Napa County Groundwater Sustainability Annual Report – Water Year 2018

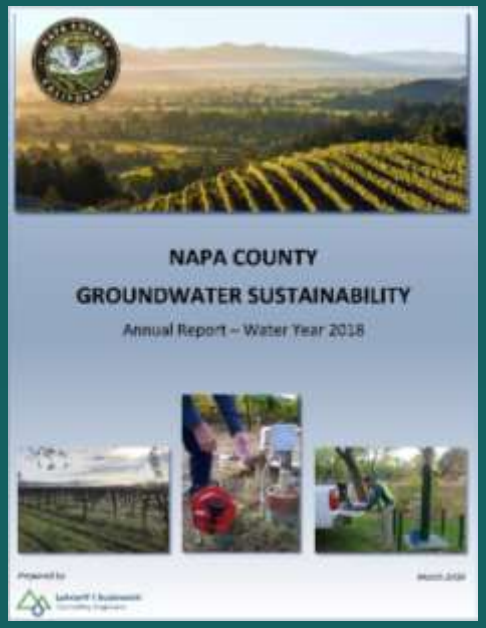
March 19, 2019

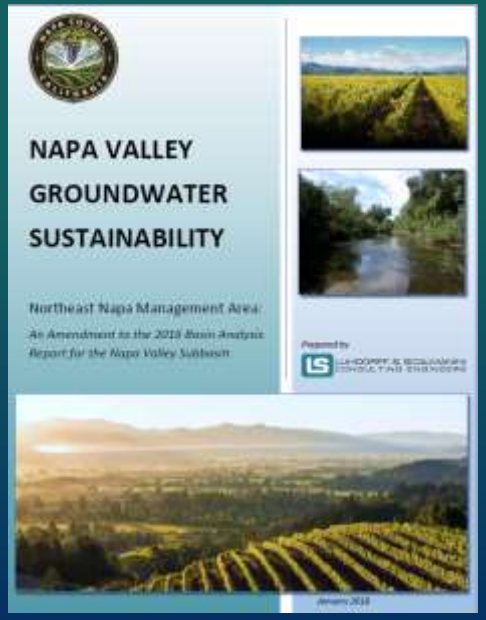
By Vicki Kretsinger Grabert and Reid Bryson

Luhdorff & Scalmanini
Consulting Engineers

Overview

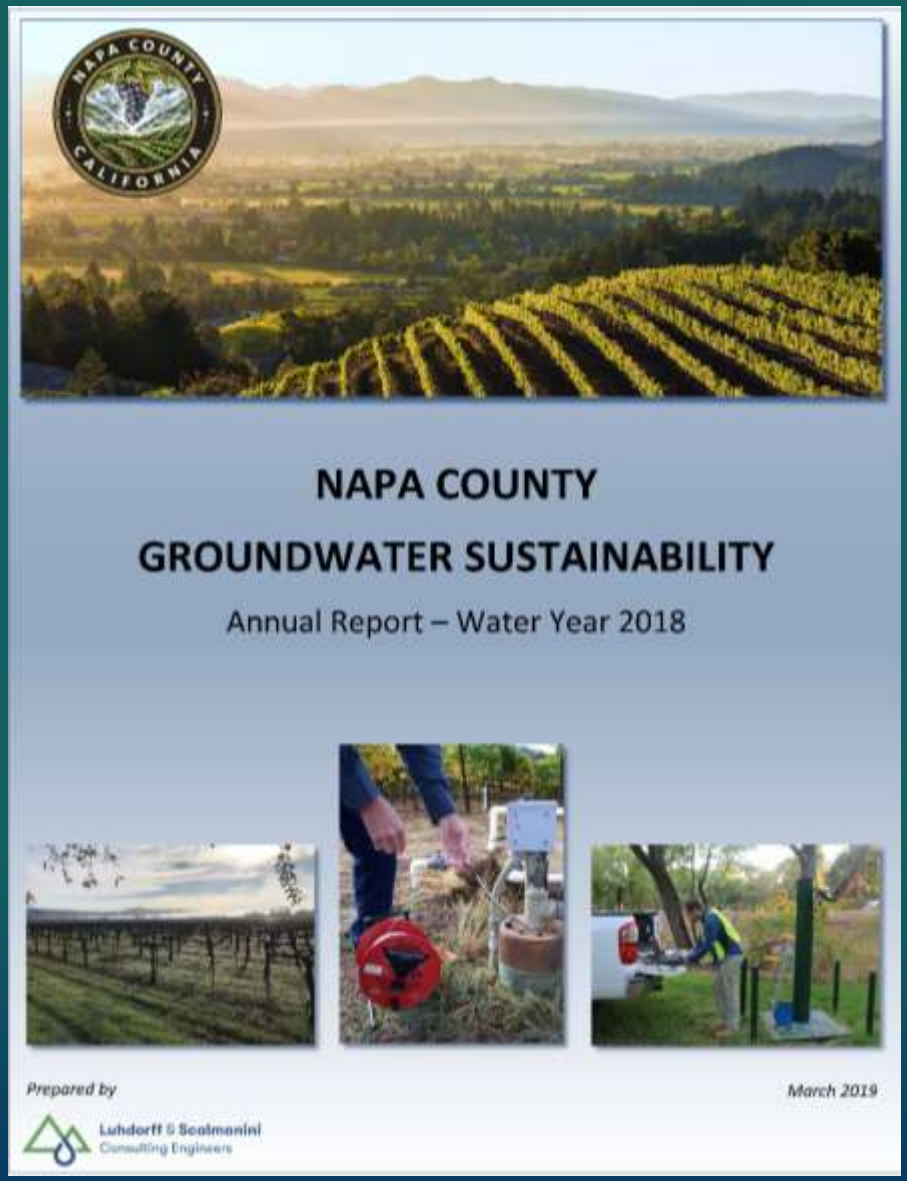
- 2018 Annual Report Highlights
- SGMA Sustainability Metrics
- SGMA Implementation Progress
- Lowlands Subbasin Boundary Modification





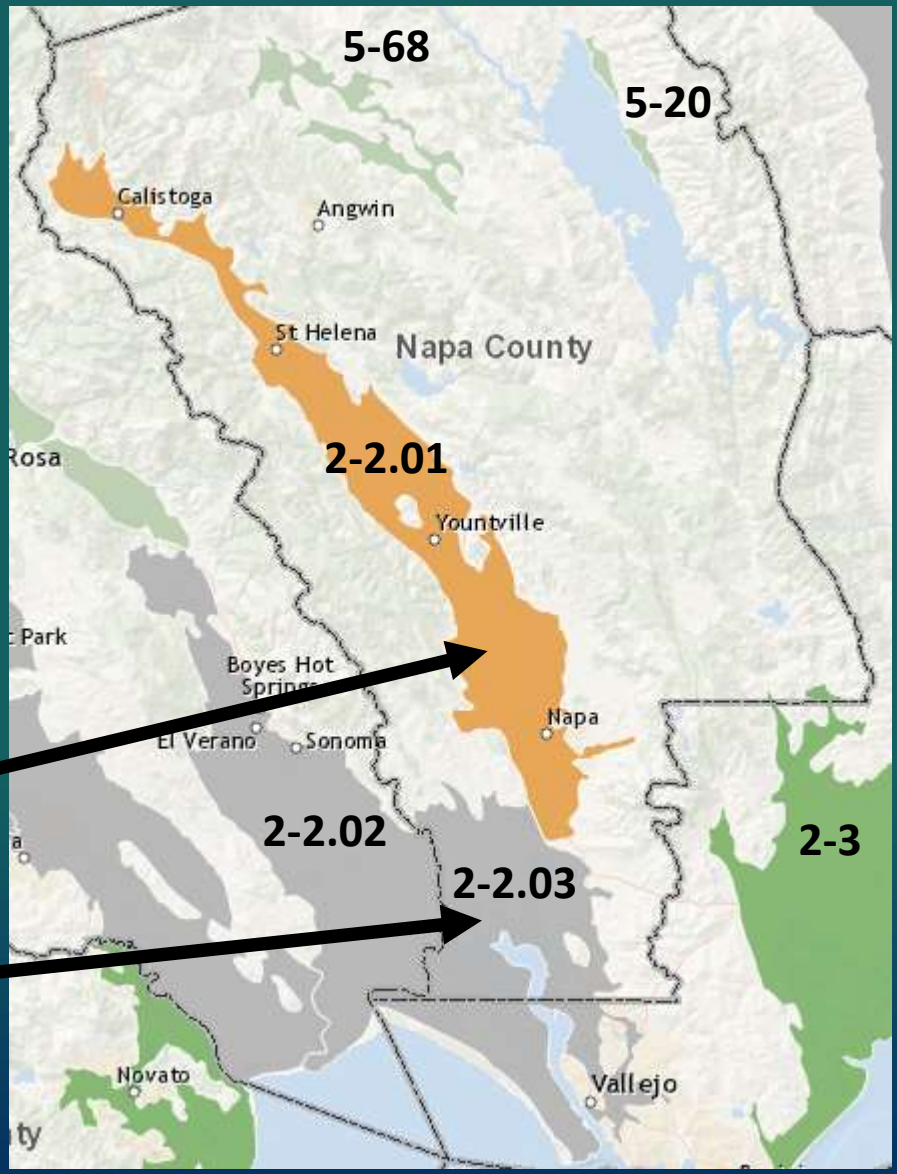
2018 Annual Report Highlights

- Water Year 2018 – Dry Year
- Groundwater levels stable in the majority of wells in Napa Valley Subbasin and MST
- New information on groundwater use by Groundwater Dependent Ecosystems (GDEs)
- Water Year 2019 – Wet Year



