

2022 Water Year Annual Report

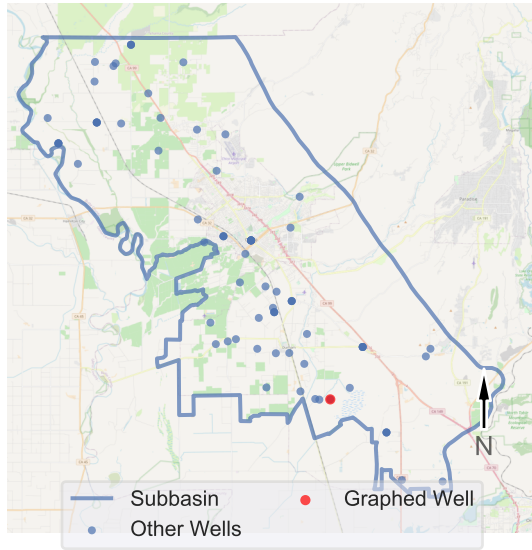
# Appendix A

Characteristics and Hydrographs of Representative  
Monitoring Site (RMS) Wells and County Wide  
Groundwater Contour Maps for the Primary  
Aquifer

# VINA Subbasin - State Well Number (SWN): 20N02E09L001M

Perforation 1: 460.0 - 710.0 ft BGS

Well Location Map



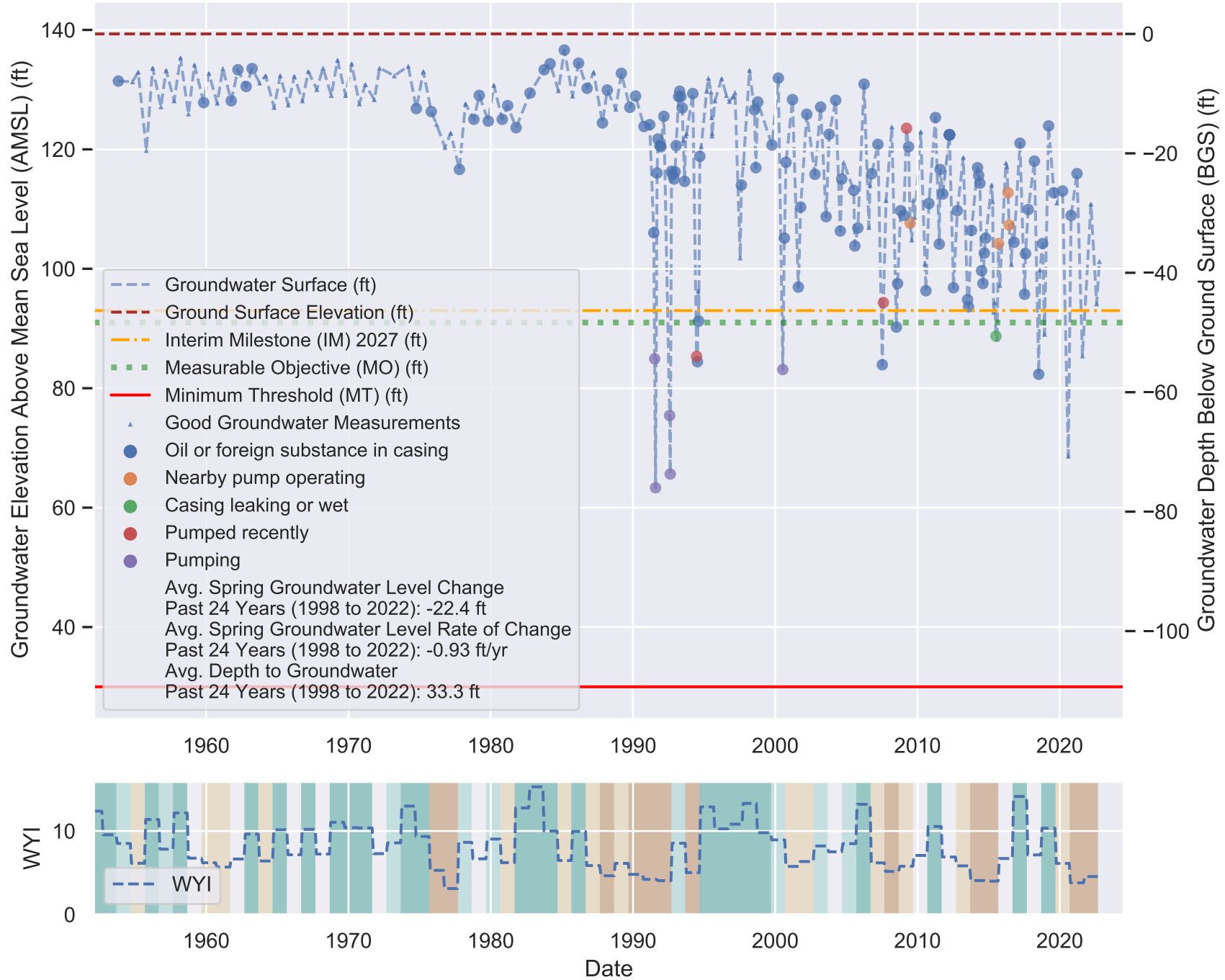
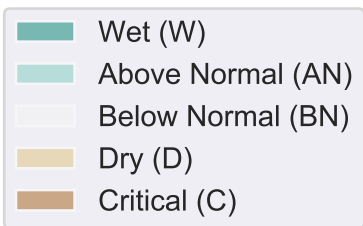
Sustainable Management Criteria:

IM (2027) = 93.0 ft AMSL

MO = 91.0 ft AMSL

MT = 30.0 ft AMSL

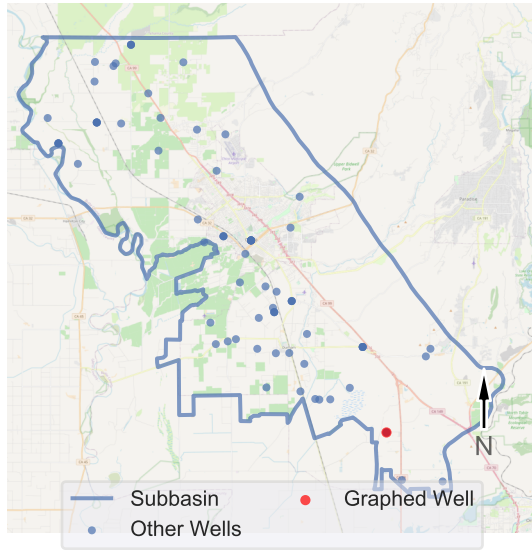
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



# VINA Subbasin - State Well Number (SWN): 20N02E24C001M

Perforation 1: 124.0 - 134.0 ft BGS

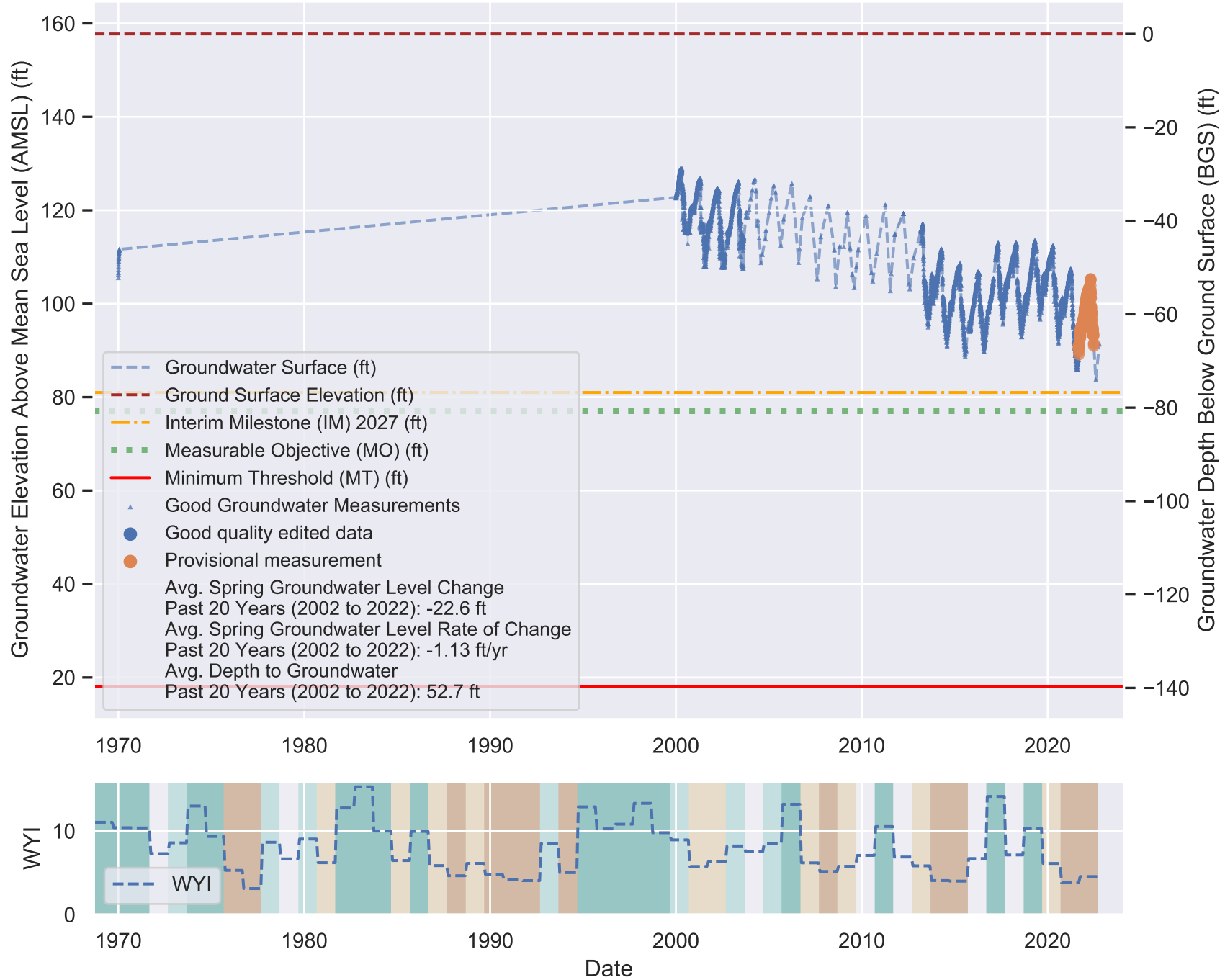
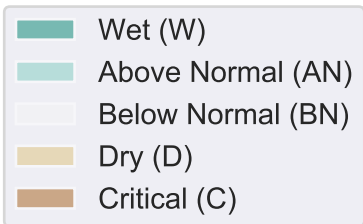
Well Location Map



## Sustainable Management Criteria:

IM (2027) = 81.0 ft AMSL  
 MO = 77.0 ft AMSL  
 MT = 18.0 ft AMSL

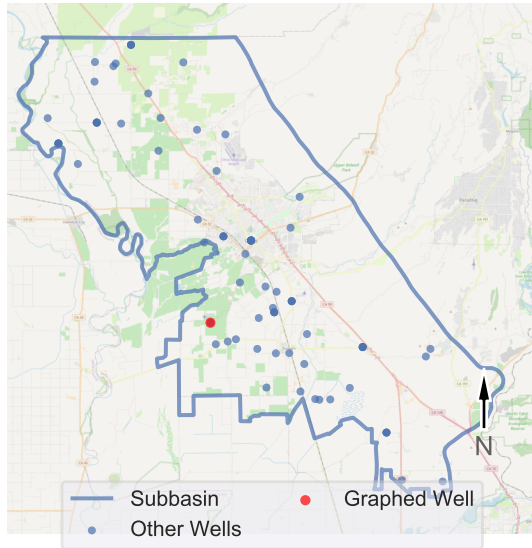
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



