Napa Valley Subbasin

Groundwater Conditions Update
Water Year 2022

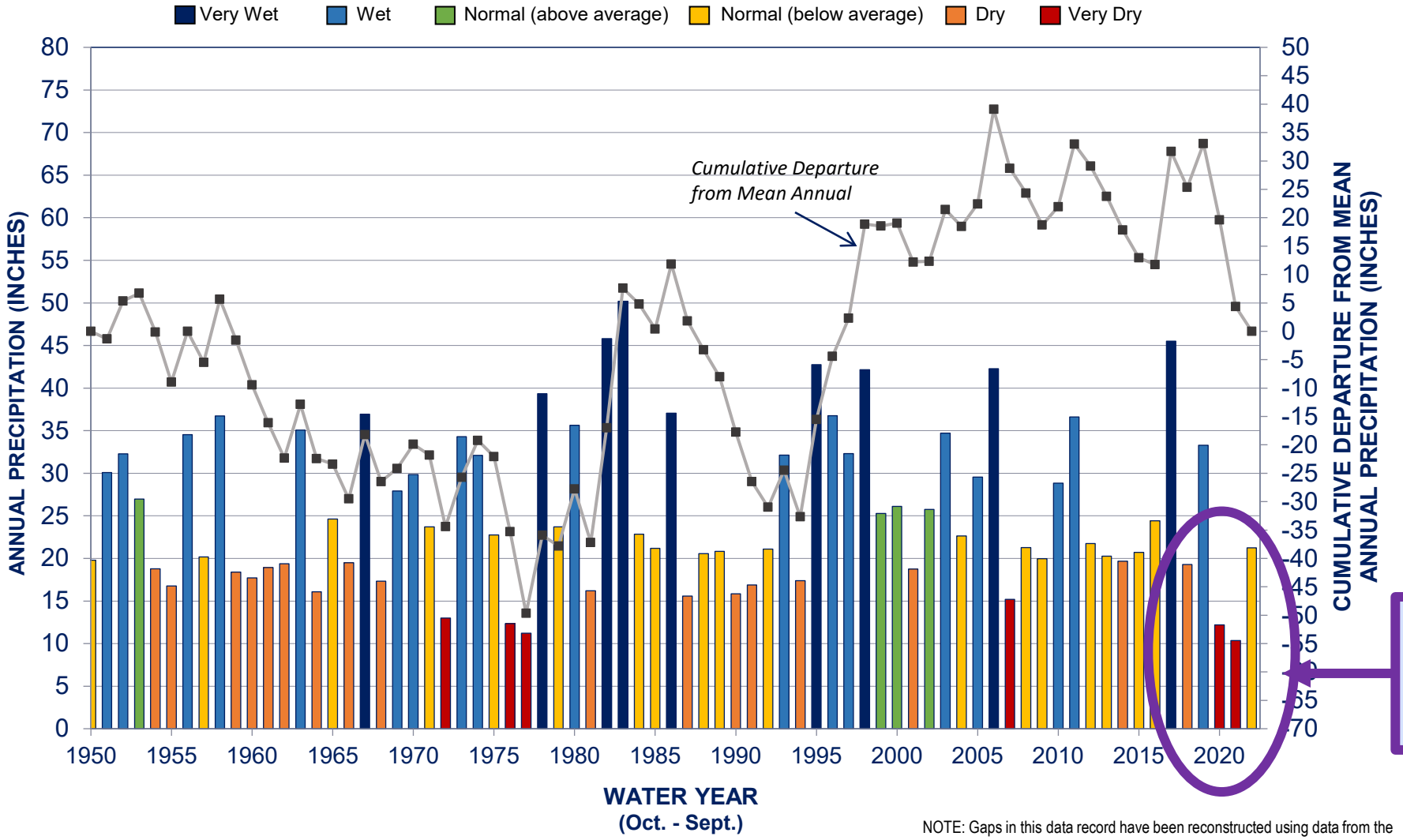
Watershed Information & Conservation Council

January 26, 2023

Vicki Kretsinger Grabert

Luhdorff & Scalmanini
Consulting Engineers

Historical Precipitation at Napa State Hospital



NOTE: Gaps in this data record have been reconstructed using data from the Oakville CIMIS station (77) and NOAA Saint Helena, CA station

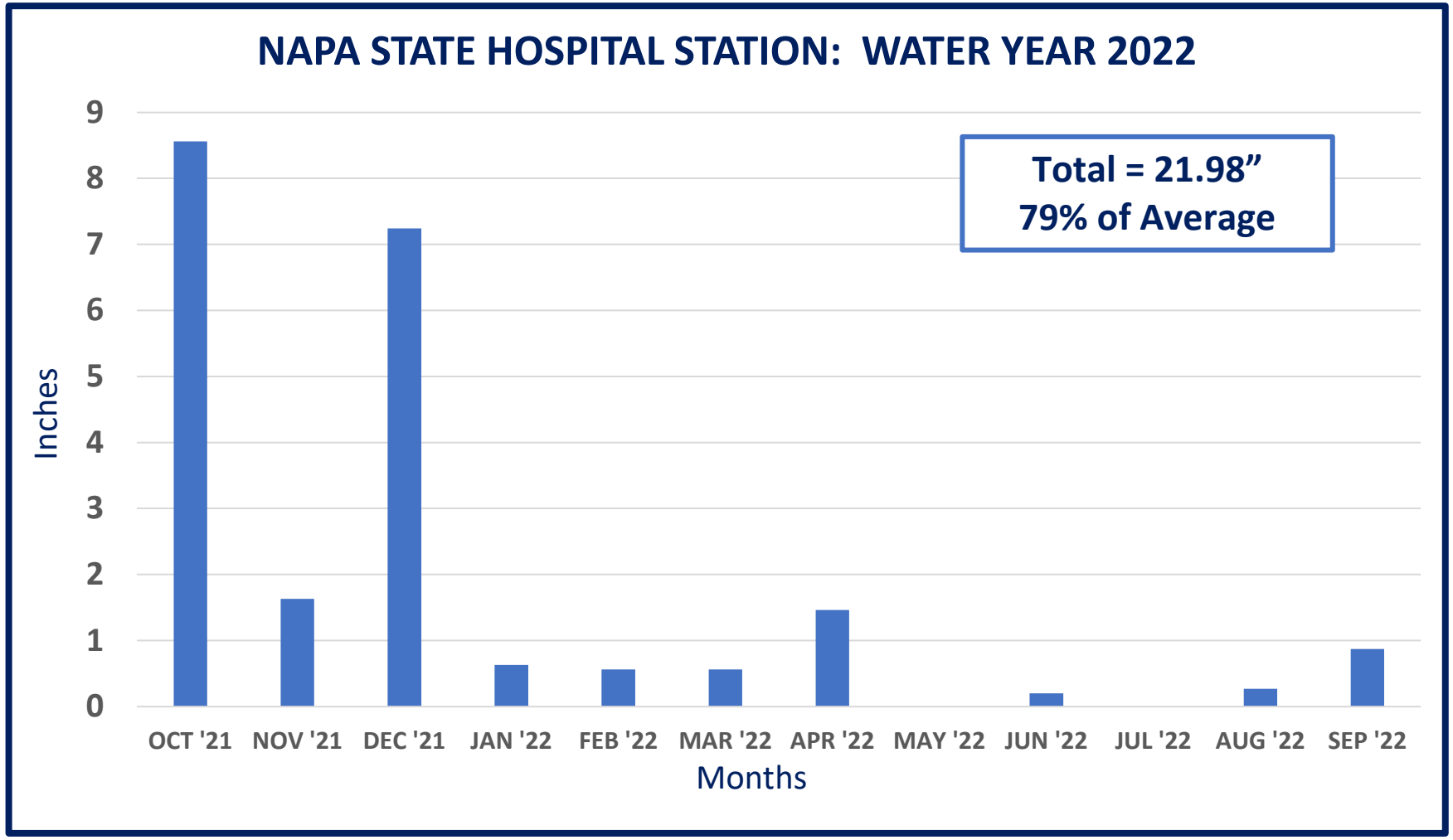
\\server-01\Clerical\2020\20-051 Napa County GSA - GW Sustainability Plan & Related Support 3yr Agreement\DATA\Precip\NSH_Cumulative_Dep.xlsx

