

FEBRUARY ADVISORY COMMITTEE MEETINGS

# Shasta Valley Groundwater Advisory Committee Meeting



LARRY WALKER  
ASSOCIATES  
science | policy | solutions



# Topics

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- Annual Report Updates (Water Year 2023)
- Monitoring data review, network expansion, and data gaps
- Model Updates
- Implementation Projects
- DMS Introduction and Summary
- Implementation Project Schedule Updates

# Annual Report

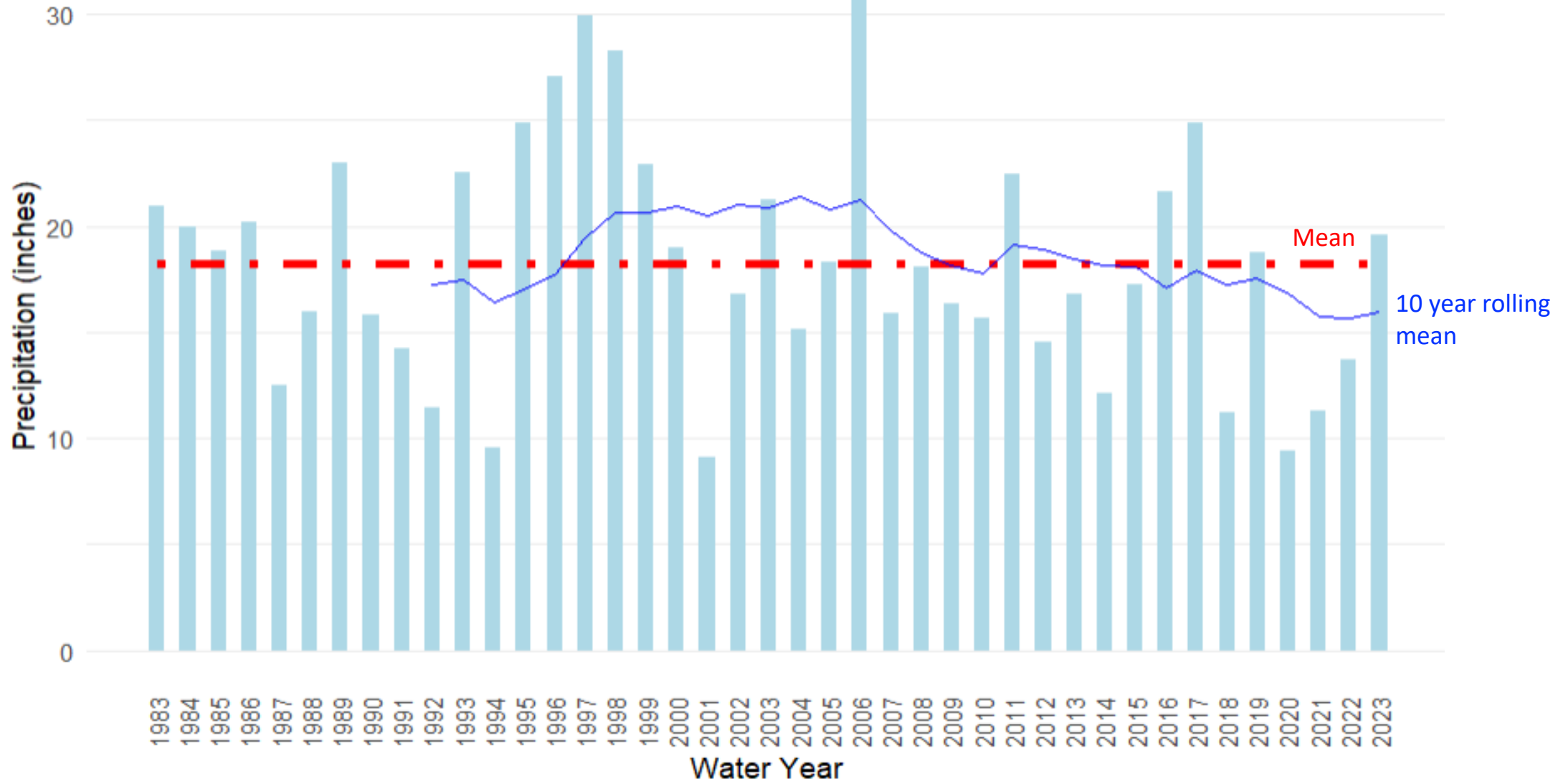
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Water Year 2023

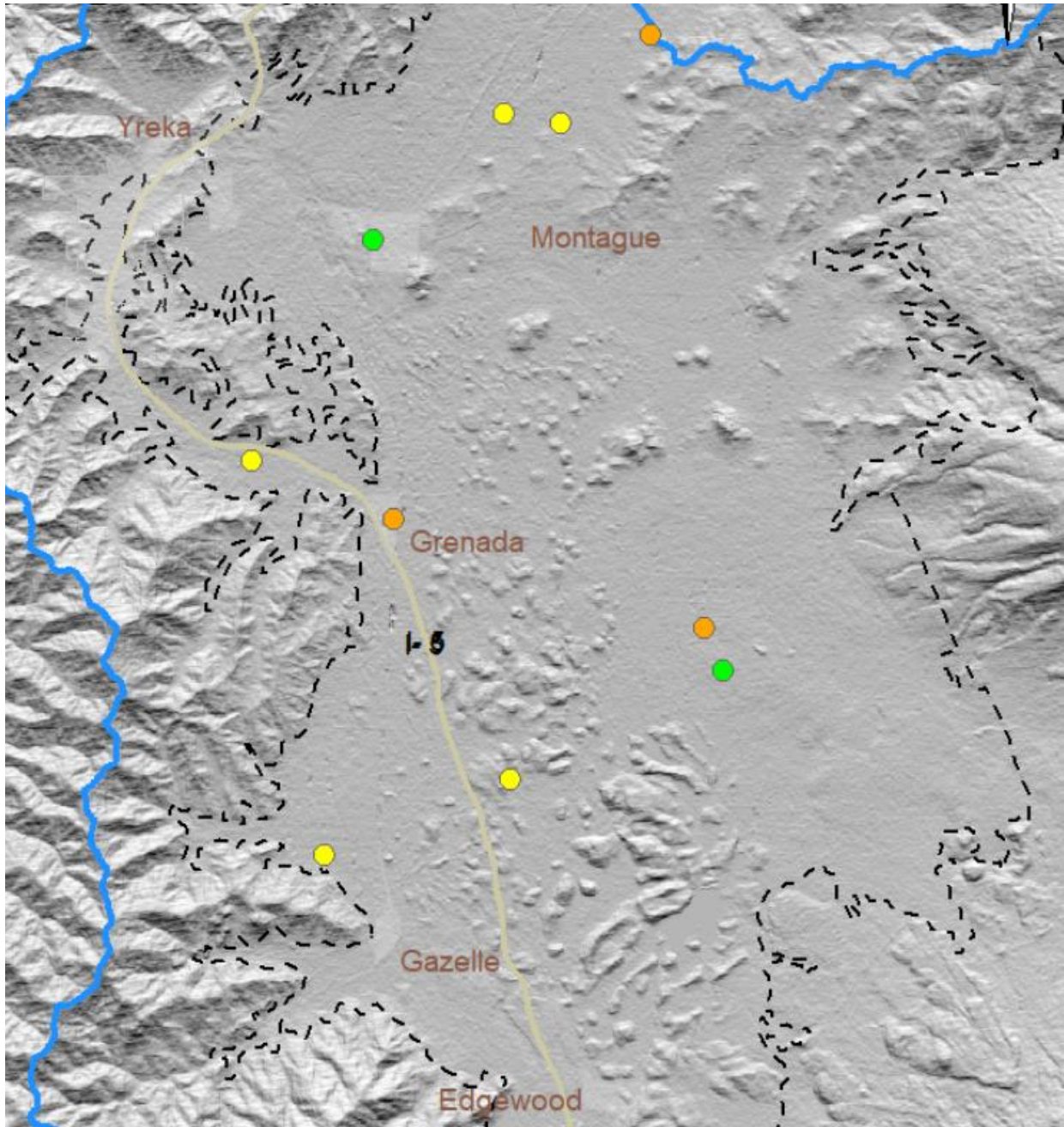
# Annual Report, Water Year 2023

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- Annual reports are to be submitted each year on April 1<sup>st</sup>
- This report covers October 2022 to September 2023
- Annual Reports include:
  - GSA's progress in GSP implementation
  - Data collected from monitoring network (water level and water quality)
  - Groundwater extractions, surface water supply, total water use and changes in groundwater storage







# Fall 2023 RMP Status

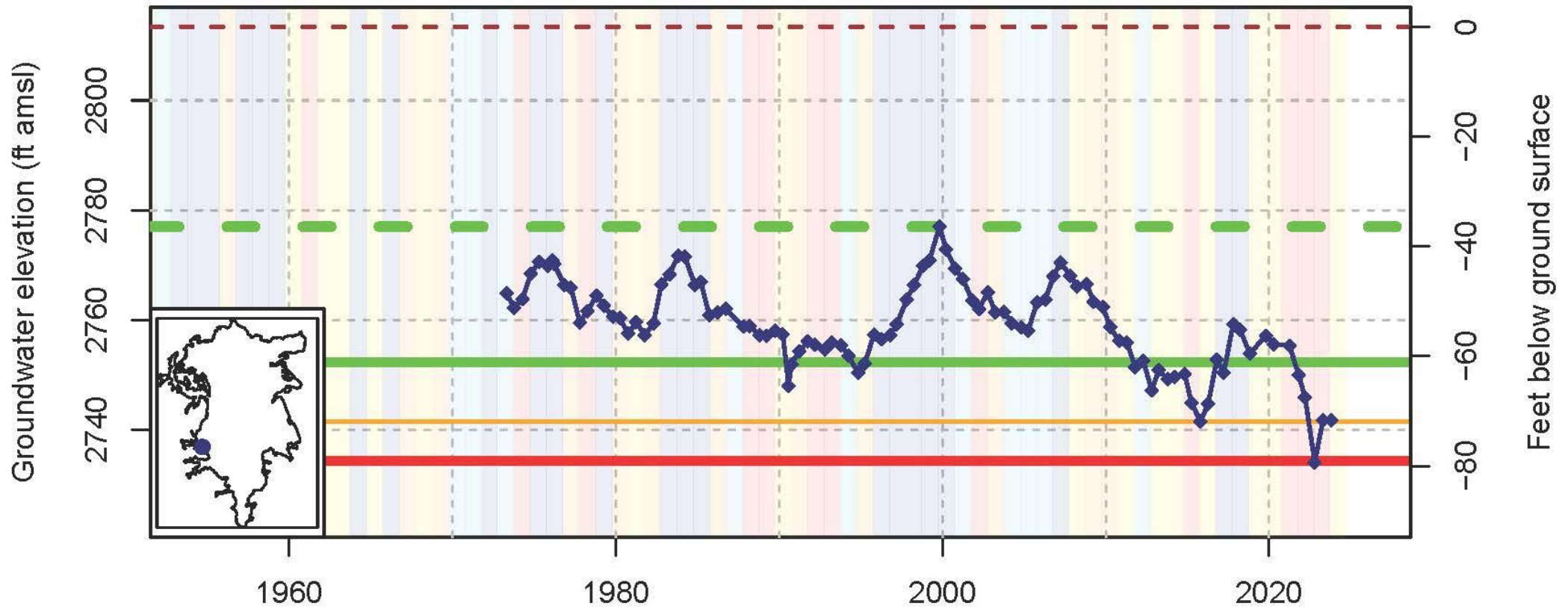
-  Near or Above Measurable Objective
-  Within Central Operational Range
-  Near Minimum Threshold
-  At or Below Minimum Threshold
-  Watershed
-  Groundwater Basin
-  Highway 97

# RMP Hydrographs

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Annual Report Water Year 2023

DWR Stn\_ID: ; well\_code: 415351N1225474W001; well\_name: 43N06W33C001M; well\_swn: 43N06W33C001M



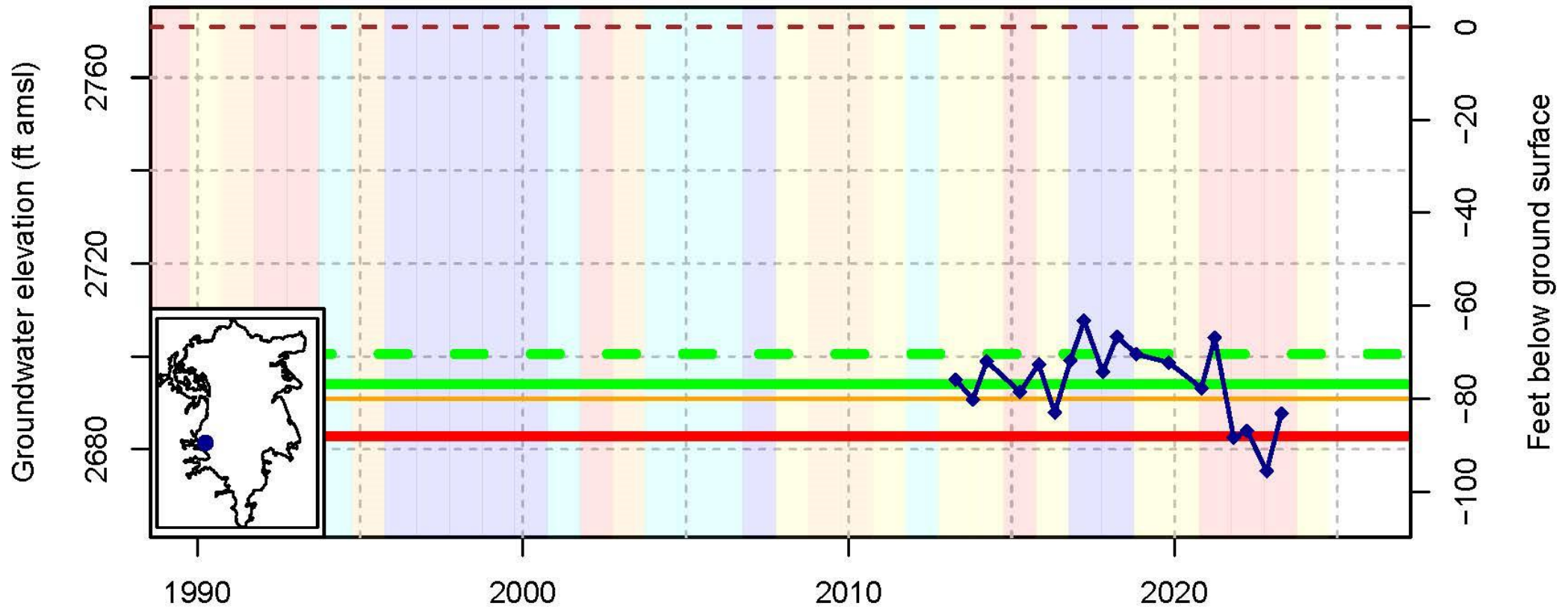
- - Ground Surface (2813 ft amsl)
- - Measurable Objective (Upper Fall High) (36 ft bgs)
- Measurable Objective (Lower 75th Quantile) (61 ft bgs)
- Trigger (Fall Low) (72 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (79 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.



DWR Stn\_ID: ; well\_code: 415444N1225387W001; well\_name: SV03; well\_swn: NA

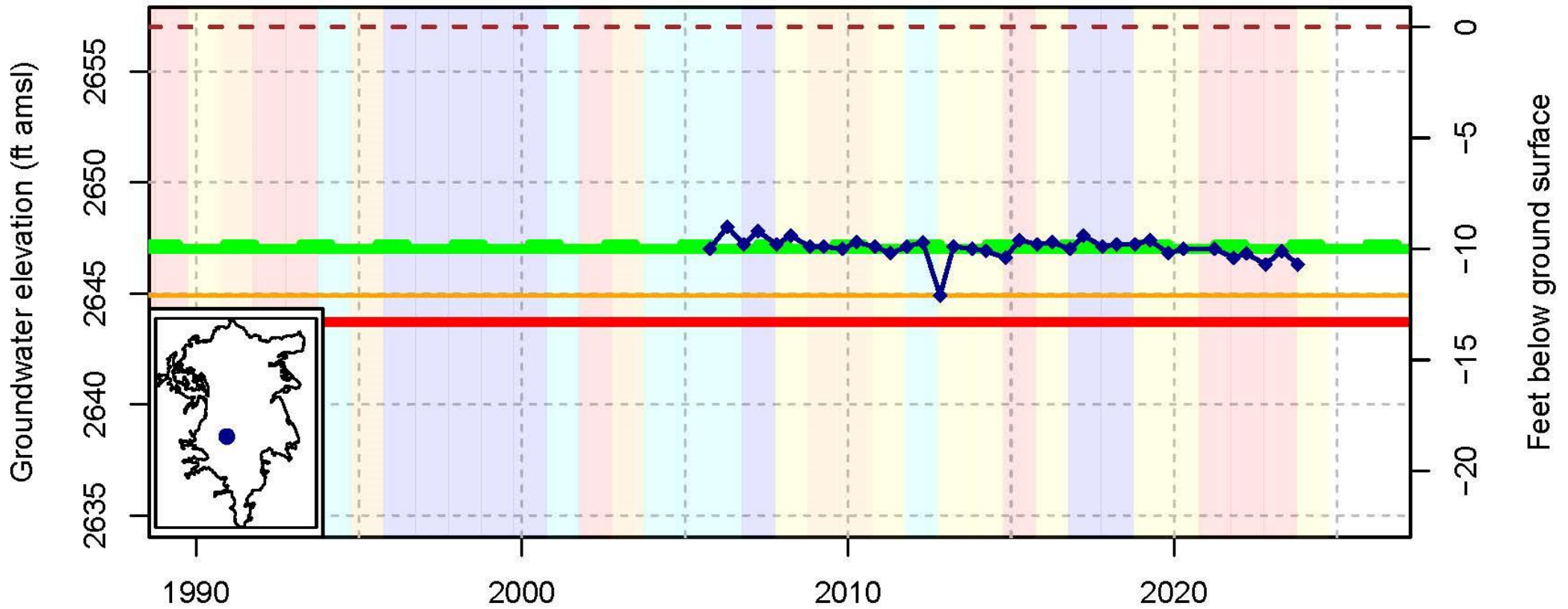


- - - Ground Surface (2771 ft amsl)
- Measurable Objective (Upper Fall High) (70 ft bgs)
- Measurable Objective (Lower 75th Quantile) (77 ft bgs)
- Trigger (Fall Low) (80 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (88 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