# VINA Subbasin - State Well Number (SWN): 21N01E21C001M

Perforation 1 (P1): 240.0 - 300.0; P2: 448.0 - 508.0 ft BGS

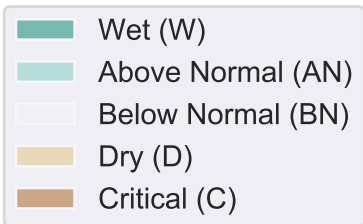
Well Location Map



## Sustainable Management Criteria:

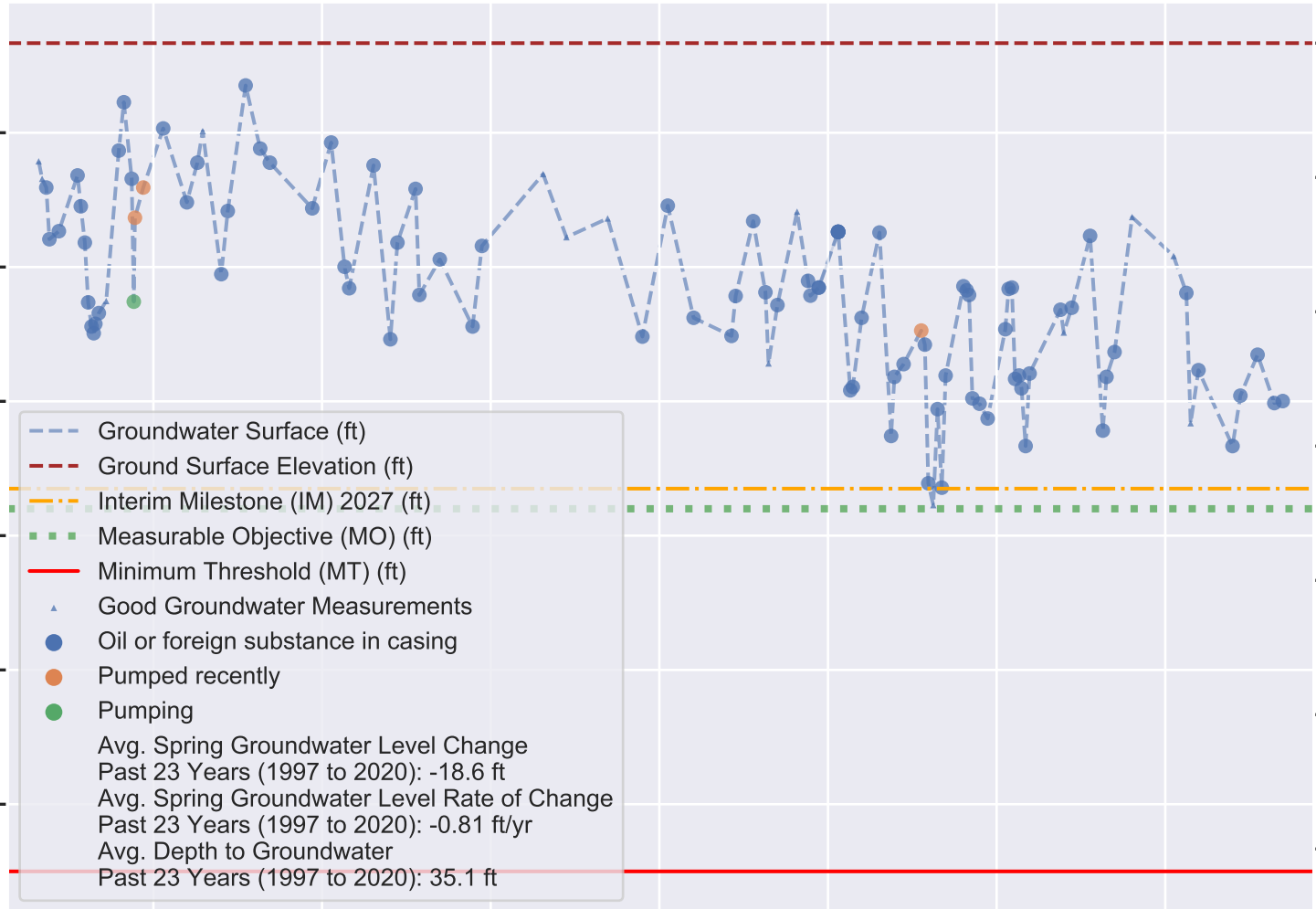
IM (2027) = 67.0 ft AMSL  
 MO = 64.0 ft AMSL  
 MT = 10.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.

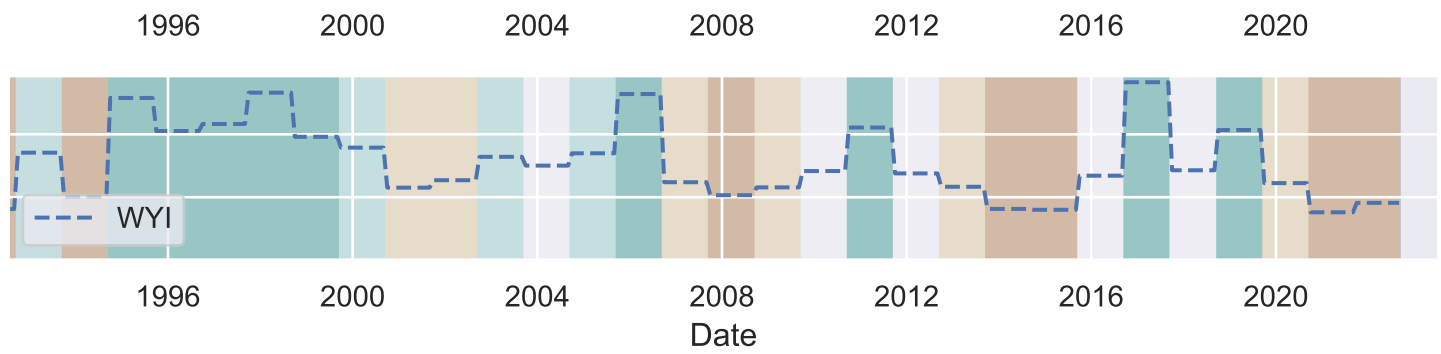


Groundwater Elevation Above Mean Sea Level (AMSL) (ft)

WYI



Groundwater Depth Below Ground Surface (BGS) (ft)

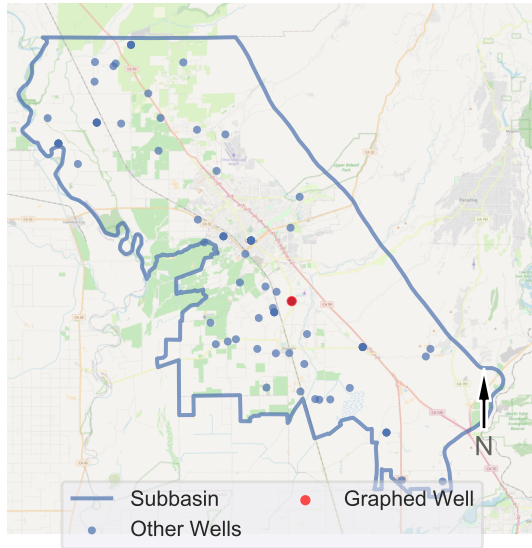




# VINA Subbasin - State Well Number (SWN): 21N02E18C003M

Perforation 1 (P1): 130.0 - 140.0; P2: 160.0 - 170.0; P3: 190.0 - 200.0 ft BGS

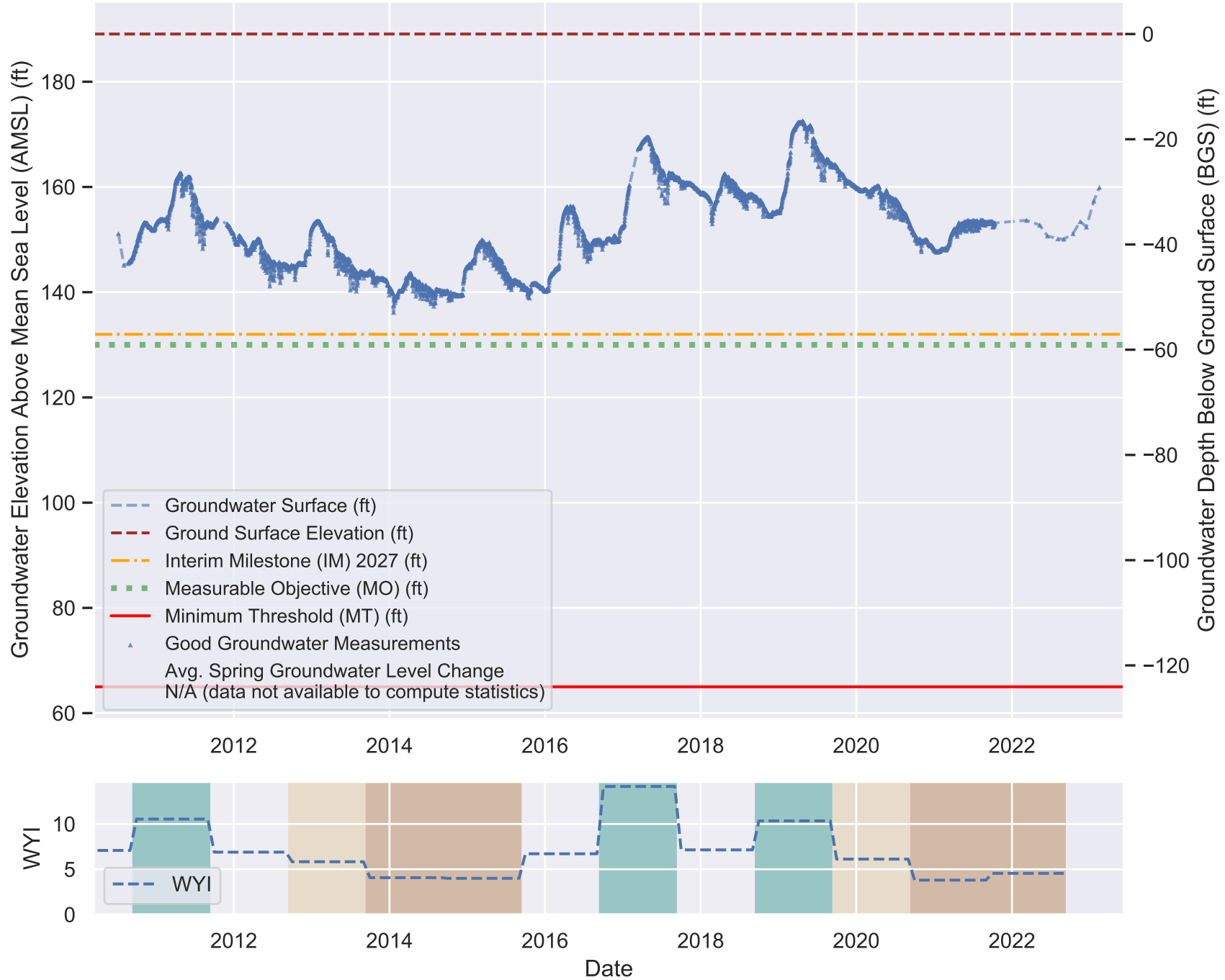
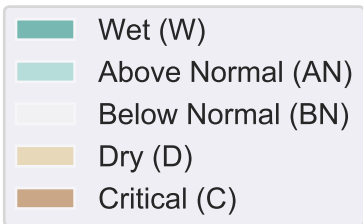
Well Location Map



## Sustainable Management Criteria:

IM (2027) = 132.0 ft AMSL  
 MO = 130.0 ft AMSL  
 MT = 65.0 ft AMSL

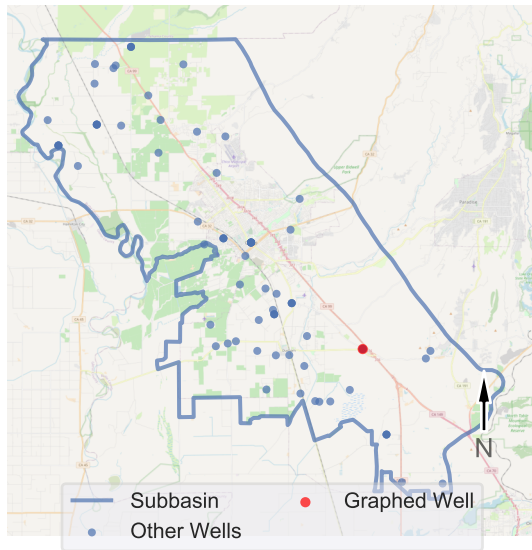
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



# VINA Subbasin - State Well Number (SWN): 21N02E26E005M

Perforation 1 (P1): 265.0 - 275.0; P2: 280.0 - 290.0 ft BGS

Well Location Map



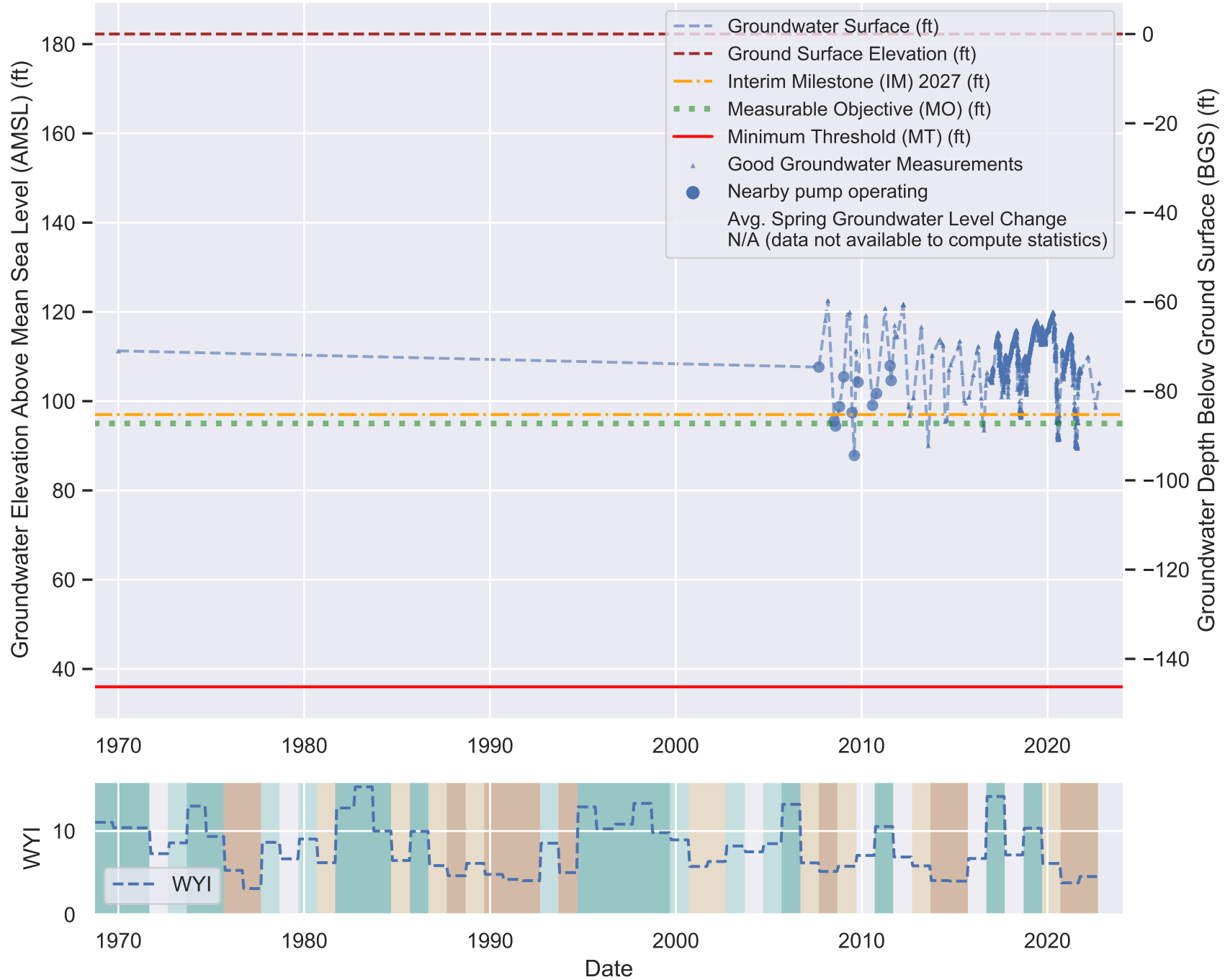
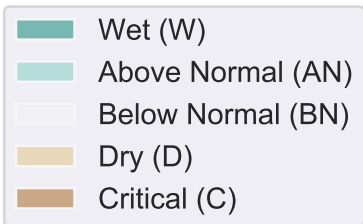
## Sustainable Management Criteria:

