Napa County

Agenda

Thursday, March 9, 2023
1:30 PM

Board of Supervisors Chambers
1195 Third Street, Third Floor

Technical Advisory Group

Member Monica Cooper
Member Albert Filipelli
Member Mathias Kondolf
Member Julie Chambon
Member Miguel Garcia

Brian Bordona, Secretary- Interim Director
Chris Apallas, County Counsel
Jamison Crosby, Natural Resources Planning Manager
Alexandria Quackenbush, Committee Clerk
Aime Ramos, Committee Clerk
Jason Hall, Committee Clerk

HOW TO WATCH OR LISTEN TO THE NAPA COUNTY TECHNICAL ADVISORY GROUP

The Napa County Technical Advisory Group realizes that not all County residents have the same ways to stay engaged, so several alternatives are offered. Please watch or listen to the meetings in one of the following ways:

1. Listen on your phone - via Zoom at 1-669-900-6833 Enter Meeting ID 894 2608 5834 once you have joined the meeting.
2. Watch via the Internet - view the Live Stream via Zoom by https://www.zoom.us/join, then enter Meeting ID 894 2608 5834.

You may submit public comment for any item that appears on the agenda or general public comment for any item or issue that does not appear on the agenda, as follows:

Via Email -

Send your comment to the following email address: meetingclerk@countyofnapa.org . Please provide your name and indicate the agenda item upon which you are commenting. Emails received will not be read aloud but will still become part of the public record.

Online -

1. Use the Zoom attendee link: https://countyofnapa.zoom.us/j/89426085834. Make sure the browser is up to date.
2. Enter an email address and following naming convention:
Item #, First Name Last Name (Ex: 7A John Smith)
3. When the Chair calls for the item on which you wish to speak, click “raise hand.” Mute all other audio before speaking to avoid feedback.
4. When called, please limit your remarks to three minutes. After the comment, your microphone will be muted.

By Phone -

1. Call the Zoom phone number and enter the webinar ID: 1-669-900-6833 Enter Meeting ID 89426085834
2. When the Chair calls for the item on which you wish to speak, press *9 to raise a hand. **Please note that phone numbers in their entirety will be visible online while speakers are speaking**
3. Please limit your remarks to three minutes. After the comment has been given, your phone will be muted.

All comments will be heard in the order received.

The above-identified measures exceed all legal requirements for participation and public comment, including those imposed by the Ralph M. Brown Act. If you have any questions, contact us via telephone at (707) 253-4417 or send an email to meetingclerk@countyofnapa.org.

1. CALL TO ORDER; ROLL CALL

2. PUBLIC COMMENTS AND RECOMMENDATIONS
(The Committee invites comments and recommendations from the public concerning issues relevant to the charge of the Technical Advisory Group. Anyone who wishes to speak to the Technical Advisory Group on such a matter, if it is not on the agenda, may do so at this time. At the discretion of the Chair, individuals will be limited to a three-minute presentation. No action will be taken by the Technical Advisory Group as a result of any item presented at this time.)

3. APPROVAL OF MINUTES

The Secretary of the committee requests approval of the minutes from the February 9, 2023 TAG meeting. **23-0405**

Attachments: Draft TAG Feb 9 Meeting Minutes

4. AGENDA REVIEW

5. ADMINISTRATIVE ITEMS

A Provide the Water Year 2022 Annual Report on groundwater conditions in Napa County with a focus on the Napa Valley Subbasin and an update on Groundwater Sustainability Plan implementation. **23-0414**

Attachments: Annual Report Presentation, March 9, 2023
Compiled TAG Framing Questions/Discussion Topics, February 2023

B Provide an update to the Technical Advisory Group (TAG) on progress developing potential water conservation actions for the Groundwater Pumping Reduction Workplan (GPR Workplan). This will include a discussion of feedback on existing certification programs, on-farm water conservation practices, and broader water conservation practices. The presentation (see Supporting Documents) will summarize existing and potential practices under consideration for voluntary water savings, and a matrix summary format for organizing the practices. Several framing questions are included to receive feedback and direction from the TAG. **23-0409**

Attachments: ERA Economics Presentation, GPR Workplan March 2023
GW Pumping Reduction Workplan, Draft Outline, Feb, 5, 2023

C Provide a presentation to the Technical Advisory Group (TAG) on the Stream Watch network, existing data and future planned sites to better inform data gaps in dry and wet stream conditions across the Napa Valley River Watershed. **23-0406**

6. FUTURE AGENDA ITEMS

7. ADJOURNMENT

I HEREBY CERTIFY THAT THE AGENDA FOR THE ABOVE STATED MEETING WAS POSTED AT A LOCATION FREELY ACCESSIBLE TO MEMBERS OF THE PUBLIC AT THE NAPA COUNTY ADMINISTRATIVE BUILDING, 1195 THIRD STREET, NAPA, CALIFORNIA ON 3/6/2023 BY 12:30PM. A HARDCOPY SIGNED VERSION OF THE CERTIFICATE IS ON FILE WITH THE COMMITTEE CLERK AND AVAILABLE FOR PUBLIC INSPECTION.

Alexandria Quackenbush (By e-signature)

ALEXANDRIA QUACKENBUSH, Committee Clerk

Napa County

Board Agenda Letter

Technical Advisory Group	**Agenda Date:** 3/9/2023	**File ID #:** 23-0405

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Interim Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: TAG Minutes from February 9, 2023

RECOMMENDATION

The Secretary of the committee requests approval of the minutes from the February 9, 2023 TAG meeting.

EXECUTIVE SUMMARY

The TAG held its seventh meeting on February 9, 2023. Minutes were prepared and are ready for the committee's approval.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

The TAG held its seventh meeting on February 9, 2023. Minutes were prepared and are ready for the committee's approval.

Draft Meeting Minutes

Technical Advisory Group

Monica Cooper
Albert Filipelli
Mathias Kondolf
Julie Chambon
Miguel Garcia

Brian Bordona, Secretary
Chris Apallas, County Counsel
Jamison Crosby, Natural Resources Planning Manager
Brendan McGovern, Natural Resources, Planner III
Alexandria Quackenbush, Committee Clerk
Jason Hall, Committee Clerk
Aime Ramos, Committee Clerk

Thursday, February 9, 2023 **1:30 PM** **Virtual Via ZOOM**

1. CALL TO ORDER / ROLL CALL

Group Members Present: Monica Cooper, Albert Filipelli, Mathias Kondolf, Julie Chambon, Miguel Garcia.

Group Members Excused: None.

Staff Present: Jamison Crosby, Brendan McGovern, Aime Ramos, Alexandria Quackenbush.

2. PUBLIC COMMENTS AND RECOMMENDATIONS

(1) Public comment was heard.

3. APPROVAL OF MINUTES

January 12, 2023 minutes were approved.
MG-JC-AF-MC-MK

4. AGENDA REVIEW

Jamison Crosby gave the agenda review.

5. ADMINISTRATIVE ITEMS

A. Approve the Summary of framing questions/topics discussed by the Technical Advisory Group (TAG) during Fall 2022 and discussion of framing summary in the January 2023 meeting.

Members voted to approve the revised questions.
JC-MG-AF-MC-MK

B. Provide information to the Technical Advisory Group (TAG) on the development of Managing Interconnected Surface Water (ISW) and Groundwater Dependent Ecosystems (GDEs) in the Napa Valley Subbasin Workplan.
The Technical Advisory Group received the presentation from Christian Braudrick. No action taken.

C. Provide preliminary information to the Technical Advisory Group (TAG) on potential water conservation actions and existing certification programs to support development of the Groundwater Pumping Reduction Workplan (GPR Workplan). Summarize updates to the draft GPR Workplan outline for the TAG. A presentation (see supporting Documents) will summarize this preliminary information for the TAG and includes several framing questions to receive initial feedback and direction from the TAG.
The Technical Advisory Group received the presentation from Vicki Kretsinger, Richael Young and Duncan MacEwen. No action taken.

6. FUTURE AGENDA ITEMS

- The TAG will possibly have Paul Blank from the RCD give a presentation on the Stream Watch Program.
- The annual report is due on April 1st. The TAG members will have a chance to review it before the next scheduled regular meeting on March 9th, 2023.

7. ADJOURNMENT

Meeting adjourned to March 9, 2023 regular meeting.

_____
ALEXANDRIA QUACKENBUSH, Clerk of the Committee

Key
Vote: MC = Monica Cooper; AF = Albert Filipelli; MK = Mathias Kondolf;
JC = Julie Chambon; MG = Miguel Garcia.
The maker of the motion and second are reflected respectively in the order of the recorded vote.
Notations under vote: N = No; A = Abstain; X = Excused

Napa County

Board Agenda Letter

Technical Advisory Group	**Agenda Date:** 3/9/2023	**File ID #:** 23-0414

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Interim Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Water Year 2022 Annual Report on groundwater conditions

RECOMMENDATION

Provide the Water Year 2022 Annual Report on groundwater conditions in Napa County with a focus on the Napa Valley Subbasin and an update on Groundwater Sustainability Plan implementation.

EXECUTIVE SUMMARY

As in the past eight consecutive annual reports, this Water Year 2022 Annual Report includes an update on groundwater conditions in the Napa Valley Subbasin and elsewhere in Napa County. This is the second Annual Report prepared to support implementation of the Napa Valley Subbasin Groundwater Sustainability Plan (GSP), adopted by the Napa County Groundwater Sustainability Agency (NCGSA) in January 2022 and approved by the California Department of Water Resources (DWR) on January 26, 2023. This Report reflects an ongoing commitment by the County and NCGSA to sustainably manage groundwater resources by implementing an adaptive management approach supported by best available information. To better manage and respond to changing conditions, the NCGSA formed a Technical Advisory Group (TAG) to advise the NCGSA and aid in the implementation of the Napa Valley Subbasin GSP. The five-member committee was first convened on August 11, 2022.

Water Year 2022 (defined as October 1, 2021 through September 30, 2022) saw a continuation of drought conditions throughout Napa County and the Napa Valley Subbasin. Water Years 2020 and 2021 registered as the driest consecutive years since at least the 1890s, as measured by the precipitation gauge at the State Hospital in Napa. Despite the early rains in October and December 2021, minimal precipitation occurred in later months in Water Year 2022. The precipitation total in WY 2022 was 21.24 inches and registered as a normal (below average) year.

As documented in the attached Water Year 2022 Annual Report, the Minimum Thresholds for the following Sustainability Indicators have been exceeded:

1. Chronic groundwater level decline;
2. Reduction in groundwater storage;
3. Depletion of interconnected surface water;
4. Land subsidence; and
5. Groundwater quality.

There have been substantial groundwater level declines in more than 20% of the Subbasin representative monitoring site wells. Two monitoring wells at stream monitoring sites indicated consecutive fall occurrences in effects on the level of interconnected surface water at those locations. Groundwater declines in monitoring wells indicate the potential for subsidence, although InSAR land surface displacement data indicate that the Minimum Threshold of 0.2 feet of subsidence has not occurred.

Although overall groundwater pumping in the Subbasin decreased compared with WY 2021, the Sustainability Indicator for reduction in groundwater storage is defined as an Undesirable Result for WY 2022. The 7-year average of annual groundwater extraction has exceeded the estimated sustainable yield of 15,000 acre-feet/year for the Napa Valley Subbasin. In WY 2022, groundwater storage increased across most of the basin by 11,910 acre-feet. This contributed to some groundwater replenishment; however, the Subbasin was significantly affected by persistent drought conditions during WYs 2020, 2021, and 2022; groundwater levels exceeded minimum thresholds, and undesirable results occurred for two sustainability indicators. The large amount of precipitation in the first five months of WY 2023 is likely to result in significantly more groundwater replenishment in WY 2023 compared to WY 2022.

As described in the GSP, once Minimum Thresholds and/or Undesirable Results have been exceeded, the GSA should assess the causal factors resulting in the exceedance(s), including the extent to which the drought has contributed to these conditions. This analysis is critical to ensure careful consideration of potentially changed groundwater conditions before taking steps to implement Project Management Actions (PMAs).

Following the NCGSA's adoption of the GSP in January 2022, GSA staff and technical consultants initiated the development of several workplans regarding interconnected surface waters and groundwater dependent ecosystems (GDEs), water conservation, stormwater resources, and groundwater pumping reduction. Altogether, these plans will include implementing advanced technologies for water conservation, pumping reduction, stormwater management and potential utilization for managed aquifer recharge, measures for tracking and reporting groundwater use in the Subbasin, and assessments of GDEs within the Subbasin. These workplans are being developed with input from stakeholders and the public.

Procedure:
Staff introduces.
Questions and answers with the TAG. Public comments.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

GROUNDWATER SUSTAINABILITY PLAN (GSP)

Pursuant to California Code of Regulations §356.2, an Annual Report is required to be submitted to the Department of Water Resources (DWR) each year by April 1 following adoption of a GSP. This second Napa Valley Subbasin GSP Annual Report is due April 1, 2022 and covers the period from October 1, 2020 through September 30, 2021. DWR has provided forms and instructions for submitting the materials electronically through the DWR online reporting system. The GSP Annual Report contains both a narrative description and data in various formats including DWR provided templates. Annual Reports are submitted to DWR through the state's Sustainable Groundwater Management Act (SGMA) Portal and are available for public comment at <https://sgma.water.ca.gov>.

The County's response to the increasingly severe drought continues to move at an accelerated pace. The Napa County Groundwater Sustainability Agency (NCGSA) was formed in December of 2019. As in the past eight consecutive annual reports, this Annual Report includes an update on groundwater conditions elsewhere in the county. This is the second Annual Report prepared to support implementation of the Napa Valley Subbasin GSP, adopted by the NCGSA in January 2022 and approved by the California Department of Water Resources (DWR) on January 26, 2023. This Report reflects an ongoing commitment by the County and NCGSA to sustainably manage groundwater resources by implementing an adaptive management approach supported by best available information. To better manage and respond to changing conditions, the NCGSA formed a Technical Advisory Group (TAG) to advise the NCGSA and aid in the implementation of the Napa Valley Subbasin GSP. The five-member committee was first convened on August 11, 2022.

The goal of the GSP is to achieve sustainability by ensuring that there are no Undesirable Results in the Napa Valley Subbasin by 2042. To accomplish the goal, the GSP includes 6 Sustainability Indicators, as follows:

1. Chronic groundwater level decline;
2. Reduction in groundwater storage;
3. Depletion of interconnected surface water;
4. Land subsidence;
5. Degraded water quality; and
6. Seawater intrusion.

These are critical factors used to measure the long-term health of groundwater in the Napa Valley Subbasin. For each Sustainability Indicator, the GSP has established a Minimum Threshold, which defines when the Indicators are declining to a point where the GSA should evaluate the conditions and determine the necessary responses needed to maintain or achieve sustainability, including implementing Management Actions to avoid Undesirable Results. Each Sustainability Indicator also has a defined Undesirable Result, which indicates conditions that need to be avoided to protect the long-term health of the Subbasin groundwater.

WATER YEAR 2022 CONDITIONS

Water Year 2022 (defined as October 1, 2020 through September 30, 2021) saw a continuation of drought conditions throughout Napa County and the Napa Valley Subbasin. Water Years 2020 and 2021 registered as the driest consecutive years since at least the 1890s, as measured by the precipitation gauge at the State

Hospital in Napa. Despite the early rains in October and December, minimal precipitation occurred in later months in Water Year 2022. The precipitation total in WY 2022 was 21.24 inches and registered as a normal (below average) year.

Total water use in the Napa Valley Subbasin in Water Year 2022 is estimated to have been approximately 40,302 acre-feet (approximately 4,000 acre-feet less than Water Year 2021), including uses by agriculture, cities, small public water systems, individual well users, groundwater dependent ecosystems, and other native vegetation. This is within the range of total annual water use documented since 1988, which has varied between approximately 38,000 and 47,000 acre-feet per year.

The amount of groundwater pumping was less in Water Year 2022 compared to Water Year 2021. Groundwater extraction by wells totaled approximately 18,790 acre-feet in Water Year 2022, representing 47% of total water use. The highest level of pumping was in 2023 (22,840 acre-feet) and the second highest year of groundwater pumping was in 2020, when 19,610 acre-feet of groundwater was used. For the third consecutive year, groundwater pumping exceeded the estimated sustainable Subbasin yield of 15,000 acre-feet per year. With reduced rain, especially in Spring 2022, landowners appeared to increase their use of groundwater compared to years prior to 2020. Direct uptake of groundwater by groundwater dependent ecosystems and native vegetation accounted for another 16% (approximately 6,000 acre-feet) of total water use.

As a result of the prolonged drought conditions, and as documented in the Water Year 2022 Annual Report (accessible here: <https://www.countyofnapa.org/3219/County-of-Napa-Plans-Reports-Documents>), the Minimum Thresholds for the following Sustainability Indicators have been exceeded:

1. Chronic groundwater level decline;
2. Reduction in groundwater storage;
3. Depletion of interconnected surface water;
4. Land subsidence; and
5. Groundwater quality.

There have been substantial groundwater level declines in more than 20% of the Subbasin representative monitoring site wells. Two monitoring wells at stream monitoring sites indicated consecutive fall occurrences and effects on the level of interconnected surface water at those locations. Groundwater declines in monitoring wells indicate the potential for subsidence, although InSAR land surface displacement data indicate that the Minimum Threshold of 0.2 feet of subsidence has not occurred.

Although overall groundwater pumping in the Subbasin decreased compared with WY 2021, the Sustainability Indicator for reduction in groundwater storage is defined as an Undesirable Result for WY 2022. The 7-year average of annual groundwater extraction has exceeded the estimated sustainable yield of 15,000 acre-feet/year for the Napa Valley Subbasin. In WY 2022, groundwater storage increased across most of the basin by 11,910 acre-feet. This contributed to some groundwater replenishment; however, the Subbasin was significantly affected by persistent drought conditions during WYs 2020, 2021, and 2022; groundwater levels exceeded minimum thresholds, and undesirable results occurred for two sustainability indicators. The large amount of precipitation in the first five months of WY 2023 is likely to result in significantly more groundwater replenishment in WY 2023 compared to WY 2022.

As described in the GSP, once Minimum Thresholds and/or Undesirable Results have been exceeded, the GSA should assess the causal factors resulting in the exceedance(s), including the extent to which the drought has contributed to these conditions. This analysis is critical to ensure careful consideration of potentially changed groundwater conditions before taking steps to implement Project Management Actions (PMAs). Minimum Threshold and Undesirable Result exceedances and response actions are summarized in Table ES-6 (see Annual Report).

This Report summarizes the GSA's progress towards implementing the GSP elements intended to avoid undesirable results and achieve the Subbasin sustainability goal by 2042, as required by the GSP. The GSP describes PMAs along with supporting actions developed to support sustainable groundwater management, several of which entail preparatory steps and workplans anticipated to be completed in 2023 (see Table ES-7, Annual Report).

GSP implementation activities completed as of Spring 2023 include efforts related to the following GSP PMAs:

1. GSP Project #1 Development of the Stormwater Resource Plan
2. Formation of the Technical Advisory Group (TAG)

GSP implementation activities underway as of Spring 2023 include efforts related to the following GSP PMAs:

3. GSP Project #1 Managed Aquifer Recharge, through development of the Stormwater Resource Plan
4. GSP Project #2 Expansion of Recycled Water Use
5. GSP Management Action #1, through development of the Water Conservation Plan
6. GSP Management Action #2, through development of the Groundwater Pumping Reduction Plan
7. GSP Management Action #3, revisions to the County's Groundwater Ordinance and Water Availability Analysis

Near-term implementation activities are summarized below and described further in the Annual Report (Section 7).

8. Initiation of steps to prepare four GSP implementation plans/workplans described in the GSP, including:
    a. Interconnected Surface Water and Groundwater Dependent Ecosystems (GDEs)
    b. Napa County Vineyard and Winery Water Conservation Workplan
    c. Groundwater Pumping Reduction Workplan
    d. Stormwater Resource Plan
9. Near-term installation of groundwater monitoring facilities at four monitoring sites for the purpose of enhancing the understanding of interconnected surface water and groundwater (began January 2023 and expected completion in April 2023)
10. Ongoing groundwater monitoring and initial steps to expand monitoring as described in GSP Sections 5, 9, and 12
11. Public outreach and community engagement

Following the NCGSA's adoption of the GSP in January 2022, GSA staff and technical consultants initiated the development of several workplans regarding interconnected surface waters and groundwater dependent ecosystems (GDEs), water conservation, stormwater resources, and groundwater pumping reduction. Altogether, these plans will include implementing advanced technologies for water conservation, pumping reduction, stormwater management and potential utilization for managed aquifer recharge, measures for tracking and reporting groundwater use in the Subbasin, and assessments of GDEs within the Subbasin. These

workplans are being developed with input from stakeholders, including the Napa County Resource Conservation District (RCD), Napa County Farm Bureau, Napa Valley Grapegrowers, Winegrowers of Napa County, California Department of Fish and Wildlife, NOAA National Marine Fisheries Services, Napa Green, and Napa Valley Vintners. Input from the public is also requested during monthly TAG meetings and through other GSA announcements and communications.

During the TAG's monthly meetings, the TAG has considered and discussed framing questions related to groundwater conditions and the development of the above Workplans. The framing questions from TAG meetings during October through December 2022 were compiled along with draft summaries of discussions during this period. Many of the questions (and the associated discussion by the TAG) occurred during one or more meetings due to the overlapping nature of the meeting topics. Accordingly, the questions and draft summaries of discussions were grouped by topic in a draft Compiled Framing Questions/Discussion Topics Summary (Summary).

Key topics provided in the draft Summary included:

A. Water Conservation Measures and Other Considerations
B. Flood-Managed Aquifer Recharge (MAR) Specific Framing Questions
C. Demand Management Framing Questions
D. Potential Response Actions

The TAG discussed the draft Summary at the January 2023 TAG meeting and recommended inclusion of additional language for some topics. The revised draft Summary (see Supporting documents) was reviewed and discussed at the February 2023 meeting for the TAG to consider a final Summary to be transmitted to the NCGSA. The final Summary (see Supporting documents) is included for the NCGSA's review and consideration. A future meeting will be coordinated to discuss the NCGSA's questions about this Summary and the TAG's preparation of recommendations pertaining to actions to achieve a reduction in groundwater pumping.