Luhdorff & Scalmanini Consulting Engineers

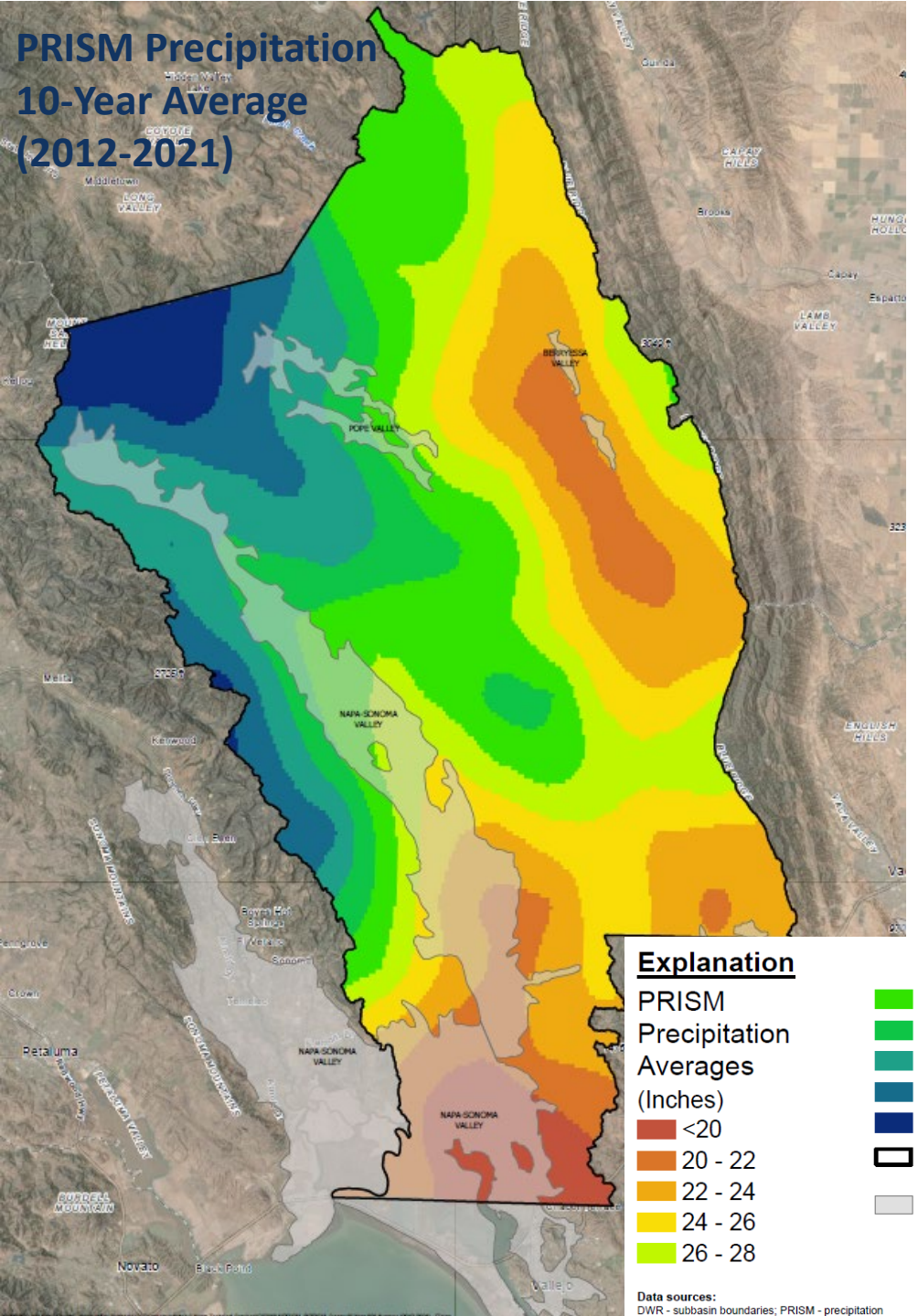
FIGURE 2-6
Napa State Hospital Water Year Precipitation and Cumulative Departure
Water Years 1950 - 2022

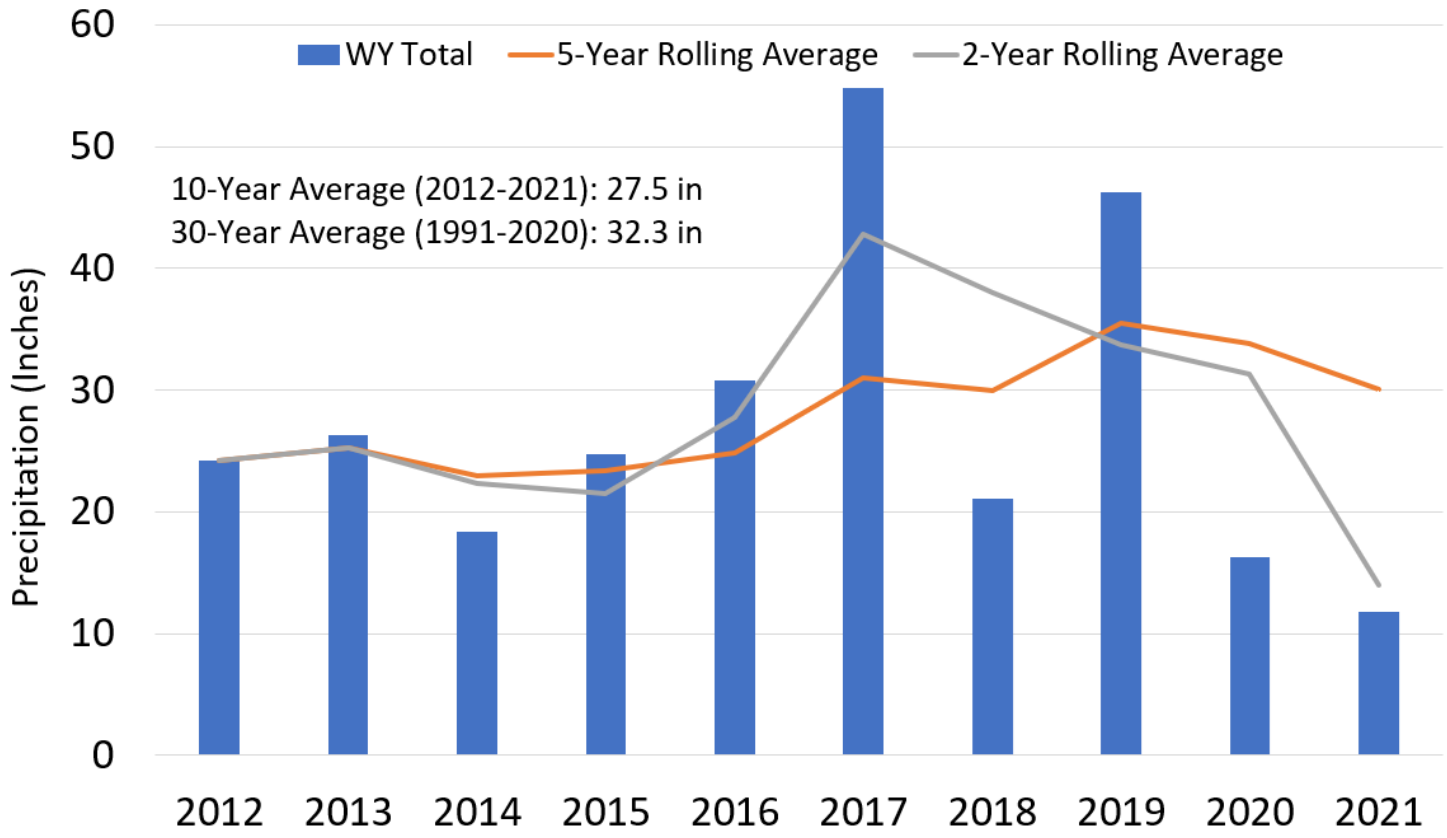
Napa Valley Subbasin Groundwater Sustainability Plan