2018/2019 DWR Basin Prioritization

- What is Basin Prioritization?
  - Classification based on factors identified in statute (i.e., population, number of water wells, etc.)
- What do Rankings Mean?
  - Indicator of the overall importance of GW
- **Napa Valley Subbasin**
  - High Priority
- **Napa-Sonoma Lowlands Subbasin**
  - Prioritization pending



Basin Prioritization FAQ

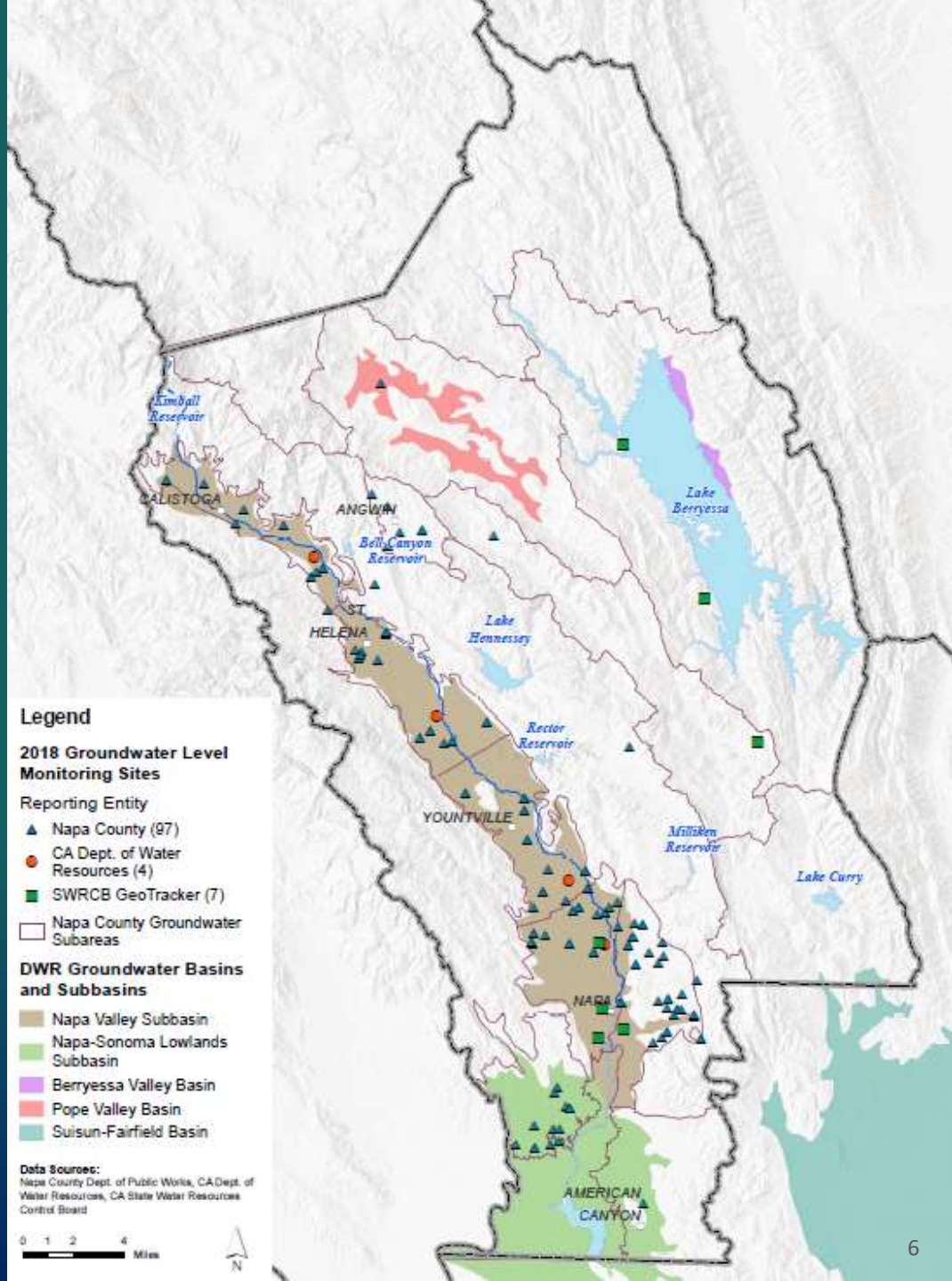
- What is the significance and practical effect of a change in basin prioritization?
  - "a sustainably managed basin may be designated as high-priority based on which of these factors are present. Changes in status from the 2014 CASGEM prioritization generally reflects changed conditions or new information about existing conditions. Changes in status are not meant as a comment on changes to groundwater management in that basin."(DWR FAQs)

