San Pasqual Valley Groundwater Basin

MARCH 25, 2026

2nd Community Workshop for San Pasqual Valley Groundwater Sustainability Plan: 5-year Periodic Evaluation

Welcome & Introductions

GSP 5-Year Periodic Evaluation Team

SAN PASQUAL VALLEY GSA

City of San Diego
- Andrew Funk
- Sergio Angulo

County of San Diego
- Jim Bennett

SAN PASQUAL VALLEY CONSULTANT TEAM

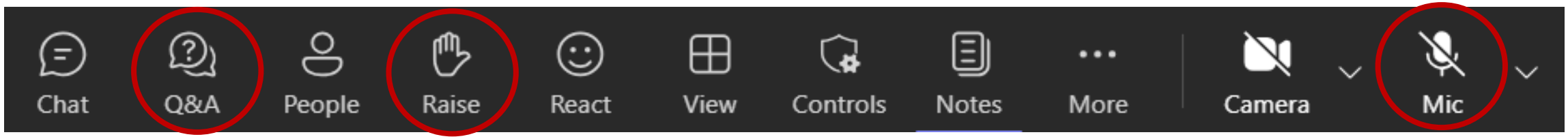
Rincon Consultant
- Rosalyn Prickett
- Lily Momper
- Kara Bedwell
- Heather Curran

INTERA
- Trey Driscoll
- Marisa Earll

JPW Communications
- Liana Letsos

Welcome

Use the raise hand icon for verbal questions



Type questions in the Q&A

Kindly mute yourself if you are not speaking

San Pasqual Valley Groundwater Sustainability Plan

5-YEAR PERIODIC EVALUATION

Community Workshop Agenda

Teleconference Dial-In: +1 530-414-9389 United States, Access Code: 459537753#

Materials: https://www.sandiegocounty.gov/content/sdc/pds/SGMA/san-pasqual-valley.html

Item	Time	Description	Presenter
1	1:00pm	Welcome and Introductions	Andrew Funk, City of San Diego
2	1:10pm	Sustainable Groundwater Management Act (SGMA) Background and Requirements • Agenda Overview • SGMA Overview • Department of Water Resources (DWR) Approval Letter • 5-Year Periodic Evaluation • Sustainable Management Criteria (SMC)	Rosalyn Prickett, Rincon Consultants
3	1:20pm	Summary of SMC Work Since GSP Adoption • DWR Corrective Actions Progress	Lily Momper, Heather Curran, Rincon Consultants
4	2:10pm	5-year Periodic Evaluation Modeling • Model Validation Results and Future Climate Scenarios	Marisa Earll, INTERA
5	2:35pm	Community Engagement • Topics and Dates for Upcoming Community Workshops	Rosalyn Prickett, Rincon Consultants
6	2:45pm	Closing Remarks • Public Comments and Discussion	Rosalyn Prickett, Rincon Consultants

Poll #1- Attendees

WHO DO YOU REPRESENT?

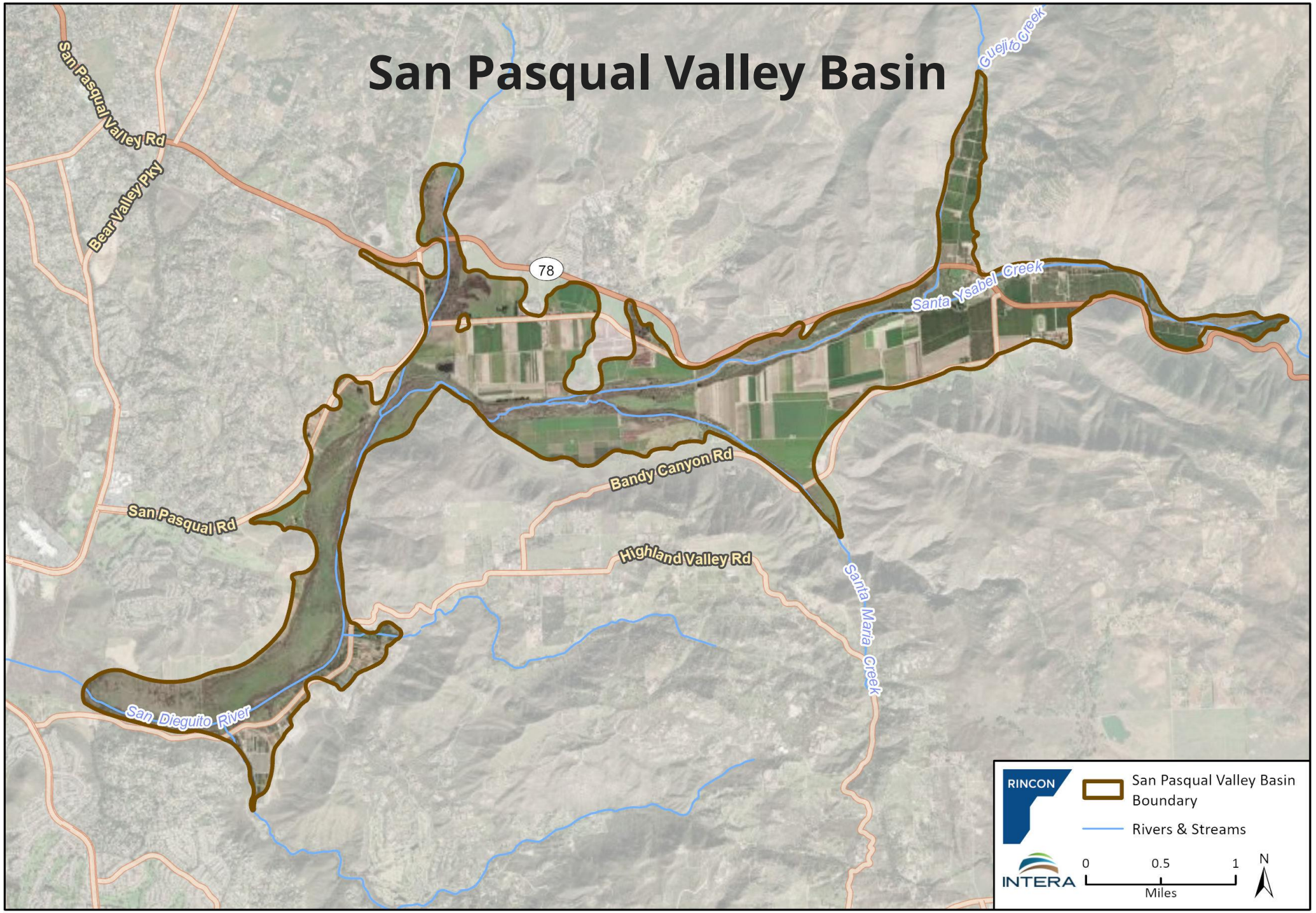
Examples:

- Homeowner
- Community Member
- Farmer/lease holder

JOIN CODE: spv

Review SGMA Requirements for San Pasqual Valley Basin

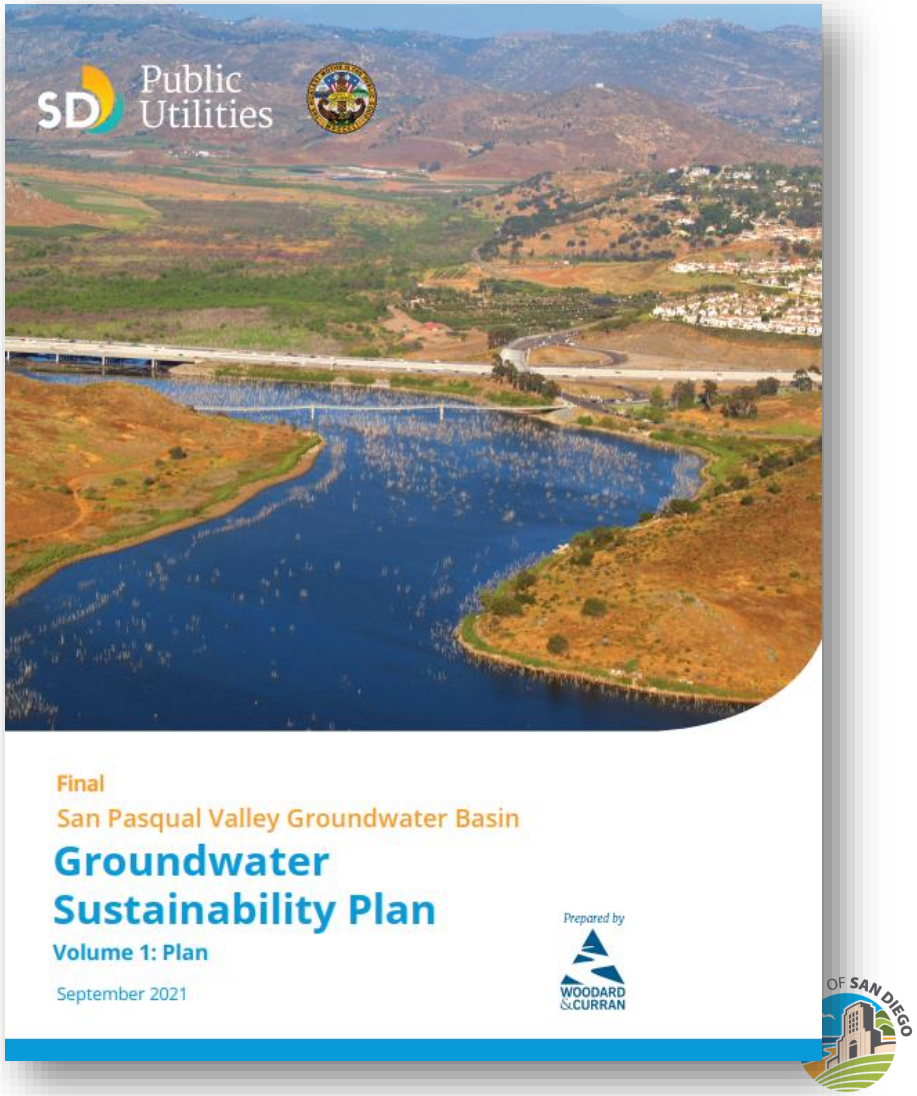
San Pasqual Valley Basin



SPV Basin Groundwater Management Goal

"To maintain a locally managed, economically viable, sustainable groundwater resource for existing and future beneficial use in the San Pasqual Valley Groundwater Basin by managing groundwater to avoid the occurrence of undesirable results."

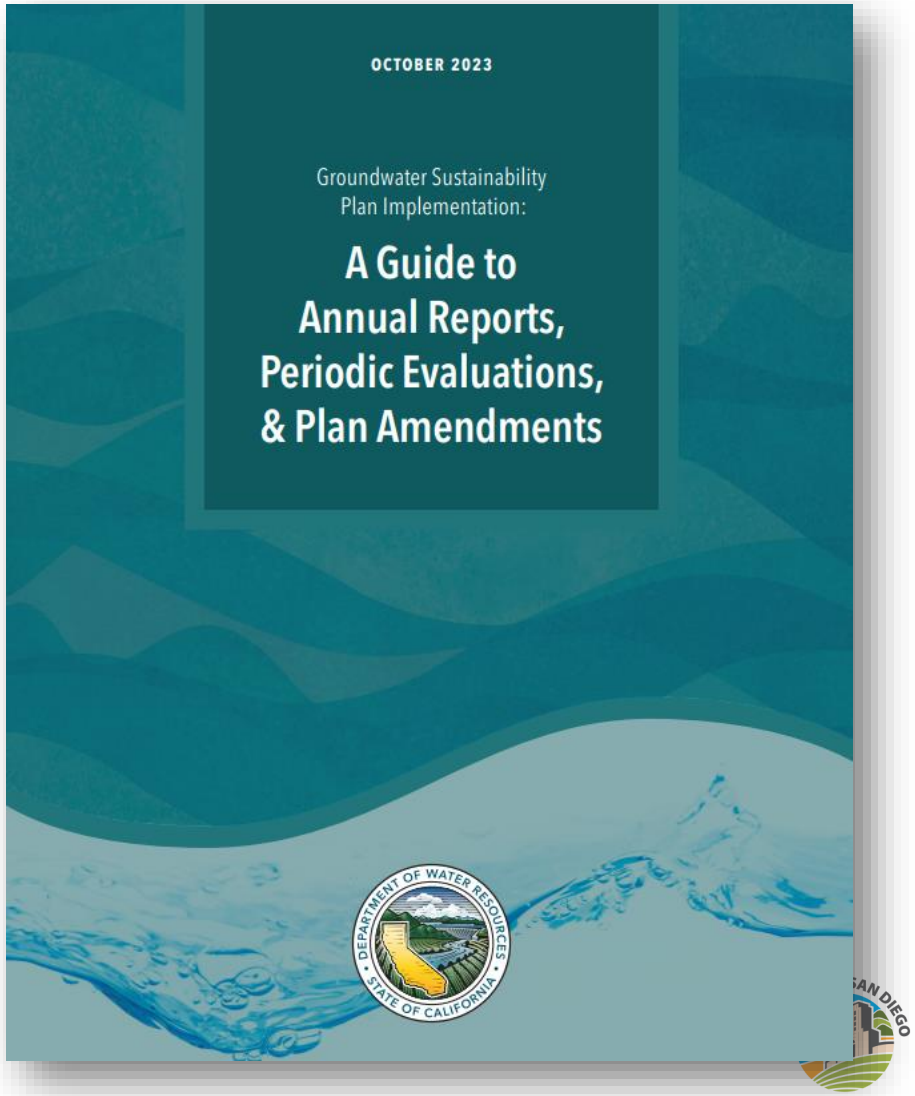
- 2022 SPV GSP, Section 6.2



What Is the 5-Year Periodic Evaluation?

"An evaluation and written assessment of an approved GSP to occur at least every five years…(due no later than five years after initial GSP submittal) – this is an implementation evaluation tool."

- 2023 DWR Guide to Annual Reports, Periodic Evaluations & Plan Amendments



Summary of Work Underway

The 6 Sustainable Management Criteria (SMCs)

Groundwater Level Decline

Water Quality Degradation

Groundwater Storage Reductions

Interconnected Surface Water Depletions

Land Subsidence

Seawater Intrusion
(Not Applicable in SPV Basin)

SMCs for San Pasqual Valley Basin

- **Minimum thresholds (MTs)** are the quantitative value that represents the groundwater conditions at a monitoring site that, when exceeded individually or in combination with others, may cause an undesirable result(s) in the basin.
- **Planning threshold (PTs)** are non-regulatory thresholds that assist the GSAs with planning and implementation of response actions as groundwater conditions near the MTs.
- **Undesirable results (URs)** are groundwater conditions that are significant and unreasonable as related to the six SMCs.