Precipitation: Water Year 2022



Precipitation Changing: Drier 10-Year Average





Sustainable Management Criteria (SMC) for Chronic Lowering of Groundwater Levels (CGWL)

Minimum Threshold

Minimum static October groundwater elevation prior to 2015

Undesirable Result

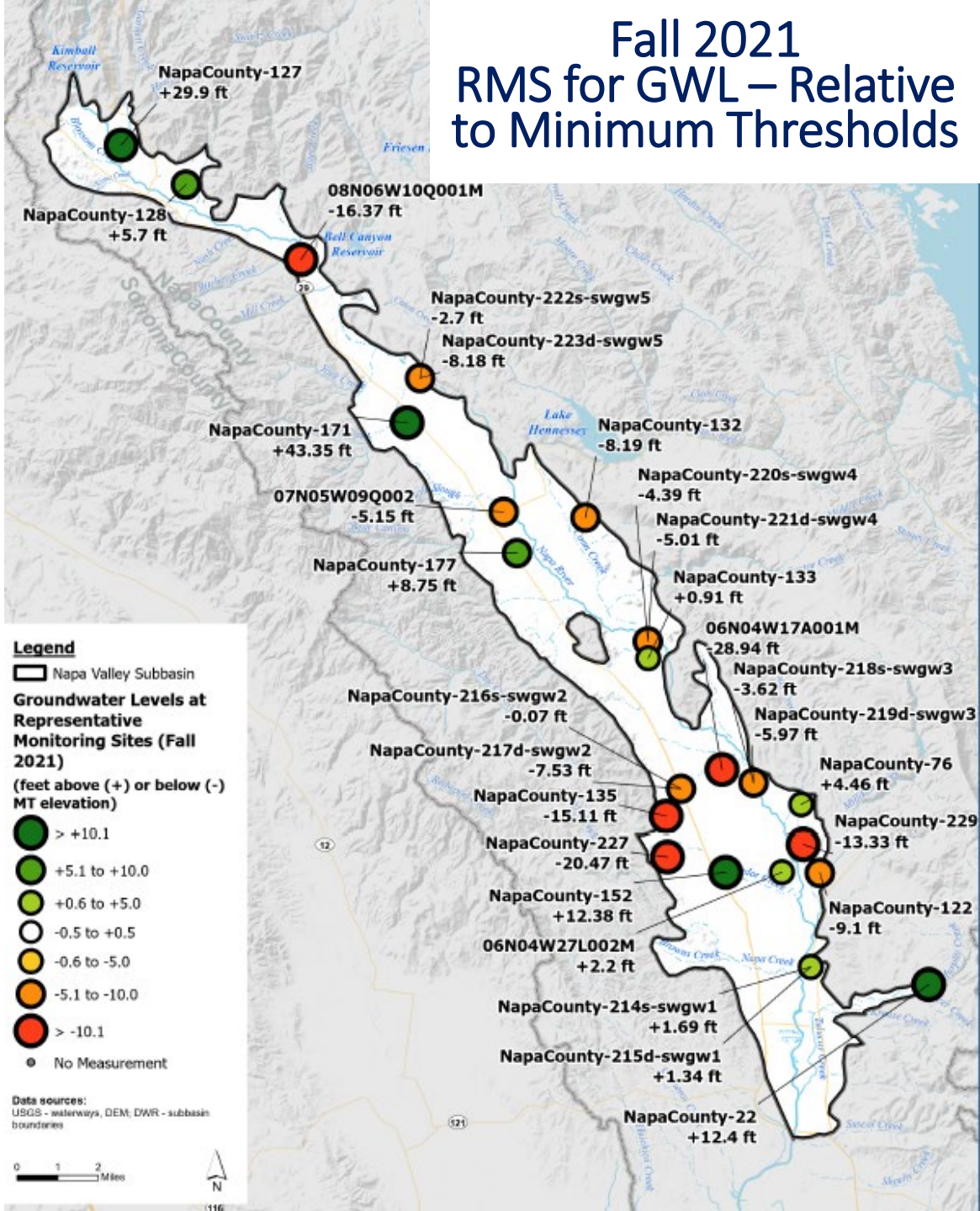
20% of designated RMS well levels fall below the MT in fall (October) for 3 consecutive years of fall measurements in non-drought years

Trigger

20% of designated RMS well levels are below the MT in the Fall during a single year