https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization

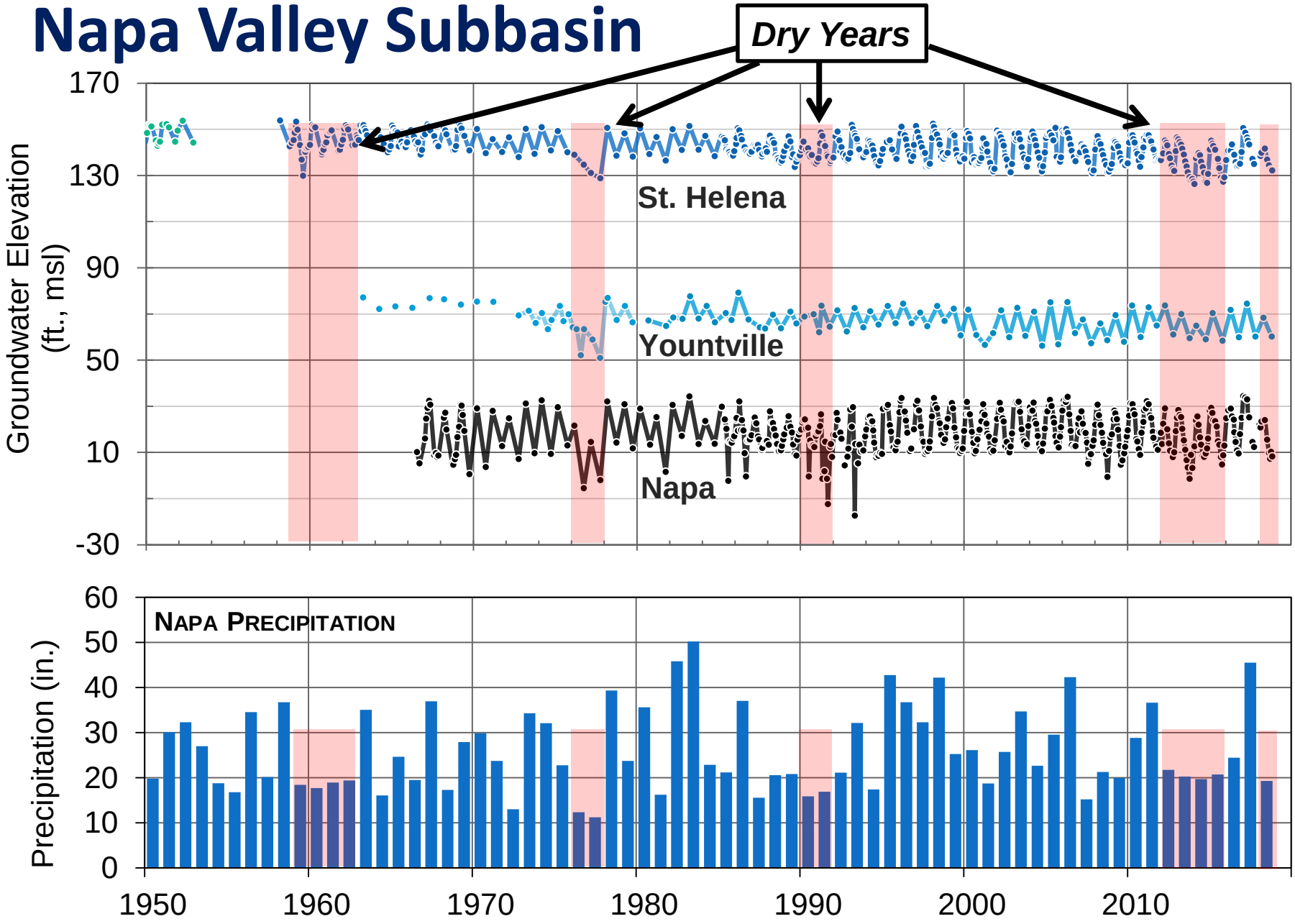
GW Level Monitoring, 2018

- Napa Co., 97 (including 10 SW/GW)
- DWR, 4
- GeoTracker, 7

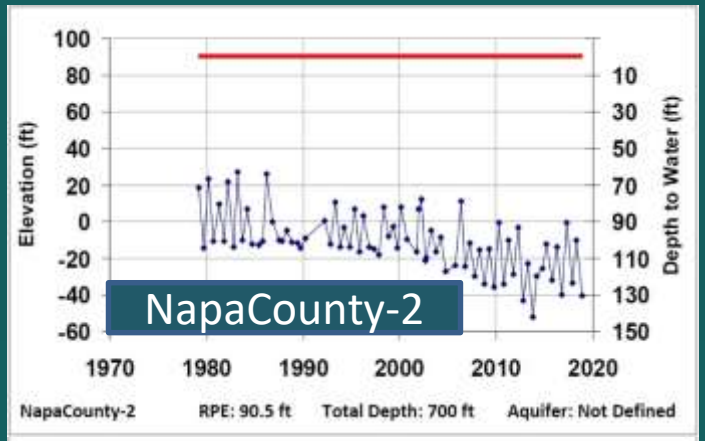
Total Wells = 108

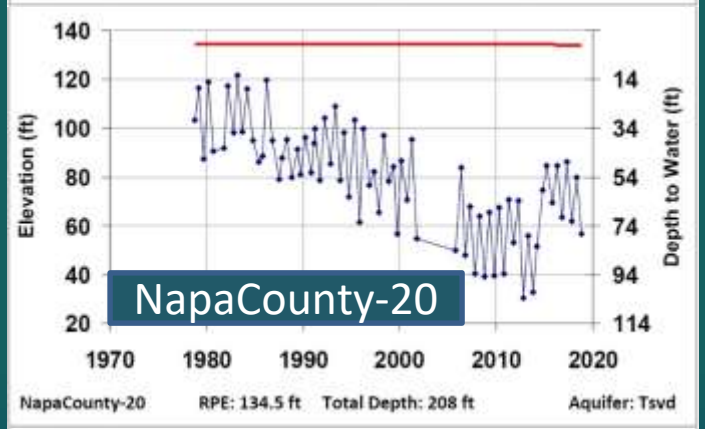


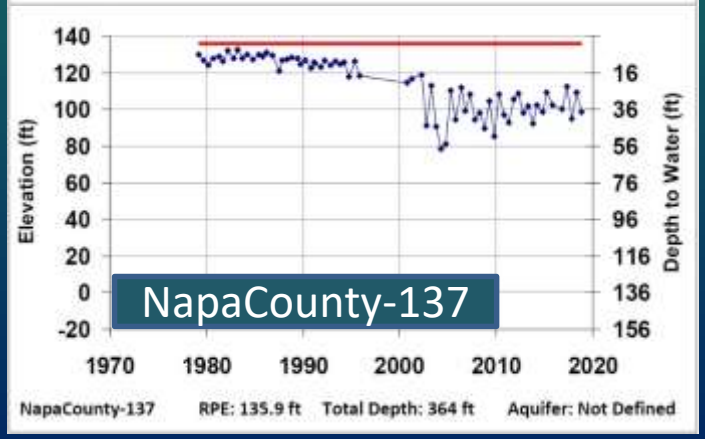
Groundwater Conditions: Napa Valley Subbasin