- MTs and PTs for groundwater levels and groundwater quality were established in the 2022 SPV Basin GSP
  - GWL MT = variable based on location and historic data, protective of well infrastructure
  - Nitrate MT = 10 mg/L and TDS MT = variable based on location and historic data, considers drinking water standards and concentrations flowing into Basin

Poll #2: Interests or Concerns

PLEASE IDENTIFY YOUR INTEREST OR CONCERNS IN THE SAN PASQUAL VALLEY GSP 5-YEAR EVALUATION

Examples:

- Groundwater levels
- Groundwater quality
- Groundwater storage
- Interconnected surface waters and beneficial users
- Groundwater dependent ecosystems

JOIN CODE: spv

Groundwater Quality SMC

Progress

DWR CORRECTIVE ACTIONS:

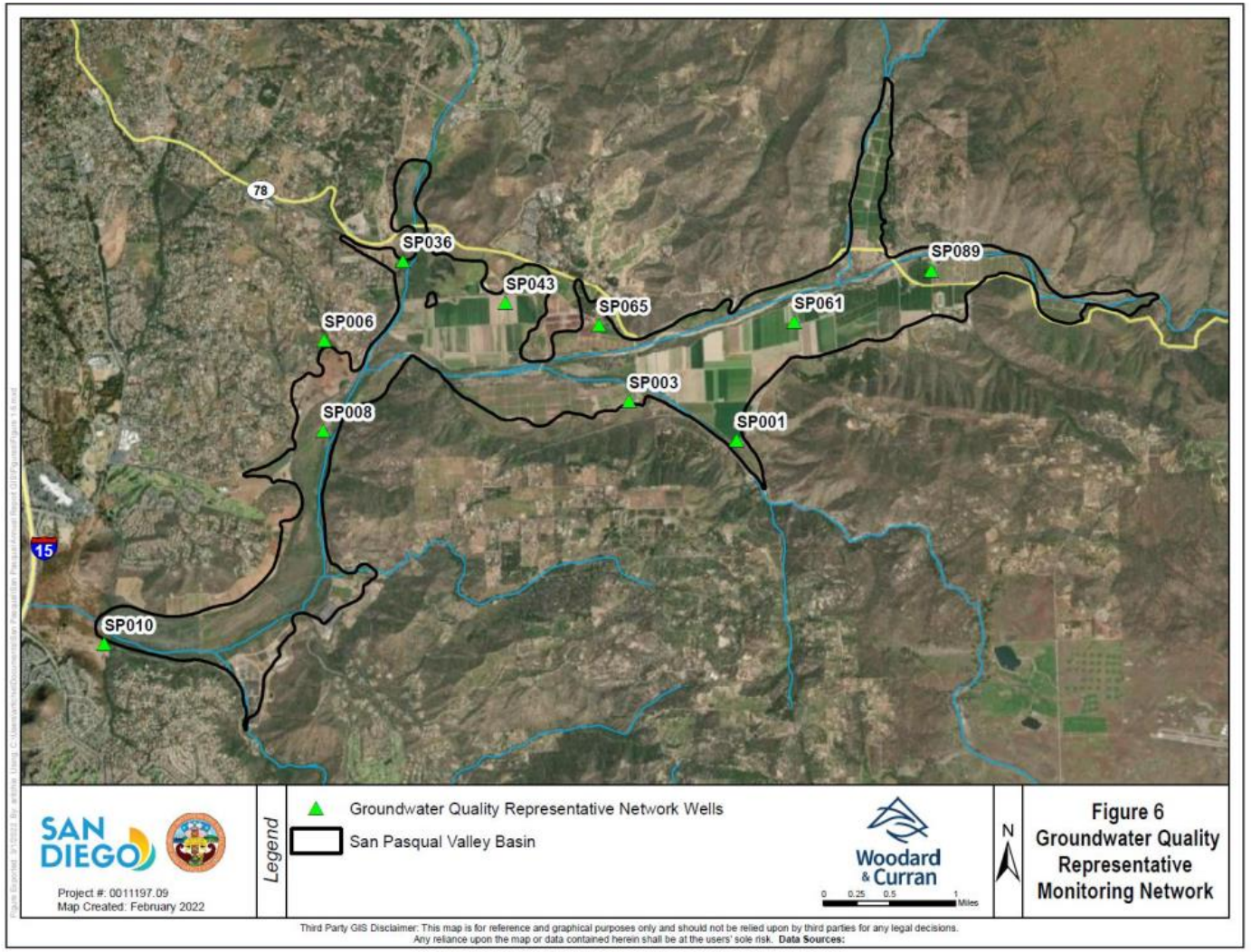
1. Revise the definition of undesirable results for degraded groundwater quality so that exceedances of minimum thresholds caused by groundwater extraction, whether they are a direct result of groundwater management activities or not, are considered in the assessment of undesirable results in the Basin

WHAT'S BEEN DONE:

- Groundwater quality sampling, completed the week of December 8th, 2025
- Historic analysis of TDS and nitrate groundwater concentrations
- Performed assessment of potential pollutant sources

SGMA requires that the GSA *"Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues."* **(SGMA, 23 CCR § 354).**

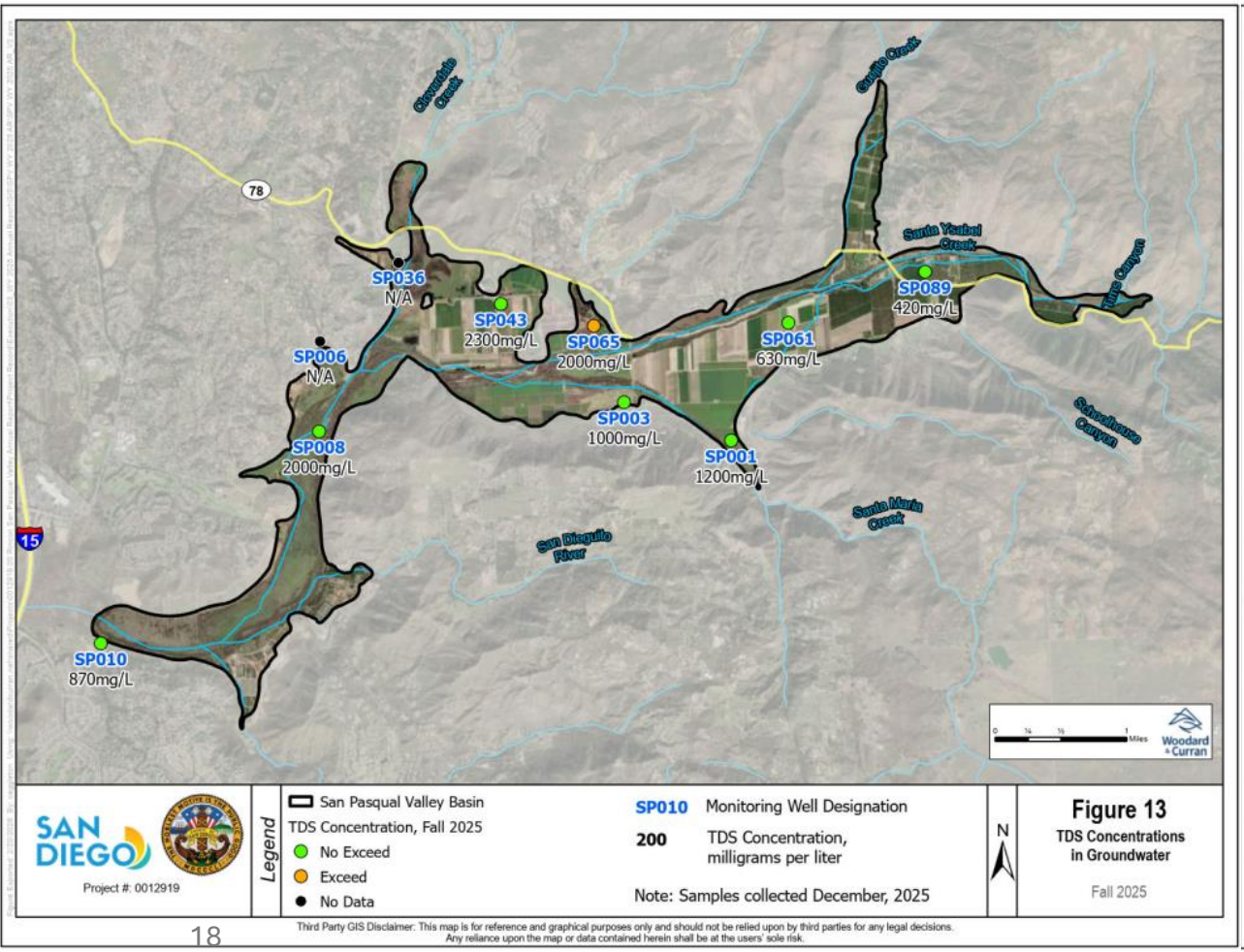
Groundwater Quality Monitoring Network



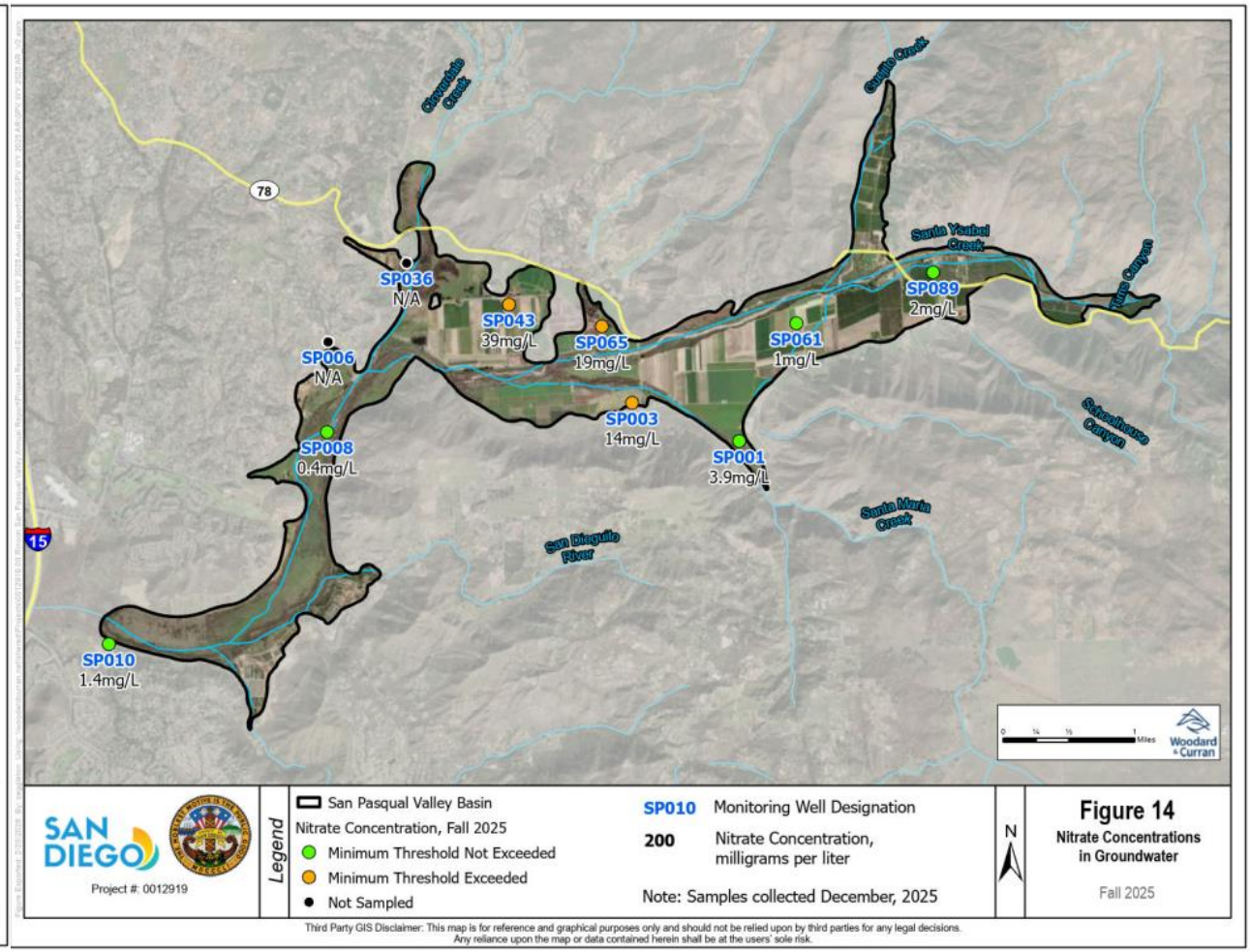
- Comprised of 10 representative monitoring wells
- Nitrate and TDS are the constituents of concern for GWQ
- GWQ data go back to the 1990s
- Most recent GWQ sampling event occurred December 8, 2025

December 2025 TDS and Nitrate Results

TDS:



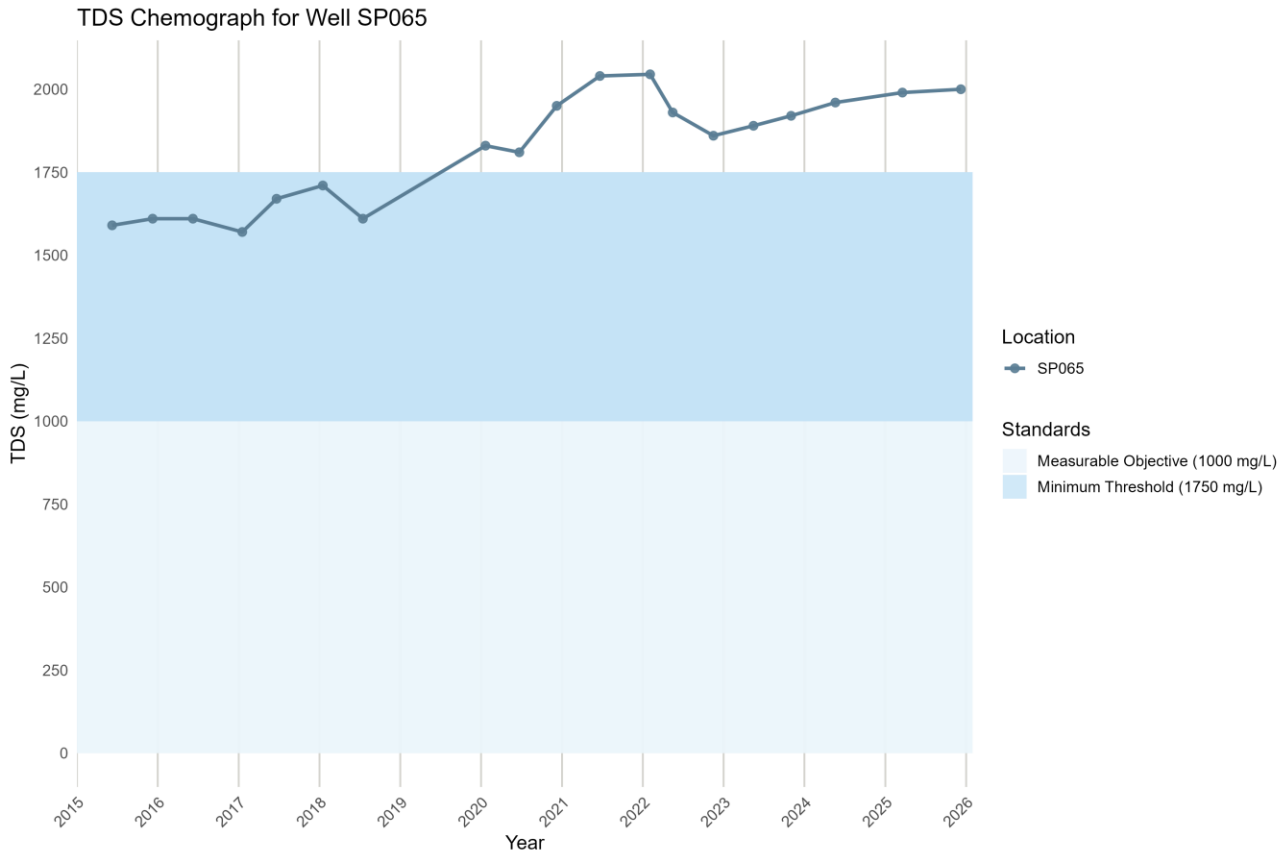
Nitrate:

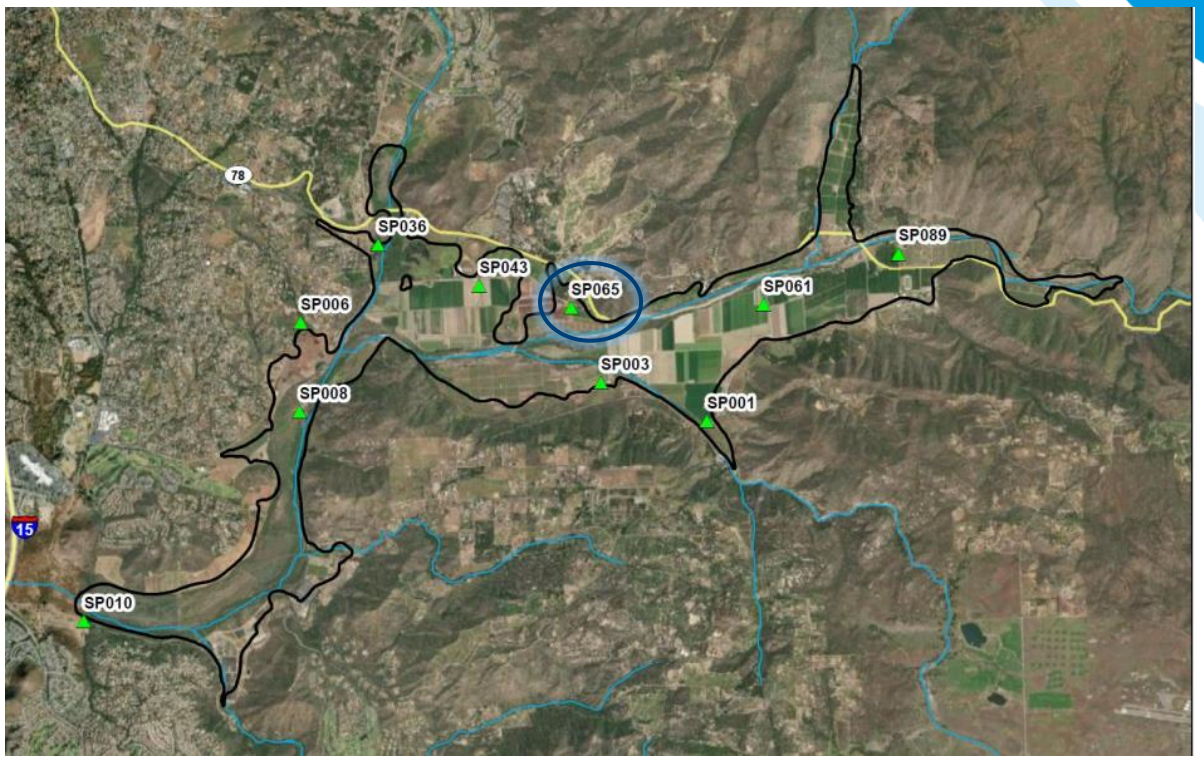


Overview of Historic Groundwater Nitrate Data

3 wells in the representative monitoring network have consistently exceeded the Nitrate MT in the timeframe of the Periodic Evaluation