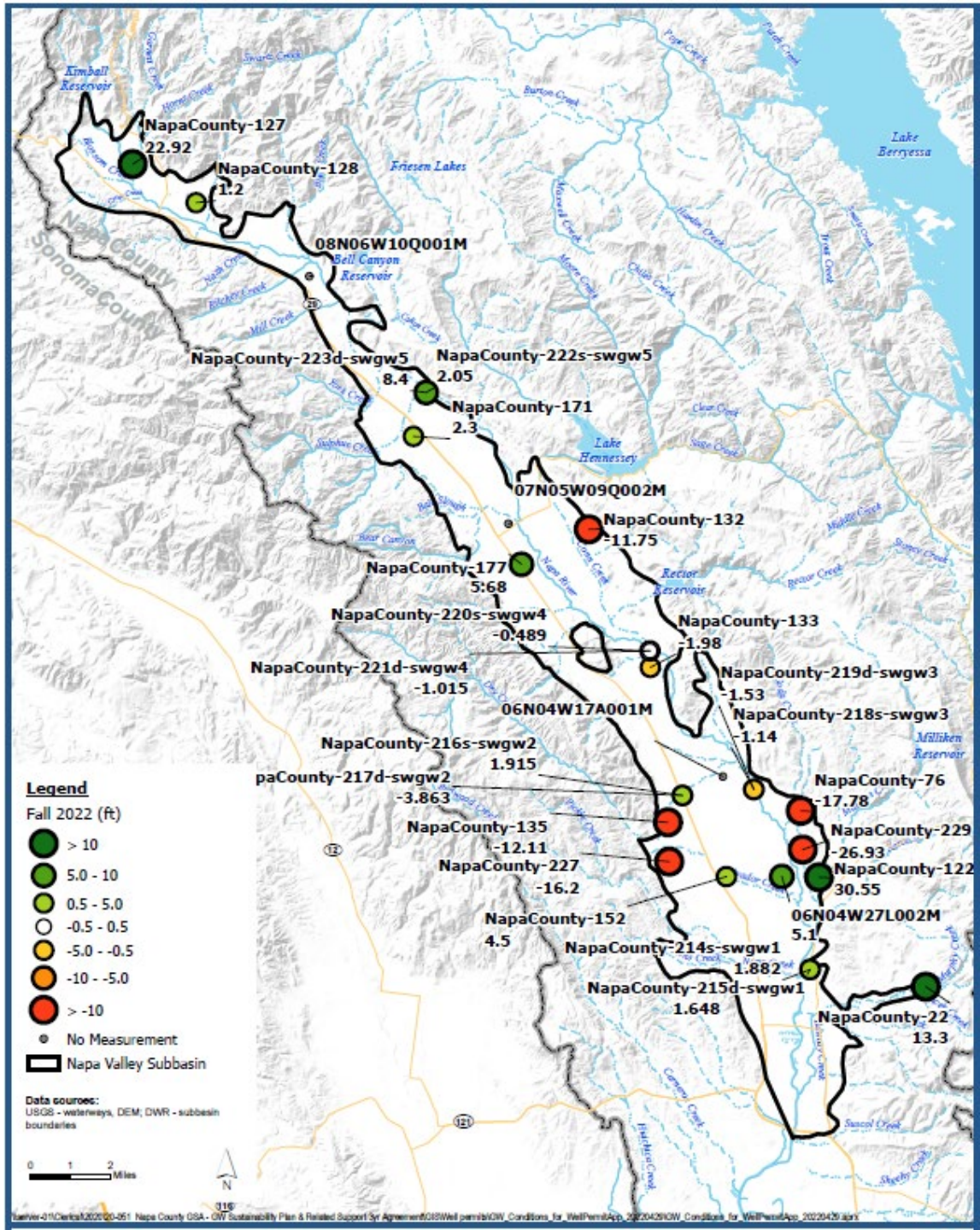
RMS Groundwater Levels: Fall 2021

- Representative Monitoring Sites (RMS) are used to measure the sustainability of an area.
- 27 RMS wells measured
- 16 of the 27 wells (59%) had exceedances
  - 5 wells had exceedances of > 10 feet
  - 7 wells had exceedances of 5-10 ft
  - 3 wells had exceedances of 2-5ft
  - 1 well had exceedances of 0-1ft



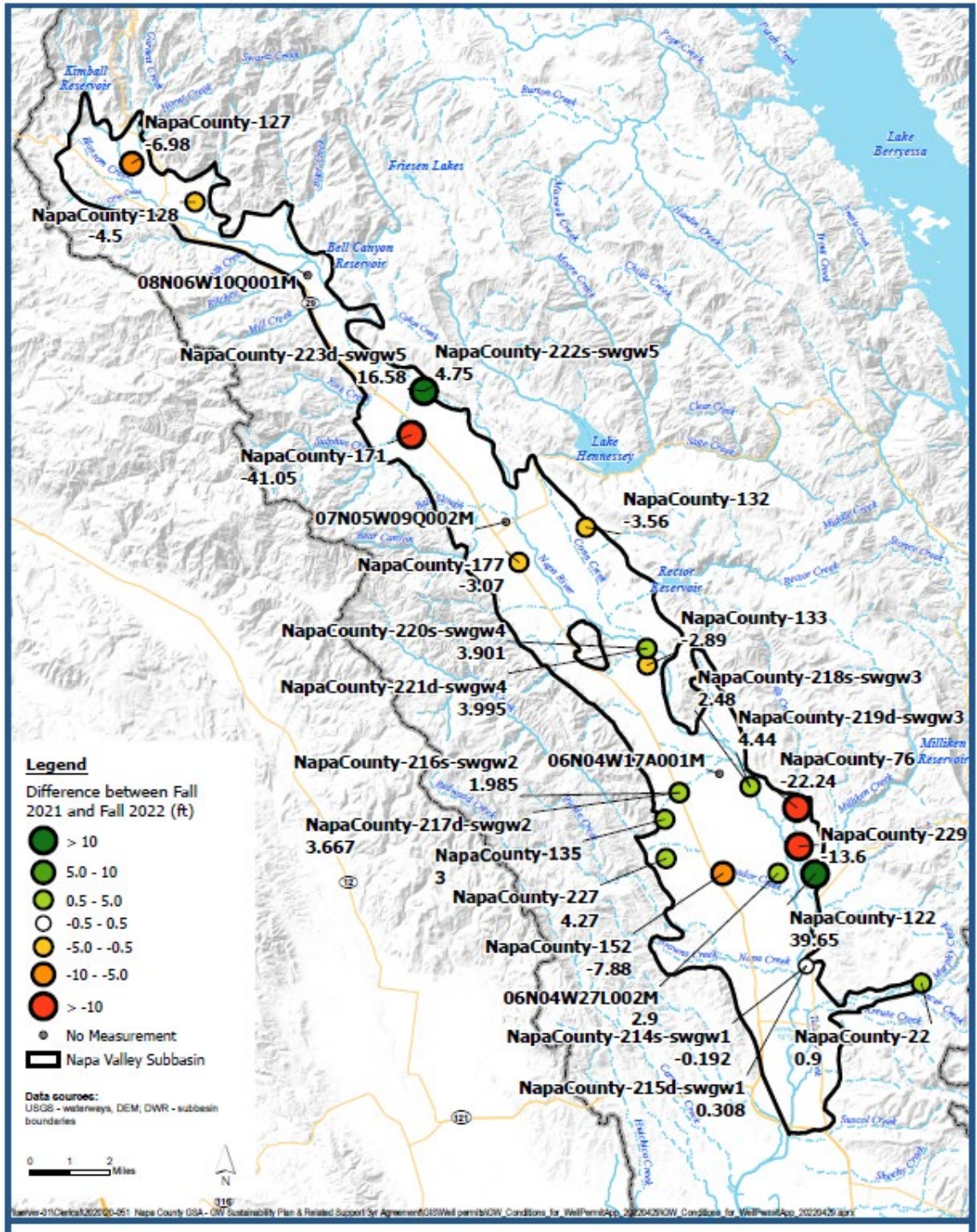
RMS Groundwater Levels: Fall 2022

- 24 RMS wells measured
- 11 of the 24 wells (46%) had exceedances
  - 5 wells had exceedances of > 10 ft
  - 1 well had exceedance of 2-5ft
  - 5 wells had exceedances of 0-1ft

