Sierra Valley Technical Advisory Committee Meeting Summary: May 10, 2021

Project Website: www.sierravalleygmd.org/sierra-valley-groundwater-sustainability-plan
Data Portal: https://sierra-valley.gladata.com

ACTION ITEMS

ACTION ITEM: Create a small working group to inform the GDE maps.

ACTION ITEM: Move the June TAC meeting to June 21, 2021 from 2:00 – 5:00 p.m.

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Welcome, Introductions, Agenda Review

The seventh meeting of the Technical Advisory Committee (TAC) for the Sierra Valley (SV) Groundwater Sustainability Plan (GSP) was an in-person meeting, with a zoom webinar option for remote participation. The meeting agenda was reviewed, followed by introductions. The topics for this meeting covered:

- Project updates including Public Workshops
- Continued discussion on Groundwater Levels
- Continued discussion on Groundwater-Dependent Ecosystems (GDEs)
- Presentation on Interconnected Surface Water (ISW)

There were 26 participants: 18 TAC members, 7 project team members and a member of the public. Twelve people joined the meeting via Zoom and fourteen participated in person.

Project Updates

PUBLIC WORKSHOPS

Judie Talbot, GSP outreach facilitator, provided an update on the current round of public workshops for the GSP – which were preceded by previous workshops in 2017, 2018 and 2019. Two versions of the same workshop are being offered in in May of 2021. The first session was held on Saturday morning, May 8 at the Loyalton Park Events Center – with 12 local participants joining Technical Team and TAC members for a total of 25 attendees. The second workshop, providing the same content, takes place Monday evening, May 10 at Sierra Christian Church in Beckwourth (after the conclusion of the TAC meeting). At the evening session, 15 local participants would participate in the May 10 workshop.

Presentations at each session offered an overview of SGMA and basin conditions relating to the Sustainability Indicators: Groundwater Quality, Subsidence, Interconnected Surface Water, and Groundwater Levels and Groundwater Storage. Participants were asked to complete surveys to indicate their levels of concern, if any, regarding basin conditions – and to provide responses about their experiences or observations about local conditions, what they would like to make sure gets addressed for each Sustainability Indicator, and ideas about what could be done to sustain basin conditions relating to each indicator. The surveys will be posted for participants to print and submit; the surveys will also be offered as using an online format.

RECAP OF SPRING SGMA WEBINAR

On February 18, 2021, the California Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB or Water Board) co-hosted a webinar on SGMA. Three main presentations focused on

- a brief overview of SGMA
- SGMA regulations (GSP requirements, GSP evaluation by DWR, and procedures if no GSP is submitted – or if GSP is incomplete or inadequate)
- State assistance resources for technical, financial and planning support

The presentation slides are available here. The video recording of the webinar is online at www.youtube.com/watch?v=TeYaZB8MT3w. The duration is 1 hour and 45 minutes and features the following items:

1. Steven Springhorn, DWR Deputy Director, welcome and agenda review
2. (video time at 5 mins., 28 seconds) Steven Springhorn, overview of groundwater management. SGMA and SGMA implementation
3. (video time at 12 minutes, 35 seconds) Craig Altare, DWR, describing GSP requirements and (at 21 minutes, 45 seconds) GSP review – where GSPs can be approved or determined to be incomplete or inadequate – and GSP timeline through 2042
4. (video time at 27 minutes, 10 seconds) Nathan Casebeer, Water Board, discuss the role of the Water Board in addressing GSPs that are incomplete or inadequate – including probation and interim plans. He noted that the agency only intervenes when local efforts fail. The Probation Period allows GSAs to remedy GSP deficiencies. If those deficiencies are not addressed, the Water Board may develop an Interim Plan for the Basin. There are fees involved when state intervention occurs. Timelines regarding probationary hearings were also described (e.g. 6 months to fix issues in a GSP). If a basin is put on probation, an additional year of time is allowed to address GSP deficiencies.
5. (video time at 40 minutes, 40 seconds) Q & A session (including fees associated with SWRCB intervention)
6. (video time at 57 minutes, 32 seconds) Steven Springhorn and Keith Wallace: State assistance programs for technical, financial and planning assistance (e.g., grants, statewide datasets, Bulletin 118 update, surveys, models)

7. (video time at 1 hour, 24 minutes, 48 seconds): Sarah Sugar, SWRCB: water rights for groundwater recharge projects, Water Board grant programs, data and tools
8. (video time at 1 hour, 32 minutes, 0 seconds): Q & A session

COMMENTS RECEIVED ON CHAPTERS 2 and 3 (sections on Groundwater Quality, Subsidence)

TAC members were reminded that there will be a First, Second and Third Draft for each section of GSP text. The First Draft is the initial version, the Second Draft will incorporate comments from the previous draft and any additional technical insights, and the Third Draft will represent a public comment draft. Laura Foglia, LWA Project Manager, noted that about six sets of comments were received for the First Draft of Chapters 2 and 3 on text for Groundwater Quality and Subsidence. Those comments are being compiled and summarized now, with the recap being presented at the June TAC meeting. Comments on Chapters 2 and 3 can still be submitted through Monday, May, 17, 2021.