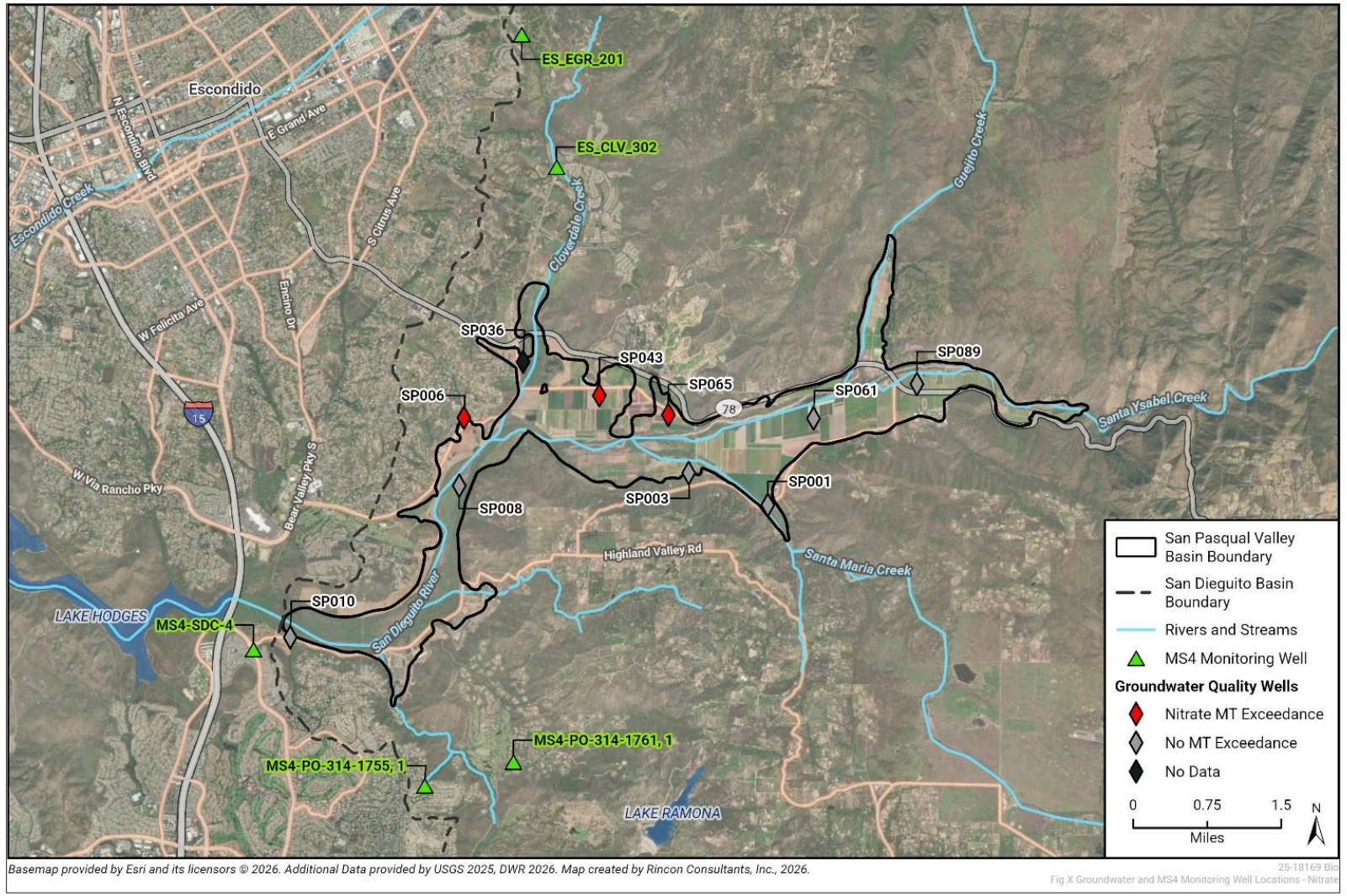
TDS MT Exceedance





Only one well has consistently exceeded its respective TDS MT historically and in the timeframe of the 5-Year Periodic Evaluation

Preliminary Conclusions of GWQ SMC



- Although several wells exceed MTs, these exceedances do not constitute URs under SGMA because exceedances were present prior to 2015 and do not appear to be caused by groundwater management activities
- 3 wells in the northern area of the Basin have increasing nitrate that exceeds the MT
- One well is also exceeding its TDS MT
- Exceedances not correlated to groundwater pumping
- Possible surface water runoff influence
- Upstream MS-4 wells continually exceeded the non-stormwater action level (NAL) for total nitrogen from 2022-2024

Groundwater Level SMC

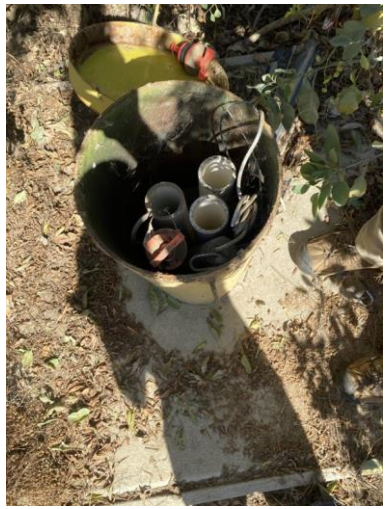
Progress

DWR CORRECTIVE ACTIONS:

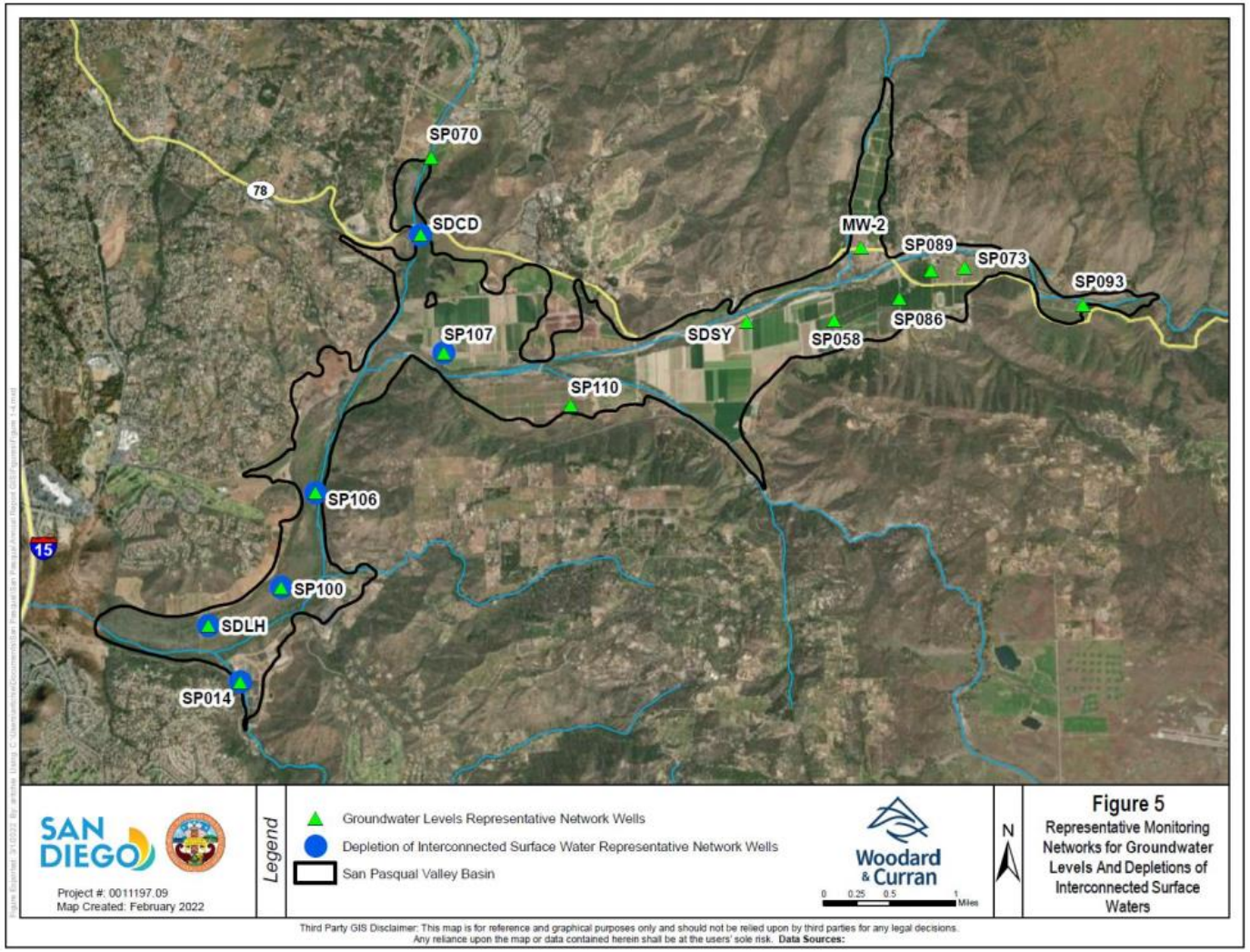
1. Evaluate the impacts of minimum thresholds on other beneficial uses and users, such as environmental uses and users (GDEs)
2. Improve the understanding of well construction details of monitoring sites in the existing networks
3. Evaluate how the minimum thresholds for the chronic lowering of groundwater levels may impact other sustainability indicators (e.g., subsidence, water quality, depletion of interconnected surface water, etc.)

WHAT'S BEEN DONE:

- October 2025 well survey
- Surveyed groundwater levels, total well depth, state of well
- Included wells inside and outside typical monitoring networks
- Gathering well construction logs
- Integrating historic and current groundwater levels with other SMCs

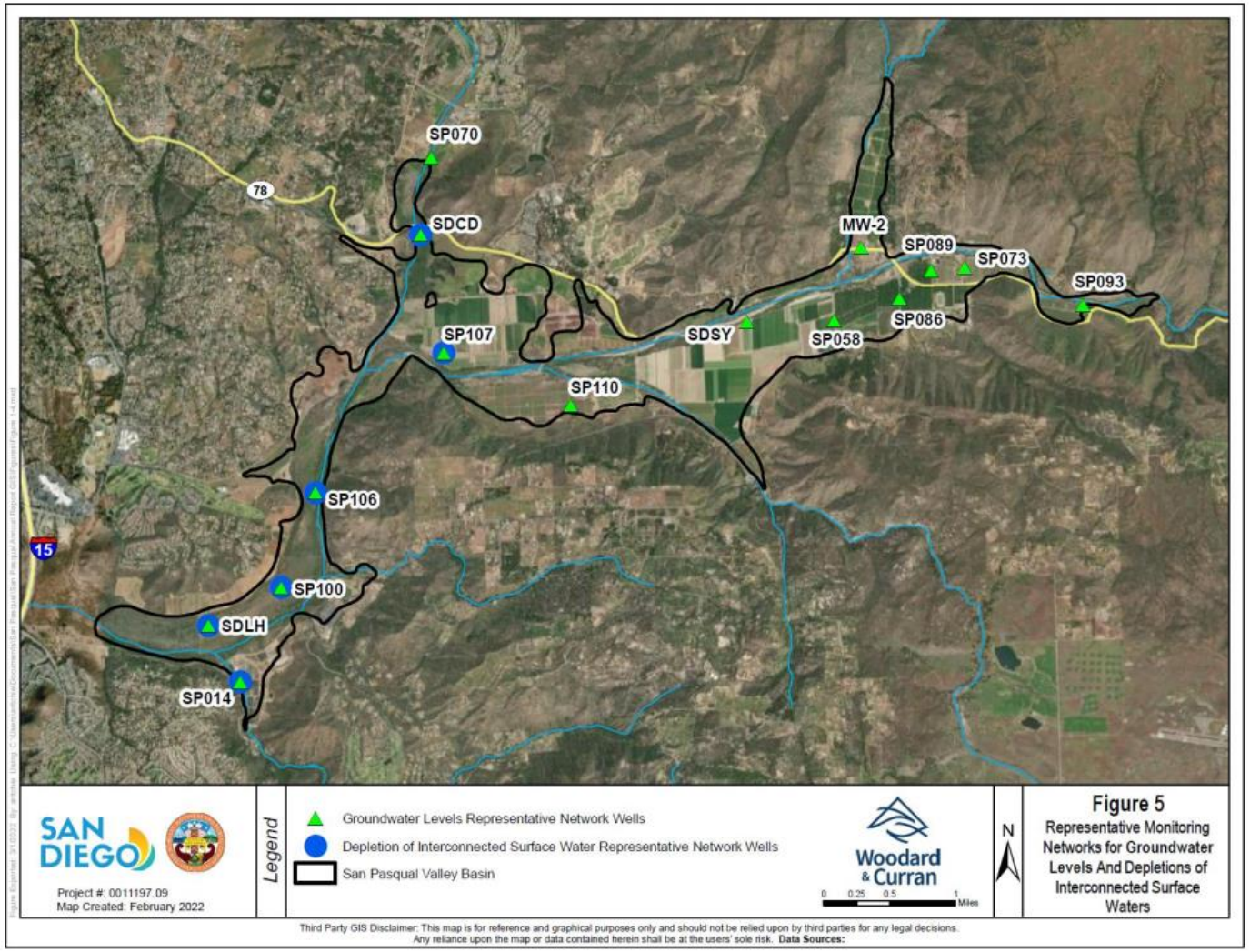


Groundwater Level Monitoring Network



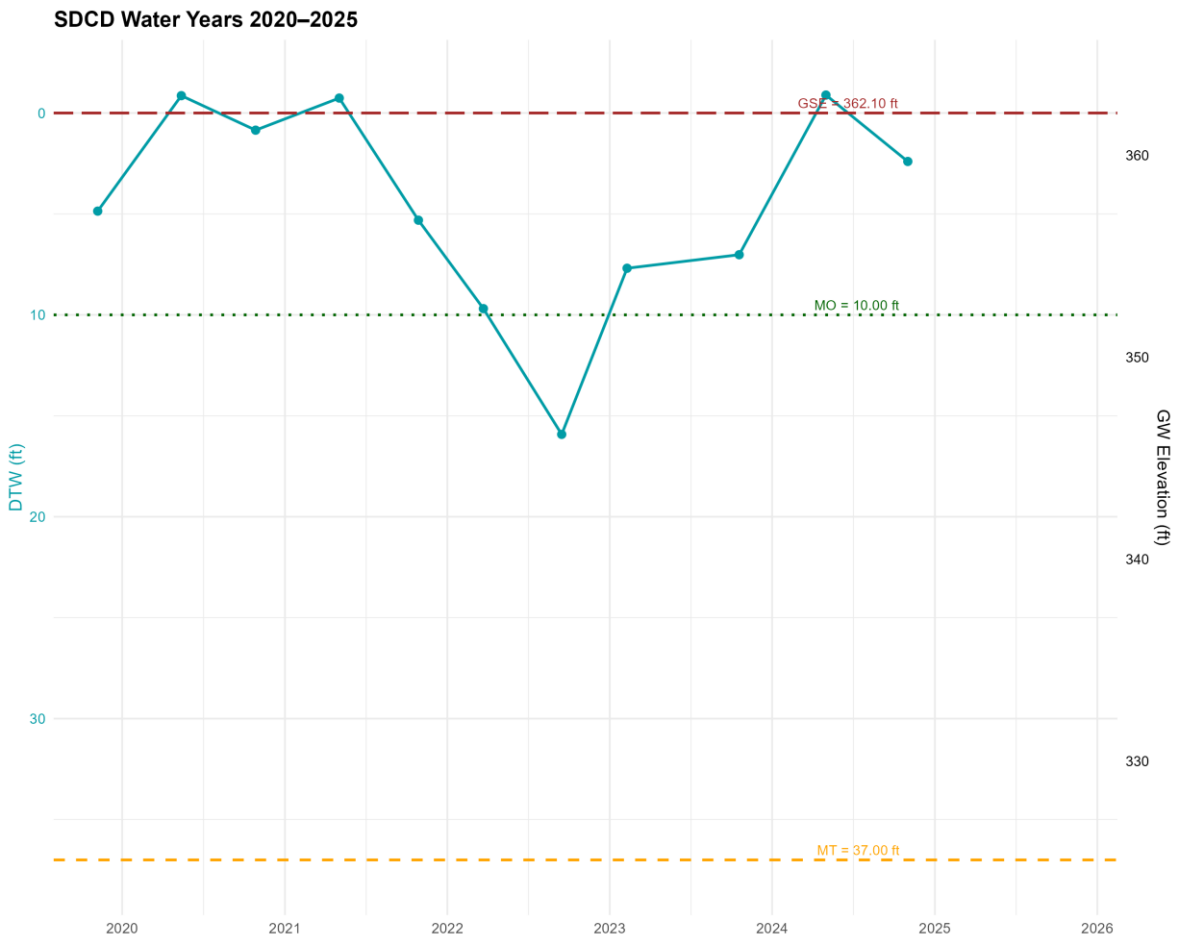
- Traditional groundwater level monitoring network used in Annual Reporting
- Comprised of 15 representative monitoring wells
- MTs for GWL vary depending on well and location

