Santa Rosa Plain Groundwater Sustainability Agency Advisory Committee Meeting

Meeting Summary

Date/time: Monday, July 13, 2020; 3:00 – 5:30 p.m.
Meeting Location: https://csus.zoom.us/j/96976090714
Contact: Andy Rodgers, Santa Rosa Plain Groundwater Sustainability Agency (GSA), Administrator
Email: arodgers@westyost.com I Phone: 707.508.3661

Next meeting: September 14, 2020, 3:00 – 5:30 p.m.

MEETING SUMMARY

Welcome and Call to Order

Sam Magill, Facilitator, Sacramento State University – Consensus and Collaboration Program, welcomed the group, covered the meeting protocol, reviewed the agenda and conducted roll call. If the Advisory Committee has ideas on how staff could provide more time for material review (given SGMA timelines), please send an email to Sam Magill.

General Public Comments

None.

Agenda and 2020 Meeting Schedule Review

Andy Rodgers reviewed the annual meeting schedule. He mentioned there is a lot of material being covered by the three Advisory Committees. You are welcome to listen to other GSA meetings.

Historical and Current Water Budget and Model Update Summary

Objective: Review and discuss water budget and model, and their application to SMCs

Andy Rich, Technical Staff, gave a detailed presentation including an update on the Santa Rosa Plain Hydrologic Model development and an overview of water budget assumptions. There are three general requirements for the time periods the conditions must cover: historical; current; and projected conditions over the 50-year planning and implementation horizon. Staff have selected water years 1976-2018 for the historical period and water years 2012-2018 for the current period. The water budget must include inventory of all inflows (supply) and outflows (demand); summary of both surface water and groundwater budgets; evaluation of changes of groundwater in storage; estimation of groundwater overdraft (if applicable); and estimation of sustainable yield.

Next steps (for SGMA requirements) for the projected water budget development include:

- Groundwater conditions 50-years into the future
- Incorporate projections of land use change, climate change, and other changes in groundwater demands (such as population increase).

- The results of the simulation will be used to assess how the Sustainability Indicators respond to the changing climate and groundwater demands in the future.
- If undesirable results are simulated to occur, the GSP will need to plan for projects and management actions that respond to the undesirable results.

The proposed simulation approach for projecting climate change are:

- Choose Projected General Circulation Model (GCM) with specific Greenhouse Gas Emission Scenario
  - Review DWR recommended GCMs and choose one scenario that best represents projected median conditions in the Subbasin and Russian River Watershed area
- Update model inputs for:
  - Daily Precipitation Daily Minimum and maximum temperature (converted by model to evapotranspiration [ET])
- Climate data updates provide simulation of:
  - Projected hydrology in the watershed (runoff and streamflow, which relates to groundwater percolation)
  - Projected irrigation water demands due to changes in projected crop ET

Questions/Comments

Furch – Are the values basin-wide?

Rich – Yes, everything shown in the overall groundwater budget is showing the total inflows for the groundwater system, not showing any variability within the groundwater system itself at this point. The faults and areas of different geologic properties will impact how certain localities respond to climate and pumping.

DuBay – Is the mean decrease in Municipal and Industrial and residential due to water conservation?

Rich – It is likely it is what is causing the decline. Groundwater pumping is contributing to a decrease in groundwater storage.

Trotta – In addition to water conservation, it is also likely related to changes in municipal water sources (for example historical pumping from Rohnert Park has been reduced as more imported Russian River system water has been utilized in that area and pumping from Sonoma Water's wells has been lower in more recent years. Municipal wells in the Subbasin are lower in more recent years.

Furch – Will the “low flow” proposed for the Russian River change our predictions? (inflow from northern boundary and/or greater system reliance on groundwater?)

Trotta – Our future projected water budget will need to incorporate future projections for Russian River deliveries to our contractors in the Subbasin and the related projections of local supply sources such as municipal groundwater wells. We will be coordinating with the ongoing Urban Water Management Planning process to help inform those future projections.

Christopher Watt – How is recycled water factored into the model?

Rich – Recycled water is applied to the soil zone in the model. For those areas treated in the ag package, the addition to the water to the soil should decrease the amount of irrigation demand that cell has, so recycled water added to soil should offset crop demand for the cell.

