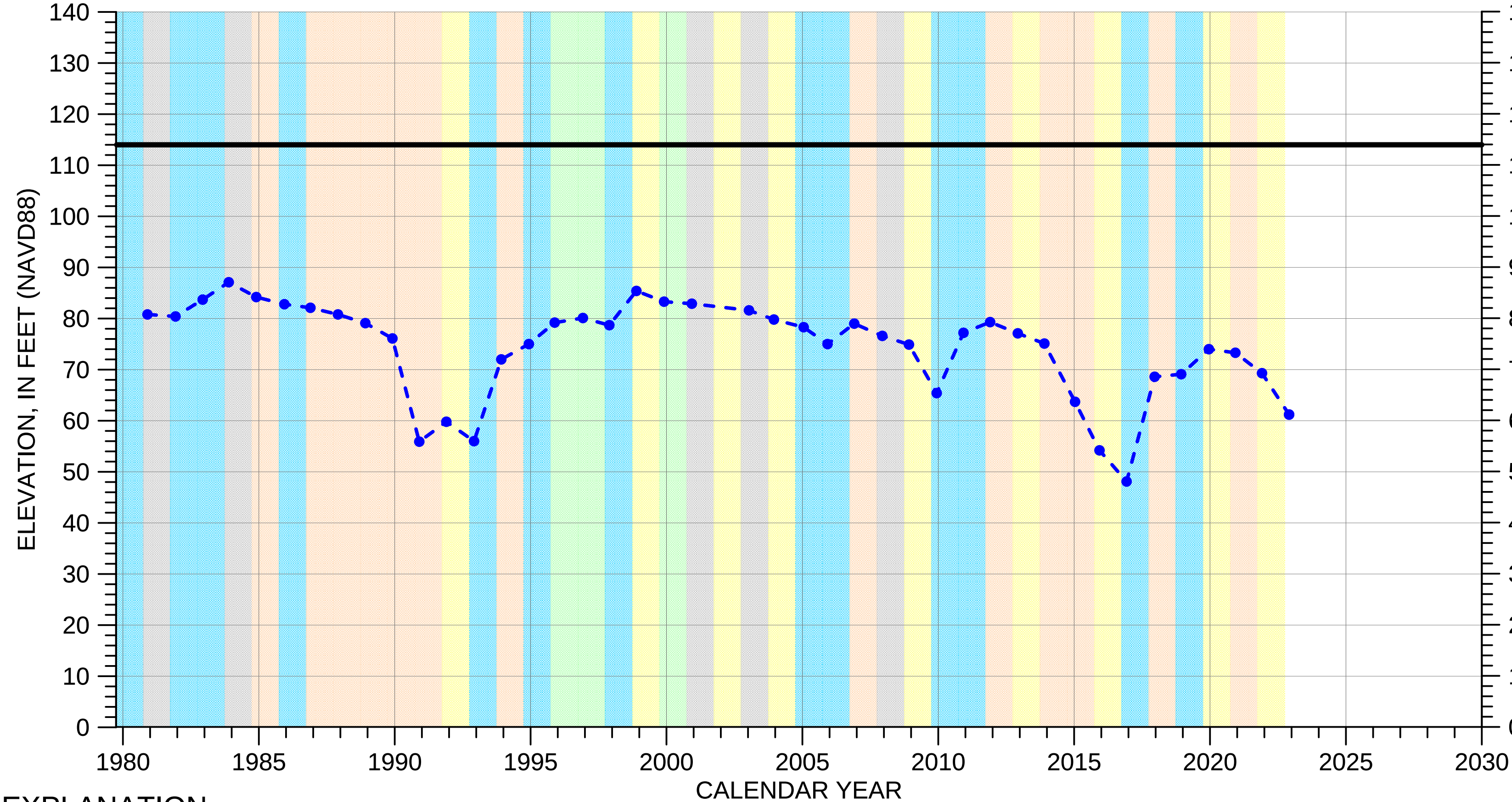
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\16S_04E-15R02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-25C01**