Groundwater Level Over Time

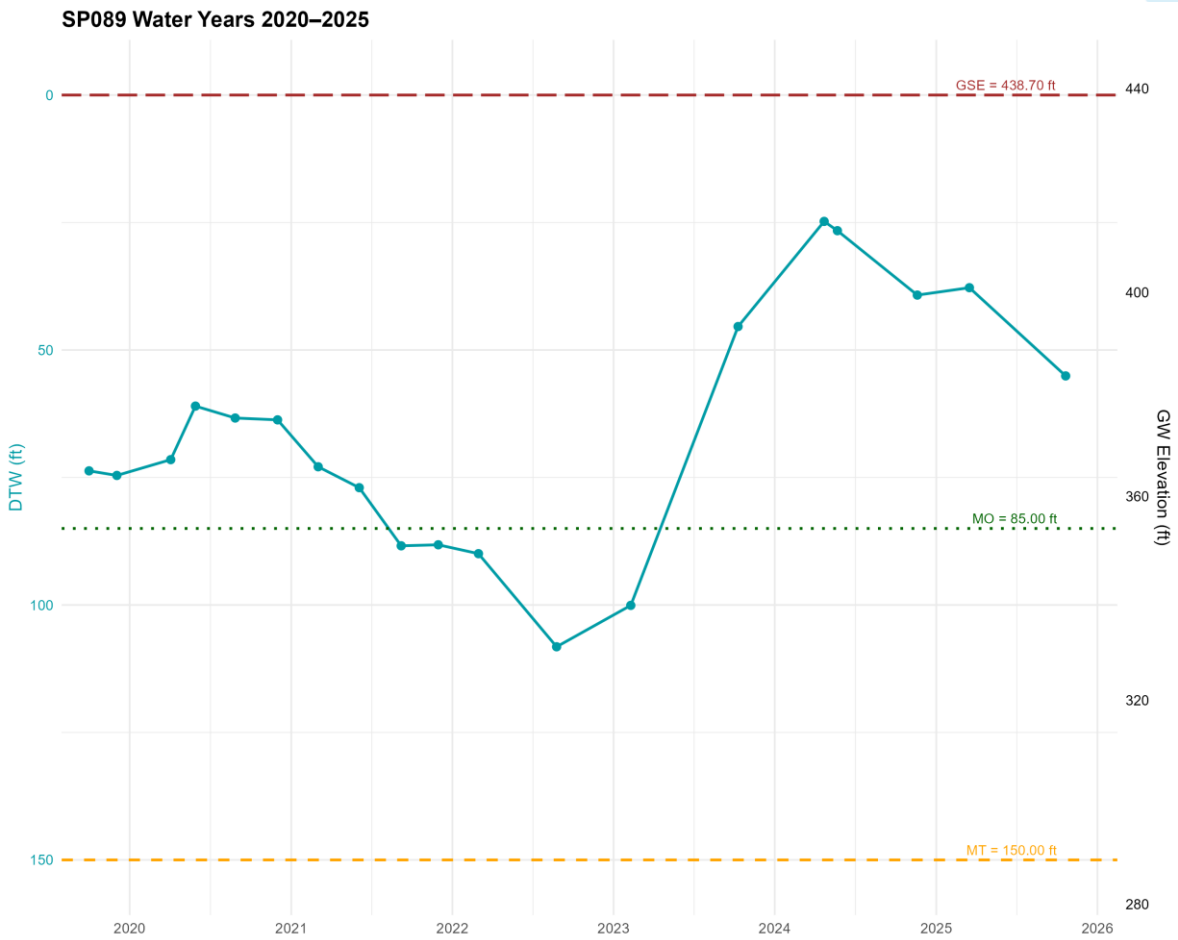


- No wells in the groundwater level monitoring network have fallen below their respective MTs in the period of record
- Groundwater level data go back to ~2005 for all wells in the network

Example Groundwater Level Data

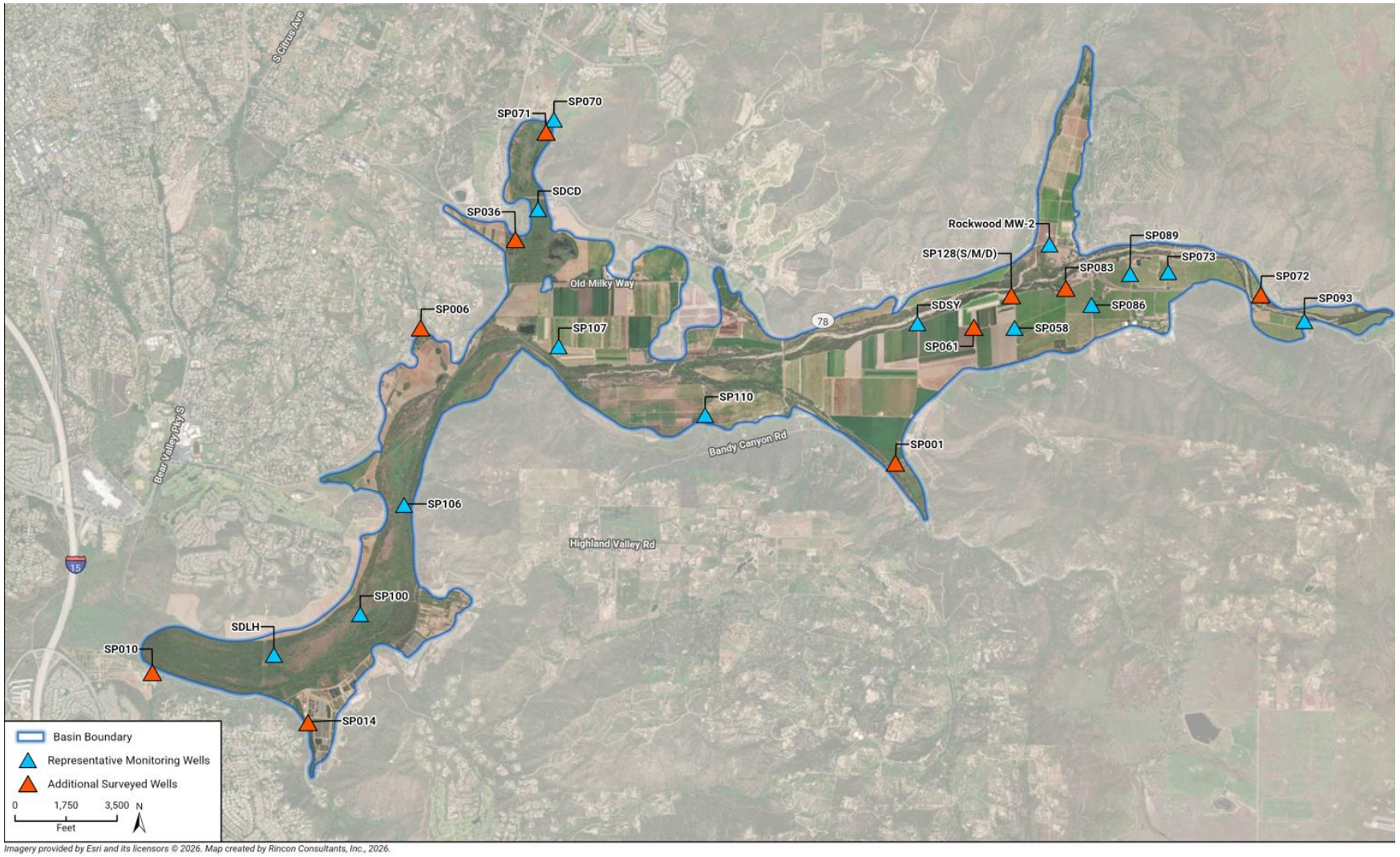


WESTERN BASIN



EASTERN BASIN

Wells Surveyed in October 2025



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Groundwater Storage SMC

Progress

DWR CORRECTIVE ACTIONS:

1. No specific DWR corrective actions pertaining to the groundwater storage SMC

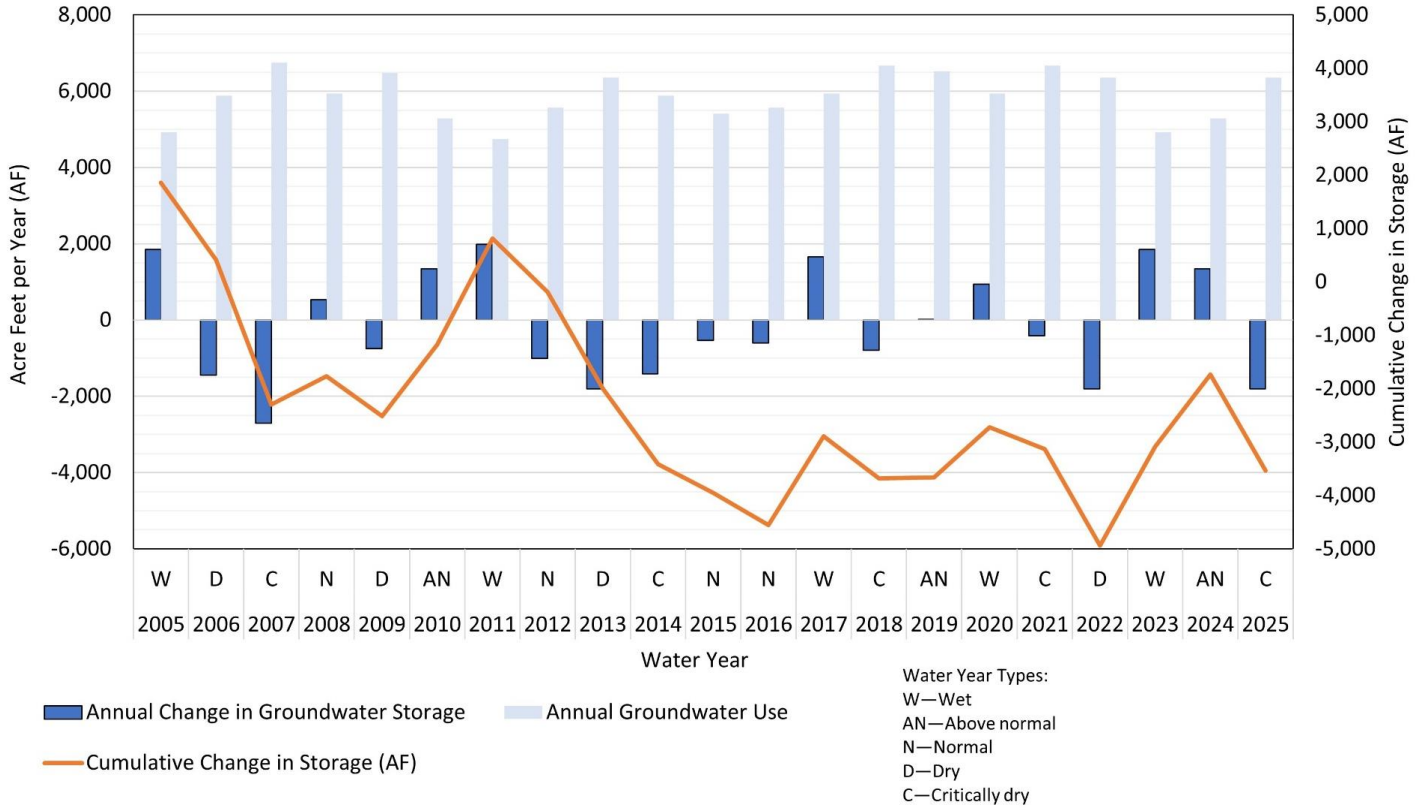
Groundwater storage is monitored by proxy through the measurement of groundwater levels as permitted by Title 23 CCR Section 354.28

WHAT'S BEEN DONE:

- Monitoring of groundwater levels in representative monitoring well network
- Estimation of groundwater storage in the SPV Basin over time in Annual Reports submitted to the DWR
- Secondary estimation of groundwater storage is part of the groundwater model update

SGMA defines groundwater storage as "*the amount of usable water that remains in an aquifer after natural recharge and precipitation have been accounted for. It is a critical measure for assessing the sustainability of groundwater basins and determining the need for groundwater management interventions.*"

Simulated Groundwater Storage Over Time



- Steady annual groundwater use over time
  - Slightly variable, dependent on water year type
- Groundwater storage decreases in dry and critically dry years
  - 2011-2016 was a historical drought in California
- Net decrease in groundwater storage since 2005
  - However, storage has been relatively stable since the adoption of SGMA and in the timeframe of the 5-Year Periodic Evaluation

Interconnected Surface Waters SMC

Progress

DWR CORRECTIVE ACTIONS:

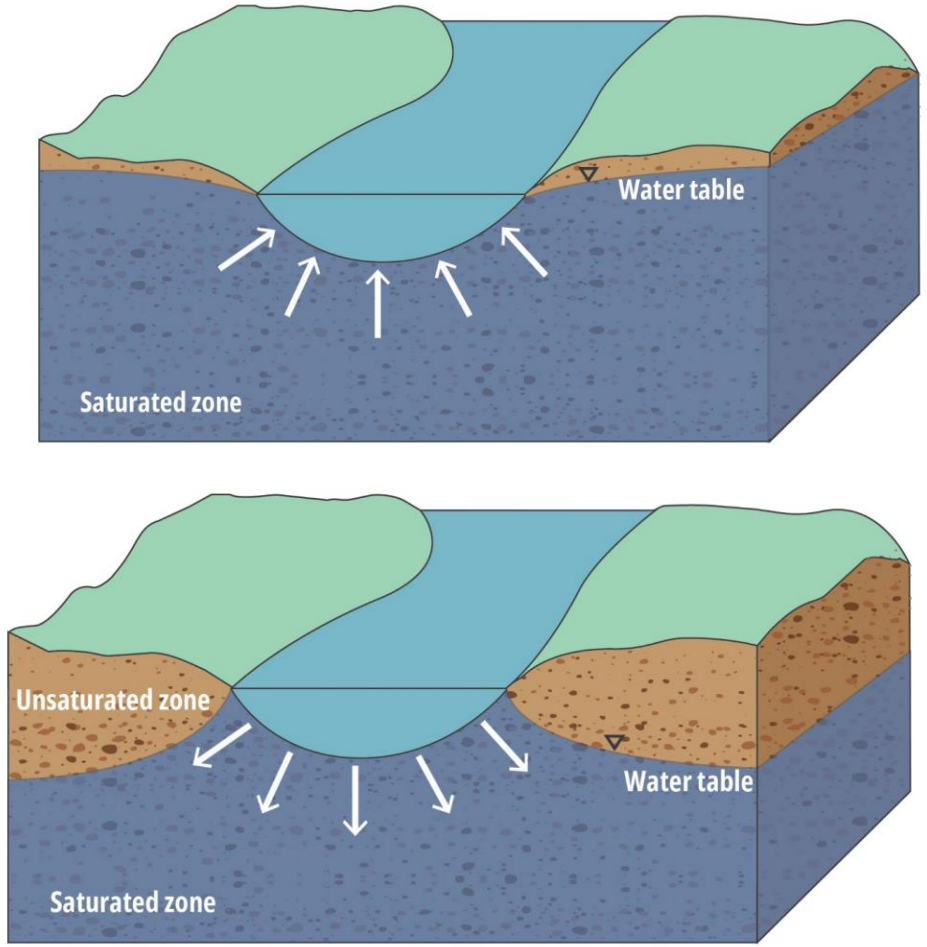
1. Revise the definition of undesirable results to be a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.
2. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define [stream] segments of interconnectivity and timing.
3. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies, as well as interested parties, to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSA's jurisdictional area.

