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Sonoma Valley Groundwater Sustainability Agency Advisory Committee Meeting

Agenda

Date/Time: January 14, 2020 I 3:00 p.m. – 5:30 p.m.
Location: Valley of the Moon Water District Office, 19039 Bay Street, El Verano
Contact: Ann DuBay, Sonoma County Water Agency, SVGSA Administrator
Email: Ann.DuBay@scwa.ca.gov Phone: (707) 524-8378

Time	Agenda Item	Materials
3:00	*Welcome and Call to Order – Roll Call and Introductions* Fred Allebach, Advisory Committee Chairman Tim Parker, Advisory Committee Meeting Facilitator	
	General Public Comments This time is reserved for the public to address the Committee about matters NOT on the agenda and within the jurisdiction of the Committee.	
3:05	*Agenda Review & 2020 Meeting Schedule Planning and Review* Fred Allebach, Advisory Committee Chairman Tim Parker, Advisory Committee Meeting Facilitator	Agenda; 2020 Meeting Schedule
3:10	*Review Action Items and Approval of Previous Meeting Summary*	November Meeting Summary
3:15	*Sustainable Management Criteria: Lowering of Groundwater Levels* ▪ Review Guiding Questions ▪ Review existing groundwater-level data ▪ Discuss potential Significant and Unreasonable Effects ▪ Review and discuss example range of options for Minimum Thresholds ▪ Next Steps Marcus Trotta, Technical Staff *Objective: Begin discussion of SMC for Lowering of Groundwater Levels*	Guiding Questions and Considerations for Lowering of Groundwater Levels with available groundwater-level information; SMC Cheat Sheet; DWRs SMC Best Management Practices; Presentation (handout)
4:45	*Public Outreach Opportunities & Assignments* Andrea Rodriguez, Outreach Staff Tim Parker, Advisory Committee Meeting Facilitator *Objective: Discuss Public Outreach Opportunities and Make AC and Staff Assignments*	Presentation (handout)

5:00	*Updates* Ann DuBay, Administrator ▪ Groundwater User Registration Program Marcus Trotta, Technical Staff ▪ Basin Reprioritization ▪ Grants Update Tim Parker, Facilitator ▪ Legislative update *Objective: Provide relevant updates that inform Advisory Committee discussions.*	Groundwater User Registration Program online form (handout) Water Resilience Portfolio
5:25	*Review Meeting Action Items and Ask For Any Closing Comments*	
5:30	*Meeting Adjourns – Next Meeting Date February 11, 2020*	

Special Accommodations**:** If you need special assistance to participate in this meeting, please contact Ann DuBay at (707) 524-8378 or by email at Ann.Dubay@scwa.ca.gov. Notification of at least 48 hours prior to the meeting will assist staff in assuring that reasonable arrangements can be made to provide accessibility of the meeting.

Meeting Documents: Materials are available for review at Sonoma Water, 404 Aviation Blvd, Santa Rosa, 95403, during normal business hours, and a copy of the agenda packet will be available for public review at the meeting. Any documents provided at the meeting by staff will also be available to the public. The agenda and agenda packet materials are also available at: http://sonomavalleygroundwater.org/

Public Comment: Members of the public may attend meetings of the Sonoma Valley GSA Advisory Committee and may comment before Advisory Committee consideration of individual agenda items, or during General Public Comment on any matter within the jurisdiction of the Advisory Committee. As needed, time limits may be placed on public comments to ensure the Advisory Committee is reasonably able to address all agenda items during the course of the meeting.

For more information, please contact Ann DuBay, Ann.Dubay@scwa.ca.gov.

Sonoma Valley Groundwater Sustainability Agency Board and Advisory Committee Meeting Schedule