IM (2027) = 97.0 ft AMSL

MO = 95.0 ft AMSL

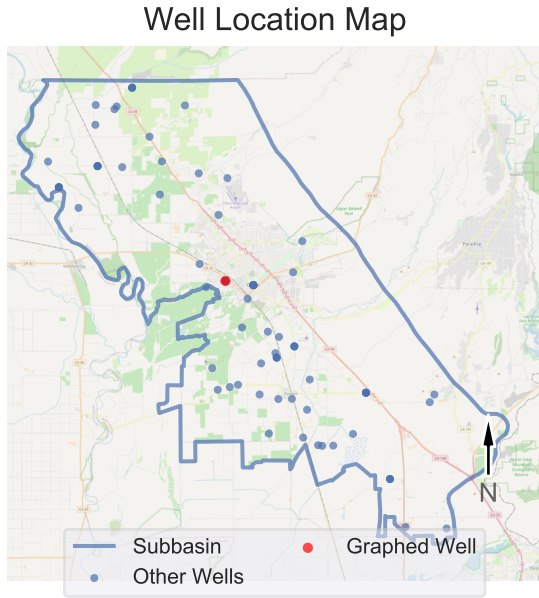
MT = 36.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



# VINA Subbasin - State Well Number (SWN): 22N01E28J003M

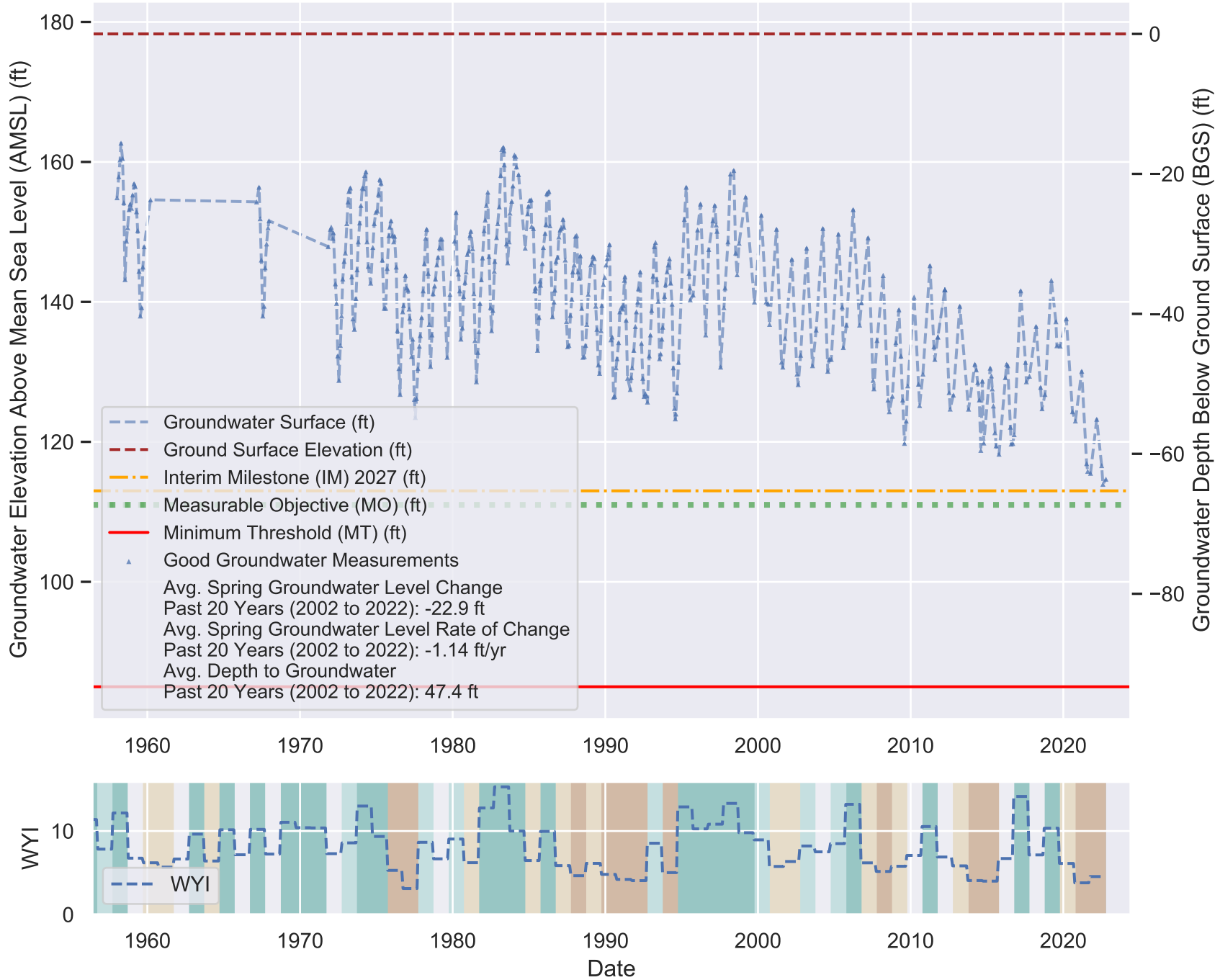
Perforation 1: 200.0 - 279.0 ft BGS



### Sustainable Management Criteria:

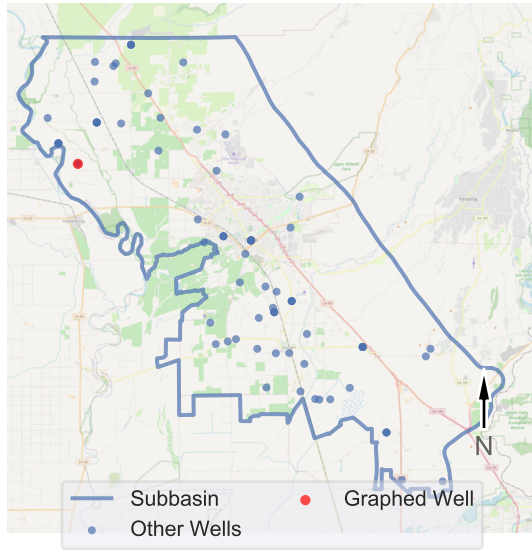
IM (2027) = 113.0 ft AMSL  
 MO = 111.0 ft AMSL  
 MT = 85.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



# VINA Subbasin - State Well Number (SWN): 22N01W05M001M

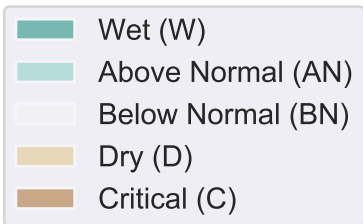
Well Location Map



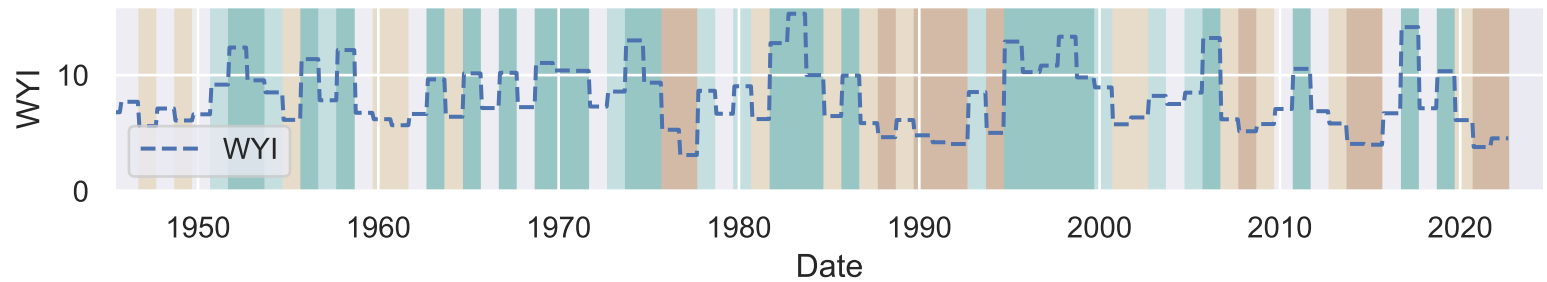
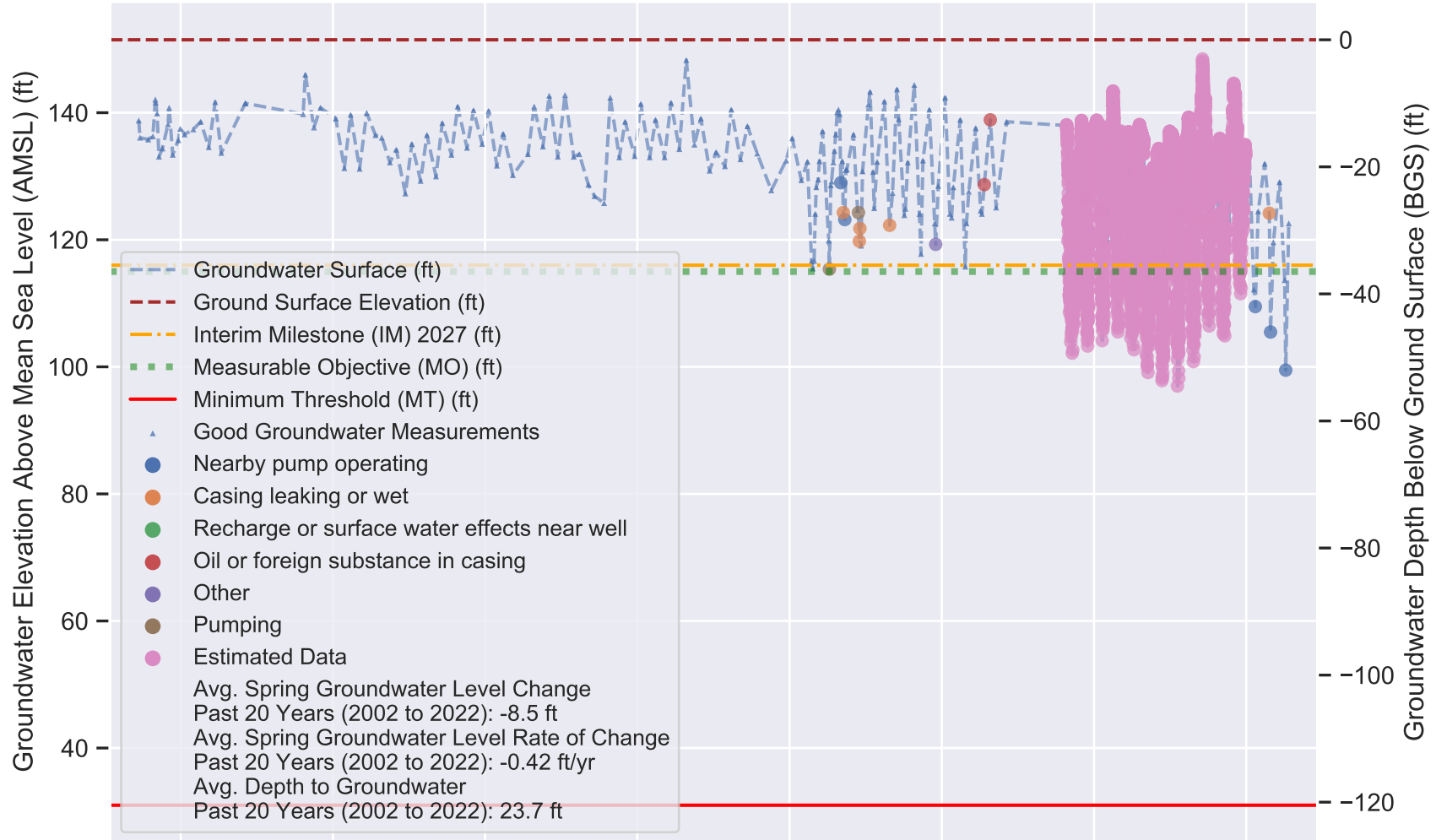
## Sustainable Management Criteria:

IM (2027) = 116.0 ft AMSL  
 MO = 115.0 ft AMSL  
 MT = 31.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



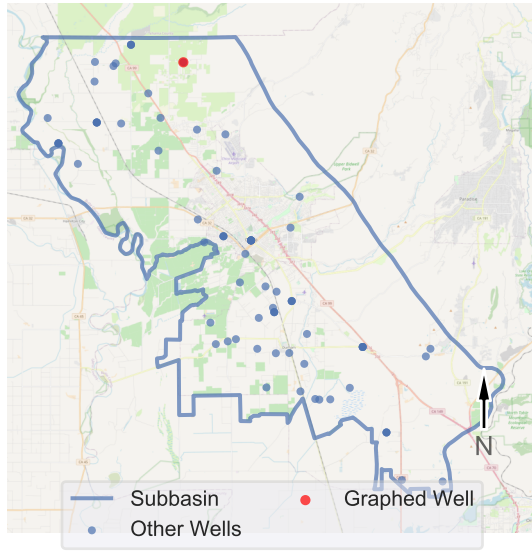
Perforation data not available.