Long – A difference by percentage rather than quantity would be instructive.

Rich – I will take that into consideration in the future, thank you.

Rosenblum – Climactic impact is related to groundwater pumping when the Russian River supply goes down, recycled water obligations to the Geysers reduces pasture application, and crop/soil evapotranspiration increases.

Furch – Relative to land use impacts, will ABAG numbers be used? Would it be possible to know the names of the people on the two technical groups? Would it be possible to watch/listen to those group discussions?

Rosenblum – How will the 1 GCM and 1 scenario – out of ten be selected? I have concerns with general circulation models – there are tons of scenarios within them and there are many circulating models; it is a sensitive and political issue which one to choose. I hope the choice will be deliberated by the Advisory Committee. Next comment – As the Russian River fails to meet the surface water supply needs of the municipalities, there is another side effect – which means wastewater becomes recycled water also goes down, and then there are contractual limitations on how much water needs to be delivered to the geysers. In the last severe drought, there were farmers cut off from that supply of water. Evapotranspiration increases, vegetation has dried up. It all needs to be calibrated in the software package. Third comment, the area in green (Wilson Grove formation) is very narrow, extensive study shows area around Sebastopol and its contribution goes much further west. Various water companies are dependent on inflows. If we restrict the model to not looking at what other activities are occurring in those areas, we won't be able to provide protection for agricultural suppliers.

Rich – On the map, all in green surrounded by white, all the areas are simulated in the model. You seem to be arguing for us to extend the model to the next subbasin. The first model by the USGS took 4-5 years to develop. Such an extension to the model would take that long. The Model as it stands already accounts for the changes in water levels on the western boundary through the general head boundary conditions. It isn't doing a perfect job of accounting for the impacts, but it is doing a good job. I haven't seen evidence of serious declines west of the boundary which would necessitate the model to be extended to the area you refer. If you can provide us the data, please do.

Rosenblum – I agree it will take longer; unfortunately, we have been talking about if for three years now. The time to do the modification will be in the next five years. It is exactly where the area is pointing to, to the Sebastopol area where Matt O'Connor's study shows the influence of Wilson Grove is largest and extends much further west.

O'Connor – I concur with Andy Rich's opinion that the boundary conditions along the Wilson Grove aquifer are a reasonable means to include influence of the Wilson Grove on the Santa Rosa Plain.

Rosenblum – OK, so 5 years into the future the model will be modified. What I mean is that four members of the GSA are particularly dependent on recharge from the area far to the west of Sebastopol.

Magill – I suggest taking the conversation offline.

Furch – The map indicated here now, is the blue line the watershed?

Rich – It is a union of the Laguna de Santa Rosa watershed and the subbasin itself but it is generally the Laguna de Santa Rosa watershed area.

Furch – So the ridge lines of the basin are indicated by the brighter blue line?

Rich – Generally yes, there are some small areas, ridge areas are inside the blue area.

Furch – It always exceeds the watershed?

Rich – Correct.

O'Connor – Great job! Regarding the conversation about Wilson Grove and its impact on the SRP, it can be done well with the boundary conditions. Some future improvements might be helpful, but it does incorporate the interaction between those things, so it is very acceptable for where you are with this modelling. I am sure you will be able to keep track as you move forward. Another question, surface inflows to the SRP basin – you are indicating the model is over predicting surface flow. Does that mean it is predicting surface flow into the Santa Rosa Plain? If so, it could be significant thing to look at, for lots of reasons, they also seem to be an important source of recharge to the SRP groundwater. I am curious how much affect that might have on the overall interpretation of the modelling.

Rich – Regarding the source of the discrepancy, and whether it is too high a simulation of the boundary (stream) inflows versus there is too much groundwater discharge of the streams. It is difficult to separate the two contributors to the discrepancies; we don't really know. To answer your second question – Does it warrant further investigation? I don't think the discrepancies are too big, I think we can live with it.

Noren – Thank you for the presentation. There is a lot of fuzziness in these models. Some questions here about if the model can be updated in the future. I believe there is a 5-year opportunity in the process to refine the model between what has been observed and predicted. Do you concur the model can be updated going forward? Is it meant to be a predictive tool; can it be updated?