Board	Advisory Committee
2020	
January 27 Sustainable Management Criteria Update: Schedule and Approach	**January 14** Water Budget/Model Status Update Sustainability Goal Recap Sustainable Management Criteria: Lowering of Groundwater Levels Initial Discussion Public Outreach education and information dissemination progress
	February 11 Historical and Current Water Budget – Initial Overview Monitoring Program – Overview of DWR's TSS Shallow Monitoring Well Program Sustainable Management Criteria: Lowering Groundwater Levels (continued) Management Areas Discussion Public Outreach education and information dissemination progress
March 23 Historical and Current Water Budget	**March 10** Historical and Current Water Budget Sustainable Management Criteria: Land Subsidence and Seawater Intrusion Initial Discussion Scenario Modeling: Climate Futures Surface Water/Groundwater Interaction and Groundwater Dependent Ecosystems Informational Presentation Public Outreach education and information dissemination progress
June 1 Sustainable Management Criteria Update: Initial Considerations	**May 12** Sustainable Management Criteria: Land Subsidence and Seawater Intrusion (continued) Sustainable Management Criteria: Surface Water Depletion and Degraded Water Quality Initial Discussion Scenario Modeling: Projected Future Water Demands Discussion of Potential Projects and Actions
July 27 Sustainable Management Criteria Update Future Water Budget Projects and Actions	**July 14** Sustainable Management Criteria: Surface Water Depletion and Degraded Water Quality (continued) Scenario Modeling: Projects and Actions Monitoring Program

Sonoma Valley Groundwater Sustainability Agency
Board and Advisory Committee Meeting Schedule

Board	Advisory Committee
2020	
September 28 Sustainable Management Criteria Update Scenario Modeling	**September 8** Sustainable Management Criteria: Reduction of Storage Initial Discussion Scenario Modeling: Projects and Actions Monitoring Program
November 23 Sustainable Management Criteria Update Scenario Modeling	**October 13** Sustainable Management Criteria: Reduction of Storage (Continued) and all others as needed Scenario Modeling: Projects and Actions
	November 10 Sustainable Management Criteria: All as needed Scenario Modeling: Projects and Actions

2020 All-GSA Events / Community Workshops
Winter Date/Time TBD **Community Workshop on Sonoma Valley GSP and Basin Conditions** • What defines the basin? • Communities • Water sources • Groundwater conditions • Introduction to SGMAs Sustainable Management Criteria: What they are, why they matter, how they will be developed and how you can help
Spring/Summer Date/Time TBD **All-GSA Workshop: Sustainable Management Criteria** • GSP requirements for Sustainable Management Criteria • Initial Sustainable Management Criteria being considered • Community feedback

Sonoma Valley Groundwater Sustainability Agency Advisory Committee Meeting

Draft Meeting Summary

Date/Time: November 12, 2019 ◆ 3:00 p.m. – 5:30 p.m.
Location: Valley of the Moon Water District Office, 19039 Bay Street, El Verano
Contact: Ann DuBay, Sonoma Valley GSA Administrator
Email: AnnDuBay@scwa.ca.gov Phone: (707) 524-8378

MEETING RECAP

- Fred Allebach, SVGSA Advisory Committee Chair, welcomed all attendees and kicked off the SVGSA Advisory Committee meeting.
- The meeting agenda and schedules for 2019 and 2020 were reviewed.
- The previous meeting summary for October 2019 was approved unanimously (with amendments) by Advisory Committee Members to finalize and post.
- Cannabis and water and groundwater use was discussed by Christopher Dillis and David Kuszmar (North Coast Regional Water Quality Control Board) and Robert Pennington (Permit Sonoma).
- The Advisory Committee engaged in a discussion of the sustainability goal(s) and ideas for moving forward on Sustainable Management Criteria.
- Brief Administrator and technical updates were provided.

SUMMARY OF ACTION ITEMS

Action Item	Responsible Party	Deadline
1) Send to AC members the slides with the draft 2020 SMC/GSP meeting schedule.	Staff	November 25, 2019
2) Finalize and post the October 2019 meeting summary.	Staff	November 25, 2019
3) Fill in topics and finalize draft 2020 SVGSA meeting schedule.	Staff	November 25, 2019
4) Re-share the sustainability goals from other basins	Staff	November 25, 2019
5) Send out summary of comments on sustainability goal	Staff	November 25, 2019
6) Staff to send AC a spreadsheet with community groups to receive short presentation/update. AC members to fill out and sign up.	Advisory Committee	December 2, 2019
7) Send Ann comments on GURP registration form.	Advisory Committee	December 15, 2019

8) Send Prop 68 grant application summary.	Staff	November 25, 2019
9) Send information to AC about December 11 workshop, with facilitation sign-up.	Staff	November 25, 2019

Next Meeting: January 14, 2019, 3:00 p.m. – 5:30 p.m., Valley of the Moon Water District, 19039 Bay Street, El Verano. (NOTE: December 11th 4:30-7PM Recharge Workshop, Santa Rosa.)