DWR Stn\_ID: ; well\_code: 415601N1224718W001; well\_name: 43N05W19F002M; well\_swn: 43N05W19F002M

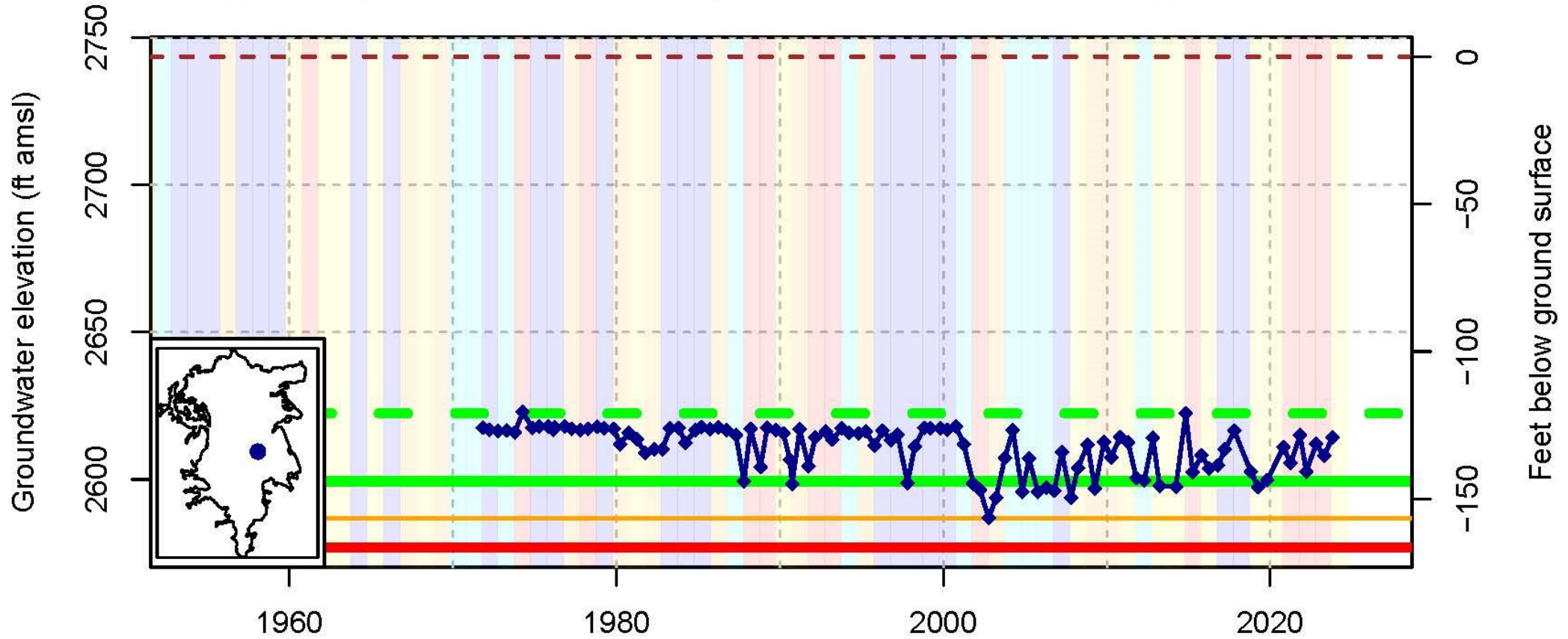


- - - Ground Surface (2657 ft amsl)
- Measurable Objective (Upper Fall High) (10 ft bgs)
- Measurable Objective (Lower 75th Quantile) (10 ft bgs)
- Trigger (Fall Low) (12 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (13 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

DWR Stn\_ID: ; well\_code: 415952N1223848W001; well\_name: 43N05W11A001M; well\_swn: 43N05W11A001M



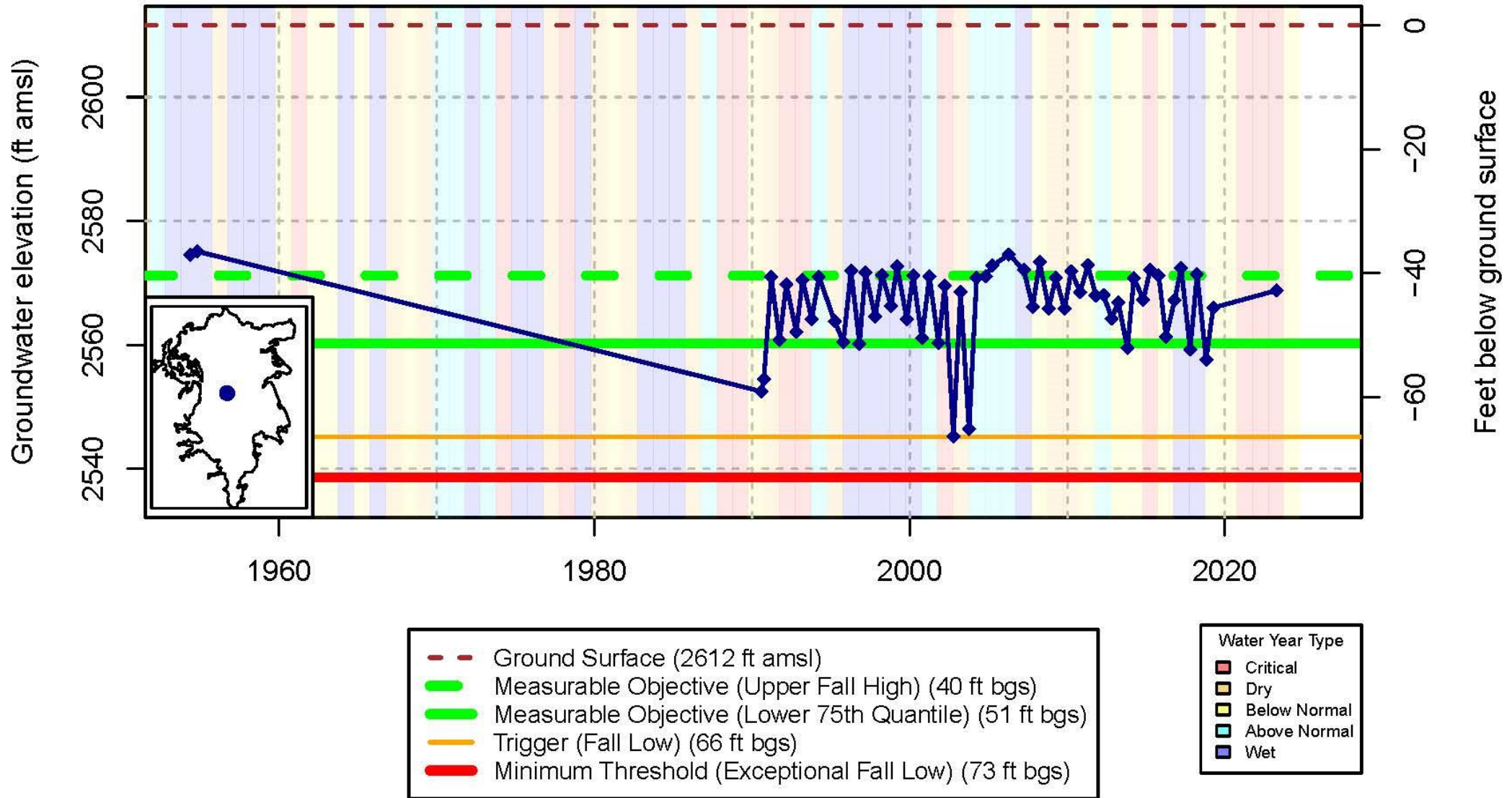
- - Ground Surface (2743 ft amsl)
- - Measurable Objective (Upper Fall High) (121 ft bgs)
- - Measurable Objective (Lower 75th Quantile) (144 ft bgs)
- - Trigger (Fall Low) (156 ft bgs)
- - Minimum Threshold (Exceptional Fall Low) (166 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

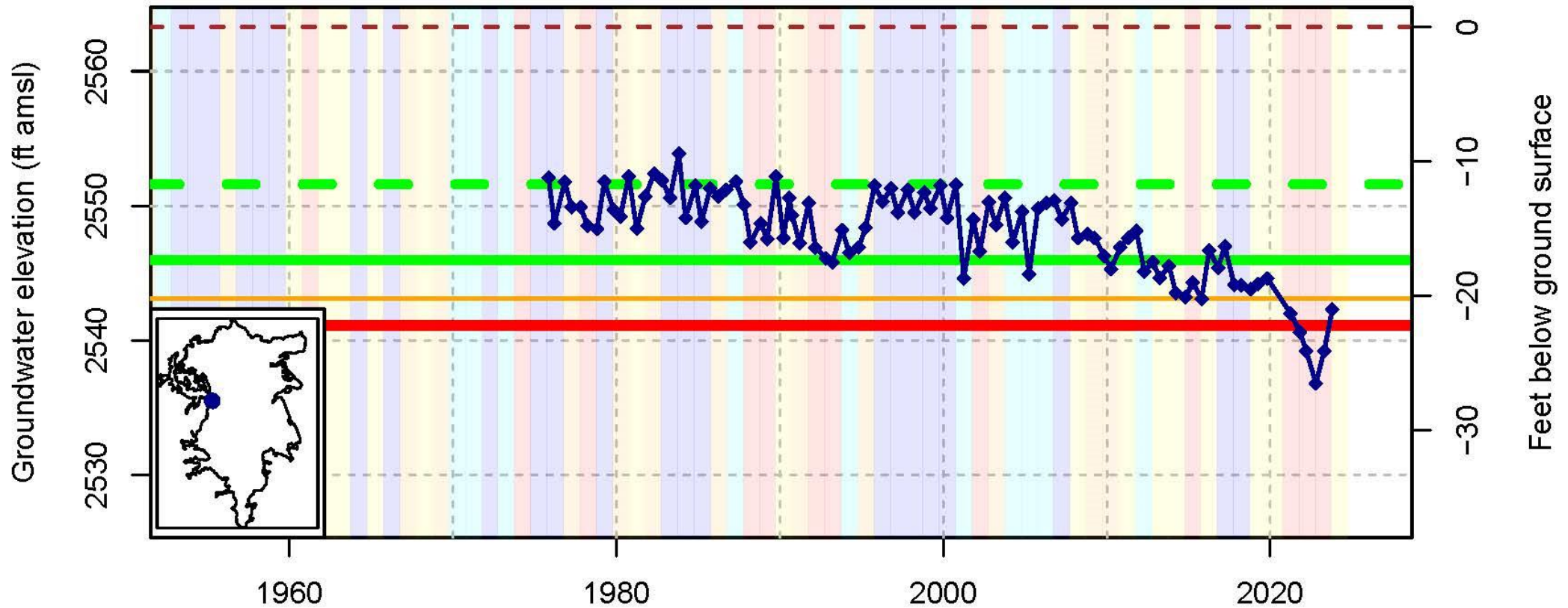


DWR Stn\_ID: ; well\_code: 416237N1224524W001; well\_name: 44N05W32C002M; well\_swn: 44N05W32C002M



Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

DWR Stn\_ID: ; well\_code: 416397N1225224W001; well\_name: 44N06W27B001M; well\_swn: 44N06W27B001M



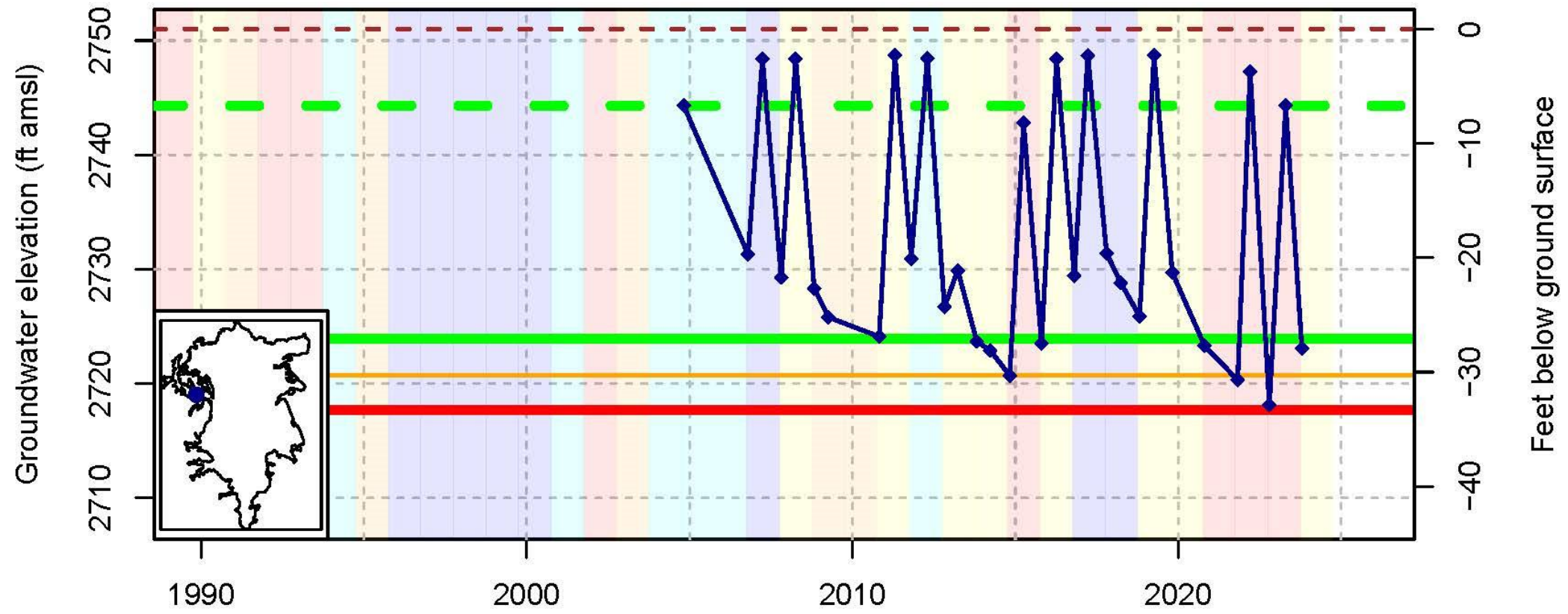
- - - Ground Surface (2563 ft amsl)
- Measurable Objective (Upper Fall High) (12 ft bgs)
- Measurable Objective (Lower 75th Quantile) (17 ft bgs)
- Trigger (Fall Low) (20 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (22 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.



DWR Stn\_ID: ; well\_code: 416563N1225813W001; well\_name: 44N06W18Q001M; well\_swn: 44N06W18Q001M

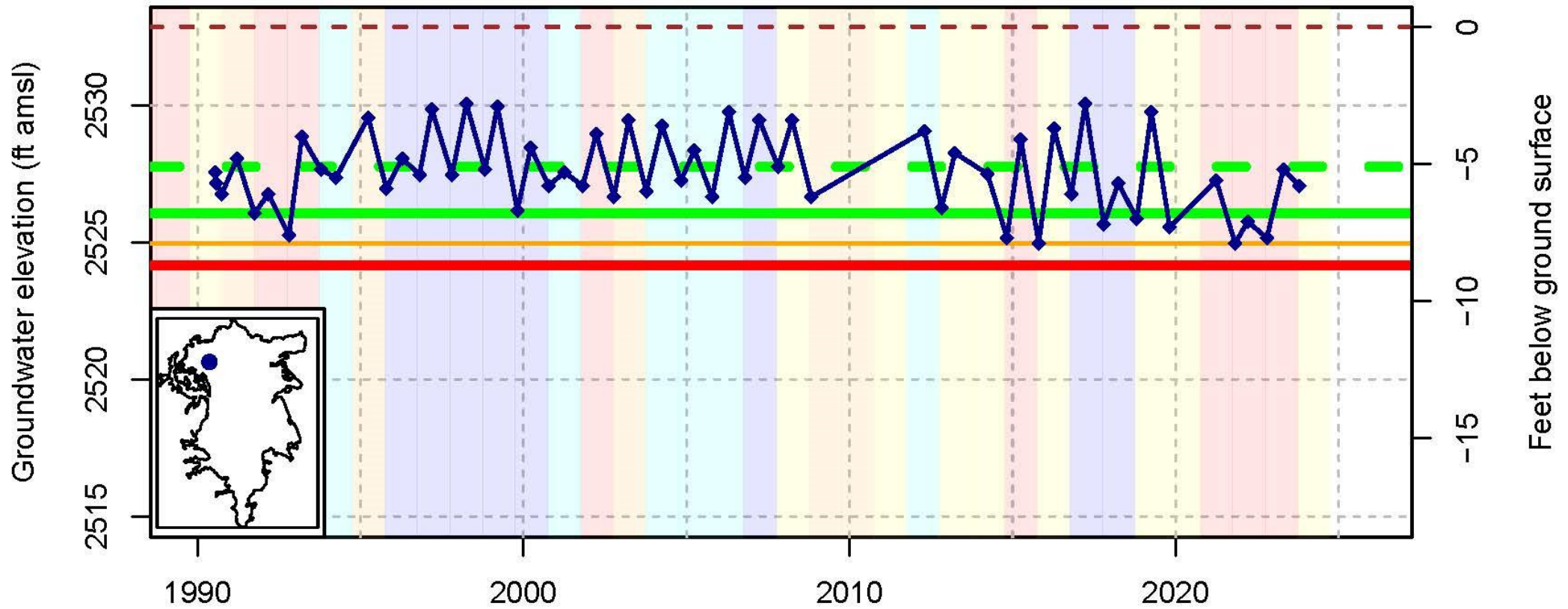


- - - Ground Surface (2751 ft amsl)
- Measurable Objective (Upper Fall High) (7 ft bgs)
- Measurable Objective (Lower 75th Quantile) (27 ft bgs)
- Trigger (Fall Low) (30 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (33 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