GSA staff recommend the following:

- Continue implementation of PMAs (GSP Management Actions #1 and #2) for this summer, including the development of local water conservation standards appropriate for rural agricultural areas, as well as water conservation standards in existing unincorporated communities, and continued work with industry groups to voluntarily reduce agricultural groundwater use.
- Continue with the implementation of PMAs (GSP Management Action # 3), relating to the update of the Water Availability Analysis guidelines and the County Groundwater Ordinance as previously directed by the County Board of Supervisors, to reflect issues related to the public trust, new well permitting standards, future drought conditions, and climate uncertainty.
- The Technical Advisory Group should prioritize the Napa County Vineyard and Winery Water Conservation, Groundwater Pumping Reduction, and Interconnected Surface Waters and GDEs Workplans, and complete work on the Stormwater Resource Plan, as previously directed by the GSA.
- Following review of the draft Napa County Vineyard and Winery Water Conservation and Groundwater Pumping Reduction Workplans, the TAG should review actions and prepare recommendations for the GSA to achieve a reduction in groundwater pumping by 10% across the Subbasin

SUPPORTING DOCUMENTS

A. Napa County Groundwater Sustainability, Annual Report - Water Year 2022 (LSCE, March 2023) - Annual Report is accessible at: <https://www.countyofnapa.org/3219/County-of-Napa-Plans-Reports-Documents>
B. LSCE PowerPoint Presentation: Napa County Groundwater Sustainability, Annual Report - Water Year 2022, March 9, 2023
C. Compiled TAG Framing Questions/Discussion Topics - February 3, 2023

Napa County Groundwater Sustainability Agency

Technical Advisory Group

Annual Report

Water Year 2022

March 9, 2023

Luhdorff & Scalmanini
Consulting Engineers

Outline

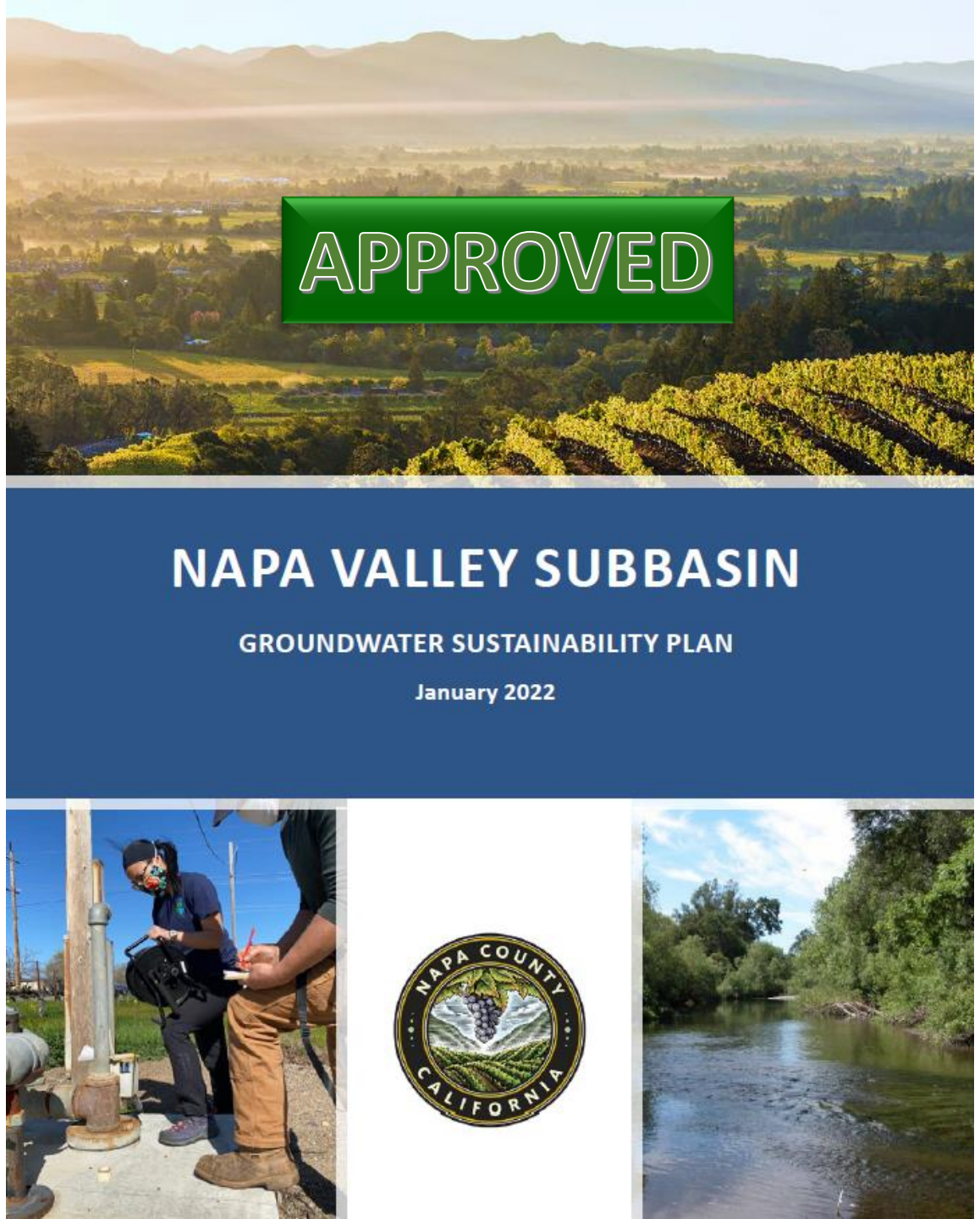
- Napa County and Climate Change
- Napa County & Subbasin Monitoring
- Napa Valley Subbasin Water Budget
- Sustainability Indicators & Metrics
- GSP Implementation & Response Actions

DWR Approves GSP

DWR Letter of Approval: Jan. 26, 2023

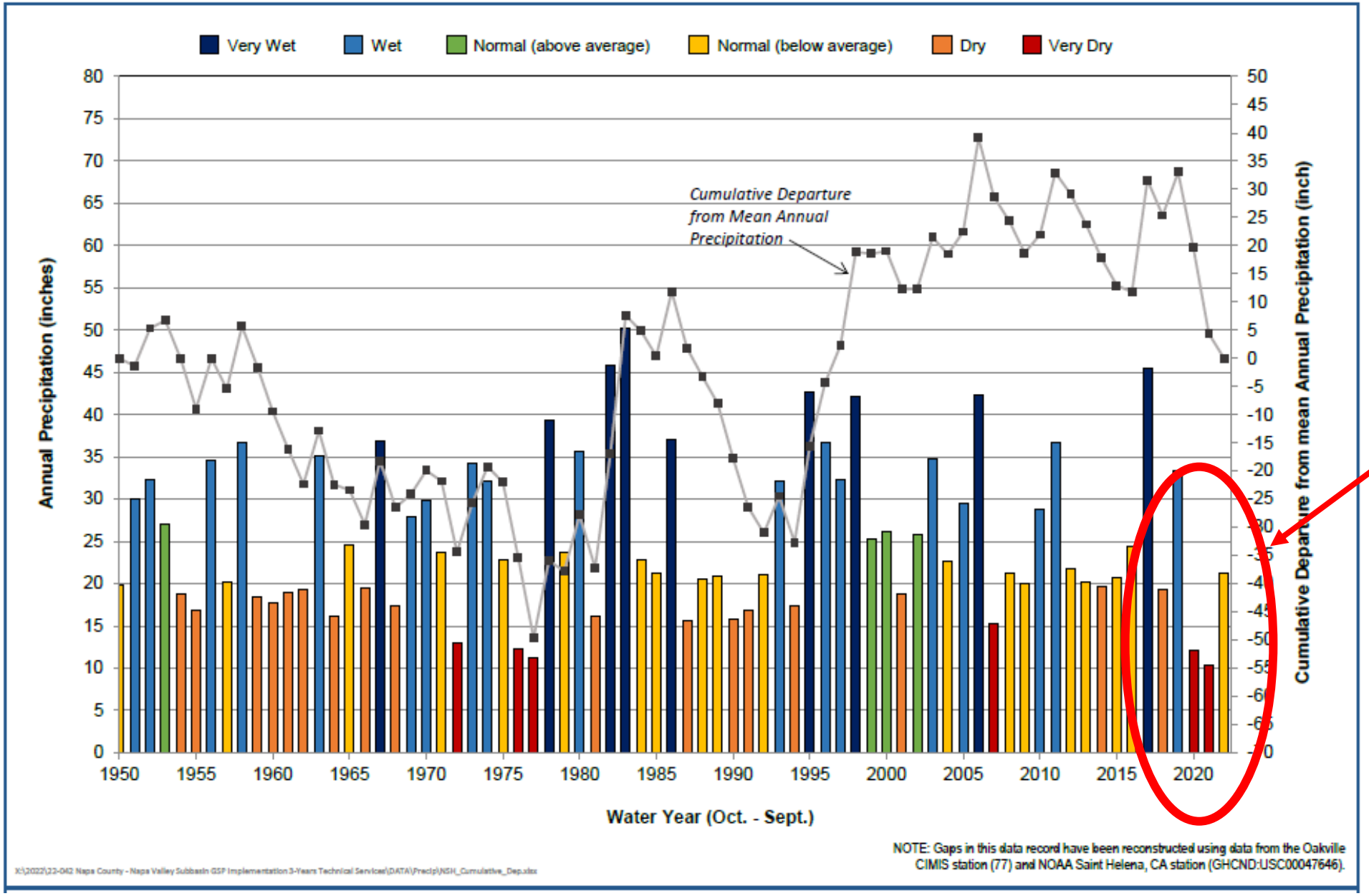
Recommended Corrective Actions for 5-Year Update (2027)

- Revise definition for chronic groundwater level decline sustainable management criterion to remove drought year condition or discuss management of extractions and recharge to offset decreases that occurred during drought
- Less rigorous MT for annual land subsidence, i.e., define a cumulative metric for the subsidence MT of 0.5 ft within a 5-year period; this also avoids incremental effects of land subsidence
- Consider DWR guidance intended to assist GSAs to sustainably manage depletions of interconnected surface water *when the guidance is developed*



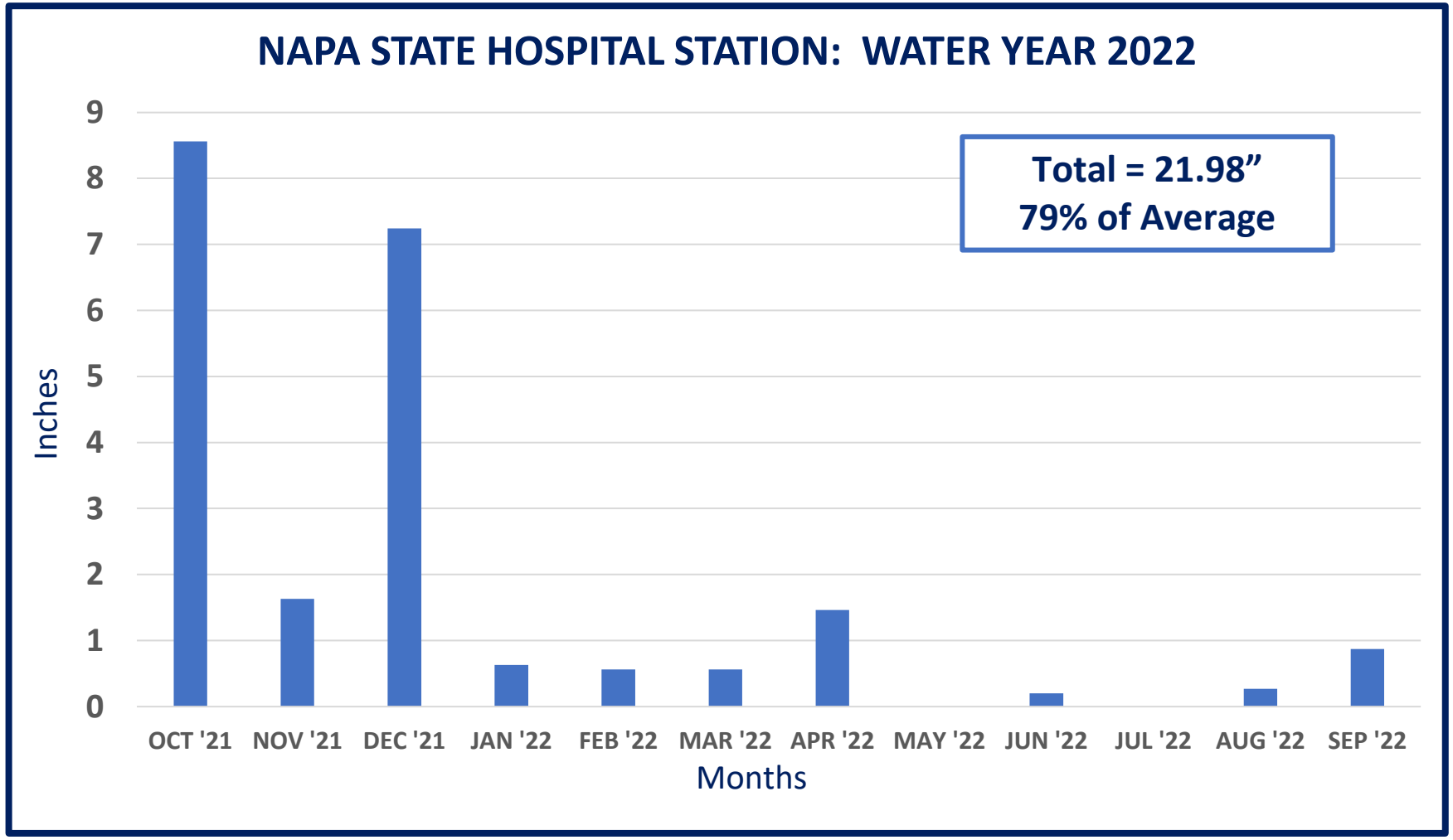
Napa County and Climate Change

Historical Precipitation at Napa State Hospital

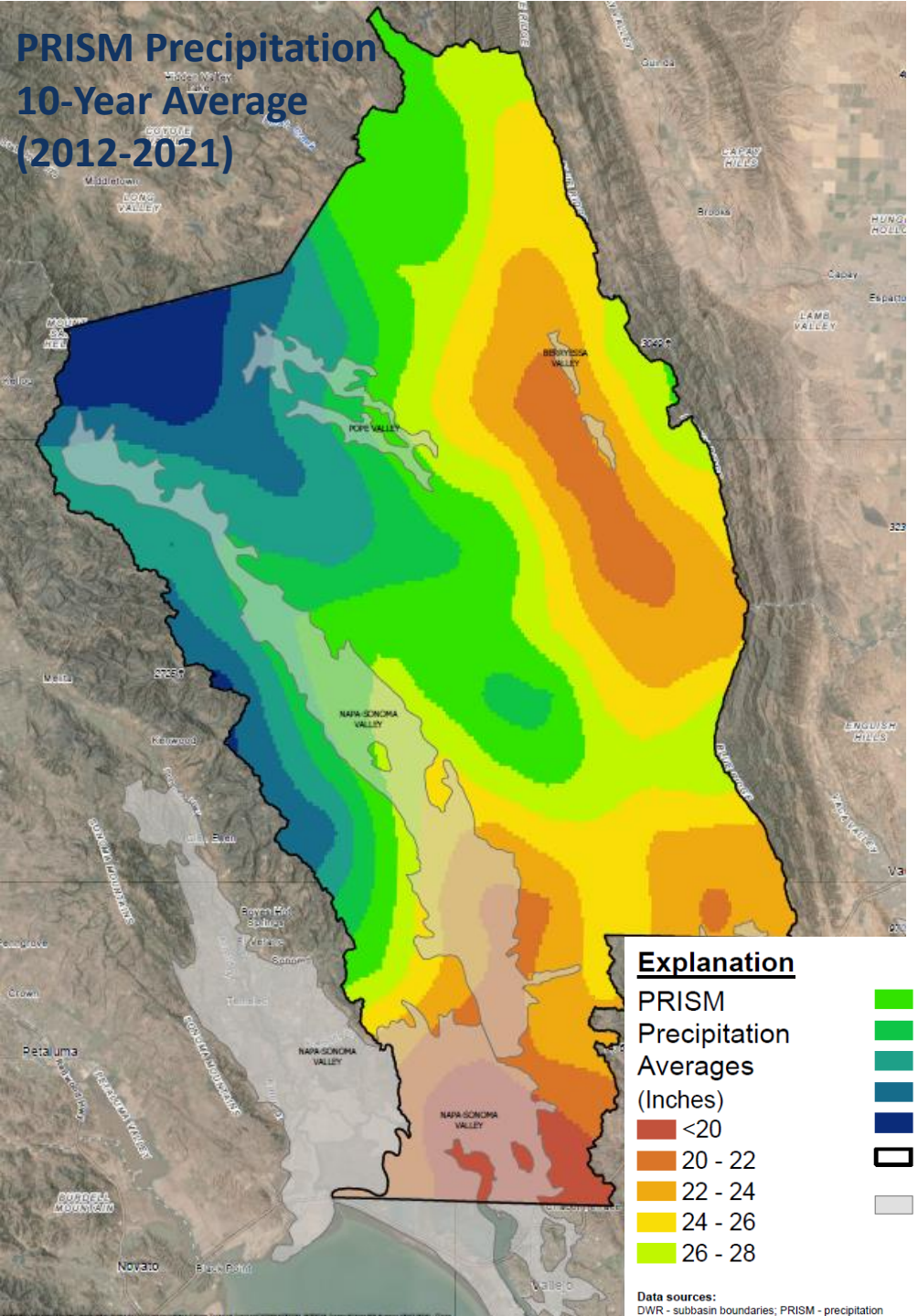


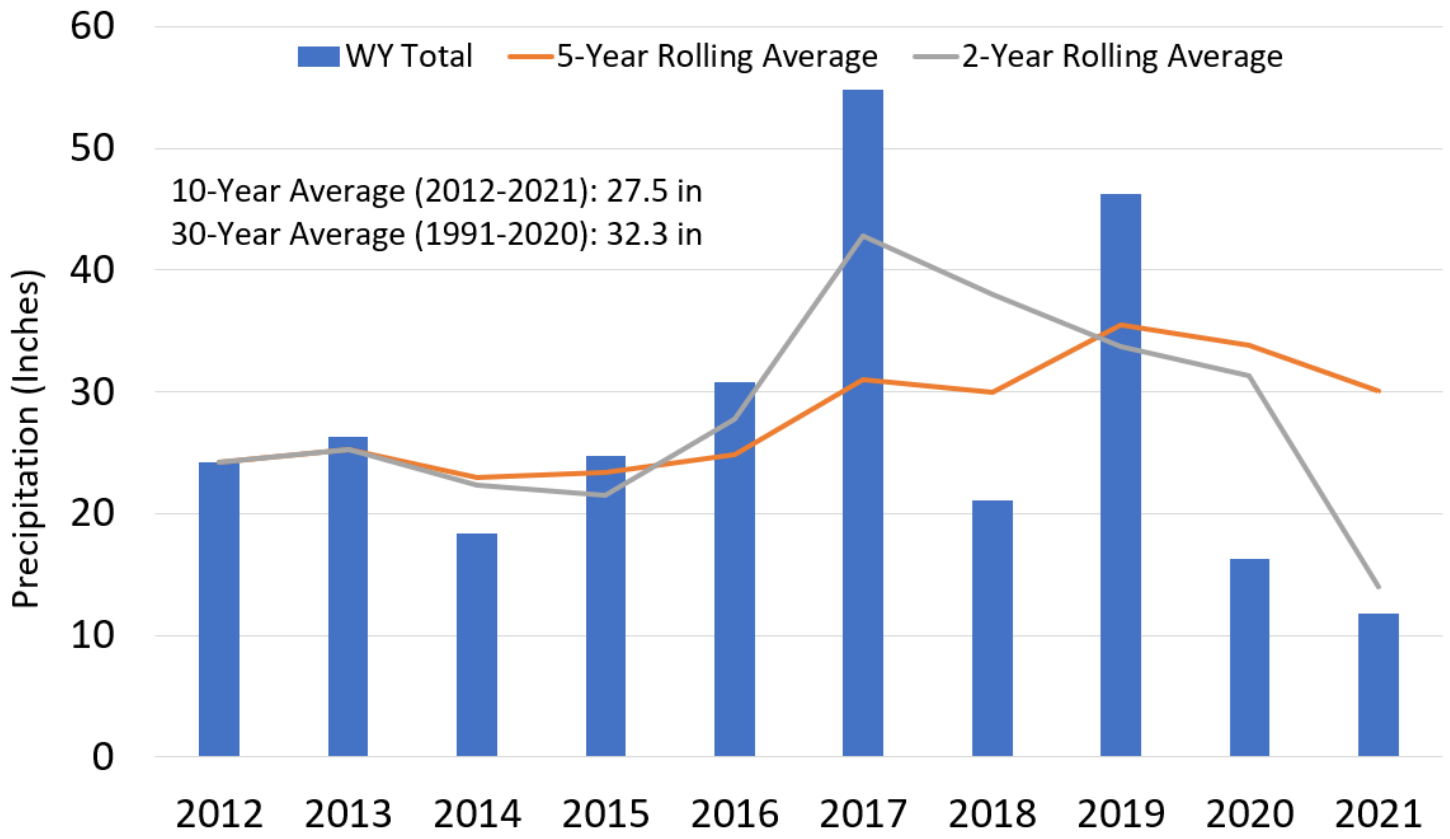
WYs 2020 & 2021 Very Dry;
WY 2022 Normal (below average)

Precipitation: Water Year 2022



Precipitation Changing: Drier 10-Year Average

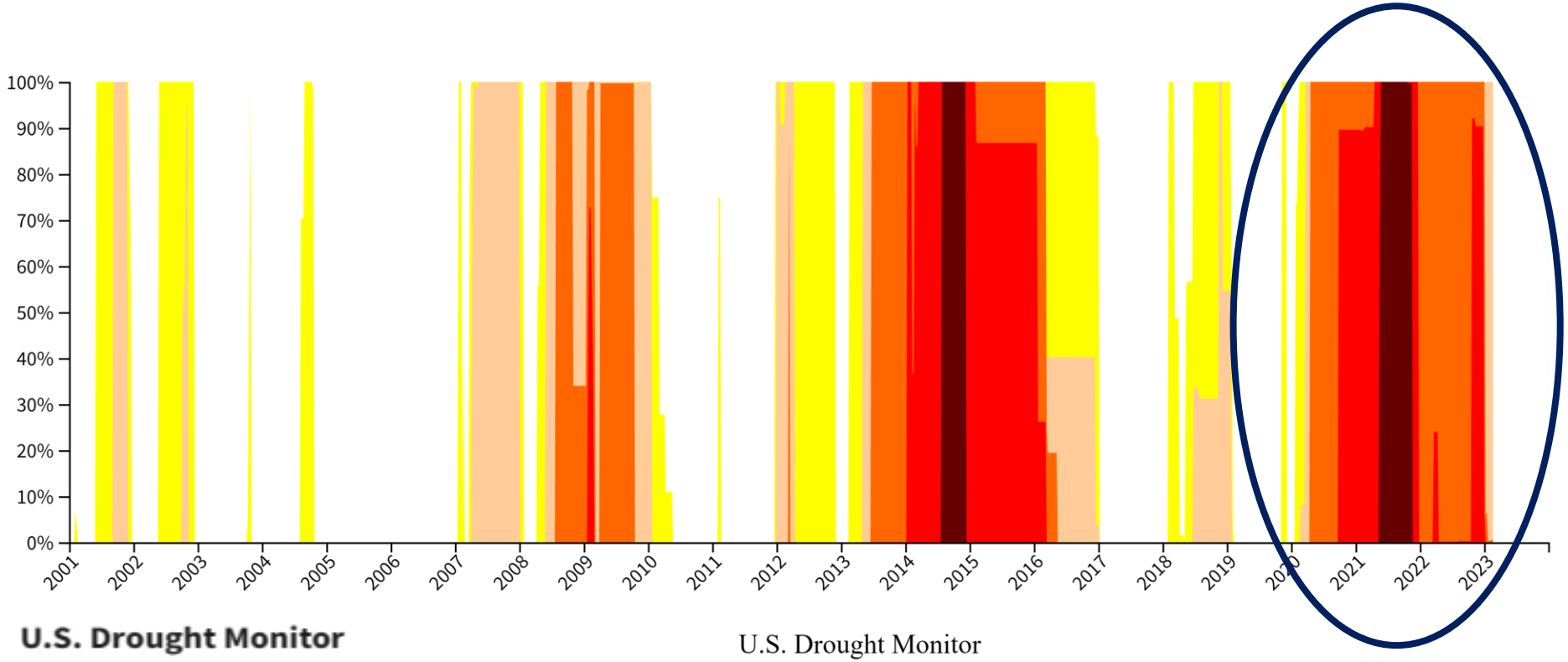




Eastern Napa County February 25, 2023

- 9 inches of snow
- 13th Wettest January on record over the past 129 years (7 inches above normal)
- 13th Wettest year to date over the past 129 years (January 2023)

U.S. Drought Monitor: Napa County



U.S. Drought Monitor
Napa County, CA

U.S. Drought Monitor

- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought
- D3 - Extreme Drought
- D4 - Exceptional Drought

- Increasingly hotter/drier conditions
- Extreme variability
- WYs 2020, 2021, 2022: Severe to Exceptional Drought
- WY 2023: Moderate Drought(?)