Sonoma GSA Website: http://sonomavalleygroundwater.org/

Roll Call, Public Comment

Minona Heaviland with Sonoma Ecology Center briefly updated the Advisory Committee on a grant-funded project to conduct outreach and an assessment of water supply/quality/flood issues in disadvantaged communities (DACs). The project is being conducted in partnership with Daily Acts, La Luz and Sonoma Water as a statewide goal for understanding needs of DACs. Early data shows that the top issues in DACs are drinking water, well water, rain water/flooding, pollution/trash dumping, and desired improvements.

The survey results also found that low-income respondents drink bottled water or filtered water and they don't trust tap water. Flooding in the streets and trash and dumping by creeks were identified as important issues in the community.

Minona asked the Advisory Committee members to contact her at minona@sonomaecologycenter.org if they want more information or would like to share the survey with their stakeholder groups.

Next steps: stakeholder discussions, other data, prioritize project identification. They will come back to present full report next year.

Agenda and 2020 Meeting Schedule Planning and Review

No changes or comments on the agenda. The 2020 calendar was generally reviewed by Marcus Trotta and will be updated with specific meeting topics. The December 11 all-basin workshop is also on the calendar.

Action Item: Send slides with outline of calendar to committee.

Approval of October Meeting Summary

Ann DuBay reviewed action items, which were all completed.

There was one comment on the Meeting Summary: On the top of page 5, the reference should be to well and "cascading" (not campaigning).

Advisory Committee Action: The Meeting Summary for October 2019 was accepted as amended by Advisory Committee members and approved unanimously.

Action Item: Amend/finalize summary and post.

Cannabis and Groundwater

Chris Dillis, North Coast Regional Water Quality Control Board (regional board), presented the findings of a 2017 survey that was conducted for all the counties in the North Coast region on the water sources, water storage, and use patterns of cannabis growers. Major points:

- Many growers use wells for irrigation;
- The number of wells used as a water source will likely increase because of limited surface water access;
- Surface water storage is difficult for growers because of costs and regulations, and it's easier to drill wells;
- The regional board is seeing a lot of wells near streams;
- Most cannabis farms are located outside groundwater basins;
- Sonoma County has far fewer cannabis farms than northern counties;
- Water reporting has a supplemental section to help data collecting on all water source;
- The long-term depletion of groundwater is likely further down the road – the immediate concern is wells near streams that are impacting stream flows.

Question: Is this data only for regulated grows in Sonoma County?

Response: Yes. The data was all collected in 2017 based on what was reported as growers came online.

Robert Pennington, Permit Sonoma, presented what the County is seeing regarding cannabis applications. He discussed the following:

- County default water use rates are 4.0 acre feet annually (AFY) for indoor sites and 2.0 AFY for outdoor grows;
- Cannabis users that have specific estimates and analysis can use that information rather than the default rates;
- The County default rates are likely higher than reality, but they err on the side of caution;
- The Santa Rosa Plain has three areas that require zero net use (Coho streams that were identified by the State Board during the drought), where cannabis growers have to develop storage and not use groundwater;
- Sonoma Valley has one area (southern Sonoma Valley, at zone of depletion) that requires zero net water use;
- There was a big spike in permits when the program opened but the applications plateaued last year;

- Total permitted water use county-wide is estimated at 160 AFY;
- Cannabis water use is very small compared to other water use.

Question: Are the numbers reported in the presentation from all type of cannabis grows, (both indoor/outdoor)?

Response: Yes

Question: Are you monitoring how much they are using?

Response: Yes, that is part of the permit.

Question: What is the boundary of zero net use in Sonoma Valley?

Response: Southern Sonoma Valley does not have a clear line.

Comment: The Hemp ordinance is coming up soon. It's in the Ag Commissioner's office (not Permit Sonoma).

Question: There is likely a lot of unregulated, unpermitted grows -- do you have a sense of demand and where water sources are?

Response: Most in upland and not in GSA jurisdiction. Higher density of unpermitted grows in outlying areas.

Question: In the North Coast regulated industry, is there less surface water quality problems?

Response: The big water quality problems they've seen have been from chemicals on public land for cannabis grows in national parks and forests. For regulated grows, they can only use pesticides and herbicides that have been approved – and none is approved, so legal-market grows are organic.

