

**Big Valley Groundwater Sustainability Plan Advisory Committee (GSPAC)
Meeting, via Zoom Conference Call
August 27, 2021, 11:00 a.m.–1:30 p.m.**

Meeting Summary

The Big Valley Groundwater Sustainability Plan Advisory Committee (GSPAC) met on August 27, 2021, via Zoom videoconference. Below is a summary of key items discussed during the meeting. This document is not intended to be a meeting transcript; it focuses on the main points of the group’s discussion and highlights action items and recommendations that arise from the meeting. The agenda and full recording of the videoconference meeting is available on the Lake County Water Resources website.

ACTION ITEMS

- Provide GSPAC with a packet summarizing all data acquired regarding water quality.
- GSPAC to provide feedback on Representative Monitoring System, based on information shared by the technical team.
- GSPAC members are encouraged to share meeting agendas, meeting summaries, and to solicit more public involvement and participation in GSPAC, subcommittee, and public meetings.
- For all GSPAC meetings and related topics, comments may be submitted to the committee via email at water.resources@lakecountycalifornia.gov. Please include “GSPAC” in the subject line of all related emails.

GSPAC RECOMMENDATIONS

- No recommendations were made at this meeting.

1. ROLL CALL

GSPAC Attendee Name	Member	Status
Brenna Sullivan	Lake County Farm Bureau	Present
Pat Scully	Scully Packing Company	Not Present
David Weiss	Bella Vista Farming Company	Present
Peter Windrem	Chi Council for the Clear Lake Hitch	Present
Kyle Reams	Kelseyville Unified School District	Present
Sarah Ryan	Big Valley Band of Pomo Indians	Present
Scott Hornung	Lake County Special Districts	Present
Valerie Nixon	Lake County Land Trust	Present
Sky Hoyt	Groundwater Well Owner	Present
Marina Deligiannis	Lake County Watershed Protection District	Present

2. REVIEW AND APPROVE JULY 23, 2021 MEETING MINUTES

GSPAC Lead, Marina Deligiannis, asked if there were any questions or comments on the meeting summary—there were none. She made a motion to approve the meeting summary as presented. Mr. Reams made the first motion, and Ms. Sullivan seconded the motion. The meeting summary has been posted on the Lake County Water Resources’ website.

3. BIG VALLEY GROUNDWATER UPDATES

3.1 Brief report of current groundwater conditions and drought-related information

Lake County Deputy Water Resources Director, Marina Deligiannis, stated that she went before the Board of Supervisors along with the Office of Emergency Services (OES), Special Districts, Environmental Health, and representatives from the Lake County Drought Task Force on July 27, 2021, to provide an update on the Clear Lake water level and current drought conditions. The Lake County Drought Task Force presented a letter with conservation measures that include a 15 percent voluntary reduction in water use. The next Lake County Drought Task Force is scheduled for September 2 from 11 a.m. to 12 p.m.

Sarah Ryan with the Big Valley Band of Pomo Indians asked via the chat box how many dry wells have been reported this summer. Erin Smith from the California Department of Water Resources (DWR) provided a website link that shows the number of wells that have been reported to the state as having a water supply shortage: [Household Water Supply Shortage Reporting System \(ca.gov\)](https://www.water.ca.gov/shortage-reporting).

3.2 Update on schedule for Airborne Electromagnetic (AEM) Survey

Stantec Facilitation Lead, Christy Clark, provided an update on the status of the AEM Survey. Big Valley Basin is no longer on the backup list and the AEM Survey is anticipated to be done in October. This survey will ultimately provide information on the subsurface of Big Valley Basin.

3.3 Quick review of notifications, protocols, and procedures for meetings

Clark provided an overview of meeting procedures. She stated that when participants make a comment in the chat, they should indicate what the comment is referencing, to help maintain a clear archive of proceedings. Clark also stated that the GSPAC meetings are all public facing, and GSPAC members are encouraged to share meeting notifications to increase public participation. Deligiannis offered that Lake County Water Resources can print hard copies of agendas for posting and distribution, if needed.

4. COMMUNICATION AND ENGAGEMENT PLAN (C&E) OVERVIEW

4.1 Overview of outreach requirements and Big Valley communication activities

4.2 Proposed schedule for review of C&E Plan and future updates

Clark provided a presentation on the Big Valley Basin C&E Plan covering what these plans are and their requirements under the Sustainable Groundwater Management Act of 2014 (SGMA). The presentation also provided an overview of what has been done to date in Big Valley to garner feedback, input, and participation from beneficial users and uses of groundwater. A draft C&E Plan will be released in September and posted for all community members to provide input, suggestions, and comments on how outreach can be more effective and meaningful for people in Big Valley. As additional beneficial users or uses of groundwater are identified in Big Valley, those groups should be added to the C&E Plan so that it becomes wholly reflective of the community. The C&E Plan will be a “living document” that should be continually updated throughout the SGMA process in Big Valley.