Rich – Definitely, as the GSP moves into the implementation phase, we will continue to work on the groundwater model. It is part of the plan and as part of the five-year check-in, we would be reassessing the model and further calibration.

Noren – How long does it take to run the model?

Rich– About 32 hours, it produces about 100 GB of data.

Noren – They get large and complicated and there are tons of variance in the data. There is a lot going on in the model and they are fuzzy. I would like the opportunity to update and make it more accurate going forward.

Haydon – Doesn't the Raftelis study show no groundwater usage for pasture? (Table 8)

Trotta – I believe the 105 acre-feet/year for pastures on Andy Rich's slide is the amount estimated by UCCE for the dairy operations versus pasture irrigation.

Rich – The Raftelis final number for pasture was about 100-acre feet/year. That was mostly a judgement they made from input from various members that indicated that groundwater pumping is infrequently used for pastures. That is one of the areas where there is a big difference between the total groundwater pumpage for this and the rate study.

Scott – I am curious with the operation of Lake Mendocino (1958) and Lake Sonoma (1982). Is there a way to tease out what the influence of the operation of those reservoirs using the Russian River is on the groundwater inflows? It seems like there is a marked difference between the flows in the waterways before and after those systems were installed.

Rich – It is definitely an important component of the overall hydrology. I don't think there is too much direct groundwater inflow into the subbasin itself. The water agency is regularly looking at projections into the future. We will include the effect of climate change and the ability of the Water Agency to provide water to the various water providers.

Anderson – The USGS – 109 climate stations. The Plus+ model uses two. How does the Plus+ Model vary from top to bottom?

Rich – The original model used the 109 stations and they created a precipitation surface interpreted at all locations within the subbasin, they directly used those to drive the model for

1974-2010. The USGGS extended the model to 2015 using a simpler approach, but they used Prism – which uses all the available data to recreate the same precipitation surface, then extracted the data. The surface they are using to extrapolate all those points is using all the precipitation records. The information is built in and predictable to how it responds. So, all these different extrapolations are using similar data and the simplification we used to extend the model to 2018, if you were to redo the process, you would likely find similar results to what we found because the servers that we are using are dependent on the original data. I don't think it is much of an issue for driving groundwater dynamics. Solving it will not change the results in any noticeable way.

Anderson – It is convoluted. Is there higher precipitation hitting the ground in Windsor or Cotati?

Rich – It depends. Thinking of the mountainous area near Cotati, there should be higher precipitation in that area than in the Windsor flatlands.

Sam Magill said that if there were additional questions or comments, send them by email directly to Andy Rich.

Sustainable Management Criteria Proposals

Objective: Review and discuss SMC proposals and discuss additional considerations and next steps.

Trotta ran through his slides on land subsidence, said staff have done follow up work since the last meeting, and he will be seeking input at the end of his presentation today. Staff would like to bring input and/or recommendations on this SMC to the August 13 Board meeting. Staff would welcome feedback over the next few weeks; they will create a staff report reflective of everyone's input and circulate it to the Advisory Committee.

Trotta reminded the Advisory Committee of the key points:

- GSAs are **only responsible for managing inelastic (or unrecoverable) subsidence caused by groundwater pumping**, not responsible for elastic (recoverable) subsidence nor for subsidence caused by anything other than groundwater pumping
- Available datasets **do not indicate the occurrence of historical *inelastic* land surface subsidence** due to groundwater pumping within the Subbasin.
- **Proposed management of groundwater-levels within or above historical ranges** through Chronic Lowering of Groundwater Levels Sustainability Indicator, **makes future inelastic subsidence due to groundwater pumping unlikely.**

Summary of Options developed for establishing Undesirable Results:

Option #1
If annual minimum threshold (0.1 ft) is exceeded, or any area experiences five continuous years of subsidence even if each year's annual subsidence rate is less than the minimum threshold AND subsidence is determined to be correlated with groundwater level declines due to groundwater pumping.

Option #2
If annual minimum threshold exceeded or cumulative subsidence exceeds 0.2 feet total in any area (even if each year's annual subsidence rate is less than minimum threshold) AND subsidence is determined to be correlated with groundwater level declines due to groundwater pumping.