Response: Trends with industry and coverage overall – the assumption right now is that maybe 5% of growers are legal (1 out of 20 are legal). The state is trying to tighten screws and eliminate the black market.

Response: The vast majority of unpermitted grows are in the Emerald Triangle. Sonoma County doesn't have the same percentage of illegal grows. There are more viable uses of agricultural land and there are other economic options for people.

Response: Ballpark statistics for Sonoma County is that a third to one-half of growers have applied or are in the process of applying for permits. Game plan for worst-case consumption is to take the numbers and multiply by 10 to 20 for conservative estimate of land use. Based on current permit applications, there is less than 100 acres of cannabis cultivation countywide.

Comment: I thought cannabis numbers would be bigger – they are very low. It seems there will not be a conflict with Ag/wine grape growers.

Question: Regarding hemp, do you know status? Is hemp water use the same as or more then cannabis?

> Response: Hemp is the same plant. The draft ordinance is available this week. It will be challenging to enforce growing hemp vs. cannabis. The Ag Commissioner will track each plant, but growers will likely find a work around. The economics are good now for hemp oil (CBD) but not fabric. China has cornered the hemp fiber market. November 21 will be the first discussion of the first draft ordinance with Ag Commissioner. Hemp could replace forage crops like hay and grain as a seasonal commodity such as corn.

GSP Update & Sustainable Management Criteria

Tim Parker reminded the committee members that at the last meeting they expressed the desire to discuss the sustainability goal (big picture goal) before getting into the individual SMCs. They wanted a vision of what sustainability would look like before they started discussing the details. Marcus noted that DWR recommends the sustainability goal be the last thing that the GSAs finalize, as it will change as the GSP is being developed.

Marcus referred to the sustainability goal handout, which included all legislative and regulatory references to the sustainability goal, and a strawman sustainability goal.

Question: Do we have examples of sustainability goals from other jurisdictions?

> Response: Yes – we can share from past meetings. Most are from other web-posted draft GSPs.

Comment: Some level of detail in the goal is supposed to be included, and there is specific information they are asking for.

Comment: If some asked me what the minimum threshold was, I would be confused.

Question: Back to the notion of a goal or objective, what if we were optimistic and wanted to return groundwater water levels to 1910 levels, and our threshold is something less than that – would we have specific elevations we are trying to achieve?

Comment: The difference between goals, mission statements, feasibility goals etc. can be confusing. I don't know if re-establishing to 1910 level would be beneficial. I would need to

know at what cost and what projects would be involved. I like the idea of developing specific projects and goals.

Comment: The word “sustainable”” is problematic. What is sustainable to us? I don’t think we should aim for a “year”. Any point in time has its own issues. We should focus on quality, levels and other metrics.

Comment: Agree with challenge of word sustainable.

Comment: Harder to quantify, more water in streams, benefits and consequence. It’s a lot of work to estimate ROI return on investment.

Comment: On groundwater level issue, drought-hardening is also an issue of how resilient our groundwater basin is. I think we need to relate goals to volume and level.

Comment: Beneficial uses – primary uses are agriculture, residential but you have interest of business, rural residential. I am looking forward to working with DACs to see how it all comes together for environment and economy.

Question: Does the beneficial use include environment?

Response: Yes.

Comment: We need a little more technical discussion for the six SMC’s. I wouldn’t know where to start for an objective on saltwater. I think those discussion areas are a little different on each one. Sustainability under seawater intrusion is probable – keep it where it is.

Comment: I agree we should go category by category. We should have long-term and short-term goals, and could consider stretch goals. It’s a moving target and can be updated. You want to have an idea of how things are going to point you to a direction to make adjustments.

Response: Terminology from SGMA makes criteria specific.

Comment: I see it tied to sustainable yield. Conventionally, is sustainable yield tied to today’s use? As of right now? How is it defined conventionally?

Response: It is based on what your basin is projected to be able to pump without causing harm (undesirable results).

Comment: Looking at DWR best management practices on SMC’s, I suspect GSA would use groundwater levels as measurements for all of the sustainability indicators. It could really be finessed with tie into groundwater level. It has to be objective and quantified for DWR.

Comment: We need to focus on the long-term balance. If we could figure out the basic projects we need to bring the basin into balance, then there are others we can identify as enhancement projects.