TRIBAL OUTREACH

Tracey Ferguson, Plumas County Planning Director and Lead for GSP Tribal Outreach, remarked that DWR issued guidance in January 2018 on Engagement of Tribal Governments. In following that Guidance, Plumas County contacted the Native American Heritage Commission to identify Tribes with cultural influences within the basin and larger watershed area. Six Tribal entities associated with the Washoe, Maidu and Paiute Tribes were identified – with additional outreach to six additional Tribal contacts. Those parties were invited to participate within the GSP planning process as appropriate to the respective Tribal interests. The options for Tribal engagement can range from formal government-to-government consultation to informal coordination to creation of a Tribal Advisory Committee. To date, Plumas County has heard back from the Washoe Tribe of Nevada and California who receive updates through the TAC listserve.

The portion of the Sierra Valley basin, located outside of the Sierra Valley Groundwater Management District, represents the Ramelli allotment within the Plumas National Forest and located within the boundaries of Plumas County. This area has cultural significance to Tribes. Plumas County is also coordinating Tribal comments on the GSP for the larger basin boundary. This is especially important for those basins where Tribal trust lands are located; although no Tribal trust lands are known to be located within Sierra Valley.

Continued Discussion on Groundwater Levels

The remainder of the agenda would focus on different aspects of Groundwater Levels including: Groundwater Storage (or the amount of groundwater stored within the aquifer); Groundwater-Dependent Ecosystems, or GDEs (where vegetation relies on groundwater supplies to some extent); and Interconnected Surface Water or ISW (where surface water features such as streams, springs and channels connect to groundwater).

Laura Foglia reviewed the materials on Groundwater Levels that were previously presented to the TAC. She reminded TAC members that the technical content for the GSP is developed using an iterative

process. Ultimately, Sustainable Management Criteria will be defined, monitored and assessed in terms of complying with the identified metrics for minimum or maximum thresholds. Monitoring information will then be used to refine the criteria, creating a cycle of information gathering and refinements. Collecting information to fill in the data gaps will be a key piece of the Sierra Valley GSP, informing a better understanding of local conditions and the implementation projects and management actions put in place to support sustainable groundwater management.

Ms. Foglia described that most wells in Sierra Valley are experiencing chronic declines in groundwater elevation. The long-term goal (or Management Objective) for groundwater levels in Sierra Valley would be equal to, or better than, 2015 elevations. The Minimum Threshold (where Undesirable Results occur) represents a point beyond which conditions should not deteriorate further. The Minimum Threshold value would be in place during the implementation period (between 2022 and 2042). Creating a Minimum Threshold for each well, within the monitoring network, factors in the different conditions across the valley.

Laura noted that one way of determining a minimum threshold is to project the amount of annual declines that might occur over a certain number of years, to see what the cumulative declines might be.

Discussion: Comments, Questions and Answers

Comment: Bachand was breaking groundwater into three strata. How is this being monitored, so that it can be factored into different targets or management actions, if needed?
Response: DWR provides guidance on which wells to monitor. The depth of the well must be provided, along with the location of the screens.
Comment: The monitoring network will consist of a set of representative wells.

Question: What does it mean when someone says “Loyalton has a high groundwater level”?
Response: The groundwater elevations are different for each well.
Comment: That comment about high groundwater levels relates to perched groundwater that is found near the surface and can impact septic systems. Wells are usually 50 feet or deeper.

Comment: It is important to distinguish which water levels are being discussed. It can be difficult at times to sort out the different groundwater layers or strata.

Question: Is it possible to manage the basin by zones, if conditions are different across the basin?
Response: Splitting the basin, even into western and eastern areas, would require writing a separate GSP for each area. That is why a tailored approach is being proposed for each well in the monitoring network, to account for varying conditions. Once additional data is available, it is possible to create zones in the future. Gus Tolley is working on presenting a three-dimensional picture of the aquifer.