# VINA Subbasin - State Well Number (SWN): 23N01E07H001M

Perforation 1: 115.0 - 195.0 ft BGS

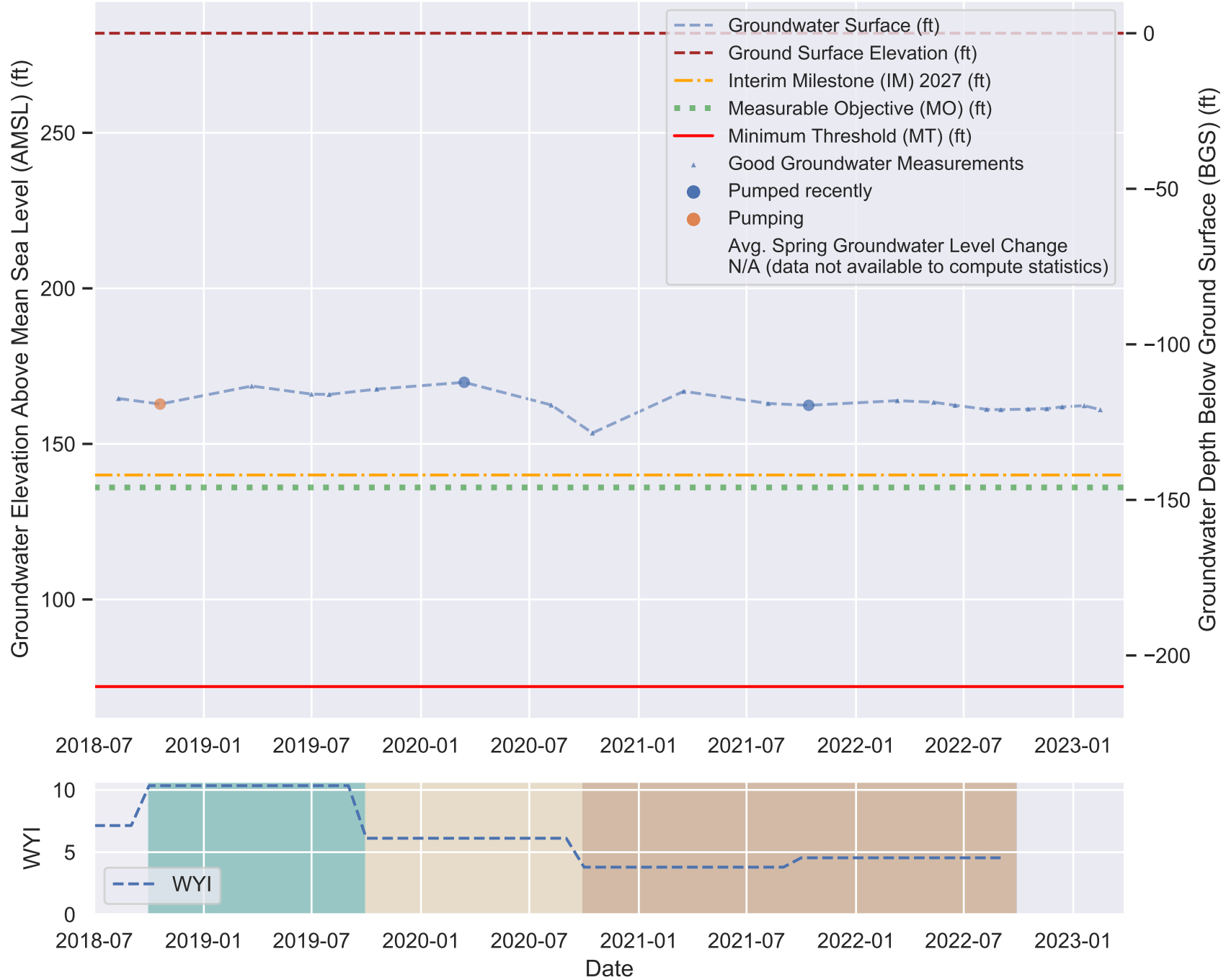
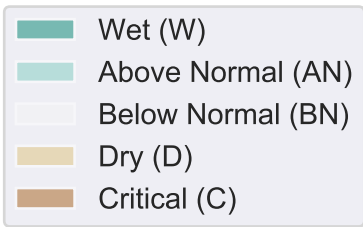
Well Location Map



## Sustainable Management Criteria:

IM (2027) = 140.0 ft AMSL  
 MO = 136.0 ft AMSL  
 MT = 72.0 ft AMSL

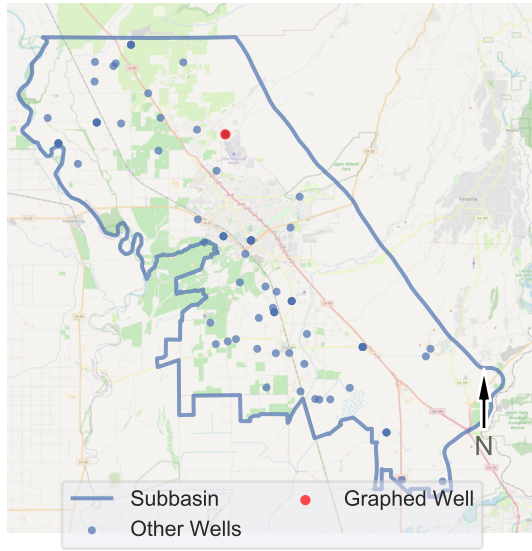
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



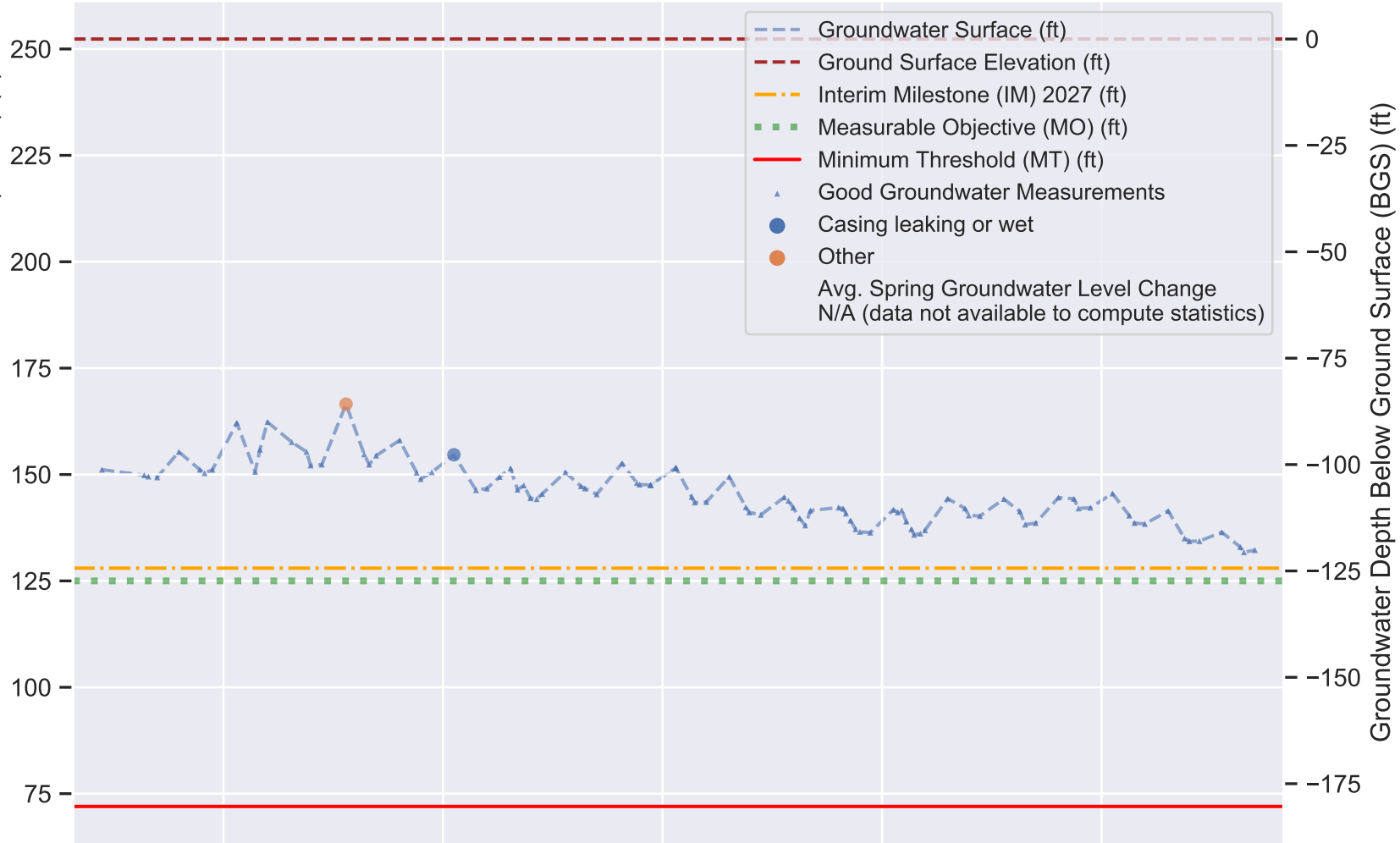
# VINA Subbasin - State Well Number (SWN): 23N01E33A001M

Perforation 1: 53.0 - 506.0 ft BGS

Well Location Map



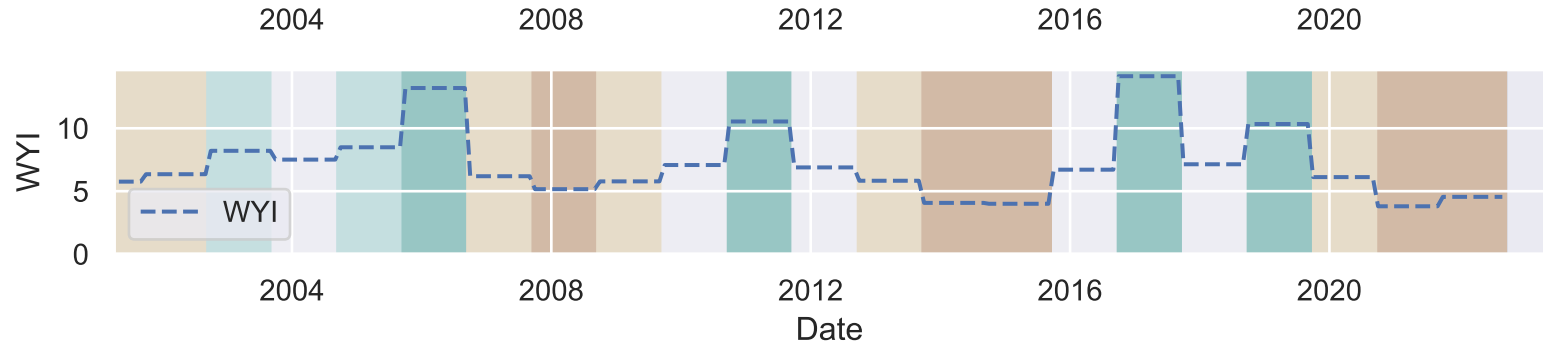
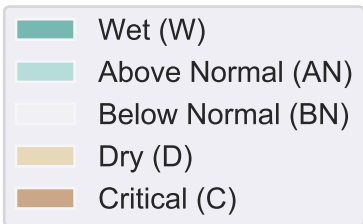
Groundwater Elevation Above Mean Sea Level (AMSL) (ft)



Sustainable Management Criteria:

IM (2027) = 128.0 ft AMSL  
 MO = 125.0 ft AMSL  
 MT = 72.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.