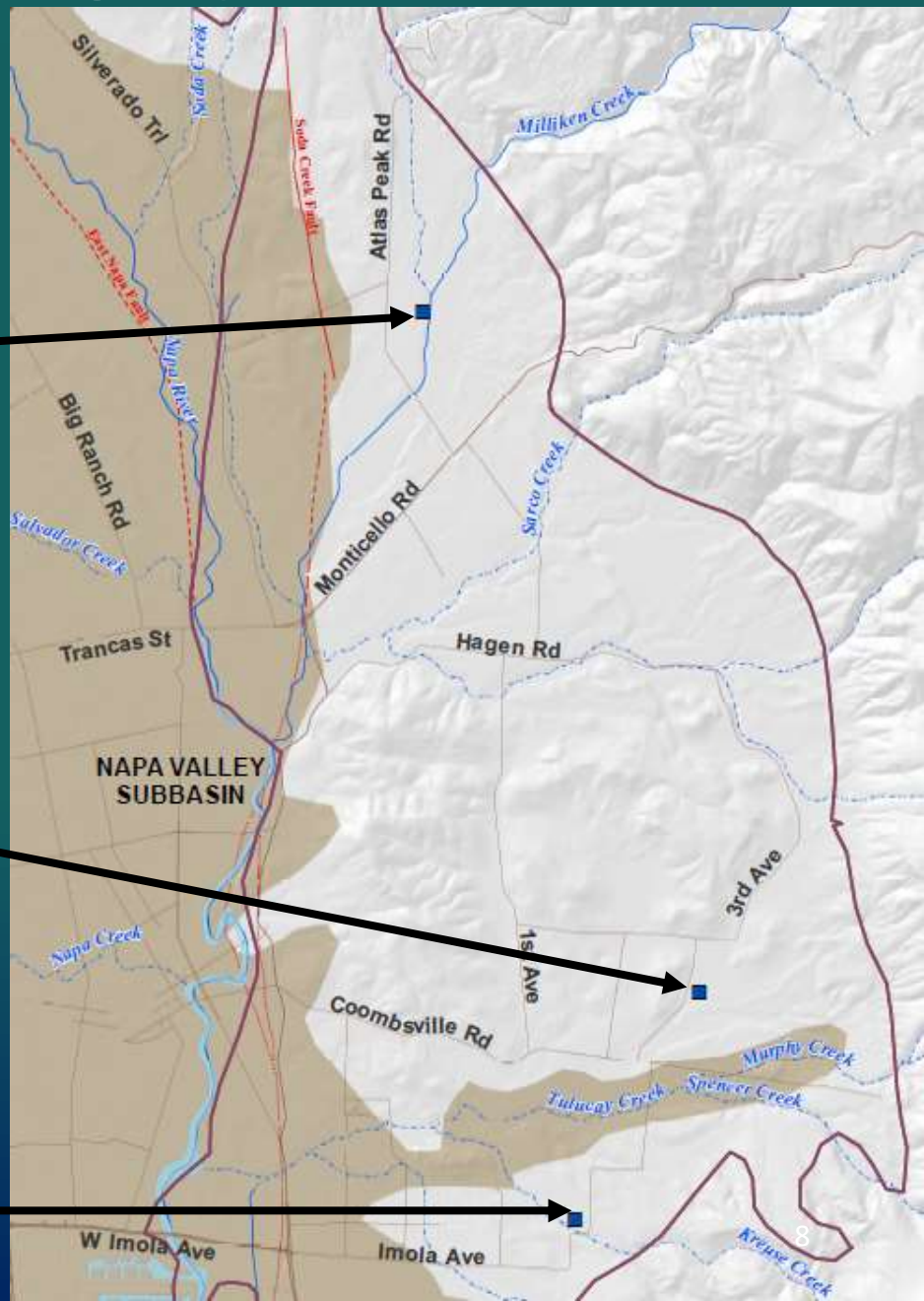


MST Hydrographs





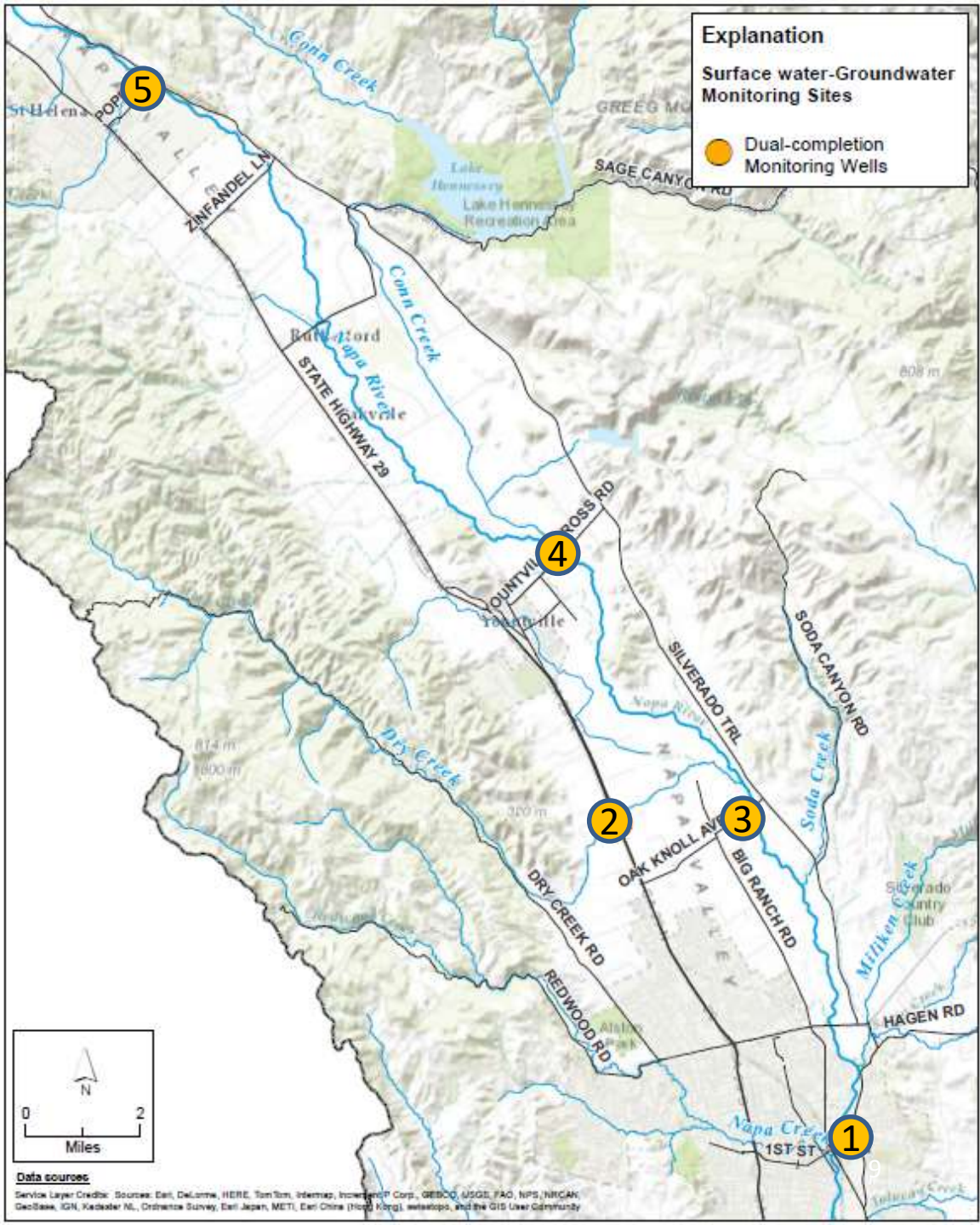




Surface Water/ Groundwater

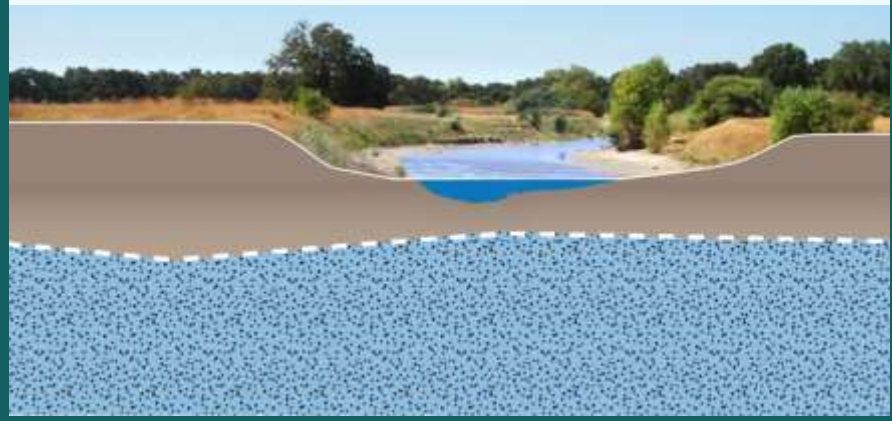
Monitoring at 5 Sites

- Shallow Monitoring Wells (MWs) each site
  - Levels & quality
- Stream gauge each site
  - Streamflow & quality

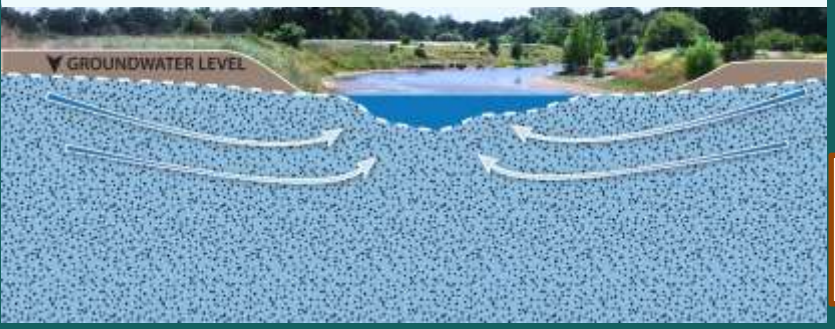


SW/GW Interaction

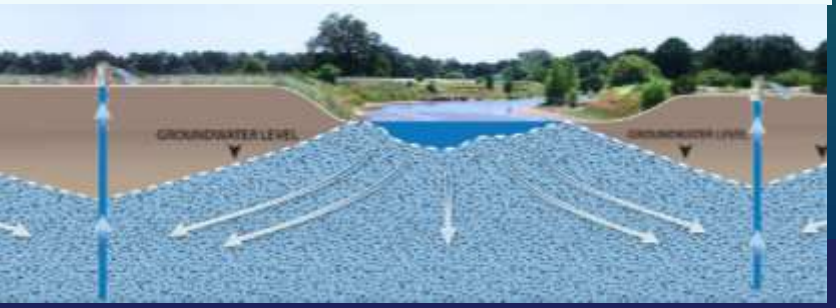
Indirect Connection
Stream Seepage Independent of GW Levels



Direct Connection
Maintains/Discharges to Stream (Groundwater Baseflow)