180/400-Foot Aquifer Subbasin

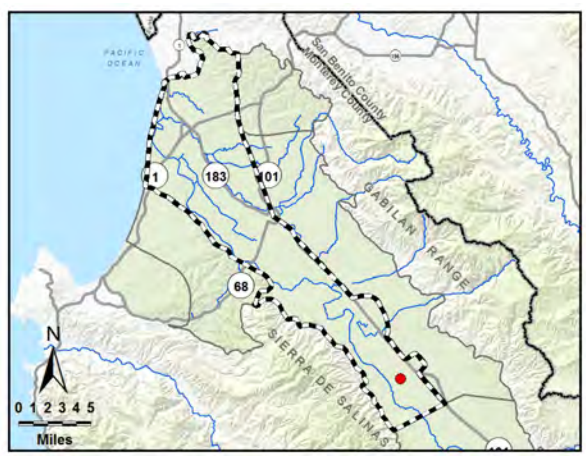



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



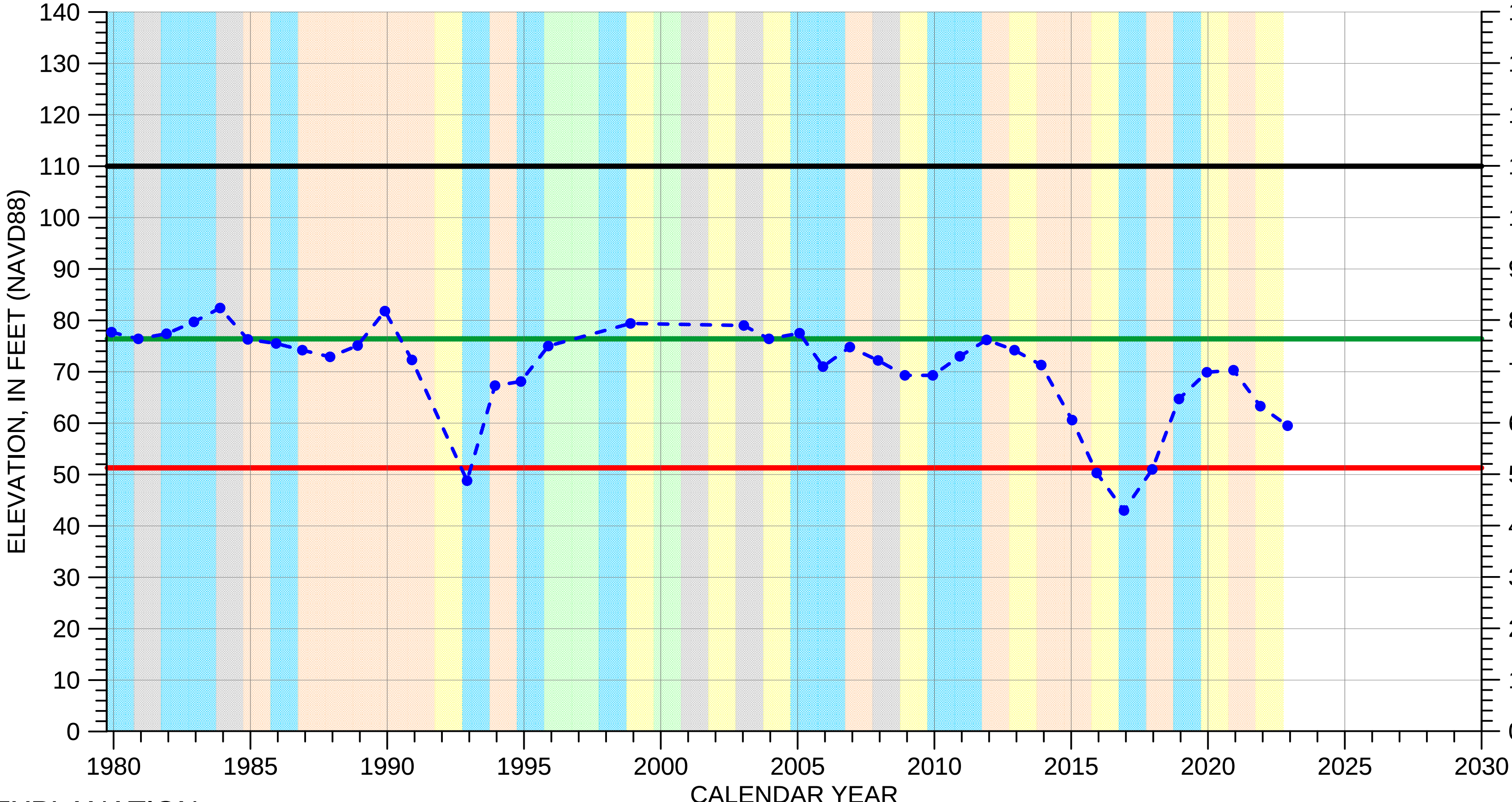

Perforated interval unknown

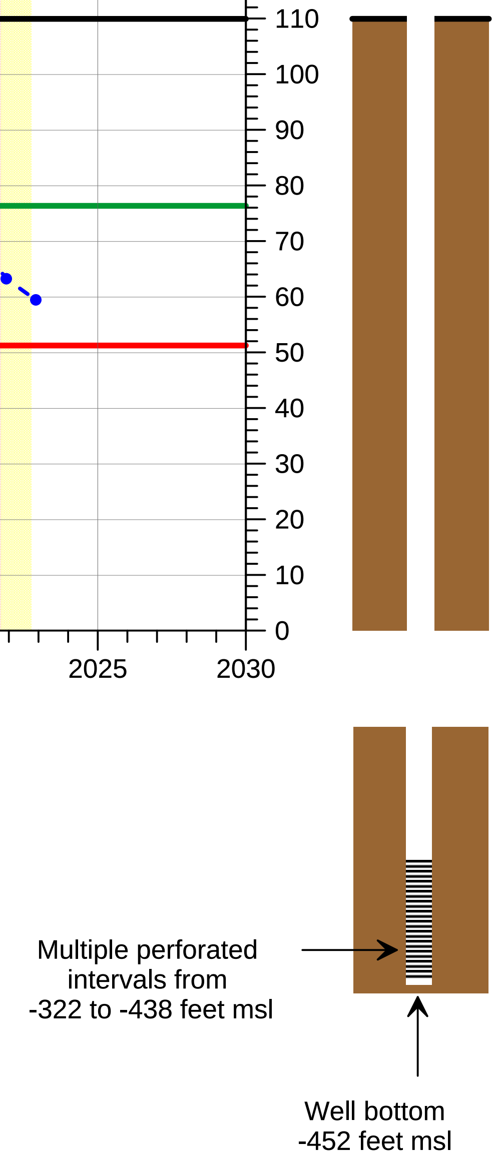
Well bottom elevation unknown

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\16S_04E-25C01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/04E-25G01**

