

# Agenda

## Santa Cruz Mid-County Groundwater Sustainability Plan

### *Advisory Committee Meeting #12*

**Wednesday, October 24, 2018, 5:00 – 8:30 p.m.**

**Simpkins Family Swim Center  
Room B - 979 17th Avenue Santa Cruz CA 95062**

#### Meeting Objectives

- Receive update on work of the Groundwater Modeling Technical Advisory Committee.
- Review and discuss groundwater modeling results for sustainability strategies:
  - Understand what we can learn from the results.
  - Evaluate results against Minimum Thresholds and Measurable Objectives.
  - Provide Advisory Committee feedback on Sustainable Management Criteria to inform next modeling iteration.
- Review federal and state statutory and regulatory framework governing potential Groundwater Sustainability Plan (GSP) management actions and projects related to water quality, and discuss staff proposal for groundwater quality sustainable management criteria.

#### Agenda

Item No.	Time <sup>1</sup>	Topic	Presenter & Materials
	4:30 p.m.	<i>Arrivals/Committee members collect food for dinner</i>	
1.	5:00 p.m.	Welcome, Introductions, Meeting Objectives, and Agenda Review <ul style="list-style-type: none"> <li>• Review updated project timeline</li> <li>• Update on site visit</li> </ul>	<ul style="list-style-type: none"> <li>• Ron Duncan, Soquel Creek Water District</li> <li>• Eric Poncelet, Facilitator</li> </ul> <p><i>Materials:</i></p> <p><i>1.1 Agenda</i></p> <p><i>1.2 Groundwater Sustainability Plan Process Overview - July–December 2018</i></p> <p><i>Refer to PowerPoint Presentation</i></p>
2.	5:10 p.m.	Oral Communications <ul style="list-style-type: none"> <li>• <i>Members of the public to comment on non-agenda items</i></li> </ul>	<ul style="list-style-type: none"> <li>• Public</li> </ul>
3.	5:20 p.m.	Receive update on Santa Cruz Mid-County Basin Groundwater Modeling Technical Advisory Committee (TAC) efforts	<ul style="list-style-type: none"> <li>• Cameron Tana, Montgomery &amp; Associates</li> </ul> <p><i>Refer to PowerPoint Presentation</i></p>
4.	5:50 p.m.	Review and discuss groundwater modeling results for sustainability strategies	<ul style="list-style-type: none"> <li>• Cameron Tana and Georgina King, Montgomery &amp; Associates</li> </ul>

<sup>1</sup> The times allotted on this agenda are approximate and are subject to change.

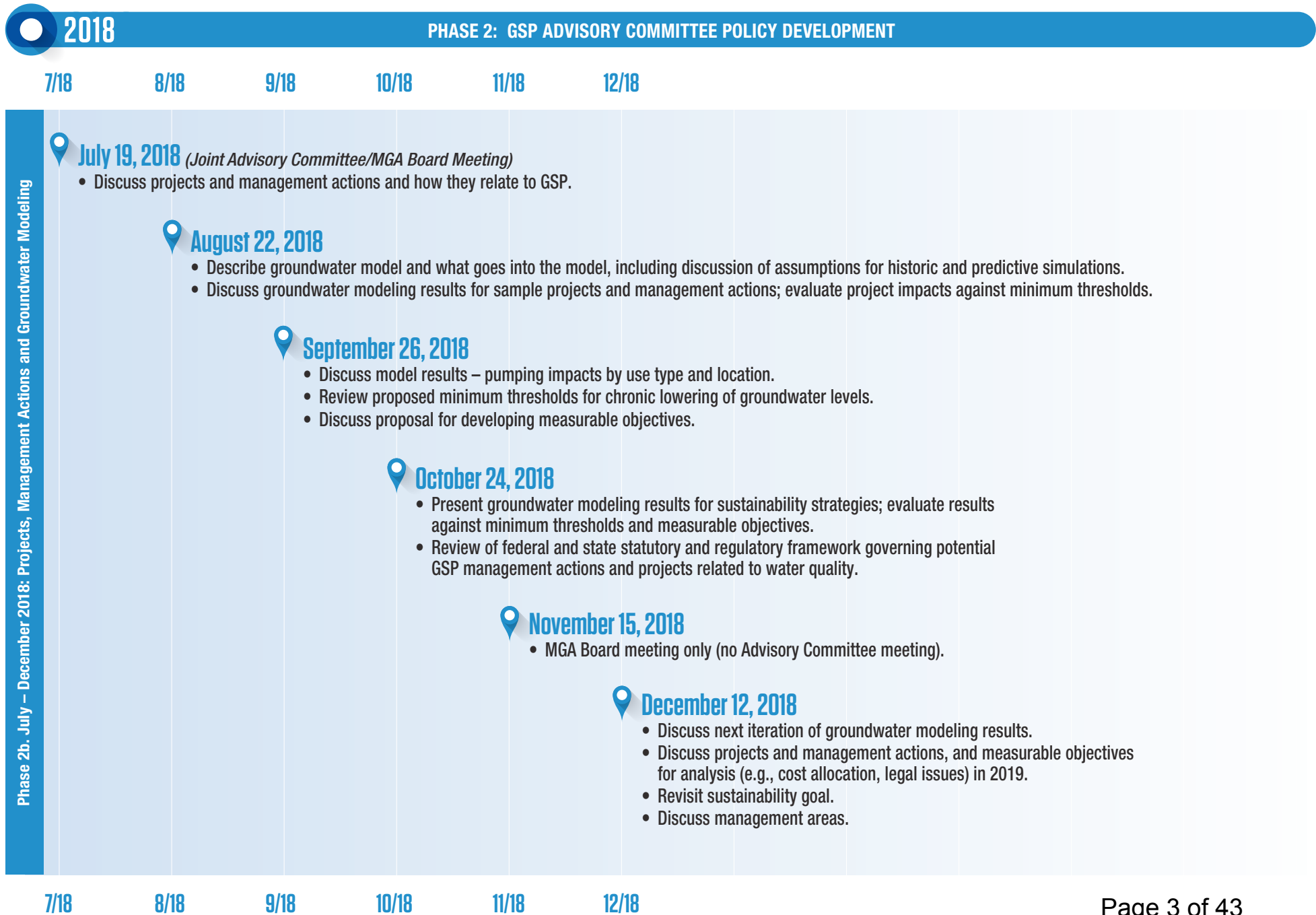
Item No.	Time <sup>1</sup>	Topic	Presenter & Materials
		<ul style="list-style-type: none"> <li>Presentation of modeling results</li> <li>Evaluate results against Minimum Thresholds and Measurable Objectives</li> </ul> <p>Discussion question:</p> <ol style="list-style-type: none"> <li>What do the modeling results say about preferred management actions or projects to achieve sustainability?</li> </ol>	<ul style="list-style-type: none"> <li>Advisory Committee</li> </ul> <p><i>Materials:</i></p> <p>4.1 <i>Summary of Groundwater Modeling Assumptions and Scenarios</i></p> <p>4.2 <i>Summary Overview of Initial Proposed Sustainable Management Criteria</i></p> <p><i>Refer to PowerPoint Presentation</i></p>
5.	6:30 p.m.	<i>Break</i>	
6.	6:45 p.m.	(Continued) Review and discuss groundwater modeling results for sustainability strategies	<ul style="list-style-type: none"> <li>Cameron Tana and Georgina King, Montgomery &amp; Associates</li> <li>Advisory Committee</li> </ul>
7.	7:20 p.m.	Public Comment	<ul style="list-style-type: none"> <li>Public</li> </ul>
8.	7:30 p.m.	<p>Discuss Groundwater Quality</p> <ul style="list-style-type: none"> <li>Review federal and state statutory and regulatory framework governing potential GSP management actions and projects related to water quality, and discuss applicability to Mid-County GSP</li> <li>Discuss update to proposed Sustainable Management Criteria for Groundwater Quality</li> </ul>	<ul style="list-style-type: none"> <li>Rosemary Menard, City of Santa Cruz</li> <li>Georgina King, Montgomery &amp; Associates</li> <li>Advisory Committee</li> </ul> <p><i>Materials:</i></p> <p>8.1 <i>Overview of Federal and State Statutory and Regulatory Framework for Water Quality Management</i></p> <p>8.1.1 <i>Attachment: PowerPoint Presentation</i></p>
9.	8:10 p.m.	Public Comment	<ul style="list-style-type: none"> <li>Public</li> </ul>
10.	8:20 p.m.	<p>Confirm:</p> <ul style="list-style-type: none"> <li>September 26, 2018 GSP Advisory Committee Meeting Summary</li> </ul>	<ul style="list-style-type: none"> <li>Advisory Committee</li> <li>Eric Poncelet, Facilitator</li> </ul> <p><i>Materials:</i></p> <p>10.1 <i>Draft Meeting Summary from September 26, 2018</i></p>
11.	8:25 p.m.	Recap and Next Steps	<ul style="list-style-type: none"> <li>Eric Poncelet, Facilitator</li> </ul>
	8:30 p.m.	<i>Adjourn</i>	

