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**Title:** 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.

**Sponsors:** Groundwater Technical Advisory Group

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**Attachments:** 1. Annual Report Presentation, March 9, 2023, 2. Compiled TAG Framing Questions/Discussion Topics, February 2023

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**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