Comment: We should never recommend anything that costs more without benefits.

Comment: Craft some options. Option 1 would be to shoot for moon; Option 2 is to keep it like it is; and Option 3 is for something less. We can put all options on the table until we have more information. What we end up with is that one looks good or there is a blending of options, especially as we get into the project level.

Comment: Monitoring is always a place we will invest – that is a long term thing.

Comment: Maybe those who aren't here can be updated. We need input from Jim and Matt to see what they think about this.

Action Item: Send out summary to committee for input.

Comments on the strawman:

- Sustainable is a problem word. Prefer "local managed" term.
- Arrange options in each indicator to comply with SGMA at beginning of 2015 or go beyond that for each sustainability indicator.

Question: Would SGMA let us have different indicators for areas?

Response: Yes. It would require management areas be defined to do so.

Comment: When we send out, we need to throw in some SGMA terminology and language -- SGMA has definite terms and we all need to get used to using it. SGMA has complex language around it.

Outreach

Andrea Rodriguez discussed the proposed outreach planned with the AC, which includes to help Staff compile a list of names and contact information for local groups/ organizations that the AC participate in for stakeholder outreach. Staff will develop and help coordinate meetings where AC members will give a brief presentation about the GSA and upcoming opportunities for GSP input.

Action Item: Staff will send out a spreadsheet with stakeholder group names and information. AC members to fill in, and indicate if they can contact the organizer and are willing to speak.

Updates

Administrator:

- The visit to monitoring well at St. Leos is canceled for Wednesday, November 13.
- Last week a few members attended the SRP monitoring well installation. There was a Press Democrat article today on the monitoring program. Overall good exposure.
- SRP continues with the Groundwater User Registration Program (GURP). The program is being developed and will launch in January. Permit Sonoma is involved with launch. Staff will share sample postcard/ letter about the user program with the AC and requests AC member feedback on the user program as Staff begins to consider a program for Sonoma Valley basin.
- December 11 all-basin recharge workshop will include presentations on Flood-MAR, local recharge project at Jackson Family Wines, and what recharge means in the SGMA context. This will be followed by a Q&A session and an interactive component – basin map-talk about possible areas for recharge projects. We are hoping AC members can help facilitate the table top discussion.

Question: Is Petaluma Valley doing a well user registration program?

Response: Yes, but Petaluma Valley is letting SRP go first to learn from them.

Action Item: Send out GURP form to AC for review.

Technical:

We are wrapping up grant application. Good input on general project. DWR granted two-week extension because of power shut-down and fire. January AC meeting will be on water budget and what we're finding with the model.

Action Item: Send out Prop 68 grant application (short form) to AC.

Action Item: Send out email to AC with December 11 agenda and information and ask for table facilitators.

MEETING ATTENDEES

Advisory Committee Members (Present)

Fred Allebach
Greg Carr
Caitlin Cornwall
Vicki Hill
Ken Johnson
Steve Wolf
Craig Lichty

Advisory Committee Members (Absent)

Matt Stornetta
Jane Whitsett
Norman Gilroy
Jim Bundschu
Taylor Serres

Staff

Ann DuBay, SV GSA Administrator
Marcus Trotta, Sonoma Water
Andrea Rodriguez, Sonoma Water
Tim Parker, Facilitator, Parker Groundwater

Sustainable Management Criteria

Chronic Lowering of Groundwater Levels
Considerations and Guiding Questions

Introduction

This document has been prepared to support initial Advisory Committee discussions and considerations for the establishment of sustainable management criteria (SMC) for the Lowering of Groundwater Levels sustainability indicator. This document provides:

1. Guiding questions;
2. A summary of available data and information;
3. Some examples of potential significant and unreasonable effects; and
4. Example ranges of options for potential minimum thresholds.

DWR has established requirements and guidance for developing SMCs in the GSP Emergency Regulations and SMC Best Management Practices (BMP), which Advisory Committee members are encouraged to review. Additionally, a Cheat Sheet of SMC plain language terms and definitions has been prepared to serve as a quick reference guide. (Links to all of these materials can be found at http://sonomavalleygroundwater.org/gsp/.)