There were no comments. Clark shared her email (Christy.Clark@stantec.com) for anyone who wants to follow up with questions, suggestions, or comments.

5. GROUNDWATER SUSTAINABILITY PLAN (GSP) SECTION UPDATES

5.1 Review of procedures for public review and comments

5.2 Highlight current sections up for review

Stantec GSP Documentation and Production Lead, Megan Murray, provided an update on procedures and sections that are available for review. Section 1, 2.1, 2.2.2, and 2.2.3 are on the Lake County Water Resources website for public review at [Big Valley GSP \(lakecountyca.gov\)](http://BigValleyGSP.lakecountyca.gov). Public review for these sections is through September 10, 2021. All comments are welcome and can be emailed to water.resources@lakecountyca.gov with "Big Valley GSP" in the subject line. When applicable, please include the line number(s) on the respective document that relate to your feedback. Once the public review period is over, the GSP section will be taken down from the website to integrate feedback. These section reviews allow input from GSPAC members and the public while building GSP chapters. A formal draft review period for complete chapters and the GSP will occur later in fall, and notifications will be posted on the website and sent to the [GSP Interested Parties list](#). GSP Section 2.2.1 will be out for public review soon.

Ryan asked if there was a place where GSPAC member comments, including how they were addressed, are posted, or will be posted on the Lake County Water Resources website. Clark stated that the comment log has been shared with all GSPAC members as part of the administrative process, as sections are reviewed, and it is part of the administrative record. The comment log can be posted publicly if the GSPAC agrees it's pertinent to do so.

Jennifer Clary, Executive Director for California Clean Water Action, wanted to confirm if the comment log would be available to the public. Clark stated that while not currently posted, it is included as part of the GSP administrative record. During the formal public review process of the GSP in fall, all comments will be part of the public record.

6. HYDROGEOLOGIC CONCEPTUAL MODEL (HCM) UPDATE

6.1 Overview of HCM and cross sections

Luhdorff & Scalmanini (LSCE) Hydrogeologist, John McHugh, gave a presentation on the HCM model, geology, and cross sections used to develop the HCM model.

Peter Windrem asked for the definition of word "departure" as used in the presentation. Regarding the hydrograph showing the total annual precipitation from 1950 to 2020, mean annual precipitation, Sacramento Valley Water Year Index, and Cumulative Departure from Mean, McHugh stated that "departure" is defined as the cumulative deviation from the mean annual precipitation.

Ryan wanted to know which precipitation gauges were used to develop the hydrograph showing the total annual precipitation from 1950 to 2020, mean annual precipitation, Sacramento Valley Water Year Index, and Cumulative Departure from Mean. Murray read from the graph that data was pulled from the U.S. Geological Survey Data Release. McHugh added that the data was from Kelseyville. Ryan would like the coordinates.

Lake County Farm Bureau Executive Director, Brenna Sullivan, asked if the general groundwater flow was north. McHugh said yes, groundwater flows towards Clear Lake. LSCE Hydrogeologist and Project Manager, Eddy Teasdale, added that the AEM Survey will help provide additional geologic information.

Windrem asked, regarding the contour maps displayed, if there is a correlation between depth of water and ground surface, in other words is a high water table tied to there being a high ground surface. McHugh said that in general, groundwater does mimic the topography but there are exceptions. Confining layers can affect correlation between groundwater levels and ground surface.

7. REPRESENTATIVE MONITORING SITES (RMS) NETWORK

7.1 Overview of network and selection criteria for sites

Teasdale gave a presentation on the RMS. He shared that subcommittees have been formed, and there is one on the Sustainable Management Criteria (SMC). The information presented was reviewed in the SMC Subcommittee, a series of meetings open to the public. At some point, the GSPAC will need to agree on the RMS network and have it presented to the Board of Supervisors, before finalizing Section 3. Teasdale asked the GSPAC how they felt with the technical team continuing to develop Section 3 with the proposed RMS network. Under this approach, the GSPAC can read and digest the information. Alternatively, an ad hoc meeting can be scheduled to finalize the RMS.

Brenna Sullivan suggested that the technical team should include the proposed RMS in Section 3 for GSPAC to review, in the interest of time.