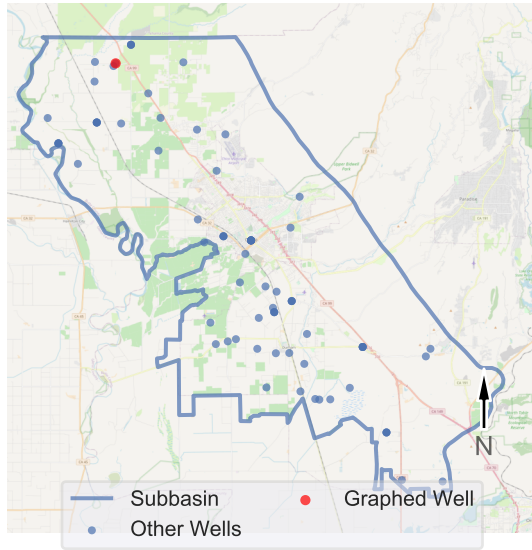




# VINA Subbasin - State Well Number (SWN): 23N01W10E001M

Perforation 1: 600.0 - 668.0 ft BGS

Well Location Map



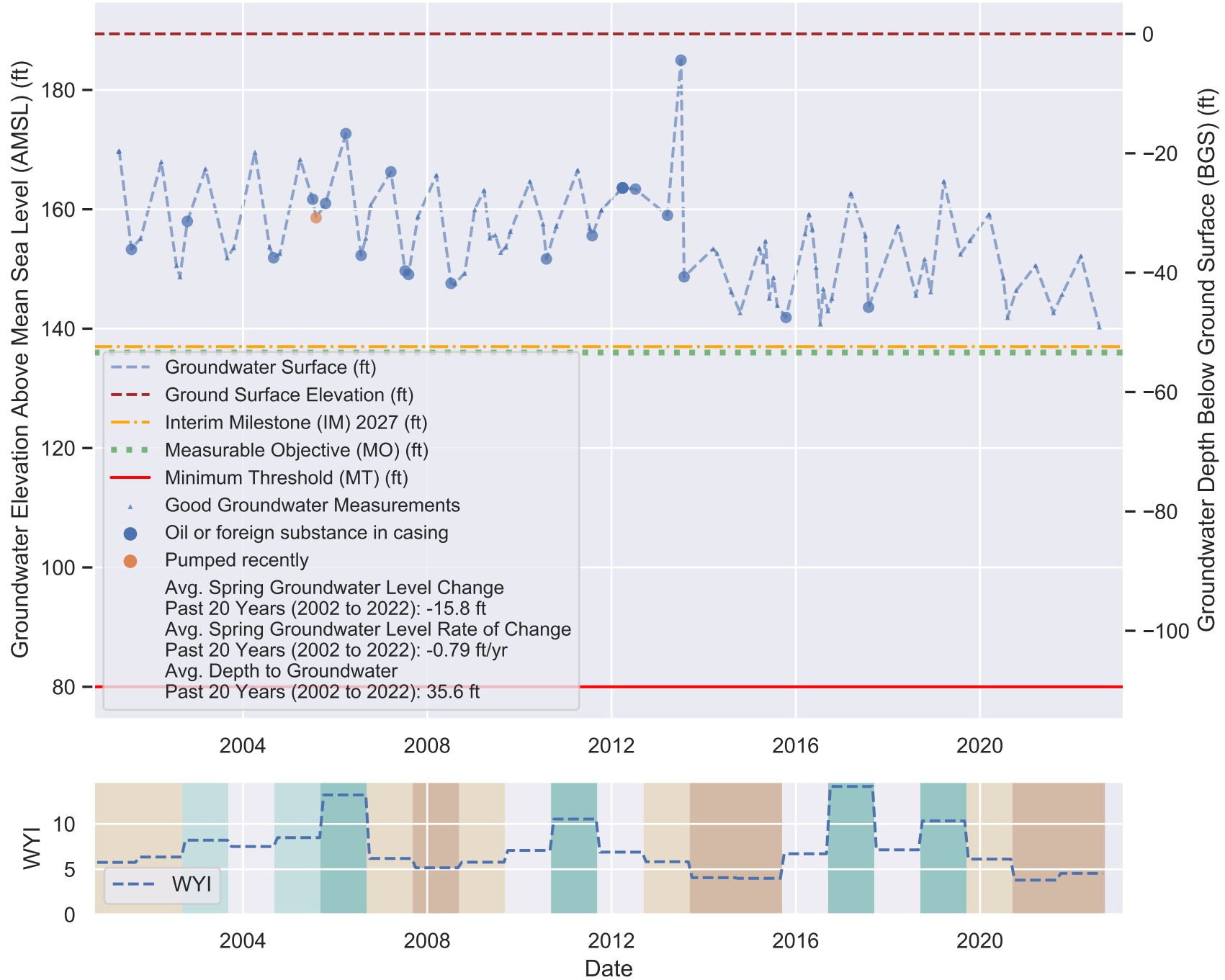
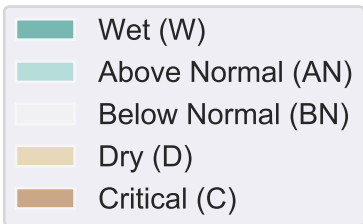
## Sustainable Management Criteria:

IM (2027) = 137.0 ft AMSL

MO = 136.0 ft AMSL

MT = 80.0 ft AMSL

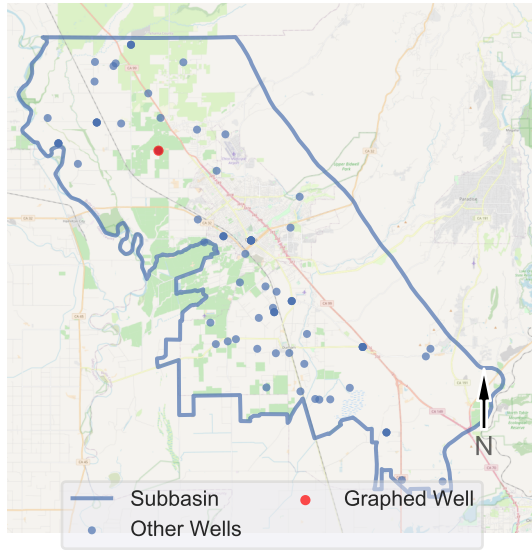
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.





# VINA Subbasin - State Well Number (SWN): 23N01W36P001M

Well Location Map



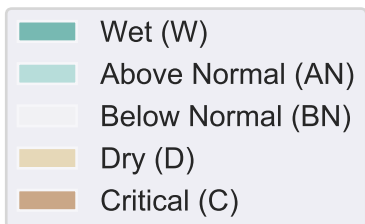
## Sustainable Management Criteria:

IM (2027) = 110.0 ft AMSL

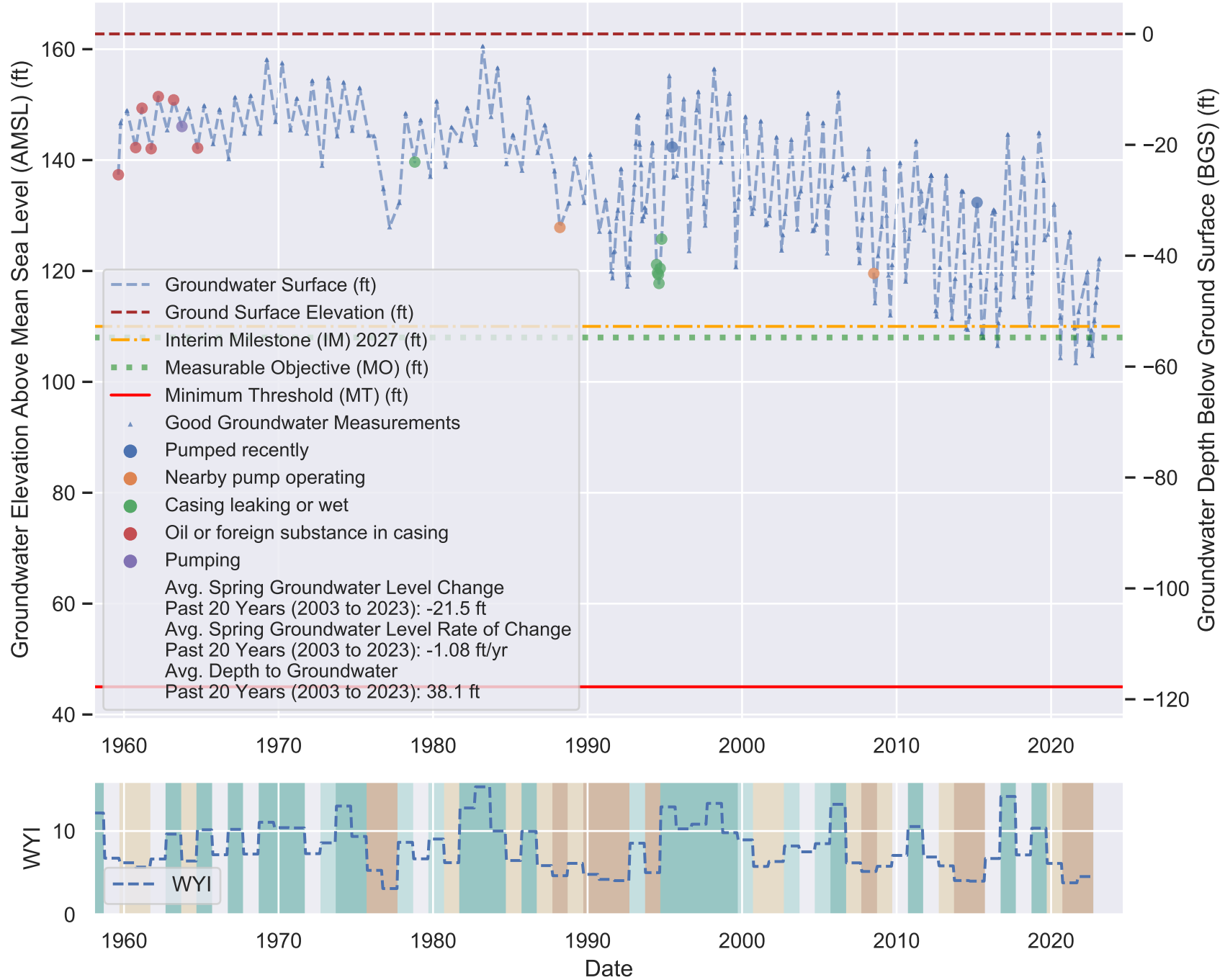
MO = 108.0 ft AMSL

MT = 45.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.

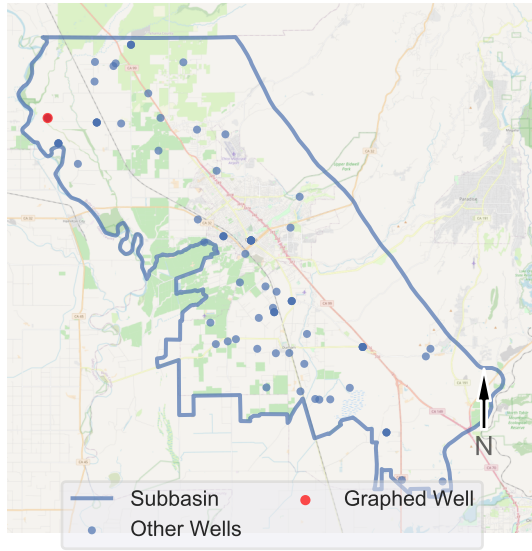


Perforation data not available.



# VINA Subbasin - State Well Number (SWN): 23N02W25C001M

Well Location Map



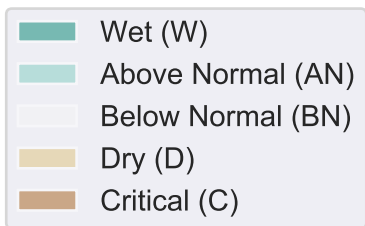
## Sustainable Management Criteria:

IM (2027) = 130.0 ft AMSL

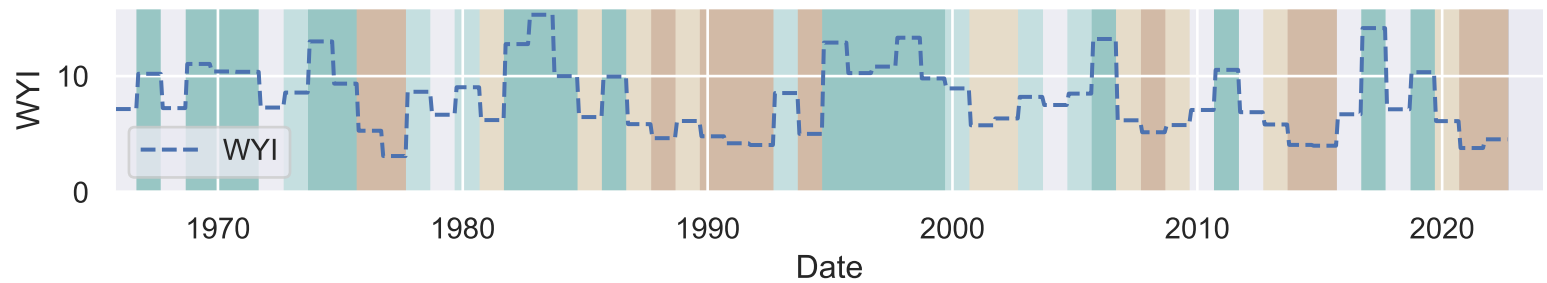
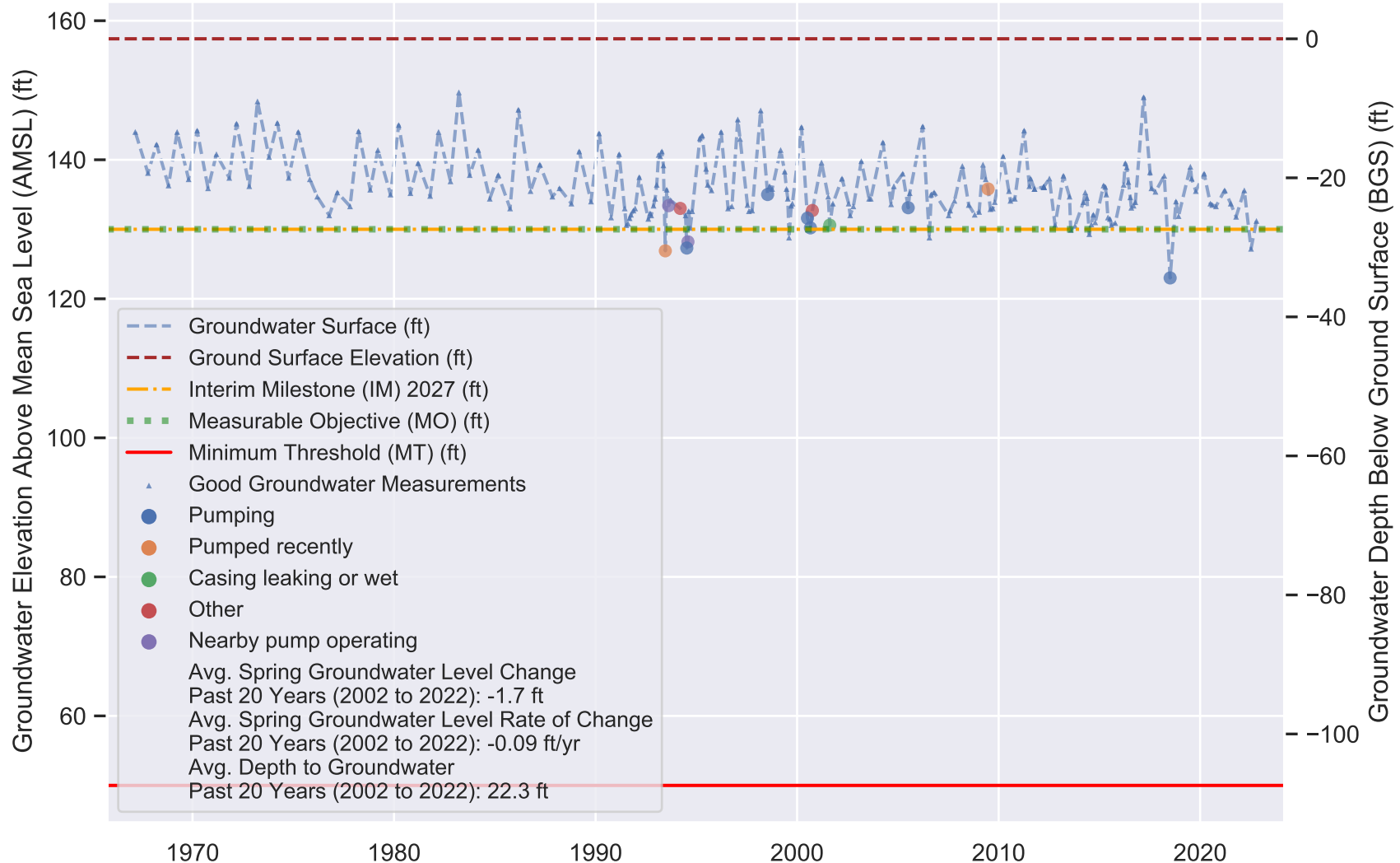
MO = 130.0 ft AMSL

MT = 50.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



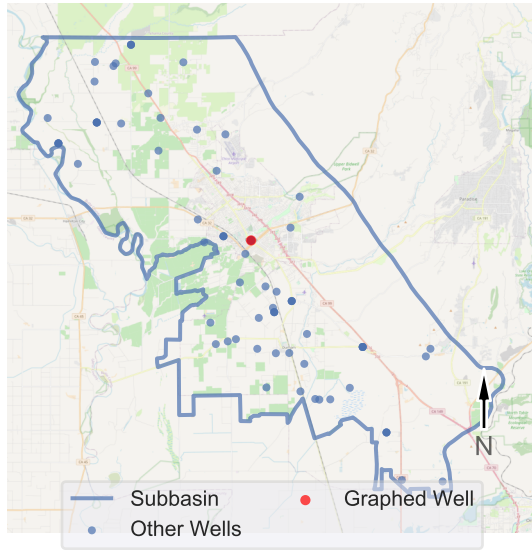
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# VINA Subbasin - State Well Number (SWN): CWSCH01b

Perforation data not available.