DWR Stn\_ID: ; well\_code: 417258N1225337W001; well\_name: 27D002M; well\_swn: 45N06W27D002M

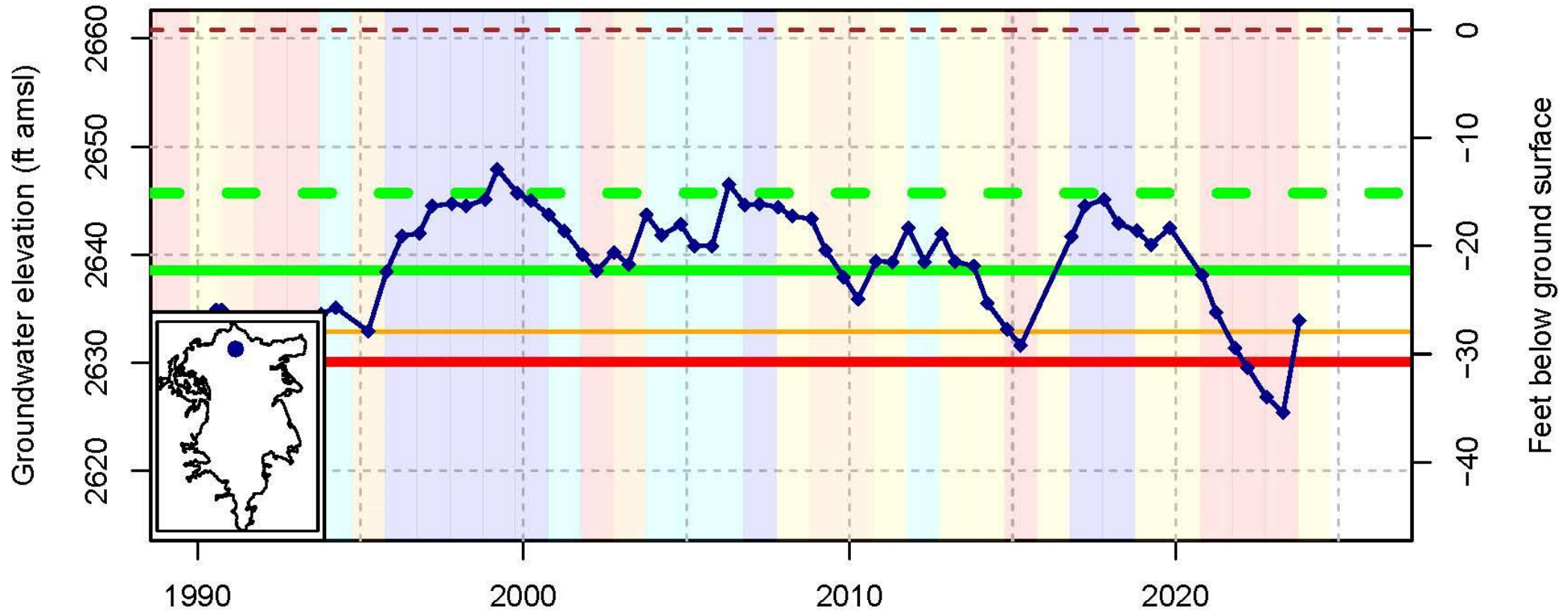


- - Ground Surface (2533 ft amsl)
- - - Measurable Objective (Upper Fall High) (5 ft bgs)
- Measurable Objective (Lower 75th Quantile) (7 ft bgs)
- Trigger (Fall Low) (8 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (9 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

DWR Stn\_ID: ; well\_code: 417638N1224574W001; well\_name: 45N05W07H002M; well\_swn: 45N05W07H002M



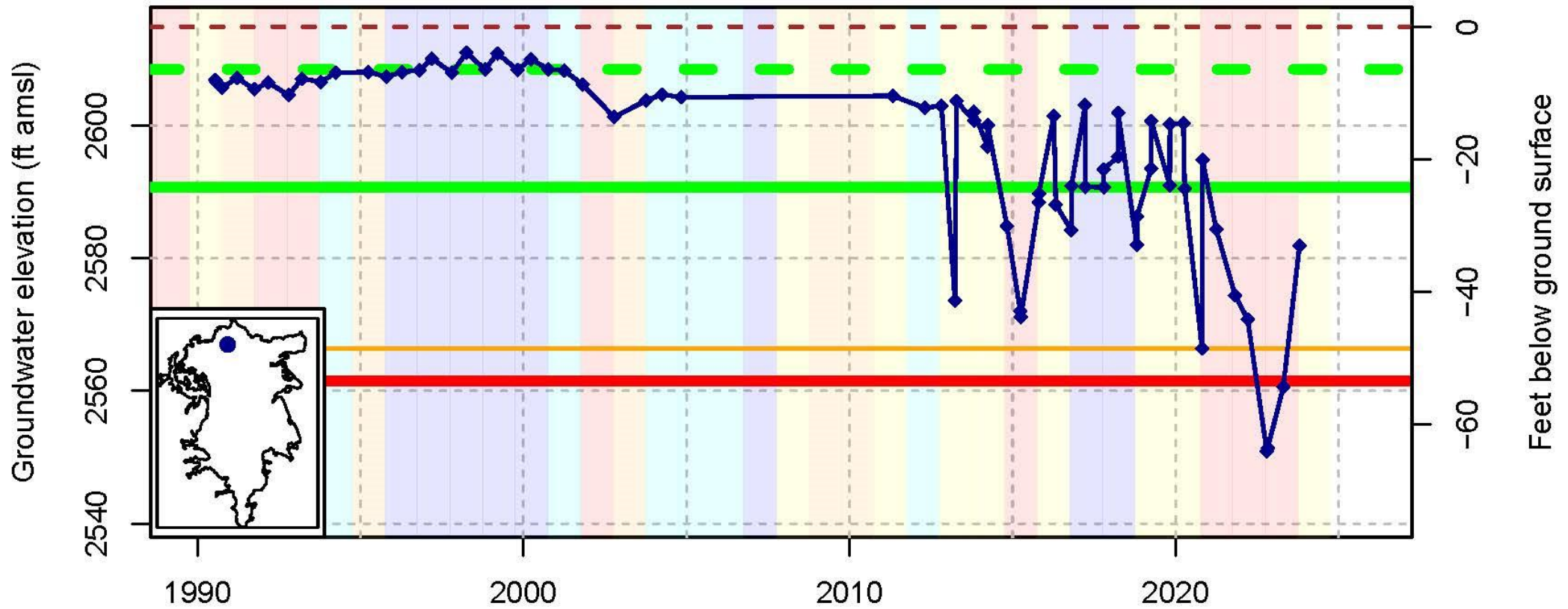
- - - Ground Surface (2661 ft amsl)
- - - Measurable Objective (Upper Fall High) (15 ft bgs)
- Measurable Objective (Lower 75th Quantile) (22 ft bgs)
- Trigger (Fall Low) (28 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (31 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.



DWR Stn\_ID: ; well\_code: 417660N1224811W001; well\_name: SV01; well\_swn: 45N06W12G001M

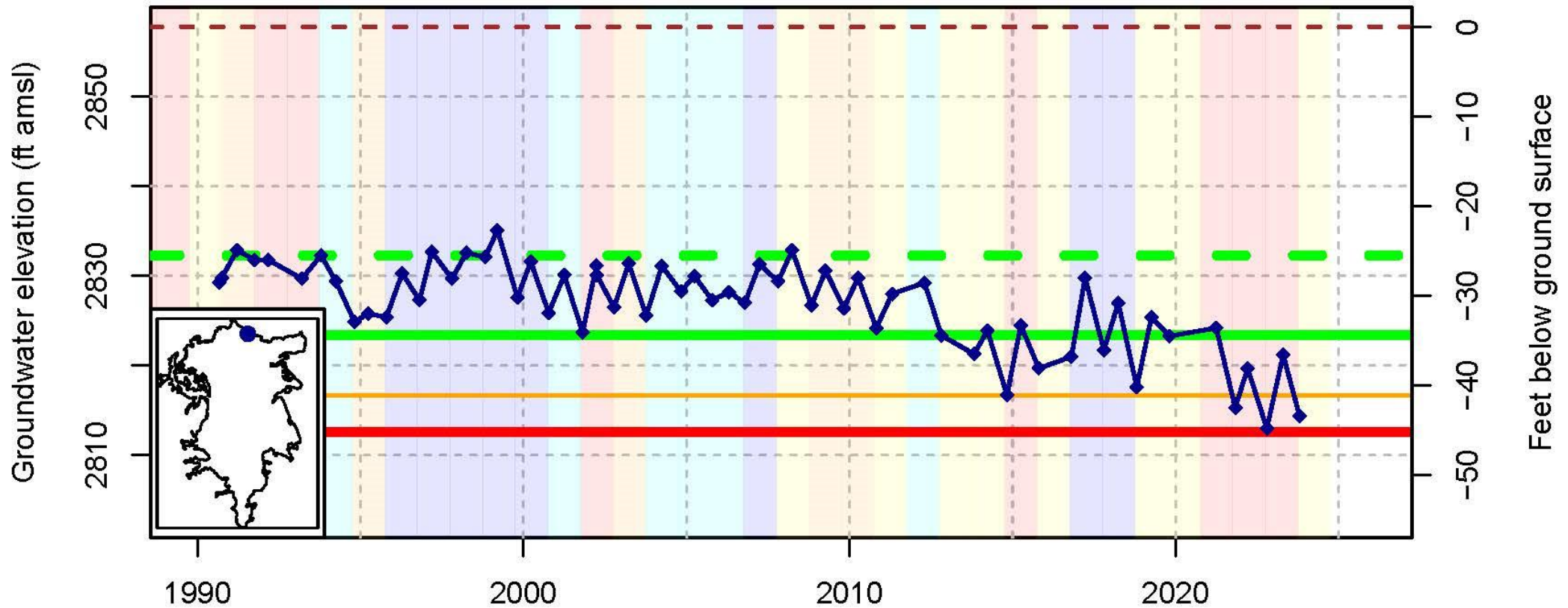


- - - Ground Surface (2615 ft amsl)
- - - Measurable Objective (Upper Fall High) (6 ft bgs)
- - - Measurable Objective (Lower 75th Quantile) (24 ft bgs)
- Trigger (Fall Low) (48 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (53 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

DWR Stn\_ID: ; well\_code: 417916N1224217W001; well\_name: 46N05W33J001M; well\_swn: 46N05W33J001M



- - - Ground Surface (2858 ft amsl)
- Measurable Objective (Upper Fall High) (26 ft bgs)
- Measurable Objective (Lower 75th Quantile) (34 ft bgs)
- Trigger (Fall Low) (41 ft bgs)
- Minimum Threshold (Exceptional Fall Low) (45 ft bgs)

- Water Year Type
- Critical
  - Dry
  - Below Normal
  - Above Normal
  - Wet

Water Year Types from WY 2019–2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

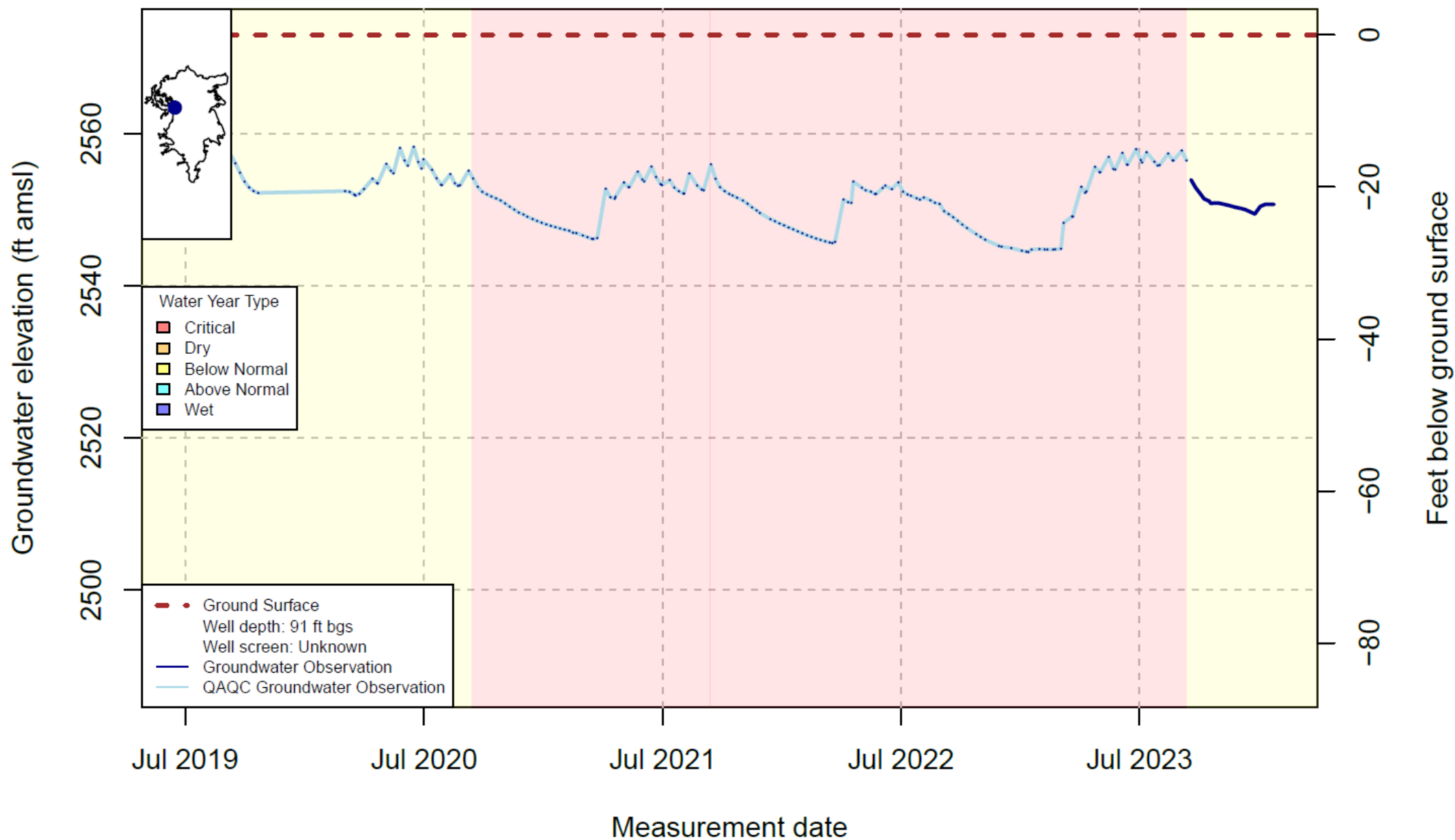


# **Additional Continuous Hydrographs**

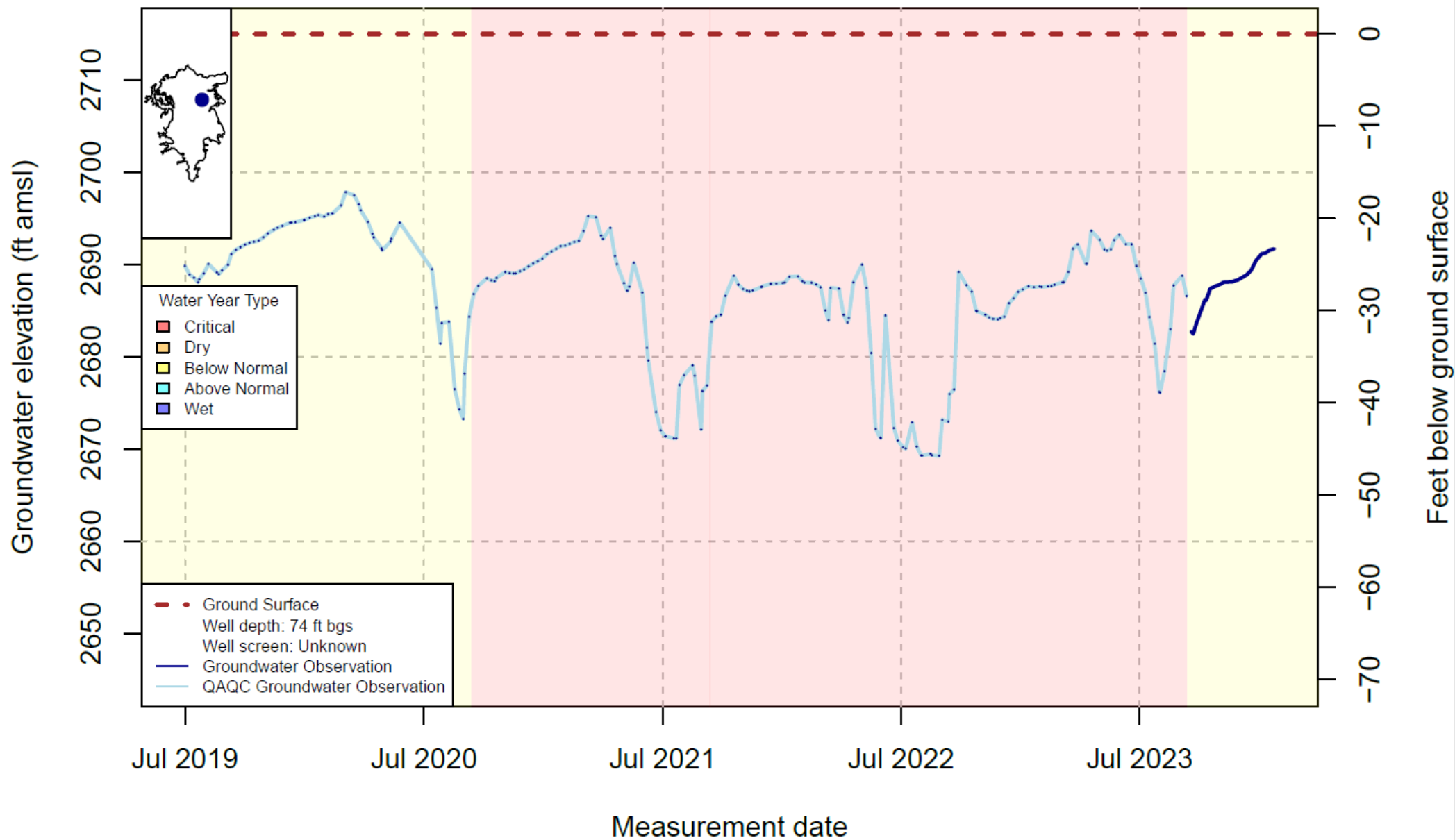
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Annual Report Water Year 2023