WHAT'S BEEN DONE:

- October 2025 well survey to gather additional data for ISW monitoring network
- Updated desktop analysis of streambed elevation and groundwater levels
- Groundwater Dependent Ecosystems (GDE) Study underway

SGMA defines interconnected surface water as "*surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted.*" **(SGMA, 23 CCR § 351).**

Interconnected Surface Waters



- Areas where surface water is hydraulically connected to groundwater via saturated soil
- Stream reaches with ISW can provide groundwater-dependent aquatic habitat and be associated with GDEs
- Decreasing groundwater levels can deplete surface water level and streamflow

Source: DWR. 2025. *Depletions of Interconnected Surface Water: An Introduction.*

Interconnected Surface Waters Monitoring Network

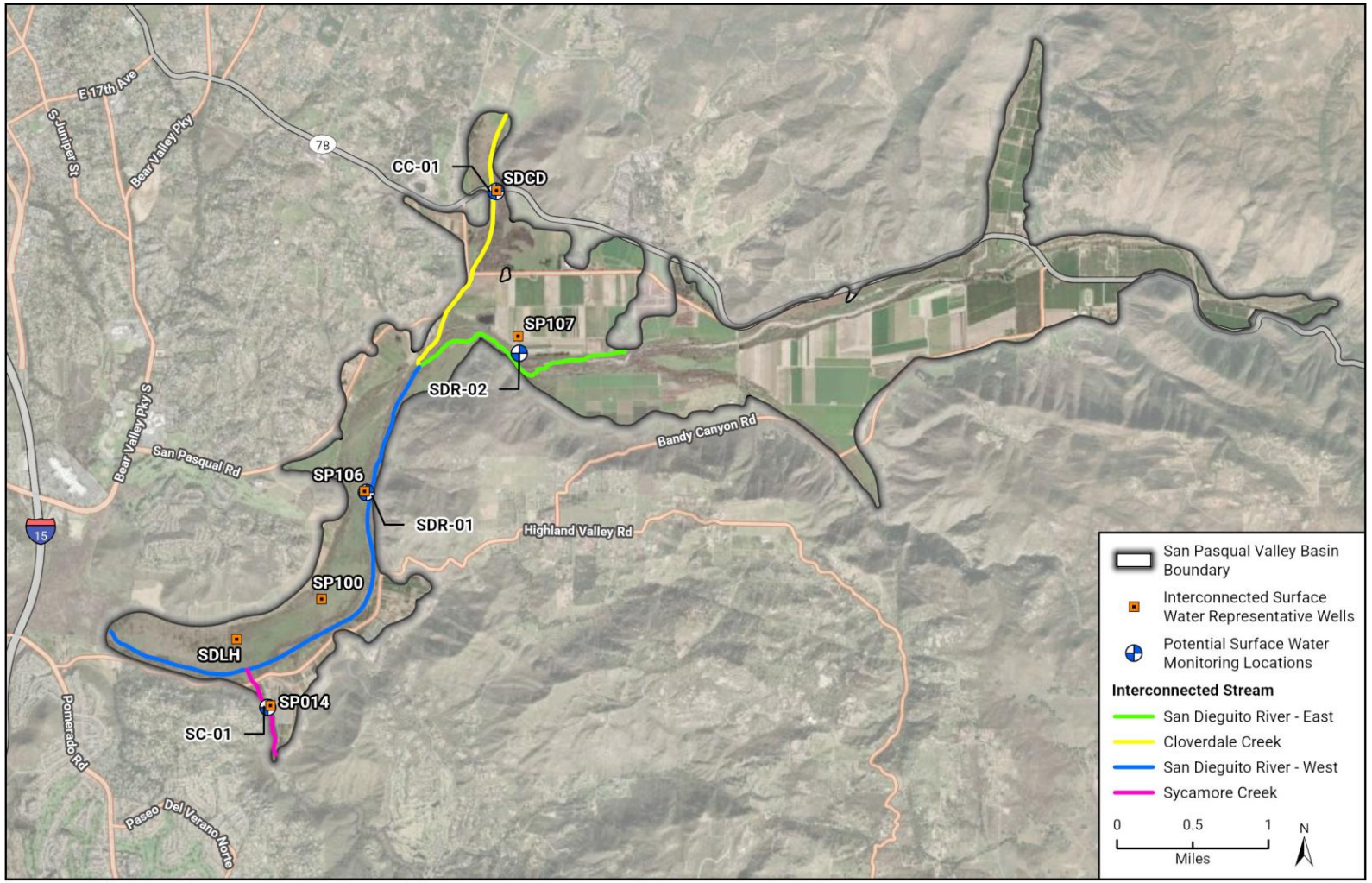


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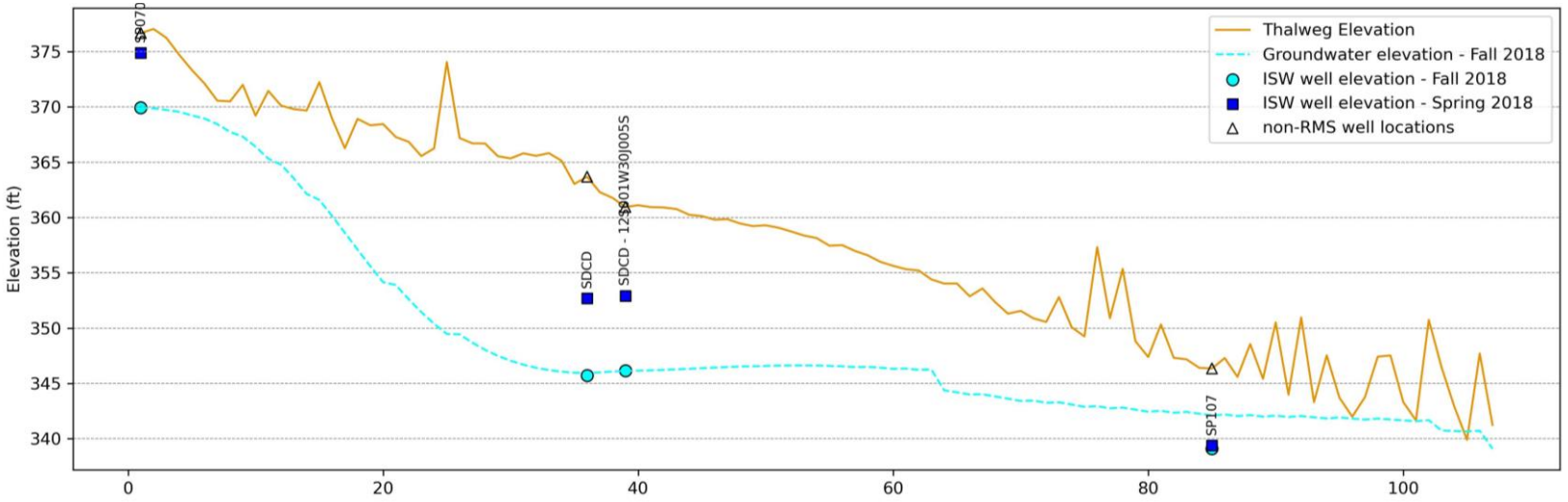
Fig X Interconnected Surface Water Representative Wells and Surface Water Monitoring Locations

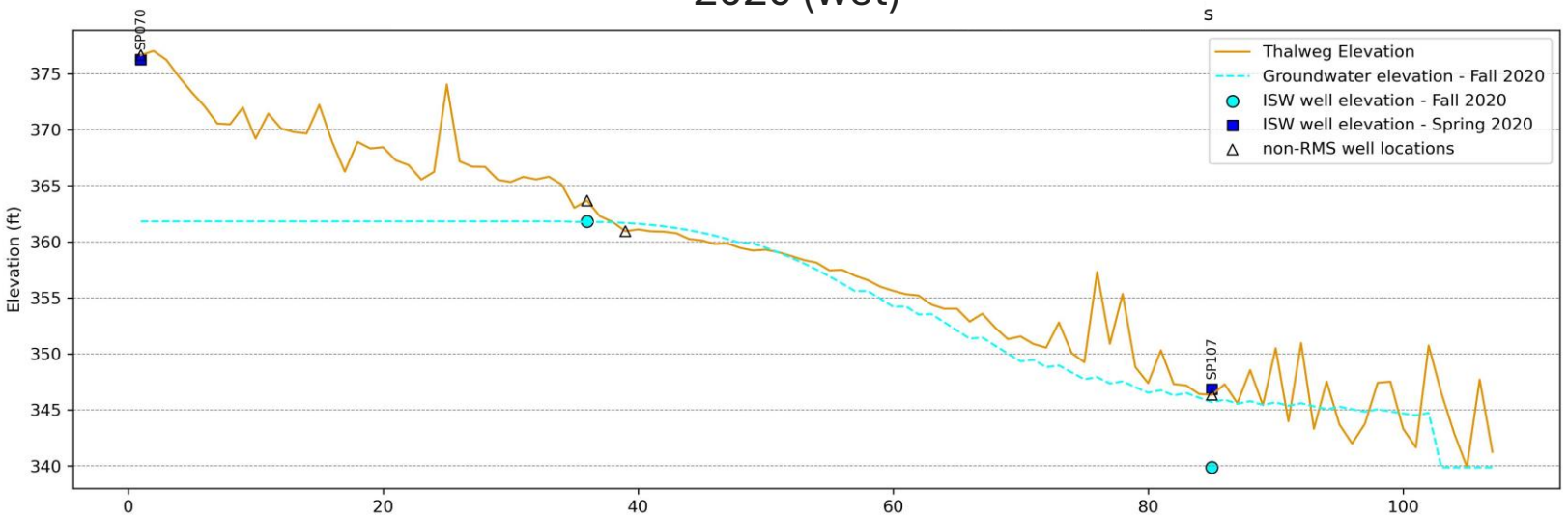
- Areas with potential ISW identified in the Western basin– Cloverdale Creek, Upper San Dieguito Creek, Lower San Dieguito Creek, Sycamore Creek
- ISW monitoring network comprised of 6 wells in the western half of the basin
- ISW wells are within 2,000 feet of areas of potential ISW and GDEs

Interconnected Surface Waters

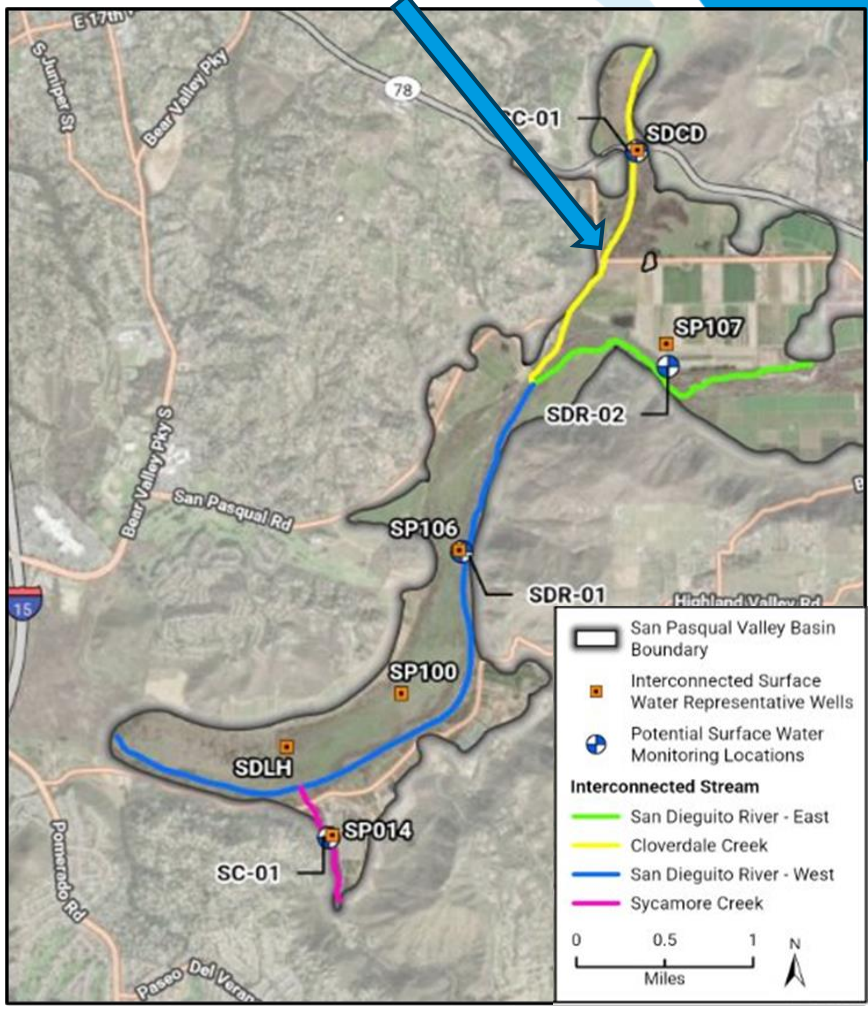
2018 (critically dry)



2020 (wet)

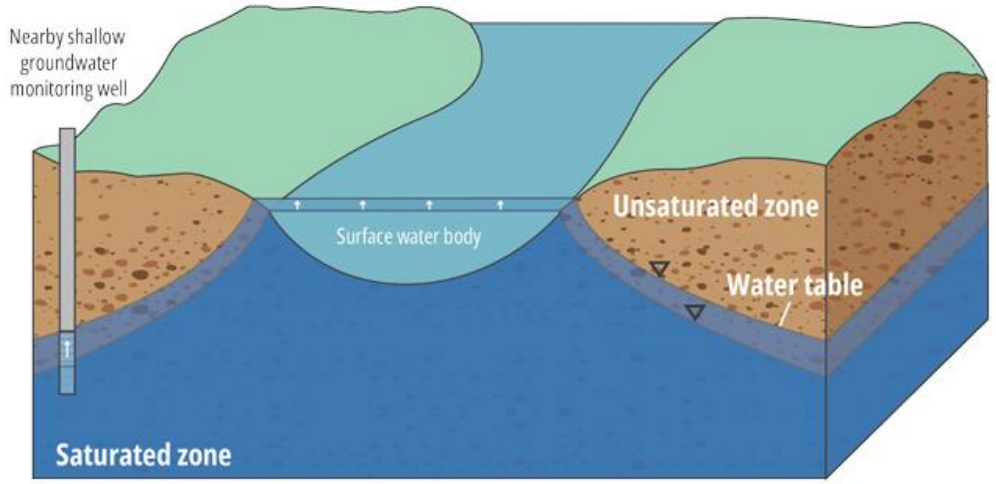


Cloverdale Creek



Interconnected Surface Waters

- ISWs are located in the western basin
- Interconnectivity in these intermittent streams is transient and varies seasonally and with climatic conditions
- Beneficial users of ISWs could include aquatic species within GDEs
- Recommendations to improve understanding of ISWs within the Basin:
  - Annual stream surveys within potential ISW areas
  - Stream flow data, stream level data
  - Increased water level measurements at ISW wells
  - Analysis of pressure transducer data
- DWR is developing additional ISW guidance



San Pasqual Valley Basin Groundwater Dependent Ecosystems Study

Progress

DWR CORRECTIVE ACTIONS:

1. Conduct the proposed GDE study, as described in Management Action 8, prior to the first periodic evaluation of the Plan
2. Update minimum thresholds and undesirable results quantification based on the best available science and information, including information gained from the proposed GDE study

WHAT'S BEEN DONE:

- Preliminary GDE Study completed in 2020 (Appendix J of GSP)
- Initial surface water recharge evaluation and GDE technical memorandum completed in 2024
- GDE field survey completed in January 2026
- Full GDE Study underway

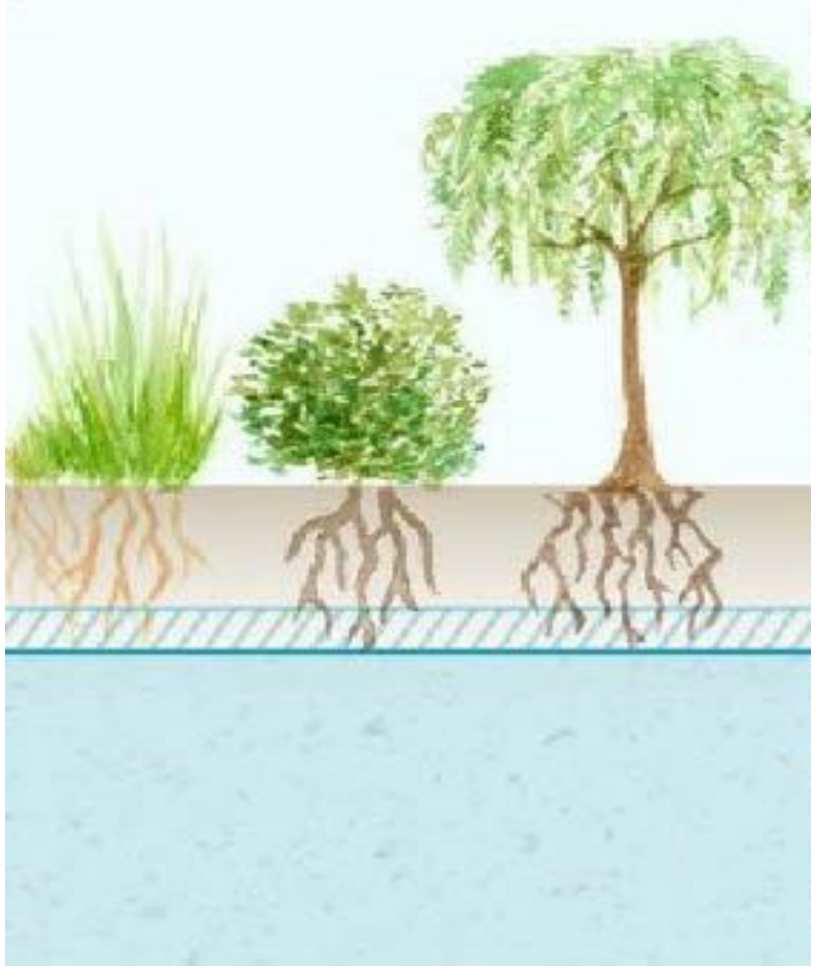
SGMA defines groundwater dependent ecosystems (GDEs) as "*ecological communities of species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface*" (SGMA, 23 CCR § 351[m]).