180/400-Foot Aquifer Subbasin



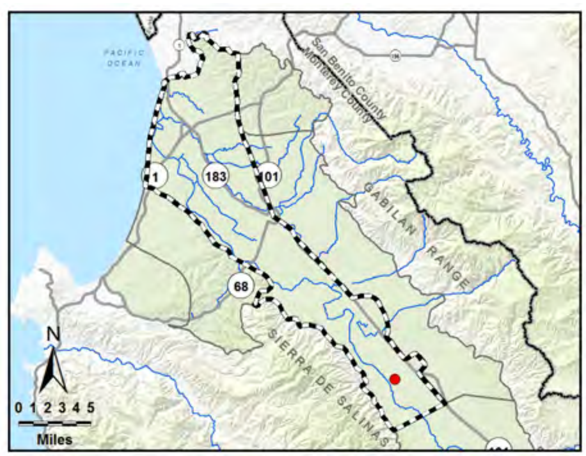

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\16S_04E-25G01.grf

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

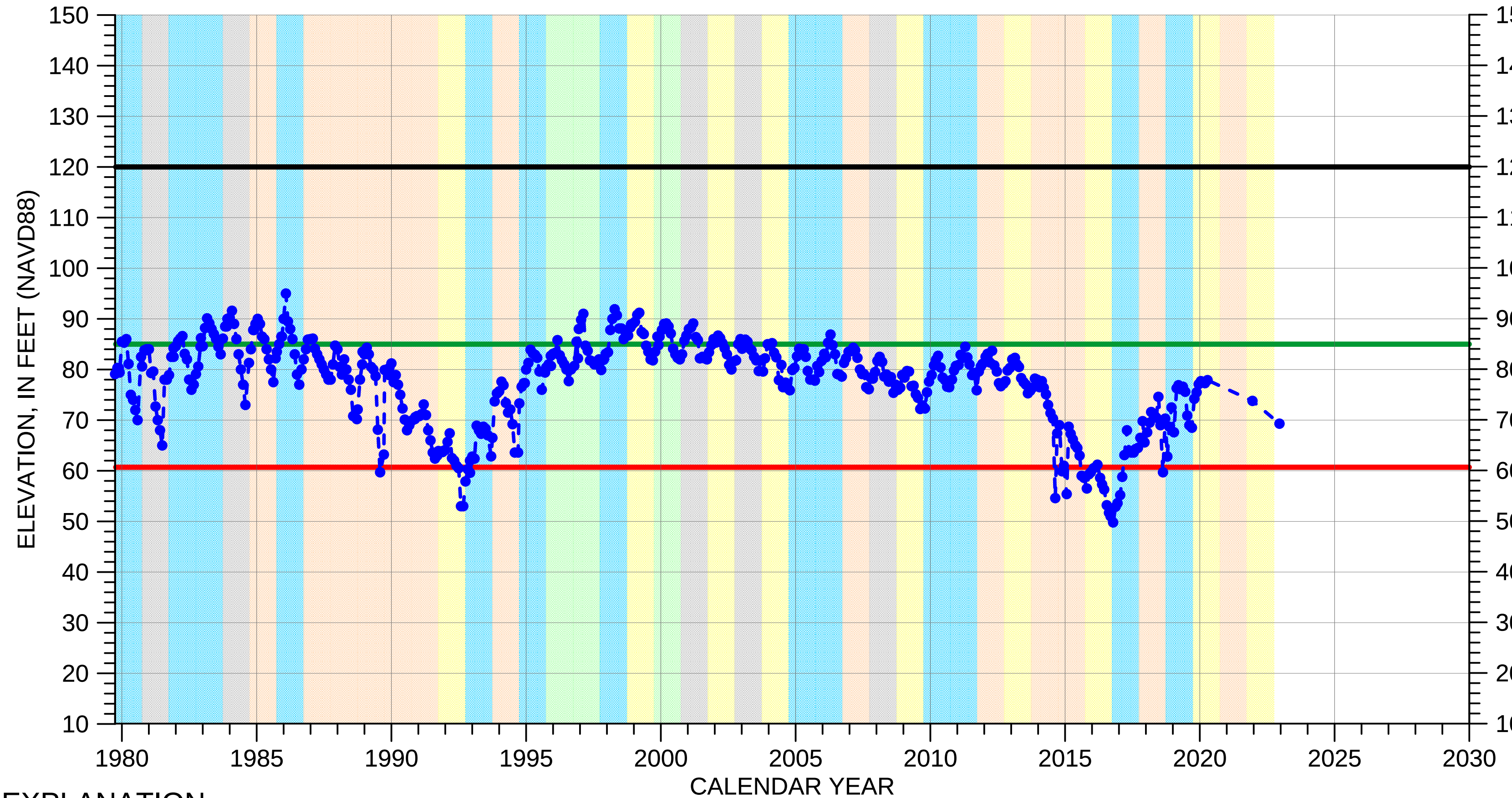
WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/05E-30E01