Lowering of Groundwater Levels is the first sustainability indicator being addressed in the SMC process, as it contains the most straightforward and robust dataset and is related to most of the other indicators. For example, groundwater levels could be used as proxy for other sustainability indicators. In addition, this indicator will best help us move forward with other related considerations (e.g., representative monitoring sites and management areas).

The full process for establishing SMCs will be highly iterative and considerations for other sustainability indicators (e.g., land subsidence, surface water depletion, seawater intrusion etc.) may later override or replace initial thresholds and objectives related to groundwater levels in some areas of the Basin. Therefore, please defer any considerations of these other sustainability indicators and focus your answers to guiding questions and thoughts regarding significant and unreasonable effects and minimum thresholds solely to the Lowering Groundwater Levels sustainability indicator. Once some preliminary SMCs are developed for Lowering of Groundwater Levels, the discussion will be expanded to cover all other sustainability indicators.

Guiding Questions

Please review the following guiding questions and be prepared to discuss at the January Advisory Committee meeting. The answers should include consideration of the constituent group that you specifically represent on the Advisory Committee, as applicable.

1. What would you consider unacceptable or intolerable when it comes to groundwater level declines? For example:
   - Groundwater levels falling below pumping depths of water supply wells

2. What would be desirable conditions in the basin related to groundwater-levels? For example:
   - Groundwater levels always recover after droughts
   - Groundwater levels increase to enhance basin habitat

3. What particular elements potentially affected by groundwater levels are you most concerned about? For example, a particular well type or specific beneficial use/user? Long-term versus short-term, seasonal, or drought?

4. Do you think there are specific areas of the basin that have unique or different concerns or issues, than other parts of the basin?

Summary of Data and Information Available

In order to support the development of SMCs for Lowering Groundwater Levels, available information has been described in the current version of the Basin Setting section of the working draft Sonoma Valley GSP. Additionally, the following data and information have been compiled in the form of maps and graphs that include, but are not limited to:

- Tables and maps of existing monitoring wells to assist the evaluation of potential Representative Monitoring Points (RMPs);
- Groundwater level hydrographs and groundwater contours maps showing groundwater level trends over time and the spatial distribution of the groundwater potentiometric surface (top) of the shallow and deep aquifers;
- Groundwater level trend and change maps for the last five years (2015-2019), last ten years (2010-2019), and longer-term 1980s-2019;
- Water well depth maps showing the location of water wells by total well depth
- Map of simulated or estimated pumping density for the shallow and deep aquifers *(under development);*
- Graphs of basin historical climatic data from rainfall illustrating water year type (wet, normal and dry hydrologic cycles)

The above-described information will be used to develop initial or preliminary SMCs for Lowering of Groundwater Levels. In addition to the above empirical data and analyses, an assessment of future conditions (climate and land use), is needed to establish SMCs. These future projected conditions will be simulated using the Sonoma Valley Integrated Hydrologic Model (SVIHM) developed by Sonoma Water based on a previous model developed by the U.S. Geological Survey. The SVIHM will be used to simulate groundwater conditions and processes in the basin, including:

- Historic, current, and future water budgets
- Preliminary and final SMCs
- Projects and management actions to achieve/maintain sustainability over the planning horizon

Description of Some Significant and Unreasonable Effects related to Groundwater Levels

For Lowering of Groundwater Levels, SGMA defines an "undesirable result" as the chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Possible causes of lowering of groundwater levels may include changes in basin pumping, surface water diversions in areas of losing streams and reduction in natural recharge from changing climatic conditions. The first step in developing an SMC is to narratively describe significant and unreasonable effects related to Lowering of Groundwater Levels (i.e., qualitative statements of what local interests want to avoid). These qualitative significant and unreasonable effects would then be translated into quantitative metrics for establishing minimum thresholds and measurable objectives. Some specific significant and unreasonable effects related to groundwater level declines may include but not be limited to:

- Declining groundwater levels limit the ability of well owners to access groundwater for beneficial uses (e.g., falling below pumping depths of water supply wells)
- Groundwater levels falling near basin boundaries that indicate impacts to or from neighboring basins
- Falling groundwater levels cause impacts to groundwater-dependent vegetation (shallow aquifer only)
- Cause significant and unreasonable economic burden on those who rely on basin groundwater
- Others?