Data as of: 2/21/2023

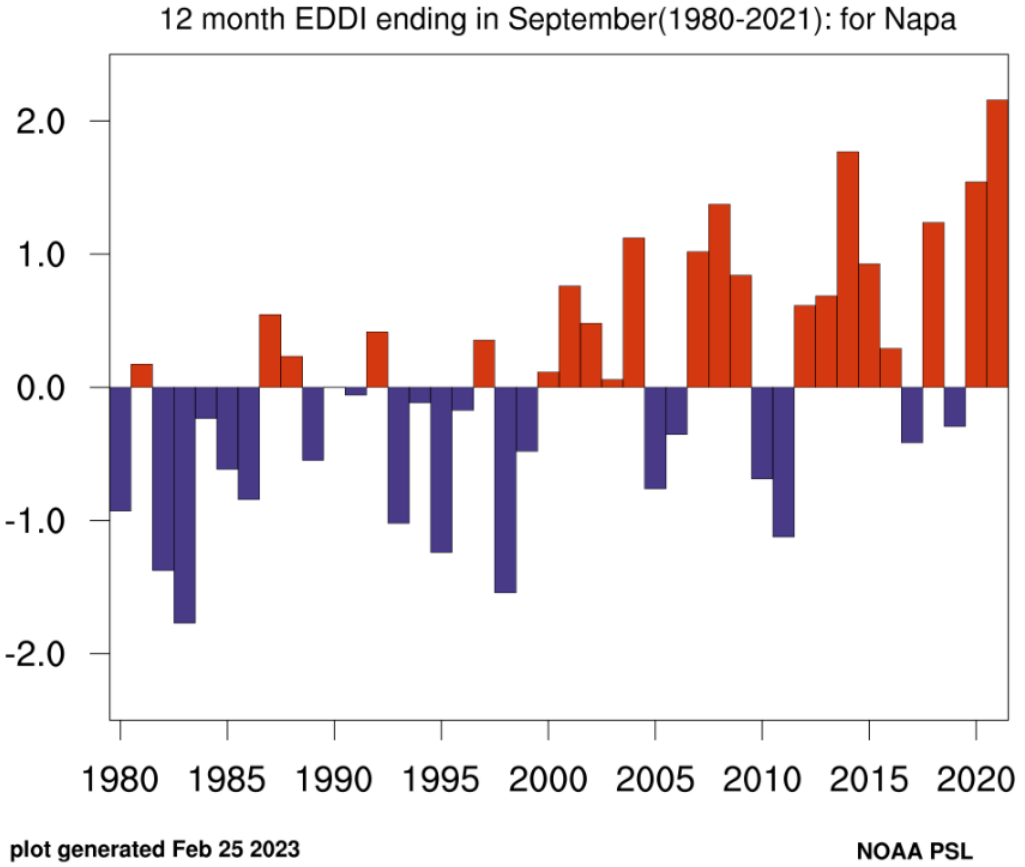
Source(s): USDA NASS

Napa: Evaporative Drought Demand Index

"the thirst of the atmosphere"

"California has experienced its two most severe dry periods on record since 2000 (2012–16 and 2020–present) and researchers now report that the state has, in fact, been experiencing a "megadrought" since the turn of the century. Indeed, this "megadrought" appears to be the worst such drought since the year 800 and its severity is due, in large part, to climate change.[1]"

"It is increasingly clear that climate change will stress water resources and its management like no other time in recorded history." *(February 28, 2023; Informational Hearing: Committee on Water, Parks, and Wildlife)*



[1]*A. Park Williams, Edward Cook, and Jason Smerdon et al, "Large contribution from anthropogenic warming to an emerging North American megadrought," Science 368, 6488 (2020): 314-318, DOI: 10.1126/science.aaz9600.*

Napa County & Napa Valley Subbasin Monitoring

9 GSP Monitoring Networks

- GWL — Groundwater Levels
- GWQ — Groundwater Quality
- GST — Groundwater Storage
- GDE — Groundwater Dependent Ecosystems
- SUB — Land Subsidence
- SW/GW — Interconnected Surface Water and Groundwater
- SWQ — Surface Water Quality
- SSD — Stream Stage & Stream Discharge
- SEA — Seawater Intrusion

Monitoring Network	Measurement Type	Total			GSP-Specific	
		County	Napa Valley Subbasin	RMS	Supplemental	Planned
Groundwater Level	GW Levels	98	59	27	30	8
Groundwater Storage	GW Levels	--	27	0	27	0
	NVIHM Model	--	1	1	--	--
Land Subsidence	GW Levels	--	12	15	0	0
	Benchmark Monitoring	--	8	5	3	0
	InSAR		1			
Stream Stage and Stream Discharge	Stream Stage and Stream Discharge	--	5	0	5	Yes
	Stream Watch	39	33	--	--	Yes
	Flood Control	--	18	0	18	0
Interconnected Surface Water – Groundwater	GW Levels	--	26	7	11	8+
	NVIHM Model	--	2	2	--	--
GDE Monitoring	GW Level	--	22	0	15	8
	Stream Habitat	--	1	--	--	TBD
	Remote Sensing	--	10	0	10	0
Groundwater Quality	GW Quality	1,621[1]	34	21	18	0
Seawater Intrusion	Chloride testing	--	16	9	7	2
Surface Water Quality	SW Quality	--	6	7	0	0

[1] Includes regulated facility sites

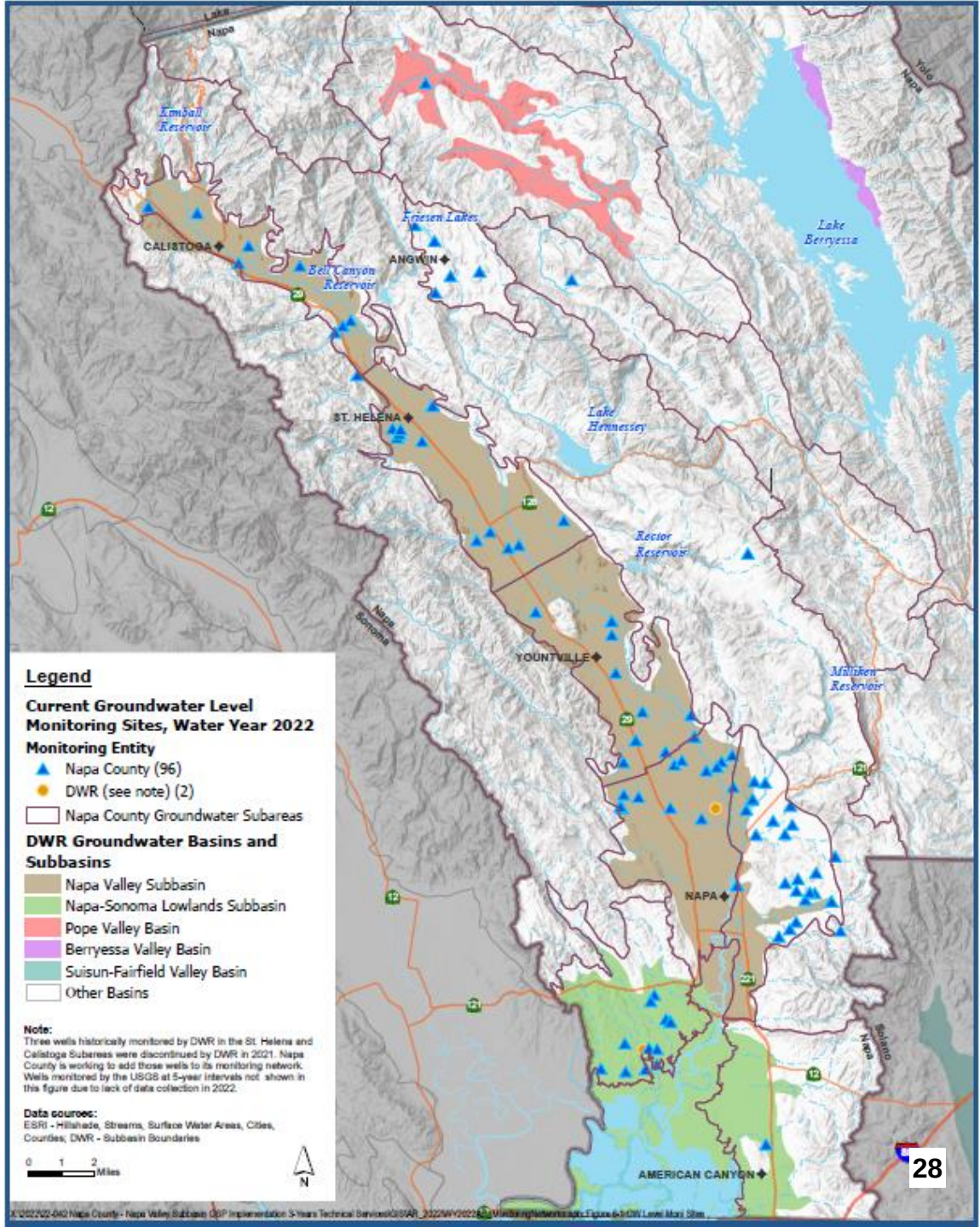
Nine Monitoring Networks

Groundwater Level Monitoring: 2022

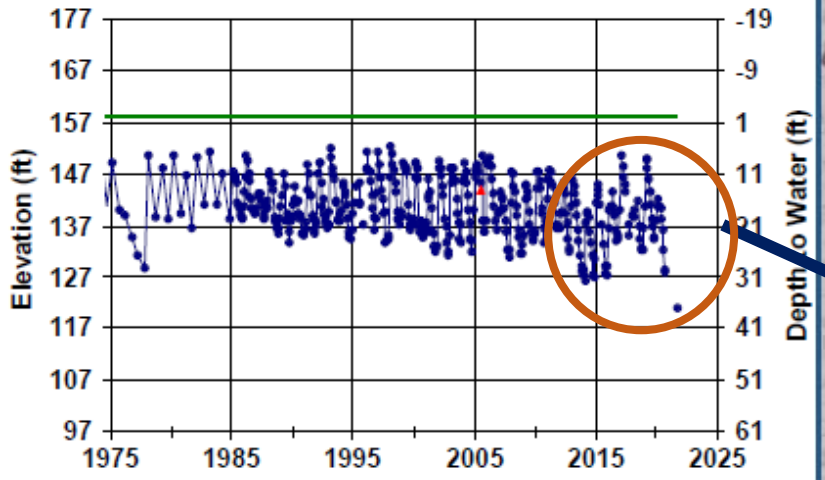
Napa Co., 96 (including 10 SW/GW)

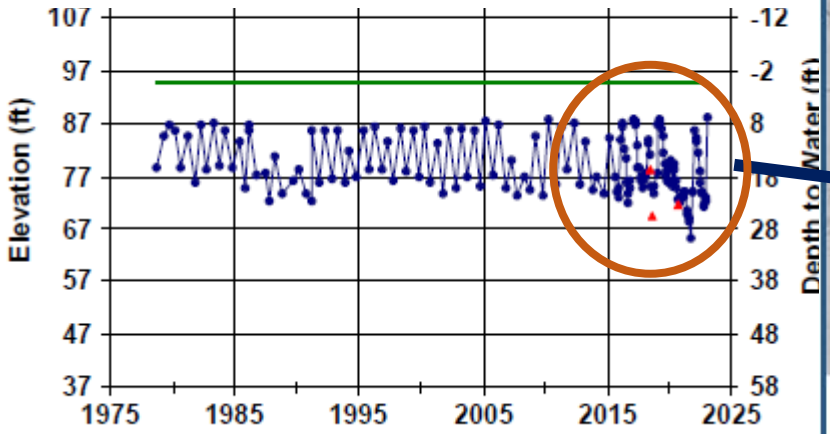
DWR, 2

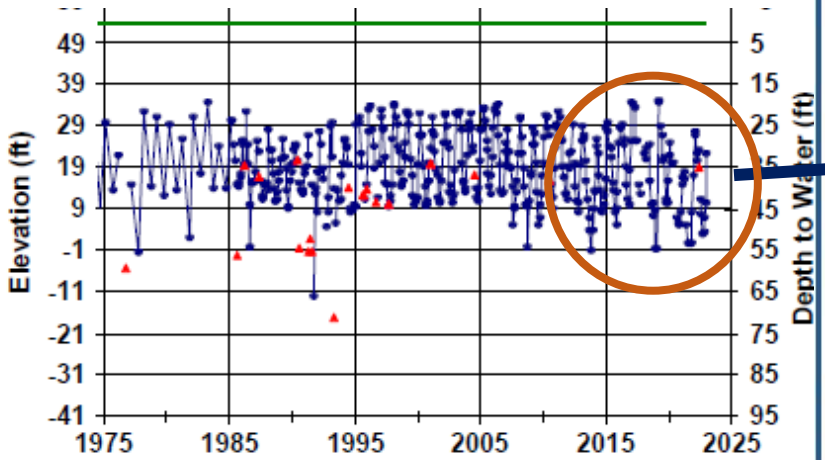
Total = 98

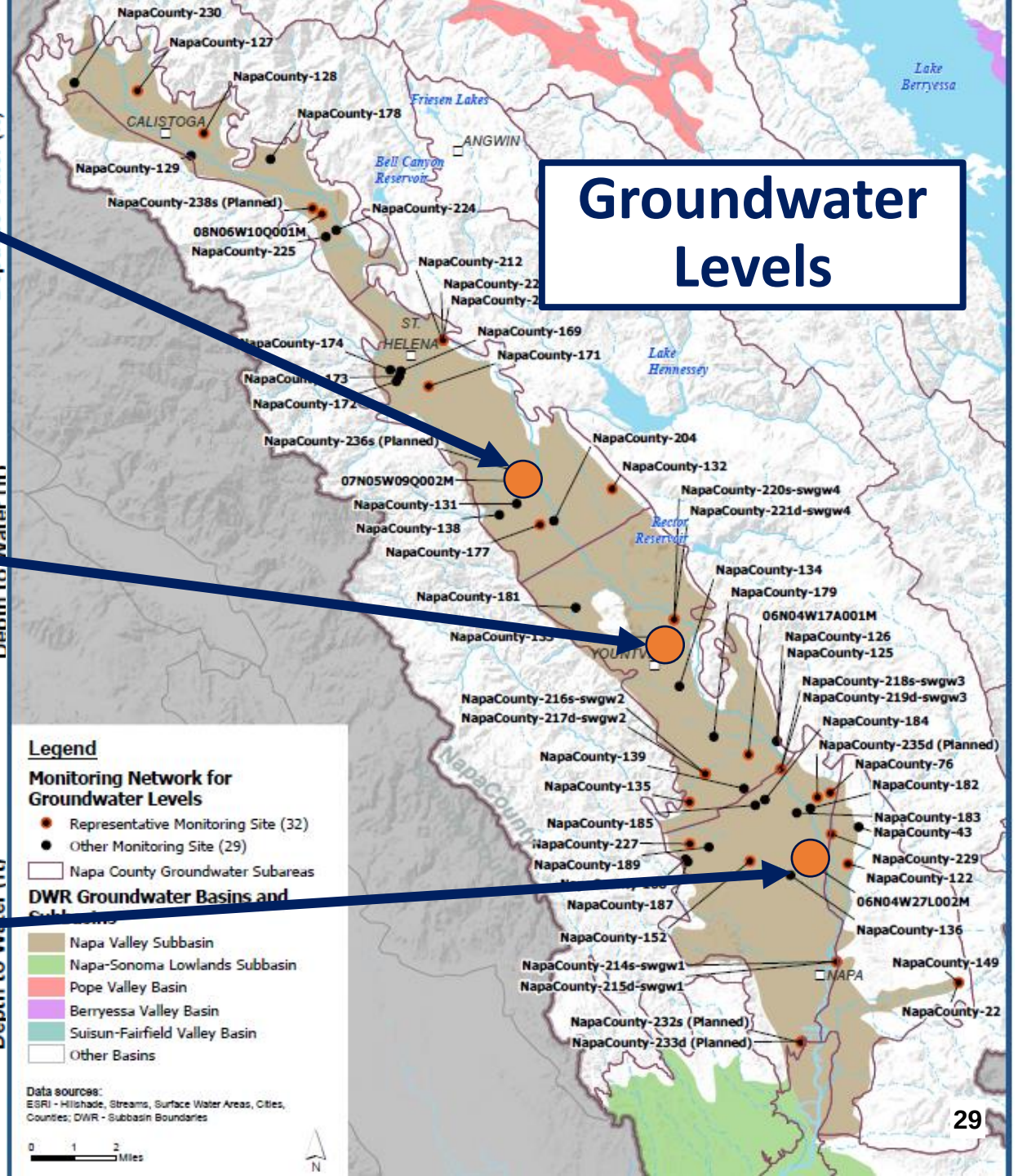


Recent Drought Effects





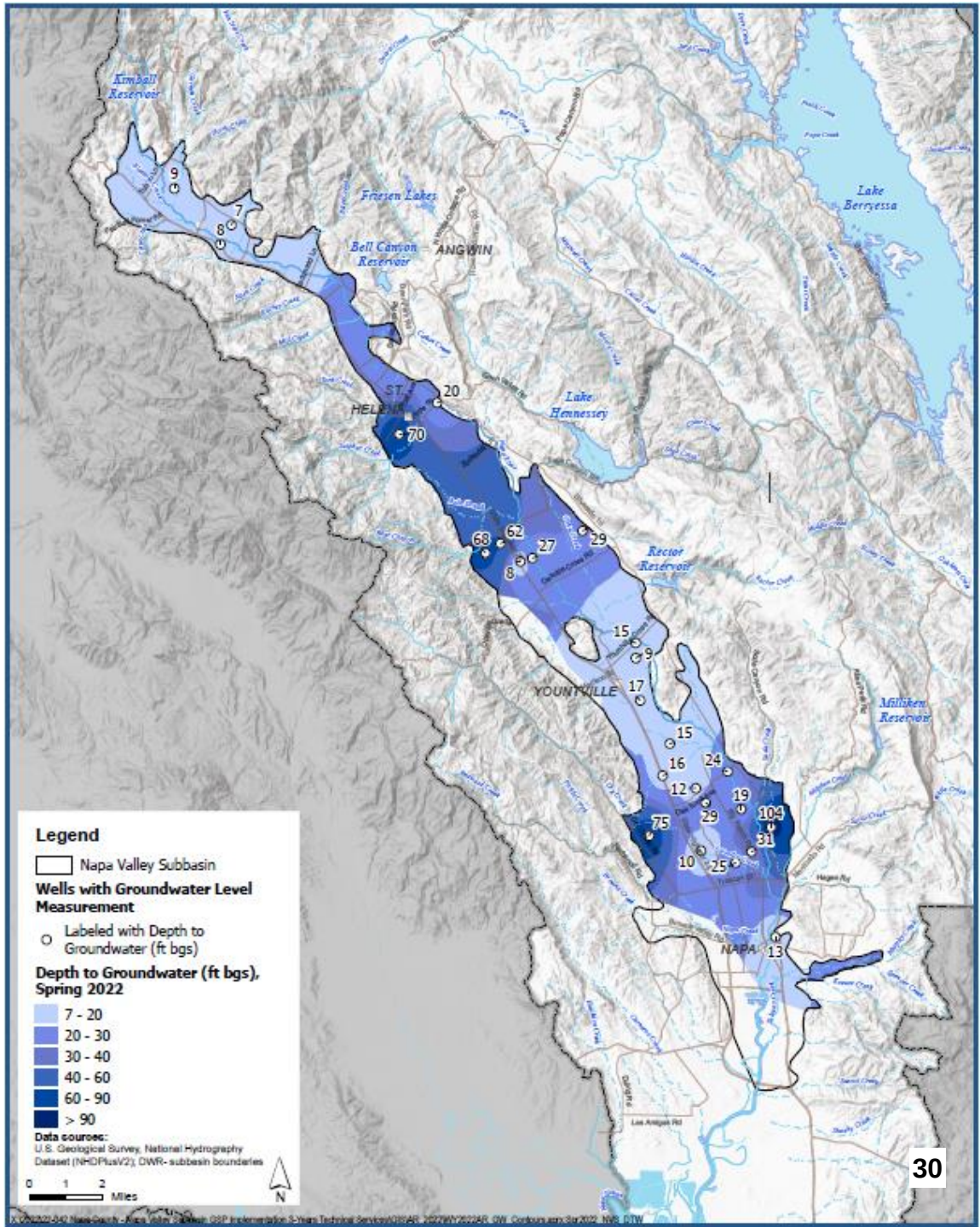




Monitoring Results: Depth to Groundwater

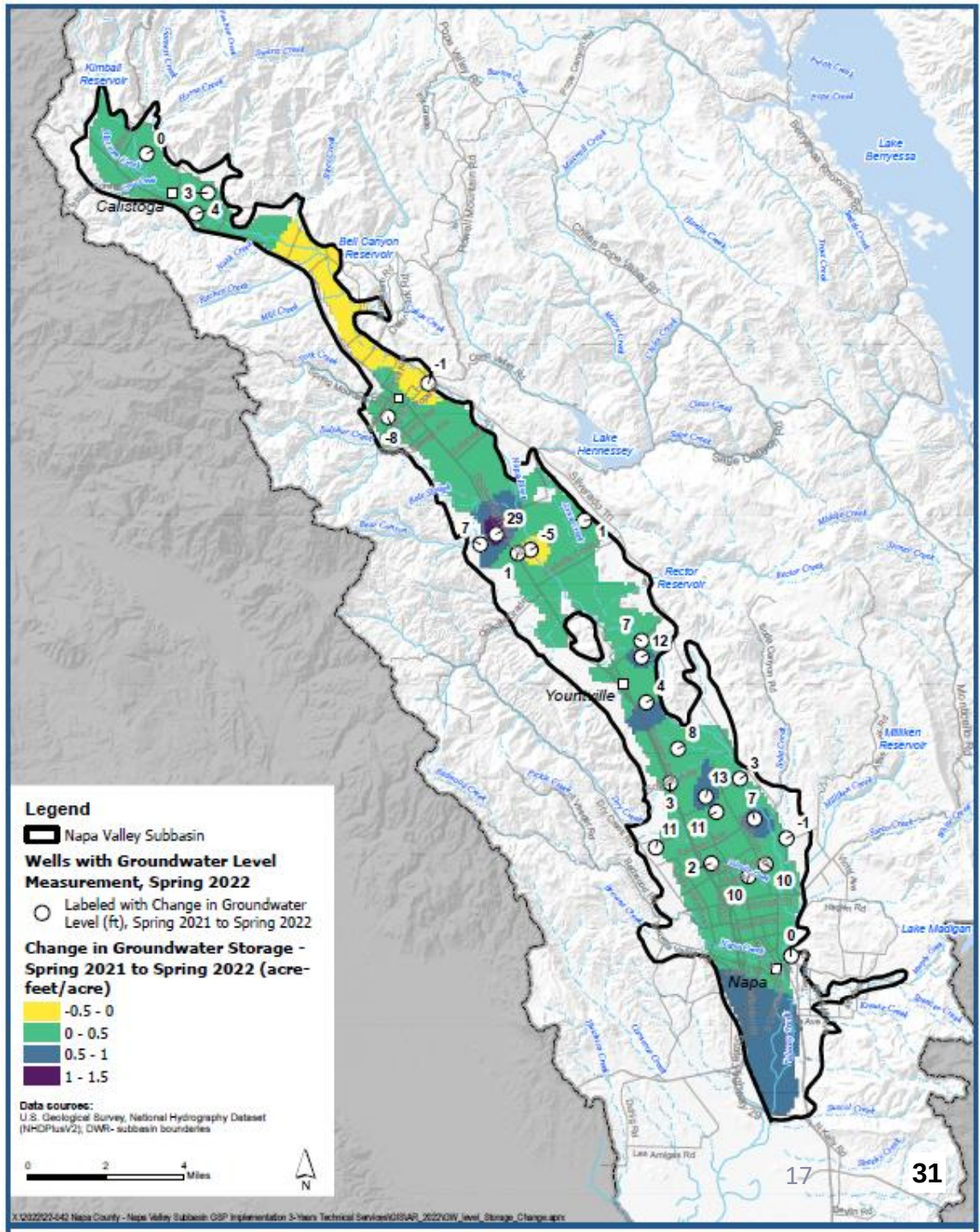
Napa Valley Subbasin

- Spring Depth to Water (DTW) in the Subbasin generally shallow and stable over time; recent drought effects observed in increased DTW
- **2022 Spring DTW ~10 to 60 ft below ground surface**