180/400-Foot Aquifer Subbasin

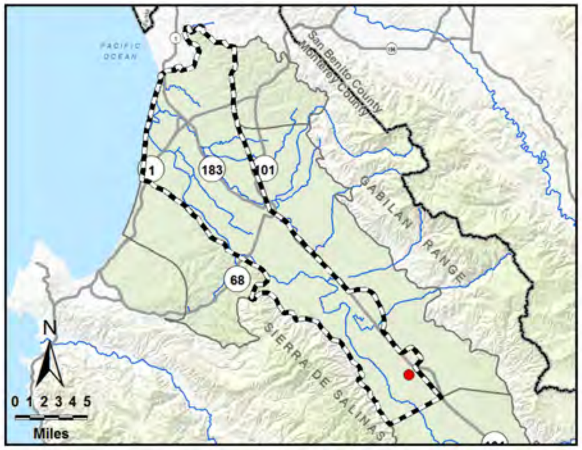


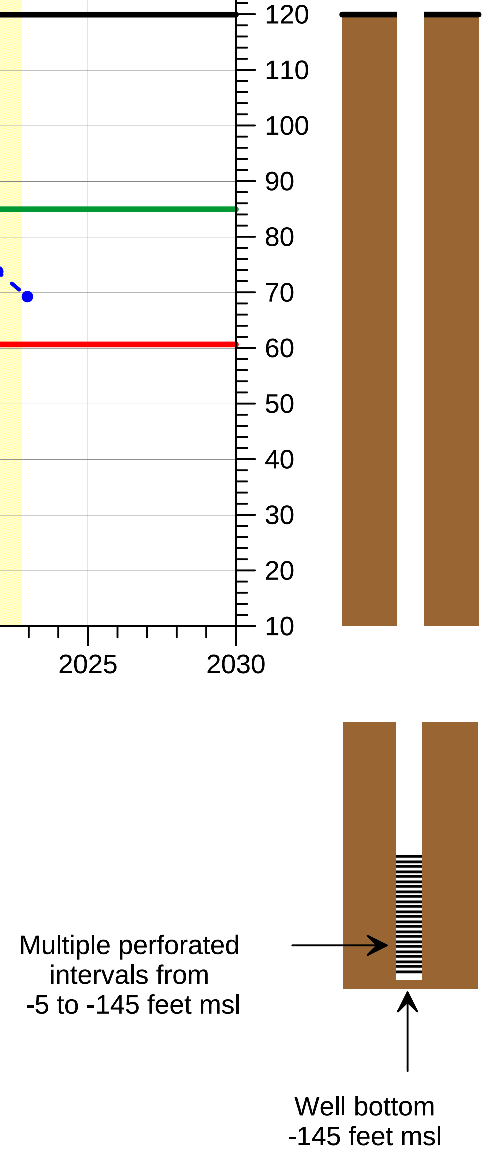

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET

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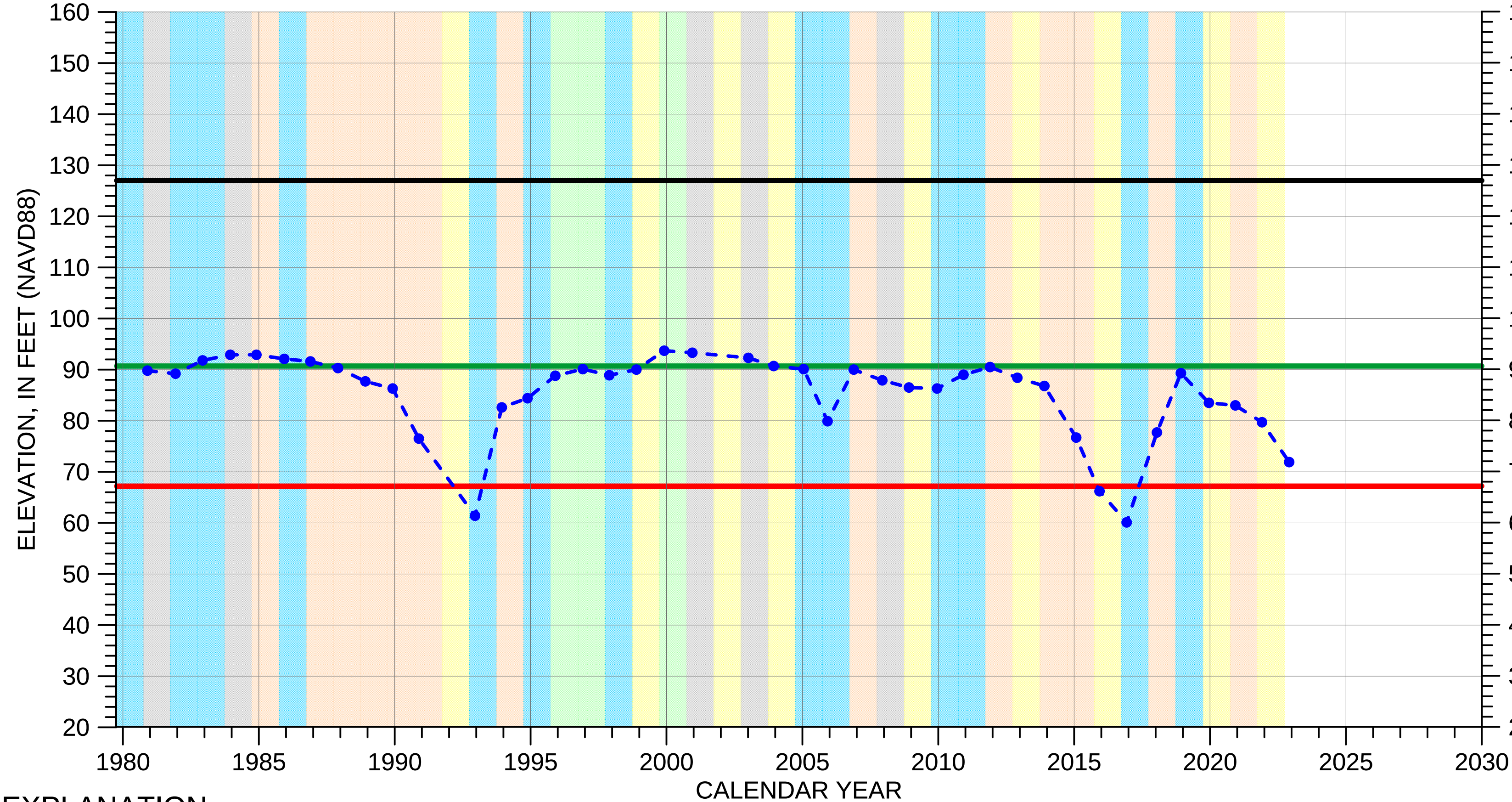
**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/05E-30J02**