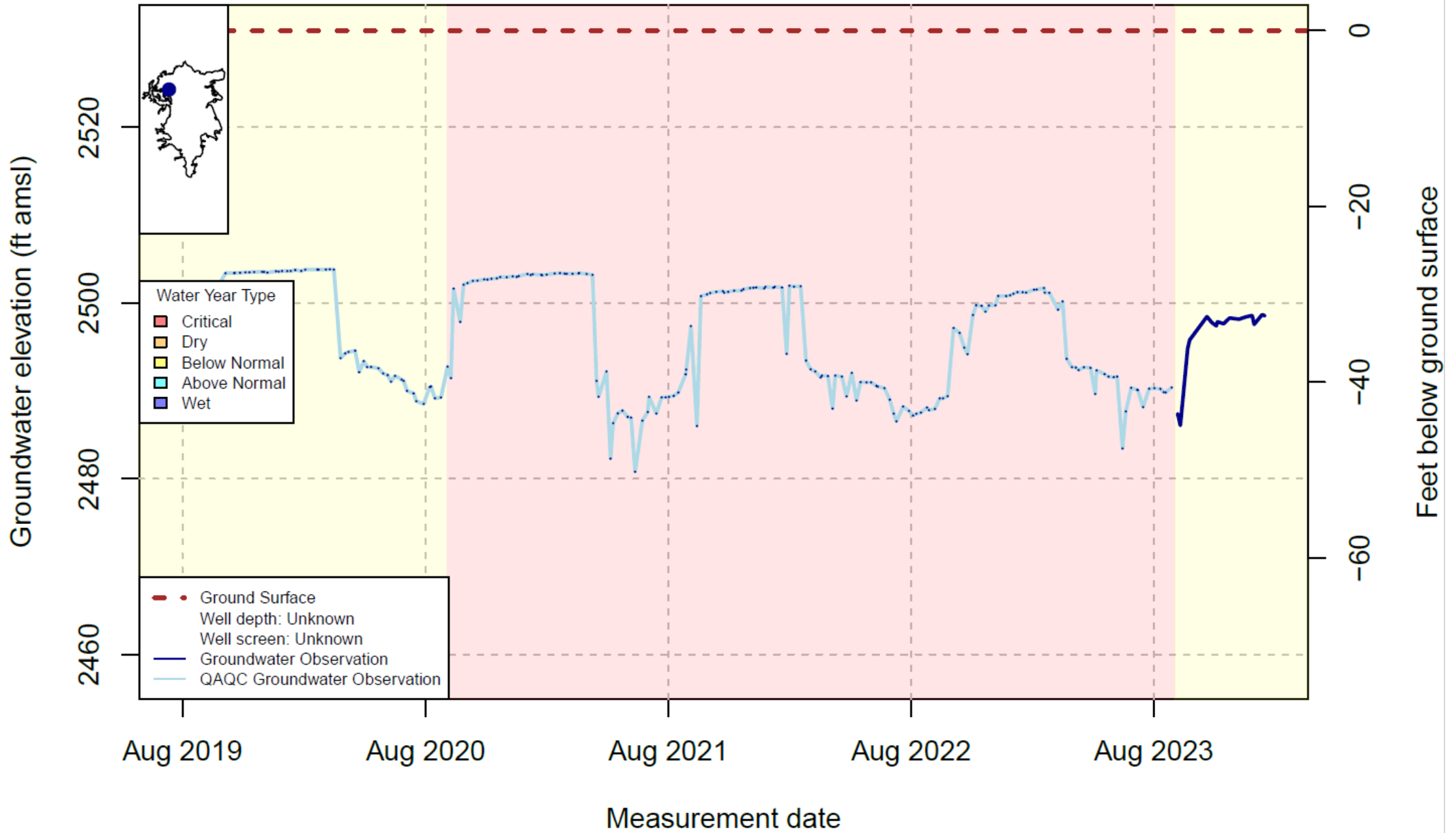
Well Code: SHA\_11; SWN: NA



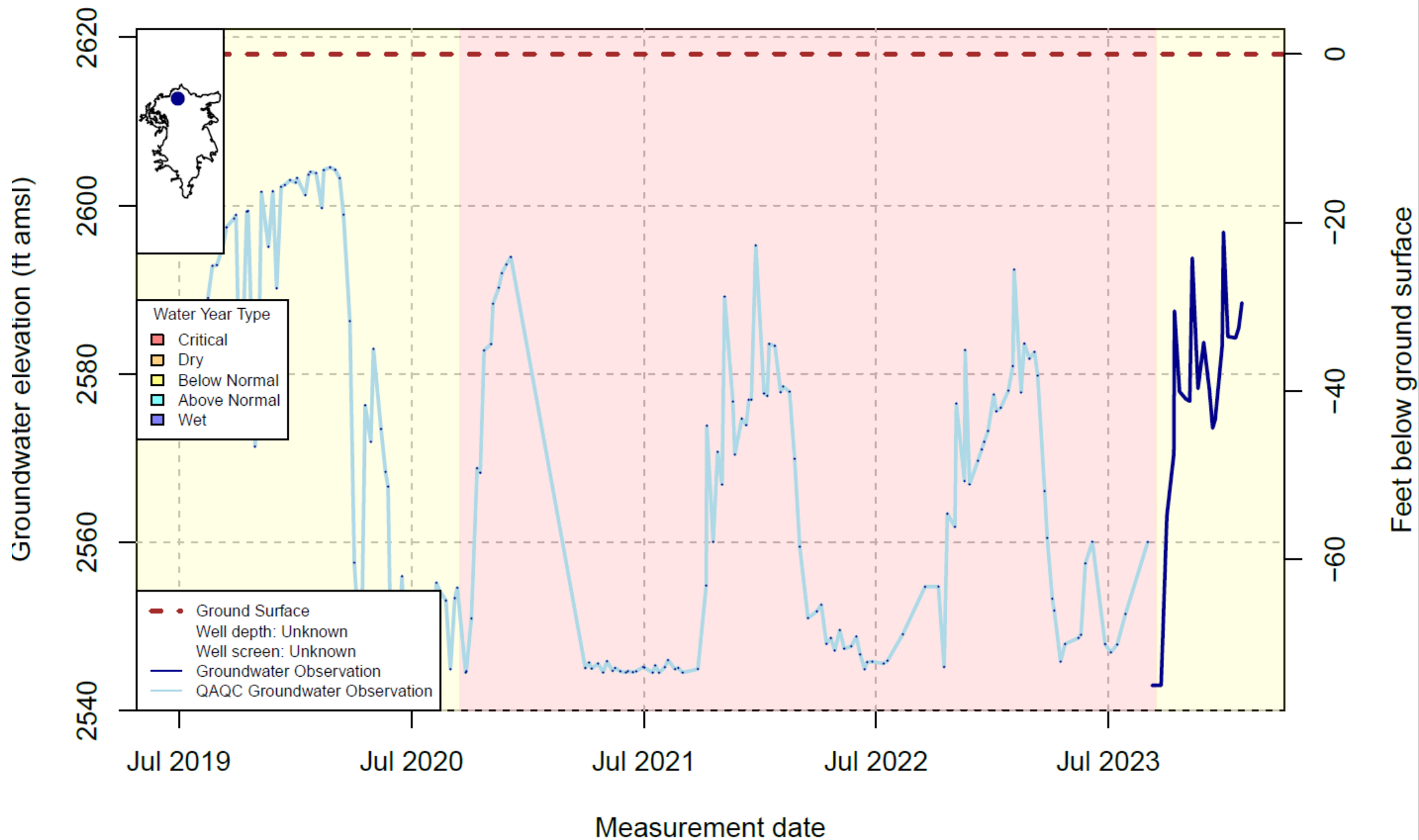
Well Code: SHA\_10; SWN: NA



Well Code: SHA\_04; SWN: NA



Well Code: SHA\_03; SWN: NA





# **Monitoring data review, network expansion, and data gaps**

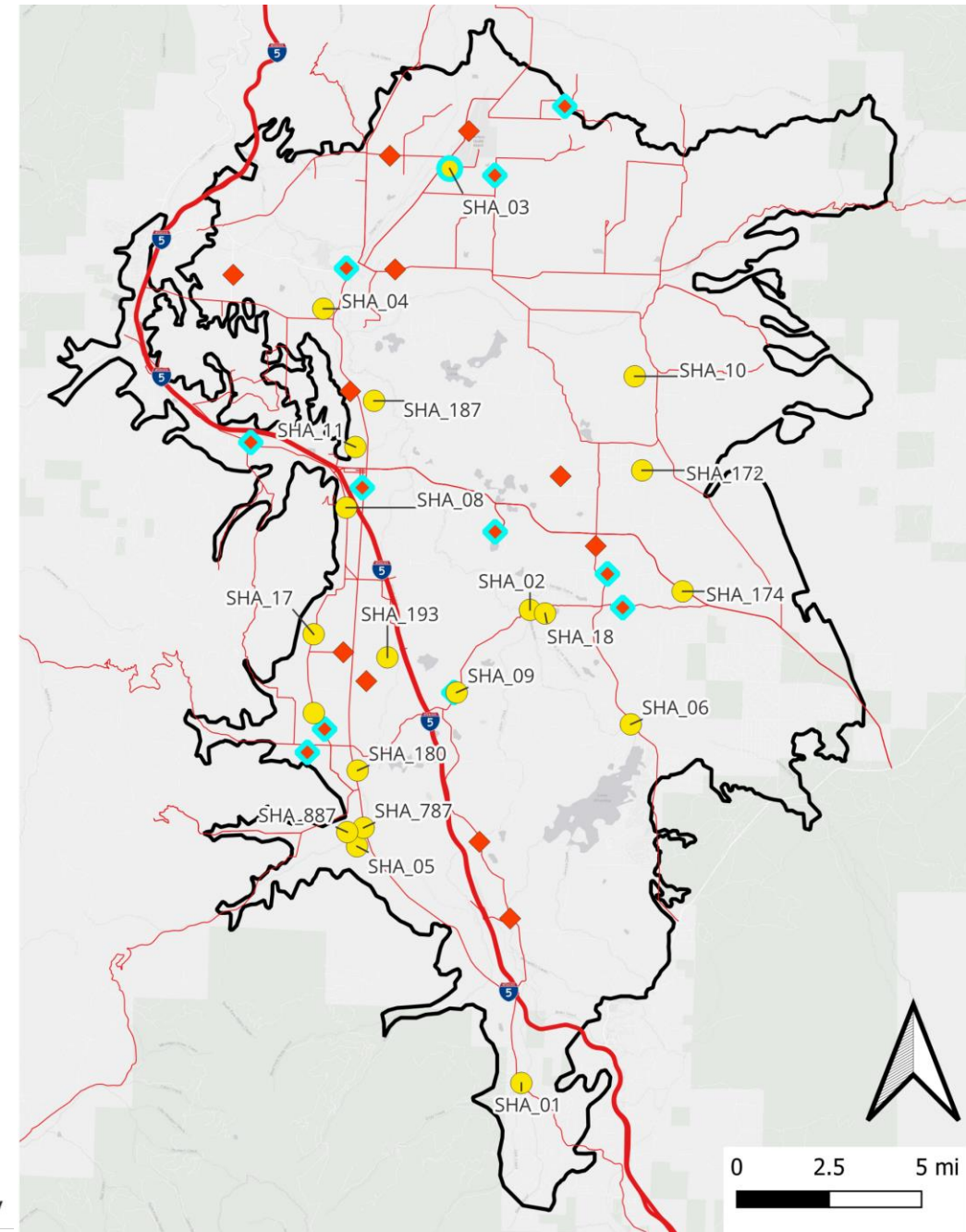
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# Groundwater Level Monitoring

- 20 wells measured continuously
  - 19 LWA:
    - 15 minutes intervals
    - Telemetered
  - 1 DWR
    - 1 hour intervals
- 22 CASGEM Wells
  - Measured twice per year

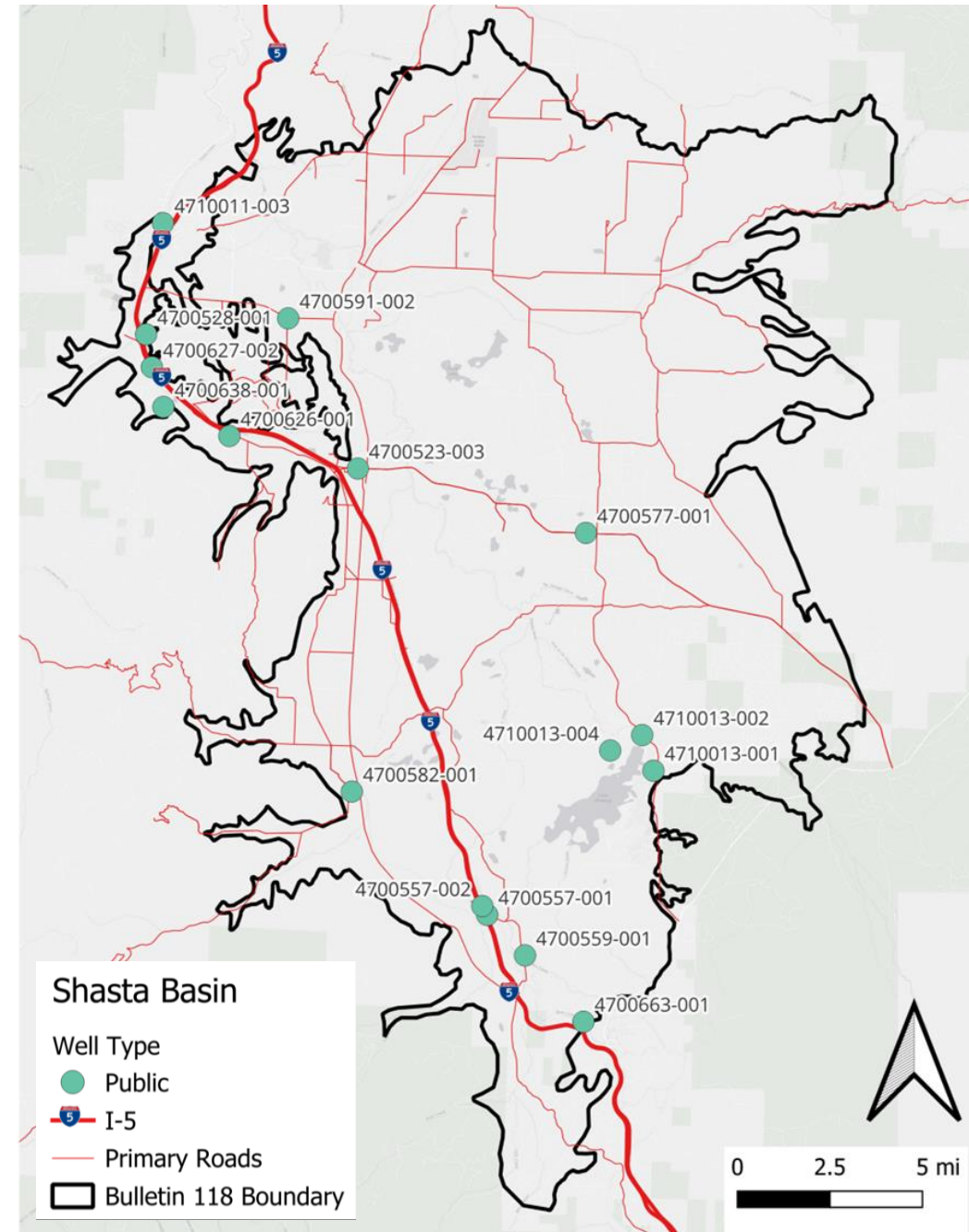
## Shasta Basin

-  I-5
-  Primary Roads
- Active Monitoring Wells
  -  Continuous
  -  Continuous RMP
  -  Semi-Annual
  -  Semi-Annual RMP
-  Bulletin 118 Boundary