Option #3
If annual minimum threshold exceeded or five continuous years of subsidence occurring over 25 contiguous acres including developed land or infrastructure facilities even if each year's annual subsidence rate is less than the minimum threshold AND subsidence is determined to be correlated with groundwater level declines due to groundwater pumping.

Based on the feedback received and the information just provided, staff recommends that:

1. Any rate of future inelastic (irrecoverable) subsidence due to groundwater pumping be considered significant and unreasonable.
2. Annual Minimum Threshold be set at 0.1 feet.
3. Undesirable result determination also incorporates a cumulative cap on the total amount of subsidence (initially proposed at 0.2 feet).

Rosenblum – Paraphrasing "... subsidence correlated to groundwater pumping..." is again an issue for GSA members as the boundary where recharge areas are outside GSA boundary - and not modeled in the water balance, i.e. no possibility of going from correlation to causation (and then remediation/protection).

> Trotta – Even though the model of the GSA boundary is where it is and doesn't include the Wilson Grove, we will be proposing tracking groundwater levels that are monitored outside the basin and along the boundaries. There will be data available to make some correlation along the boundary areas.

Sam Magill asked the Advisory Committee "Should the undesirable result also be triggered if multiple continuous years of subsidence is observed, even if annual is less than 0.1 ft (e.g., five continuous years)?

Furch – How long does it take for subsidence to show up if an area is pumping to a greater than historic amount? How long would it take for recovery if changes occurred over a five-year period?

> Trotta – It can be highly variable depending on the nature of the aquifer system depth to which the pumping is occurring. No real evidence of how long it takes subsidence to show up. We do have some information on recovery from the InSAR studies done in Rohnert Park as groundwater levels were reduced there.

Long – I am piggybacking on Rue Furch's comment. This is a situation of chasing our tail. I believe in trends; five continuous years is a good marker, but I would like to see it combined with a larger individual year subsidence like two or three feet. Going after individual years is an unnecessary detail to chase.

> Magill – So your answer to the question is 'No, you would like to see something larger over a period of years', is that accurate?
> Long – I believe in five continuous years, but I don't believe in combination with a small individual year.

Sam Magill then asked, “Should the undesirable result include a minimum-sized area over which subsidence occurs (e.g., 25-contiguous acres)?”

Martin – Yes, could have small issues that are localized, it makes sense to have an area of where the problem is occurring.

Magill – Do you have a minimum size?

Martin – Are there spatial nodes that could be put together?

Trotta – Yes, each measurement we are using is a compilation of points from a 2.5 acre-grid.

Martin – Would make sense, that would be enough.

Lamb – Yes, I like the idea, 10 points seems reasonable.

Furch – Since we don’t know what that means because studies haven’t shown a size, I’m not sure how we know what number of acres should be. Seems like it should be geologic / groundwater space rather than surface water/acres. 25 acres is a surface measurement. We are thinking about aquifers. Feels like it would be better to have a groundwater metric rather than surface water that is arbitrary to what might be affected.

Trotta – Yes, the area underground will be difficult to observe and measure, at what depths in the aquifer subsidence is occurring, we are limiting our geographic area to the surface area, our technology would be measuring over the ground surface.

Furch – I understand the rationale, but it doesn’t make sense when we are trying to affect what is occurring. I feel like the 25 acres is arbitrary.

Trotta – One thing we would do if there is support, we can do some further analyses with InSAR data sets.

Furch – We do see areas of subsidence historically.

Trotta – We see it in other areas.

Furch – Seems like we should take that.

Haydon – I am thinking a 25-acre contiguous area is going to make us think the whole basin is unsustainable. It is a good red flag but having an area that small trigger that the basin is unsustainable is going to be problematic.

Haydon – Correlating with the options, combining these options and making them conditional on each other is a good idea. What is the amount that will trigger us to investigate what is going on? We need to see the problem over time to ensure it isn’t false positives. We need an area that is affected by subsidence. A good approach would be to have all three, in terms of measuring subsidence. I like the idea of combining these into a tiered level of options. Five continuous years is a good idea. If we are only seeing one small area of subsidence it might not trigger us to investigate what is going on.