**Written Communications and Correspondence (included in the meeting materials packet).**

1. Notice of Public Workshop submitted by Larry Freeman

# Santa Cruz Mid-County Basin

## Groundwater Sustainability Plan Process Overview — July–December 2018



## Summary of Groundwater Modeling Assumptions and Scenarios

### Model Assumptions for Predictive Runs

The model assumptions provided below were discussed at the August and September GSP Advisory Committee meetings.

Model Assumptions with Water Supply Augmentation Options as Superscript	Assumptions	Follow up work
Pumping demand <sup>1</sup>	CWD: pre-drought average 2008-2011 SqCWD: 2015 Urban Water Management Plan projections that reduce over time City of Santa Cruz: cooperative agreement with SqCWD Pre-drought estimates for non-municipal pumping	SqCWD projected demand may be too low; test SqCWD demand that is stable over time
Return Flow	Municipal system losses from sewer and water pipes	
Santa Margarita/Pajaro Valley boundaries	No annual changes in heads	
Stream-aquifer interaction	Streamflow calculated by model and calibrated to gauge flow data	Calibration of stream alluvium to gradient between shallow groundwater level and stream level
Climate change	Catalog Climate: 10% less rainfall, 1.5 degree F increase in temps	Model TAC approved use of Catalog Climate as opposed to individual global circulation models; will need to check approach with DWR
Sea level rise	+1.5 ft	Model TAC advised updating to 2018 Ocean Protection Council updated guidance +2.3 feet in 2070 based on 5% probability
Surface water transfer <sup>2</sup>	2015 AFY pilot transfer to SqCWD continues indefinitely	

## Modeled Basin Effects from Scenarios Reflecting Potential Management Actions and Projects

AGENDA ITEM 4.1

The modeled scenarios provided below were discussed at the September and October GSP Advisory Committee meetings.

Model Scenario with Water Supply Augmentation Options as Superscript	Type	General Effect on Groundwater Levels	Follow up work
Eliminate inland pumping in areas where simulated groundwater levels are > 50 ft above sea level	Sensitivity	small effect in coastal groundwater levels (< 1 ft increase)	Test effect of non-municipal pumping in Aromas area (Purisima F and Aromas)
Reduce septic tanks return flow from 90% to 50%	Sensitivity	small effect in coastal groundwater levels (~1 ft decrease)	
Pajaro Valley Boundary, groundwater increases 3 ft	Sensitivity	benefits groundwater levels in the Aromas area (up to 1.2 ft increase at protective elevation wells)	
Effect of non-municipal pumping in alluvium	Sensitivity	In progress	Move pumping in aquifers below alluvium and Terrace Deposits to alluvium and Terrace Deposits
Effect of non-municipal pumping in Soquel Creek and Bates Creek Valleys	Sensitivity	In progress	Turn off pumping in these areas
Effect of vertical distribution of pumping near Soquel Creek	Sensitivity	In progress	Move municipal pumping in wells screened in AA and Tu to only Tu
Remove surface water transfer to SqCWD	Management action	Lowers groundwater levels in coastal Purisima A unit and Tu unit up to 4 feet.	
Municipal pumping redistribution towards coast	Current operational limits	Lowers groundwater levels 1-4 feet in western coastal Purisima A unit. Increase groundwater levels 10+ feet in coastal Tu unit. Decreases groundwater levels <1 ft in coastal Aromas area.	
Reduce municipal pumping <sup>1, 2a, 4a, 4bii, 4d, 5a, 5b</sup>	Management action	<ul style="list-style-type: none"> <li>- helps recover Purisima A-unit and BC unit, Purisima A/BC units can have increased pumping and still achieve sustainability</li> <li>- Aromas area/Purisima F unit pumping needs further reduction</li> <li>- Tu unit pumping needs further reduction</li> <li>- coastal elevations La Selva Beach area of Aromas aquifer (SC-A3A) are not impacted by reducing municipal pumping because municipal wells already inactive.</li> </ul>	Redistribute municipal pumping further in an attempt to reach Minimum Thresholds and Measurable Objectives at more wells Test effect of non-municipal pumping in Aromas area (Purisima F and Aromas)
Aquifer storage and recovery by City of Santa Cruz <sup>2b</sup>	Project	Greater groundwater level declines near recovery wells for in-lieu scenarios compared to ASR injection scenarios	Continue feasibility evaluation by simulating different project configurations
Pure Water Soquel seawater intrusion prevention by SqCWD <sup>4bi, 4c</sup>	Project	see Draft EIR Project to be discussed at December 2018 GSP Advisory Committee meeting	