Example Options for Groundwater Level Minimum Thresholds

A minimum threshold refers to a numeric value for each sustainability indicator used to define undesirable results. DWR defines the minimum thresholds for the groundwater level sustainability indicator as follows:

- Chronic Lowering of Groundwater Levels. The minimum threshold for chronic lowering of groundwater levels shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results. Minimum thresholds for chronic lowering of groundwater levels shall be supported by the following:
    - The rate of groundwater elevation decline based on historical trends, water year type, and projected water use in the basin
    - Potential effects on other sustainability indicators

Some examples of groundwater level minimum thresholds may include:

- Water supply well total depths or top of perforations (or surrogate)
    - Groundwater levels may decline **only** to such a point where everybody's wells are able to withdraw groundwater (i.e. water levels cannot decline below any well screen)
    - Groundwater levels may decline **only** to such a point where 95% (or 90%, 80%, etc.) of well users can withdraw groundwater
    - Groundwater levels are set to be protective of rural domestic wells (domestic wells receive more protection than other types)
    - Groundwater levels are set to a factor of safety or buffer in order to protect well users — i.e. don't let water levels decline more than 20 feet *above* all well-screens
- Estimated rooting depths of sensitive groundwater-dependent vegetation (shallow aquifer only)
- 2015 hydrologic conditions – SGMA does not require Groundwater Sustainability Agencies to address undesirable results that occurred before 2015
- Lowest historical groundwater level on record - may be considered suitable in an area where chronic depletion is not an issue
- Lowest historical groundwater level on record plus a projected value that estimates the additional level of decline until projects and management actions are developed to mitigate chronic declines – may be considered suitable in an area where chronic depletion is an ongoing issue
- Lowest historical groundwater elevations and future groundwater flow model simulations that show groundwater elevations recover during multi-year cycles of drought and recovery

Sustainable Management Criteria

Cheat Sheet (Working DRAFT)

Fundamental to developing Sustainable Management Criteria (SMC) is understanding the language, and understanding how the concepts relate to each other. This cheat sheet provides a plain language discussion of key terms, and illustrates how the concepts are interrelated. These plain language definitions are neither exhaustive nor complete: there are details that must be considered when developing SMCs that are not covered in this document. Sustainable Management Criteria are defined by California, and are comprised of six primary Sustainability Indicators.

Sustainability Indicators or SGMA's "six deadly sins". The six conditions defined by the water code that we don't want to happen in the groundwater basin:

1. Chronic **lowering of groundwater levels** indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon.
2. Significant and unreasonable **reduction of groundwater storage.**
3. Significant and unreasonable **seawater intrusion.**
4. Significant and unreasonable **degraded water quality**, including the migration of contaminant plumes that impair water supplies.
5. Significant and unreasonable **land subsidence** that substantially interferes with surface land uses.
6. **Depletions of interconnected surface water** that have significant and unreasonable adverse impacts on beneficial uses of the surface water (e.g. water in streams or wetlands).

(NOTE: Sustainability Indicators become significant and unreasonable, and therefore Undesirable Results, when a combination of Minimum Thresholds is exceeded, as defined by a Groundwater Sustainability Plan [GSP] adopted by a Groundwater Sustainability Agency [GSA].)

The following describes key terms used by SGMA to determine Sustainability Indicator worst-case and aspirational thresholds, and current conditions. California gives our GSA the discretion and opportunity to define these terms so they are meaningful and useful to our basin groundwater users.

Representative Monitoring Sites. These are typical monitoring sites within the broader entirety network of sites that reliably provide high quality data that characterize groundwater conditions in the basin. Representative monitoring sites are a subset of a basin's complete monitoring network, where minimum thresholds, measurable objectives, and interim milestones are set and represent a subset of a basin's complete monitoring network. A single

representative monitoring site can be used for one sustainability indicator or multiple sustainability indicators.

Significant and Unreasonable (or, what our gut tells us we don't want to happen). These are the qualitative statements of what local interests want to avoid. This term is not formally defined in SGMA regulations; therefore, the use of this term is somewhat interpretive. But it is clearly the guiding principle on how sustainability is defined.

Examples might be *lowering groundwater levels to the point that wells can no longer produce any water*, or *pumping more than the sustainable yield*.

