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Meeting Summary

Santa Cruz Mid-County Groundwater Sustainability Planning Advisory Committee Field Trip - Meeting #12 October 23, 2018, 9:00 am – 1:00 pm

This field trip served as the twelfth convening of the Santa Cruz Mid-County Groundwater Sustainability Planning (GSP) Advisory Committee. It took place on October 23, 2018 from 9:00 a.m. – 1:00 p.m. Committee members, Santa Cruz Mid-County Groundwater Agency (MGA) board members, members of the public, partner agencies, and consultants visited seven different sites in the Santa Cruz Mid-County Basin to learn about issues related to groundwater planning and monitoring, habitat restoration and various relevant projects. Staff from agencies throughout the Basin, including Soquel Creek Water District, City of Santa Cruz, County of Santa Cruz, and the Resource Conservation District of Santa Cruz County presented on the topics and addressed questions from the participants.

Meeting Objective: The primary objective of the field trip was to orient Advisory Committee members to the groundwater basin, especially issues related to groundwater planning and monitoring, habitat restoration, and relevant projects in the Mid-County Basin to inform their work on the groundwater sustainability plan.

Meeting Attendance

Advisory Committee members in attendance included:

1. Kate Anderton, Environmental Representative
2. John Bargetto, Agricultural Representative
3. Rich Casale, Small Water System Management
4. Keith Gudger, At-Large Representative
5. Dana Katofsky McCarthy, Water Utility Rate Payer
6. Jon Kennedy, Private Well Representative
7. Charlie Rous, At Large Representative
8. Allyson Violante, County of Santa Cruz
9. Thomas Wyner for Cabrillo College, Institutional Representative

Committee members who were absent included:

1. David Baskin, City of Santa Cruz
2. Bruce Jaffe, Soquel Creek Water District
3. Jonathan Lear, At-Large Representative



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4. Marco Romanini, Central Water District

MGA Board members in attendance included:

1. Curt Abramson, Private Well Representative
2. Jim Kerr, Private Well Representative

Members of the public in attendance included, but were not limited to, the following:

1. Larry Freeman
2. Gary Lindstrom
3. Scott McGilvray
4. Becky Steinbruner
5. Randall Syler

Meeting Outcomes (linked to field trip schedule and presentations)

Following is a summary of the topics presented and discussed at each of the seven field trip sites.

Stop 1: 9:00 a.m. - Coastal Monitoring Well SC-1 Near Prospect and 49th Avenues in Capitola, CA

Amanda Bunte, Soquel Creek Water District, presented on coastal water quality sampling and addressed participant questions outlined below.

- **Question (Q):** What is the water elevation level at this well?
 - **Response (R):** It is between 61 – 64 feet below ground level.
- **Q:** How far below sea level is this well?
 - **R:** It is five feet below sea level.
- **Q:** How deep is this well?
 - **R:** It is 320 feet below ground level.
- **Q:** Do you keep well logs and construction data for this well?
 - **R:** Yes, Soquel Creek Water District does have the well logs and construction data for this well, although, they are not on our website. We have graphed the data to show the protective elevation at four feet below ground level.
- **Q:** Do you map underground water levels?
 - **R:** We do map underground water levels on a contour map, with 3-dimensional animation showing the topography. These maps are based on chloride levels.
- **Q:** Are you using data to create a curtain barrier for seawater intrusion? How are you using this data?