Groundwater Dependent Ecosystems

GDE STUDY INCLUDES:

- GDE Identification
- GDE Characterization
- GDE Impact Analysis
- Recommendations

Ecological communities are groundwater dependent if they "*rely on groundwater for all or a portion of their water needs*" (Rohde et al 2018)



Adapted from Rohde et al. 2017

Groundwater Dependent Ecosystems

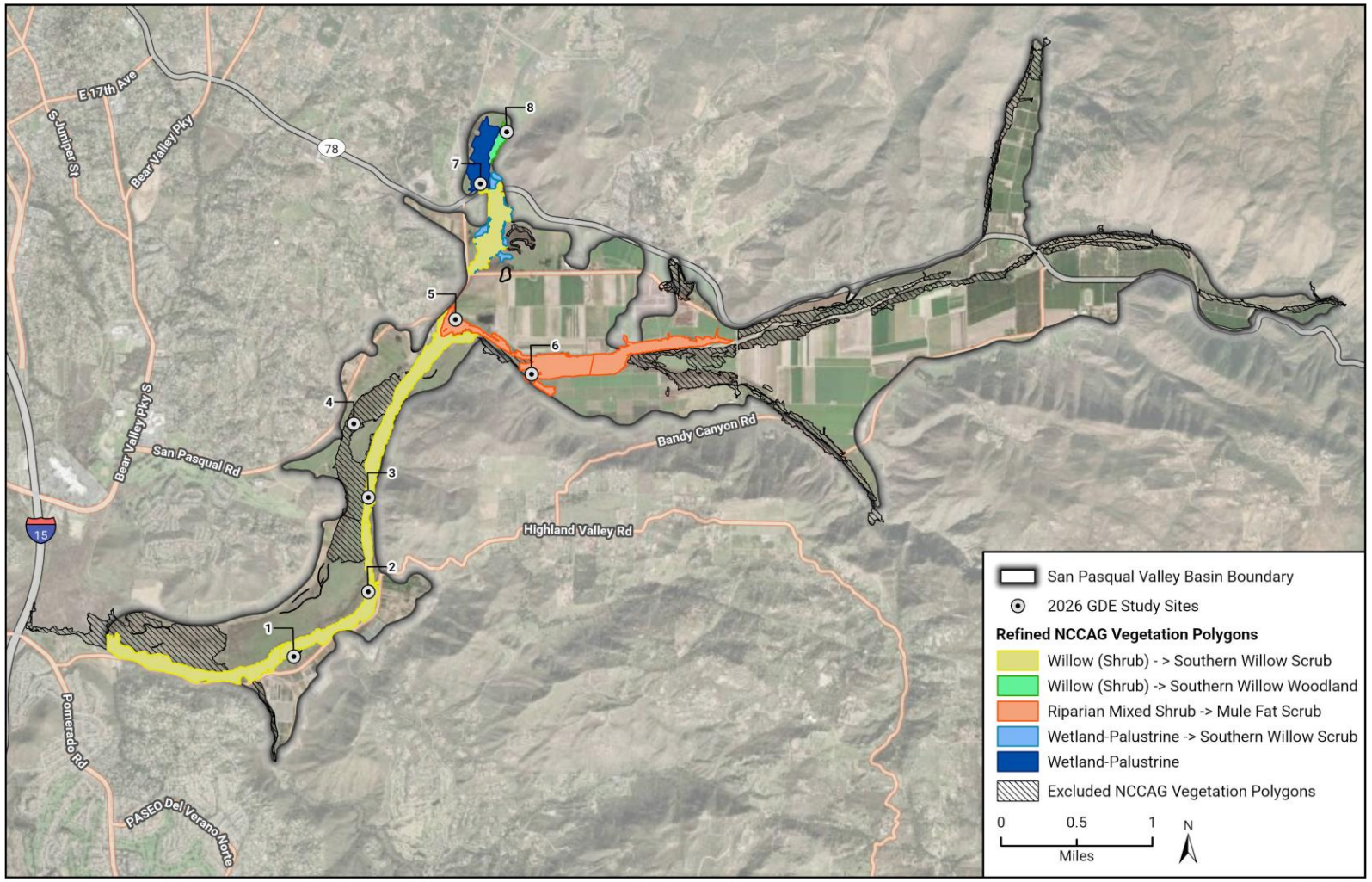


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Fig 4 Refined Potential GDE Map

GDE IDENTIFICATION

- Potential GDE Map
- Refined based on:
  - Aerial imagery
  - Previous GDE studies
  - DTW data
  - January 2026 field survey

Groundwater Dependent Ecosystems

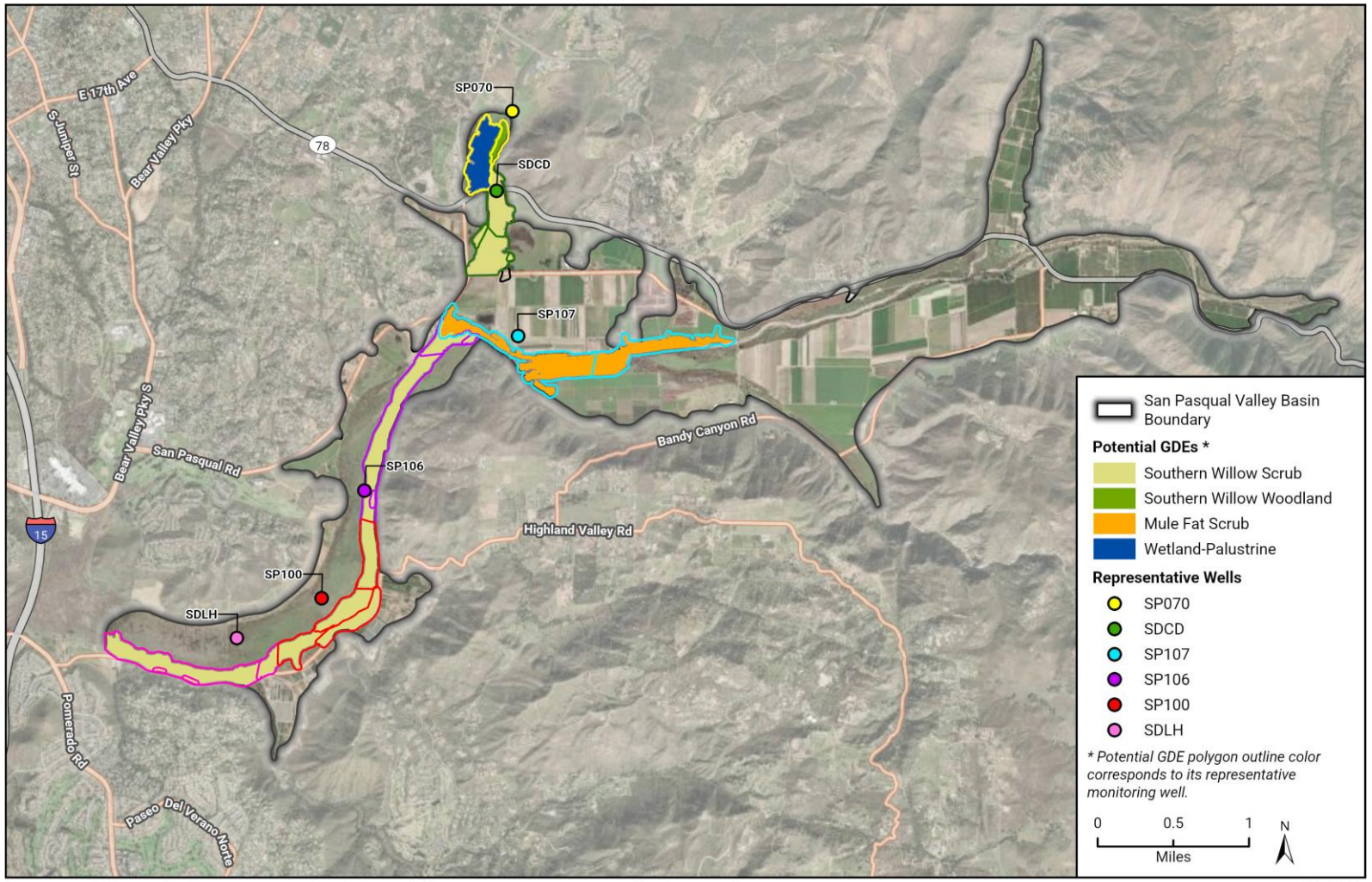

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Fig 5 Potential GDEs and Representative Groundwater Wells

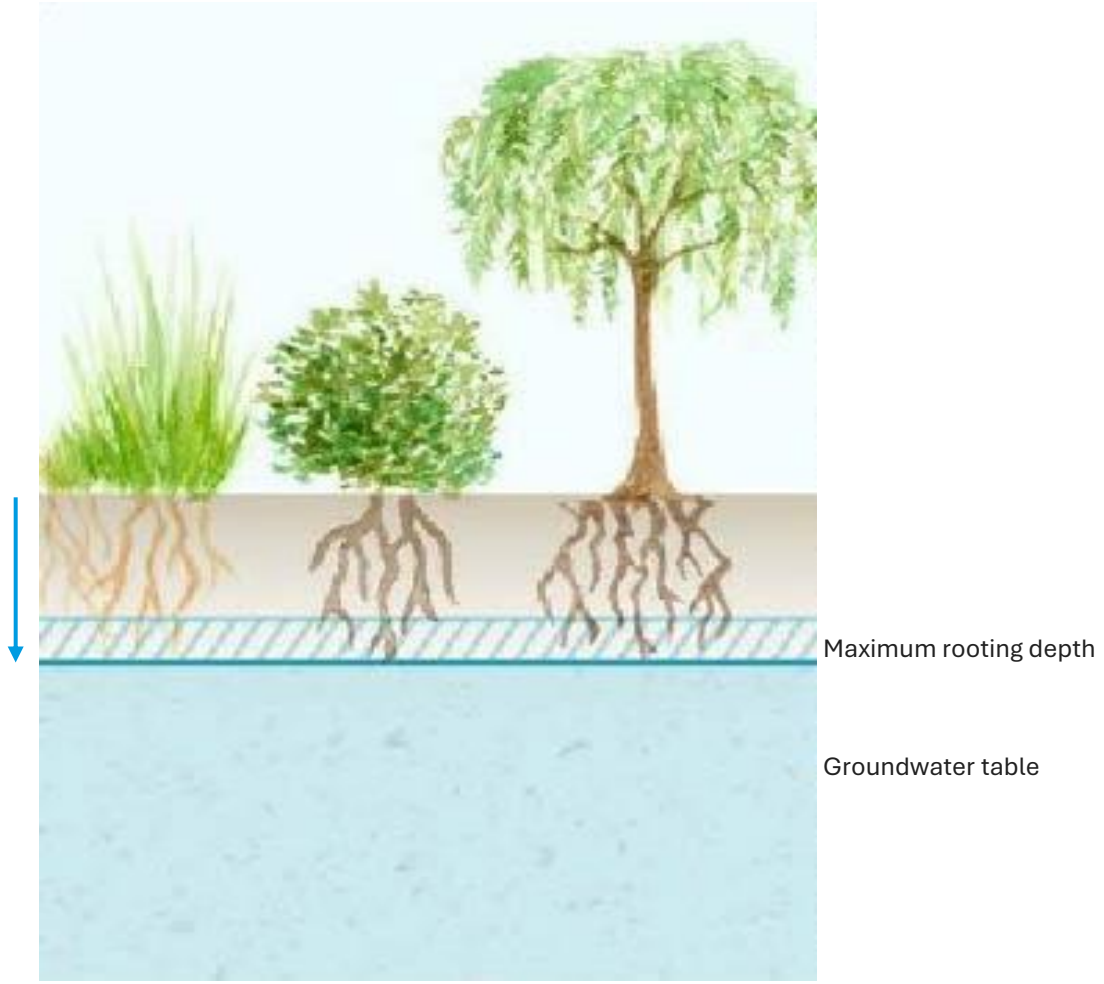
GDE IDENTIFICATION

- Representative groundwater wells
- Maximum rooting depth of dominant native plant species

Groundwater Dependent Ecosystems

GDE IDENTIFICATION

- GIS spatial analysis of maximum rooting depth and groundwater level data



Adapted from Rohde et al. 2017

Groundwater Dependent Ecosystems

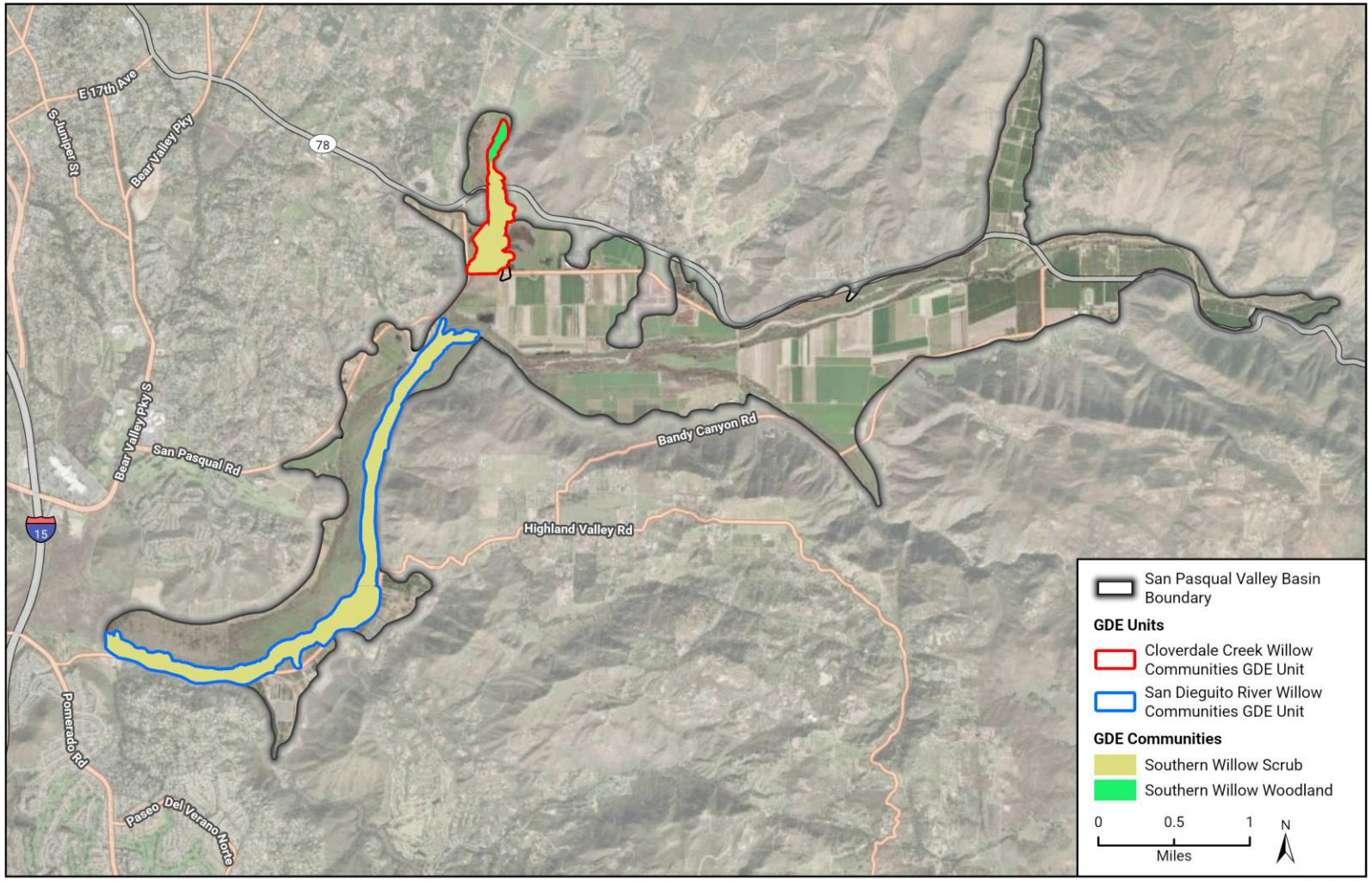


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Fig 6 GDE Units in the SVP Basin