Sustainability Goal (or the big picture). A succinct statement of the GSA's objectives and desired conditions and how the basin will achieve these conditions. The sustainability goal is descriptive and not quantitative, but is supported by the locally-defined minimum thresholds and undesirable results. Demonstration of the absence of undesirable results supports a determination that basin is operating within its sustainable yield and, thus, that the sustainability goal has been achieved. The sustainability goal should incorporate the following:

- Goal Description
- Discussion of measures that will be implemented to achieve sustainability
- How goal will be achieved in 20 years

The sustainability goal cannot be finalized until after minimum thresholds and undesirable results have been defined, projects and management actions have been identified, and the projected impact of those projects and management actions on groundwater conditions have been evaluated.

Example of the Sustainability Goal description (from Paso Robles): *The goal of this GSP is to sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of Subbasin users. This GSP outlines the approach to achieve a sustainable groundwater resource free of undesirable results within 20 years, while maintaining the unique cultural, community, and business aspects of the Subbasin. In adopting this GSP, it is the express goal of the GSAs to balance the needs of all groundwater users in the Subbasin, within the sustainable limits of the Subbasin's resources.*

Undesirable Results (or the quantitative worst-case scenario). This is a quantitative combination of minimum thresholds that define what it means to be sustainable for every sustainability indicator. Undesirable results, as defined in the GSP, are THE sustainability metrics used to determine whether the basin complies with SGMA and is sustainable now and into the future. Proof of sustainability is avoiding undesirable results.

Example for groundwater levels (from Salinas): *Over the course of any one year, no more than 15% of groundwater elevation minimum thresholds in any single aquifer and no one well shall exceed its minimum threshold for more than two consecutive years*

Minimum Thresholds (or the numerical line in the sand that we don't want to cross). For each sustainability indicator, the Minimum Thresholds are the quantitative values that reflect what is significant and unreasonable at every measuring site. Minimum Thresholds must be quantitative and measurable. The numeric value used to define minimum thresholds represents a monitored point in the basin (such as at a well) that if exceeded, *may cause* undesirable results.

Example for groundwater levels (excerpted from Santa Cruz Mid-County Basin): *The minimum threshold is the numeric groundwater elevation (as measured at representative monitoring sites over a period of time) required to meet the typical overlying water demand in the shallowest well in the vicinity.*

Measurable Objectives (or the ideal destination). These are specific, quantifiable goals at each representative monitoring site to maintain or improve groundwater conditions in order to maintain or achieve the sustainability goal for the basin. Measureable Objectives reflect the GSA's desired groundwater conditions in the basin and guide the GSA to achieve its sustainability goal within 20 years. Measurable Objectives should include operational flexibility to accommodate droughts, climate change, conjunctive use operations, or other groundwater management activities.

Example for groundwater levels (excerpted from Santa Cruz Mid-County Basin): *Measurable objectives are the 75th percentile of historical groundwater elevations for the period of record of each monitoring point, which is higher than median or average groundwater elevations.*

Interim Milestones (or the path forward). Interim milestones are five-year numerical targets that are set to guide the basin to its Measurable Objectives). Interim milestones need to be set at each representative monitoring site using the same metrics as the measurable objectives and minimum thresholds and are used to track progress toward meeting the sustainability goal. Interim milestones should result in sustainability being achieved by 2042, and the plan must have a 50-year planning horizon (2072). SGMA recognizes that there are future uncertainties that can't be predicted, and provides for adaptation and course corrections at the five-year check-ins, as new information becomes available.

Management Area (or unique areas). This is an area within the basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and

management actions. These can be based on differences in hydrology, water use sector, water source type, geology, aquifer characteristics, or other factors. Management areas may have differently defined minimum thresholds and measurable objectives than the basin at large and may be monitored to a different level and scale. Undesirable results, however must be defined for the entire basin and can't vary by management area.

Sustainable Yield (or how much water is in the 'checking account'). This is the maximum quantity of water – calculated over a base period that is representative of long-term conditions (allowing for variable climatic and natural water supply conditions) in the basin and which includes any temporary surplus – that can be withdrawn annually from a groundwater supply without causing an undesirable result. It's important to remember that SGMA requires the GSPs to account for climate change, and its anticipated impacts on groundwater (and sustainable yield).

Note: It is analogous to the sustainable yield calculated for groundwater adjudications, and is used to identify any pumping limits or restrictions that may be necessary. Managed Aquifer Recharge, through ponds or injection wells, is not part of the sustainable yield.