Lamb – I am wondering if it is possible to have a narrative threshold as opposed to a numeric option, can’t we write something that isn’t a number?

Trotta – The way GSP regulations define Minimum Thresholds rate per year is clear. DWR has acknowledged there is opportunity for adapting as we move forward as we gather more information. Regulations are clear that threshold rates need to be numerical.

Lamb – So we can’t say “If we have some inelastic – that is our threshold”?

Trotta – We could say that, but we would have to include a numerical rate.

Porta – DWR requires a numerical threshold for the Minimum Threshold. It can be modified over time during 5-year updates.

Potter – I support looking for a 5-year trend, 0.2 feet as a trigger to do more study. The 25-acres seems reasonable, but another measure could be used.

Water Quality Degradation

Lisa Porta, Montgomery & Associates, provided an update and next steps for the Sustainable Management Criteria: Degraded Water Quality. Updates incorporated Advisory Committee feedback received during and following the previous Advisory Committee meeting.

Key points:
Degraded groundwater quality is one of the more complex SMC to develop and several considerations need to be addressed in order to get to the complete SMC development.

•The SMC for this sustainability indicator is considered a "do no harm" metric.

•GSAs should establish a process for routine consultations with other water quality regulatory agencies to discuss ongoing programs and initiatives relevant to the Subbasin, share monitoring data and information, and consider any applicable policy recommendations.

•The GSA must choose from three different metrics to develop minimum thresholds and measurable objectives.

•The GSA needs to identify the list of beneficial users that may be impacted by water quality degradation due to GSP projects and actions.

•The GSA needs to identify the constituents of concern (COCs) that will be monitored during GSP implementation to avoid undesirable results. The COCs are generally tied to the beneficial users listed above.

•The GSA needs to understand the local, state, and federal water quality standards applicable to the selected COCs, before setting the SMC.

Lisa Porta asked the Advisory Committee to review the Significant and Unreasonable statement and send feedback to Marcus Trotta. "*Significant and unreasonable water quality conditions occur if Santa Rosa Plain GSP projects or management activities cause an increase in the concentration of constituents of concern in groundwater that lead to adverse impacts on beneficial users or uses of groundwater. Adverse impacts include diminished supply due to water quality impacts, such as non-compliance with drinking water standards or undue costs for mitigating such negative impacts such as wellhead treatment or well replacement.*

Next Steps to Develop Minimum Thresholds and Measurable Objectives are:

• Section §354.28(c)(2) of the Regulations states that "The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin."

• In the Santa Rosa Plain Subbasin, minimum thresholds are based on supply wells that exceed concentrations of constituents determined to be of concern for the Subbasin.

• The definition of supply wells for constituents of concern that have an MCL or SMCL are public supply wells. The definition of supply wells for constituents of concern that may lead to reduced crop production are agricultural irrigation supply wells.

• Minimum thresholds are based on a degradation of groundwater quality, not an improvement of groundwater quality. Therefore, this GSP is designed to avoid taking any action that may inadvertently move groundwater constituents that have already been identified in the Subbasin in such a way that the constituents have a significant and unreasonable impact that would not otherwise occur.

Constituents of concern must meet three proposed criteria:

1. They must have an established level of concern such as an MCL or SMCL, or a level that reduces crop production.
2. They must have been found in the Subbasin at levels above the level of concern.
3. The occurrence of the Constituent of Concern needs to be extensive throughout the Subbasin.

Staff is recommending moving forward with the three Constituents of Concern originally developed (arsenic, nitrogen, and salts) but additional water quality data is being gathered to look at anything else that could be a basin-wide concern.

Questions/Comments

Rosenblum – Industrial is very specific and there are a lot more non-residential, commercial applications such as a large hotel using groundwater for its cooling tower. I want to make sure we aren't excluding large users who aren't necessarily agricultural or industrial.

Porta – Agreed. In the case of a hotel, it would be under public supply drinking water.
Rosenblum – For the cooling tower.
Porta – OK.

Christopher Watt – Are supply wells only public wells?

Porta – Supply wells are both public and agricultural as we have it defined right now.

Haydon – Expand this to include monitoring wells in addition to supply wells.