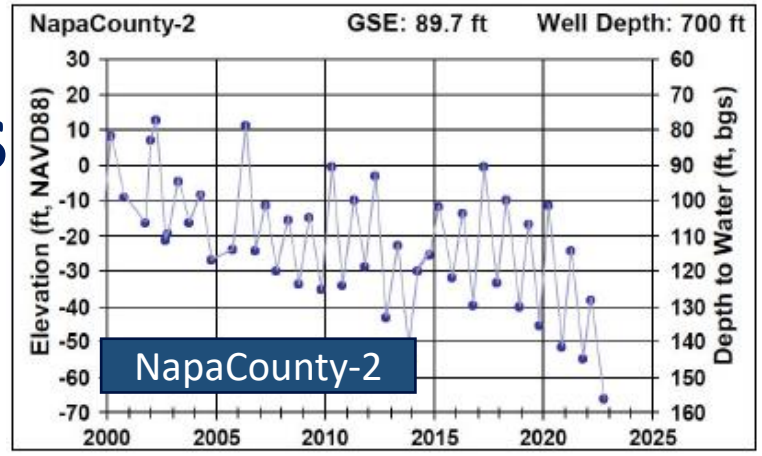
Principal Aquifer Change in Storage: Spring 2021 to Spring 2022

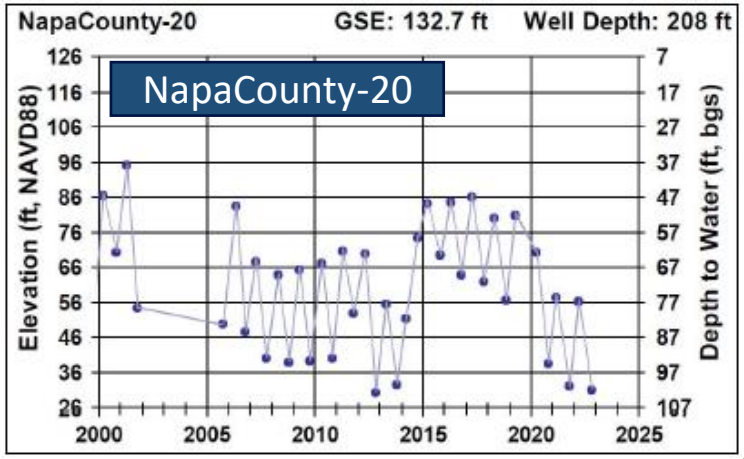
- Change in GW storage computed using Spring GW level measurements
- Total estimated GW storage change for Spring 2021 to Spring 2022 = +6,509 AF

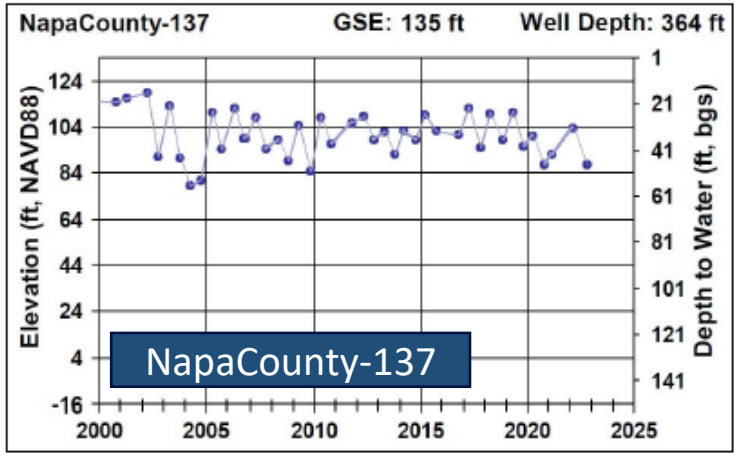


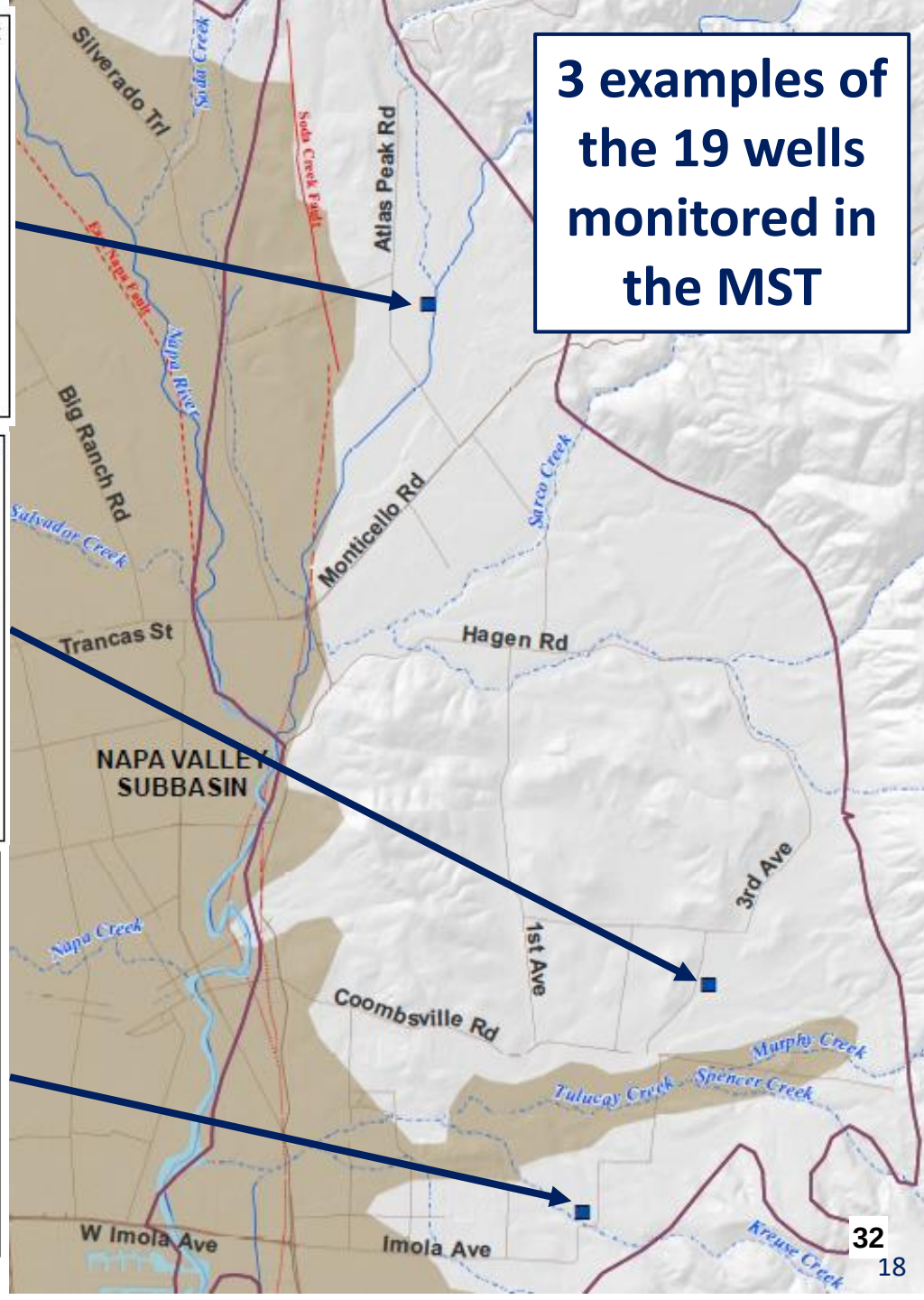
MST Hydrographs

- Monitoring data available for more than four decades
- Recognized historical declines
- Stable groundwater levels ~ 2009-2020
- Many monitoring wells show recent declines

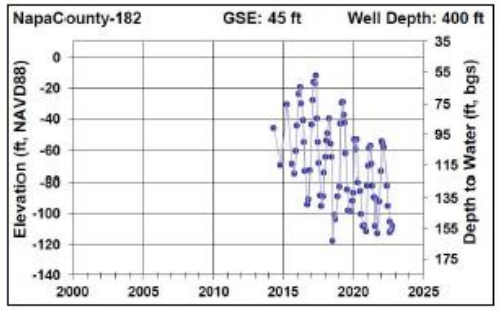


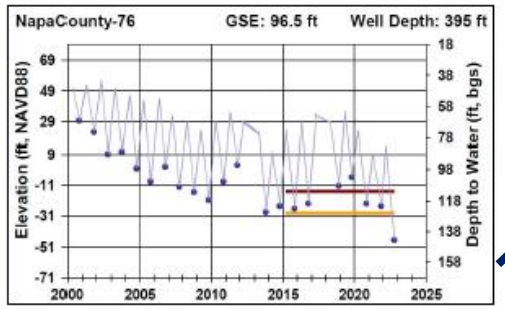


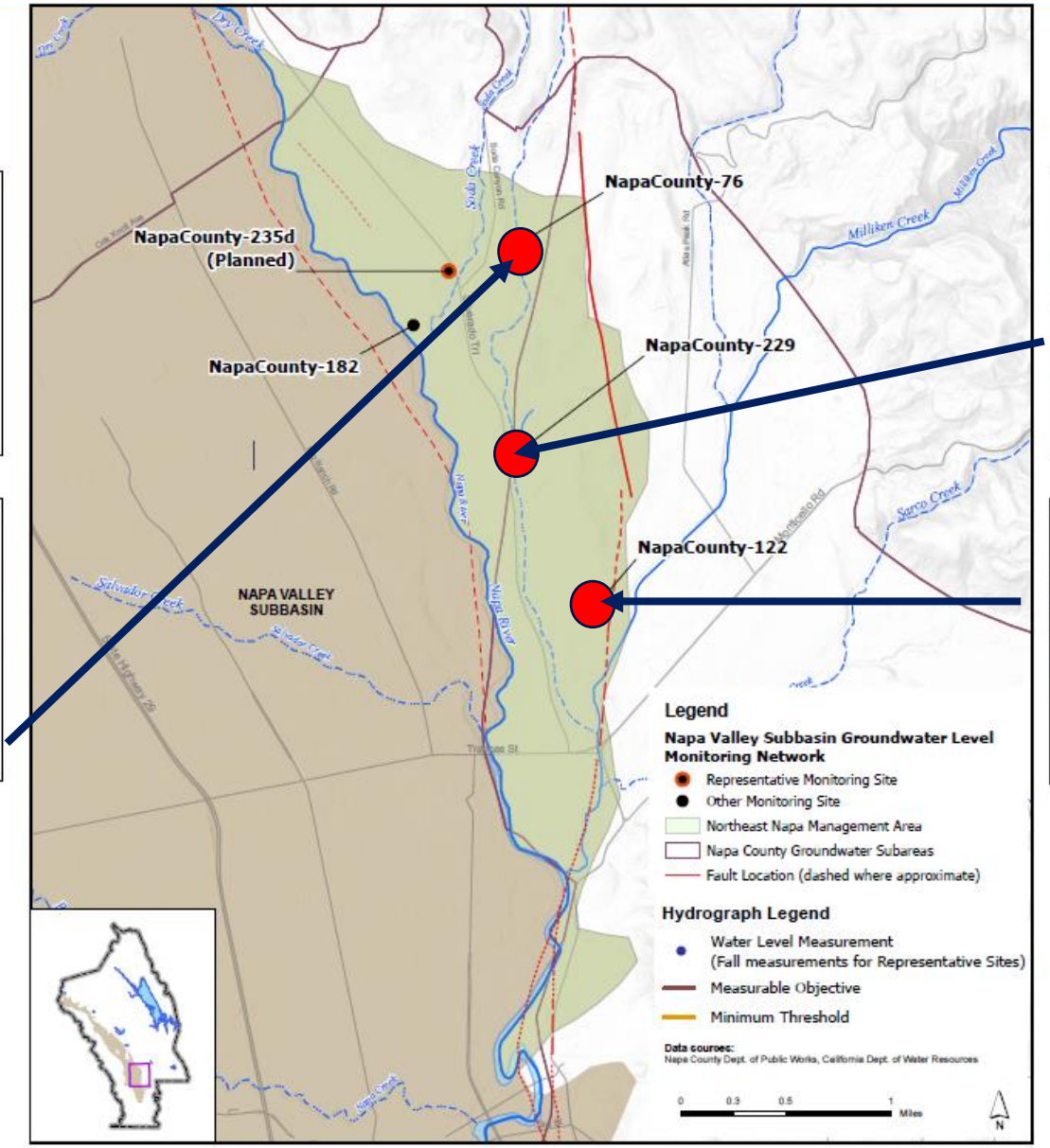


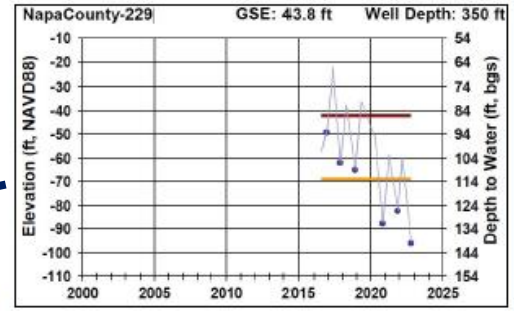


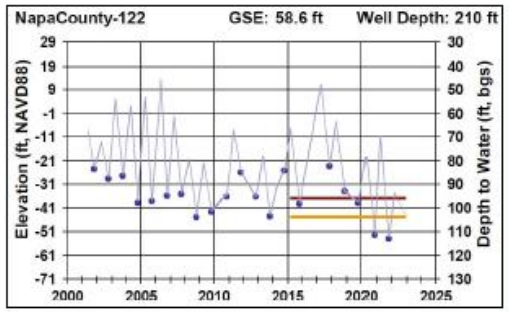
Northeast Napa Management Area: Hydrographs









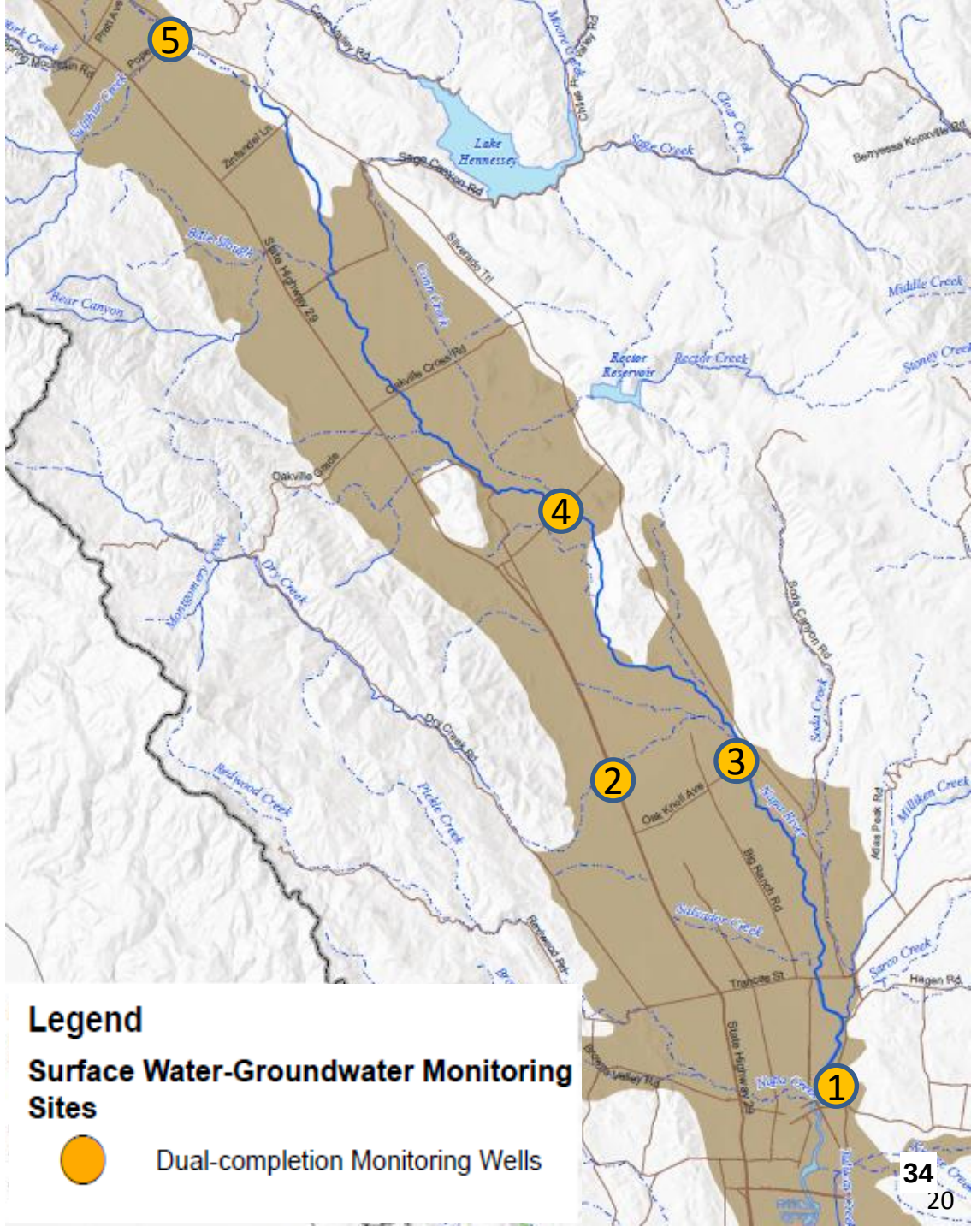


Existing RMS Well with MT Exceedance

Surface Water/Groundwater Interaction

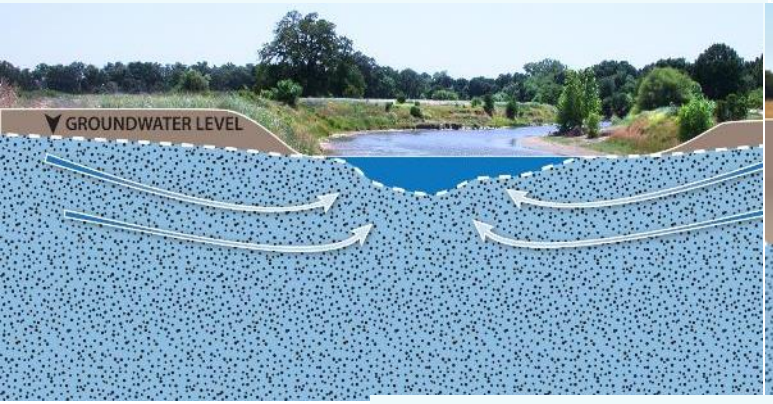
Dedicated Monitoring Facilities at 5 Sites

- DWR grant support: 2014 Pre-SGMA
- Paired Shallow Monitoring Wells (MWs) each site
  - Levels & quality
- Stream Gauge each site
  - Streamflow & quality
- > 8 years of data

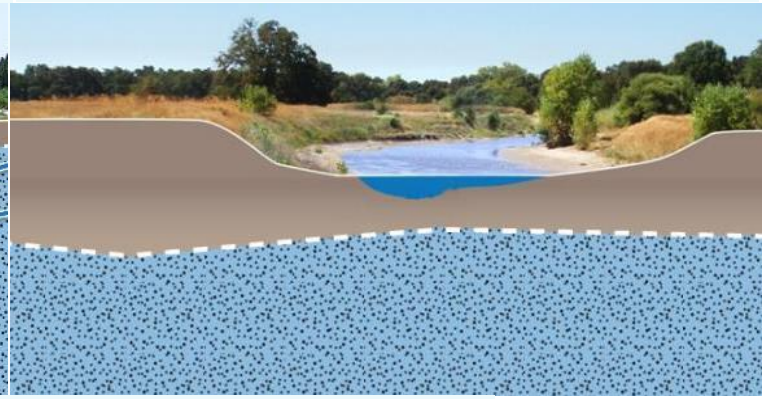


Surface Water/Groundwater Interactions

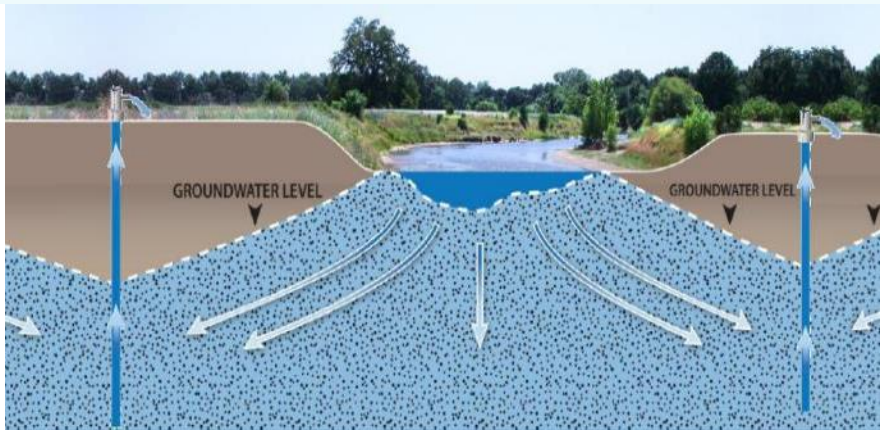
Direct Connection
Maintains/Discharges to Stream (Groundwater Baseflow)