### Well Location Map



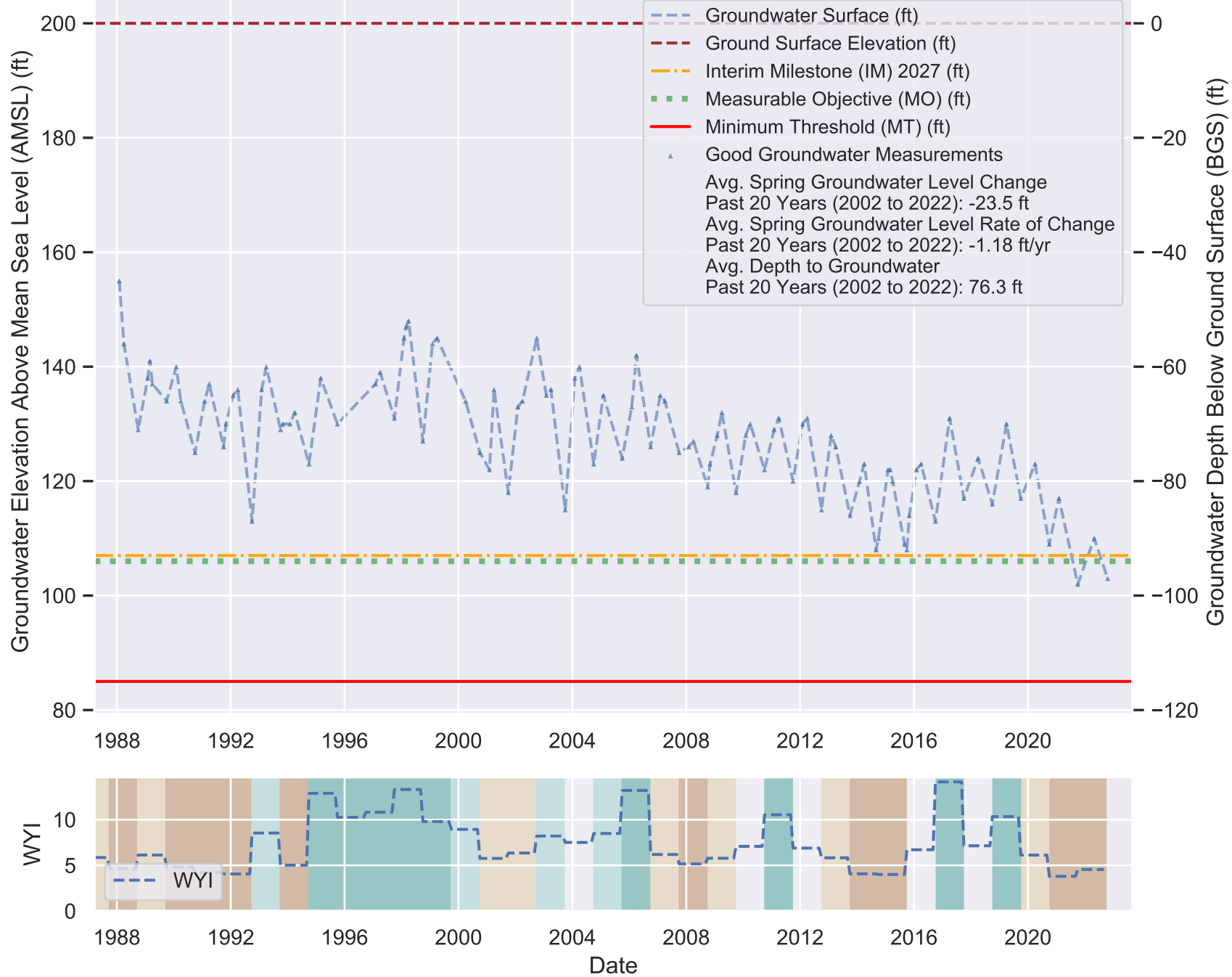
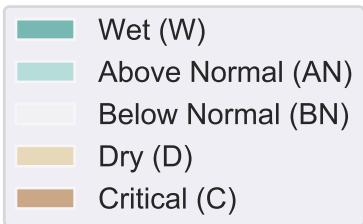
### Sustainable Management Criteria:

IM (2027) = 107.0 ft AMSL

MO = 106.0 ft AMSL

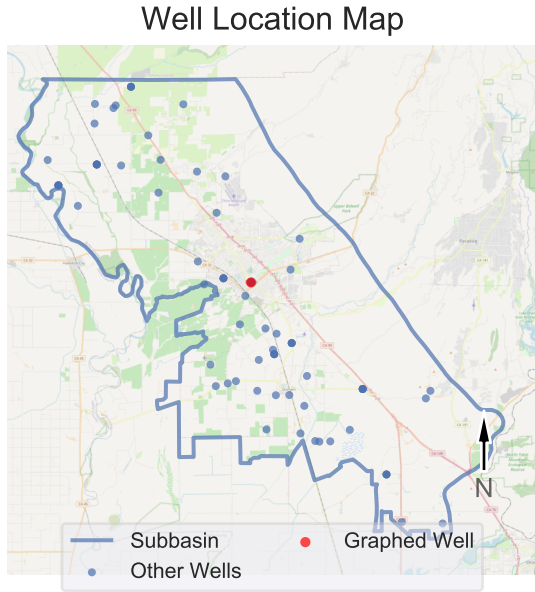
MT = 85.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



# VINA Subbasin - State Well Number (SWN): CWSCH02

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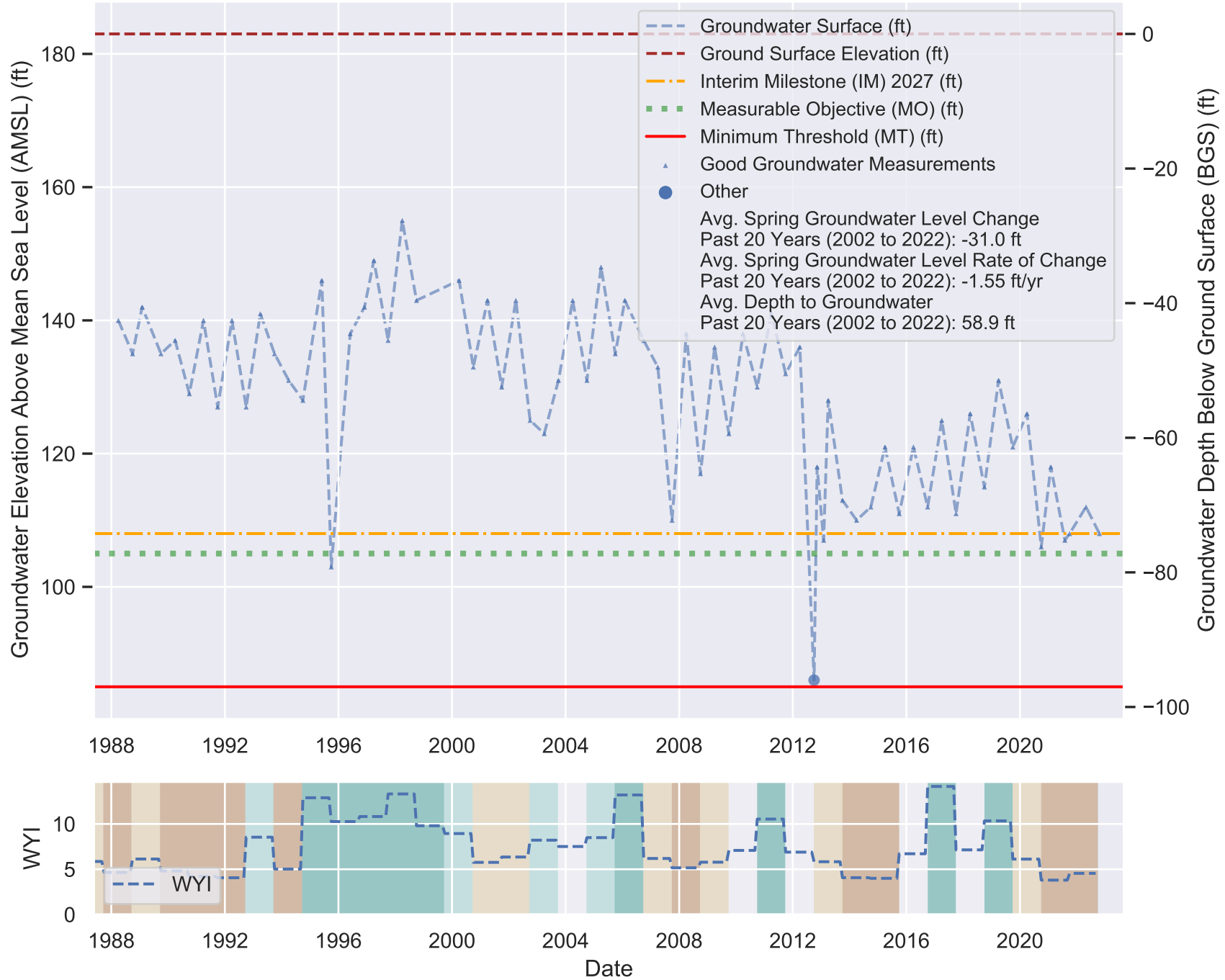
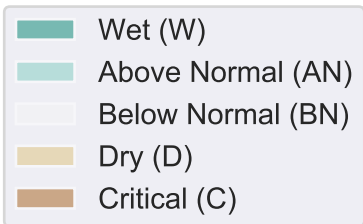
### Sustainable Management Criteria:

IM (2027) = 108.0 ft AMSL

MO = 105.0 ft AMSL

MT = 85.0 ft AMSL

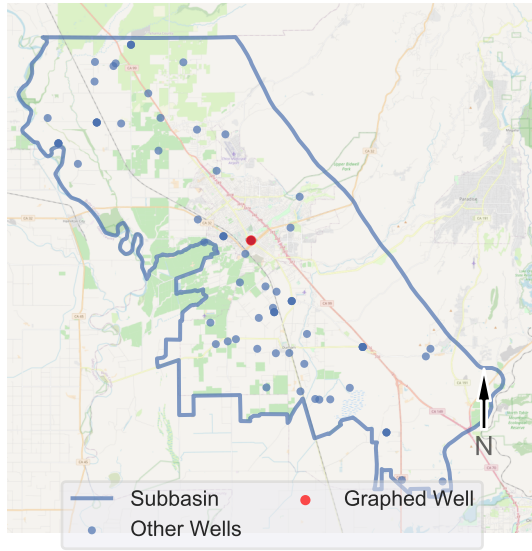
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



# VINA Subbasin - State Well Number (SWN): CWSCH03

Perforation data not available.