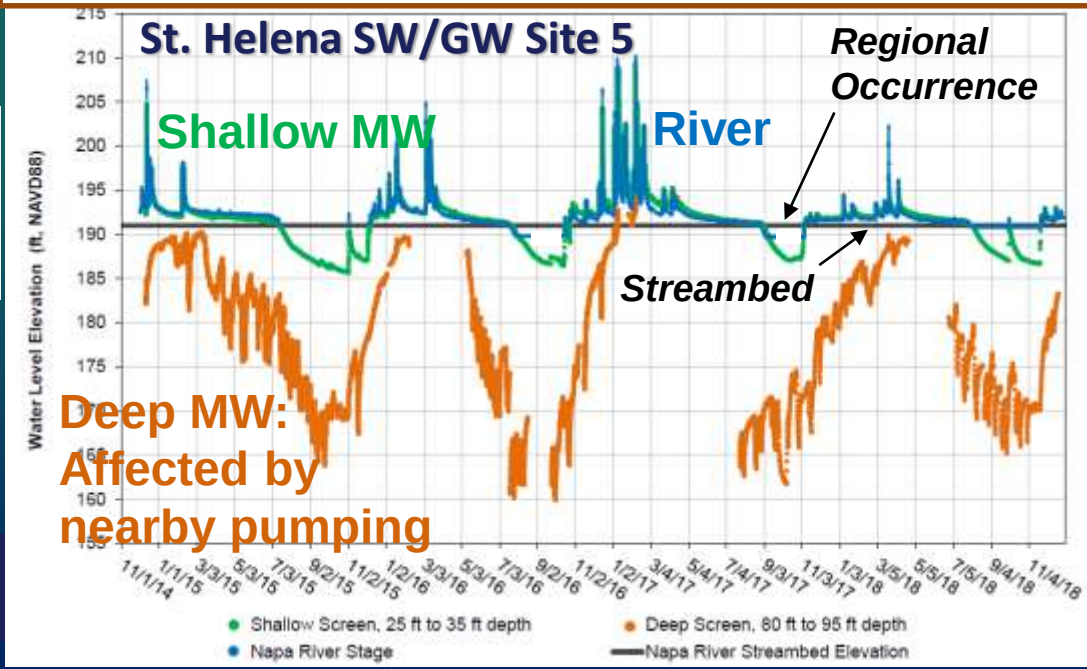


Groundwater Pumping
Stream Loses Water/ Recharge to GW

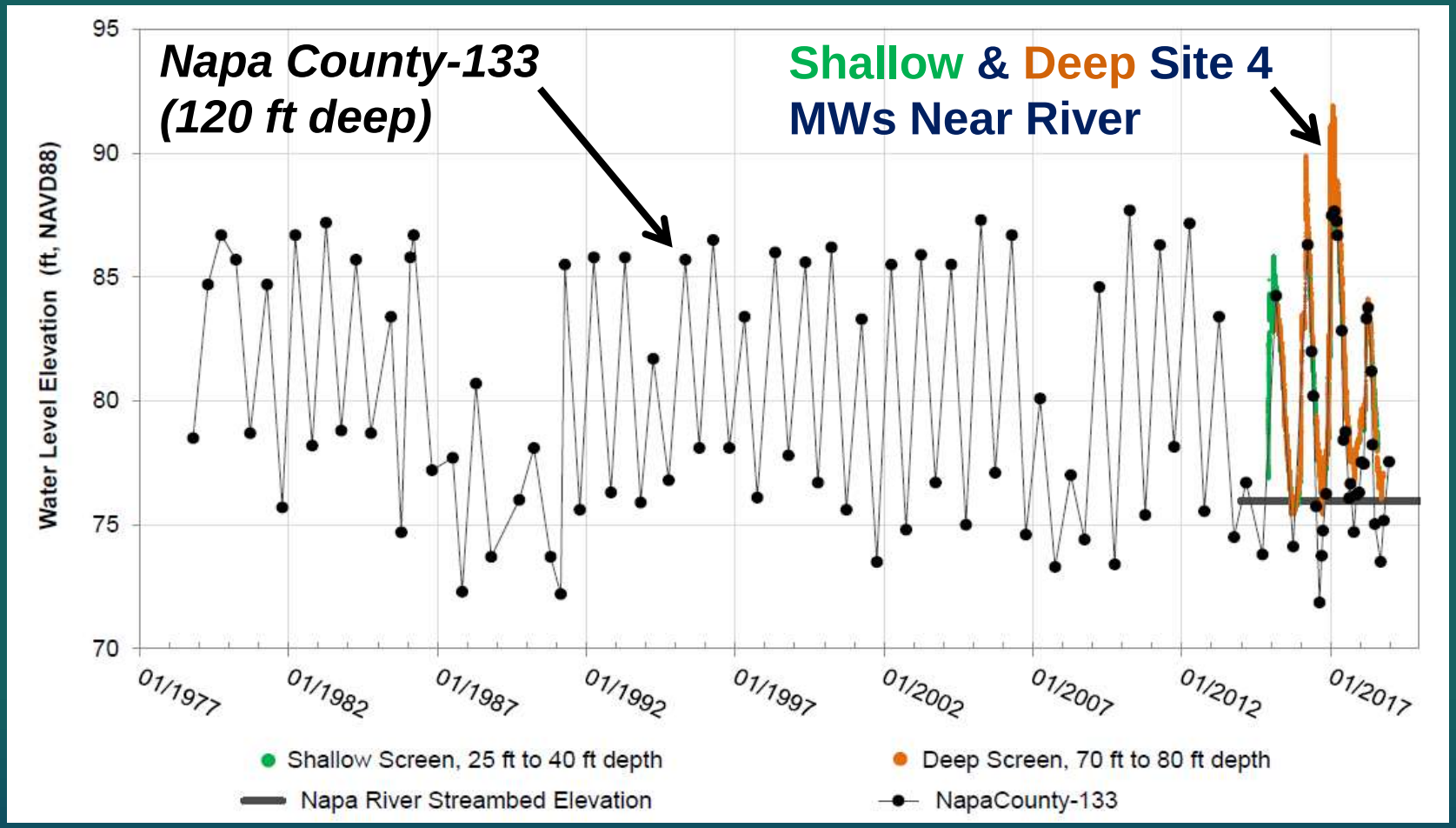


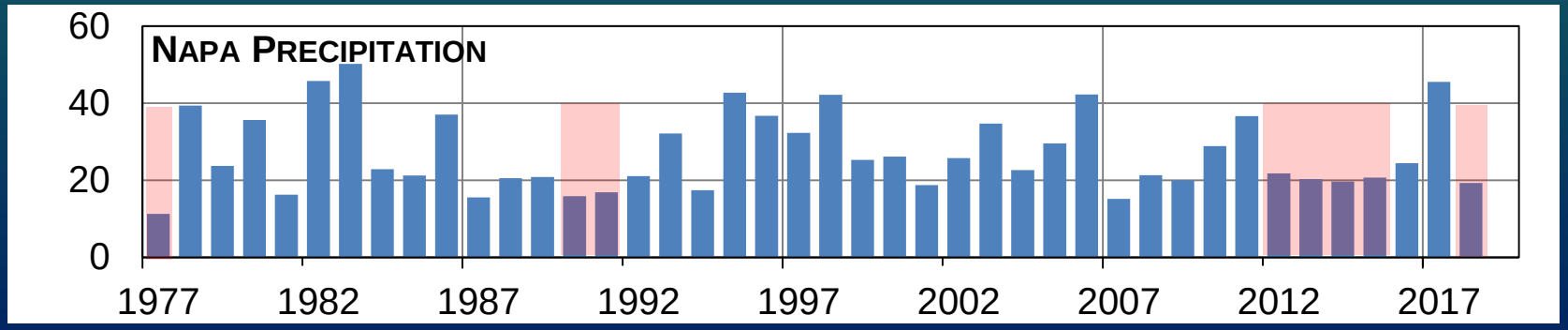
Courtesy TNC

River and Shallow MW not exhibiting short- term pumping effects



SW/GW Site 4 Compared to Historical GW Levels





Sustainable Yield and Related Terms

Sustainable Yield

(Definition; Water Code Section 10721(v)):

"*Maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually without causing an undesirable result*."

Napa Valley Subbasin Sustainable Yield:

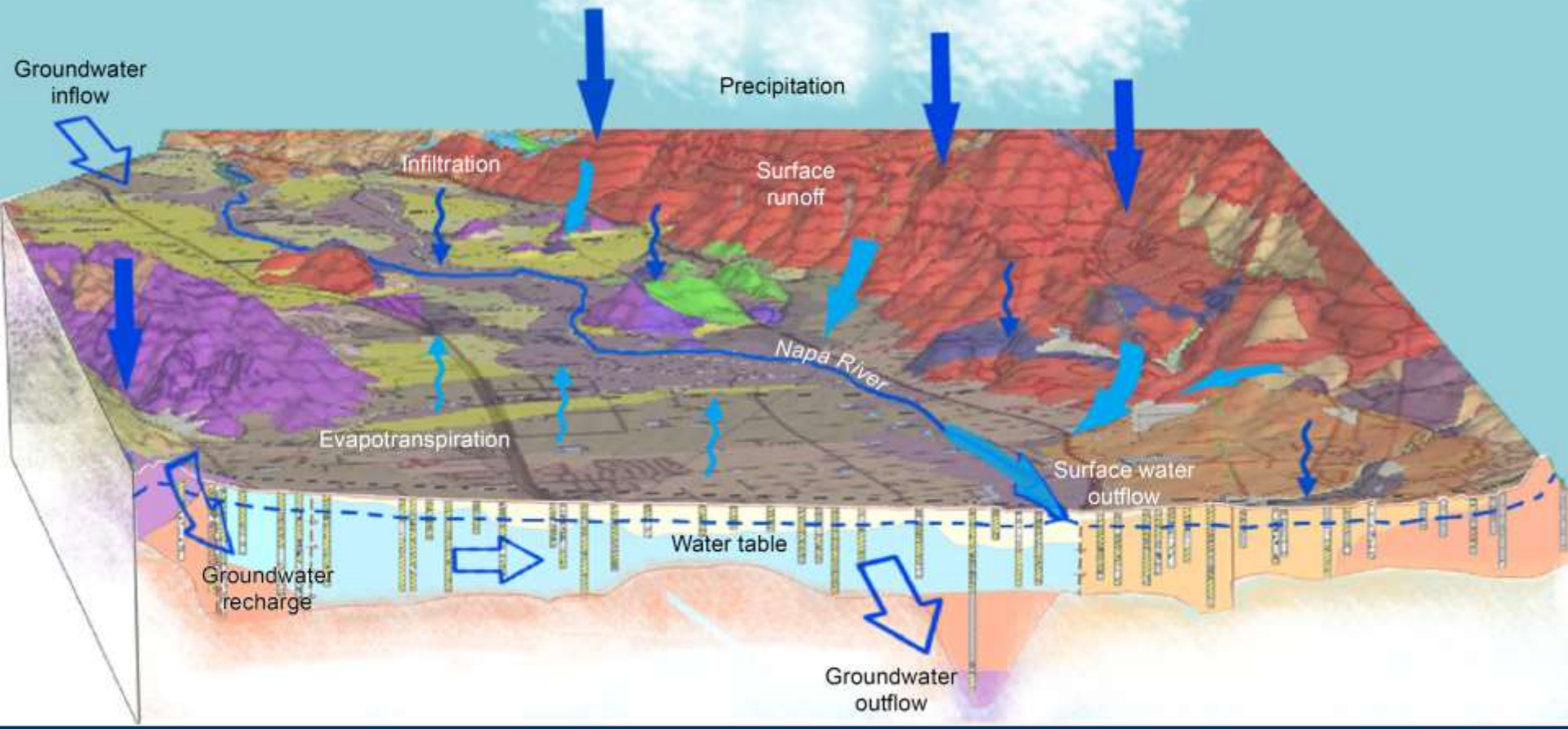
17,000 to 20,000 acre-feet/year

Undesirable Result

A key term linked to accomplishing sustainability.

Water Budget:
Core Element of Groundwater Sustainability

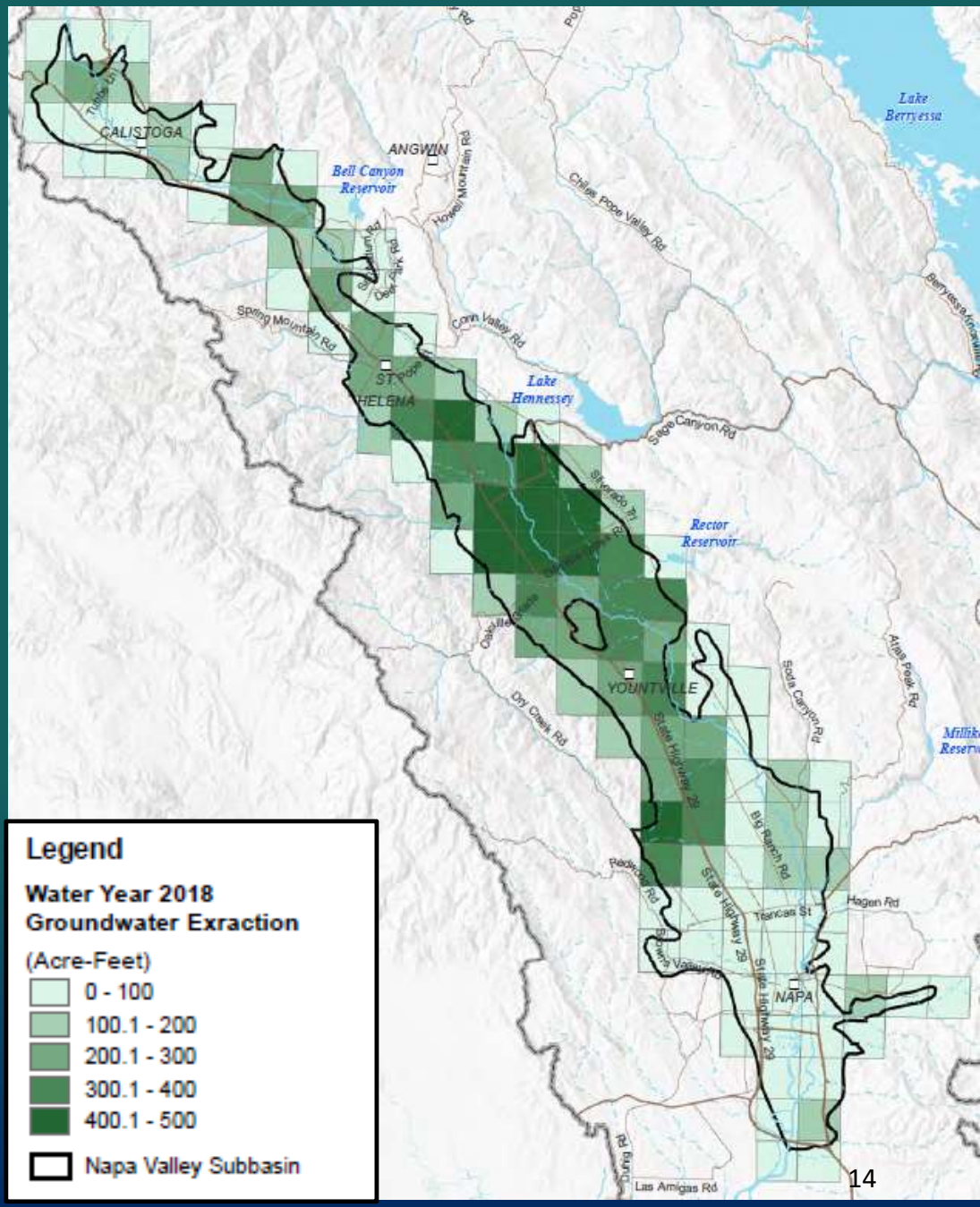
Inflows **–** ***Outflows*** **=** **ΔS** *Change in GW Storage*