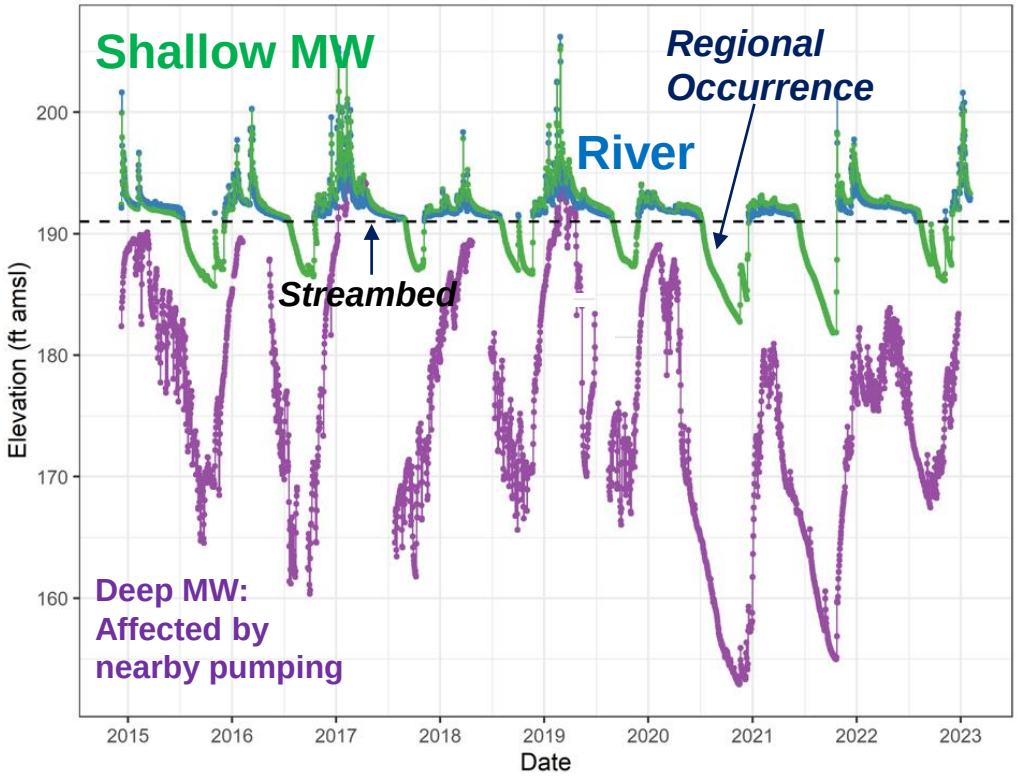
Indirect Connection
Stream Seepage Independent of GW Levels



Groundwater Pumping
Stream Loses Water/Recharge to GW



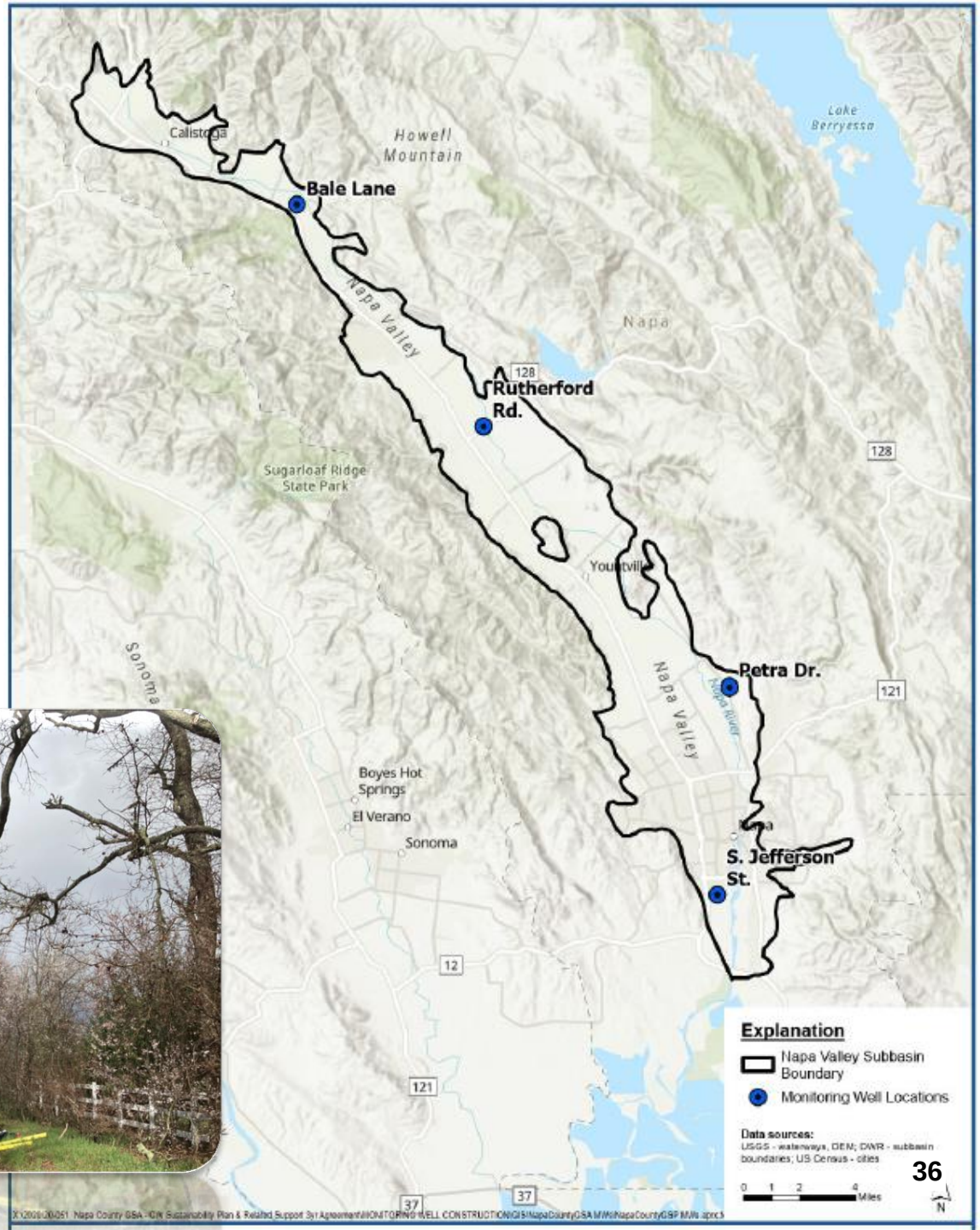
St. Helena SW/GW Site 5



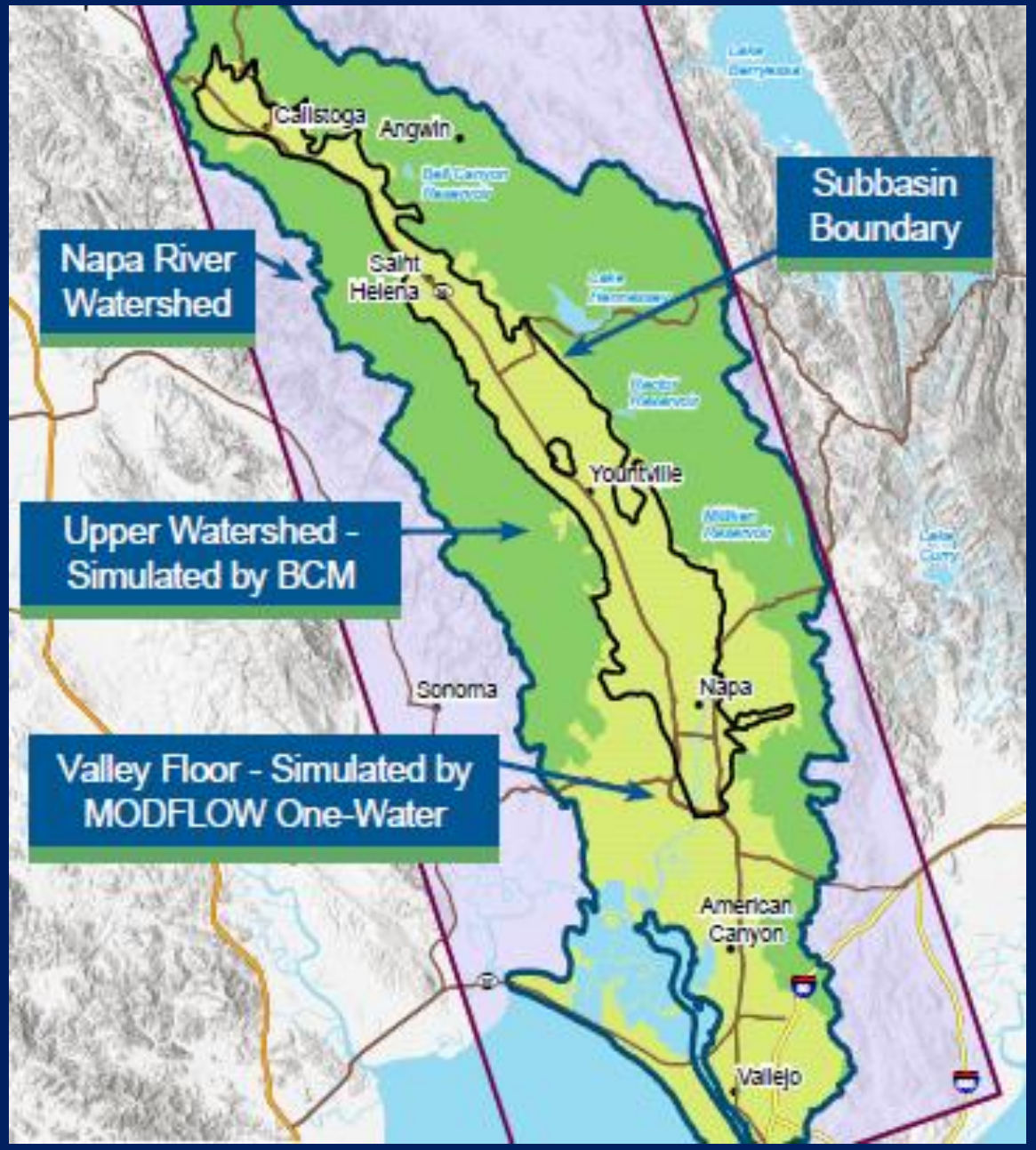
River and Shallow MW not exhibiting short-term pumping effects

Four New MW Sites

- Four new monitoring sites (8 MWs)
- Site access arranged, and drilling commenced in January 2023
- Two sites (4 MWs installed; January/February 2023)
- When sites accessible, two other sites (4 MWs) to be installed (March-April 2023)



Napa Valley Subbasin Water Budget WY 2022



Napa Valley Integrated Hydrologic Flow Model (NVIHM)

During GSP Development

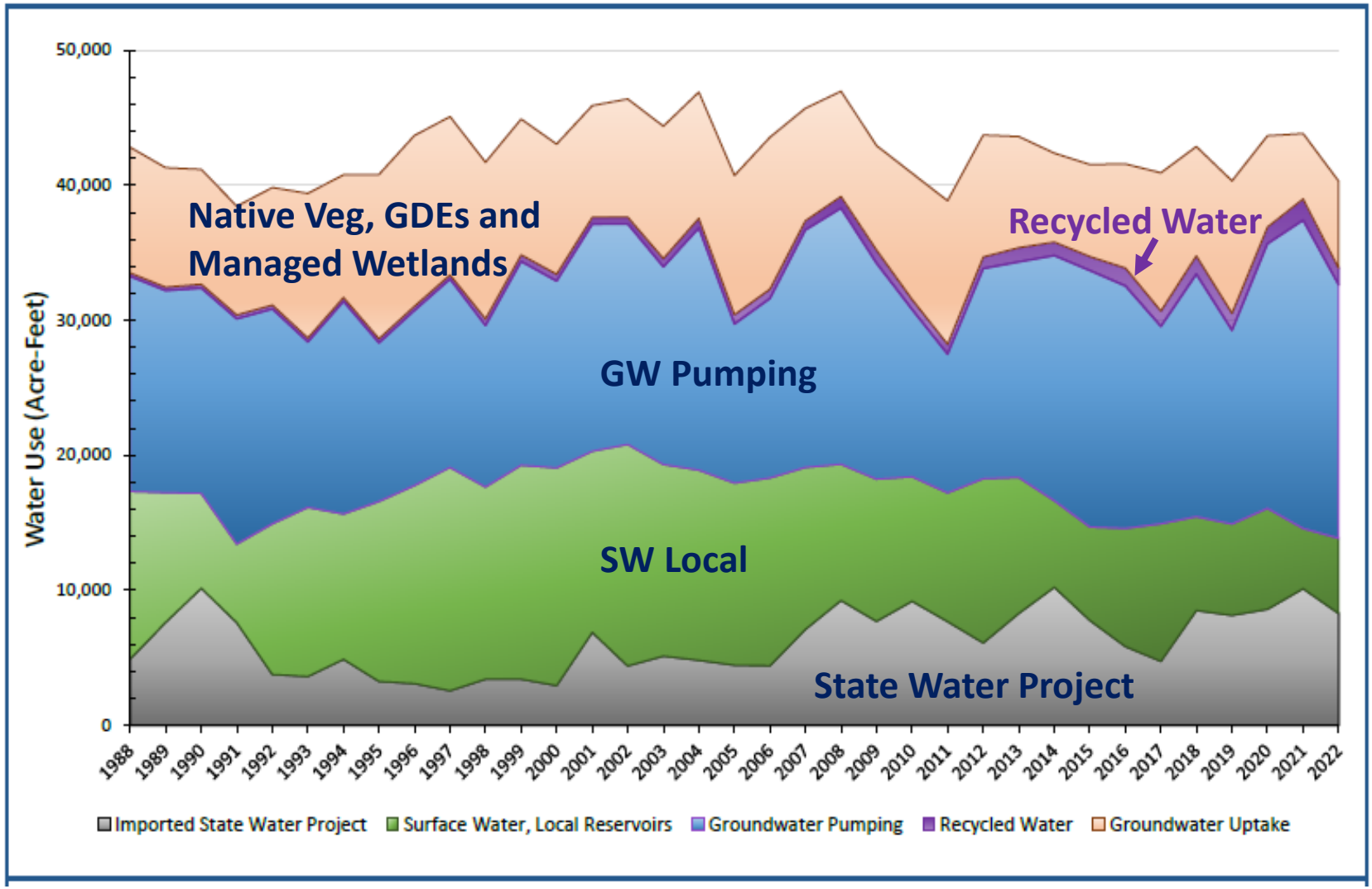
- Develop water budgets: historical, current and projected (50-Year)
- Simulate response to climate change and future land use
- Evaluate projects and management actions to maintain sustainability

Updates WY 2022 Annual Report

- Basin Characterization Model (BCM): Climate WY 2022
- MODFLOW: Land use (2019) and water budget components thru WY 2022

Water Use: WY 2022

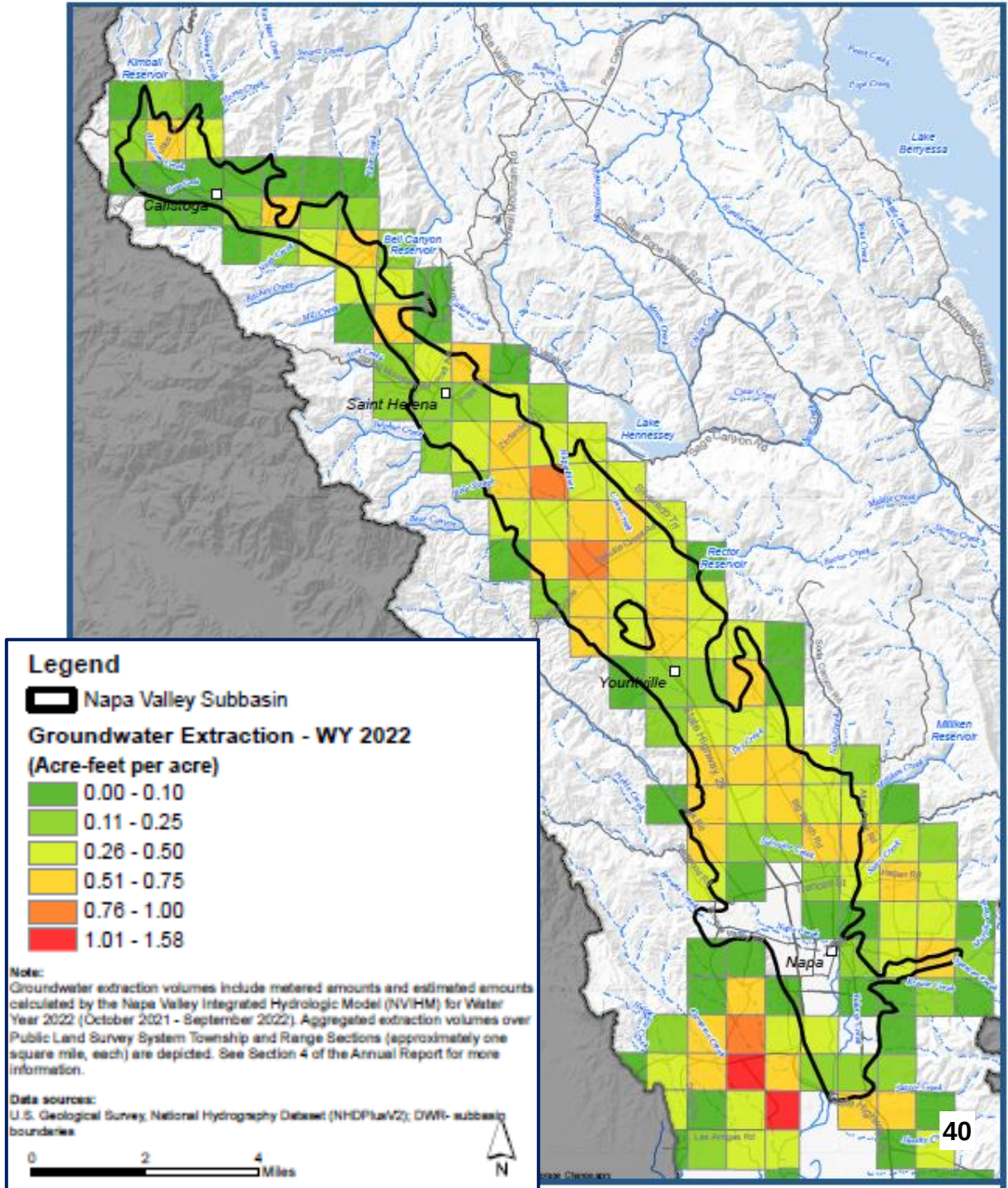
Water Use	Acre-Feet
2022 Groundwater Pumping	18,790
2022 Native Veg, GDEs & Managed Wetlands	6,440
2022 Recycled Water Use	1,220
2022 Local Surface Water Use (including reservoirs, diversions, etc.)	5,562
2022 State Water Project Use	8,290
TOTAL	**40,302**



Groundwater Pumping, 2022 (Acre-feet)

Groundwater Pumping	Acre-feet	Percent Use
Ag (vines and other)	14,210	76%
Municipal	450	2%
Self-Supplied Users Domestic (2,815 AF for outdoor use)	3,060	16%
Small Public Water Systems	1,070	6%