# Groundwater Quality Monitoring

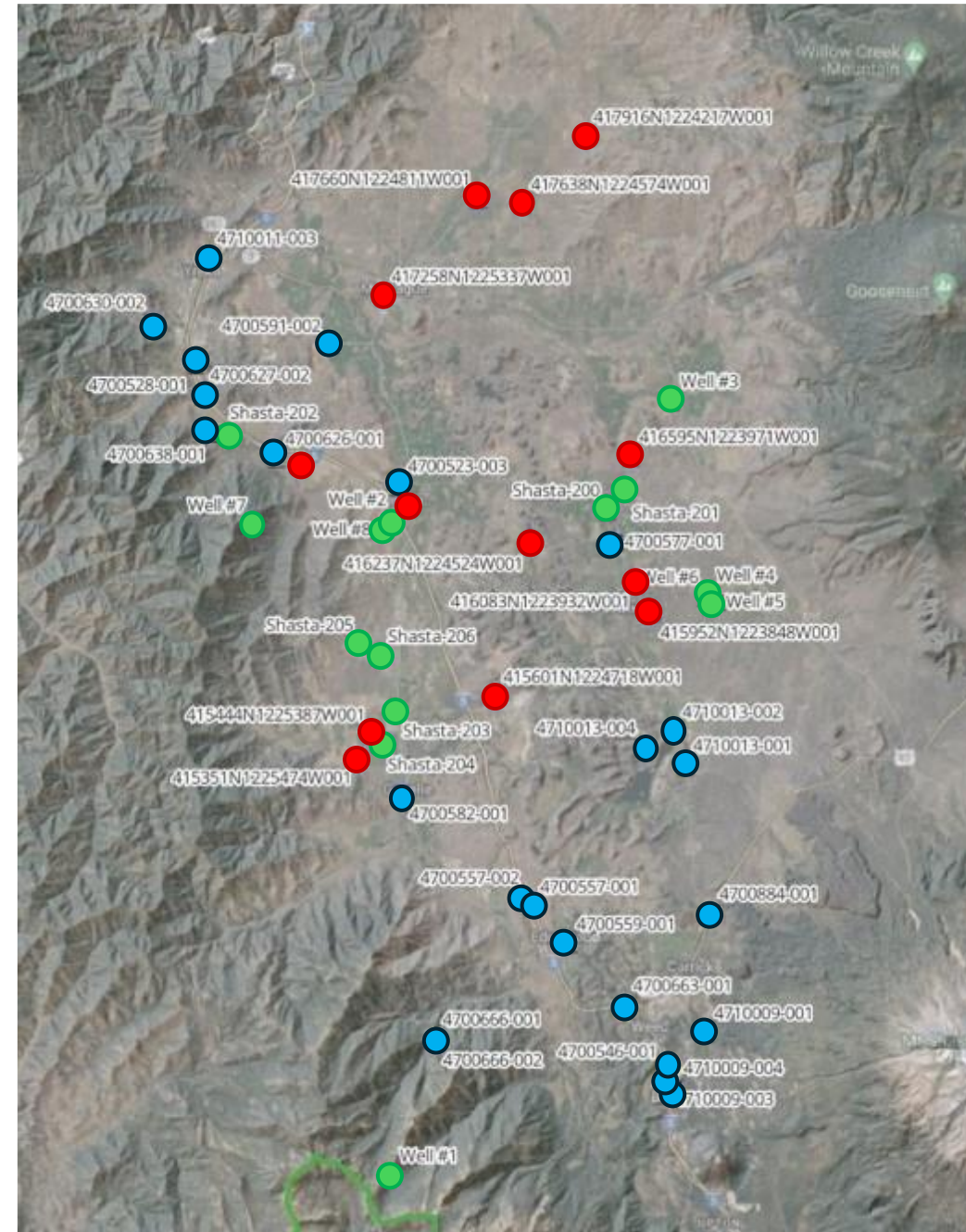
- 16 Municipal Wells
- Planned expansion of network





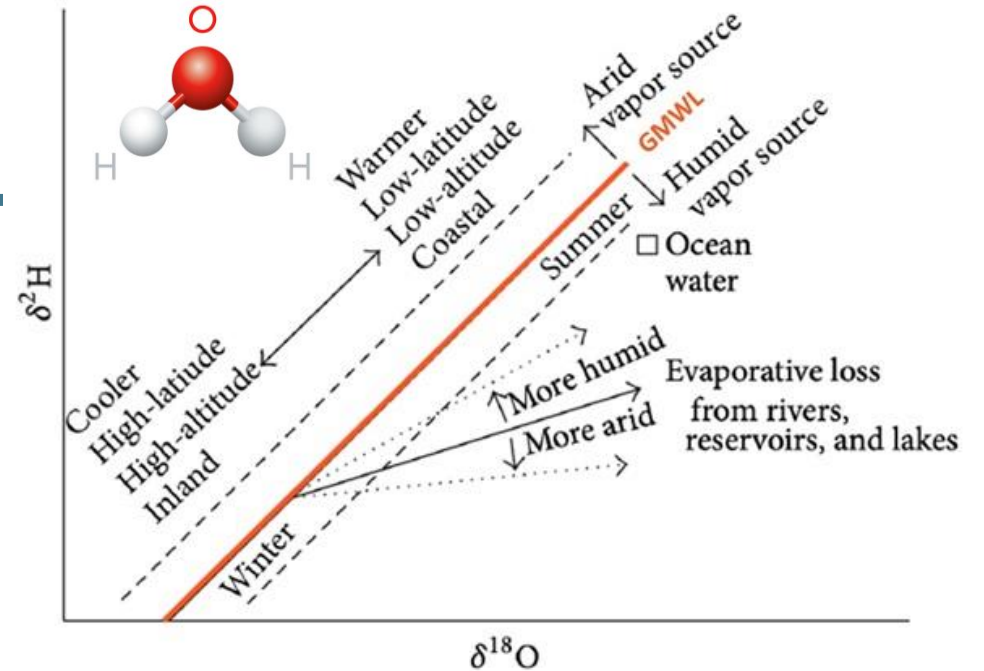
# Groundwater Quality Monitoring

- Selecting additional water quality monitoring wells
  - Blue wells have historically been monitored for water quality
  - Red wells have historically been monitored for depth to water
  - Green wells have historically been monitored



# What more can geochemistry tell us?

- Water isotopes and major ions
  - Distinguish water sources
  - Identify mixing of different water sources
- Radon
  - Helps to identify **gaining** and **losing** areas
  - Identify piezometers and shallow wells with very recent recharge
  - Can complement sensor data and other physical (temp, conductivity) and geochemical measurements to help understand streamflow dynamics through time
- Time series can be very informative

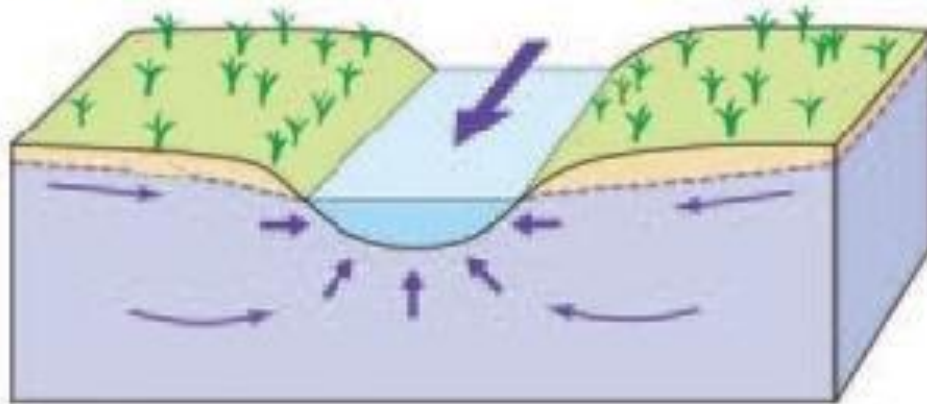




# Radon Activity in Gaining vs. Losing Streams

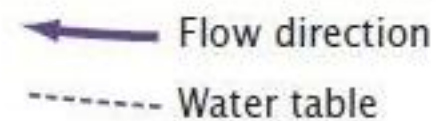
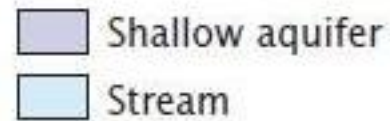
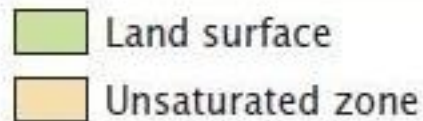
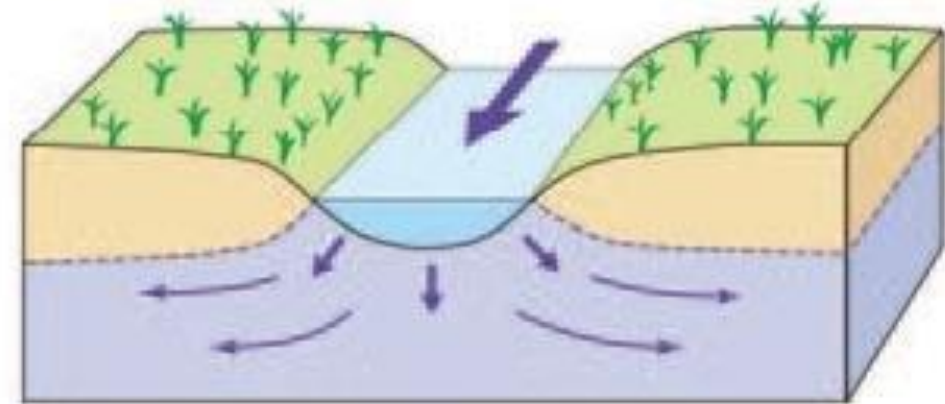
## Gaining Stream

**High** Radon Activity due to Localized Groundwater Influx



## Losing Stream

**Low** Radon Activity due to Degassing, Decay, and Groundwater Recharge



# Data Gaps and Monitoring Expansion

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- Lacking surveyed elevations of some wells in the water level network
- Lacking flow data. Plans to install new flow monitoring gages:
  - Tributaries to Dwinnell reservoir
  - Diversions to irrigation ditches
  - Other possible locations: China Ditch, Parks Creek, Willow Creek
- Interconnected surface water
  - Plans to install two transects with up to 5 shallow wells
- Addition of water quality wells
- Pesticide sampling: two-time sampling of wells for pesticides
- Other monitoring station updates?
- Installation of monitoring instrumentation in existing wells (Big Springs Area)

# **Shasta Valley Basin Hydrologic Model Updates**

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# Shasta PRMS Updates

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- Extend model to the end of WY2023
- Implement automatic updates with R scripting for extending the model in the future
- Change temperature and precipitation module to xyz\_dist
  - Combine data from local monitoring stations and PRISM\*
- Incorporate NLDAS\* data for potential evapotranspiration module

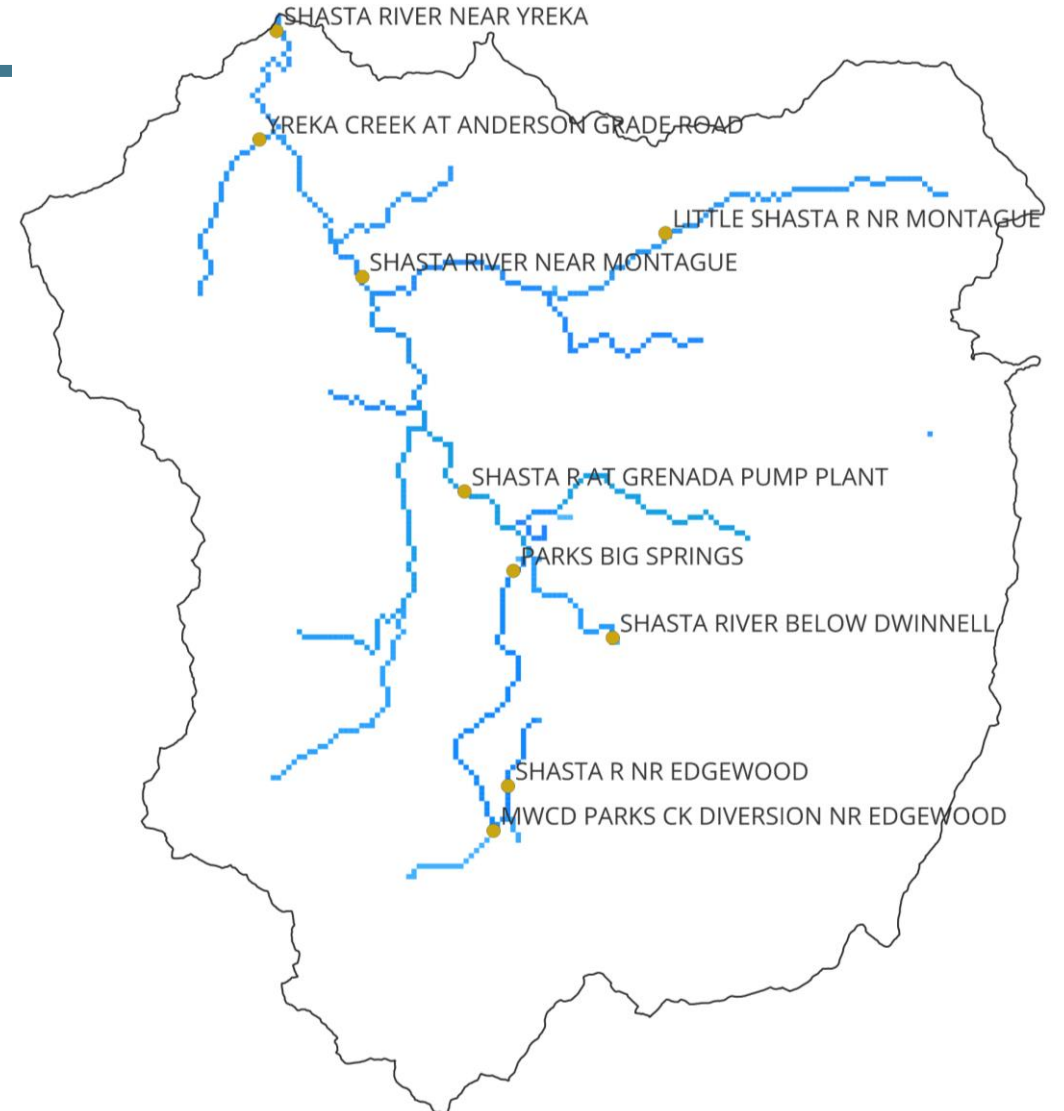
\* Parameter-elevation Regressions on Independent Slopes Model (PRISM)

\* NASA North American Land Data Assimilation System (NLDAS)

# Shasta PRMS

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- Updating calibration to observed streamflow at nine stations
  - DWR and USGS streamflow stations
- Previous calibration only used one station at the outlet

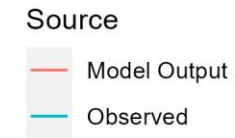
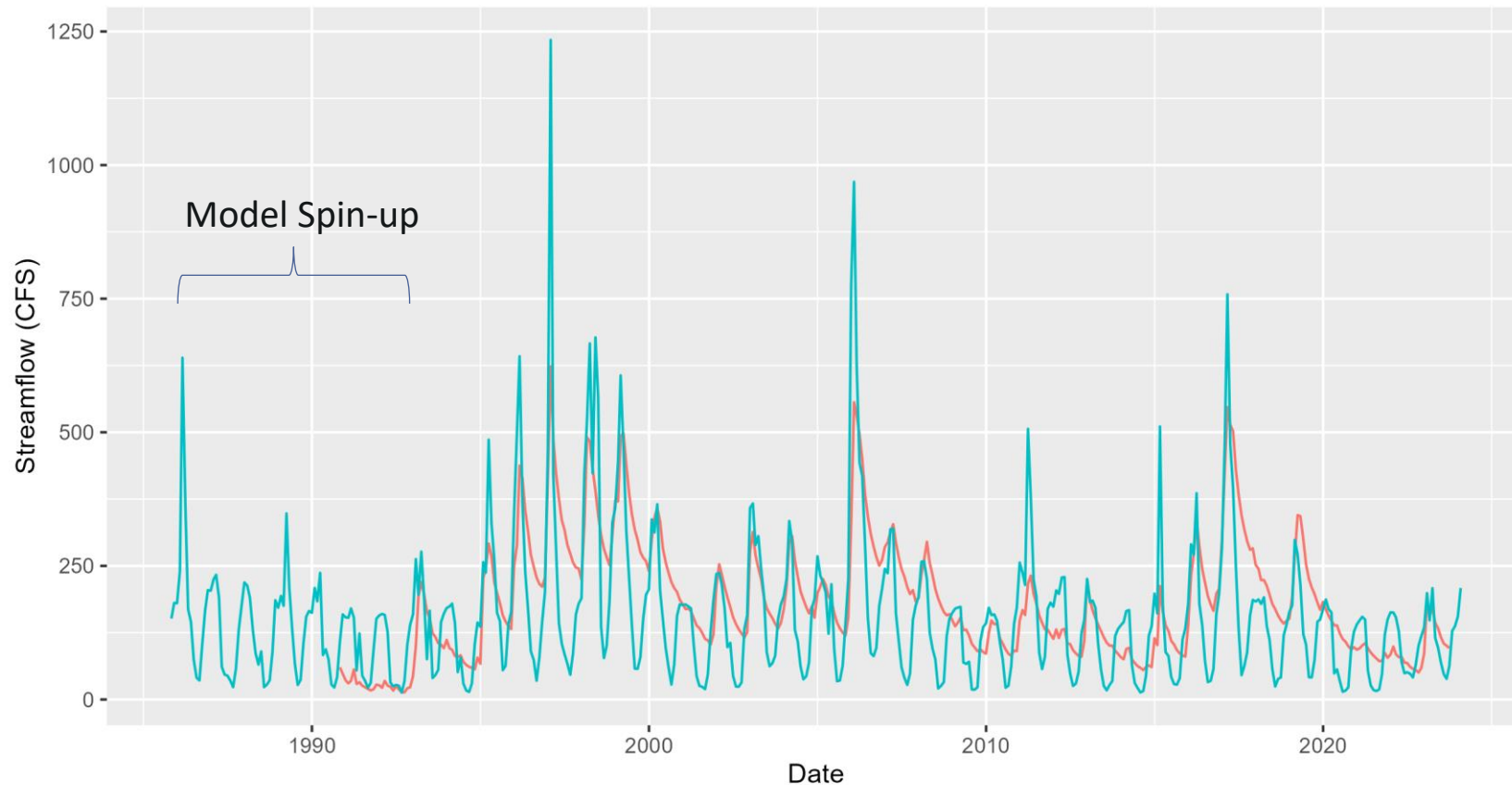