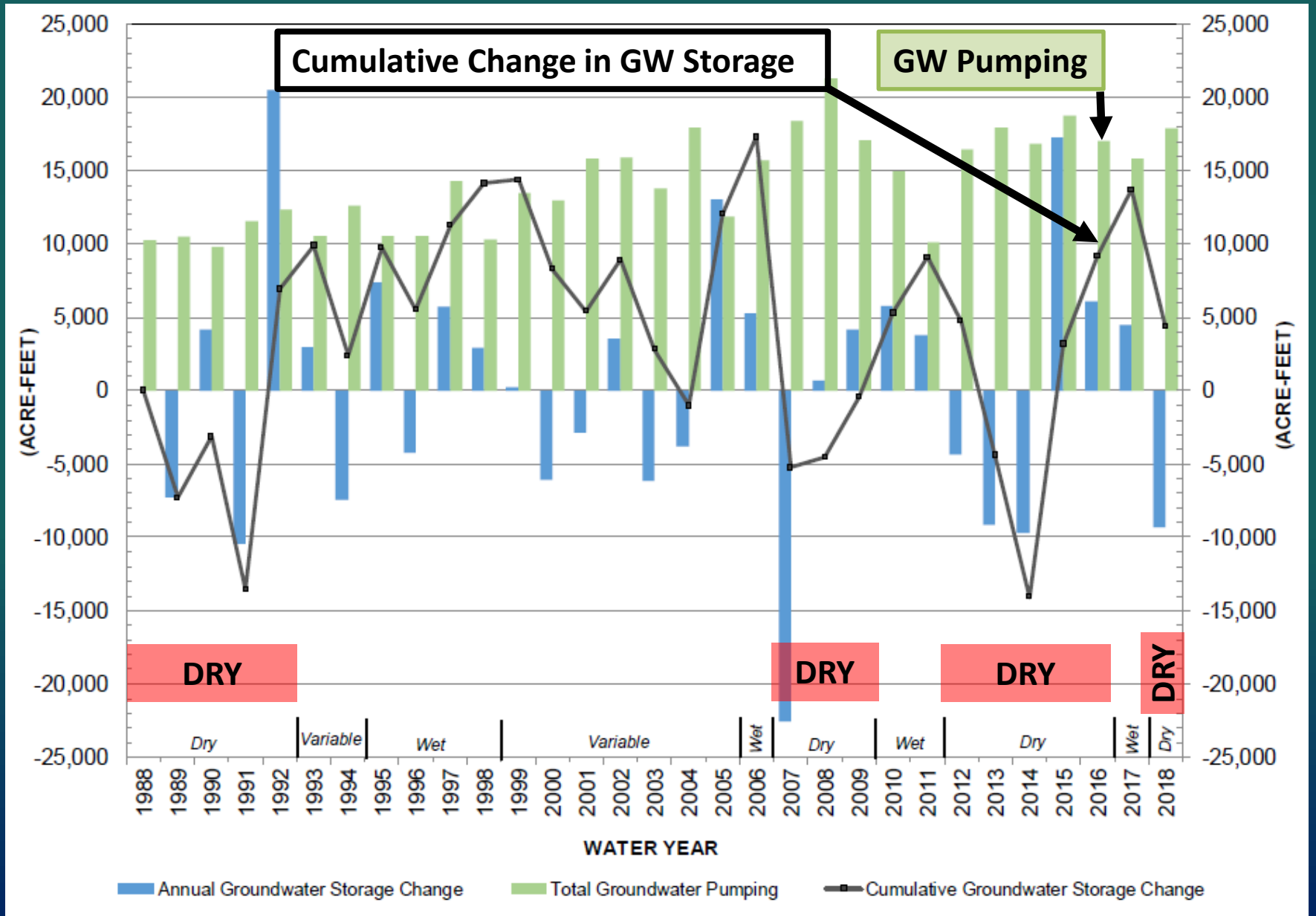
Groundwater Pumping (2018 Acre-feet)

- Ag: 12,649 (vines & other)
- Municipal: 267
- Unincorp. Dom: 360
- Unincorp. Landscaping: 3,384
- Unincorp. Wineries: 1,229

TOTAL = 17,889 Acre-feet



Groundwater Pumping and Storage Change



Summary of Groundwater Pumping and Change in Groundwater Storage

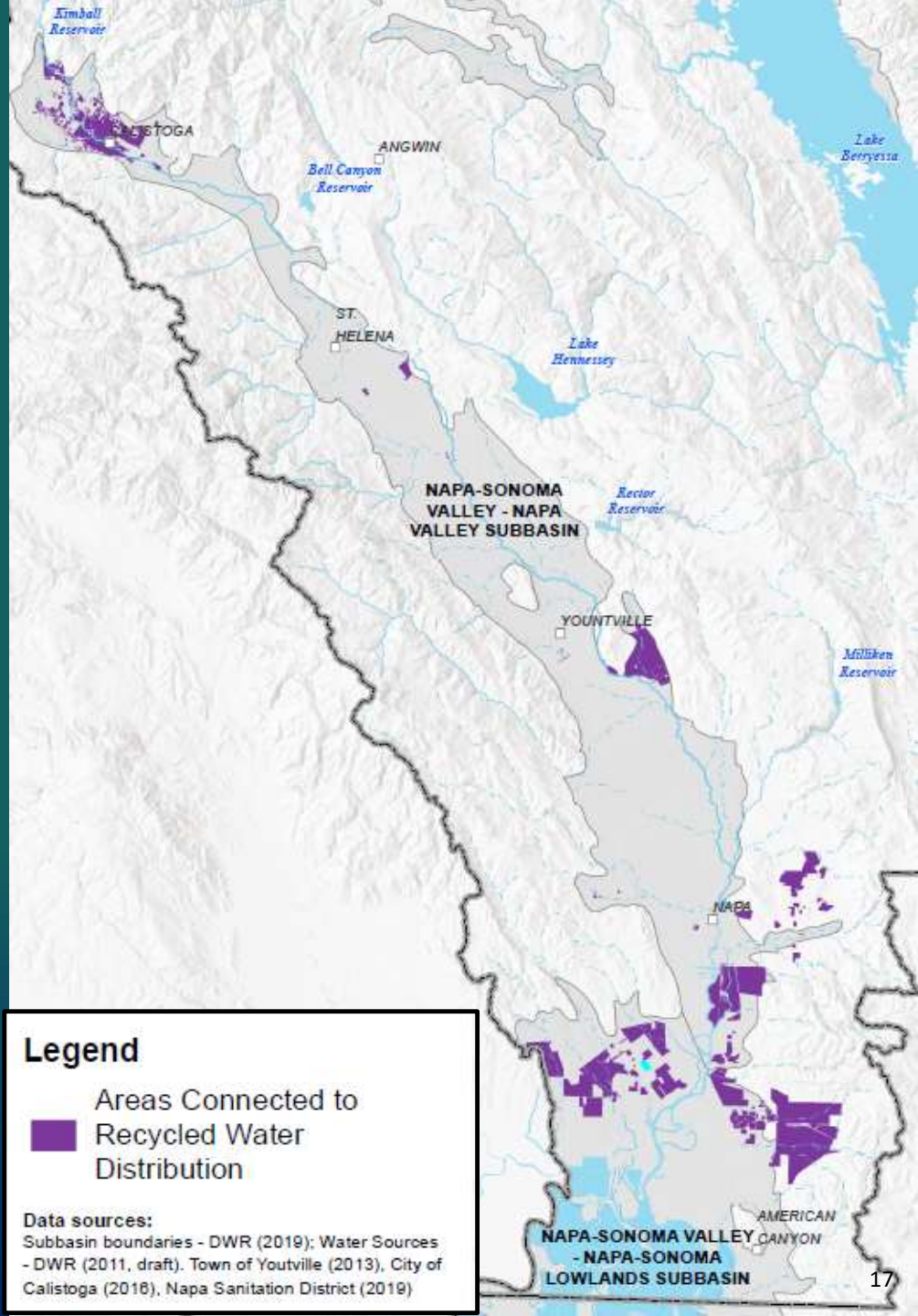
Description	(Acre Feet)
2018 Groundwater Pumping	17,889
Avg. Annual Recharge (1988-2015)	69,000
Sustainable Yield (Estimated Range)	17,000 to 20,000
2018: Annual Storage Change	-9,300
1988-2018: Cumulative Annual Storage Change	**+4,400**

…… The County and everyone living and working in the county will integrate stewardship principles and measures in groundwater development, use, and management to protect economic, environmental, and social benefits and **maintain groundwater sustainability indefinitely without causing undesirable results**, including unacceptable economic, environmental, or social consequences.
(Excerpt Napa SGMA Sustainability Goal)