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- **R:** We use the data to identify spots useful for injection and then compare the data to the protective elevation, which serves as an indicator of seawater intrusion protection. We have separate data for each well.
- **Q:** What do you mean by “purging” the well?
 - **R:** We purge a well when we pump out the water that has been standing in the well casing before we sample. We do this so we sample the water fresh from the aquifer, not the water that has been standing in the well. .
- **Q:** Which aquifers does this well monitor?
 - **R:** The Purisima Formation A Unit
- **Q:** To what extent do you sample from private versus municipal wells at this location?
 - **R:** There are very few private wells in this area, and the closest municipal well to this location is the one located is Soquel Creek Water District’s Garnet Street production well.
- **Q:** Is the water here up to drinking water standards?
 - **R:** There are no signs of seawater intrusion at this well location.
- **Q:** Why do you not have readings for this well for 2006 – 2008? (Participant was referring to data readings on the graph that staff provided.)
 - **R:** I am not certain.
- **Q:** Is the purged water sampled before you conduct sampling in the aquifer?
 - **R:** We measure the PH and electro-conductivity levels to make sure the water is stable before sampling.
- **Q:** How much yield is there at the Soquel Garnet production well?
 - **R:** 516 gallons per minute (GPM), operating 6 hours/day. And at Beltz 8 and 9, it is less than 300 GPM at each, operating 24 hours/day, May through October.
- **Q:** When was Beltz installed?
 - **R:** 1998 – 1999.

Stop 2: 9:45 a.m. - City’s Research Park Well, 2768 Research Park Drive in Soquel, CA

Isidro Rivera, City of Santa Cruz Water Department, presented on production well and division of drinking water sampling and addressed participant questions as outlined below.

- **Q:** Do you inject and extract water from this well?
 - **R:** Yes.
- **Q:** How far is the O’Neill well from here?
 - **R:** Approximately 1,000 feet.
- **Q:** Does the injection process rely on gravity or pumping?
 - **R:** It uses the system’s back pressure.
- **Q:** Do you treat the water once it is recovered again?
 - **R:** Yes, we inject treated water.



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- **Q:** Is there additional cost associated with each treatment of water?
 - **R:** Yes, as we need twice as many wells to treat the water. We also need to treat the water for storage.
- **Q:** Is 250 – 350 GPM the minimum production at this location? What is the total production?
 - **R:** Production is 600 – 700 GPM in general and up to 800 – 900 GPM at peak levels. Groundwater provides approximately 5% of the total City production.
- **Q:** How confident are you that aquifer storage and recovery (ASR) will work? And what are the biggest challenges for the project?
 - **R:** Modeling shows that ASR will work. Some challenges for the project include: 1) the interaction between the seawater and groundwater; 2) when the anticipated production is lower than the target; and 3) potential risks to the project due to disinfection by-products.
- **Q:** Does the geochemical testing include testing the chloride levels in the water?
 - **R:** Yes.
- **Q:** Does this site have to contend with high ammonia levels like the O'Neill site?
 - **R:** No, this site does not have high ammonia levels.
- **Q:** Does the state require pumping permits for groundwater recharge?
 - **R:** Yes, in order to streamline groundwater recharge.
- **Q:** What would be the total annual generation for ASR?
 - **R:** It would depend on what is being extracted. ASR could generate between 11.5 billion gallons (BG) and 21.5 BG, drawn over two years.
- **Q:** If there is limited supply how is it determined how much goes to ASR vs in-lieu?
 - **R:** It is not prioritized currently.

Stop 3: 10:15 a.m. - Heart of Soquel Park, 4740 Soquel Drive behind the post office in Soquel, CA

Sheryl Bailey, County of Santa Cruz and Angie Gruys, Resource Conservation District of Santa Cruz County, presented on low impact development in stream corridors and storm water management; they addressed participant questions as outlined below.

- **Q:** What is your calculation of the estimated recharge here?
 - **R:** We don't have that calculation, as we just try to maximize permeability.
- **Comment (C):** This is the nicest improvement in Soquel.
- **Q:** What was the timeline for construction of this park?
 - **R:** Construction for the park started in 2012.
- **Q:** Were there any eminent domain issues when the land transitioned from private to public ownership?
 - **R:** There were no eminent domain issues, as it was a land trade with a mobile home seller.
- **Q:** How do you maintain the pervious structures in the park?