# Shasta PRMS

- Calibration in progress

USGS Station : 11517500 (Shasta River Near Yreka) – Monthly Average

NSE: 0.455466972898034





# Snowpack Hydrology

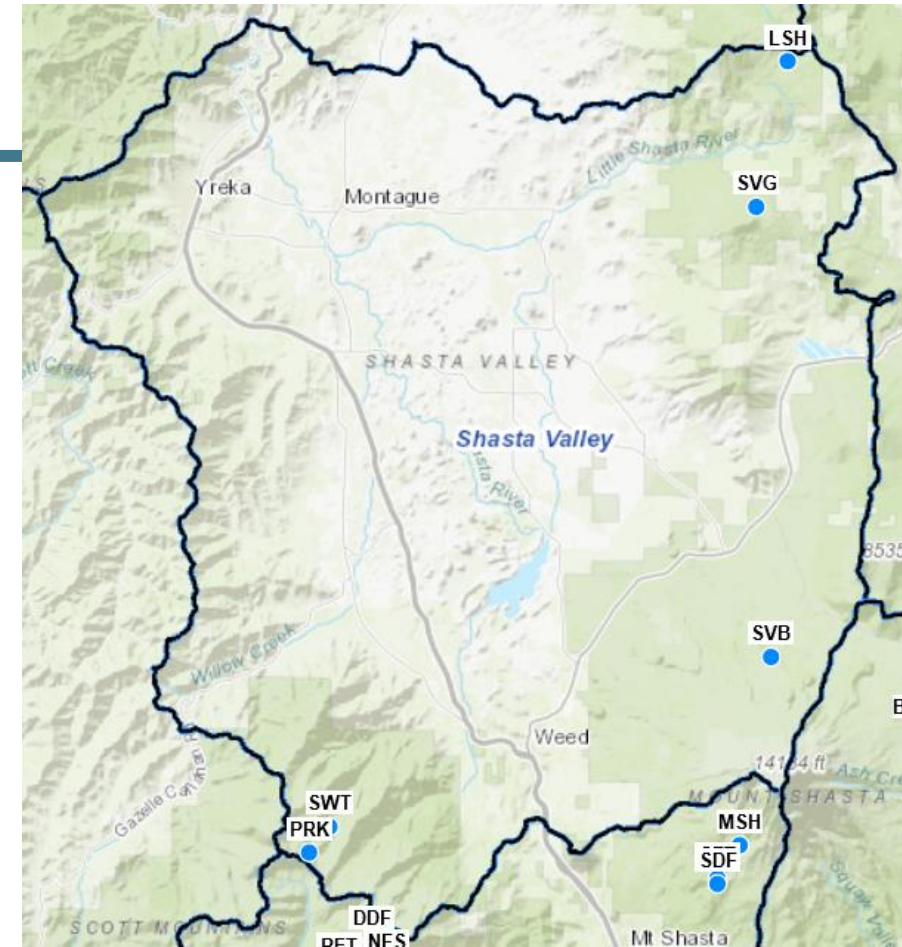
- Updating calibration to observed snow
- Snow water equivalent (SWE) observed timeseries
  - Snow courses (manual measurements collected by skiers)
    - Little Shasta (LSH), Sweetwater (SWT), and Parks Creek (PRK)
  - Snow sensors (snow pillows measuring the weight of water in snow)
    - Goosenest (SVG) and Bolam (SVB) (operational since 8/25/20 after initial PRMS model development)



Source: DWR, 2020



Source: DWR, 2022



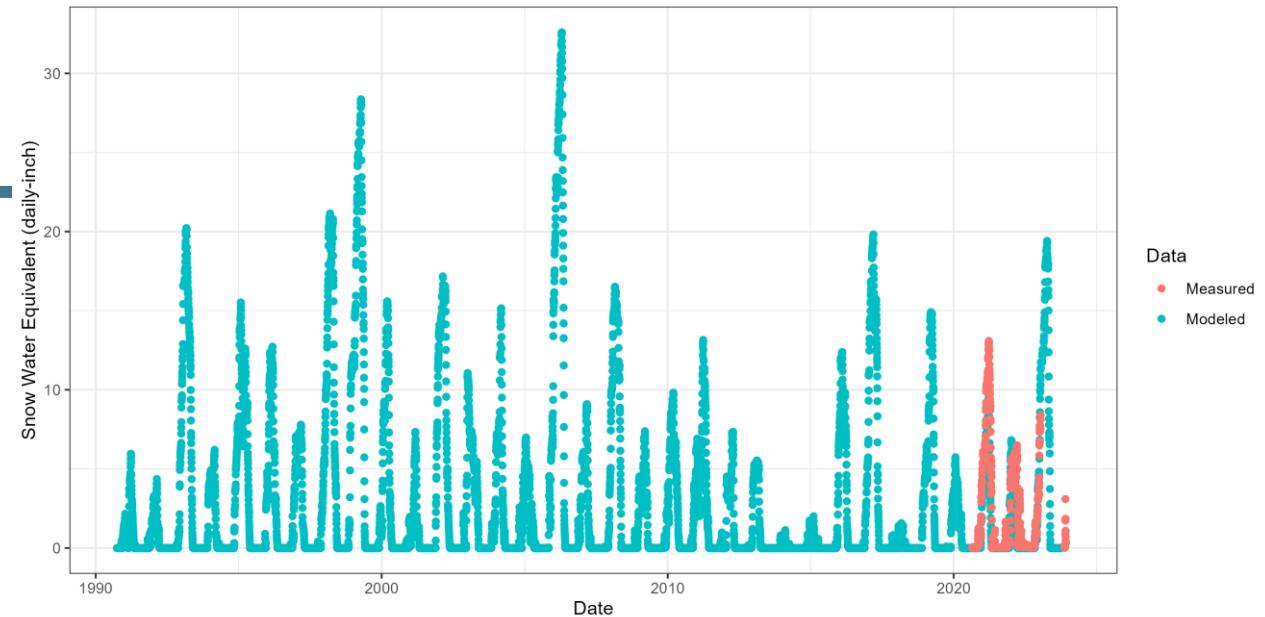
CDEC



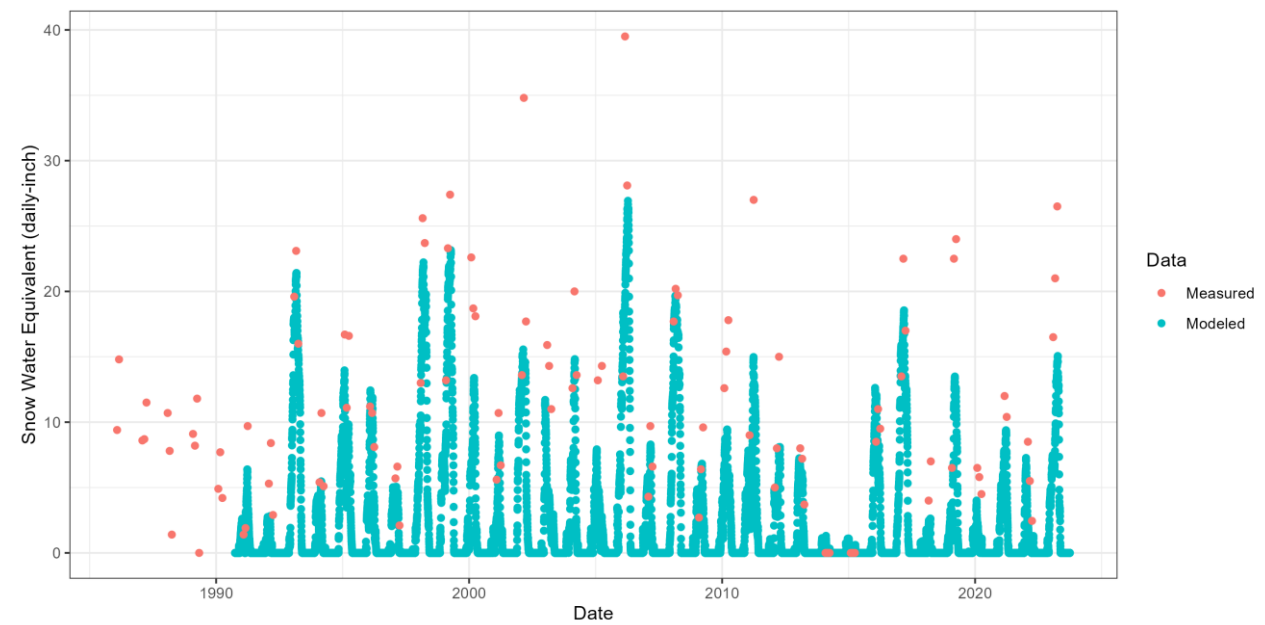
# Snowpack Hydrology

- Adjustment of atmospheric & snowpack hydrology parameters to better align modeled and observed snow water equivalent (SWE)
- Key temporal variation in SWE:
  - Snow accumulation
  - Snow melt
- Revised parameterization:
  - Scaling of precipitation
  - **adjust\_snow** changing the portion of precipitation falling as snow
  - **potet\_sublim** changing the fraction of potential ET sublimated from snow

SVG – GOOSENEST (snow sensor)



SWT – SWEETWATER (snow course)



# Shasta MODFLOW Model Updates



## Extended model to 2023

*Extended all model packages to 2023.*



## Added new observations

*Added new well and streamflow observations.*



## Developed new geology

*Developed new geology using AEM data. It is ready to be incorporated into the MODFLOW model.*



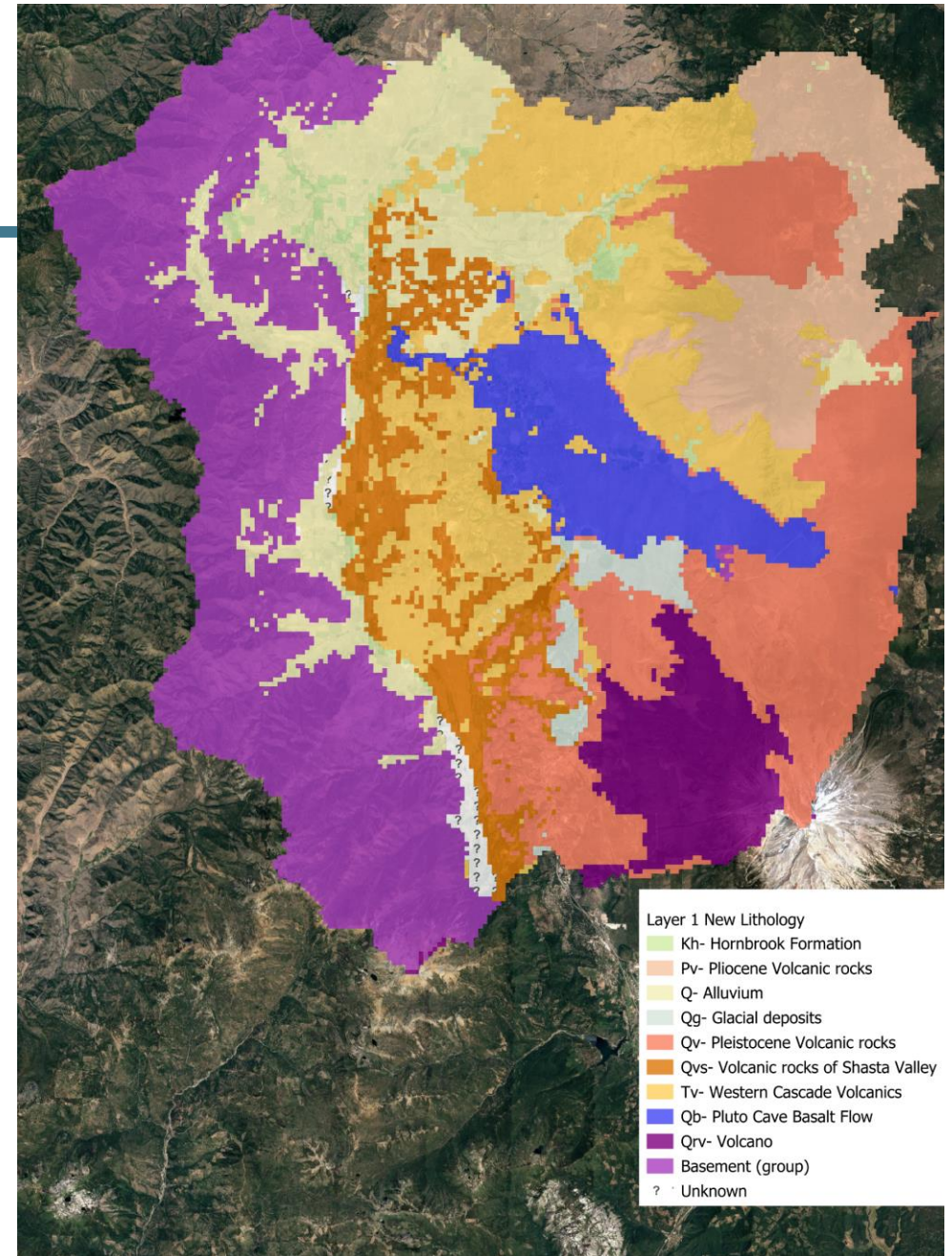
	<i>In Progress</i>		<i>Added to Backlog</i>
	<i>Complete</i>		<i>Blocked</i>

# Model Priority Backlog *Through February 2024*

#	Feature	Description	Status
1	Extend model to 2023	Extend all MODFLOW packages to 2023 and run model	Complete
2	Update head observations	Update head observation data in HOB package	Complete
3	Update streamflow observations	Update streamflow observation data	Complete
4	Update geology	Update geology with newly available AEM from DWR	Complete
5	Update recharge	Incorporate updated PRMS recharge into MODFLOW model	In Progress
6	Update pumping	Incorporate soil water budget to estimate MODFLOW pumping	In Progress
7	Incorporate new geology	Incorporate new geology into MODFLOW model	Not Started
8	Update ditches	Convert ditch representation from GHB to SFR	Not Started
9	Remove steady state	Replace first stress period from steady state to transient	Not Started
10	Calibration	Recalibrate hydraulic parameters	Not Started
11			
12			

# Geology Update

- Refining of digital elevation model
  - 24 m to 8 m
- Changes in lithology based on DWR's Airborne Electromagnetic Survey:
  - New lithology: Gb — Pluto Cave Basalt Flow, east of Big Springs
  - Larger presence of Tv — Western Cascade Volcanics in Big Springs





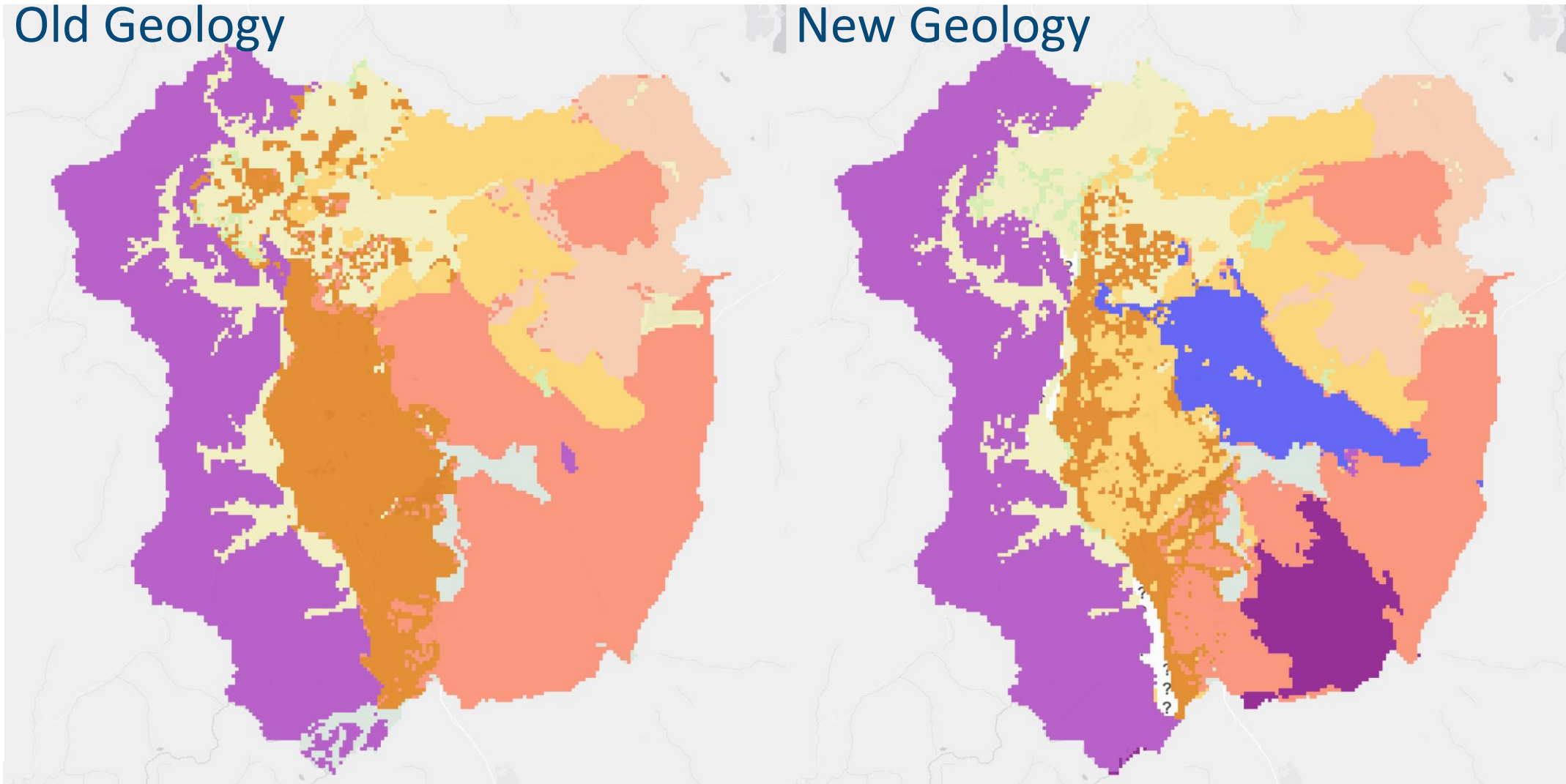
# Geology Update – Comparison

Old Geology

New Geology

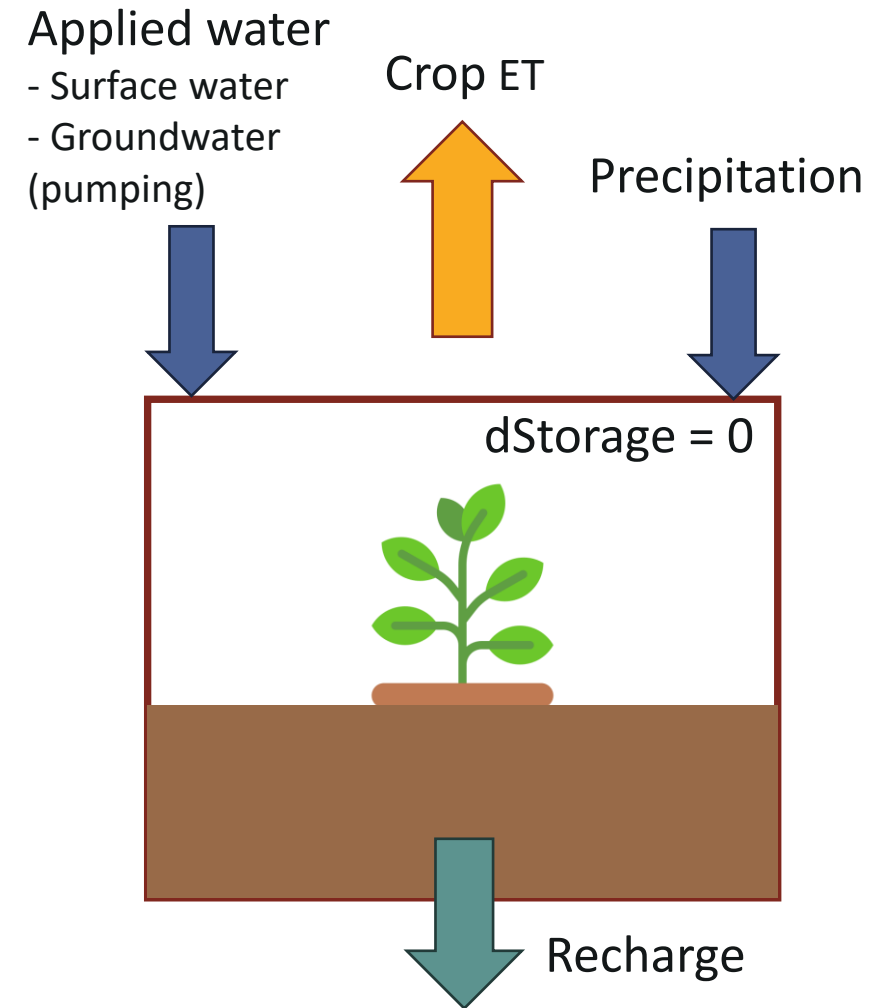
Geologic Units

- Kh- Hornbrook Formation
- Pv- Pliocene Volcanic rocks
- Q- Alluvium
- Qg- Glacial deposits
- Qv- Pleistocene Volcanic rocks
- Qvs- Volcanic rocks of Shasta Valley
- Tv- Western Cascade Volcanics
- Qb- Pluto Cave Basalt Flow
- Qrv- Volcano
- Basement (group)
- Cbg- Bragdon Formation
- ? Unknown