### Well Location Map



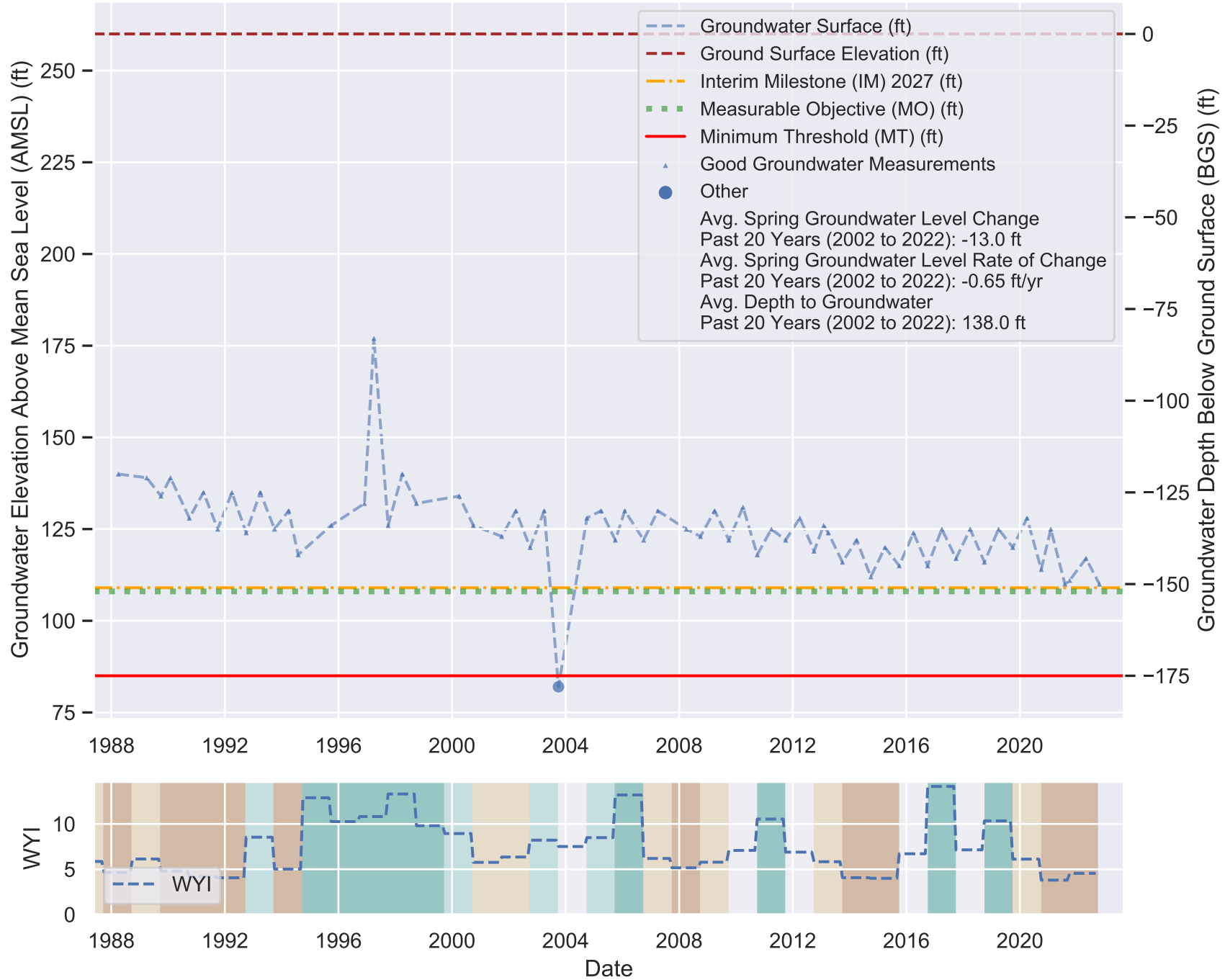
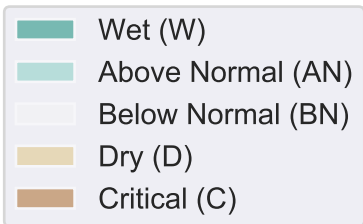
### Sustainable Management Criteria:

IM (2027) = 109.0 ft AMSL

MO = 108.0 ft AMSL

MT = 85.0 ft AMSL

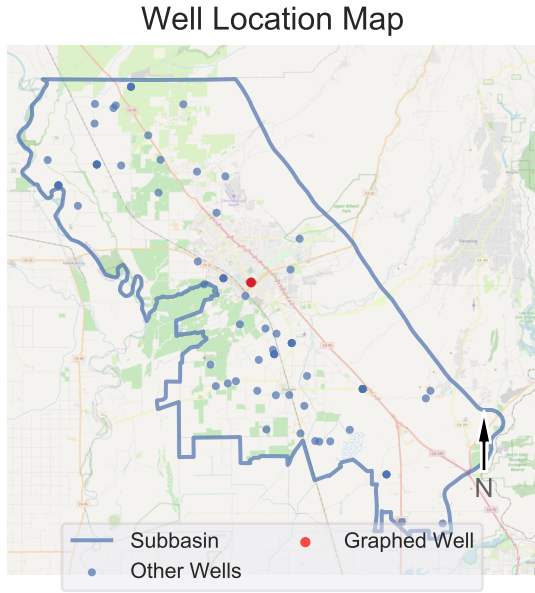
Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.





# VINA Subbasin - State Well Number (SWN): CWSCH07

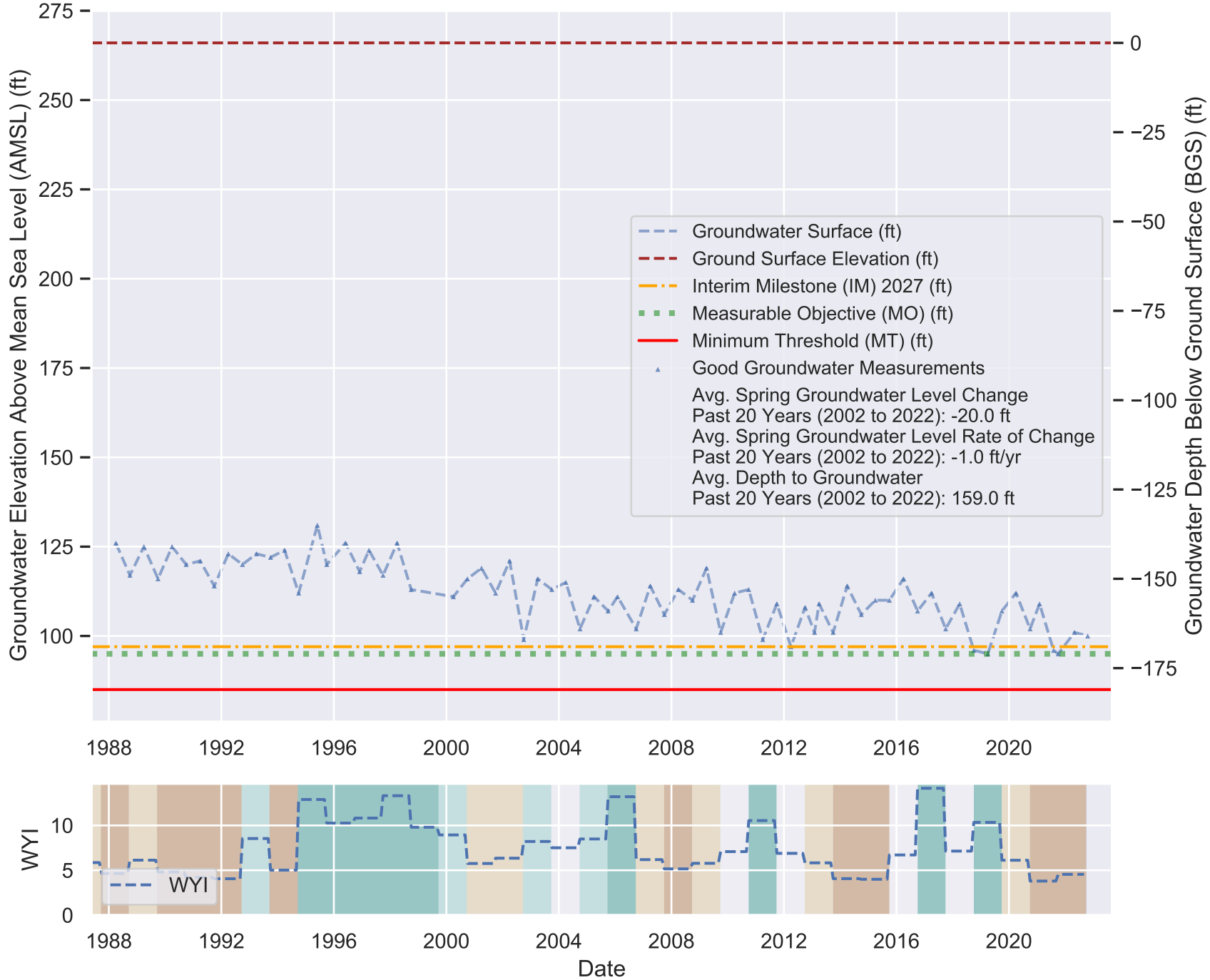
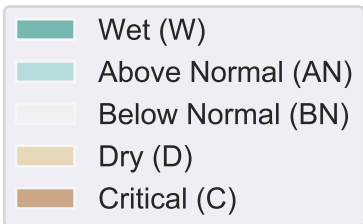
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### Sustainable Management Criteria:

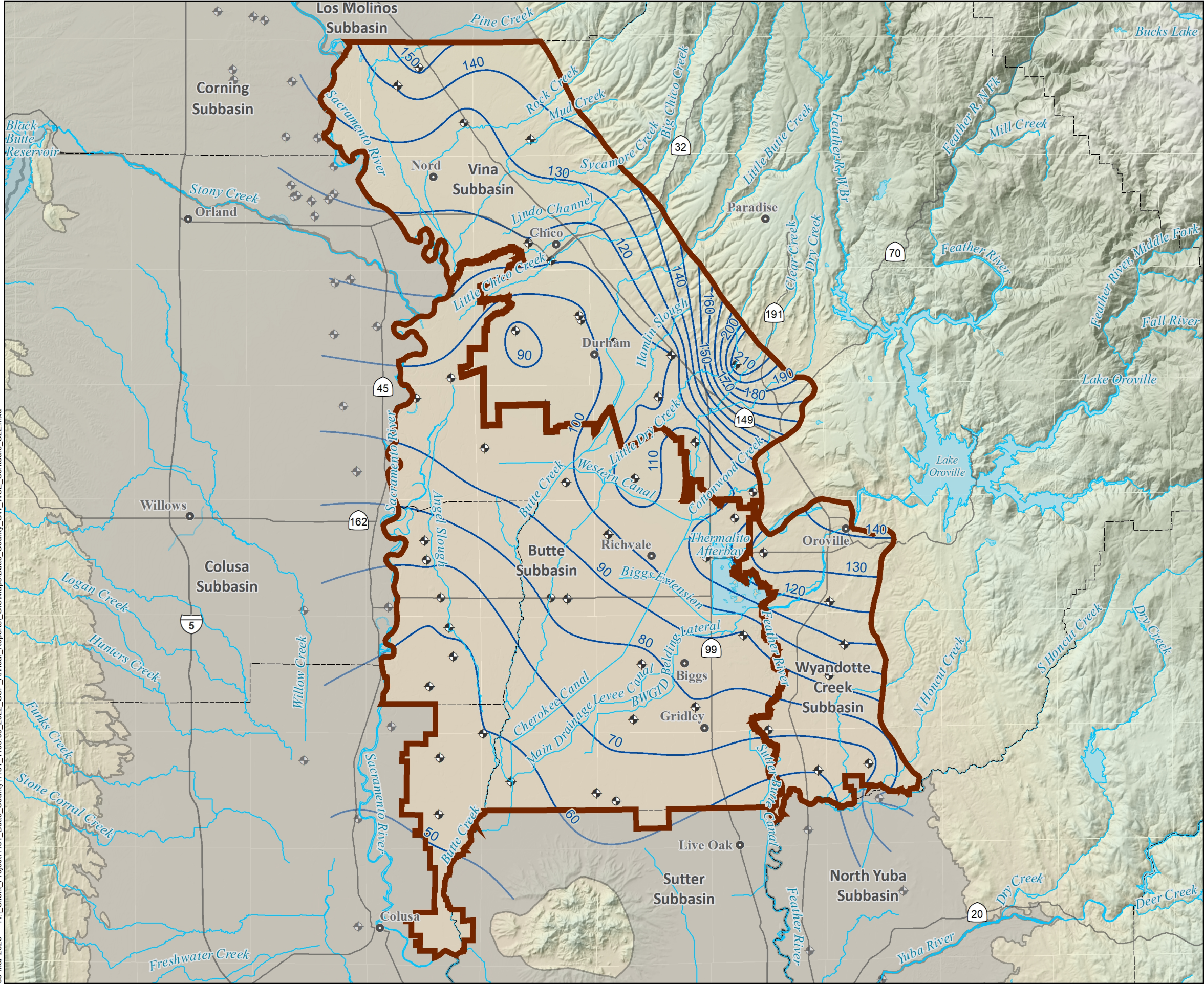
IM (2027) = 97.0 ft AMSL  
 MO = 95.0 ft AMSL  
 MT = 85.0 ft AMSL

Sacramento Valley Water Year Index (WYI) shown on lower right. Meaning of colors defined below.