Working Draft

Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin

Item No.	Source	Agency	Opportunity	Constraint(s)	Status
1	Water Conservation	Soquel Creek Water District Program	Reduce demand through increasing the efficiency of water use by existing and future water users	The success of existing SqCWD demand management programs may limit the potential for achieving future savings.	Soquel Creek Water District's (SqCWD) 2015 Urban Water Management Plan shows an actual 2015 system wide gallons per capita per day (gpcd) of 69, with a residential gpcd of 50. The projected system wide gpcd in 2035 is estimated to be 67, with a residential gpcd of 49. New water demand is offset through the Water Demand Offset program which uses development fees for conservation projects which save approximately two times the development's expected demand.
		City of Santa Cruz Program	Reduce demand through increasing the efficiency of water use by existing and future water users	No significant constraints.	The City's 2015 Urban Water Management Plan documents the current system wide gallons per capita per day (gpcd) of 70, with a residential gpcd of 43. For 2035 the projected system wide gpcd is estimated to be 80, with a residential gpcd of 46. <sup>1</sup>
		Central Water District Program	Reduce demand through increasing the efficiency of water use by existing and future water users	No Significant Constraints	Central Water District's (CWD) water conservation program includes the following elements: <ul style="list-style-type: none"> <li>Enforcement of an ordinance on all residential users prohibiting wasteful uses of water.</li> <li>Participation in the Water Conservation Coalition of Santa Cruz County to provide outreach and education to residents.</li> <li>Maintains/enforces the CWD "Drought/Water Shortage Contingency Plan"; the Plan includes Four Stages of drought response with escalating water use restrictions at each stage.</li> <li>Provides rebate programs for installation of water efficient toilets and clothes washing machines.</li> <li>Provides water efficient hose timers.</li> </ul>
		County of Santa Cruz Programs for Small Water Systems and Private Wells	Reduce demand through increasing the efficiency of water use by existing and future water users.	The County has no ratepayers and therefore is not able to provide rebates, relying on State rebate programs and grants to offer incentives.	The County participates in the Water Conservation Coalition of Santa Cruz County to provide outreach and education to residents. The County requires source metering and reporting of monthly usage on all public water systems with 5 or more connections. Systems with 15 or more connections are required to meter individual connections, but are not required to report individual connection usage to the County. County staff will offer well soundings to private well owners who want to see if their water levels have changed. The County's water conservation program includes the following elements: <ul style="list-style-type: none"> <li>Enforcement of an ordinance on all residential users prohibiting wasteful uses of water.</li> <li>Requirement for replacement of inefficient toilet and showerheads at time of property sale.</li> <li>Implementing building code requirements for efficient fixtures for all new construction and remodels.</li> <li>Requiring water conservation forms as part of any new well permits for wells expected to use over 2 AFY.</li> <li>Implementing a currently grant-funded program to do water conservation assessments for of private well owner's properties.</li> </ul>

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Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin

Item No.	Source	Project/Program	Opportunity	Constraint(s)	Status
2a	Surface Water	In Lieu Recharge (passive recharge) and Water Transfers	Near term – now to 5 years: Provide surface water from the City's North Coast sources to off-set part of the Soquel Creek Water District's wet season demand to rebuild groundwater resources by eliminating or reducing pumping during some part of the year. Rebuilding groundwater resources is an important because it ultimately would create an opportunity to supply water back to the City for use as a drought supply. Without this opportunity, this Project/Program would be a Water Transfer project only.	<ul style="list-style-type: none"> <li>Volume of the City's available water from its North Coast Sources is limited due to fish flows, although it is not constrained by water right Place of Use restrictions.</li> <li>Water quality issues involving the mixing of treated drinking water from surface water and groundwater sources were identified and have been evaluated and full scale testing is the next step.</li> <li>Potential volume of the District's wet season demand that could be off-set by providing treated surface water is a limiting factor and may not provide for enough of an increase in groundwater levels within a desired time frame to address the City's need for drought supplies.</li> </ul>	<ul style="list-style-type: none"> <li>Soquel and the City of Santa Cruz have an existing agreement to explore a small scale in lieu exchange with an estimated volume of about 300 acre feet/year. The term of the agreement is for 5 years with a current ending date of 12/31/2020, but a time extension is feasible and has been preliminarily discussed.</li> <li>Water Quality analyses and planning for initiation of water transfer is underway. Bench scale testing confirmed both water qualities are compatible; however, additional full scale testing and monitoring will be the next step to confirm. As per the agreement, there are several conditions that must be met for the water transfer to be permissible in any given year, drought conditions being one of them. Earliest initiation is winter of 2018/19.</li> </ul>
			Long term – 5 years into the future Provide surface water from the City's North Coast sources and the San Lorenzo River to off-set some or all of the Soquel Creek Water District's wet season demand and rebuild groundwater resources by eliminating or reducing pumping during some part of the year. Similar to the near term project described above, rebuilding groundwater resources is an important component as it relates to the opportunity to supply water back to the City. Without this opportunity, this Project/Program would be a Water Transfer project only.	<ul style="list-style-type: none"> <li>Potential volume of wet season demand that could be off-set by providing treated surface water is a limiting factor and may not provide for restoration of the basin within a desired time frame.</li> <li>Water rights – the Place of Use for the City of Santa Cruz surface water rights from the San Lorenzo River do not include the Soquel Creek Water District or the parts of the Santa Cruz Mid-County Groundwater Basin that are outside the City's current water service area.</li> <li>Current infrastructure allows about 1 to 1.5 mgd capacity – could be enlarged if determined to be cost-effective. Estimated annual capacity of existing infrastructure during could be approximately 800 acre feet during the wet season.</li> </ul>	<ul style="list-style-type: none"> <li>The City has initiated work to modify its San Lorenzo River water rights to open up the place of use so that water from San Lorenzo River sources could be used in providing long term in lieu to the District. Estimated time for resolution – 1 to 2 years.</li> <li>Modeling and other studies are needed to determine limitations of the City and District infrastructure and identify where improvements may be needed to convey additional water.</li> </ul>
2b		Aquifer Storage and Recovery (active recharge)	Create an underground reservoir of stored treated surface water using available winter flows (above those required for ongoing operations, water rights, and fish flows). Stored water would provide drought supply for Santa Cruz and could be designed with additional capacity to contribute to the restoration of the Santa Cruz Mid-County Groundwater Basin and provide drought storage for Santa Cruz. (Note: An ASR project using surface water from the San Lorenzo River source to store water in the Santa Margarita Groundwater Basin is also being evaluated.)	<ul style="list-style-type: none"> <li>The technical feasibility of storing and retrieving stored water from the Santa Cruz Mid-County Groundwater Basin may be a constraint.</li> <li>The adequacy of existing infrastructure to deliver available water to potential injection wells as well as the sizing and location of wells to extract water needed to meet Santa Cruz's drought needs are being evaluated.</li> <li>Availability of appropriate and available real property parcels or rights of way for the development of necessary wells and delivery infrastructure may be a constraint.</li> </ul>	<ul style="list-style-type: none"> <li>The City of Santa Cruz is working to assess the feasibility of injecting treated drinking water from its surface water sources into regional groundwater aquifers. Phase I of the work is nearing completion; Phase II, which includes pilot testing injection in each aquifer, will begin in 2019 and be completed in 2 to 3 years.</li> <li>Information generated by these evaluations will be used to determine the degree to which ASR is a feasible part of the City's strategy to improve the reliability of its water supply and will be used as part of the City's planned supplemental supply decision process in 2020..</li> </ul>
				<b>General Constraint for surface water options:</b> <ul style="list-style-type: none"> <li>City's need to build drought supply through a combination of passive and/or active recharge could result in significant future withdrawals from the basin that may interfere with the timeframe or even ultimate success of reaching basin recovery goals.</li> <li>Long term reliability of surface water as a supply may be an issue if climate change results in some shift in the amount or pattern of precipitation and/or if multi-year drought conditions occur.</li> </ul>	

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Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin

Item No.	Source	Project/Program	Opportunity	Constraint(s)	Status
3a	Storm Water	Distributed Storm Water Managed Aquifer Recharge (DSWMAR)	Where feasible, install small to medium scale (10 acre feet/year up to 1000 acre feet/year/site) facilities to capture storm water and recharge more shallow zones of aquifers through surface spreading and/or constructed dry wells. <sup>2</sup>	<ul style="list-style-type: none"> <li>The scale of recharge DSWMAR may be a constraint to achieving timely recharge of the Mid-County Basin.</li> <li>Topographic, ground cover and local vegetation, and surface and sub-surface geology/hydrogeology can provide significant constraints for siting DSWMA.</li> <li>DSWMAR introduces water to the upper levels of aquifers and most drinking water production draws from deeper levels. Depending on the configuration of aquifers, DSWMAR may never reach the aquifers drinking water is being drawn from.</li> </ul>	<ul style="list-style-type: none"> <li>UCSC Professor Andrew Fisher has initiated work on this approach working with land owners in the Pajaro Valley Water Management Agency on several surface spreading projects and has good data about the effectiveness of this approach given the right surface and subsurface hydro-geologic conditions.</li> <li>Santa Cruz County has installed dry wells to capture and recharge storm water in Live Oak and Aptos.</li> <li>Soquel Creek Water District and the County of Santa Cruz partnered to identify potential sites and conducted geophysical surveys (using DualEM technology) of eight potential sites to assess recharge suitability. Results indicate that three sites warrant further evaluation. HydroMetrics calculated stormwater runoff volume estimates and evaluated infiltration rates and recharge to the aquifer at these three sites.</li> </ul>
4a	Recycled Waste-water	Non-Potable Reuse (NPR)	Off-set peak season irrigation demand by replacing use of treated drinking water with treated wastewater	<ul style="list-style-type: none"> <li>Existing infrastructure does not allow for the distribution of NPR, so new infrastructure would be required to develop this alternative.</li> <li>Peak season irrigation demand is time limited (typically no more than 4 to 6 months) and there are relatively few concentrated centers of irrigation demand that would allow for the cost of distribution infrastructure to be spread across a large enough rate base to make NPR a cost-effective alternative for the user.</li> <li>Active water conservation programs in both the Soquel Creek and Santa Cruz water service areas are targeting irrigation demand and working to reduce this demand through incentive programs, making an effort to produce a new product to replace existing potable demand likely to be even less effective over time.</li> <li>The Santa Cruz Wastewater Treatment Facility currently does not treat the majority of the wastewater it receives to the treatment standard required for non-potable reuse. Expansion of the plants facilities to treat additional water to a tertiary level is under consideration, and at least a partial expansion is planned.</li> </ul>	<ul style="list-style-type: none"> <li>As part of the implementation of the Water Supply Advisory Committee's recommendations, the City of Santa Cruz has completed an evaluation of a whole range of opportunities for greater future utilization of recycled water in its water service area including an evaluation of opportunities for NPR use, IPR and DPR as described below. As a next step, the City will evaluate several recycled water projects in more detail, and do a comparative analysis with ASR, In-lieu and desalination, as per the WSAC recommendations.</li> <li>Soquel Creek Water District has completed two feasibility studies evaluating NPR; including a market study evaluation of potential irrigation demands as well as a satellite reclamation facility to offset groundwater pumping of Seascope Golf Course.</li> </ul>

<sup>2</sup> see further information at <http://www.cityofsantacruz.com/home/showdocument?id=46143>



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Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin

Item No.	Source	Project/Program	Opportunity	Constraint(s)	Status
4bi & 4ci	Recycled Wastewater	Indirect Potable Reuse (IPR) – Groundwater Augmentation (the <b>Pure Water Soquel</b> project is an example of this approach)	<p>Provide advanced purification (AWP) to existing secondary- treated wastewater effluent that is currently being sent out into the Monterey Bay National Marine Sanctuary and store purified water into the aquifer to ultimately mix with native groundwater and contribute to the restoration of the groundwater basin, provide a barrier to seawater intrusion, and provide a sustainable source of supply.</p> <p>The National Water Research Institute (NWRI) was brought on by SqCWD as an independent panel to evaluate their proposed project’s evaluation and “The Panel concludes that the Project is plausible, feasible, and protective of public health, with respect to the following elements: quality of the source water that would be provided by the SCWWTF and use of proven advanced treatment technologies to produce water that meets all drinking water requirements and is protective of public health and the environment.” -NWRI Report (Dec. 2017)</p>	<ul style="list-style-type: none"> <li>In general there are few technological constraints of this approach. The treatment techniques and processes used to produce drinking water from this supply source have a proven track record of performance and are already widely in use in California and elsewhere.</li> <li>To the degree that there are constraints, they are more likely to be potential perception that there are public health issues associated with using waste water as a source; as many people don’t realize that the water quality of purified water is cleaner than existing groundwater and surface water that goes through only conventional filtration.</li> </ul>	<ul style="list-style-type: none"> <li>As part of the implementation of the Water Supply Advisory Committee’s recommendations, the City of Santa Cruz has completed an evaluation of a whole range of opportunities for greater future utilization of recycled water in its water service area.</li> <li>The Soquel Creek Water District is in Year 4 of its evaluation of an IPR project and has been coordinating with the City of Santa Cruz (City Manager, Public Works, and Water Departments) regarding the secondary treated wastewater that would be used as the source water for this project.</li> <li>The draft EIR was released in July 2018 and the District has received over \$2M in planning grants from the State Water Resources Control Board and a \$150,000 planning grant from the US Bureau of Reclamation. The District is eligible to compete for implementation money should the Pure Water Soquel Project go forward (\$50M under Prop 1 and \$20M under Title XVI).</li> <li>It is anticipated that the final EIR will be released in late 2018/early 2019 with the Board to consider whether to go into permitting and construction.</li> </ul>
4bii		Indirect Potable Reuse – Reservoir Water Augmentation	Provide advanced purification of wastewater and pump treated water back to Loch Lomond Reservoir to mix with existing surface water providing the water necessary for the City to meet its drought supply needs and/or to allow long term water service from surface water sources to the Soquel Creek Water District, thus substantially reducing or eliminating groundwater pumping in the Santa Cruz Mid-County Groundwater Basin.	<ul style="list-style-type: none"> <li>The first bullet from the option immediately above is relevant here as well.</li> <li>In surface water augmentation, a constraint can be achieving necessary reservoir residence time as the dynamics of mixing and water movement in a reservoir are substantially different from those in aquifers.</li> <li>If a reservoir is full due to natural run off, it is not feasible to add additional water to the system, which may limit the benefit from this approach. Policy issues may include potential perception that there are public health issues associated with using waste water as a source.</li> </ul>	<ul style="list-style-type: none"> <li>The City of Santa Cruz’s recycled water study is complete. See notes above for next steps.</li> </ul>
4d		Direct Potable Reuse	Provide advanced purification of wastewater and pump treated water back to the Graham Hill Water Treatment Plant to mix with existing surface water providing the water necessary for the City to meet its drought supply needs and/or allow long term water service from surface water sources to the Soquel Creek Water District, thus substantially reducing or eliminating groundwater pumping in the Santa Cruz Mid-County Groundwater Basin.	<ul style="list-style-type: none"> <li>While under development, the regulatory framework for direct potable reuse in California is not yet in place and some estimates are that it will be as long as 10 years before it is.</li> <li>The policy and political issues associated with the various approaches to indirect potable reuse are certainly relevant here.</li> </ul>	<ul style="list-style-type: none"> <li>The City of Santa Cruz’s recycled water study is complete. See notes above for next steps.</li> <li>Soquel Creek Water District’s recycled water feasibility study has evaluated this option using assumptions about what the regulatory framework would involve as well.</li> </ul>

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Water Supply Augmentation Options for the Santa Cruz Mid-County Groundwater Basin

Item No.	Source	Project/Program	Opportunity	Constraint(s)	Status
5a	Sea Water	Deep Water Desal <sup>3</sup>	<p>Contract for the purchase of desalinated water from a privately developed and financed desalination facility at a site in Moss Landing. Desalinated water would replace water pumped from groundwater, which would allow the basin to recover.</p> <p>The proposed Deep Water Desal Plant would have a reduced energy requirement (compared to a regular desal plant) due to warming the sea water by using it to cool a proposed data center before it is desalinated. In addition, the Moss Landing site offers the opportunity to bring sea water into the facility from a deeper intake in the off-shore Monterey Canyon, which may reduce or eliminate any possible impacts of a facility intake.</p>	<ul style="list-style-type: none"> <li>A constraint of this option is uncertainty about whether such a facility will actually be developed.</li> <li>Water would need to be piped from Moss Landing to at least the Soquel-Aptos area, likely with those costs borne directly by Mid-County groundwater users.</li> <li>Likely structure of any contract would be long term “take or pay,” for the contracted amount. May or may not be flexibility to restructure contract in future to provide more or less water should needs change.</li> </ul>	<ul style="list-style-type: none"> <li>The Soquel Creek Water District has signed a non-binding letter of interest with Deep Water Desal and has provided some funding to have evaluation of a potential pipeline between Moss Landing and Soquel included in any EIR prepared by Deep Water Desal for its proposed project.</li> <li>It is anticipated that DWD will be seeking more formal involvement of water agencies as this project develops.</li> <li>A draft EIR for the DWD project is anticipated to be released in Fall 2018.</li> </ul>
5b		Local Desal	<p>Construct a local desalination plant that would supply an alternate source of water, which would allow the basin to recover.</p>	<ul style="list-style-type: none"> <li>In general there are few technological constraints of desalination. The treatment techniques and processes used to produce drinking water from sea water have a track record of performance and are in use in California and elsewhere in the US and the world.</li> <li>Concerns raised during the consideration of an earlier local desal project jointly sponsored by the City of Santa Cruz and the Soquel Creek Water District included both the energy intensive nature desalination facilities as well as the potential for impacts to marine life due to the project intake.</li> </ul> <p><b>General Constraint for desalination options:</b></p> <ul style="list-style-type: none"> <li>As a result of the November 2012 passage of (City of Santa Cruz Charter Amendment) Measure P, requires that no legislative action to authorize, permit construction, operate and/or acquire a desal plant or incur any indebtedness for that purpose shall be valid unless authorized by an affirmative vote of qualified electors in the City of Santa Cruz.</li> </ul>	<ul style="list-style-type: none"> <li>For six years (2007-2013), the City of Santa Cruz and the Soquel Creek Water District jointly financed and explored development of a desal plant, completing many studies, including developing and issuing a draft environmental impact report and receiving public comment on this report.</li> <li>In the fall of 2013, the Santa Cruz City Council directed staff to discontinue working on this effort while it explored other alternatives.</li> <li>As a result of the City’s actions, Soquel Creek Water District looked into solely financing and developing the scwd2 desalination project on its own as well as a local-only desal facility developed within the mid-county region. Based on political nature and constraints, including the City’s Charter amendment, a local only project was not selected by SqCWD to further pursue at this time.</li> <li>Ultimately the Water Supply Advisory Committee (WSAC) recommendations included a local desal project similar to that under consideration as the joint project with the District was included as one of the back-up options for meeting Santa Cruz’ water supply needs. The WSAC recommendations were adopted by the City Council in November 2015.</li> </ul>