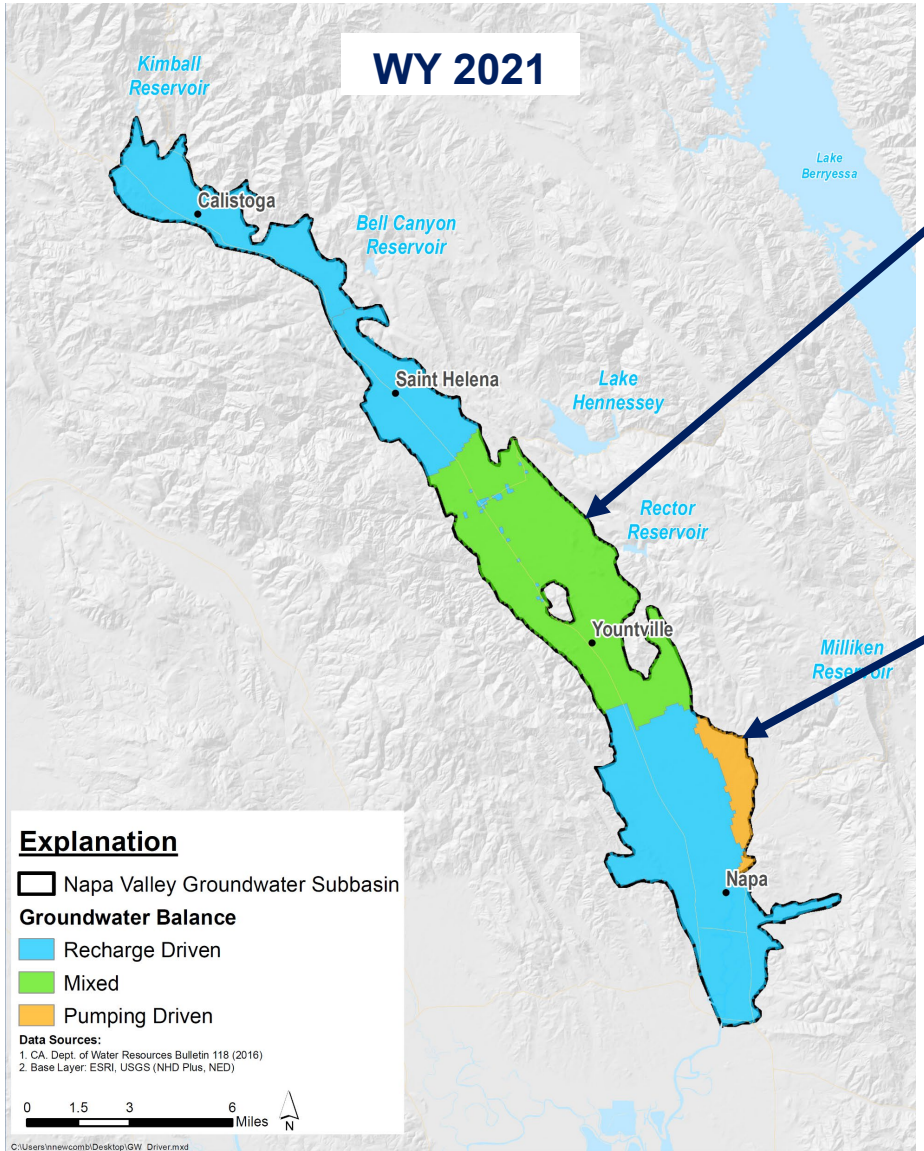


Comparison: Fall 2022 to Fall 2021 (RMS for CGWL)

- Precipitation Fall 2021 helped improve conditions somewhat
- Still, 9 wells had lower groundwater levels in Fall 2022 compared to Fall 2021 levels