180/400-Foot Aquifer Subbasin

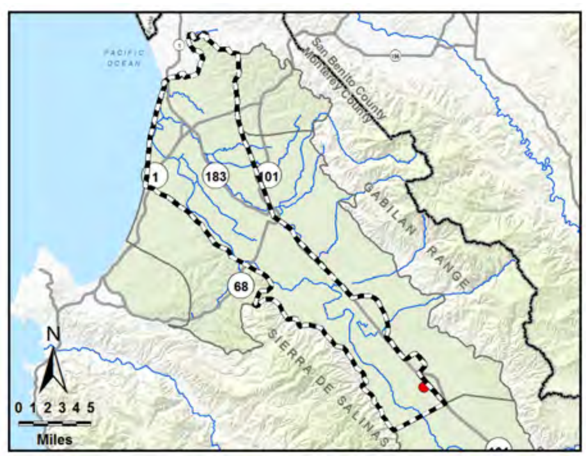



EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

WATER YEAR TYPE DESIGNATION

DRY
DRY - NORMAL
NORMAL
WET - NORMAL
WET



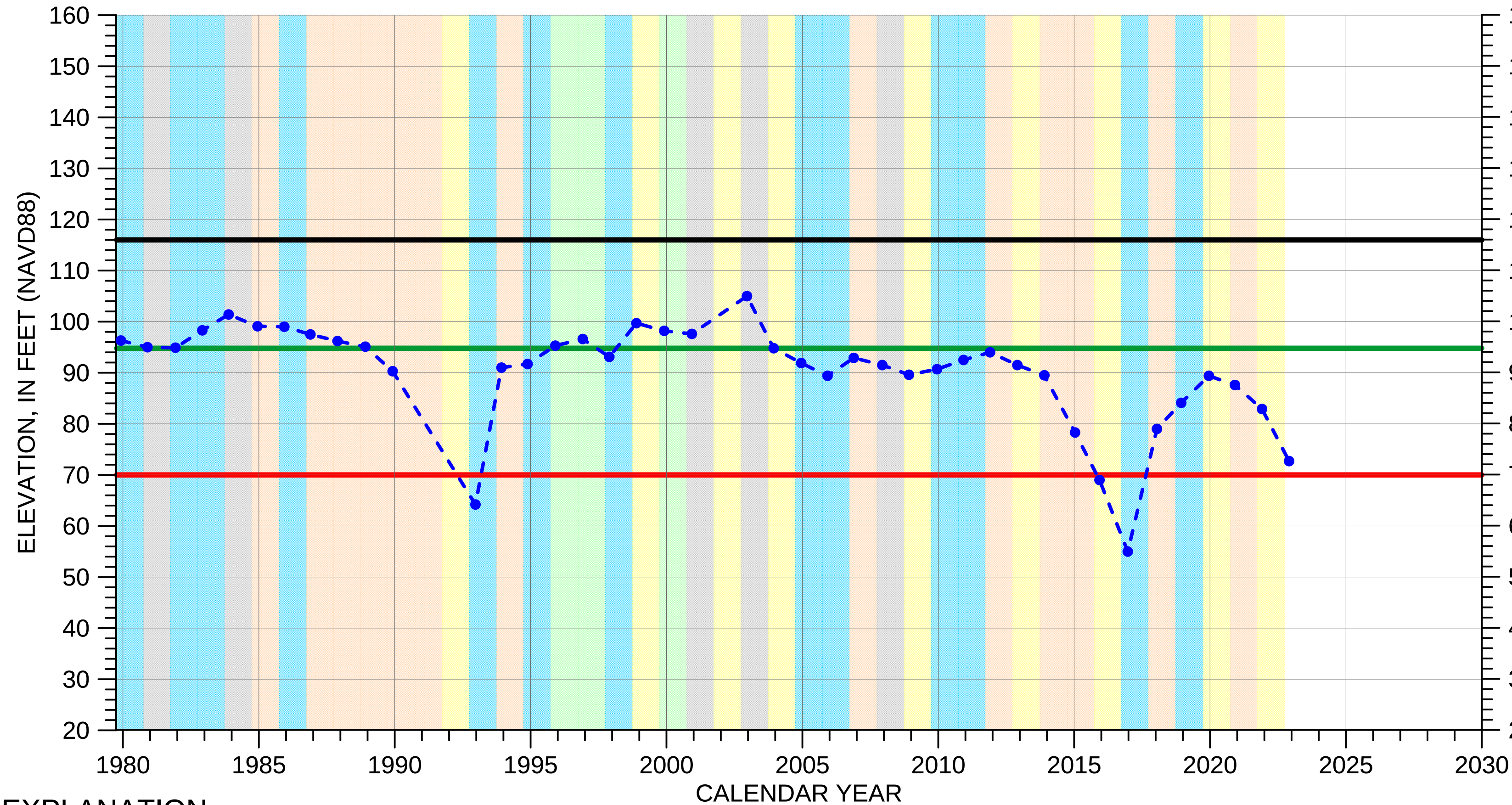

Multiple perforated intervals from -63 to -308 feet msl

Well bottom -316 feet msl

C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\16S_05E-30J02.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 16S/05E-31M01**

180/400-Foot Aquifer Subbasin




Perforated interval unknown

Well bottom -51 feet msl

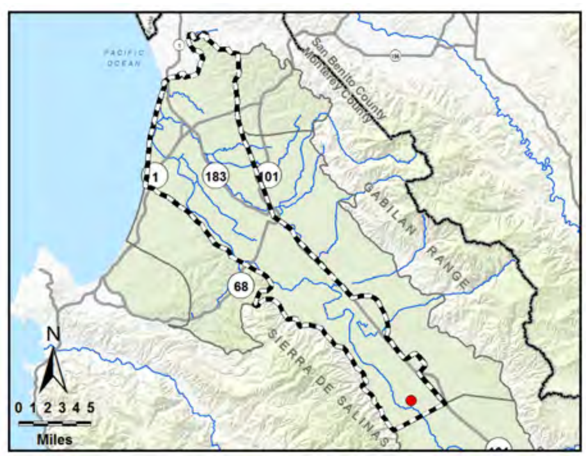
C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\16S_05E-31M01.grf

EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

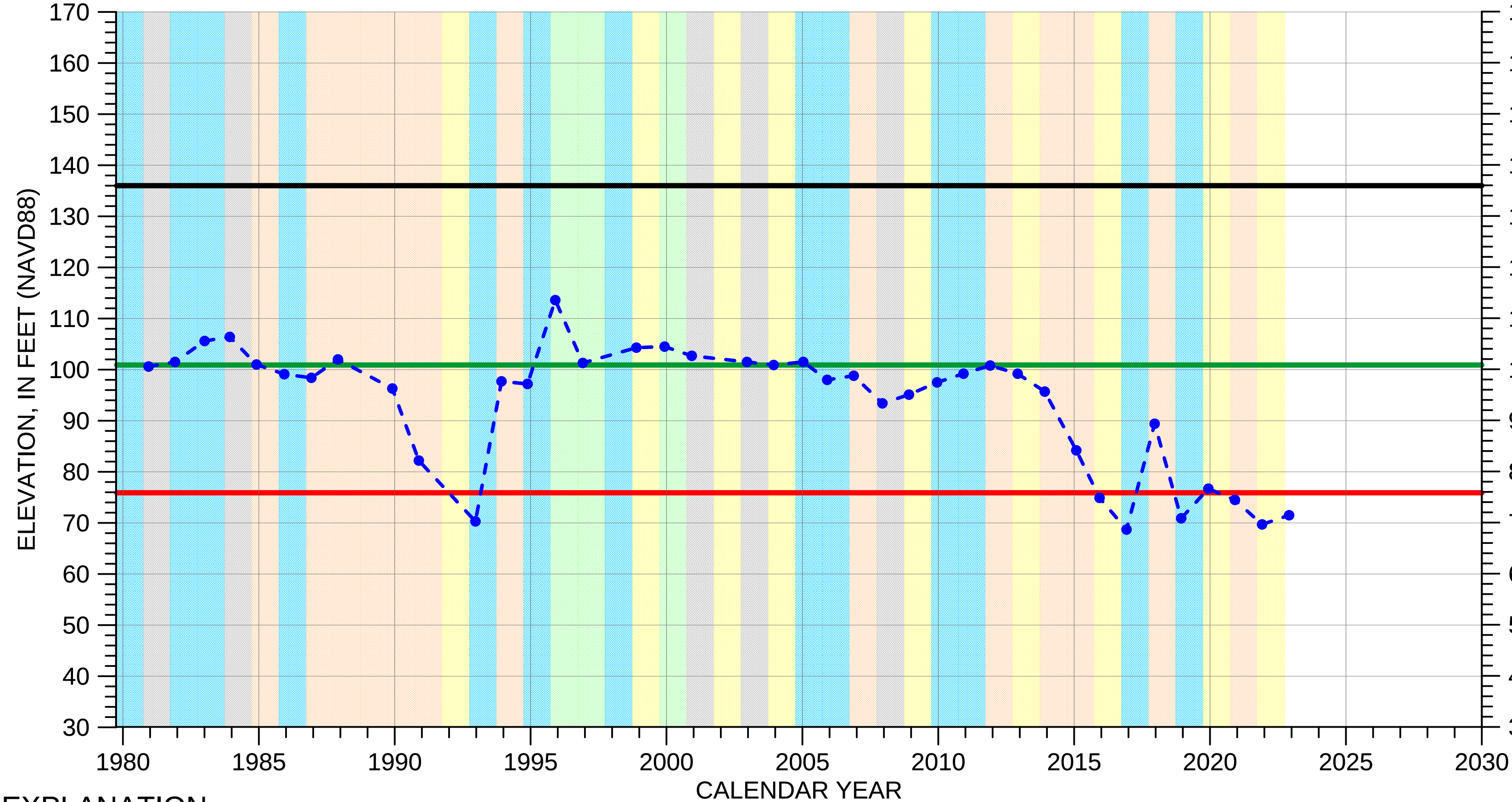
WATER YEAR TYPE DESIGNATION

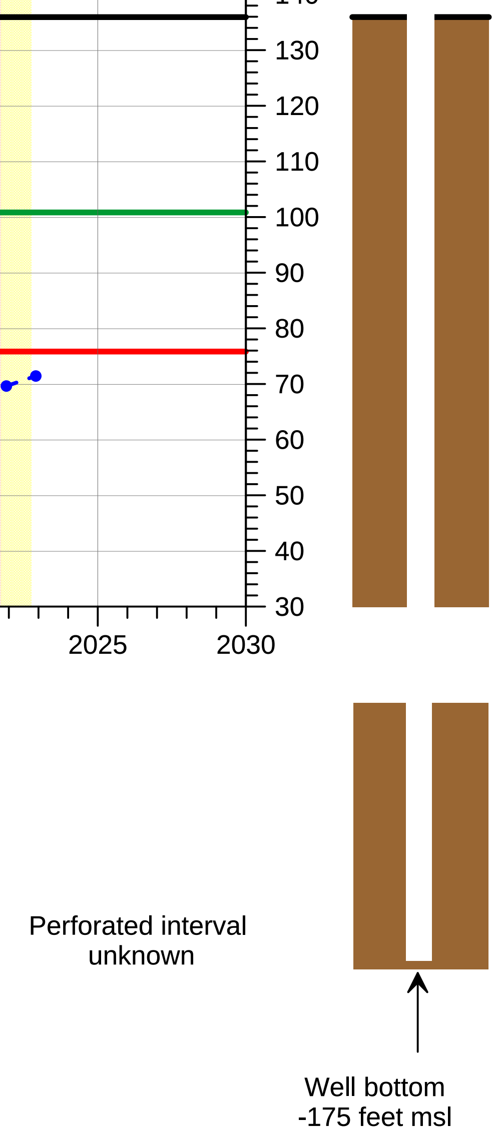
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET



## HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 17S/04E-01D01

180/400-Foot Aquifer Subbasin



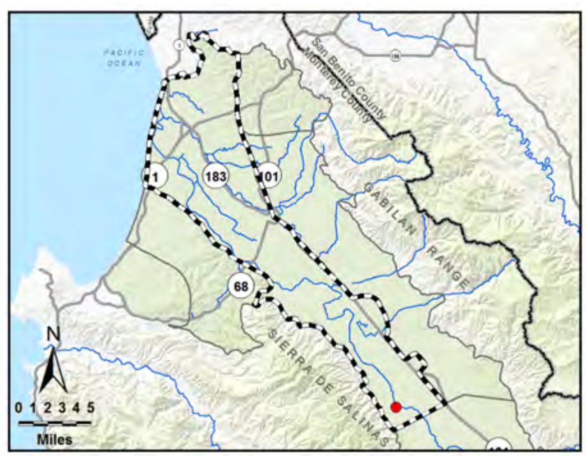




### EXPLANATION

- Groundwater Elevation
- Suspect Measurement
- Land Surface
- Measurable Objective
- Minimum Threshold