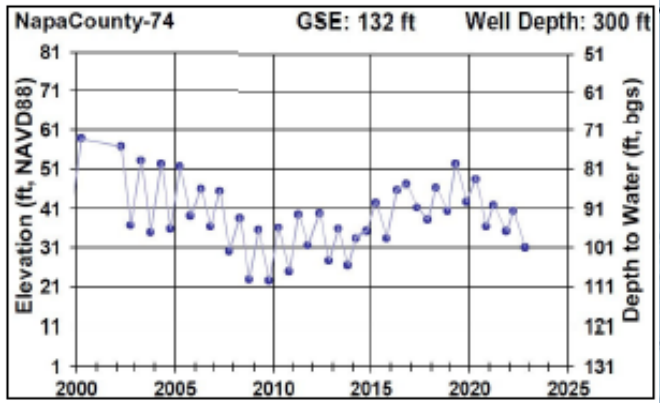
TOTAL = 18,790 Acre-feet

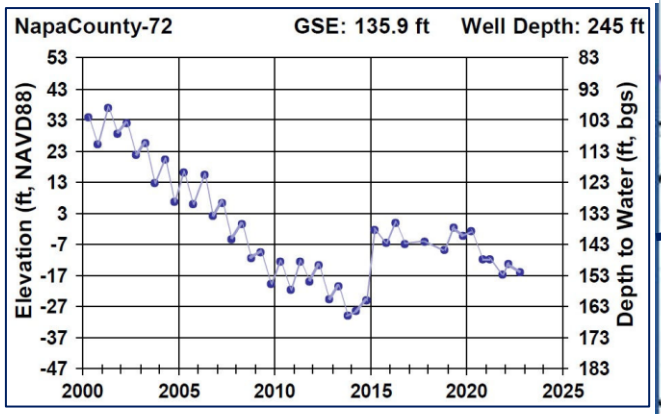


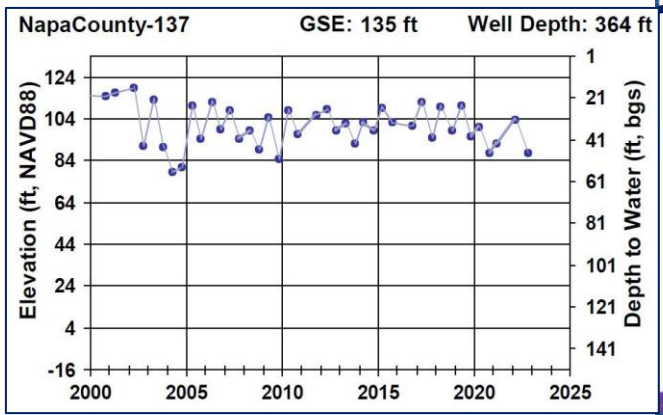
Recycled Water Use: WY 2022

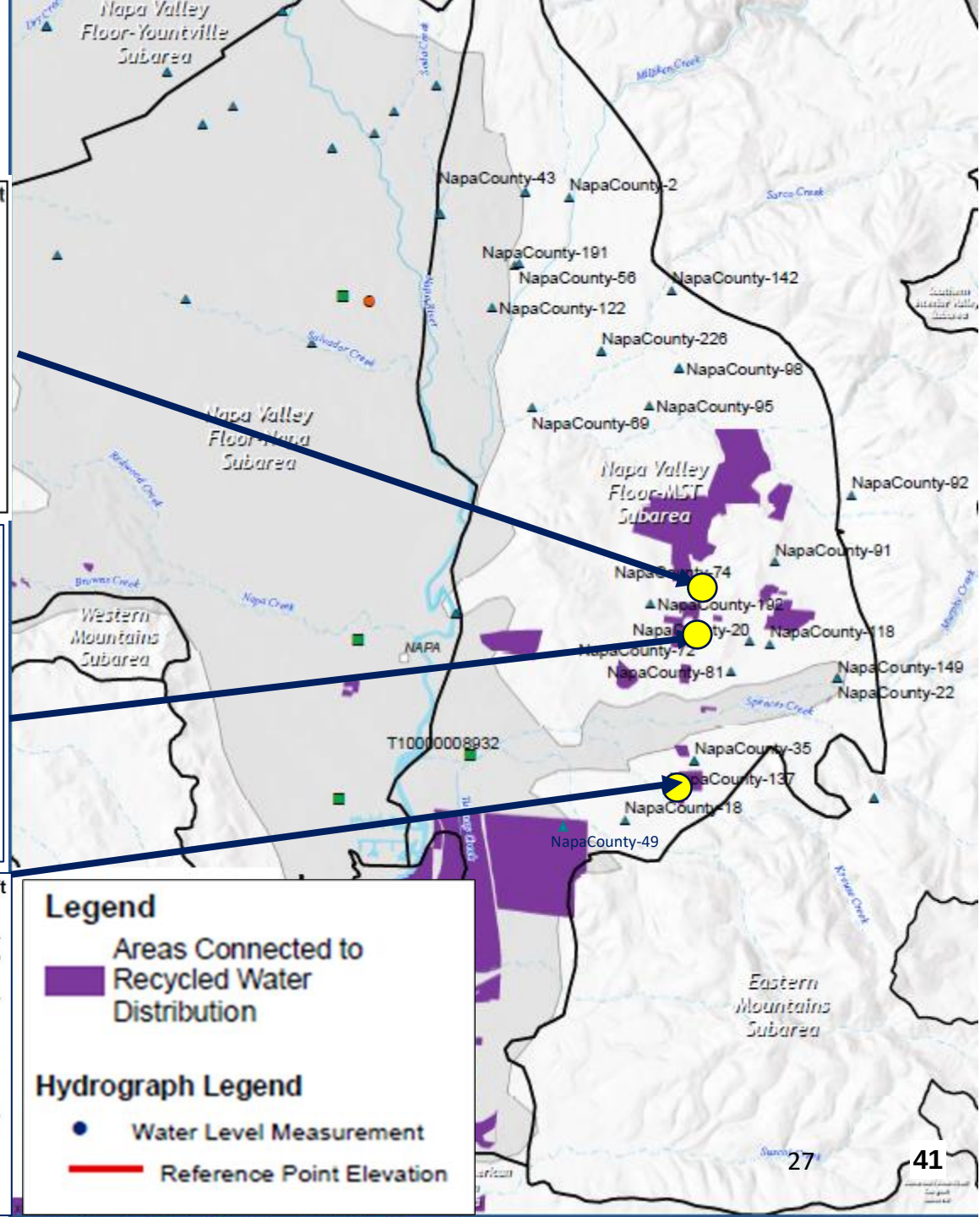
Recycled Water Use	Acre-feet
Ag (vines and other)	250
Municipal	890
Small Public Water Systems	80

TOTAL=
1,220 Acre-feet





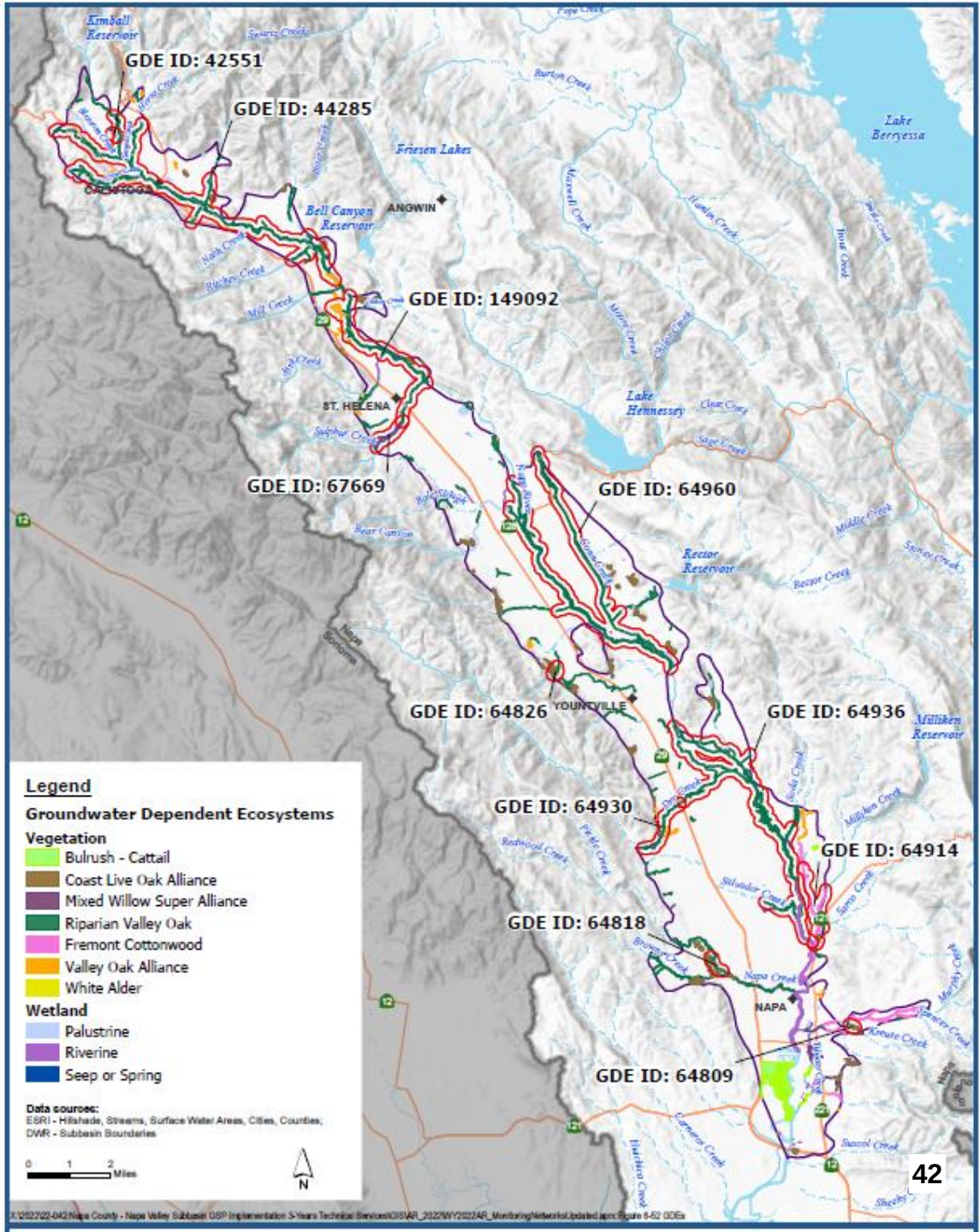




Groundwater Dependent Ecosystems Water Use: WY 2022

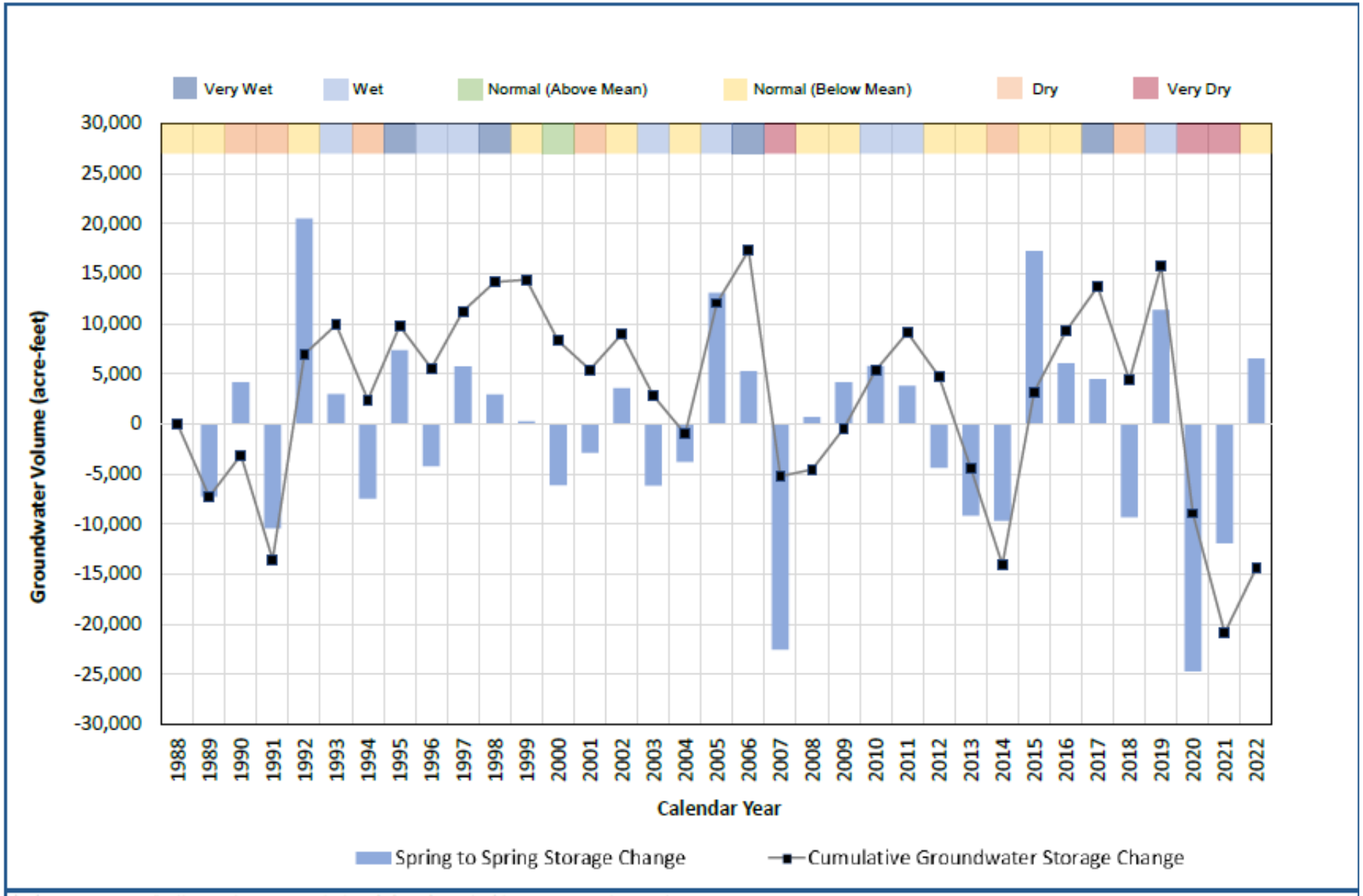
- GDEs are an important groundwater user and component of the water budget
- GDE Acreage (Vegetation and Wetland Types): 2,893 acres

TOTAL= 3,670 Acre-feet



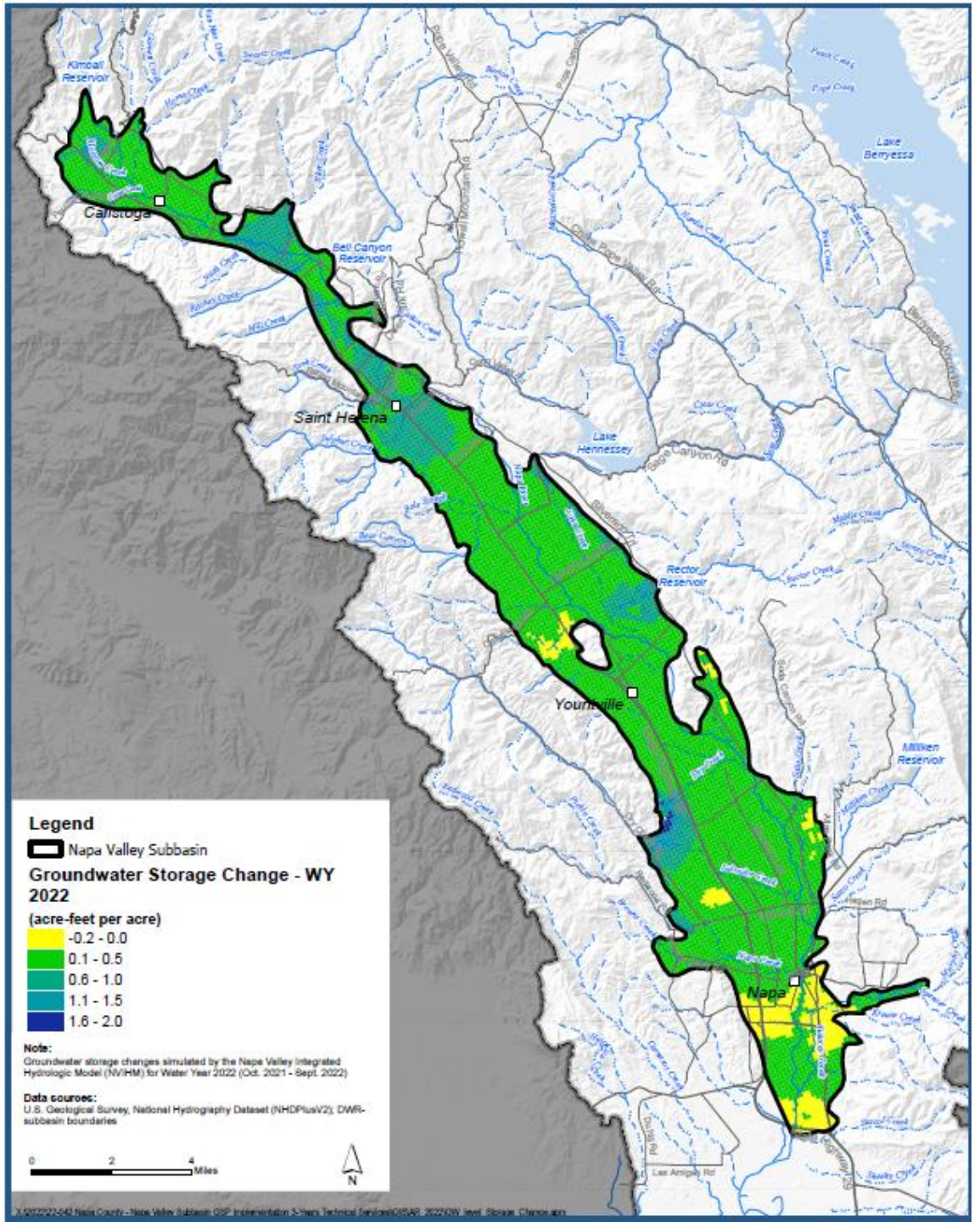
Change in Groundwater Storage: WY 2022

- Change in groundwater storage influenced by water year and pumping
- Increase in storage in WY 2022
- From 1988 to 2022, cumulative storage changes show depletion of supply.

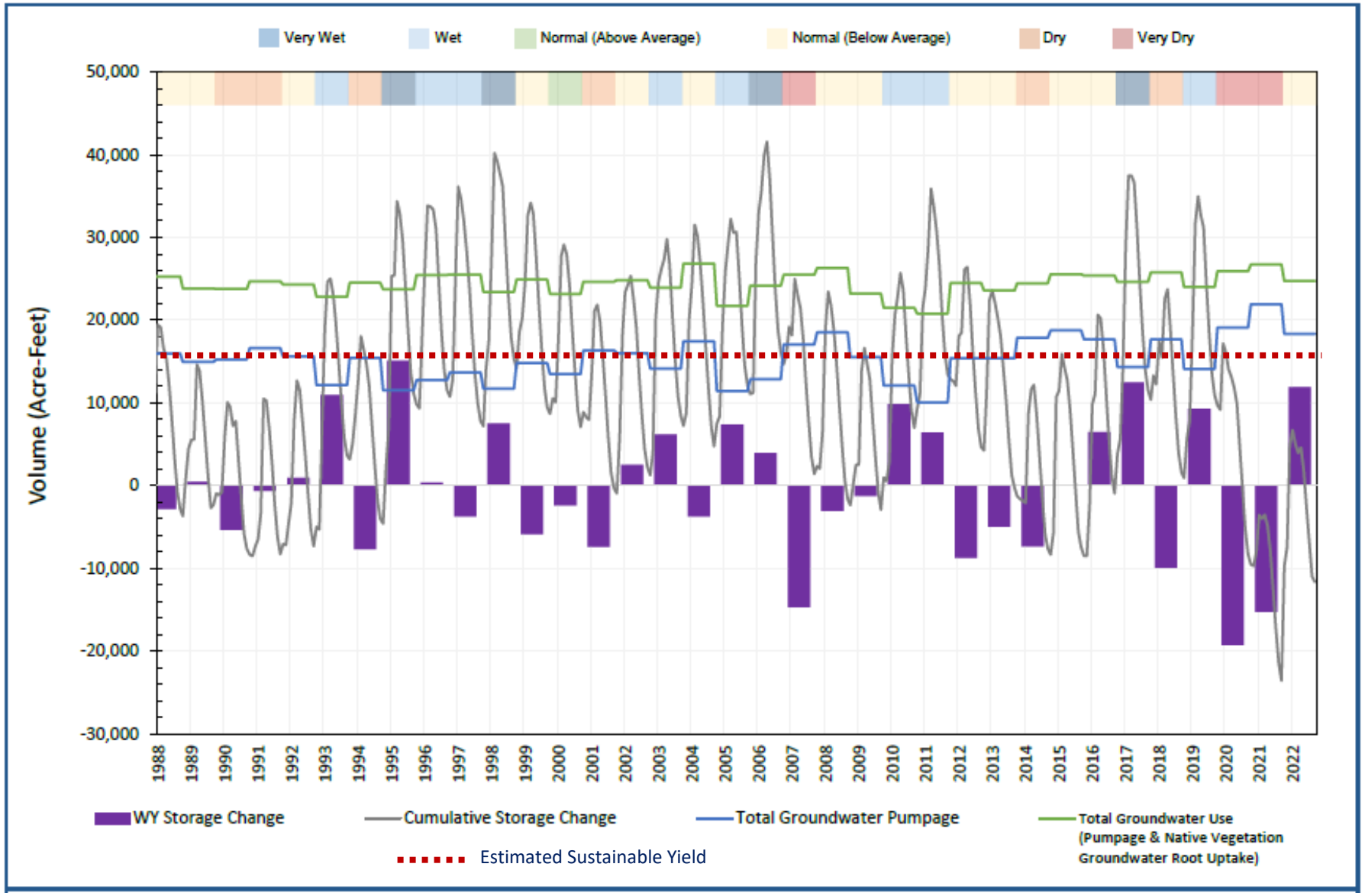


GW Storage Change Simulated NVIHM 10/2021-09/2022

- Increase in GW storage in WY 2022 across most of the Subbasin
- Increase in GW storage based on NVIHM (Oct. 2021 to Sept. 2022) = 11,910 AF



GW Pumping, Total Use, and GW Storage Change and Cumulative Change (1988-2022)



- Very dry years (2020-2021)
- Prolonged drought
- Increase in EDDI, i.e., atmospheric thirst
- Reduced recharge
- General increase in GW pumping since ~2014
- Cumulative effect on reduced GW storage

Sustainability Indicators & Metrics

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

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

Minimum Threshold

Minimum static October groundwater elevation prior to 2015

Undesirable Result

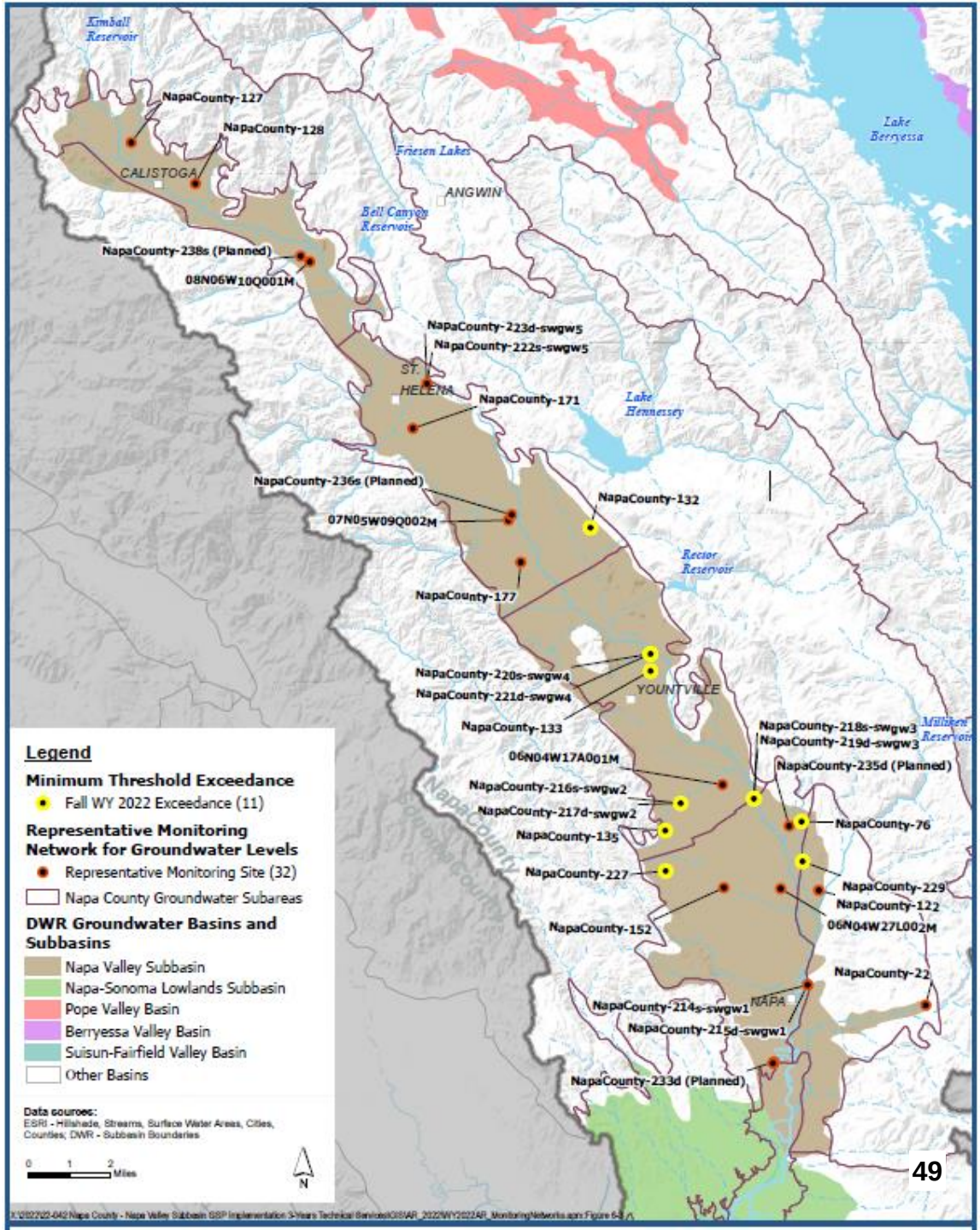
20% of designated RMS well levels fall below the MT in fall (October) for 3 consecutive years of fall measurements in non-drought years