Ryan asked if information on the RMS will be shared. It was clarified that information on the RMS was shared with the GSPAC via email on August 26.

Windrem agreed with Sullivan's suggestion. He reviewed the RMS packet and agreed with what was presented.

Sky Hoyt has no objection in accepting the RMS. He did suggest that the technical team reach out to well drillers to confirm whether or not the wells selected for the RMS are appropriate.

8. GROUNDWATER DEPENDENT ECOSYSTEMS (GDE) SUBCOMMITTEE UPDATE

8.1 Report from first GDE Subcommittee meeting

Stantec Engineer and Project Manager, Ibrahim Khadam, provided an update on the GDE Subcommittee. Information on how the public can attend all subcommittee meetings is posted on the Lake County Water Resources website. The first meeting went through the GDE requirements outlined in SGMA legislation. This meeting also went through DWR guidance and The Nature Conservancy guidelines on how to identify a GDE. The next GDE Subcommittee meeting is scheduled for September 2, 2021. During the second meeting, Windrem and Ryan will be presenting on the Clear Lake hitch.

Anna Kladzyk with FlowWest asked a question on the public input process on GDEs, she asked how and when that occurred, and who was invited to provide input. Khadam stated that for the database developed, it was done by DWR with The Nature Conservancy and the California Department of Fish and Wildlife, where there was public outreach done on the database. The data was made public for the community to provide feedback.

Via the chat box function, McHugh added that DWR is the host and steward of both the database and mapping tool. While The Nature Conservancy refers to the data as indicators of GDEs, DWR refers to the

same data as Natural Communities Commonly Associated with Groundwater (NCCAG or NC Dataset).
<https://groundwaterresourcehub.org/sigma-tools/mapping-indicators-of-qdes/>.

Via the chat Erin Smith from DWR added, in regards to the NC Dataset, “for a little background and how it was developed/factored into Basin Prioritization (BP), see Component 8 (starting on page 29) of the BP Process document (the rest of the document is also helpful to understand BP)”:

https://data.cnra.ca.gov/dataset/13ebd2d3-4e62-4fee-9342-d7c3ef3e0079/resource/ffafd27b-5e7e-4db3-b846-e7b3cb5c614c/download/sigma_bp_process_document.pdf.

9. Sustainable Management Criteria (SMC) Subcommittee Update

9.1 Present results of water quality, subsidence, water levels, and storage analyses

9.2 Discussion on Measurable Objectives (MO), Measurable Thresholds (MT), and undesirable results

Teasdale provided an update on the SMC Subcommittee. He reviewed the water quality monitoring network and potential water quality SMC. He reminded the GSPAC that Lake County Water Resources needs to implement a sampling approach and there are costs associated. Below is the recommended SMC for groundwater quality.

Sustainability Indicator	Measurement	Minimum Threshold (MT)	Measurable Objective (MO)	Interim Milestones	Undesirable Result
Degraded groundwater quality	Annual TDS measured at the same RMS wells currently being utilized for chronic lowering of groundwater levels	TDS concentration of 750 mg/L at all RMS wells	California lower limit secondary MCL concentration for TDS of 500 mg/L measured at RMS wells	Difference between MO and MT and took an average	At least 25% of RMS exceed the minimum threshold for water quality for two consecutive years at each well where it can be established that GSP implementation is the cause of the exceedance

Key:

GSP = Groundwater Sustainability Plan
MCL = Maximum Contaminant Level
RMS = Representative Monitoring Sites
TDS = Total Dissolved Solids

Ryan made a comment that units should remain the same between figures and tables. She also would like to know what is happening in Kelsey Creek regarding the arsenic measures presented. People should also consider how undesirable results will be triggered; in other words, how many wells will need to have a high presence of a constituent before there is a trigger. Teasdale stated that it would not be a good idea to set a minimum threshold (MT) or measurable objective (MO) based on a maximum contaminant level (MCL) without a historical record. It is difficult to manage constituents that are naturally occurring, like arsenic.

Sullivan asked that, based on the data presented, did the technical team see when those exceedances on arsenic and nitrates occurred? Is the technical team also seeking recommendation on MOs and MTs now, or at a later date? Teasdale said that the technical team is seeking a recommendation on the water quality SMC. If GSPAC needs more info, it can be provided, but GSPAC will need agreement at some point on water quality SMC to share with the Board within the next month.

Sullivan asked, regarding the constituent exceedances observed, does the technical team know the characteristics of the exceedances observed, if they occurred once a year in one well, etc. The technical team has this information, and it can be shared with the GSPAC. Based on the data available, it appears to be random occurrences but there is not good historical data. McHugh added that data is not statistically relevant until you have seven data points or more.