Comment: The parts of the valley on either side of the fault are fundamentally different.
Response: The team is looking to determine how the fault might affect groundwater flow.

Question: Management actions and SMC. Will Undesirable Results be defined in terms of “If more than X amount of wells exceed trigger…” Is there a percentage and temporal component? That’s important to keep in mind, since that will help address outliers.
Response: Yes, that is the approach that will be used for all the indicators.

Question: Is the idea of using a 10-year average typical of what's being done for groundwater levels in other basins?

Response: There are a variety of approaches being used in different basins. This initial proposal for Sierra Valley is being discussed further – and might be refined. The goal is that by 2042, the basin conditions are in the green area (or moving in that direction).

Comment: I'm looking forward to discussing options for recharge, additional storage, and forest vegetation management. There are options to address some of the shortfalls. We need to be visionary in thinking about how we can achieve our goals, supporting agriculture and wildlife.

Comment: I'm looking down the road, wondering if there is a regulatory process to reduce pumping if necessary?

Response: The actions and projects address both enhancing supply and controlling demand. Different years would suggest different options, depending on whether there are wet year or dry year conditions. It would be helpful to identify actions and projects that could be taken right away. Other critical actions could be established as needed. The location of pumping might be part of the discussion.

Comment: The Board has the authority to take action. If it gets to that point, the Board can control pumping.

Response: The model will provide information to help with decisions about management actions. The solution will be a combination of actions.

Comment: It feels like we might be missing voices of producers in this discussion, about what might be effective.

Response: Gus is reaching out to growers to adjust the model and hear their perspectives.

Response: It is possible to include additional perspectives by using working groups or targeted outreach.

Groundwater Dependent Ecosystems (GDEs)

Christian Braudrick, Stillwater Sciences geomorphologist, recapped key information presented during the February TAC meeting and described the work done on mapping GDEs since then.

WHAT ARE GDEs?

DWR defines GDEs as ecological communities or species that depend on groundwater for some of their water needs. Access to groundwater may occur below ground (such as roots reaching the aquifer) or at the surface (for example, at springs or marshes that are fed by groundwater sources). GDEs are one type of groundwater use in the basin. Also, they often sustain special status species of plants and animals (i.e., those that are state or federally listed.)

GDE MAPPING

Vegetation is an important factor in determining where GDEs are (or may be) located. Plant species must be identified, then considered in relation to groundwater sources (aquifers, springs, etc.) – to determine if they are dependent, potentially dependent, or not dependent on groundwater. Plants that are groundwater dependent have roots that extend into groundwater. This requires an understanding of root depth and of groundwater levels and interconnected surface water.

Mapping Approach

1. Identify the plants located in the Sierra Valley basin using databases such as VEGCAMP (which is very good quality mapping), CalVeg, and the National Wetland Inventory.
2. Assess GDEs by looking at vegetation type – specifically "phreatophytes" (or plants with deep roots know to access groundwater and requiring more water than is usually provided by precipitation).
3. Add in local vegetation data not found in larger databases.
4. Add in local data about hydrology and geology: surface water diversions, springs and groundwater levels – especially depth to groundwater.
5. Create a single map of GDEs
6. Identify GDE units based on shared hydrology (for example, areas that represent interconnected surface water, or areas without interconnected surface water).

GDE MAPPING EFFORTS IN SIERRA VALLEY BASIN

In Sierra Valley basin, source data on vegetation includes CalVeg (from 2000) and the National Wetlands Inventory (from 1984). The map indicates that potential GDE locations are on the western side of the basin where groundwater is very close to the surface. A new vegetation map is being prepared; however, it won't be available until after 2022. For Sierra Valley, possible GDEs were defined as potentially groundwater-dependent plants or wetland units where groundwater was within 30 feet of the ground surface, or located along interconnected surface waters.

In looking at whether was potentially groundwater-dependent, the technical team relied on GDE definitions from Klaussmeyer et al (2018) which has been reviewed by DWR. Aerial photos were used to more carefully assess areas that may or may not be groundwater-dependent. Also, some additional data from the Forest Service has been incorporated. The preliminary approach used average spring conditions from 2017-2020 to establish groundwater levels. This is current being reviewed and may be refined. The map of interconnected surface water will then be added to create a single map for GDEs.