GDE IDENTIFICATION

GDE Units:

- Cloverdale Creek Willow Communities
  - *Southern Willow Woodland and Southern Willow Scrub*
- San Dieguito River Willow Communities
  - *Southern Willow Scrub*

Groundwater Dependent Ecosystems

GDE CHARACTERIZATION

- Primarily Southern Willow Scrub communities
- Federally Designated Critical Habitat – Arroyo Toad
- City of SD Multi-Habitat Planning Area
- Riparian habitat for many bird species
- Wildlife corridors

Federally endangered arroyo toad

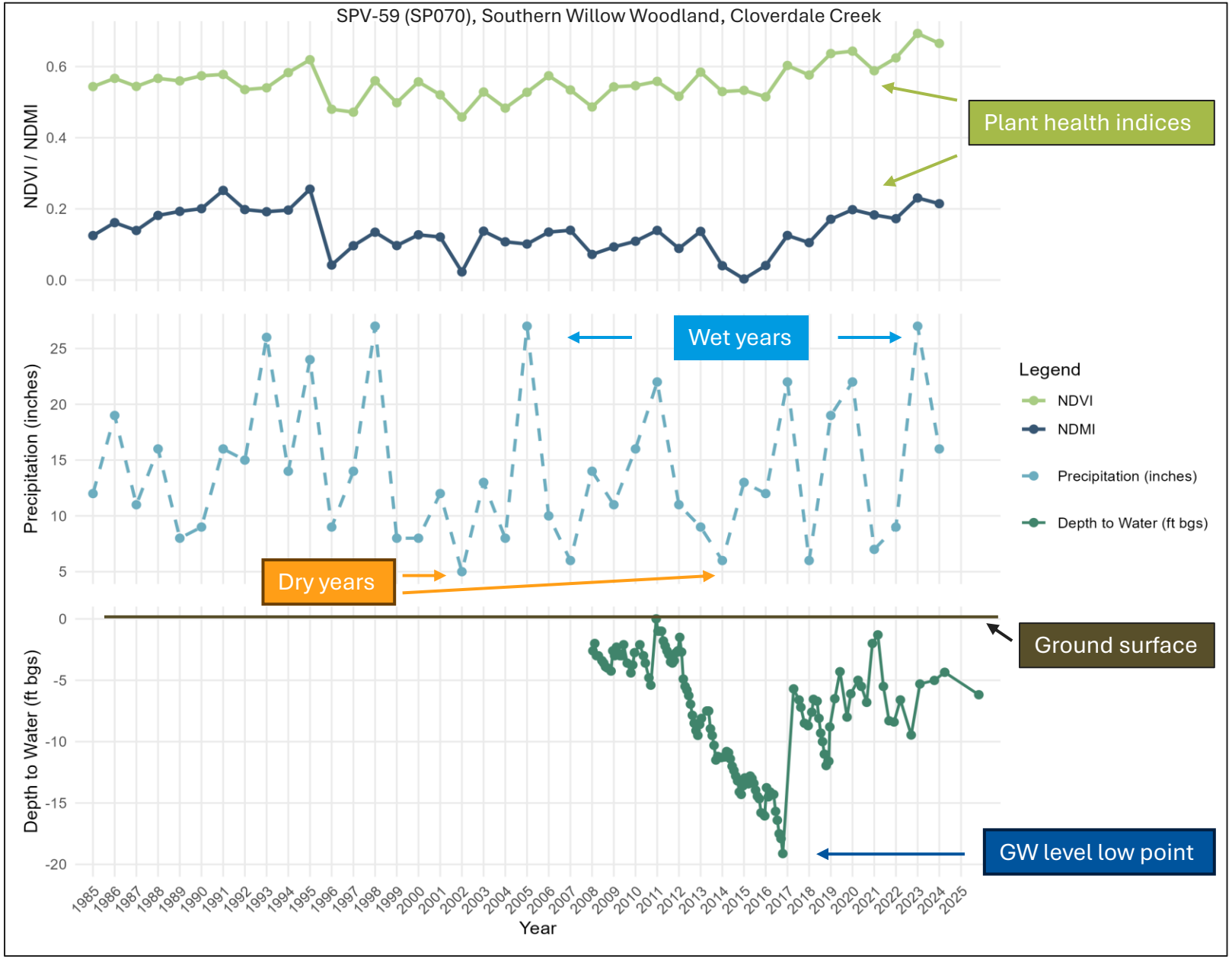
Federally endangered least Bell's vireo

Groundwater Dependent Ecosystems

GDE IMPACT ANALYSIS

Analysis of long-term trends in:

- Plant health indices (NDVI/NDMI)
- Precipitation
- Groundwater conditions



Groundwater Dependent Ecosystems

GDE STUDY CONCLUSIONS

- GDEs consist of willow communities in western Basin
- GDEs provide habitat for many wildlife species
- Plant health indices within GDEs have remained relatively consistent since 1985
- URs, MTs, and MOs will be reviewed and updated to ensure protection of GDEs
- Recommendations include long-term GDE monitoring

Land Subsidence SMC

Progress

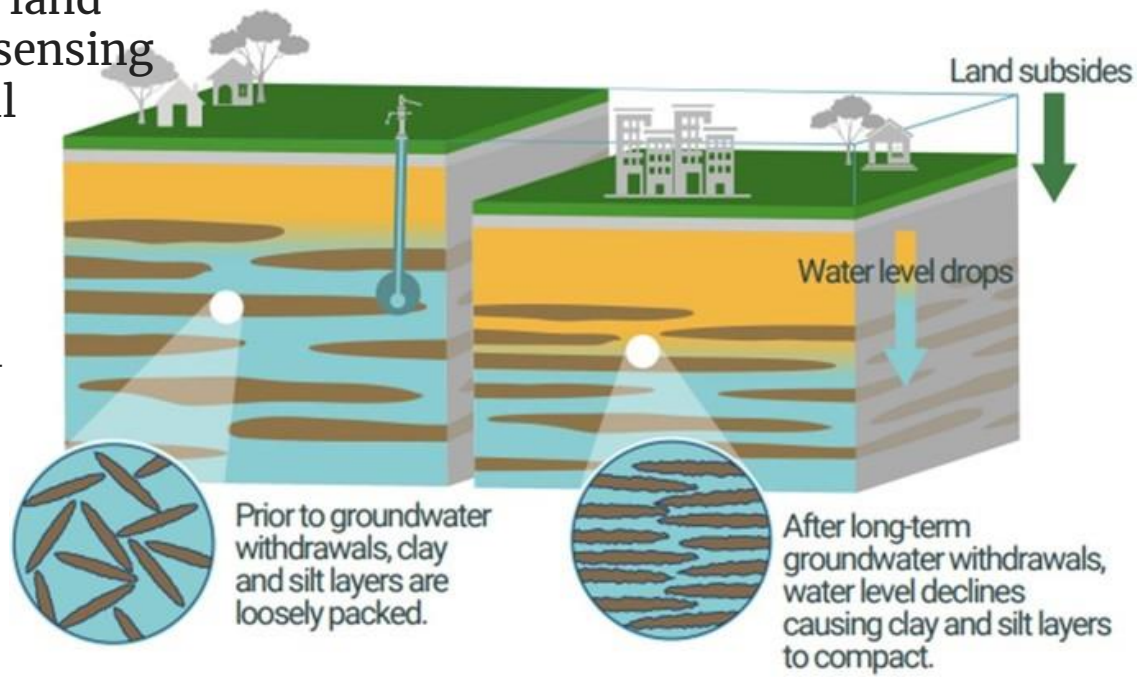
DWR CORRECTIVE ACTIONS:

1. Establish sustainable management criteria and a monitoring network for land subsidence as required by the GSP Regulations
2. Establish a monitoring network for land subsidence that directly measures land elevation change, such as remote sensing data, survey monuments, or global positioning system stations

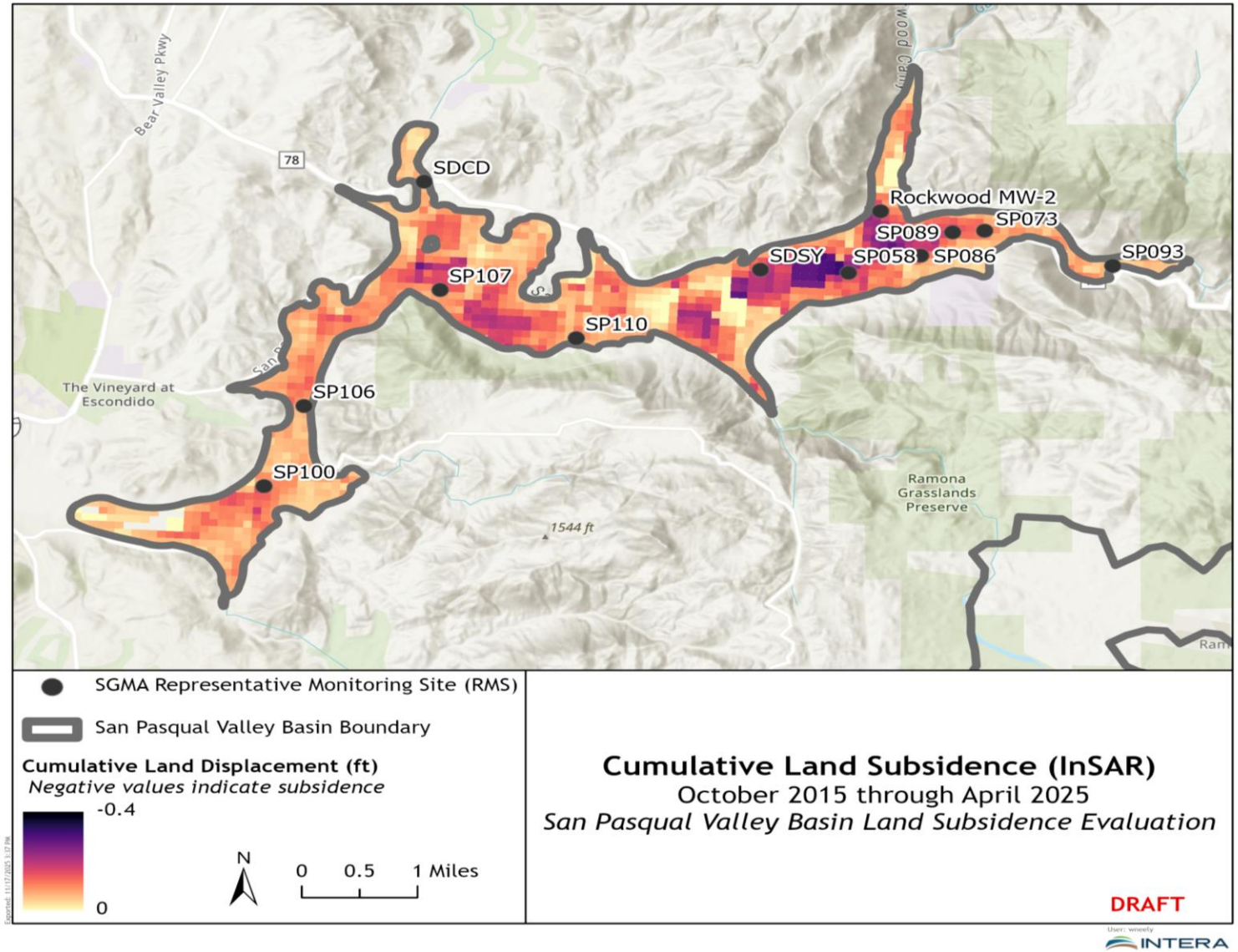
https://water.ca.gov/Programs/Groundwater-Management/Subsidence

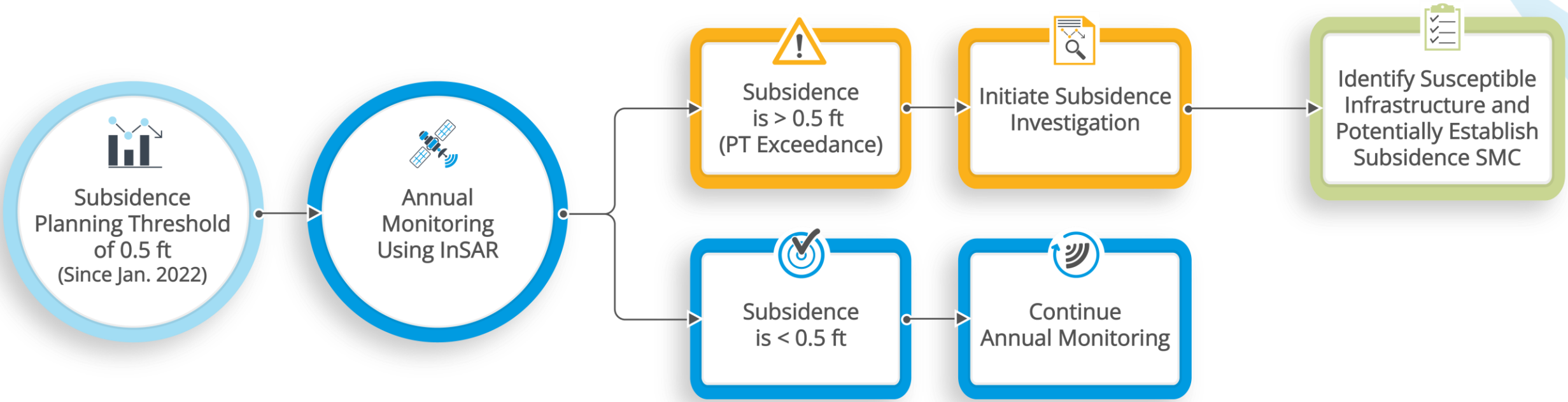
WHAT'S BEEN DONE:

- Analysis of InSAR data 2015-2025
- Reprocessing and Corrections
- Maximum 0.4 ft Subsidence observed
- Utilizes remote sensing elevation change data