<sup>3</sup> See also <http://www.deepwaterdesal.com/>

## Santa Cruz Mid-County Basin

### Summary Overview of Initial Proposed Sustainable Management Criteria

The table below summarizes consensus views on key proposed Sustainable Management Criteria developed by Santa Cruz Mid-County Groundwater Sustainable Plan (GSP) Advisory Committee members between March and September 2018. It will be updated periodically as Committee members continue to evaluate modeling results for different types of water supply projects and management actions.

Significant & Unreasonable	Undesirable Results	Minimum Thresholds	Measurable Objectives
<b>Seawater Intrusion</b>			
Significant and unreasonable conditions would occur if seawater moves farther inland than has been observed in the past five years.	<p><u>Protective Groundwater Elevations</u> Ten-year average groundwater elevations below protective groundwater elevations in Coastal Monitoring Wells for any Coastal Monitoring Well.</p> <p><u>Chloride Concentrations</u> A. Any coastal monitoring well with current intrusion has a chloride concentration above its past five year maximum chloride concentration. This concentration must be exceeded in 2 or more of the last 4 consecutive samples (quarterly sampled wells). B. Any Unintruded Coastal Monitoring Well has a chloride concentration above 250 mg/L. This concentration must be exceeded in 2 or more of the last 4 consecutive samples (quarterly sampled wells). C. Any Unintruded Inland Monitoring Well (which includes municipal production wells closest to the coast and other non-coastal monitoring wells) has a chloride concentration above 150 mg/L. This concentration must be exceeded in 2 or more of the last 4 consecutive quarterly samples.</p>	<p>Current protective groundwater elevations (protective of 70% of simulations at coastal wells)</p> <p>Chloride 250 mg/L Isocontour</p>	<p>Protective groundwater elevations that are protective of &gt;99% of simulations at coastal wells)</p> <p>Chloride 100 mg/L Isocontour</p>
<b>Chronic Lowering of Groundwater Levels</b>			
Significant and unreasonable conditions would occur if a significant number of private, agricultural, industrial, and municipal production wells can no longer provide enough groundwater to supply beneficial uses.	The average monthly Representative Monitoring Well groundwater elevation falls below the <minimum threshold>. All Representative Monitoring Wells to be equipped with data loggers.	Elevation set to meet the water demand of overlying users	2013-2017 average groundwater elevations

Significant & Unreasonable	Undesirable Results	Minimum Thresholds	Measurable Objectives
<b>Depletion of Interconnected Surface Water</b>			
Significant and unreasonable conditions would occur if lowering of groundwater levels adjacent to interconnected salmonid-bearing streams, as a result of groundwater extraction, results in a significant decrease in stream baseflow during the driest period from August – October	<i>In progress</i>	<i>In progress</i>  Groundwater elevations will be proxy metric	<i>In progress</i>  Groundwater elevations will be proxy metric
<b>Reduction of Groundwater Storage</b>			
Not yet discussed by Advisory Committee			
<b>Degraded Groundwater Quality</b>			
Significant and unreasonable conditions would occur when groundwater quality, attributable to groundwater pumping or managed aquifer recharge, fails to meet state drinking water standards.	Undesirable results in the basin occur when as a result of groundwater pumping or managed aquifer recharge any Representative Monitoring Wells exceeds any <minimum threshold> annually.	Drinking water standards	2013-2017 average concentrations  Organic Compounds: Maximum Contaminant Level Goal
<b>Land Subsidence</b>			
Significant and unreasonable conditions would occur if any land subsidence caused by lowering of groundwater levels occurred in the basin.	Because land subsidence in the Santa Cruz Mid-County Basin due to lowered groundwater levels has never occurred or is very unlikely to occur in the future due to the basin's geology being unsusceptible to subsidence, Sustainable Management Criteria were not developed		

October 24, 2018

**MEMO TO THE SANTA CRUZ MID-COUNTY GROUNDWATER  
SUSTAINABILITY PLAN ADVISORY COMMITTEE**

Title: Overview of Federal and State Statutory and Regulatory Framework for  
Water Quality Management – Background Information that may relate to  
Potential Management Actions and Projects

Attachments

- A. Power Point Presentation: Federal and State Water Quality Policy,  
Statutory and Regulatory Frameworks

**BACKGROUND:** On July 19, 2018 the Santa Cruz Mid-County Groundwater Agency Board and the Groundwater Sustainability Plan Advisory Committee held a joint meeting to receive informational materials and presentations on the history of regional water planning and current supplemental supply planning efforts being conducted by the Soquel Creek Water District and the Santa Cruz Water Department. Following these presentations, staff thought Advisory Committee members would find information on federal and state water quality policy and statutory and regulatory frameworks to be additional useful background for its work.