Starting with depth to groundwater, the mapping has eliminated areas of the basin where groundwater elevations are more than 30 feet from the ground surface – and areas where the vegetation type is unlikely to be groundwater-dependent. This results in almost 18,000 acres of likely GDEs in Sierra Valley. The vast majority of the potential GDEs are defined as freshwater emergent wetlands, with some areas representing freshwater forest, or shrub, wetland – and some riverine areas.

SENSITIVE SPECIES

A list of sensitive species was developed using the California Freshwater Species Database and the California Natural Diversity Database. The basin is then checked for any occurrences of sensitive (or special status) species. Any additional, locally-specific information would be helpful to refining the map. The consultant team is now working to determine how many of these species are dependent on groundwater, based on habitat requirements. There are 32 special status species that are likely to be groundwater-dependent.

TRACKING GDE HEALTH

A Normalized Differential Vegetation Index (NVDI) can be used to track changes in vegetation health (such as plant density and leaf area) through time. This information is obtained from satellite imagery. The trend in vegetation health can then be compared to changes in groundwater levels to look for possible correlations.

As an example, a map of the Sierra Valley basin shows areas where NVDI (vegetation health) is increasing (see blue dots) and areas where NVDI (vegetation health) is decreasing (see red dots).

Discussion: Comments, Questions and Answers

Comment: What is the process and criteria for determining the number of special status birds that might be groundwater-dependent? The same question applies to special status plants.

Response: The statewide NCDD database is queried for the area covering the groundwater basin. That list is then narrowed based on habitat requirements, keeping only those that are either likely or possibly groundwater-dependent. Compared to other basins, Sierra Valley has quite a few special status species that are potentially groundwater-dependent. This indicates that GDEs are ecologically important.

Comment: It can be challenging to get species listed on the NCDD.

Question: How is the determination made as to whether or not a species depends on groundwater?

Response: Looking at the habitat requirements, we assess whether a species is likely, possibly or unlikely to be groundwater-dependent. That gets laid out very clearly in the GSP.

Question: Does SGMA require that sensitive species by required?

Response: Sensitive species need to be identified as the beneficial users of GDEs.

Comment: It strikes me that the key indicator species may not be special status.

Response: There are species, such as willows or salmonids, that can be used to track GDE health over time.

Question: Are any species of local importance identified?

Response: We will have a small working group to look at and inform the maps.

Comment: I don't see any special status fish species.

Response: No fish species came back as listed and groundwater-dependent. This might fit into the category of species of local importance.

Interconnected Surface Water (ISW)

Dave Shaw, Balance Hydrogeologic hydrogeologist, explained that Interconnected Surface Water refers to waters at ground level that at are connected to groundwater by a continuous saturated zone. Understanding the relationship between surface water and groundwater requires information on average depth to groundwater. The technical team is using spring groundwater data from monitoring wells to determine the average depth to groundwater from 2017 – 2020.

SIERRA VALLEY GROUNDWATER MONITORING WELLS

The Sierra Valley Groundwater Management District (SVGMD or District) maintains a set of monitoring wells. Each monitoring well is comprised of a cluster of three nested wells, of different depths, screened at different intervals – typically near the bottom of the well. Rick Roberti and Dave Shaw explained that when a well is drilled, each section of the well is sealed off with concrete. A pipe is then inserted into the cement. The only opening in the pipe is where the screen occurs, which allows intake of groundwater. The screen is actually a series of slits in the pipe and allows analysis of the different levels of the aquifer.

By having a cluster of wells with different depths, and comparing the pressure at each depth allows a determination of the gradient (or direction) of groundwater flow. An upward gradient results from higher pressures at lower groundwater levels, moving groundwater towards the surface. A downward gradient, or flow, occurs when groundwater pressures are higher near the surface. It was noted that the District installed the nested monitoring wells in 2002.

Looking at a map and hydrograph for District Monitoring Well (DMW) #1, near Loyalton, the groundwater levels for the deep well consistently respond to seasonal fluctuations. Up until 2011, the groundwater levels at the shallow well were not affected by seasonal changes. Until that time, groundwater in the shallow well was higher than the deeper well, creating a downward gradient or flow of groundwater. Something happened in 2011 where groundwater levels now show seasonal changes. It's not clear what triggered that change. For the monitoring wells, shallow wells can extend down between 30 feet – 100 feet.

Comment: It is confusing how lower layers, which may be separated by clay layers, can affect shallower layers of groundwater levels. Also, water may be near the surface – but it can't be accessed unless you crack the clay layer.

Response: Mr. Shaw noted that for different groundwater layers, they do not interact unless there is some type of conduit. Also, conduits may extend horizontally as well as vertically.