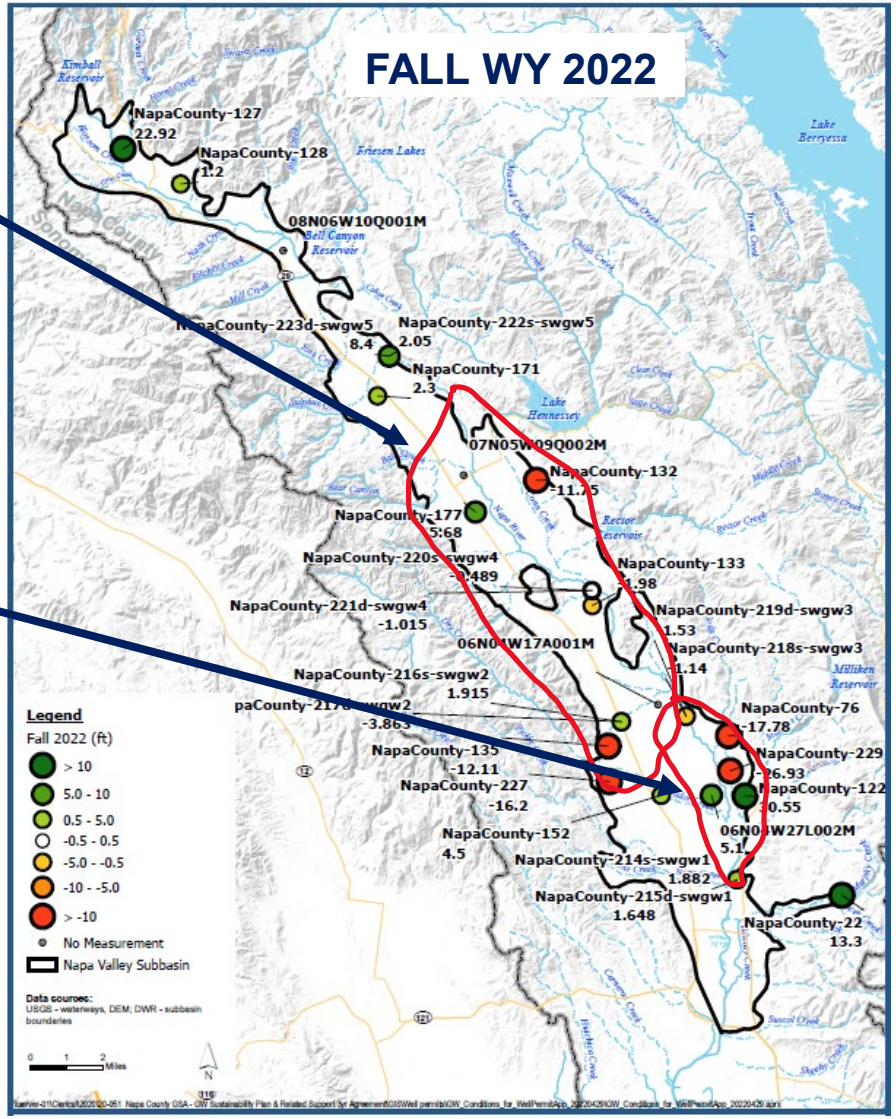


Drought Impacts by Areas



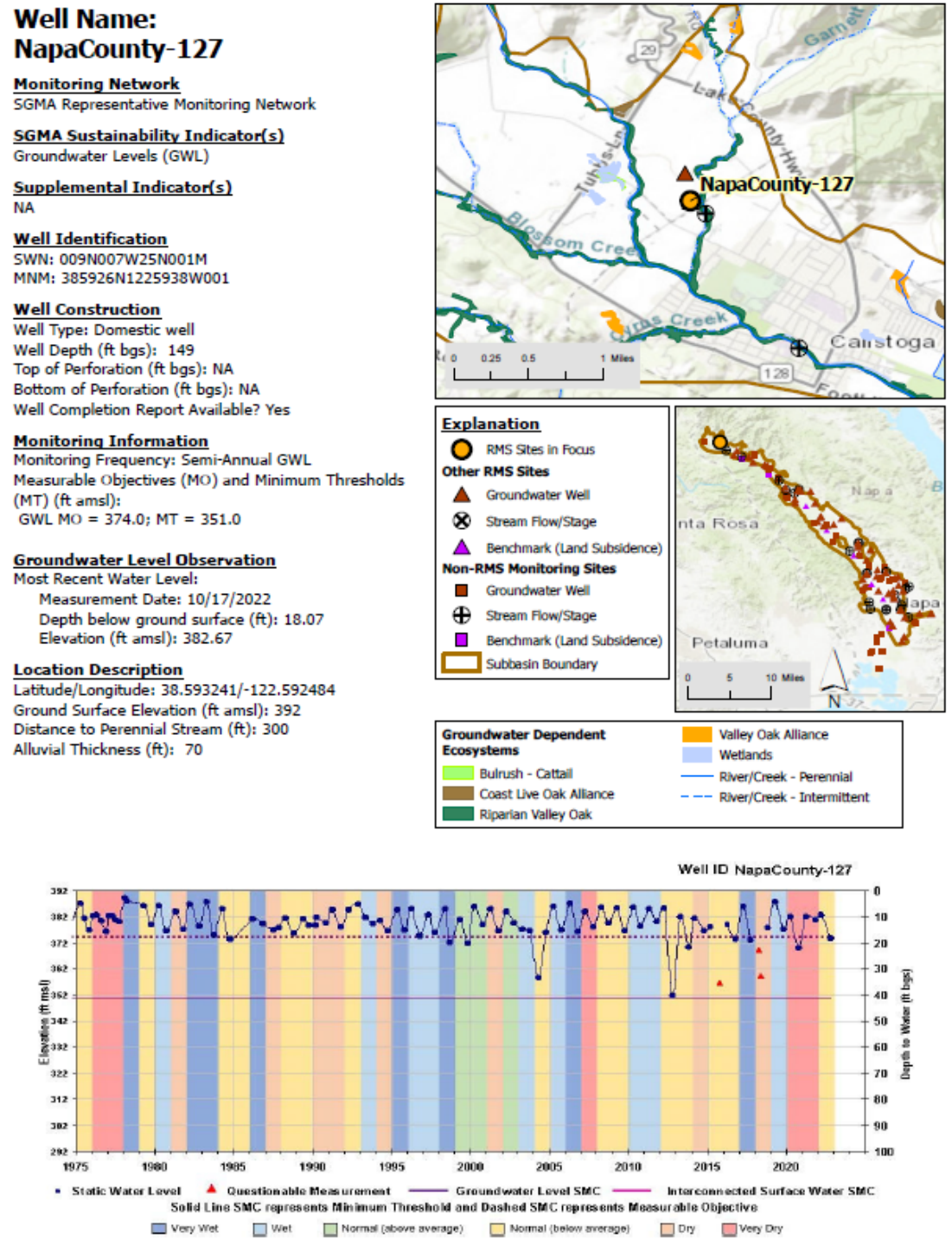
Drought Effects:
Mixed impacts of both diminished recharge and additional pumping. Relative to average.

Northeast Napa Management Area:
Predominately pumping driven impacts.



RMS Template:
Updated Sheets for Fall 2022

- Data sheets are provided for all RMS wells that monitor groundwater levels in Napa Valley.
- Information pertaining to location, Sustainability Indicator(s), construction information, and nearby features are included.
- These are living documents and can be updated and modified based on requests.



MT Exceedance Summary for Fall 2022

- 11 of the 24 wells (46%) had exceedances
- 6 RMS wells with 3 consecutive years of Fall MT exceedances
- No UR since at least 2 of the 3 years are drought years

Table 1 Fall Groundwater Levels with respect to Minimum Thresholds for Chronic Lowering of Groundwater Levels

Chronic Lowering of Groundwater RMS Wells	Minimum Thresholds (ft msl)	Fall Groundwater Elevations (ft)			Comments
		2020	2021	2022	
06N04W17A001M	42	30.56	13.06	--	
06N04W27L002M	-2	5.4	0.2	3.1	
07N05W09Q002M	126	128.34	120.85	--	
08N06W10Q001M	270	248.43	253.63	--	
NapaCounty-122	-45	-52.35	-54.1	-14.45	
NapaCounty-127	351	370.02	380.9	373.92	
NapaCounty-128	330	330.08	335.7	331.2	
NapaCounty-132	109	106.3	100.81	97.25	Three Years of MT Exceedance
NapaCounty-133	73	71.8	73.91	71.02	
NapaCounty-135	33	52.68	17.89	20.89	
NapaCounty-152	55	60.16	67.38	59.5	
NapaCounty-171	165	158.27	208.35	167.3	
NapaCounty-177	131	136.51	139.75	136.68	
NapaCounty-214s-swgw1	2	3.432	3.69	3.882	
NapaCounty-215d-swgw1	2	3.198	3.34	3.648	
NapaCounty-216s-swgw2	66	70.995	65.93	67.915	
NapaCounty-217d-swgw2	60	59.627	52.47	56.137	Three Years of MT Exceedance
NapaCounty-218s-swgw3	29	29.04	25.38	27.86	
NapaCounty-219d-swgw3	29	28.59	23.03	27.47	Three Years of MT Exceedance
NapaCounty-22	150	163.55	162.4	163.3	
NapaCounty-220s-swgw4	75	74.871	70.61	74.511	Three Years of MT Exceedance
NapaCounty-221d-swgw4	75	74.205	69.99	73.985	Three Years of MT Exceedance
NapaCounty-222s-swgw5	185	185.47	182.3	187.05	
NapaCounty-223d-swgw5	164	156.12	155.82	172.4	
NapaCounty-227	59	--	38.53	42.8	
NapaCounty-229	-69	-87.59	-82.33	-95.93	Three Years of MT Exceedance
NapaCounty-76	-29	-22.65	-24.54	-46.78	

SMC for Depletion of Interconnected Surface Water

Minimum Threshold

- Minimum static October groundwater elevation between 2005-2014 (10 years prior to SGMA adoption)

  Summer/early Fall (June to October) streamflow depletion volumes exceeding the second highest seasonal volume of streamflow depletion that occurred from 2005-2014 at 2 RMS on Napa River at Pope St. and Oak Knoll Ave. [NEED MODEL– will occur for Annual Report]

Undesirable Result

- 20% of designated RMS well levels fall below the MT in Fall (October) for 3 consecutive years of fall measurements