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- **R:** We use a vacuum to clean and maintain the pervious structures. We are working on more collaborative partnerships and setting up a schedule of costs for maintenance.
- **Q:** Did county codes or requirements regarding land use change as a result of this project?
 - **R:** The County required that we prepare designs to show maintenance of run-off at pre-development levels.
- **Q:** Do you monitor infiltration water levels here as Scotts Valley does with its project?
 - **R:** We don't currently monitor infiltration levels.
- **Q:** Are there any seepage pits here?
 - **R:** No.
- **Q:** Is it reasonable that there's some recharge to the aquifer here?
 - **R:** This is not necessarily a recharge program. Conservation districts are looking for more recharge projects for parks throughout Santa Cruz. Andy Fisher at UCSC would be a good resource to discuss recharge projects.
- **Q:** Do you know of any projects that incorporate water harvesting and irrigation?
 - **R:** Yes, there are some projects that involve harvesting rainwater, but more opportunities are available for water storage-related projects.
- **C:** I would encourage inviting Andy Fisher to speak at an Advisory Committee meeting to identify the best recharge areas in the County.

Stop 4: 11:00 a.m. - Bridge near Bridge and N. Main Streets in Soquel, CA

John Ricker, County of Santa Cruz, presented on stream gauge and shallow groundwater monitoring; he addressed participant questions as outlined below.

- **Q:** When you turned off the Main Street well, did the water level in the creek change?
 - **R:** It is a shallow creek, and the change is difficult to measure. It is critical to maintain the creek at a level of 200 GPM.
- **Q:** How have the fluctuations in the creek levels impacted fish?
 - **R:** Fish need as much water as possible to thrive. When there is an increase in stream flow, there is an increase in fish habitat.
- **Q:** Does the dropping of tree leaves reduce evapotranspiration?
 - **R:** Yes, when the leaves drop and when the temperatures drop going into fall, we see increased stream flow as a result of decreased evapotranspiration.
- **Q:** Does the public have access to stream flow readings?
 - **R:** No, the public does not have access to the gage, but the readings are publicly available real-time on the USGS internet site.
- **Q:** Is Soquel Creek feeding the aquifer at this location?



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- **R:** Yes, the water is coming from higher up in the basin, and in this reach the stream is generally considered to be feeding the aquifer, with the stream level higher than the groundwater level..
- **Q:** How much water do private users take out of the stream?
 - **R:** There is some direct private pumping from the creek, which has been adjudicated. Some may also draw water through alluvium, which tends to decrease during the dry season.
- **C:** Bruce Daniels indicated that when the Main Street well was turned off, his measurements showed an increase in the creek levels.
- **Q: Did Soquel Creek Water District consider pumping water directly from the creek?**
 - **R:** Soquel Creek did pursue diversion at one point, but then abandoned it as there was not adequate infrastructure for it and water rights issues were challenging.

Stop 5: 11:30 a.m. - Main Street Well near N. Main Street and Ladera Lane in Soquel, CA

Taj DuFour, Soquel Creek Water District, presented on the production well at a creek location and water quality sampling; he addressed participant questions as outlined below.

- **Q:** How often is the filter media replaced?
 - **R:** It is usually back-washed after 20-35 hours of use. The media has a long use life of up to 20 years.
- **Q:** Do you have a back-up system for this well?
 - **R:** The pressure differential is our automatic back-up system.
- **Q:** Do you use chlorine to oxidize the iron and manganese that is found? And does this treatment change at each site?
 - **R:** Yes, the process is different at each well site depending on the substances found in the groundwater.
- **Q:** What is the required chlorine residual level?
 - **R:** The required residual level is between 0.2 and 0.5 ppm.
- **Q:** What is the capacity of the well here?
 - **R:** It is at about 180 GPM, operating 24 hours/day.
- **Q:** Does the water leaving here go directly to consumers?
 - **R:** Yes, and the wells run on a set clock.
- **Q:** Does gravity flow down to the tanks?
 - **R:** Yes.
- **Q:** What type of monitoring is done to prepare the water transfer to Santa Cruz? And does the well go offline?
 - **R:** We monitor the distribution system. And yes, the wells do go offline when they need to be maintained for wear and tear and corrosion.