Trigger

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

RMS Groundwater Levels: Fall 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



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 Exceedan
NapaCounty-76	-29	-22.65	-24.54	-46.78	

SMC for Depletion of Interconnected Surface Water: GW Levels

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]

Undesirable Result

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

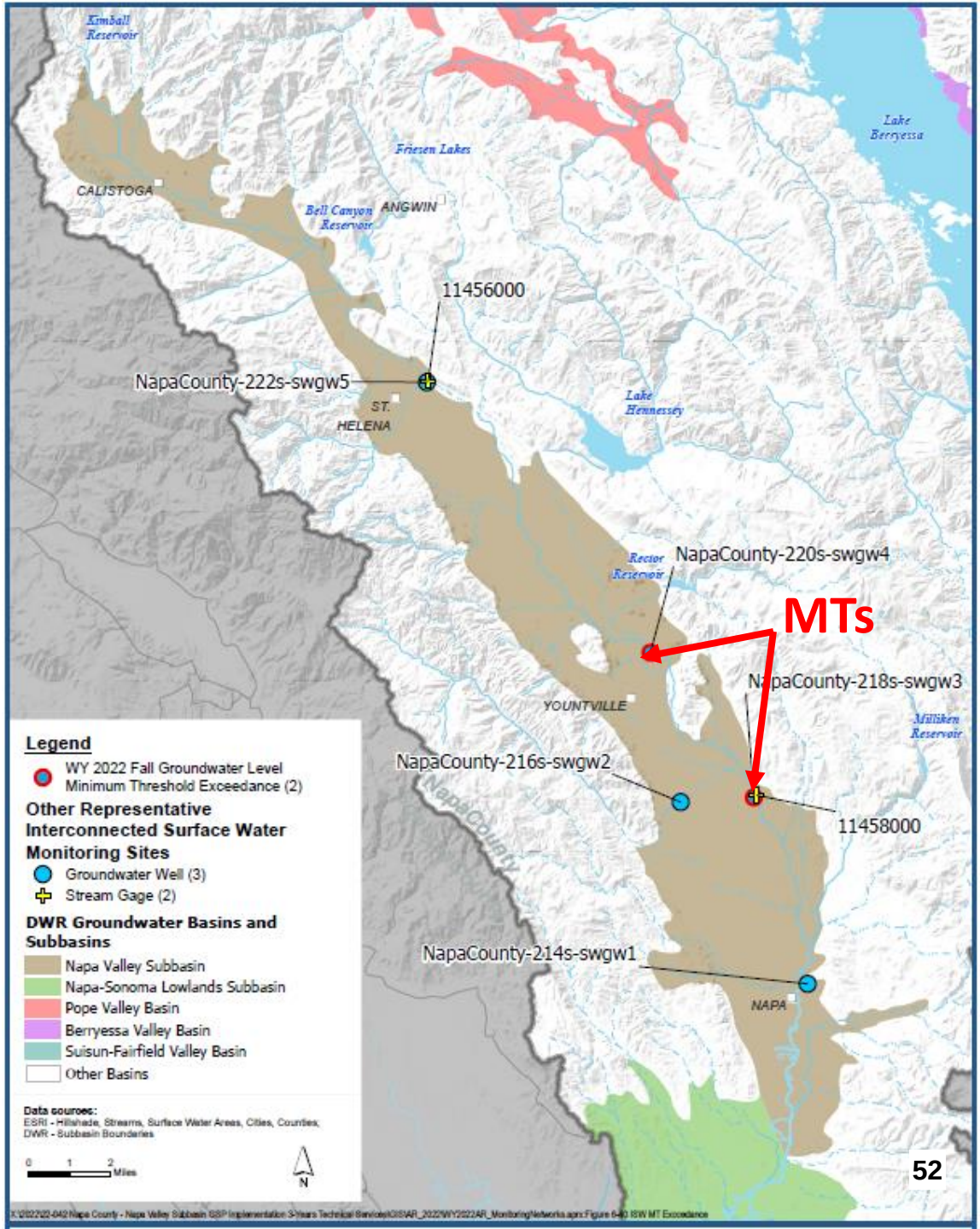
  Exceedance of MT for volume of streamflow depletion occurring 3 consecutive years at either of above stations. [NEED MODEL]

Trigger

Occurs when there is an exceedance of the MT in the Fall for Groundwater Level 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)



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)

SMC for Depletion of Interconnected Surface Water: Depletion Volume

Interim Minimum Threshold

- 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]

Interim Undesirable Result

- Exceedance of MT for volume of streamflow depletion occurring 3 consecutive years at either of above stations. [NEED MODEL]

Trigger

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

Interconnected Surface Water and Model Results

Recent Seasonal (June to October) Streamflow Depletion Volume Estimated with NVIHM at RMS USGS Stream Sites

Well ID	Representative Site		Seasonal Depletion (AF)			WY 2022 MT Exceedance	Three Consecutive WY MT Exceedances
	Minimum Threshold (AF)	Measurable Objective (AF)	WY 2020	WY 2021	WY 2022		
11458000 (Napa River at Oak Knoll Avenue, Napa)[1]	**3,190**	2,370	740	3,829	3,120	-	-
11456000 (Napa River at Pope Street, St. Helena)[1]	**1,400**	1,120	141	1,018	1,215	-	-

1. Site name represents the location of a U.S. Geological Survey stream site where the NCGSA monitors stream depletion, calculated by the NVIHM.

- Seasonal streamflow depletion volume conditions **do not fit** the interim definition for an undesirable result.
- However, an WY 2022, **an undesirable result occurred for this sustainability indicator based on groundwater elevations.**

Reduction of Groundwater Storage

Minimum Threshold

Net GW extraction by pumping exceeding the sustainable yield for the Subbasin, where net GW extraction is the volume extracted less any volume of augmented recharge achieved by projects implemented in the Subbasin.

Undesirable Result

Seven (7) year average annual net GW extraction in the Subbasin exceeds the sustainable yield.

- UR occurred since 7-year average exceeds the sustainable yield for the Subbasin.

Sustainable Yield (Est.) = ~15,000 AFY

Year	Total Groundwater Extraction (AF)
2016	17,980
2017	14,640
2018	17,960
2019	14,340
2020	19,610
2021	22,840
2022	18,790
7 Year Avg.	**18,023**

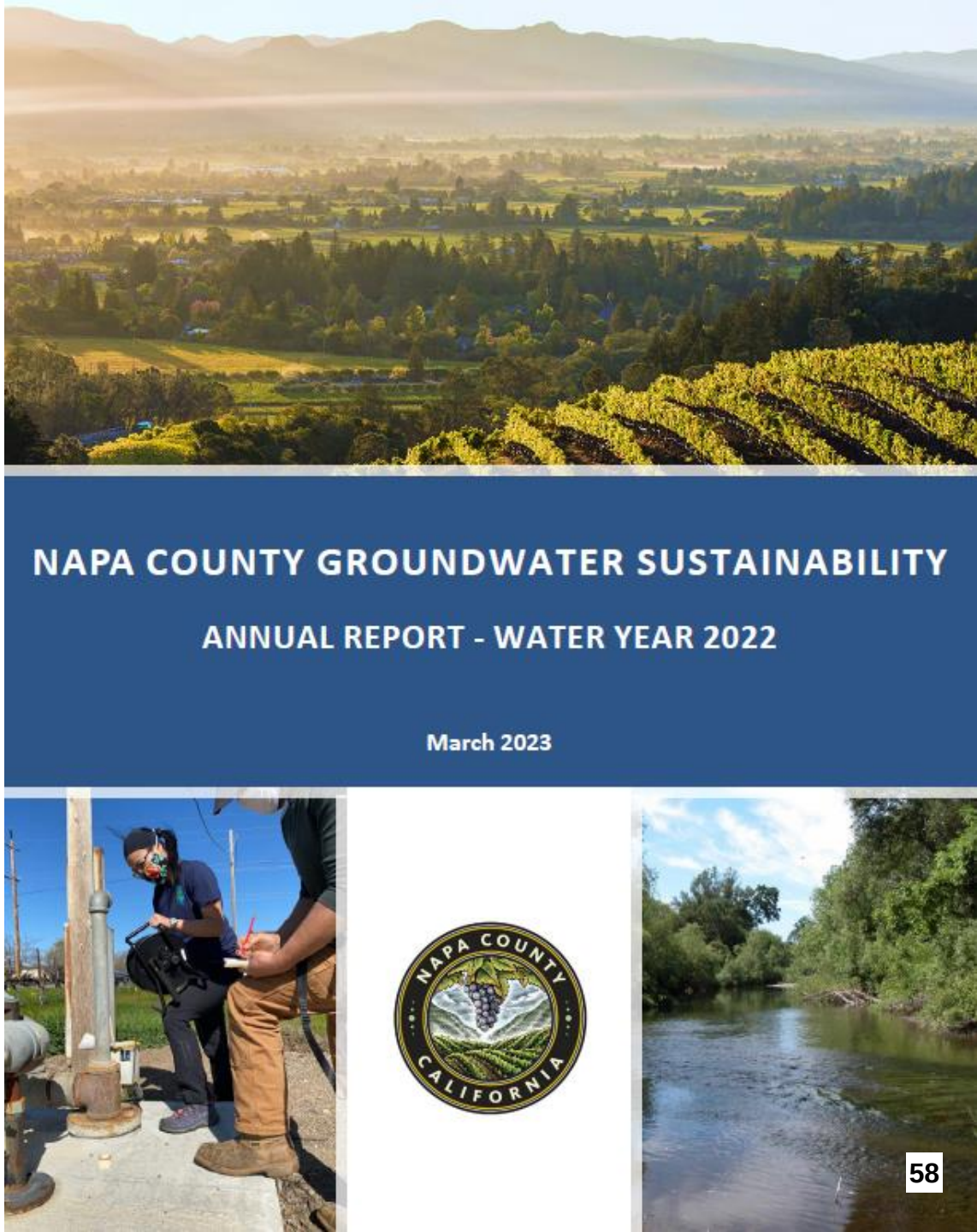
RMS Groundwater Levels: Response Action Required

- 11 RMS/Chronic GW Level Lowering wells have Fall 2022 MT exceedances
- 6 RMS/Chronic GW Level Lowering 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**
- Avg. GW pumping over 7-year period exceeds Sustainable Yield
  - **UR has occurred for Reduction in Groundwater Storage (WYs 2021 and 2022)**

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	No
Reduction of GW Storage	Yes	Yes
Land Subsidence	No	No
Seawater Intrusion	No	Future evaluation

WY 2022 Annual Report: Summary

- Subbasin: GW level decline in response to drought and lack of recharge
  - Some GW replenishment due to precipitation in Oct-Dec 2021
  - Still had GW level MT exceedances in WY 2022
  - UR: Interconnected Surface Water
  - UR: Reduction of GW Storage
  - Coordination occurring for RMS Wells for GW Quality and Seawater Intrusion
- GW level declines in MST moderated before recent drought years, but drought effects observed



Response Actions & GSP Implementation

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

GSP Implementation

- NCGSA Technical Advisory Group (Kick-Off August 2022)
- Interconnected Surface Water and GDEs Workplan (Fall 2023)
- Napa County Vineyard and Winery Water Conservation Workplan (Summer 2023)
- Groundwater Pumping Reduction Workplan (Summer 2023)
- Stormwater Resource Plan (March 2023)
- Refining Water Use Data (ET: OpenET and Local Land-Based Sensors; in Progress)
- MW Installation (4 Sites/8 MWs: April 2023)
- Other MW Sites (being Evaluated)
- RCD and Stream Watch Monitoring (in Progress)
- Evaluate Potential Recharge Areas and Feasibility (in Progress)
- Stakeholder Coordination and Outreach (Ongoing)
- Coordination with Napa County Drought and Water Shortage Efforts

DWR Approved Napa Valley Subbasin GSP January 26, 2023

Thank You

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NAPA COUNTY TECHNICAL ADVISORY GROUP
Framing Questions Compiled for October, November, and December 2022 Meetings

Discussion Questions in Technical Advisory Group (TAG) Meeting Staff Reports: The framing questions from TAG meetings during October through December 2022 have been compiled along with draft summaries of discussions during this period. Many of the questions (and the associated discussion by the TAG) occurred during one or more meetings due to the overlapping nature of the meeting topics. Accordingly, the questions and draft summaries of discussions are grouped by topic.

A. Water Conservation Measures and Other Considerations

1. **What water conservation measure(s) has the greatest potential for additional water savings (especially at the Subbasin scale)? What tools/technology/data are recommended to improve the quantification of current and future water demands for all water use sectors? What tools/technology/data should vineyard and winery managers/operators use to demonstrate and quantify the water conservation occurring currently and also the additional water conservation (volume of water saved) that could potentially be achieved? Remotely sensed data require field verification. How should data privacy of field data be addressed as opposed to complete data transparency for calibration/verification purposes? What are the advantages and/or limitations to widespread adoption/acceptance of remotely sensed ET measurements for GSP implementation and annual reporting?**

   Many tools and technologies are in use and/or available for use to monitor water consumption and achieve water conservation associated with urban, rural residential, agricultural, and other land uses. Among the measures discussed was the potential for additional water conservation through improvements to irrigation system efficiency as identified in the distribution uniformity (DU) testing conducted by the Napa County Resource Conservation District and Napa Green. Napa Green is now requiring a DU test as part of their vineyard certification program. Remote sensing technologies such as OpenET at the Napa Valley Subbasin or watershed scale or land-based sensors at a field scale are among the tools available to assess water demands. OpenET can facilitate computation of native and non-native plant water demands for the watershed, while land-based sensors are frequently being used to aid growers in real-time water management and irrigation scheduling. These remote sensing datasets can be used together (along with other types of data where available) to improve the understanding of total water use for native and non-native vegetation (e.g., vineyards and other land uses) and to refine the temporal and spatial representation of evapotranspiration coefficients in the Napa Valley Integrated Hydrologic Model (NVIHM). The field data can offer great value for refining the local application of OpenET data to better understand total water use and to improve the simulation results developed with the NVIHM. Land-based sensors, or other technologies to inform estimates of total water consumption, are not available on all parcels. The field data can be documented at a regional scale and need not release private owner/address data to meet the overarching objectives for using the best available data to better understand total water demands and water use by native and non-native plants.

2. Should water conservation measures be incentivized? If so, what might those incentives include?

Grapegrowers have invoked water conservation technologies for many years. However, opportunities exist to accomplish additional water conservation locally and also collectively on a Subbasin scale for all land uses, including urban, rural, agricultural, and other land uses. Incentives would be useful to encourage additional water conservation by all users. One type of incentive could include benefits associated with vineyard and/or winery water management certification programs. Benefits derived from certification may be qualitative such as visible promotion of growers that are implementing improved water monitoring and management tools and technologies that support water resources sustainability. Outreach should help raise awareness of the: 1) irrigation efficiency service provided by the Napa County Resource Conservation District and Napa Green, 2) local and state certification programs that include water management criteria, and 3) the importance of monitoring and managing water resources to achieve groundwater sustainability.

The Napa County GSA could incentivize educational opportunities, including water conservation workshops, training videos, specialized speakers' fees, or other educational materials and venues. Workshops could be subsidized to lessen costs for participants to ensure training materials and resources are accessible to all persons who can contribute to achieving water conservation objectives.

The Napa County GSA could potentially provide (subsidize) land-based sensors and/or flow meters to vineyard and winery operators or managers who express an interest in tracking water demand and use and increasing the volume of water saved annually. Devices provided through the GSA could include required training on the use, calibration, and maintenance of the device(s). The incentive could occur through a time-limited offering for the Napa County GSA to provide one or both tracking tools, including the cost of shipping, installation, verification of operation, and initial calibration. The time-limited offering could also include calibration of existing flow meters. The Natural Resources Conservation Service (NRCS) could assist vineyard managers/operators in applying (when eligible) to applicable grant opportunities, including the Environmental Quality Incentives Program (EQIP) and installation of monitoring devices and more efficient irrigation technology and infrastructure. The California Department of Food and Agriculture (CDFA) State Water Efficiency and Enhancement Program (SWEEP) could also be considered for eligible applicants. Additional details on the benefits associated with incentives to track water use and conserve more water will be described in the *Napa County Vineyard and Winery Water Conservation Workplan* (in progress). The incentives program could also be integrated with programs that certify vineyards and/or wineries. Incentives are envisioned to help: 1) ensure the future of grape growing in Napa Valley, 2) demonstrate commitment to stewardship, 3) illustrate the utility of tracking current and future water use, and 4) assess vineyard uniformity.

3. What approaches are recommended to encourage support of and commitment to countywide water conservation efforts that meaningfully achieve efficient water use and future sustainability?

Some preliminary approaches to encourage countywide water conservation include implementation of field-scale studies involving analysis of multiple-types of data already being collected at some grower locations. These data include land-based remote sensing data,

groundwater extraction volumes, soil moisture, and other data. As described in No. A1, these field-scale analyses can be used to improve the understanding of total water use at the Subbasin or watershed scale. Additionally, outreach efforts by various groups, including vineyard and winery organizations, the Napa County GSA, the Napa County Resource Conservation District, UC Cooperative Extension, and others, could collaborate to increase outreach pertaining to water conservation, the utility of tracking water use, and water resources sustainability objectives. Additional approaches will be included in the *Napa County Vineyard and Winery Water Conservation Workplan* (in progress).

4. **Should vineyard and/or winery water conservation measures be increased regardless of hydrologic year type? Or should increased effort be made during especially dry years? If the latter, how would this be managed and tracked?**

   The Napa River and its tributaries are an integral part of the Napa Valley Subbasin, where groundwater conditions and interconnected surface water respond to wetter and drier hydrologic water years, and are susceptible to drought effects. Prudent water resources management and water use efficiency are necessary regardless of water year type. Increased monitoring of interconnected surface water (ISW) and groundwater conditions and other considerations pertaining to wetter or drier water year types could be prioritized for Subbasin locations where ISW and groundwater dependent ecosystems are more susceptible to drier years, less recharge, and/or increased groundwater use.

B. Flood-MAR Specific Framing Questions

1. **How applicable/feasible are Flood-MAR activities in Napa Valley for improving groundwater management?**

   As a preliminary step, the physical characteristics conducive to potential groundwater recharge need to be examined on a macro level to delineate sites/potential areas that warrant a next level of recharge site feasibility assessment. During recharge site feasibility evaluations, it will be important to understand the factors that would encourage (e.g., Subbasin sustainability, ISW, temporal GDE benefits, etc.) or discourage (e.g., vine pests or disease, low yield, flooding impacts, infrastructure constraints, etc.) participation in recharge pilot studies. As part of the recharge site feasibility evaluation, it will be necessary to assess whether proposed recharge projects can achieve the intended benefits and justify the cost of infrastructure, landscape/land use modification, monitoring, and potential impacts, as well as assess the potential water source for recharge and associated costs, challenges, and constraints. The feasibility evaluation should quantify the incremental temporal and spatial benefits to ISW at a prioritized location(s), for example, relative to no project.

2. **What mechanisms for incentivizing recharge and water conservation should the GSA explore?**

   Incentives to encourage onsite recharge will be like those described in No. A2. The Napa Valley Subbasin physical structure, including near-term responses to groundwater inflows and outflows, is not conducive to a groundwater banking construct. Essentially, individuals or entities contributing recharge to the groundwater basin would not be able to extract the "recharged volume"; they would be subject to the same water management approaches as others who do not participate in groundwater recharge efforts. It is anticipated, however, that some type of incentive would be developed to encourage recharge where recharge is feasible

and beneficial to both the individual or entity and sustainable groundwater conditions in the Subbasin.

C. Demand Management Framing Questions

1. **A reduction in groundwater use was approved by the Groundwater Sustainability Plan Advisory Committee (GSPAC) during GSP development. Many demand management options can be invoked, which thereby would reduce groundwater pumping. What demand management measures does the TAG consider to be viable for reducing groundwater pumping in the Napa Valley Subbasin?**

   Demand management measures could occur through various approaches, and it is likely that different combinations of measures will be used by vineyard and winery managers and operators and others, depending on many factors related to the current water use, conservation measures already being employed, and plans for future water management. The preparation of a *Groundwater Pumping Reduction Workplan*, which on October 14, 2021 was unanimously approved by the GSPAC during GSP development for the purpose of reducing groundwater pumping in the Subbasin, achieving a 10 percent reduction in average annual historical (2005-2014) pumping, and initiating a reduction in pumping following adoption of the GSP by the Napa County GSA on January 11, 2022. The reduction in groundwater use approved by the GSPAC applies to the whole Subbasin and not to individual properties. Some of the approaches for demand management could include: 1) greater attention to irrigation infrastructure, uniformity and scheduling; 2) consideration of planting density, row orientation, trellis design, cultivar and rootstock selection, canopy management, etc.; type and utility of cover crops; 3) increased water use efficiency at wineries, including landscape irrigation, selection of drought-adapted plants for landscapes, capture and reuse of winery wastewater; 4) potential rebate for irrigation efficiency; and 5) other water conservation methods. The *Napa County Vineyard and Winery Water Conservation Workplan* (in progress) will serve as a resource for various approaches that can be used to achieve additional water conservation.

2. **Exceedances of minimum thresholds pertaining to the interconnected surface water sustainability indicator have occurred. The GSP describes the need for accelerated actions to reduce groundwater pumping when this occurs. What sequence of steps does the TAG recommend to expedite actions to reduce groundwater pumping? What are reasonable timelines to implement the steps?**

   In June 2022, Napa County took initial steps to revise the countywide well permitting standards, which in turn results in a significant reduction in groundwater use on a per acre basis for new groundwater development (i.e., this is a reduction from about 1 acre-foot per acre per year to 0.3 acre-foot per acre per year). The draft outline for the *Groundwater Pumping Reduction Workplan* is currently being reviewed, and this Workplan, which is a companion document to the *Napa County Vineyard and Winery Water Conservation Workplan*, is anticipated to be completed in Summer 2023. Additional near-term and ongoing community outreach and education are critical to ensure the public is aware of and supports the need to increase water conservation and reduce water demands (see also D2), and is aware of the GSP implementation process, including process for public comments and schedule for workplan approval and implementation.

D. Potential Response Actions

1. **While the Workplans underway are intended to inform actions necessary to maintain sustainable groundwater conditions in the Subbasin, a central question for the TAG is what response actions should be considered in the very near term?**

   Since adoption of the Napa Valley Subbasin GSP, GSP implementation activities have included steps to prepare four workplans, including the *Napa County Vineyard and Winery Water Conservation Workplan, Groundwater Pumping Reduction Workplan, Stormwater Resource Plan,* and *Interconnected Surface Water (ISW) and Groundwater Dependent Ecosystems (GDEs) Workplan***.** Completion of these plans is a priority. It is anticipated that the first three of these workplans will be completed by June 2023, while the ISW and GDEs Workplan is anticipated to take a little longer.