Recycled Water Use (2018, Acre-feet)

- Ag: (vines & other) 440
- Municipal: 1,042

TOTAL = 1,482 Acre-feet



Groundwater Dependent Ecosystems (GDEs)

- "ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface"

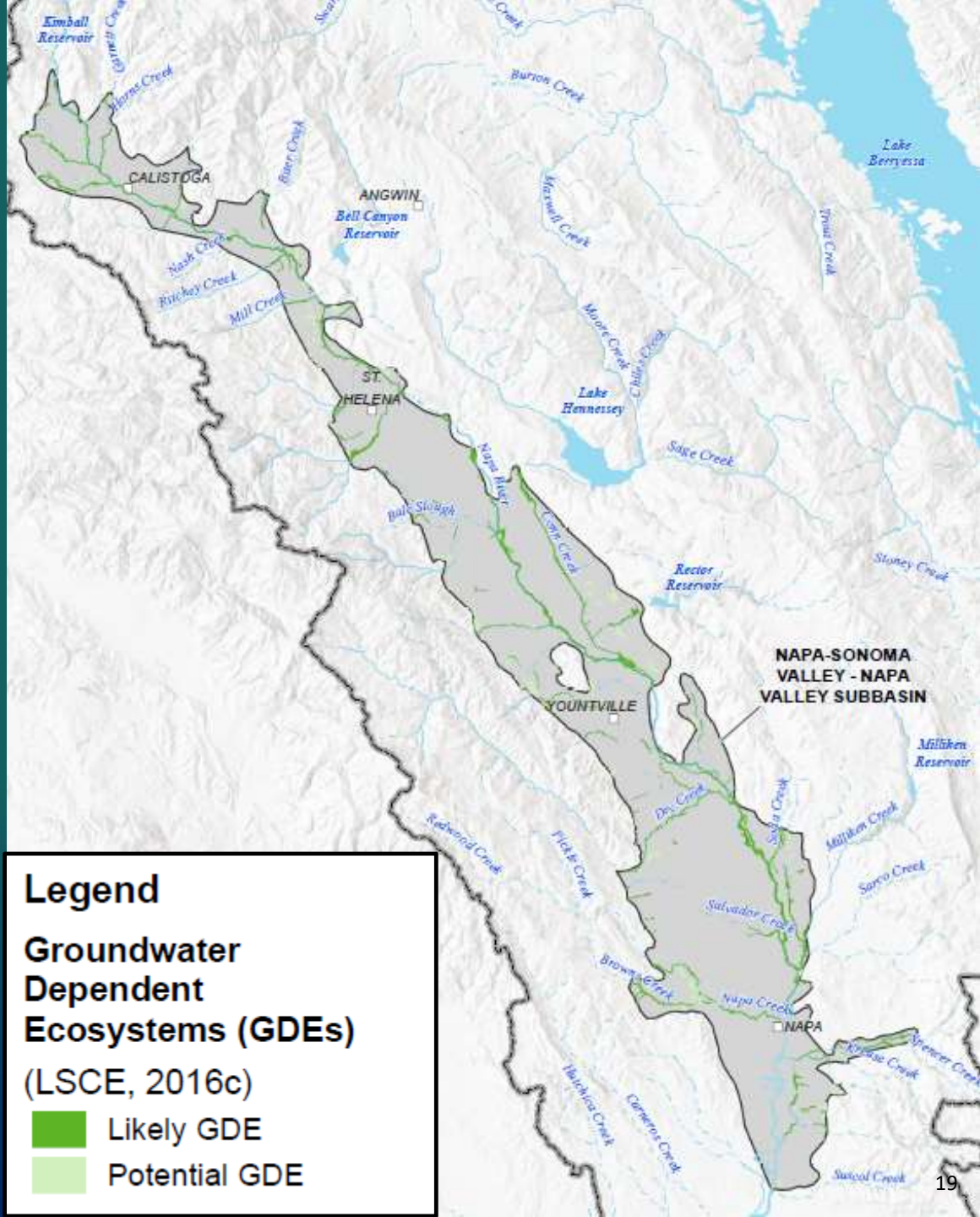
  (CA Code of Regulations, Groundwater Sustainability Plans § 351(m))

- Basin Analysis Report used vegetation (2012) and wetlands (2016) datasets and draft guidance from The Nature Conservancy to identify likely and potential GDEs.

Groundwater Use by GDEs (2018, Acre-feet)

- Likely GDEs: 3,630
- Potential GDEs: 1,090

TOTAL = 4,720 Acre-feet



Napa Valley Subbasin Sustainable Groundwater Management

Metrics and Tracking: Sustainability Indicators

Groundwater Sustainability Indicators

Not Causing Undesirable Results:
Means Avoiding Significant and Unreasonable …

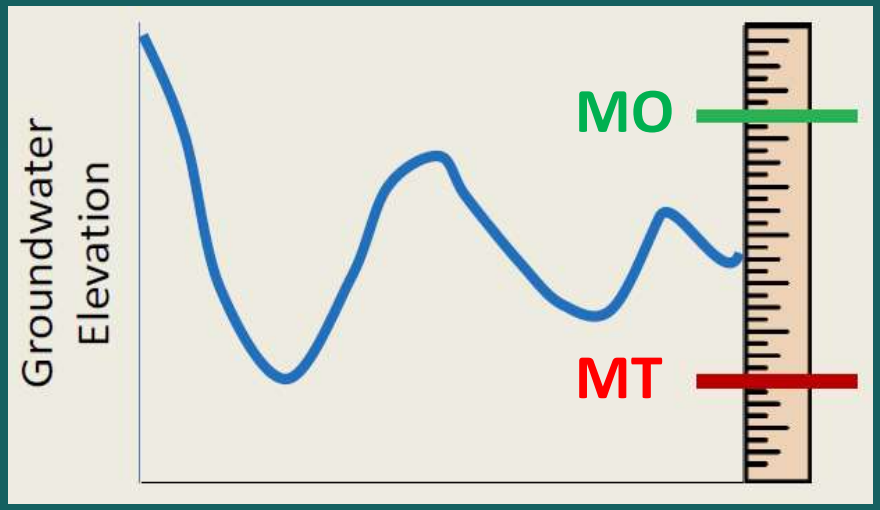
- Lowering of GW Levels
- Reduction of GW Storage
- Seawater Intrusion
- Water Quality Degradation
- Land Subsidence
- Depletion of Surface Water

Napa Valley Hydrogeologically Sensitive to this Indicator

Minimum Thresholds and Measurable Objectives

- **Minimum Threshold (MT)**

"a numeric value for each sustainability indicator used to define undesirable results" (Sec 351)



(DWR, March 2016)

- **Measurable Objective (MO)**

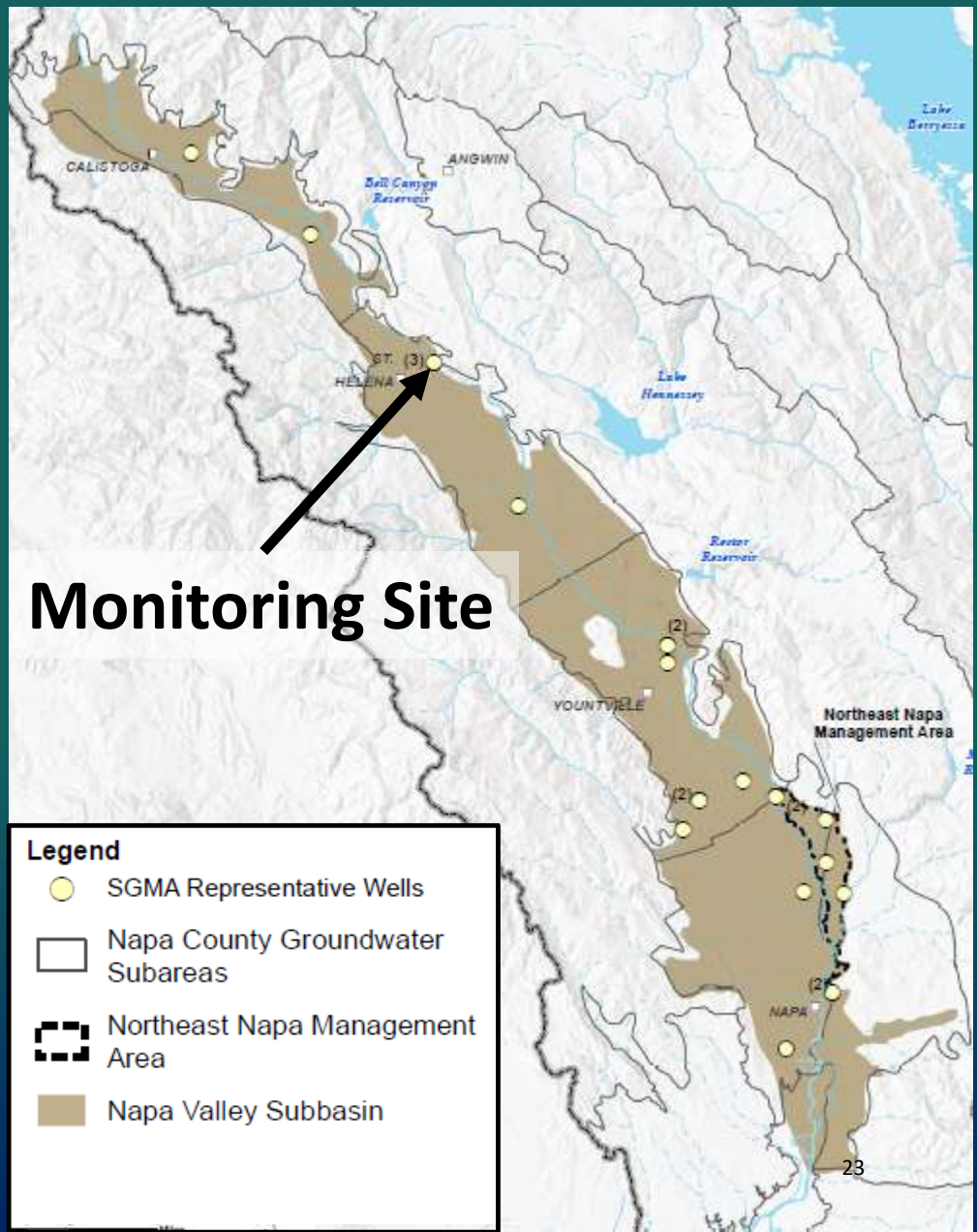
"specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions" (Section 351)

Measurable objectives and minimum thresholds are established to ensure GW sustainability or improve GW conditions.