**DISCUSSION:** Much like the detailed presentation on the history of regional water supply planning provided with the July 19<sup>th</sup> meeting packet, the PowerPoint presentation provided as Attachment A to this memo is intended to give Committee members a basic overview of the topic. While in no way a comprehensive treatment of the topic, the presentation document contains many links to source materials that allow Committee members to delve deeper into the details of water quality policies, statutes and regulations that play a role in managing and planning for surface and groundwater resources.

The main statutory framework governing water quality is found in the federal and state Clean Water Acts and Safe Drinking Water Acts. These statutes have been used to set policy and regulatory requirements for more than 40 years. A key topic covered in the presentation is federal and state Antidegradation Policies, which have their statutory basis in the Clean Water Acts. These policies are relevant to discussions about potential management actions or projects that would introduce supplemental supplies from local surface or ground water resources or from advanced purified wastewater.

High level information about federal and state policy and regulatory frameworks governing advanced purified wastewater is included in Attachment A and is relevant to the work being done by the Soquel Creek Water District on the Pure Water Soquel supplemental supply option. Information on statutory and regulatory requirements governing desalinated water has not been included at this time but could be provided in the future if such information is determined to be relevant.

The recently published Pure Water Soquel Draft EIR contains a narrative discussion of the Regulatory Framework (see §4.10.3) focused on issues that have been identified as relevant to the proposed project. The Pure Water Soquel Draft EIR is available on line at

[https://www.soquelcreekwater.org/sites/default/files/documents/Advanced-Water-Purification/Draft\\_EIR/Pure\\_Water\\_Soquel\\_Draft\\_EIR\\_no\\_Appendices.pdf](https://www.soquelcreekwater.org/sites/default/files/documents/Advanced-Water-Purification/Draft_EIR/Pure_Water_Soquel_Draft_EIR_no_Appendices.pdf) should Committee members wish to delve more deeply into this topic.

Finally, just to make the information reasonable complete, the 2014 Sustainable Groundwater Management Act is also included.

# FEDERAL AND STATE WATER POLICY FRAMEWORK

Rosemary Menard

October 24, 2018



# Overview of Presentation

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- The purpose is to provide GSP Advisory Committee members with:
  - Information on the statutory and regulatory framework in which drinking water utilities operate; and
  - Information about the statutory and regulatory framework that would govern the implementation of any management actions and projects that might be selected as part of the Groundwater Sustainability Plan.
  - Note: Compliance with environmental review statutes and regulations (e.g., CEQA or NEPA) are purposefully left out of this discussion.
- Further information available at many of the links provided in the presentation



# Key Federal Policies and Regulations

**1972 Clean Water Act**

**1974 Safe Drinking Water Act**  
**(as amended in 1986 and 1996)**

# Federal Water Quality Policy, Statutes and Regulations

## □ Are implemented by regulations developed for the programs and activities of the:

- Environmental Protection Agency
- Army Corps of Engineers
- Bureau of Reclamation
- US Fish and Wildlife Service
- National Marine Fisheries Service
- Bureau of Land Management
- U.S. Forest Service

## □ Apply to the actions of:

- Federal Agencies
- States
- Counties,
- Cities
- Special Districts
- Property Owners
- Individuals

# 1972 Clean Water Act –

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- The federal **Clean Water Act's** primary objective is to restore and maintain the integrity of the nation's waters. The objective translates into two fundamental national goals:
  - to eliminate the discharge of pollutants into the nation's waters, and
  - to achieve water quality levels that are fishable and swimmable.
- To achieve the second objective, **Designated Uses** have been established for individual water bodies (e.g., lake, stream, creek, river) with typical designated uses including:
  - Protection and propagation of fish, shellfish and wildlife;
  - Recreation;
  - Public drinking water supply; and
  - Agricultural, industrial, navigational and other purposes.
- The **Clean Water Act** includes an **Antidegradation Policy** (40 CFR 131.12).

# The Federal Antidegradation Policy

(excerpts of 40 CFR §131.12)

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- Requires that: (a) The states shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy.
- The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:
  - (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
  - (2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected.

# Safe Drinking Water Act

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- The **Safe Drinking Water Act (SDWA)** is the **federal** law that is intended to protect public **drinking water** supplies throughout the nation (see: <https://www.epa.gov/sdwa> ).
- Under the **SDWA**, EPA sets standards for **drinking water** quality and, with its partners (e.g., states), implements various technical and financial programs to ensure **drinking water** safety.
- State agencies accepting primacy\* authority from EPA implement drinking water regulations that are no less stringent than federal standards.
- Federal regulations and standards also apply to underground injections including Aquifer Storage and Recovery wells (see: <https://www.epa.gov/uic/class-v-wells-injection-non-hazardous-fluids-or-above-underground-sources-drinking-water> )

\*States accepting primacy are delegated authority by EPA to implement the regulation for which they have accepted primacy. The SDWA and CWA programs are typically delegated to states via primacy agreements.

## California Statutes, Policies, and Regulations

- State Water Resources Control Board Antidegradation Policy
- Porter Cologne Water Quality Control Act
- State Water Resources Control Board Statutes, Policies and Regulations related to Drinking Water and Recycled Water
- Sustainable Groundwater Management Act

# State Water Policy Statutes and Regulations:

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## □ **Are Implemented by actions of:**

- ▣ State Agencies
- ▣ California Public Utilities Commission
- ▣ Counties, Cities and Special Districts through their municipal codes and ordinances

## □ **Apply to the actions of:**

- ▣ State Agencies
- ▣ California Public Utilities Commission
- ▣ Counties
- ▣ Cities
- ▣ Special Districts
- ▣ Investor Owned Utilities
- ▣ Property Owners
- ▣ Individuals, for example farmers, water rights holders

# California Water Resources Control Board Antidegradation Policy (Resolution 68-16)

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- Was adopted in 1968
- Protects surface and ground waters from degradation.
- States that waters having quality that is better than that established in policies in effect shall be maintained unless any change:
  - will be consistent with the maximum benefit to the people of the State;
  - will not unreasonably affect present and anticipated beneficial uses; and
  - will not result in water quality less than that prescribed in the policies.