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Stop 6: 11:50 a.m. - Bargetto Winery 3535 N. Main Street in Soquel, CA

Kristen Kittleson, County of Santa Cruz, discussed fisheries issues and viewed an accumulation of stream-wood in the creek (log jam); they addressed participant questions as outlined below.

- **Q:** What is the temperature range for fish attrition?
 - **R:** The temperature range is between 23 – 27 degrees Celsius.
- **Q:** Is there an oxygen issue?
 - **R:** This is not a problem locally.
- **C (John Bargetto):** Bargetto Winery partners with the County on monitoring effects on fish habitat and maintaining a balance between fish and people. The log jam in the creek provides that habit balance temporarily.
- **Q:** Does the Streamwood Program to maintain logs in the creek focus more on the upstream areas?
 - **R:** we want to see wood in many different places along the stream.
- **Q:** I've heard that the City is working to amend water rights for the San Lorenzo area, which will change the required volume of stream flow for fish habitat?
 - **R:** The City is updating their water rights to provide fish flows downstream from all of their diversions.
- **Q:** Why does Soquel Creek have so much attention with respect to fisheries, while Aptos Creek has relatively little?
 - **R:** Both Soquel Creek and Aptos Creek had watershed assessments done in 2004. Soquel Creek has more fish habitat and is more productive for fish. Aptos, which is smaller, also has fewer residential areas and more protected areas.
- **Q:** How far south do Steelhead Trout travel?
 - **R:** It is tough to tell with Steelhead.
- **Q:** Does the Santa Cruz community value Steelhead?
 - **R:** Yes. Although Santa Cruz lost the culture of fishing, Steelhead still have some economic benefits for the area.
- **Q:** Don Alley conducted a fish survey in the Lagoon and found only a few fish. Is this true?
 - **R:** I believe the survey located about six fish, which shows a decline in fish for the area.

Stop 7: 12:30 p.m. - Pringle Tank (last site visited)

Vai Campbell and Taj DuFour, Soquel Creek Water District, presented on water infrastructure and addressed participant questions as outlined below.

- **Q:** What do the bigger tanks hold?
 - **R:** The bigger tanks hold between 500,000 and 1.2 million (M) gallons.
- **Q:** Are the tanks concrete underground, and do they need protective coating?
 - **R:** No they don't need the protective coating.



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- **Q:** How quickly do the tanks draw down?
 - **R:** The tanks fill up based on hydraulics. We let them draw down 3-4 feet before we fill them up again.
- **Q:** Do you distribute old or new water from the tanks when they have been refilled?
 - **R:** We distribute a little bit of both old and new water, which prevents stratification in the tanks.
- **Q:** Is there any danger of disinfection by-product occurring if the water in the tanks is too old?
 - **R:** Yes.
- **Q:** Can you do injections with aged water?
 - **R:** The water will continue to age in the ground, which results in the reverse osmosis of water. Projects can be adjusted so that the water is not reactive.
- **Q:** Is the Quail Run tank made of concrete?
 - **R:** Yes.
- **Q:** How do you monitor the age of the water in the tanks?
 - **R:** We monitor the age of the water in the tanks through modeling. The water is cycled (through the same pipes), so not all of it is old.
- **Q:** How often do you have maintenance divers in the tanks?
 - **R:** Every five years.
- **Q:** Where does the water go when tanks are emptied for maintenance?
 - **R:** We let the customer use as much of it as possible, after it is de-chlorinated.
- **Q:** How many tanks do customers use each year?
 - **R:** One-quarter to one-third of an acre foot is used per household per year.
- **Q:** How old is the original (not patched up) part of this tank?
 - **R:** The tank was built in 1960s.
- **Q:** How are the tanks interconnected? If one tank is offline, how are the others impacted?
 - **R:** The other tanks will take in more water, but there is no overall change in the total amount of water contained in the system of tanks.