# Soil Water Budget

- Consumptive Use approach
  - Incorporating the latest land use and local monitoring stations from CIMIS and NOAA
    - Crop type/Water source/irrigation system
    - Reference evapotranspiration ( $ET_0$ )
    - Irrigation efficiency
    - Crop coefficient
    - Precipitation
    - Growing season for crops





# Soil Water Budget

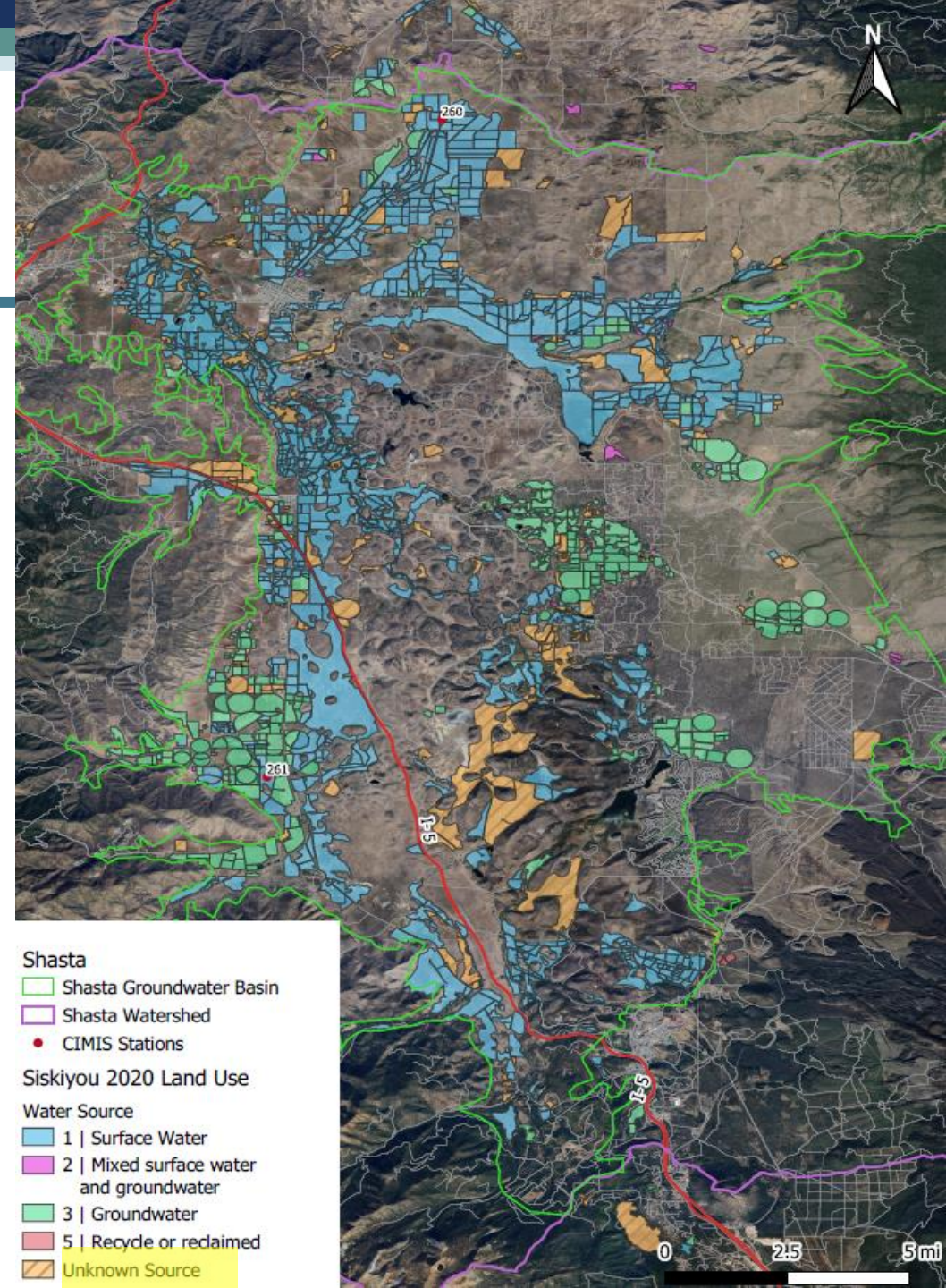
- Data gaps in the 2020 County Land Use Survey – water source
  - Assume surface water?

2010 Shasta Land Use – Water source

Water Source	Acres	Percentage
Surface water	49,827	78.9%
Mixed SW & GW	175.8	0.3%
Groundwater	12,933	20.7%
Recycled	52.3	0.1%
<b>Total</b>	<b>62,988</b>	<b>100.0%</b>

2020 Shasta Land Use – Water source

Water Source	Acres	Percentage
Surface water	36,218	64.3%
Mixed SW & GW	220.3	0.4%
Groundwater	10,906	19.4%
Recycled	51.8	0.1%
Unknown	8,974	15.9%
<b>Total</b>	<b>56,371</b>	<b>100.0%</b>

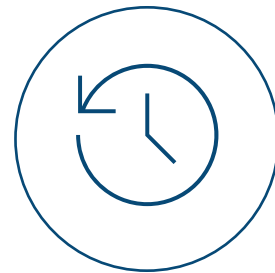




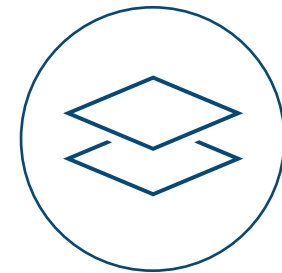
# Next Steps



Update PRMS  
recharge and  
incorporate into  
MODFLOW



Finalize soil-  
water-budget  
pumping  
estimate



Calibrate  
hydraulic  
parameters



# Implementation Grant Funded Projects

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SGMA Compliance and GSP Updates

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Fee Study and Economic Analysis

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Well Inventory

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GW/SW Connectivity Study

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Upland Management

# Implementation Approach



Work group formation



Work groups will oversee project design, progress, and evaluation of results



Updates for each project will be provided to the larger group at quarterly advisory committee meetings

# Timeline

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2023 Q3

- Formation of work groups in August AC Meetings
- Work groups approve draft project scope and schedule
- Final grant awards expected in September

2023 Q4

- October AC Meetings- review of final funding awards
- Detailed scope and schedule for funded projects provided to Advisory Committee

2024 Q1

- February AC Meetings- updates from project work groups, updates depend on individual project schedules
- SGMA Compliance- Annual Report for WY 2023

Jan 1   Feb 1   Mar 1   Apr 1   May 1   Jun 1   Jul 1   Aug 1   Sept 1   Oct 1   Nov 1   Dec 1   Dec 31



 <i>In Progress</i>	 <i>Added to Backlog</i>
 <i>Complete</i>	 <i>Blocked</i>

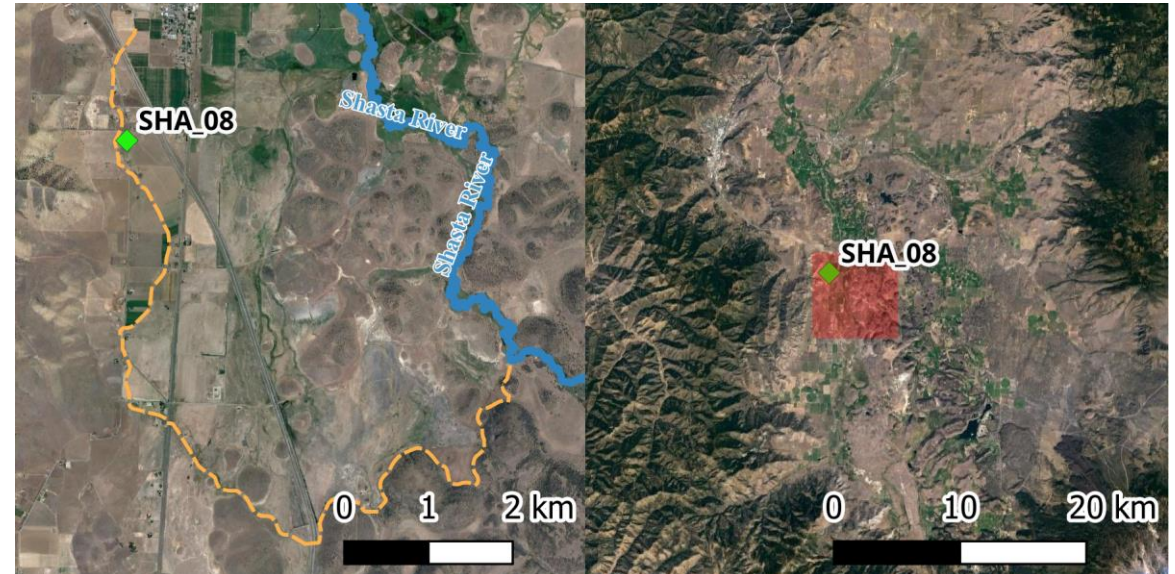
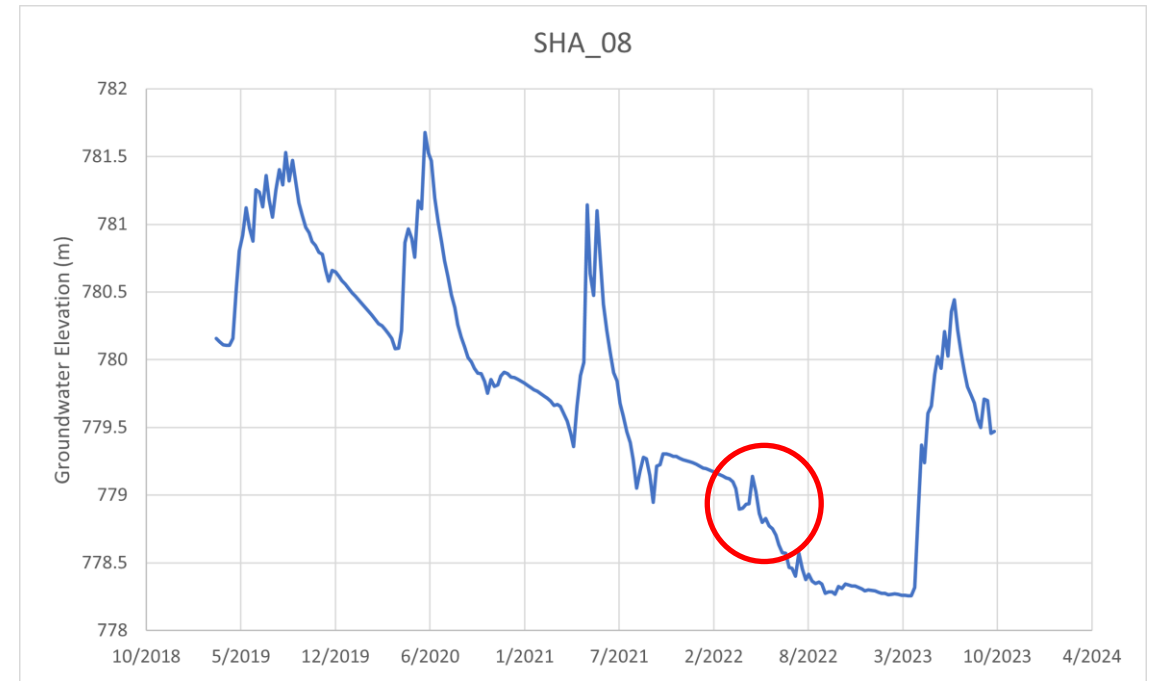
# Implementation Grant Progress *Through February 2024*

#	Component	Notes	Status
<b>1</b>	<b>SGMA Compliance and GSP Updates</b>		
1.1	GSP Revisions	Due January 2027	In Progress
1.2	Reporting (Data and Annual Report)	Annual Reports due April 1 of each year	In Progress
1.3	Model Updates and Scenario Evaluation		In Progress
1.4	Data Gaps and Monitoring Expansion and DMS		In Progress
<b>2</b>	<b>Fee Study and Economic Analysis</b>		
2.1	Evaluation of Fee/Rate Options and Schedule Development		Not Started
2.2	Parcel scale groundwater use estimate		In Progress
2.3	Economic Analysis		Not Started
<b>3</b>	<b>Well Inventory</b>		
3.1	Database Development and Well Risk Assessment		In Progress
3.2	Monitoring Well Construction or Well Instrumentation		Not Started
<b>4</b>	<b>Groundwater-Surface Water Connectivity Study</b>		
4.1	Monitoring and data analysis	Identify new wells, install stream gauges, pumping tests	In Progress
<b>5</b>	<b>Upland Management</b>		
5.1	Project Planning and Environmental Documentation	Develop workplan	Not Started
5.2	Monitoring Design, Data Collection, and Data Analysis	Assess monitoring needs,	Not Started



# Potential groundwater recharge projects: why to implement those?

- Well SHA\_08
- No seasonal spike on 2022
- Likely due to dry irrigation ditch



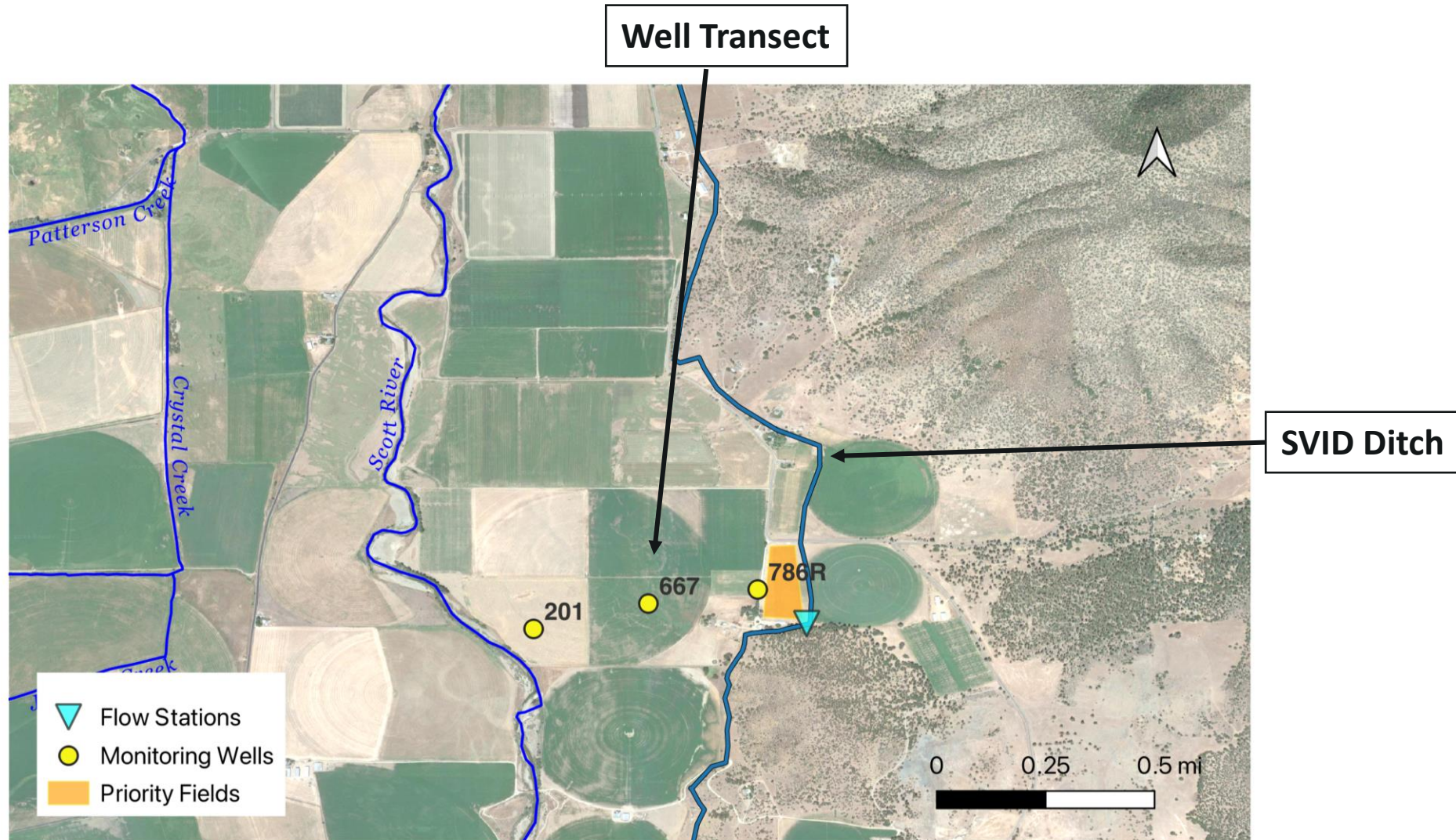
# Potential Benefits

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- Utilize water during periods of high flow (winter months) to:
  - Support groundwater resources in the Basin/ drought resiliency
  - Augment instream flows, particularly in critical summer and fall months
- Example: Scott Valley Irrigation District Recharge Project