### WATER YEAR TYPE DESIGNATION

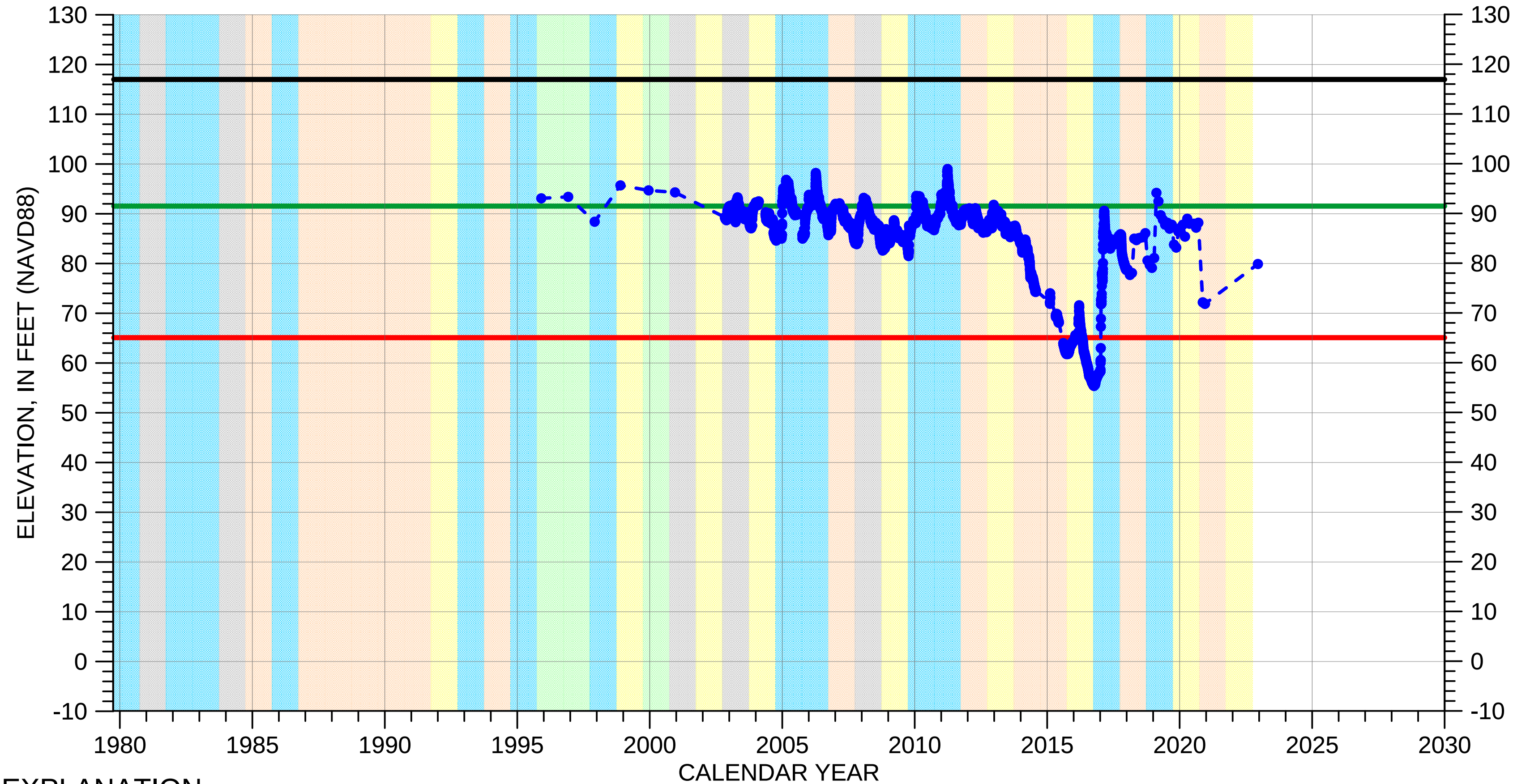
- DRY
- DRY - NORMAL
- NORMAL
- WET - NORMAL
- WET




C:\Users\tpontifex\Documents\Salinas Valley Basin GSA\Hydrographs\GRFs_test\17S_04E-01D01.grf

**HYDROGRAPH OF MEASURED GROUNDWATER ELEVATION FOR 17S/05E-06C02**

180/400-Foot Aquifer Subbasin




EXPLANATION

Groundwater Elevation

Suspect Measurement

Land Surface

Measurable Objective

Minimum Threshold

WATER YEAR TYPE DESIGNATION

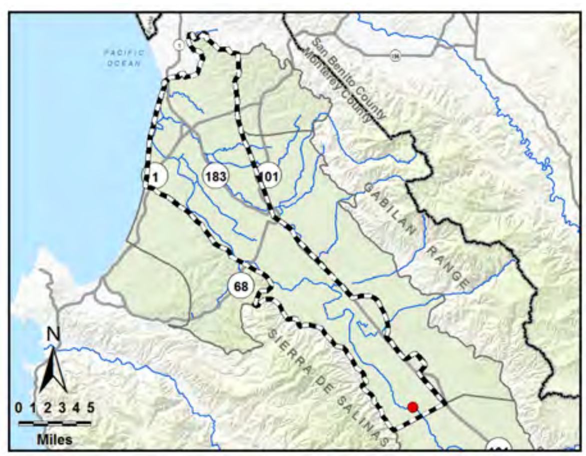
DRY

DRY - NORMAL

NORMAL

WET - NORMAL

WET

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