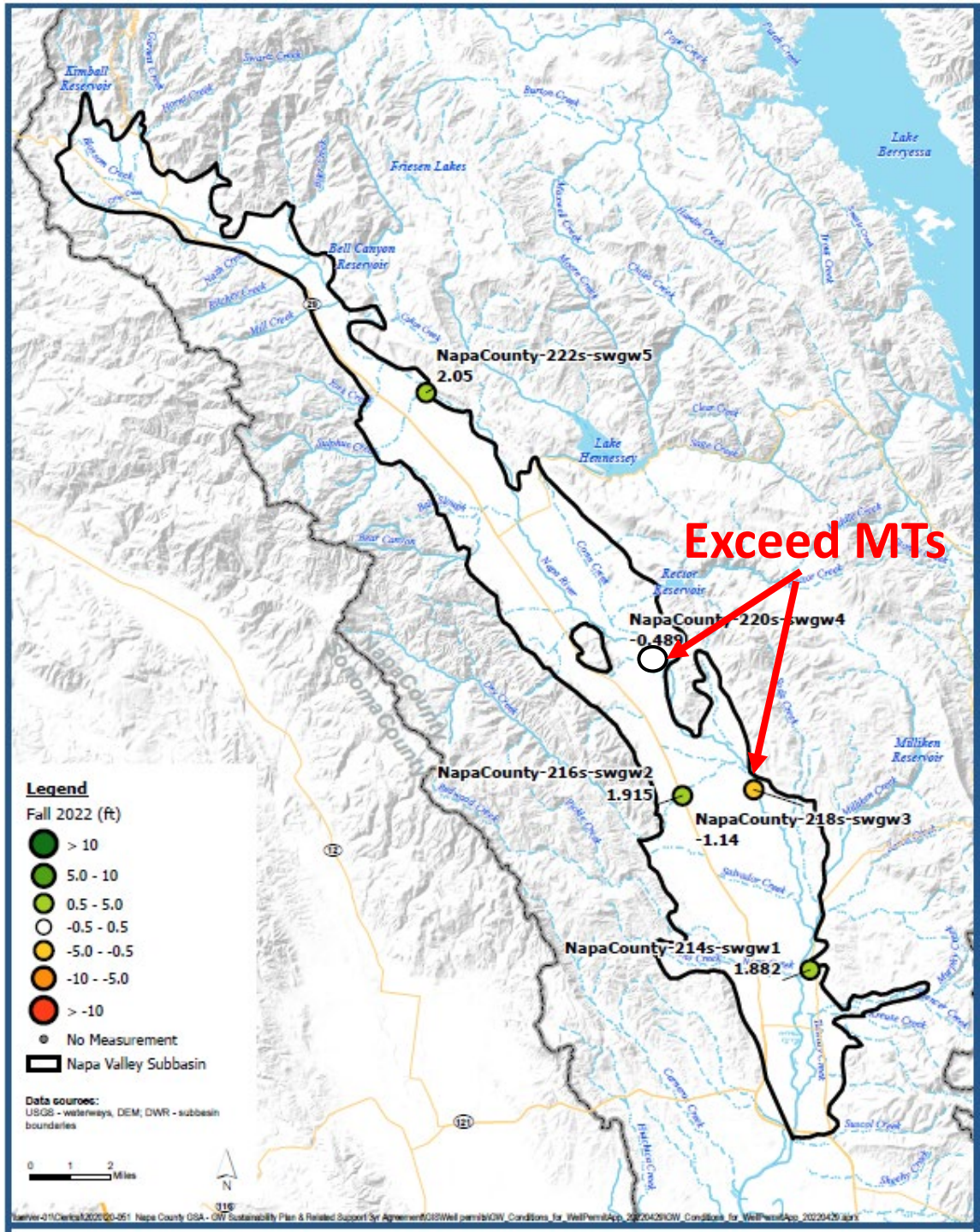
  Exceedance of MT for volume of streamflow depletion occurring 3 consecutive years at either of above stations. [NEED MODEL– will occur for Annual Report]

Trigger

Occurs when there is an exceedance of the MT in the Fall for either Groundwater Level or Streamflow Depletion Volume in a single year

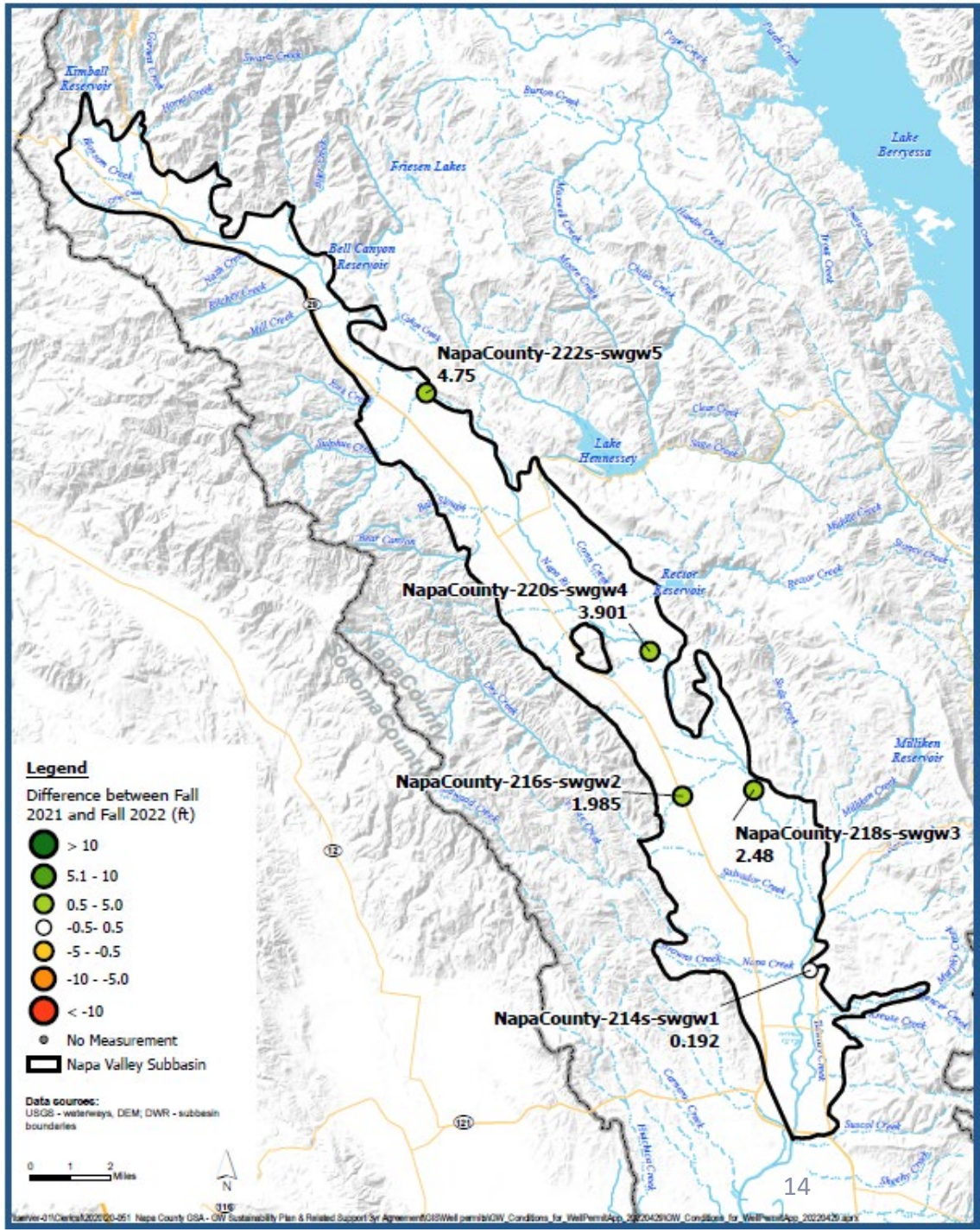
Interconnected Surface Water: GW Levels and MTs