Porta – With this Minimum Thresholds/metric being used, it is a supply well specific definition. SGMA says not to impact supply the use of groundwater. Monitoring wells don't tell you if a supply well is being affected, it tells you the condition of the water quality. You can still monitor them, but they wouldn't be part of the Minimum Threshold.

Additional comments (see below) about ensuring compliance with existing regulatory programs.
Porta – Yes, it is a big component of this sustainable indicator. We will provide more information; staff is in discussion with the Regional Board.

Furch – When Constituents of Concern are determined, analysis and tracking of groundwater movement should be undertaken.

O'Connor – Is this element of the GSP integrated with the model?

Lamb – Please see Resolution R1-2015-0018 for Groundwater narrative groundwater toxicity objectives.

Noren – Yes, this needs to be grounded much better with regulatory requirements such as anti-degradation, the Basin Plan, and other guidance documents and programs

Martin – Referring back to the statement, Minimum Thresholds are based on a degradation of groundwater quality, not an improvement of groundwater quality. The GSA wouldn't undertake this project if it was going to degrade water quality. I feel like we have the monitoring network; but where we are pulling data from would trigger some of this. I was assuming we have an established monitoring network that have some water quality components. That would be the areas we determine if we are meeting the criteria.

Haydon – My point of adding monitoring wells is if we find degradation in monitoring wells, we might want to get ahead of the problem before it affects a water supply well.

Porta – Monitoring wells will be included when the project is developed. There are too many things the GSA are not responsible for. We can still monitor but it wouldn't fit the definition. It is a little confusing, staff can try to explain it a little better and help identify where a monitoring well might be required/necessary versus not in the context of SGMA and other programs occurring in the basin.

Sam Magill – We will look at the chat and come up with a proposal at a future meeting.

Updates

Objective: Provide relevant updates that inform the Advisory Committee - AC to ask questions if needed.

Marcus Trotta said he would send bullet updates by email to the Advisory Committee.

- Projects and Management Actions
- Grants Update
- Practitioner Workgroups
- Monitoring Network

Andrea Rodriguez, Outreach Staff

- The Community Workshop is on Wednesday July 29, please sign up! Continue doing outreach, let Andrea Rodriguez know how she can help.

Review Meeting Action Items and Discuss next Meeting Agendas

Sam Magill, Advisory Committee Meeting Facilitator

Action Item: Continued request for the Advisory Committee to send in any additional input on Water Budget Model, Land Subsidence, and/ or Water Quality. Send to Marcus Trotta as soon as possible.

The next GSA Board meeting is August 13, the next Advisory Committee is September 14.

Attendees:

Advisory Committee Members (present)

Agricultural representative, Bob Anderson
Agricultural representative, David Long
City of Cotati appointee, Craig Scott
City of Santa Rosa appointee, Peter Martin
City of Sebastopol appointee, Henry Mikus
County of Sonoma appointee, Mark Grismer
Environmental representative, Beth Lamb
Environmental representative, Rue Furch
Federated Indians of Graton Rancheria representative, Maureen Geary
Gold Ridge RCD appointee, Matt O'Connor
Independent Water Systems appointee, John Rosenblum
Rural Residential representative, David Noren
Sonoma County Water Agency appointee, Carolyn Dixon (joined 3:15)
Sonoma RCD appointee, Wayne Haydon
Town of Windsor appointee, Sandi Potter

Advisory Committee Members (absent)

Business representative, Joe Gaffney
City of Rohnert Park appointee, Mary Grace Pawson
Rural Residential representative, Marlene Soiland

Staff/Presenters

Andy Rodgers, SRP GSA Administrator
Marcus Trotta, Sonoma Water, Technical Staff
Andy Rich, Sonoma Water, Technical Staff
Lisa Porta, Montgomery Associates
Jay Jasperse, Sonoma Water, Plan Manager
Ann DuBay, Sonoma Water, Outreach
Andrea Rodriguez, Sonoma Water, Outreach
Simone Peters, GSA Administrative Aide, (*recorder of meeting summary*)

Facilitator

Sam Magill, Sacramento State University – Consensus and Collaboration Program

Other Attendees

Christopher Watt
Colin Close
Tim Parker