Land Subsidence in the SPV Basin



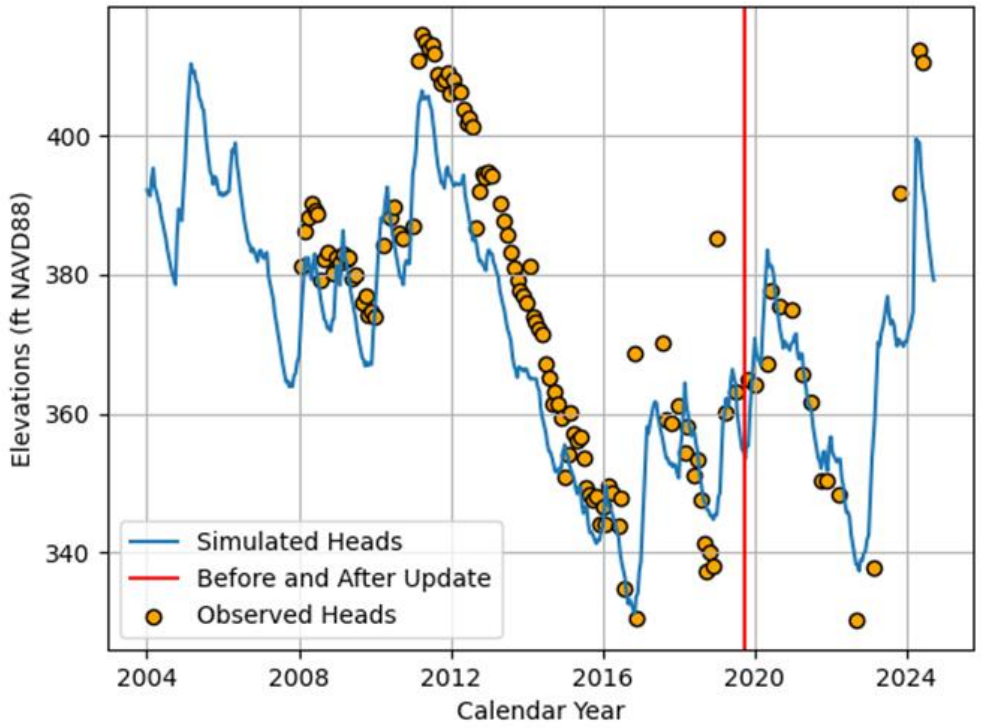

Subsidence Planning Threshold of 0.5 ft (Since Jan. 2022)
Annual Monitoring Using InSAR
Subsidence is > 0.5 ft (PT Exceedance)
Initiate Subsidence Investigation
Identify Susceptible Infrastructure and Potentially Establish Subsidence SMC
Subsidence is < 0.5 ft
Continue Annual Monitoring

San Pasqual Valley Basin Groundwater Model Overview and Updates

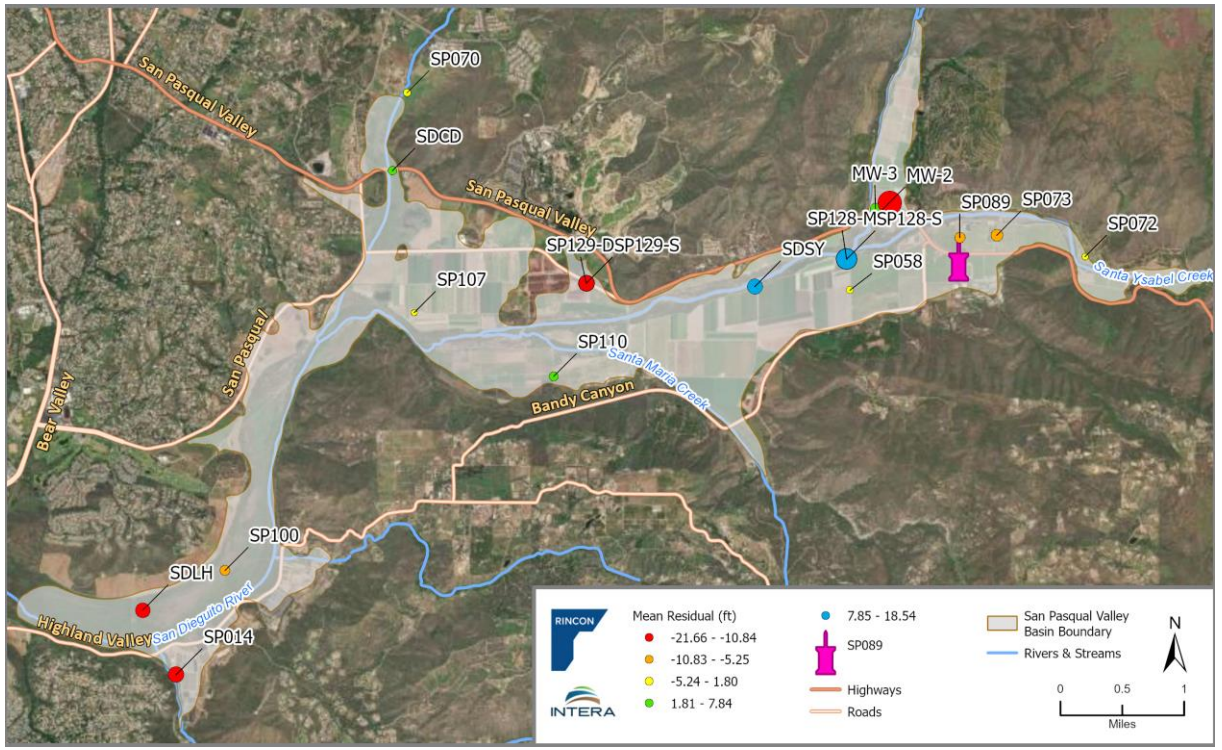
Modeling Results: Preview of 3rd Community Workshop

THE 3RD COMMUNITY WORKSHOP WILL PRESENT:

Comparison of simulated and observed groundwater levels



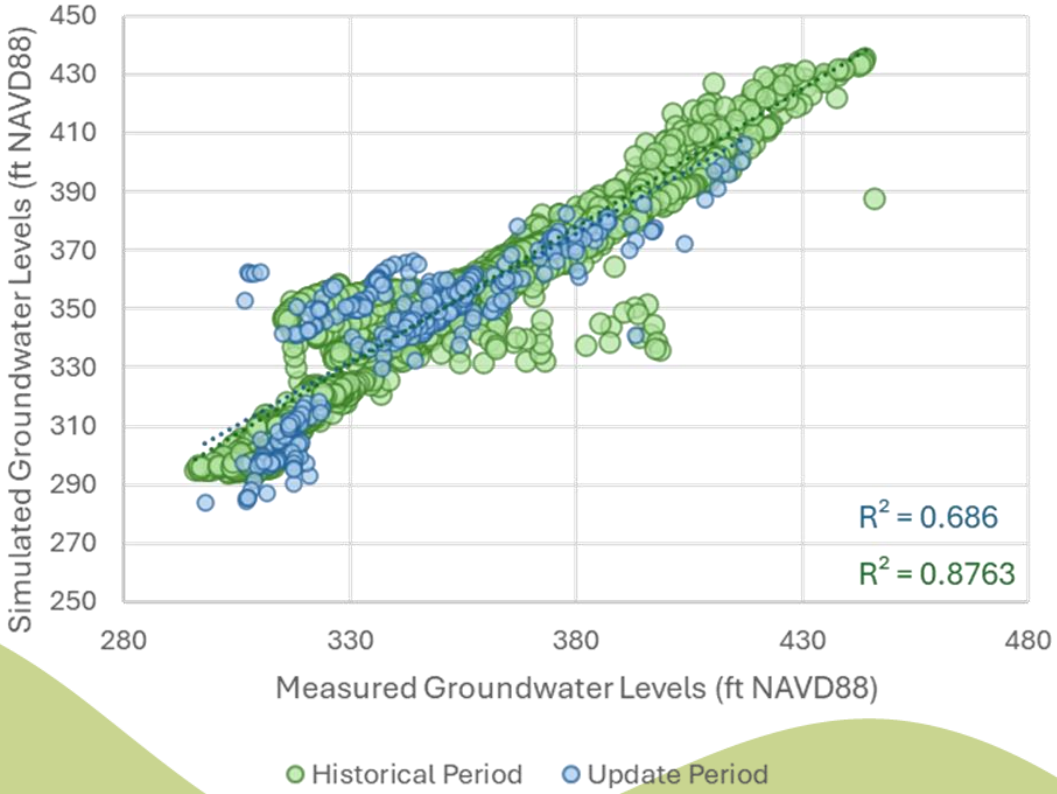
Well SP089

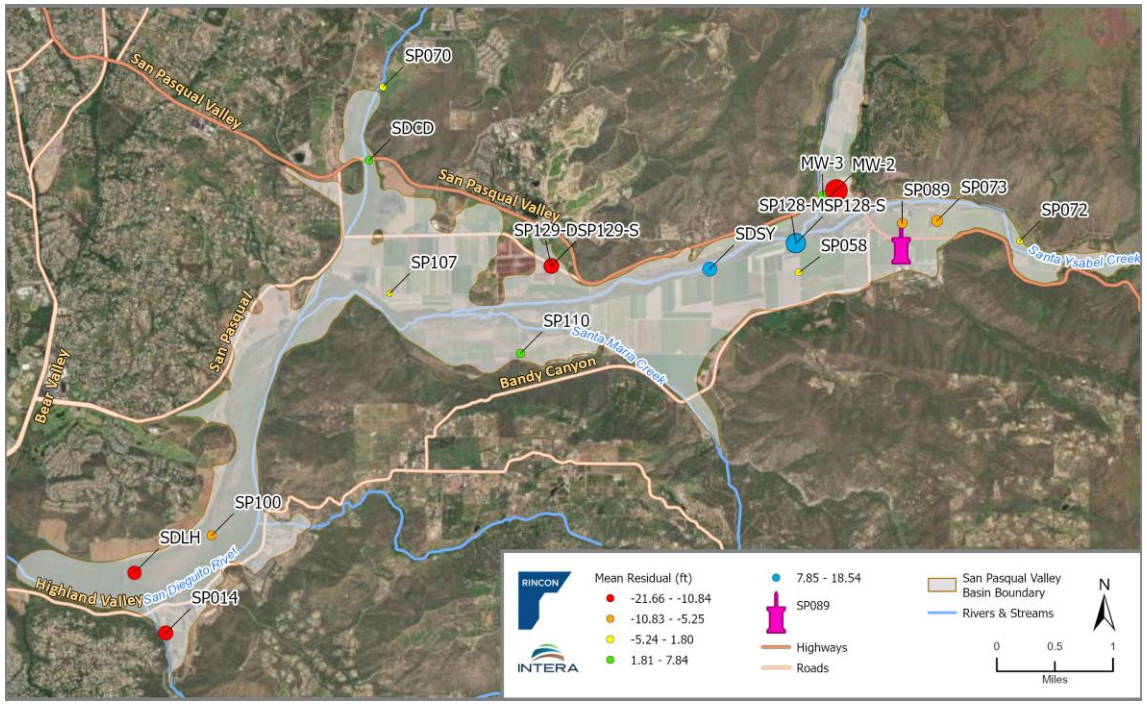


Modeling Results: Preview of 3rd Community Workshop

THE 3RD COMMUNITY WORKSHOP WILL PRESENT:

Overview of the groundwater model performance





Community Engagement

Poll #3: Community Workshops

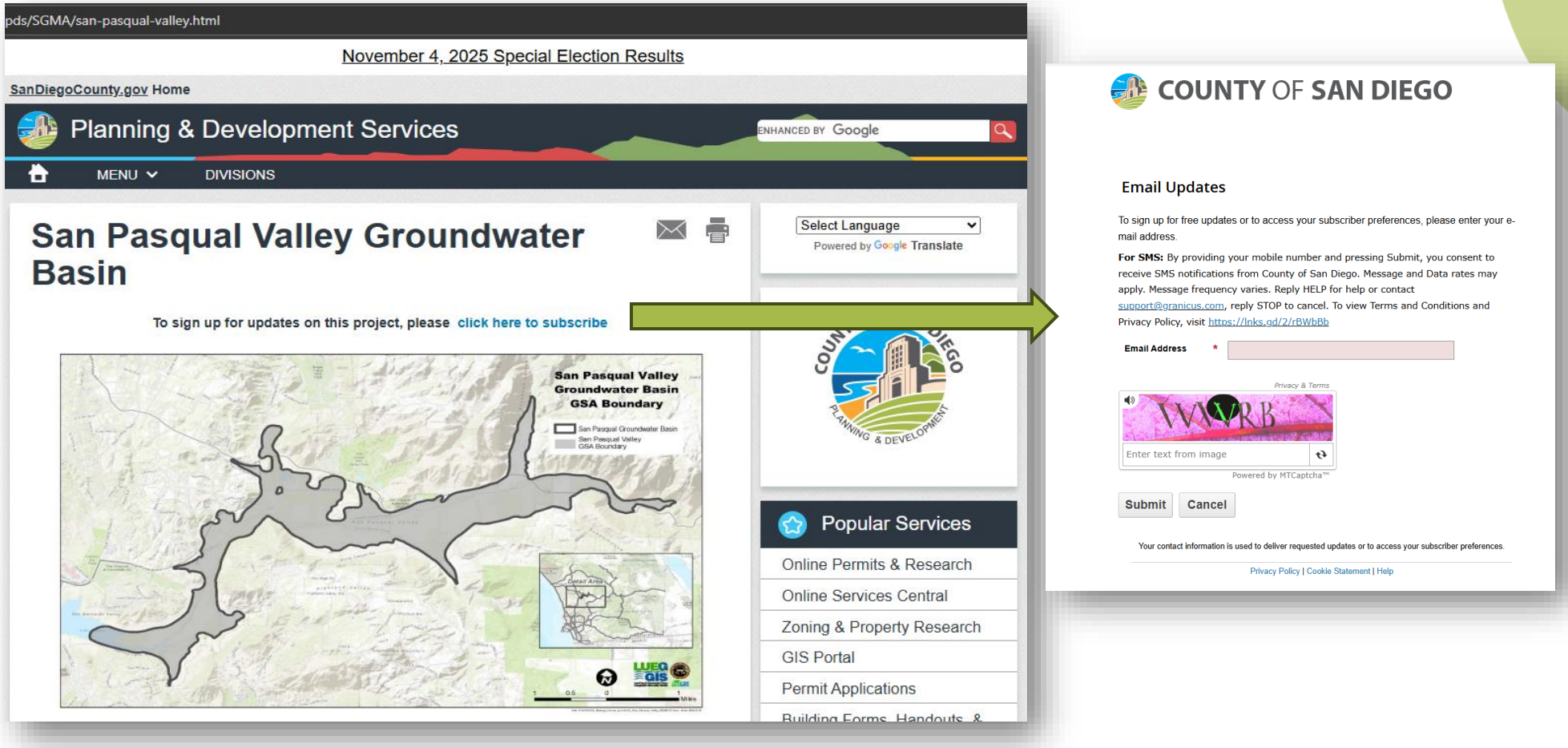
WAS THE HYBRID WORKSHOP OPTION BENEFICIAL FOR COMMUNITY MEMBERS/ATTENDEES?

Would you prefer that the 3rd Community Workshop is:

- Virtual only
- In-person only
- Hybrid

JOIN CODE: spv

Get Involved!



Visit our website: www.sandiegocounty.gov/content/sdc/pds/SGMA/san-pasqual-valley.html

Save the Dates!

COMMUNITY WORKSHOP #3

- Groundwater Model Results & Overview of 5-Year Periodic Evaluation
- July 22, 2026

PUBLIC REVIEW OF 5-YEAR PERIODIC EVALUATION REPORT

- August-September 2026

COMMUNITY WORKSHOP #4

- 5-Year Periodic Evaluation Findings & Response to Public Comments
- October 28, 2026

SUBMISSION OF 5-YEAR PERIODIC EVALUATION REPORT

- Due to DWR January 28, 2027

Poll #4: Water Year 2025 Annual Report

Would you like to see a summary of findings for the 2025 water year annual report?

JOIN CODE: spv

Contact Information

CITY OF SAN DIEGO

Sergio Angulo | sangulo@sandiego.gov

Andrew Funk | afunk@sandiego.gov

COUNTY OF SAN DIEGO

Jim Bennett | jim.bennett@sdcounty.ca.gov

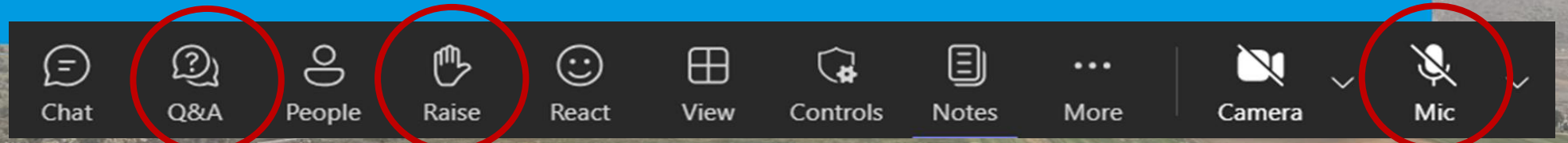
RINCON CONSULTANTS

Lily Momper | lmomper@rinconconsultants.com

Rosalyn Prickett | rprickett@rinconconsultants.com

Comments & Discussion

Use the raise hand icon for verbal questions



Type questions in the Q&A

Kindly mute yourself when others are speaking

Public Comment and Discussion

Open, live, discussion, or scan the QR code to leave us feedback or questions!

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