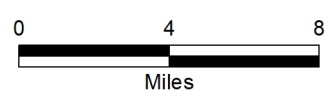


03-Mar-2023 H:\Client\_Project\1131\_Butte\_County\1131\_1139.09\_2022\_GSP\_Annual\_Reports\_GIS\Maps\Butte\_County\_GW\_WSE\_Contours\_S22.mxd



### WATER SURFACE ELEVATION

- Well
- Spring 2022 Water Surface Elevation Contour (feet above mean sea level)
- Butte, Vina, and Wyandotte Creek Subbasins
- All Other Features**
- Cities and Towns
- Highway
- Waterway
- Lake
- Neighboring Subbasin

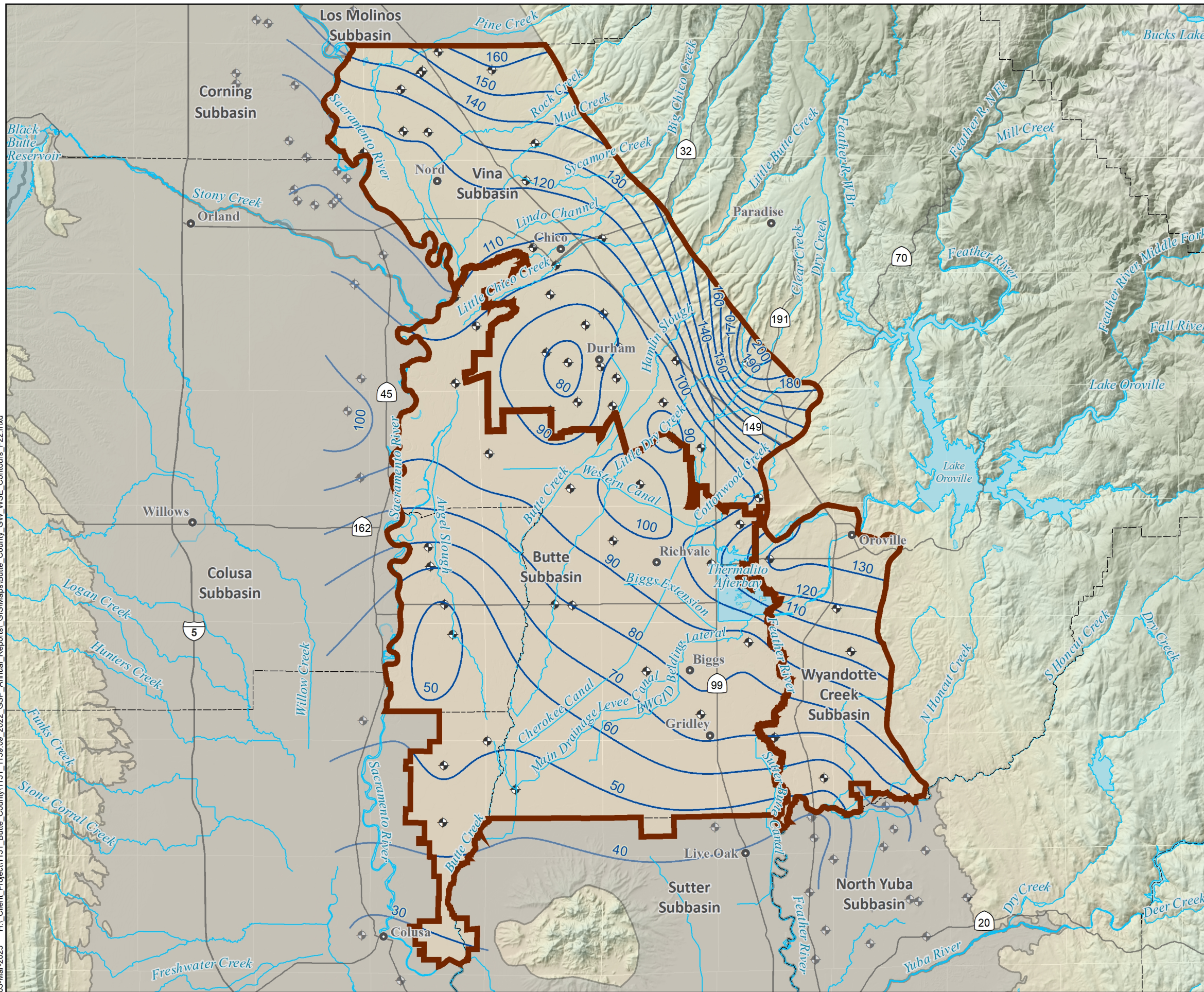


## SPRING 2022 GROUNDWATER ELEVATION CONTOURS

GROUNDWATER SUSTAINABILITY PLAN  
2022 ANNUAL REPORT

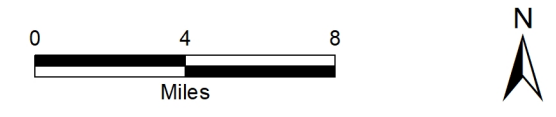


03-Mar-2023 H:\Client\_Project\1131\_Butte\_County\1131\_1139.09\_2022\_GSP\_Annual\_Reports\_GIS\Maps\Butte\_County\_GW\_WSE\_Contours\_F22.mxd



### WATER SURFACE ELEVATION

- Well
- Fall 2022 Water Surface Elevation Contour (feet above mean sea level)
- Butte, Vina, and Wyandotte Creek Subbasins
- All Other Features**
- Cities and Towns
- Highway
- Waterway
- Lake
- Neighboring Subbasin



## FALL 2022 GROUNDWATER ELEVATION CONTOURS

GROUNDWATER SUSTAINABILITY PLAN  
2022 ANNUAL REPORT



2022 Water Year Annual Report

# Appendix B

Explanation of Sustainable Management Criteria

## Appendix B: Explanation of Sustainable Management Criteria

The Sustainable Groundwater Management Act (SGMA) requires a Groundwater Sustainability Plan (GSP) to define Sustainable Management Criteria (SMC) for the groundwater subbasin. The SMC offer guideposts and guardrails for groundwater managers seeking to achieve sustainable groundwater management. SGMA defines sustainable groundwater management as “the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results,” where the planning and implementation horizon is 50 years with the first 20 years spent working toward achieving sustainable groundwater management and the following 30 years (and beyond) spent maintaining it (California Water Code §10721).

“Undesirable Results” are associated with up to six Sustainability Indicators (SI), including groundwater levels, groundwater storage, water quality, seawater intrusion, land subsidence, and interconnected surface water. SGMA defines undesirable results as those having significant and unreasonable negative impacts. Failure to avoid undesirable results on the part of the GSAs may lead to intervention by the State. Once the sustainability goal and undesirable results have been locally identified, projects and management actions are formulated to achieve the sustainability goal and avoid undesirable results.



### *SI and associated undesirable results, if significant and unreasonable*

The Vina Subbasin is divided into three management areas (MAs): North, Chico, and South. The associated undesirable results for each SI have been defined similarly across the three MAs within the Vina Subbasin. In turn, the rationale and approach for determining Minimum Thresholds and Measurable Objectives for each SI are the same across all MAs in the Vina Subbasin.

The terminology for describing SMC is defined as follows:

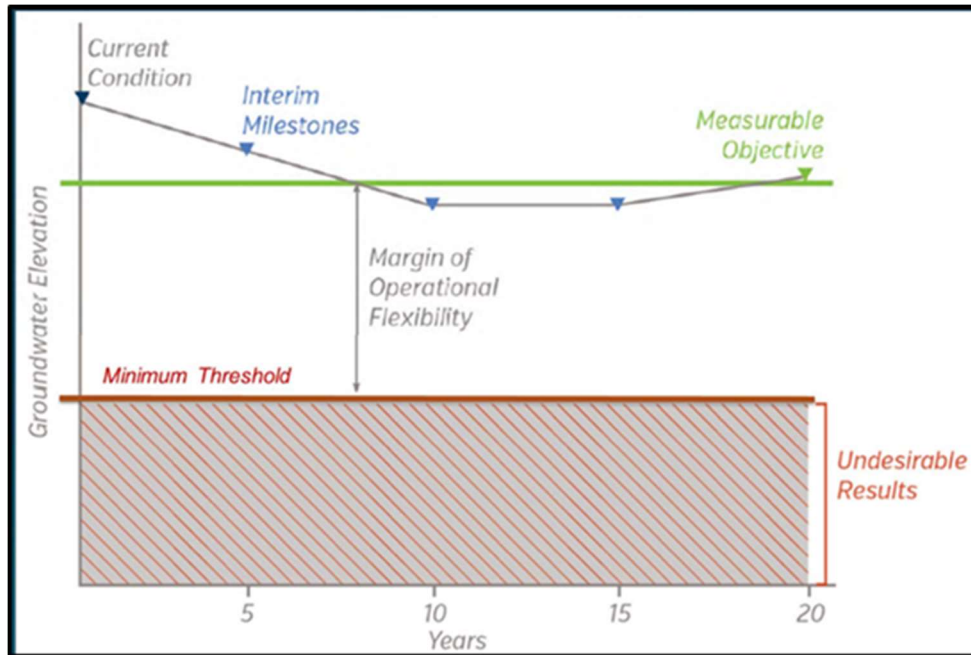
**Undesirable Results** – Significant and unreasonable negative impacts associated with each SI.

**Minimum Threshold (MT)** – Quantitative threshold for each SI used to define the point at which undesirable results may begin to occur.

**Measurable Objective (MO)** – Quantitative target that establishes a point above the MT that allows for a range of active management to prevent undesirable results.

**Margin of Operational Flexibility** – The range of active management between the MT and the MO.

**Interim Milestones (IMs)** – Targets set in increments of five years over the implementation period of the GSP offering a path to sustainability.



***Illustration of Terms Used for Describing Sustainable Management Criteria Using the Groundwater Level SI***

The Figure above illustrates these terms for the groundwater level SI.

SI are intended to be measured and compared against quantifiable SMC throughout a monitoring framework of Representative Monitoring Site (RMS) wells. Ongoing monitoring of SI can:

- Determine compliance with the adopted GSP
- Offer a means to evaluate the effectiveness of projects and management actions over time
- Allow for course correction and adaptation in five-year updates
- Facilitate understanding among diverse stakeholders
- Support decision-making on the part of the GSAs into the future

The SMC for the Vina Subbasin is fully explained and defined in Section 3 of the GSP available here:

<https://sgma.water.ca.gov/portal/gsp/preview/86>

2022 Water Year Annual Report

# Appendix C

GSP Annual Reporting Elements Guide

## Groundwater Sustainability Plan Annual Report Elements Guide

Basin Name	Sacramento Valley- Vina Subbasin		
GSP Local ID			
<b>California Code of Regulations - GSP Regulation Sections</b>	<b>Groundwater Sustainability Plan Elements</b>	<b>Document page number(s) that address the applicable GSP element.</b>	<b>Notes: Briefly describe the GSP element does not apply.</b>
<b>Article 5</b>	<b>Plan Contents</b>		
<b>Subarticle 4</b>	<b>Monitoring Networks</b>		
<b>§ 354.40</b>	<b>Reporting Monitoring Data to the Department</b>		
	Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.	38	
	Note: Authority cited: Section 10733.2, Water Code. Reference: Sections 10728, 10728.2, 10733.2 and 10733.8, Water Code.		
<b>Article 7</b>	<b>Annual Reports and Periodic Evaluations by the Agency</b>		
<b>§ 356.2</b>	<b>Annual Reports</b>		
	Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:		
	(a) General information, including an executive summary and a location map depicting the basin covered by the report.	7-32	
	(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:		
	(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:		
	(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.	35-36	
	(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.	64-80	
	(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.	40-43	
	(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.	44	
	(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.	44	
	(5) Change in groundwater in storage shall include the following:		

<b>California Code of Regulations - GSP Regulation Sections</b>	<b>Groundwater Sustainability Plan Elements</b>	<b>Document page number(s) that address the applicable GSP element.</b>	<b>Notes: Briefly describe the GSP element does not apply.</b>
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.	50	
	(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.	47	
	(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.	51-61	



2022 Water Year Annual Report

# Appendix D

DWR Portal Upload Tables

A. Groundwater Extractions								
Total Groundwater Extractions (AF)	Water Use Sector Urban (AF)	Water Use Sector Industrial (AF)	Water Use Sector Agricultural (AF)	Water Use Sector Managed Wetlands (AF)	Water Use Sector Managed Recharge (AF)	Water Use Sector Native Vegetation (AF)	Water Use Sector Other (AF)	Water Use Sector Other Description
354,700	22,300	0	253,800	0	0	76,000	2,600	Rural Residential

B. Groundwater Extraction Methods																								
Meters Volume (AF)	Meters Description	Meters Type	Meters Accuracy (%)	Meters Accuracy Description	Electrical Records Volume (AF)	Electrical Records Description	Electrical Records Type	Electrical Records Accuracy (%)	Electrical Records Accuracy Description	Land Use Volume (AF)	Land Use Description	Land Use Type	Land Use Accuracy (%)	Land Use Accuracy Description	Groundwater Model Volume (AF)	Groundwater Model Description	Groundwater Model Type	Groundwater Model Accuracy (%)	Groundwater Model Accuracy Description	Other Method(s) Volume (AF)	Other Method(s) Description	Other Method(s) Type	Other Method(s) Accuracy (%)	Other Method(s) Accuracy Description
22,300	Metered Municipal Wells	Direct	5-10 %	Metered connection maintained by California Water Service and Durham Irrigation District.	0					329,800	Land use estimates were derived from crop mapping and LandIQ survey results	Estimate	20-30 %	Typical uncertainty for water balance calculation	0					2,600	Rural residential groundwater extraction is estimated based on California Water Service Company's 2020 Urban Water Management Plan 2020 usage of an average per capita water use of 184 gallons per capita per day. Population data from the 2020 census was coupled with parcel data to identify total population not serviced by municipal supplies	Estimate	10-20 %	Uncertainties are from population estimates and gallon per capita per day estimates

C. Surface Water Supply										
Total Surface Water Supply (AF)	Methods Used To Determine	Water Source Type Central Valley Project (AF)	Water Source Type State Water Project (AF)	Water Source Type Colorado River Project (AF)	Water Source Type Local Supplies (AF)	Water Source Type Local Imported Supplies (AF)	Water Source Type Recycled Water (AF)	Water Source Type Desalination (AF)	Water Source Type Other (AF)	Water Source Type Other Description
20,500	Diversions for local supplies are estimated based on historic State Water Resource Control Board eWRIMS (Electronic Water Rights Information Management System) data for total diversions. Surface water delivery estimates are based on historic deliveries in the area that have occurred in dry and critical years	0	0	0	20,500	0	0	0	0	

D. Total Water Use															
Total Water Use (AF)	Methods Used To Determine	Water Source Type Groundwater (AF)	Water Source Type Surface Water (AF)	Water Source Type Recycled Water (AF)	Water Source Type Reused Water (AF)	Water Source Type Other (AF)	Water Source Type Other Description	Water Use Sector Urban (AF)	Water Use Sector Industrial (AF)	Water Use Sector Agricultural (AF)	Water Use Sector Managed Wetlands (AF)	Water Use Sector Managed Recharge (AF)	Water Use Sector Native Vegetation (AF)	Water Use Sector Other (AF)	Water Use Sector Other Description
375,200	Methods used are a combination of estimates based on land use and population/ per capita water use, metered municipal water use, and estimates based on historic water rights data for dry and critical years	354,700	20,500	0	0	0		22,300	0	274,300	0	0	76,000	2,600	Rural Residential