- 2 RMS/ISW wells with MT exceedances
- 1 RMS/ISW well with 3 consecutive Fall exceedances
  (north end of Northeast Napa area; Oak Knoll SW/GW site)



Comparison: Fall 2022 to Fall 2021 (RMS for ISW)

- Precipitation in Fall 2021 helped improve conditions somewhat
- Fall 2022 groundwater levels at RMS/ISW wells are higher than in Fall 2021
- Still, 2 RMS/ISW wells with MTs (shown on prior slide)



Interconnected Surface Water: MT Exceedance Summary for Fall 2022

Table 2 Fall Groundwater Levels with respect to Minimum Thresholds for Interconnected Surface Water

Interconnected Surface Water RMS Wells	Minimum Thresholds (ft msl)	Fall Groundwater Elevations			Comments
		2020	2021	2022	
NapaCounty-214s-swgw1	2	3.432	3.69	3.882	
NapaCounty-216s-swgw2	66	70.995	65.93	67.915	
NapaCounty-218s-swgw3	29	29.04	25.38	27.86	
NapaCounty-220s-swgw4	75	74.871	70.61	74.511	Three Years of MT Exceedance
NapaCounty-222s-swgw5	185	185.47	182.3	187.05	

- 2 of the 5 wells (40%) had MT exceedances
- 1 RMS well with 3 consecutive years of Fall MT exceedances
- UR occurred since one RMS/ISW well had 3 consecutive Fall exceedances (any water year type)

RMS Groundwater Levels: Response Action Required

- 11 RMS/CGWL wells have Fall 2022 MT exceedances
- 6 RMS/CGWL wells have three consecutive Fall MT exceedances
  - **No UR for Chronic GWL lowering since two very dry years (2020 & 2021) and one normal (below avg.) year**
- 2 RMS/ISW wells have Fall 2022 MT exceedances
- 1 RMS/ISW well has three consecutive Fall MT exceedances
  - **UR has occurred for depletion of ISW since this applies to any water year type**

Sustainability Indicator	WY 2021	WY 2022
	UR: Yes or No	UR: Yes or No
Chronic GWL Lowering (CGWL)	**No**	**No**
Depletion of Interconnected Surface Water (ISW)	**No**	**Yes**
GW Quality Degradation	**No**	**TBA**
Reduction of GW Storage	**Yes**	**TBA**
Land Subsidence	**No**	**TBA**
Seawater Intrusion	No	TBA

Response Actions: Near-Term and Subsequent

Very Near-Term

- Voluntary Drought Measures
- GSA: Subbasin
- County: Watershed/County
- Local: Cities/Communities
- Agricultural/Wineries

Short Term

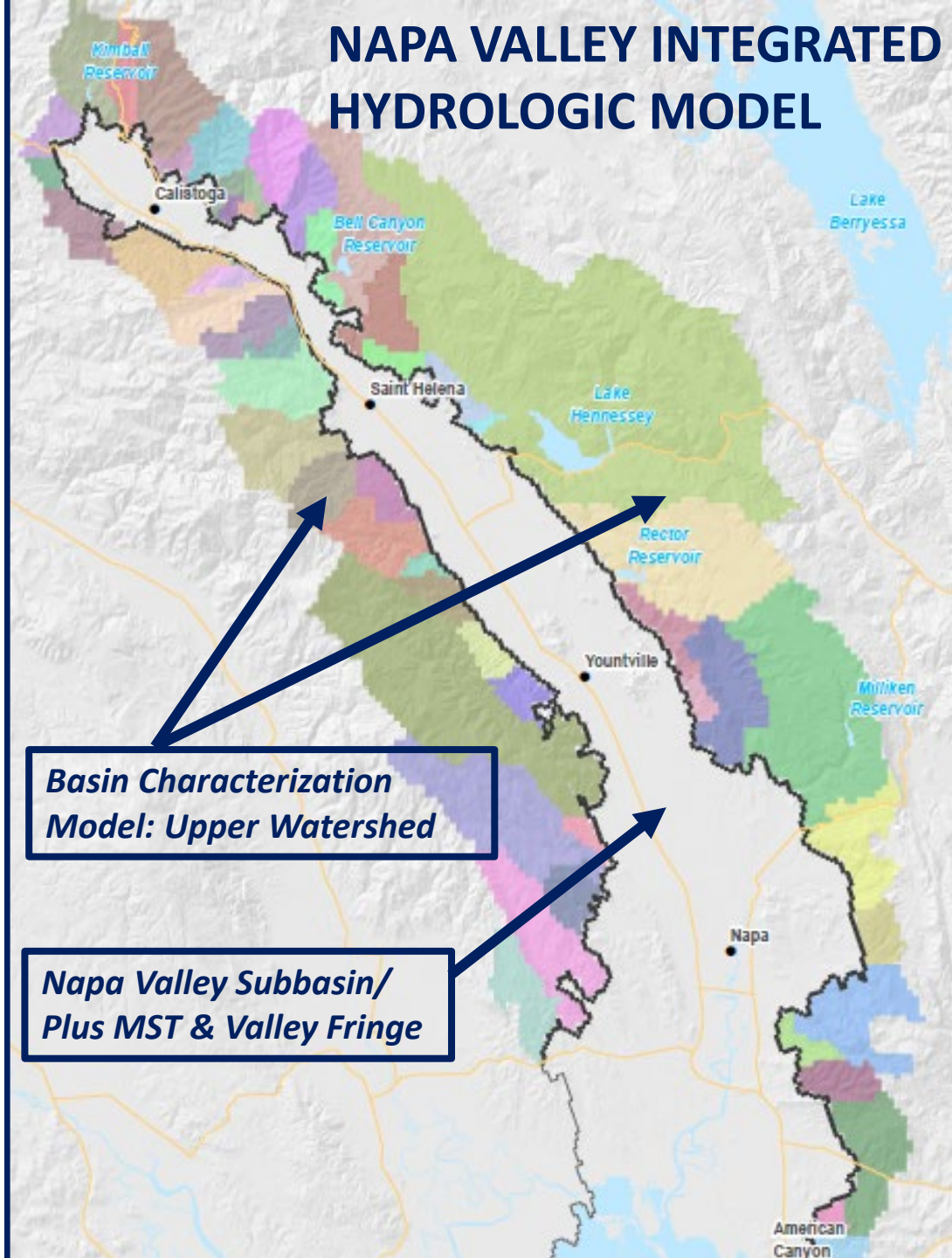
- Stormwater Resource
- Water Conservation
- Groundwater Pumping Reduction
- Interconnected Surface Water & GDEs

Mid-Term

- ID Recharge Areas of Interest
- Explore Recharge Opportunities
- Implement Workplans
- GW Pumping Reduction Options

Coming Soon: GSP Annual Report

- DWR Due Date: April 1, 2023
- Includes County wide Groundwater Monitoring
- Includes All Information Required by GSP Regulations and Other Updates for WY 2022
- Update of Napa Valley Integrated Hydrologic Model (NVIHM)
  - Update of Basin Characterization Model (BCM) for Napa River Watershed
  - Update Water Budget through WY 2022



Thank You

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