   Other key activities underway or planned while the workplans are being prepared include:

   - Outreach and education (including Spanish language outreach materials), especially related to water conservation measures, tracking water use, and irrigation system evaluations. Implement a broad, whole community approach for water conservation outreach efforts (including landscaping for residential and commercial buildings) (see also No. A2 and A3);
   - Prepare outreach materials that are easy to widely post and/or distribute such as a one-page flyer or brief brochure;
   - Evaluate the current GSP monitoring networks and address data gaps identified in the GSP;
   - Evaluate the feasibility of recharge projects at selected sites/areas (see also No. B1);
   - Evaluate innovative approaches to mitigate drought effects on streamflow (e.g., reservoir releases where feasible);
   - Examine opportunities to increase the use of reclaimed and recycled water;
   - Napa County GSA pursue umbrella water right permit for surplus stormwater diversion for recharge when available; and
   - Prepare and implement a Memorandum of Understanding to demonstrate collaboration among multiple parties (including Napa County GSA, Napa County RCD, UC Cooperative Extension, Napa County Farm Bureau, Napa Valley Grapegrowers, Winegrowers of Napa County, Napa Valley Vintners, Napa Green and others) that will prepare a Water Conservation Outreach and Engagement Plan (WCOE Plan) focused on promoting increased water conservation, especially among vineyard and winery interests and private citizens who rely on well water.

2. **What drought response measures (either voluntary or mandatory) should be implemented in 2023 to mitigate potential drought effects on groundwater conditions, especially interconnected surface water?**

   Drought response (and drought mitigation) measures should emphasize implementing additional water conservation measures where such efforts have not already occurred to the

maximum extent practicable and tracking water use to better identify water savings achieved. The *Groundwater Pumping Reduction Workplan* will describe voluntary measures to conserve water, including reducing groundwater pumping, and also requirements for reduced groundwater use that stem from Napa County's new well permitting standards (as of January 6, 2023). The *Groundwater Pumping Reduction Workplan* will be action-oriented, including monitoring, tracking, and refining the understanding of groundwater use and the effect of that use on groundwater conditions and sustainability. This Workplan will also include adaptive management and a process to invoke mandatory measures if voluntary measures are insufficient to achieve groundwater sustainability.

Napa County

Board Agenda Letter

Technical Advisory Group	**Agenda Date:** 3/9/2023	**File ID #:** 23-0409

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Interim Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Potential Water Conservation Actions to support the Groundwater Pumping Reduction Workplan

RECOMMENDATION

Provide an update to the Technical Advisory Group (TAG) on progress developing potential water conservation actions for the Groundwater Pumping Reduction Workplan (GPR Workplan). This will include a discussion of feedback on existing certification programs, on-farm water conservation practices, and broader water conservation practices. The presentation (see Supporting Documents) will summarize existing and potential practices under consideration for voluntary water savings, and a matrix summary format for organizing the practices. Several framing questions are included to receive feedback and direction from the TAG.

EXECUTIVE SUMMARY

Staff and the technical team are continuing work on the GPR Workplan, following an initial presentation at the February TAG. It is anticipated that work will continue over the next several months. This is the second of several updates to the TAG. Information and updates since the last TAG meeting are being presented (see Supporting Document A), and updates will be ongoing as the technical team continues to receive feedback from the TAG and completes its work.

Procedure

Staff introduces the item.
Questions and answers with the TAG.
Public comments.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

The Groundwater Pumping Reduction Workplan (GPR Workplan, see draft outline, Supporting Document B) is being prepared to provide a roadmap for implementing measures to reduce groundwater pumping in the Napa Valley Subbasin. This Workplan is a companion document to the related document, the Napa County Vineyard and Winery Water Conservation Workplan. The GPR Workplan will describe the voluntary measures to conserve water, including reducing groundwater pumping. The GPR Workplan will include processes for improving the understanding of groundwater use in the Subbasin and evaluating the effectiveness of measures implemented to reduce groundwater pumping in relation to observed benefits to groundwater conditions and sustainability. The GPR Workplan will also include adaptive management and a process to invoke mandatory measures if voluntary measures are insufficient to achieve groundwater sustainability.

Napa County GSA Staff and the technical team are working on the GPR Workplan. It is anticipated that work will proceed over the next several months. This is the second of several updates to the TAG. Information and updates since the last TAG meeting are being presented (see Supporting Document A), and this will be updated as the technical team completes its work and receives feedback from the TAG.

FRAMING QUESTIONS FOR TAG DELIBERATIONS

The following framing questions have been prepared for the TAG in consideration of groundwater pumping reductions to achieve overarching GSP objectives for the Napa Valley Subbasin:

> The GPR Workplan is being developed to specify options for reducing pumping to achieve sustainability benefits for the Subbasin. The GPR Workplan will focus on voluntary actions, leverage existing programs, identify cost-effective approaches to reduce groundwater pumping, and summarize water savings benefits for water conservation practices or suites of practices. The project team is conducting outreach to support analysis of existing and potential water conservation practices. This includes outreach to certification programs as well as other organizations and entities.
>
> Voluntary water conservation actions should provide a benefit to the Subbasin and to individuals that adopt them. Certification programs are one way to realize value from voluntary actions. Existing certifications for winegrapes are currently being reviewed to identify the potential for certifying specific water management practices, and what value these types of labels may generate. A summary of the findings from review of and meetings with administration of certification programs will be presented in this meeting, as well as a list of other organizations for project outreach.
>
> > **Question**: Are there other entities, individuals, or certification programs that the project team should meet with as part of GPR Workplan development?
>
> Water conservation practices must result in a quantifiable groundwater savings to be included in the GPR Workplan. A preliminary review of water conservation practices in existing certification programs is in progress. This review will proceed and come back to the TAG at one or more future meetings. A preliminary list of water conservation practices was included in the February 2023 presentation to spark initial discussion, which was revised and added to, following TAG feedback and additional analysis conducted by the technical team. Practices are grouped into on-farm, regional, and other water

management practices.

Question: Does the water conservation practices list appear complete? If not, what other practices should be included for analysis?

The GRP Workplan will include a detailed summary of each water conservation practice (see Supporting Documents). This summary will include costs and benefits for existing and potential practices, including vineyard-specific benefits and potential water savings that benefit the Subbasin. To organize and summarize findings in a concise format, a matrix concept was developed whereby practices would be ranked by criteria including costs, private benefits, water savings benefits, implementation timeline, overall feasibility, and other required studies. The concept is presented to the TAG in this meeting for feedback and discussion.

Question: Does the matrix concept provide a useful simplification of the GPR Workplan water conservation practices? What other criteria should be considered?

SUPPORTING DOCUMENTS

A. ERA Economics Powerpoint Presentation: Napa Valley Subbasin, Groundwater Pumping Reduction Workplan, March 2023

B. Groundwater Pumping Reduction Workplan, Draft Outline, February 5, 2023

Reviewed By: Jamison Crosby

Napa Valley Subbasin
Groundwater Pumping Reduction Workplan

Napa County GSA TAG Meeting

Overview

1. Groundwater Pumping Reduction Workplan
2. Feedback from Certification Programs
3. Existing and Potential Water Conservation Practices
4. Next Steps

GROUNDWATER PUMPING REDUCTION WORKPLAN

Groundwater Pumping Reduction

- Guiding Framework:
  - Focus on voluntary actions that achieve groundwater benefits for the Subbasin
  - Assess the costs and benefits of alternative actions and focus on those that are most cost-effective
  - Leverage existing programs and opportunities to generate value from a suite of voluntary actions
  - **Include adaptive management to adjust the program as data and sustainability indicators evolve**

Groundwater Pumping Reduction Workplan

Voluntary Approaches to Reduce Pumping

Field-level measurement

Best management practices

Education

Benchmarking

On-farm practices

Other practices

Adaptive management

Subbasin Use Benchmarking and Tracking

Remote sensing, metering

Well permitting

Groundwater trends

Communications and Engagement

Outreach and engagement

Technical Advisory Group

Education and resources

Steps for Implementation

Assess effectiveness

Implement adaptive measurement and potential mandatory measures, pending effectiveness of voluntary efforts

FEEDBACK FROM CERTIFICATION PROGRAMS

Voluntary Certification

- Certification programs reviewed and contacted so far:
  - California Sustainable Winegrowing Alliance
  - Napa Green
- Certification programs reviewed but not yet contacted:
  - Sonoma County Sustainable Winegrowing
  - Fish Friendly Farming
- Other pending outreach:
  - Napa County Farm Bureau
  - Napa RCD
  - Napa Valley Grapegrowers
  - Napa Valley Winegrowers

Are there other entities, individuals, or certification programs that we should meet with as part of GPR Workplan development?

EXISTING AND POTENTIAL GPR WORKPLAN WATER CONSERVATION PRACTICES

Practices Being Analyzed

- On-farm practices
  - Water measurement
  - Distribution uniformity
  - Irrigation system efficiencies
  - Soil moisture monitoring
  - Canopy management
  - **Row orientation**
  - Rootstock selection
- Regional water management practices
  - **Recycled water**
- Other water management practices
  - **Process water for landscaping**
  - **Waterless (e.g., UV) barrel sanitation**
  - Benchmarking

Does this list look complete? If not, what others should we include for analysis?

GPR Workplan

- The GPR Workplan will have detailed information for each water conservation practice
- A matrix concept was developed to summarize key information in a concise format
  - Costs
  - Benefits (private)
  - Benefits (water savings)
  - Implementation Timeline
  - Overall Feasibility
  - Other Required Studies

Matrix Conceptual Overview

Practice	Cost	Benefit, Private	Benefit, Water Savings	Implementation Timeline	Overall Feasibility	Other Required Studies
Unit	$/AF	$/AF	AFY	years	Ranking	Description
On-Farm Practices						
Water Measurement						
Distribution Uniformity						
Irrigation System Efficiency						
Soil Moisture Monitoring						
Canopy Management						
Row Orientation						
Rootstock Selection						
Regional Water Management Practices						
Recycled Water						
Other Water Management Practices						
Processing Water Treatment and Reuse						
Waterless (UV) Barrel Sanitation						
Benchmarking						

Analysis In Progress

Proposed Scoring	High	Low	Low	Long-term	Low
	Medium	Medium	Medium	Mid-term	Medium
	Low	High	High	Short-term	High

Does the matrix concept provide a useful simplification of the GPR Workplan water conservation practices? What other criteria should be considered?

SUMMARY AND NEXT STEPS

Looking Forward to Next Steps

- Continue to develop and review certification programs and voluntary conservation practices
  - Outreach is in progress
  - Analysis is in progress
- Establish water savings attributable to selected practices
  - In coordination with other team members and experts
- Analyze costs and benefits of selected practices
- Rank practices for feasibility for Napa County GSA and present results to TAG to receive feedback
  - Using matrix format to summarize outputs
- Develop suite of options for practices and include in the GPR Workplan

Draft Groundwater Pumping Reduction Workplan

A Workplan for Implementing Measures to Reduce Groundwater Pumping in the Napa Valley Subbasin

Two key approaches can be used to reduce groundwater pumping: reduce groundwater use via voluntary or mandatory measures. The Groundwater Pumping Reduction Workplan (GPR Workplan) is being prepared to provide options and a roadmap for implementing measures to reduce groundwater pumping to meet water demands in the Napa Valley Subbasin. This Workplan is a companion document to the related document, the Napa County Vineyard and Winery Water Conservation Workplan (VWWC Workplan). The VWWC Workplan will describe the understanding of water use, including groundwater, and the various conservation measures that are already or could be implemented to save water. The VWWC Workplan will also serve to motivate future innovative water conservation approaches to help buffer drought year affects and advance watershed resiliency. The GPR Workplan will describe the range of voluntary measures that can be used to conserve water, including reducing groundwater pumping. It will also describe requirements for reduced groundwater use that stem from the County's new well permitting standards (as of January 6, 2023). The GPR Workplan will be action-oriented, including monitoring, tracking, and refining the understanding of groundwater use and the effect of that use on groundwater conditions and sustainability. The GPR Workplan will also include adaptive management and a process to define the monitoring and other data that will be used to define and implement mandatory measures if voluntary measures are insufficient to achieve groundwater sustainability.

1. Introduction
    a. Workplan Purpose
        i. Summary of guiding framework, including emphasizing voluntary actions and identifying cost-effective solutions to be included in the Workplan
    b. Groundwater Pumping Reduction Goals
        i. Achieving groundwater sustainability in the Napa Valley Subbasin (summary of requirements to achieve sustainability)
        ii. Mitigating short and long-term drought effects on groundwater resources
        iii. Implement Groundwater Sustainability Plan Advisory Committee (GSPAC) goal to reduce pumping in the Subbasin (at a Subbasin scale rather than parcel scale) by 10 percent (Groundwater Sustainability Plan [GSP] Section 11)

2. Background
    a. Napa County Groundwater Ordinance and Well Permit Requirements
        i. Summary of information in Groundwater Sustainability Plan (GSP) pertaining to Napa County Groundwater Ordinance and Water Availability Analysis (WAA)
        ii. Summary of new and existing Napa County well permitting standards (as of January 6, 2023)
            1. New regulations pertaining to domestic wells in Subbasin (groundwater use)
            2. New regulations to existing or replacement wells in Subbasin (groundwater use)

3. Existing requirements (e.g., mutual well interference and proximity to streams)

b. SB 552 Drought Resilience Planning

i. Overview

ii. Interrelationship between SB 552 and GSP/Groundwater Pumping Reduction Workplan goals

c. Existing Water Management Practices

i. Overview

ii. Summary of current investments in efficient water management practices commonly implemented in the Napa Valley Subbasin, and summary of extent of adoption (subject to available data)

iii. Summary of costs and benefits of existing practices

d. Overview of Groundwater Pumping Reduction Approaches and Terms

i. Brief summaries of potential methods to achieve reductions in groundwater use (groundwater users can use one or more methods as appropriate)

ii. Terms applicable to this Workplan

e. Groundwater Pumping Profile

i. Historical groundwater use (summary of information in GSP and most recent Water Year Annual Report for the Subbasin)

1. Non-native vegetation groundwater use

2. Native vegetation groundwater use

ii. Groundwater demand forecast

1. Anticipated water demand for future time periods

2. Adjustments to demand based on known and measurable factors

3. Discussion of uncertainties, including climate factors

iii. Existing groundwater conservation practices

1. Summary of/cross reference to Napa County Vineyard and Winery Water Conservation Workplan

2. Summary of urban/other conservation measures

3. Voluntary Approaches to Reduce Groundwater Pumping

a. Measurement Devices to Track Water Use at Subbasin and Parcel Scales

i. Remote sensing

1. Napa County Groundwater Sustainability Agency (NCGSA) obtains/analyzes OpenET data in collaboration with grower-volunteered locations for additional land-based sensor data and other data; analysis at Subbasin scale)

ii. Land-based sensor data

1. Vineyard operators/managers (parcel or multi-parcel scale)

2. Wineries (landscape groundwater use)

3. Rural residential (large rural acreage)

iii. Soil moisture profiles

1. Vineyard operators/managers (dry farmed parcel(s))

iv. Pumping meters

1. Vineyard operators/managers (parcel or multi-parcel scale)
2. Wineries
3. Rural residential (large rural acreage)

v. Other

b. Best Management Practices (BMPs): Water Conservation

i. Vineyard BMPs

1. Summary of/cross reference to Napa County Vineyard and Winery Water Conservation Workplan

ii. Winery BMPs

1. Summary of/cross reference to Napa County Vineyard and Winery Water Conservation Workplan

iii. Urban BMPs

1. Cross reference to existing reference material including SB 552 materials

c. Training and Education

i. Vineyard water management and conservation

1. Training/education programs (Napa County Resource Conservation District (RCD), Napa Valley Grapegrowers, Napa County Farm Bureau, Third-Party organizations, etc.)

ii. Winery water management and conservation

1. Training/education programs (Winegrowers of Napa County, Napa County Farm Bureau, Third-Party organizations, etc.)

iii. Urban water management and conservation

1. Training/education programs (Napa County, Third-Party organizations, statewide agencies, etc.)

d. Data-Driven Irrigation Performance and Benchmarking

i. Program objectives and design

ii. Develop data (see Section 3(a)) to support benchmarking of water use that would allow individual groundwater users to compare their use to similar users

a. Anonymous data to protect confidentiality

ii. Develop linkages to monitoring programs and certifications/water management practices and method for quantifying savings

iii. Case Studies: volunteers (spatial distribution); prior participants in Napa County RCD irrigation evaluation program and irrigation distribution uniformity assessment

iv. Program implementation, initial results, and recommendations

e. Adaptive Management

i. Identify the monitoring and other data that will be used to define cause and effect relationships that underlie decisions needed to ensure groundwater sustainability in

the Subbasin.

ii. Implement periodic review process to coordinate assessment of the effectiveness of voluntary groundwater pumping reductions with the status of groundwater conditions and Subbasin sustainability at the Subbasin not parcel scale (periodic review could include annual and five-year reviews in coordination with GSP required reporting)

iii. Coordinate groundwater pumping reduction assessment metrics with sustainable management criteria and triggers that lead to response actions (e.g., coordinate with GSP Table 11-3 Criteria and Triggers: Six Sustainability Indicators)

iv. Process for determining whether voluntary measures suffice or mandatory measures are required; this includes the information, steps, and monitoring needed to inform, define, and implement mandatory measures should such measures be required

f. Certification Programs

i. Identify existing vineyard, and potentially winery, certification programs that will focus on water management practices for certifications

ii. Inventory existing programs and extent of adoption of those programs

iii. Establish a list of existing certifiers and potential for adoptions in the Napa Valley Subbasin

iv. Value/benefits of certification programs

v. Link to water management benefits and costs of each

4. Subbasin Groundwater Use and Tracking

a. Remote Sensing

i. Periodic data collection OpenET

ii. Potential incentives for volunteered sites to include other complementary data

iii. Periodic analysis of water demands at specified Subbasin locations (indicator areas)

iv. Annual analysis of water demands at Subbasin scale and comparative analysis of trends at specified locations (indicator areas)

v. Summarize results in GSP Water Year Annual Report

b. Groundwater Metering

i. Program objectives, design

ii. Potential incentives (including through Third-Party Certification Programs)

iii. Periodic data collection (volunteered metering at various Subbasin locations)

iv. Periodic analysis of groundwater use at volunteered Subbasin locations

v. Summarize results in GSP Water Year Annual Report

c. Tracking New County Well Permits

i. Ministerial (locations and other key criteria (key criteria: groundwater use allocation, mutual well interference, and stream proximity))

ii. Discretionary (locations and other key criteria, as noted above)

d. Groundwater Level Trends at RMS and Supplemental Wells

   i. Compare groundwater level trends relative to OpenET trends

   ii. Compare trends in areas with volunteered sites

   iii. Compare trends in areas with new well permits

   iv. Assess trends in response to conservation/water savings approaches (including areas where Third-Party Certification programs have been implemented)

5. Cost-Effectiveness Analysis

a. For potential water management practices, prepare a reconnaissance-level analysis of the costs of implementing such practices in addition to the potential water savings/benefits and monetary benefits of such practices

b. Summarize cost-effectiveness of each potential water management practice, rank accordingly, and document/describe results

c. Narrative summary of potential water management practices adoption

6. Communication and Engagement

a. Outreach approach, including identification of stakeholders and variations in applicable outreach methods

b. Napa County GSA Technical Advisory Group engagement

c. Stakeholder engagement

d. Education and resources

7. Steps for Implementation

a. Coordinate GPR Workplan development with SB 552 Drought Resilience Planning and development of Napa County Drought Resilience Plan

b. Calculate and report cost-effectiveness of all potential measures identified for implementation, and screen/rank potential measures accordingly

c. Steps and schedule considerations for assessing effectiveness of voluntary groundwater pumping reduction measures for vineyards, wineries, urban, rural residential, and other

d. Steps and schedule considerations for assessing effectiveness of new County well permitting standards

e. Steps and schedule to implement adaptive management and potential mandatory measures in problem areas and/or Subbasin wide, pending effectiveness of voluntary measures

8. References

a. Department of Water Resources and State Water Resources Control Board. 2022. Primer of Senate Bill 552: Drought Planning for Small Water Suppliers and Rural Communities (Drought Planning for Small Water Suppliers and Rural Communities (SB 552) (ca.gov))

b. Luhdorff & Scalmanini, Consulting Engineers. 2022. Napa Valley Subbasin Groundwater Sustainability Plan. Prepared for Napa County Groundwater Sustainability Agency

a. Napa County. 2015. Water Availability Analysis (WAA)

Napa County

Board Agenda Letter

Technical Advisory Group	**Agenda Date:** 3/9/2023	**File ID #:** 23-0406

TO: Technical Advisory Group for the Napa County Groundwater Sustainability Agency

FROM: Brian Bordona - Interim Director of Planning, Building and Environmental Services

REPORT BY: Jamison Crosby, Natural Resources Conservation Manager

SUBJECT: Update on Stream Watch Community Science Streamflow Monitoring Program

RECOMMENDATION

Provide a presentation to the Technical Advisory Group (TAG) on the Stream Watch network, existing data and future planned sites to better inform data gaps in dry and wet stream conditions across the Napa Valley River Watershed.

EXECUTIVE SUMMARY

Paul Blank, Environmental Scientist at Napa RCD, will make a presentation on the Stream Watch Community Science Streamflow Monitoring Program. Staff and the technical team are working on the Integrated Surface Water (ISW) and Groundwater Dependent Ecosystems (GDEs) Workplan. It is envisioned that Stream Watch will play an important role, when combined with other data, to help better understand baseflows on GDEs.

Procedure:
Staff introduces the item.
Questions and answers with the TAG.
Public comments.

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

The Stream Watch program began in 2017 to help fill critical data gaps between limited stream gage data across the Napa Valley River Watershed and the understanding between groundwater and surface water connections.

Relying on volunteers to make observations, the program requires participants to log observations at each Stream Watch site tagging the conditions as ‘dry’, ‘isolated pools’, or ‘flowing’. Each site records volunteer entries at least once per week or more frequently depending on the site. The original 10 sites were paired with dedicated groundwater monitoring wells to better understand the relationship between surface water conditions and groundwater levels adjacent to monitoring sites. Since 2017, the Stream Watch program has grown to 42 sites (39 active stations, 3 retired stations) covering approximately 50 miles of stream channel. Retired sites were discontinued because conditions remained static over their record of observations. Twenty additional sites are proposed and include volunteer and camera/sensor sites (9 volunteer and 11 camera/sensor).

Stream observations can be correlated with precipitation, or other stream stage/flow monitoring sites in the Subbasin, to provide greater understanding of streamflow conditions as they change throughout the year over a broad area. Knowledge of when wetted channels appear and recede is important in understanding baseflow influences on GDEs, including fish and other aquatic species. This data is invaluable for understanding stream conditions throughout the year and will be used to inform and develop the ISW and GDEs Workplan and will also be used during further updates to the Napa Valley Integrated Hydrologic Model later this year.

SUPPORTING DOCUMENTS

A. Presentation: Paul Blank, Environmental Scientist with Napa RCD Stream Watch Update