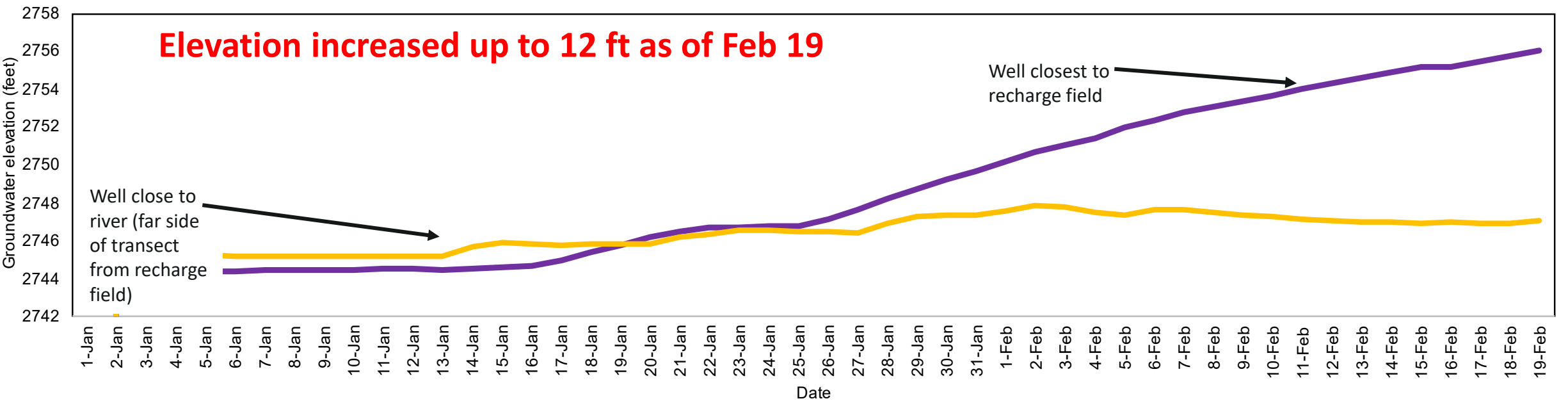
# Lesson learned from SVID Recharge Project

Continuous data snapshot at Field B

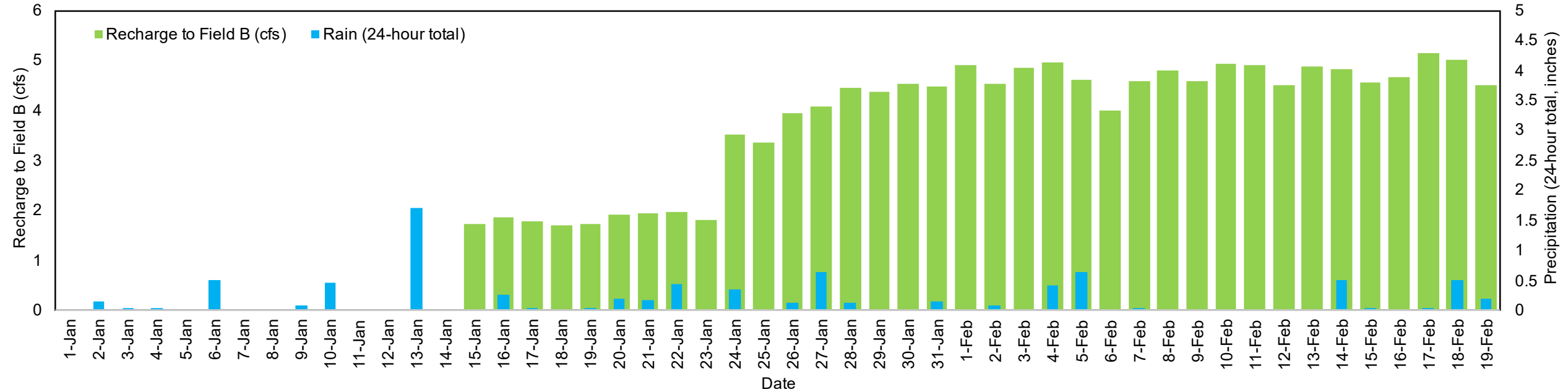




Groundwater Elevation near Field B



Precipitation and Recharge to Field B January 1 through February 19, 2024



# SVID Recharge Project: 2024 Progress

## Modelled Benefits- Streamflow Depletion Reversal

Scenario Type	Scenario ID	Scenario Depletion Reversal, Sep-Nov '91-'18 (TAF)	Relative Depletion Reversal, Sep-Nov '91-'18
	MAR (Managed Aquifer Recharge) in Jan-Mar	13	10%

Scenario depletion reversal (average/year) = **464 AF**

## On-Farm Recharge so far:

2024 cumulative on-farm recharge ~ **247 AF**

### Still need to consider:

1. Still need to consider the rest of the recharge period
2. Water recharged through ditch infiltration

Total Volume Recharged in 2024 through SVID Recharge Project

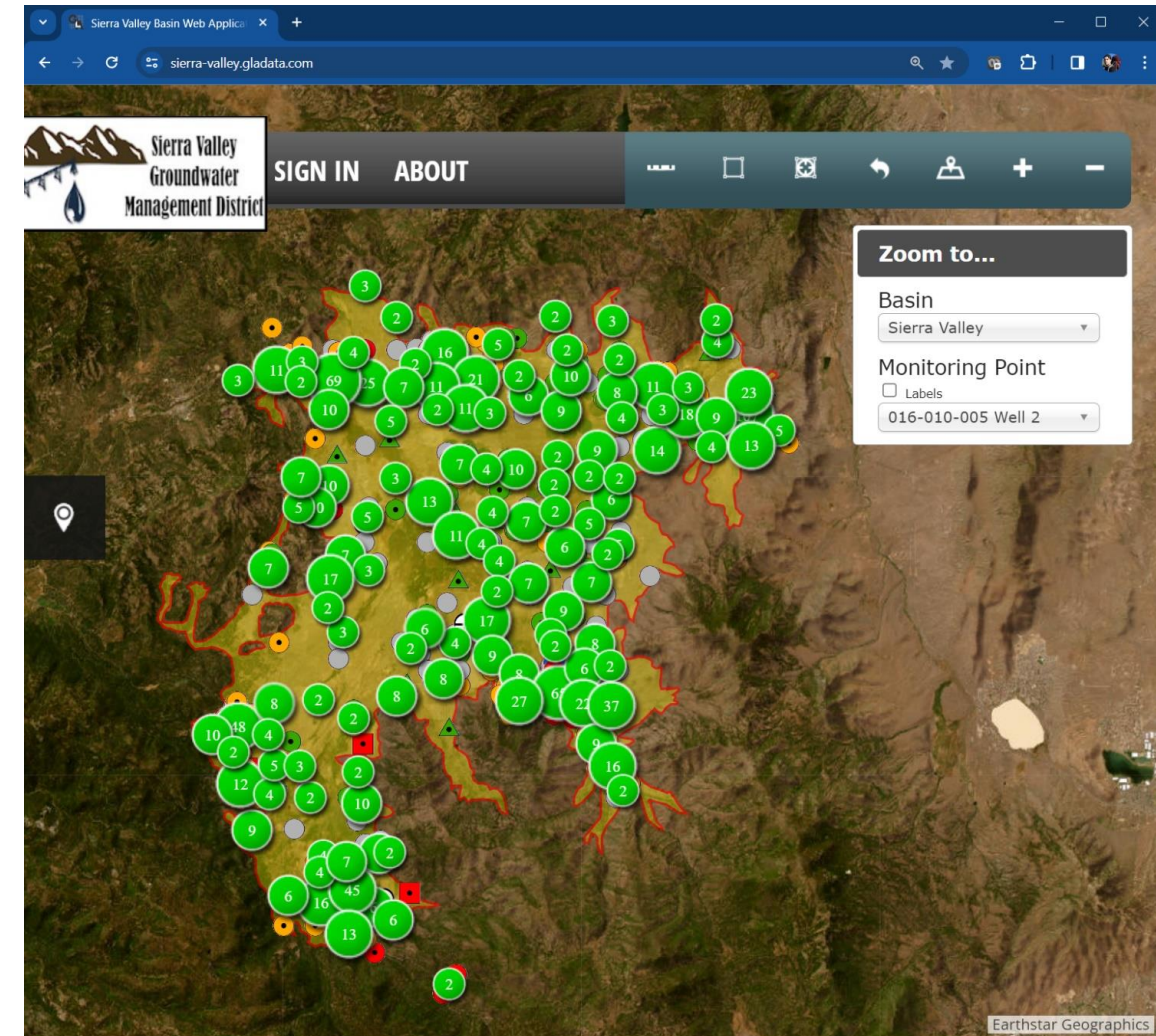
**SVIHM**

Depletion Reversal achieved in 2024 due to MAR



# Data Management System (DMS)

- Data SGMA DMS
- Automated management of reporting and monitoring data.
- Provides an effective and affordable option for storing, visualizing, and managing basin data.
- Web accessible, map-based user interface (front end).
- SQL-server relational database (backend).





# Data Management System (DMS)

The screenshot displays the Sierra Valley Basin Web Application interface. The browser address bar shows the URL `sierra-valley.gladata.com`. The top navigation bar includes the Sierra Valley Groundwater Management District logo and links for `SIGN IN` and `ABOUT`. The main map area shows a satellite view of the basin with numerous green circular markers representing wells, many of which are clustered. A `Zoom to...` panel is open on the right, showing a search for well names and a list of results including `DMW 2s`, `DMW 3d`, `DMW 3i`, `DMW 3s`, `DMW 4d`, `DMW 4i`, `DMW 4s`, `DMW 5d`, `DMW 5i`, and `DMW 5c`. The `DMW 3s` entry is selected. A `Map Layers Pane` is visible on the left side of the map. The interface also features a `Map tools` toolbar at the top right and a `Map Layers Pane` on the left side.

Sierra Valley Groundwater Management District

SIGN IN ABOUT

DMS web address

Map tools (hover over for description)

Map Layers Pane

Wells (clustered)

Can Zoom in/out on map using mouse wheel

Click and drag to pan map

Click on points for associated data

Search for well name and zoom to on map

Zoom to...

Basin  
Sierra Valley

Monitoring Point  
 Labels  
DMW 2s  
DMW|  
DMW 2s  
DMW 3d  
DMW 3i  
DMW 3s  
DMW 4d  
DMW 4i  
DMW 4s  
DMW 5d  
DMW 5i  
DMW 5c

Earthstar Geographics

# Data Management System (DMS)

The screenshot displays the DMS interface with several key components highlighted by callouts:

- Well Construction Info**: A callout pointing to the 'General Info' tab of the 'Expanded Details' window.
- Water Quality Results**: A callout pointing to the 'Analytical Results' tab.
- Groundwater Levels**: A callout pointing to the 'Levels' tab.
- Pumping Volumes**: A callout pointing to the 'Production' tab.
- Document library (e.g., well logs)**: A callout pointing to the 'Documents' tab.
- Plot water level elevation or depth from surface**: A callout pointing to the 'Depth' tab of the hydrograph plot.
- Interactive plots (hover for values, zoom in, export to multiple formats)**: A callout pointing to the hydrograph plot area.

The 'Expanded Details - 04N20W25B03S' window is open, showing a table of groundwater level data. The table has columns for Date, Depth from RP, RP Elev, Depth from Surface, GW Elev, and Note. The data points are as follows:

Date	Depth from RP	RP Elev	Depth from Surface	GW Elev	Note
2010-11-03	51	438	51.09	387	
2014-07-29	68.17	439.1	67.16	370.93	Source: UWCD TM, RP +1.1ft above land surface including Trans cap, install Trans on 120' DRC, RT=85.68 @09:25
2014-09-29	71.34	439.1	70.33	367.76	
2014-10-22	72.7	439.1	71.69	366.4	Source: 2014 min from UWCD Transducer, Fall low, WLE= 366.40
2015-06-06	66.87	439.1	65.86	372.23	
2015-03-11	62.65	439.1	61.64	376.45	Source: 2015 max from UWCD Transducer, Spring high, WLE=376.45
2015-03-24	64.06	439.1	63.05	375.04	
2015-06-30	70.32	439.1	69.31	368.78	
2015-09-29	75.14	439.1	74.13	363.96	
2015-10-29	76.39	439.1	75.38	362.71	Source: 2015 min from UWCD Transducer, Fall low by date, WLE= 362.71

The hydrograph plot shows 'Groundwater Elevation (ft)' on the y-axis (ranging from 340 to 440) and 'Date' on the x-axis (ranging from 2012 to 2022). A data point is highlighted for Sunday, Mar 24, 2019, with a GW Elevation of 399.57. The plot includes a legend for 'Water Level Measurement' (blue dots) and 'Questionable Result' (red dots).



# Data Management System (DMS)

Active Data SGMA DMS

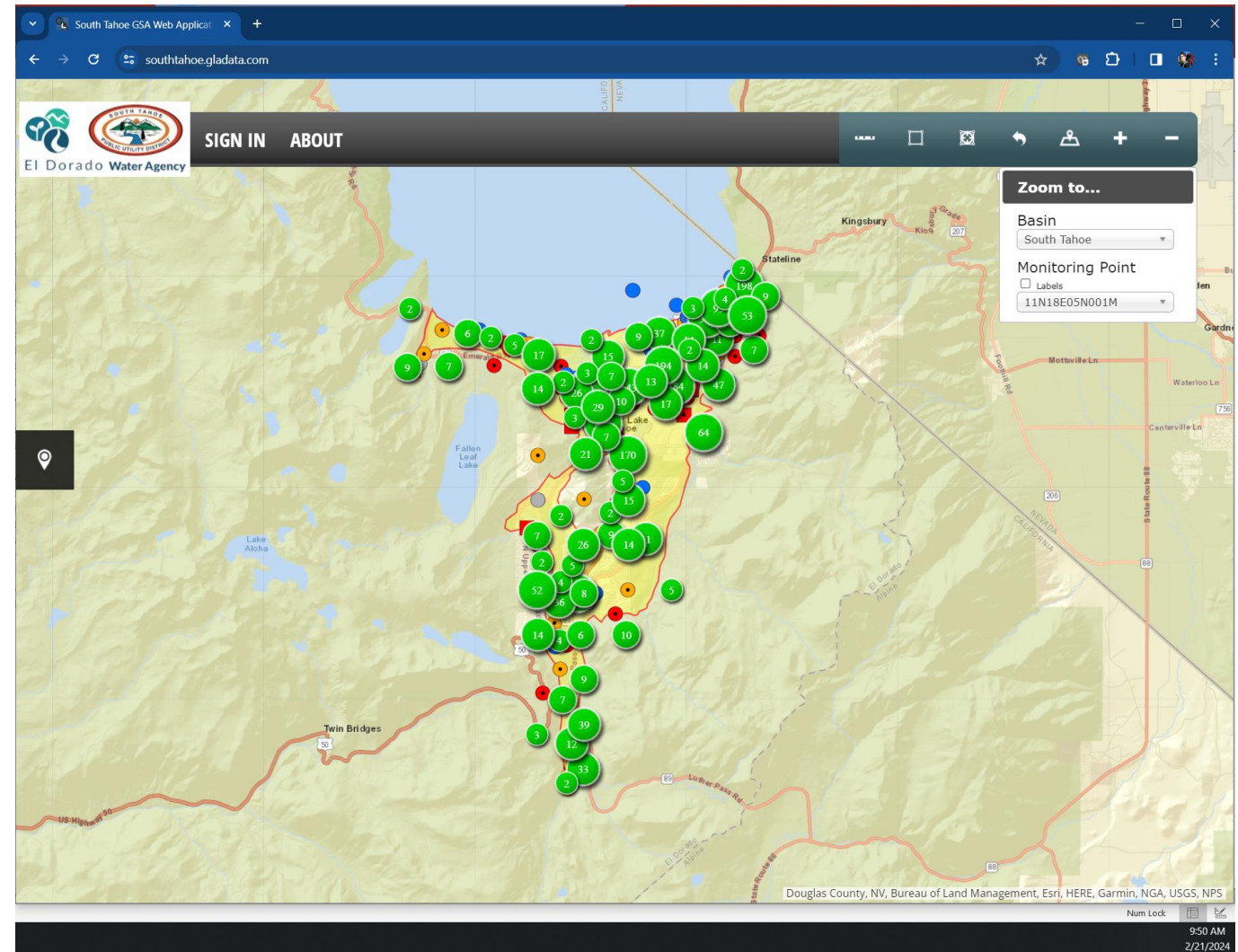
<https://sierra-valley.gladata.com>

<https://fillmore-piru.gladata.com>

<https://owens.gladata.com>

<https://bigvalley.gladata.com>

<https://southtahoe.gladata.com>



# Upcoming Irrigation Efficiency Workshop

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- “Workshop on Efficient Water Management for Forage Crops”
- Wednesday March 13<sup>th</sup>, 1-5pm, Montague Community Hall
- UC Davis, UC ANR, Tehama County RCD, LWA, Siskiyou County, Tulelake Irrigation District
- Free Registration: <https://mailchi.mp/181f31fc2c0f/march13>





**Thank You**