Via the chat, community member Maile Field commented that it seems there is a lot of data out there, as well owners have collected data. Is there any way we can reach out to request access to well tests? Teasdale stated that the technical team only has access to public records. The most recent data collected from DWR will provide a snapshot of the current water quality conditions.

Via the chat, Clary added, "Arsenic is a good constituent to monitor if the Groundwater Sustainability Agency (GSA) is planning to initiate any new recharge projects; changing groundwater chemistry can mobilize constituents like arsenic and result in concentration spikes."

Kladzyk asked if arsenic is naturally occurring are other GSPs monitoring for it? Teasdale said that other GSPs do not monitor for it since it is naturally occurring. Arsenic levels can be monitored, just not as part of the RMS network.

Windrem asked, regarding the domestic well runs by Lake County that provide water to Kelseyville, are they tested for arsenic, boron, nitrates and Total Dissolved Solids (TDS). If so, it makes sense that they be included in the RMS network, since that have been monitored and will continue to do so. The technical team has thought about including them, they are thinking of adding one of the production wells into the water quality RMS network.

Windrem asked, for TDS the maximum limit is 1000mg/L for maximum contaminant level, could the minimum threshold (MT) be at 1000mg/L? Teasdale said that some entities have done that, but for Big Valley Basin, the water quality is good, so why wait until it reaches 1000mg/L. There is time to provide recommendations on the MT, and this a local decision.

Ryan stated that something in addition to TDS should be used. There are nitrates and arsenic and exceedances. Arsenic is naturally occurring, she understands that, but it should still be monitored in case it continues to worsen with time. Effort should be made to monitor primary drinking water contaminants. Technical team will put together recommendations on the monitoring of nitrates and arsenic for the GSPAC to provide feedback on.

Via the chat Field added "maybe I'm repeating what Peter suggested...aren't all public wells (special districts has lots) required to collect data ...can those records be added to this database? Seems like looking at data from just 2 or 3 wells is weak." Teasdale said that the technical team has gone through all the public records and compiled the historical information available. Aside from production wells, not much information is available.

Via the chat, Lake County Special District's Scott Hornung added, "the 4 production wells for Kelseyville are all located very close to each other."

Via the chat, Ryan added, "here's the Safe Drinking Water Act database for all public water systems <https://sdwis.waterboards.ca.gov/PDWWW/>. But this is groundwater extraction from 1 well. Perhaps there are wells that are more representative and pumping more, impacting the subsidence."

Teasdale reviewed information available on subsidence, groundwater levels and reduction in storage. Below is the recommended SMC for subsidence, groundwater levels, and reduction in storage.

SMC for Subsidence

Sustainability Indicator	Measurement	Minimum Threshold (MT)	Measurable Objective (MO)	Interim Milestones	Undesirable Result
Land subsidence	Inelastic land subsidence measured by InSAR data available from CA DWR, and periodic measurements at the DWR survey monuments	Two feet over 20 years (i.e., no more than 0.5 feet of cumulative subsidence over a five-year period (beyond the measurement error), solely due to lowering of groundwater elevations	One foot over 20 years (zero inelastic subsidence, in addition to any measurement error). If InSAR data are used, the measurement error is 0.1 feet and any measurement of 0.1 feet or less would not be considered inelastic subsidence	Difference between MO and MT and took an average	50 percent exceedance of a minimum threshold over a five-year period that is irreversible and is caused by lowering of groundwater elevations

Key:
DWR = California Department of Water Resources
GSP = Groundwater Sustainability Plan
InSAR = Interferometric Synthetic Aperture Radar

SMC for Subsidence for Groundwater Levels

Sustainability Indicator	Measurement	Minimum Threshold (MT)	Measurable Objective (MO)	Interim Milestones	Undesirable Result
Chronic lowering of groundwater levels	Annual spring groundwater elevations in representative	Spring groundwater elevation where less than	Spring 2015 groundwater elevation minus 5 feet	Difference between MO and MT and	25% of groundwater elevations measured at

	monitoring site (RMS) wells	10-20% (on average) of wells could potentially be impacted	(for wells with increasing or no groundwater trends) or projected Spring 2042 groundwater elevation minus five feet for wells with declining groundwater elevations	took an average	same RMS wells exceed the associated MT for two consecutive measurements. If the water year is dry, or critically dry, then levels below the MT are not undesirable if groundwater management allows for recovery in average or wetter years
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SMC for Reduction in Storage