Comment: District Monitoring Wells (DMW) are only used for monitoring purposes; they are not production wells.

Looking at the hydrographs, there are examples of different relationships between shallow, intermediate and deeper groundwater levels – as well as groundwater gradients (flow).

INVENTORY and ASSESSMENT OF SURFACE WATERS

The process for identifying Interconnected Surface Water starts with looking at the National Hydrography Dataset which details all surface waters. Within the Sierra Valley basin, there are 81 springs, 95 flowing wells and 844 miles of streams. Field work will confirm a subset of where springs and flowing wells occur. So far, work has focused on the southern half of the valley and along route 70. The field work has narrowed the potential ISWs to 61 springs, 32 flowing wells and 365 miles of streams. The current map identifies areas where surfaced waters have been verified as ISWs using "yes, no, undetermined." Since this is a dry year, surface waters identified on the National Hydrography Dataset (which were not observed during field verification) are assumed to **NOT** be connected to groundwater.

In summary, springs and flowing wells indicate areas where groundwater is close to the surface. This generally occurs within the central portions of Sierra Valley and near the valley margins. While these springs and flowing wells provide some water supply to surface water bodies, they typically do not contribute large volumes of water. Springs and flowing wells are also used to provide water in stock tanks. Simplified data on ISW will be incorporated into the model.

The major ISW topics that will be presented at the June TAC meeting include:

- Summary of basin vertical groundwater gradients, indicating that the shallow aquifer receives deliveries from the deeper aquifer
- Compare depth of groundwater levels to determine which streams are not likely to appear on the refined ISW map
- Possible approaches to monitoring Interconnected Surface Water; this will include strategic locations for obtaining information on stream levels and horizonal groundwater gradients near streams
- Looking at how the model can estimate decreases in ISW, depletions of ISW to groundwater (recharge), and inform Sustainable Management Criteria and Minimum Thresholds
- Discussion of the data gaps and implications for monitoring

Look Ahead for Upcoming TAC Meeting

June TAC Meeting

The discussion on Interconnected Surface Water will continue at the June TAC meeting. Also at the June meeting, TAC members will start to address implementation projects and management actions. This will leverage initial brainstorming results from the public workshop, allowing TAC members to supplement and refine the range of management actions.

The TAC members responded to a proposal that the TAC meetings to the third Monday of the month, so that the TAC meetings occur on the same day as the District Board meetings. The proposal is for the TAC meeting to occur from 2:00 – 5:00 p.m. Some stakeholders prefer an even later start time, even into the evenings.

ACTION ITEM: Move the June TAC meeting on June 21, 2021 from 2:00 – 5:00 p.m.

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Participants

TAC MEMBERS

X = attendance

	Organization, Name		Organization, Name
X	Agricultural Commissioner, Plumas County Willo Viera	X	Sierra County Environmental Health Elizabeth Morgan
X	City of Loyalton Joy Markum and Jerry		Sierra Valley Groundwater Mgmt. District Einen Grandi and Dwight Cerasola (alternate)
X	Feather River Land Trust Ken Roby	X	Sierra Valley Resource Conservation District Rick Roberti
X	Feather River Trout Unlimited William Copren	X	Sierraville Public Utility District Tom Archer and Paul Rose (alternate)
X	Hinds Engineering Greg Hinds	X	UC Cooperative Extension Tracy Schohr
X	Integrated Environmental Restoration Svcs. Michael Hogan	X	Upper Feather River IRWM Uma Hinman
X	Plumas Audubon Jill Slocum	X	USFS – Plumas National Forest Joe Hoffman
X	Plumas County Tracey Ferguson		USFS – Tahoe National Forest Rachel Hutchinson
X	Sierra Brooks Water System Tom Rowson		

EX-OFFICIO MEMBERS

X	CA Department of Water Resources Debbie Spangler and Pat Vellines (alt.)	X	CA Department of Fish and Wildlife Bridgett Gibbons

TECHNICAL TEAM & PLANNING COMMITTEE

X Laura Foglia, LWA Project Manager
X Dave Shaw, Balance Hydrologics
X Christian Braudrick, Stillwater Sciences
X Gus Tolley, DBS&A
X Jack Jacquet, Balance Hydrologics
X Betsy Elzufon, LWA Asst. Project Mgr.
X Dwight Smith, McGinley & Associates
X Kristi Jamason, Planning Committee
X Judie Talbot, Outreach Facilitator

PUBLIC MEMBERS

X Lisa Wallace, Truckee River Watershed Council