SGMA Representative Monitoring Sites

- Representative wells to ensure sustainability
- 21 locations
  - 3 new locations in NE Napa Mgmt Area
- Metrics for each sustainability indicator, as applicable

Ongoing:
Other Countywide GW Data to be Analyzed, Updated, & Reported (108 wells)



Sustainability Indicators: Streamflow

Representative Monitoring Sites Well ID	Date Monitored	Measured Minimum 2018 Fall Groundwater Elevation (GWE) (Feet)[1]	Streamflow Depletion	
			Minimum Threshold (Fall GWE, Feet)	Measurable Objective (Fall GWE, Feet)
06N04W17A001M[2]	10/10/2018	43	37	50
06N04W27L002M	11/7/2018	8	-2	12
07N05W09Q002M	11/7/2018	132	127	135
08N06W10Q001M	10/10/2018	**251**	269	281
NapaCounty-76	11/16/2018	-12	-	-
NapaCounty-122	11/19/2018	-34	-	-
NapaCounty-128	10/17/2018	331	320	331
NapaCounty-133	10/29/2018	75	72	76
NapaCounty-135	11/19/2018	34	-	-
NapaCounty-214s-swgw1	10/25/2018	3	2	4
NapaCounty-215d-swgw1	10/25/2018	3	2	4
NapaCounty-216s-swgw2	10/25/2018	72	61	76
NapaCounty-217d-swgw2	10/25/2018	62	61	76
NapaCounty-218s-swgw3	10/25/2018	30	29	32
NapaCounty-219d-swgw3	10/25/2018	30	29	32
NapaCounty-220s-swgw4	10/2/2018	76	75	77
NapaCounty-221d-swgw4	10/2/2018	76	75	77
NapaCounty-222s-swgw5	10/25/2018	187	185	190
NapaCounty-223d-swgw5	10/25/2018	171	164	175
NapaCounty-229	11/19/2018	-65	-	-

One below Minimum Threshold

SGMA Thresholds

- In fall 2018, one SGMA Representative Well had a groundwater level below the minimum threshold
  - Water level in the same well recovered by 14 feet four weeks later (in November, before substantial rainfall)
  - Two other wells about ½ mile away with similar construction, did not experience similar fall 2018 GWL

- Does not reflect a changed condition in the Napa Valley Subbasin.
- Data suggest local influences; follow-up underway

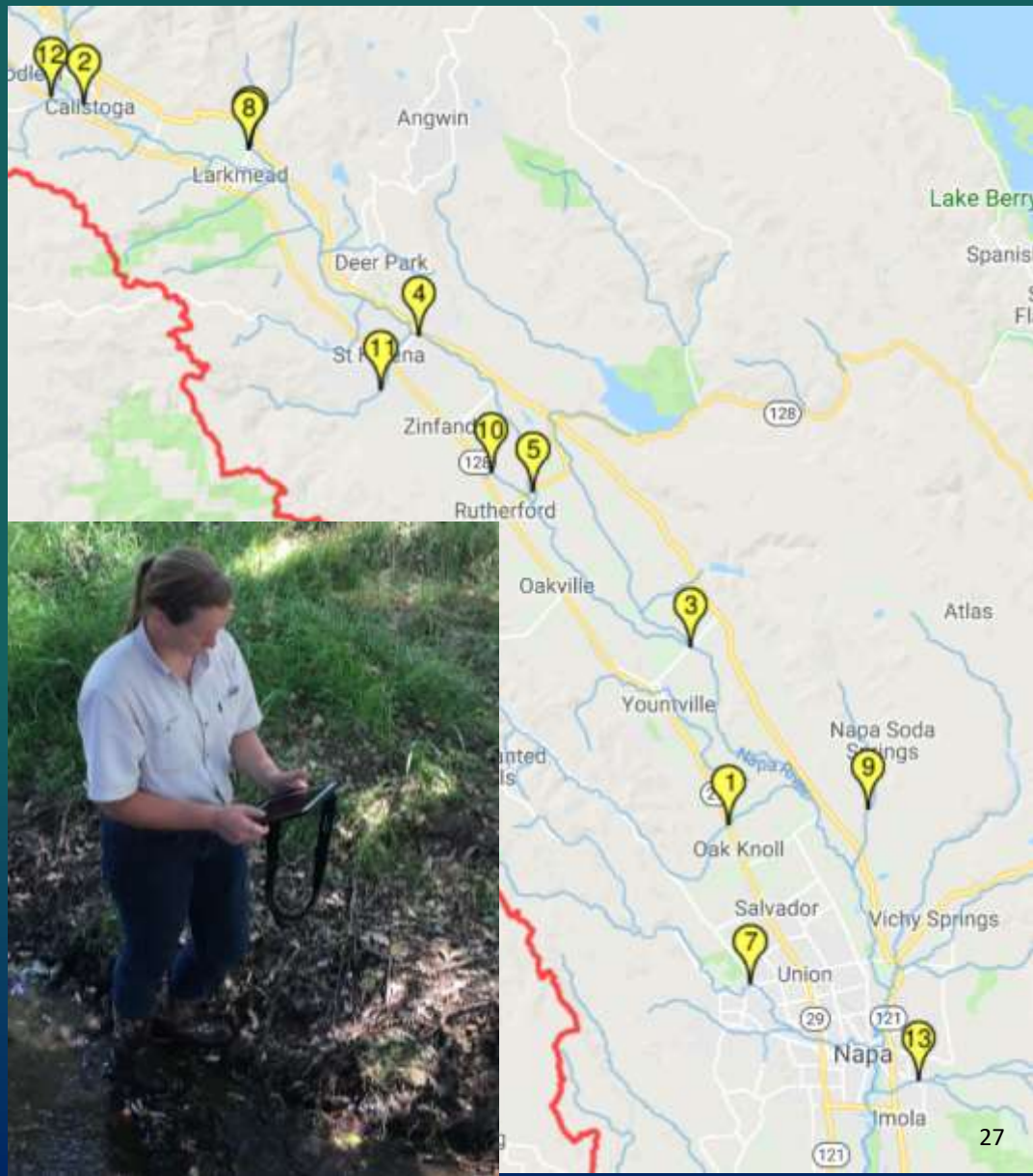
SGMA Implementation Progress

While DWR continues to review the Basin Analysis Report:

- SGMA Annual Reports (incl. Northeast Napa Study and BAR Amendment)
- Northeast Napa Management Area Designation
- Revised Conditions of Approval for Discretionary Permits
- Evaluating groundwater use by GDEs
- Do It Yourself (DIY) GW Level Monitoring
- Napa Valley Subbasin GW Model Dataset Development
- Developing Best Available Water Use Data
- Mobile App for Data Collection

Expanded Streamflow Observations

- Staff and public record streamflow observations at 13 sites (380+ observations to date)
- Complements data collection at permanent stream gauges



SGMA Outreach

- SGMA implementation and status updates through
  - Email listserv (**https://tinyurl.com/NapaCo-SGMA-Updates-Signup**)
  - Public meetings (Watershed Information and Conservation Council (WICC), Napa River Watershed Symposium, and others)
  - Regularly updated websites (countyofnapa.org and napawatersheds.org)
- Outreach Plan Update to begin at March 2019 WICC meeting

Lowlands Subbasin Boundary Modification

- Napa-Sonoma Lowlands Subbasin boundary modification proposed by Sonoma Valley GSA to align Subbasin boundaries with Napa-Sonoma County line
- Napa County, Flood Control District, and Los Carneros Water District provided letters of support
- DWR approved the modification in February 2019
- The Napa-Sonoma Lowlands Subbasin Prioritization is due to be announced soon (Draft “Spring 2019”, Final “Late Spring 2019”, per DWR)

2018 Annual Report: Summary

- GW levels stable in majority of wells Napa Valley Subbasin
  - Groundwater levels somewhat lower in 2018 (Dry year) compared to 2017 (Very Wet year)
  - 2018 groundwater in storage remained above amounts in 2014 and 2015.
- GW level declines in MST moderated
  - Some wells stabilized since 2008/2009
  - Some wells stabilized in more recent years

2018 Annual Report: Recommendations

- Outreach Plan Update
- Refine MW Distribution
- Ongoing WQ Sampling
- Improve Data Collection from Discretionary Permittees
- Continue to Evaluate GDE Distribution and Water Use
- Groundwater Ordinance Updates
  - In response to NE Napa Study & Management Area
- Develop Well Testing Standards

Thank You