Sustainability Indicator	Measurement	Minimum Threshold (MT)	Measurable Objective (MO)	Interim Milestones	Undesirable Result
Reduction in groundwater storage	Using groundwater levels as a proxy. Change in groundwater storage will utilize difference in annual groundwater elevation data multiplied by a groundwater storage coefficient	Amount of groundwater in storage when groundwater elevations are at their minimum threshold	Amount of groundwater storage when groundwater elevations are at their measurable objective	Difference between MO and MT and took an average	Same as chronic lowering of groundwater levels

10. PUBLIC COMMENTS

Clary wanted to clarify if the technical team suggested a measurable objective (MO) of 40 and MT of 60? Teasdale clarified that the MO would be 15 or 20 feet below the ground surface, and this would be

protective of domestic wells. The MT would be set deeper. Clary stated that many sites are used to set the MO and MT, the average domestic well depth varies, and this should be taken into consideration when setting the MO and MT. The technical team has taken into consideration the average depth of domestic wells.

Ryan stated that it is important that people understand how the MT is set. The MT will trigger additional activities. In regard to sustainable groundwater management, if we set an MT for groundwater level, it is saying that it is ok and sustainable for a number of wells to go dry, or for a certain number of wells to have contamination. It is important for the public to realize this. Teasdale agreed, and stated this is why it is a stakeholder-driven process.

Via the chat, Clary added, "to follow up on Sarah's comment, this body should consider how it will mitigate impacts to domestic wells, particularly given that a high number of low-income households in the basin."

Sullivan asked if the technical team knows the life expectancy of the wells identified, and the background decay rate of wells that are reaching their end. What is natural background of contaminants as they need to be taken into account? Mr. Teasdale stated that this analysis has been done in other basins. When looking at the well-depth percentiles, the technical team has looked at wells as far back as 1965. Production wells typically last 20 -40 years. Domestic wells last, on average, 30 years. The datasets available will need to be used to set the MOs and MTs.

Sky Hoyt mentioned that in an SMC Subcommittee meeting, Mr. Teasdale had discussed possible remediation measures for when an alarm goes off for the system. It seems like the only response would be to stop all agricultural pumping. When setting these alarms, are they seen as last minute we have a crisis that needs to be addressed, or is this an early indicator to refocus efforts on how to manage groundwater differently? Hoyt asked about the timeline of monitoring, yearlong versus spring versus summer, etc. This discussion should be linked to what the remediation is. Teasdale, regarding the MO and MT, the technical team proposes spring levels. As far as implementation of projects, if the basin is headed towards the MT, decisions must be made to get the water levels back up, either through recharge projects or pumping allocations. The groundwater model being developed can help with planning efforts to understand how conditions may change in the future.

Via the chat, Clary added, "since it appears that we'll have limited opportunity for public comment, I just want to state for the record that setting a measurable objective at more than double the current average concentrations doesn't make a lot of sense, since it would indicate a serious downward trend in water quality. I also want to support Sarah's suggestion that we identify MOs and MTs for primary contaminants. Given the number of shallow domestic wells in the basin, there should be concern about potential nitrate contamination. Finally, in addition to finding wells with history we should identify gaps in our understanding of the basin's water quality and identify where new wells might be identified or monitoring wells drilled."

Via the chat, McHugh added, "there are two types of subsidence, elastic, which is recoverable, and inelastic, or permanent. Inelastic subsidence is the undesirable result. Small elevation changes in ground elevation can happen due to seasonal water level changes, but this is elastic."

Via the chat, Lake County Land Trust's Valerie Nixon added, a repeated theme is the short time frame we have. What happens if we don't meet the deadline? Teasdale stated that the state would step in.

Via the chat, Ryan added, "there is no one in the Disadvantaged Community seat on the GSPAC, so no one speaking for them. Interested people should reach out."

Via the chat, McHugh added, "Kelseyville precipitation data is located at Latitude/Longitude: 38 deg 54 min N / 122 deg 36 min W."

For next steps, Teasdale recommends that the GSPAC review the shared RMS data by September 1, and that the GSPAC convene twice in September in order to have a set of recommendations to present to the Board of Supervisors. Technical team will put together a water quality packet for the GSPAC to review.

If not already on the Big Valley Interested Parties list, the public should sign up using the following link [Stay Connected \(lakecountyca.gov\)](https://lakecountyca.gov) to receive notifications and frequent updates about GSP developments.

11. ADJOURNMENT

With no further comments or business, the meeting was adjourned at 1:44 p.m.