[https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/resolutions/1968/rs68\\_016.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf)



# Porter-Cologne Water Quality Control Act

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- The **Porter-Cologne Act**, also known as the California Water Code, Section 7, was adopted in 1969 and is the law that governs water quality regulation in California.  
([https://www.waterboards.ca.gov/laws\\_regulations/docs/portercologne.pdf](https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf) ).
- The State Water Resources Control Board administers water rights, water pollution control and water quality provisions of the Porter-Cologne Act.
- Regional Water Quality Control Boards conduct planning, permitting, and enforcement activities – The Central Coast Regional Water Quality Control Board has local jurisdiction.
- The act requires the adoption of water quality control plans (**Basin Plans**) that contain water quality objectives to support beneficial uses of surface and groundwater resources.

# Drinking Water Regulations

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## ■ California statutes related to drinking water:

- California Safe Drinking Water Act see: Part 12, Chapter 4 of [https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/lawbook/dwstatutes-2018\\_01\\_10.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dwstatutes-2018_01_10.pdf)

## ■ California regulations related to drinking water:

- Key sections in Title 22 are Chapters 15 through 17.5 covering drinking water regulations, water quality monitoring and reporting requirements, and treatment techniques and requirements available at [https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/lawbook/DW-regulations-2018-04-10.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/DW-regulations-2018-04-10.pdf)

# Recycled Water Statutes and Regulations

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- Overview of California statutes related to water reuse are summarized in the document below  
[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/lawbook/rwstatutes\\_20170113.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/rwstatutes_20170113.pdf)
- California regulations related to water reuse:
  - See Article 5.2, Indirect Potable Reuse – Groundwater Replenishment – Subsurface Application of  
[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/documents/lawbook/RWregulations\\_20150716.pdf](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/RWregulations_20150716.pdf)
- California water use regulations in development:
  - Surface water augmentation with recycled water and direct potable reuse, see:  
[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/RecycledWater.html](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/RecycledWater.html)

# Recycled Water Policy – an evolving effort:

## December 2017, Proposed Amendment to the Recycled Water Policy

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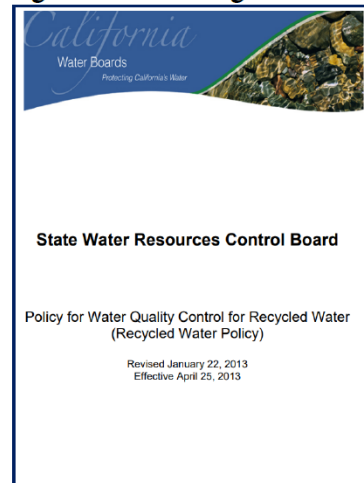
### Recycled Water Policy History

Promote the use of recycled water while protecting public health and water quality through consistent, streamlined permitting of recycled water projects

**2009**  
Adopted

**2013**  
Amended  
Added CEC monitoring

**2016**  
Resolution



December 2017 CEQA Early Public Consultation Meeting

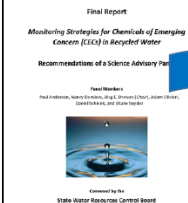
4

### Drivers of the Most Recent Policy Review:

#### Project Necessity

- Reconvene Science Advisory Panel on CECs
- Changes in regulatory environment
- State Water Board Resolution 2016-0061

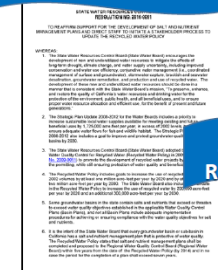
#### 2010 CEC Panel Report



#### 2016 General Order



#### Resolution 2016-061



#### 2014 Groundwater Recharge Regulations



December 2017 CEQA Early Public Consultation Meeting

5

[https://www.waterboards.ca.gov/water\\_issues/programs/water\\_recycling\\_policy/docs/ceqa\\_presentation.pdf](https://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/docs/ceqa_presentation.pdf)

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# The Recycled Water Policy Update Goals are to:

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- Support increased development and use of recycled water in a manner that is protective of public health and the environment;
- Amend Recycled Water Policy to reflect:
  - Changing regulatory aspects of recycled water production
  - Findings from an evaluation of the challenges and benefits of salt and nutrient management plan development;
  - Recommendations of the CEC Science Advisory Panel; and
- Clarify, streamline and provide statewide consistency for permit requirements for recycled water projects.

# Sustainable Groundwater Management Act

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- Requires newly formed local groundwater sustainability agencies to establish and implement groundwater sustainability plans that will bring basins into sustainability within 20 years.
- Requires groundwater sustainability agencies to set sustainability goals for the basin or portion of the basin they manage.
- Establishes 6 key sustainability indicators, including Water Quality, for which undesirable results, minimum thresholds and measurable objectives metrics must be identified and monitored to document achievement of sustainability goal.
- Requires that groundwater sustainability agencies identify management actions and projects needed to achieve the sustainability goal and develop an implementation and financing plan to implement the identified management actions and projects.

# Summary of Key Points

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- There are strong federal and state statutes and regulations governing water quality that will apply to implementation of management actions and/or projects that may become part of the GSP;
- Federal and state anti-degradation policies are particularly important in considering how projects and/or management actions might be used to support basin sustainability;
- Federal and state policy and regulations are not static but are continuously evolving based on new information and experience.



# QUESTIONS?





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## ***Draft Meeting Summary***

### **Santa Cruz Mid-County Groundwater Sustainability Planning Advisory Committee Meeting #11 September 26, 2018, 5:00 – 8:30 pm**

This meeting was the eleventh convening of the Santa Cruz Mid-County Groundwater Sustainability Planning (GSP) Advisory Committee. It took place on September 26, 2018 from 5:00 - 8:30 p.m. at the Simpkins Family Swim Center in Santa Cruz. This document summarizes key outcomes from Advisory Committee and staff discussions on the following topics: project updates; groundwater modeling presentation on pumping impacts on key sustainability indicators; articulation of a problem statement for the basin; and staff proposals on minimum thresholds for Chronic Lowering of Groundwater Levels and for developing measurable objectives for the Sustainability Indicators. It also provides an overview of public comment received. It is not intended to serve as a detailed transcript of the meeting.

#### **Meeting Objectives**

The primary objectives for the meeting were to:

- Share and discuss what the model tells us about pumping impacts by use type and location.
- Share and discuss proposed minimum thresholds for chronic lowering of Groundwater Levels and receive initial input from Advisory Committee.
- Discuss and provide Advisory Committee input on a draft proposal for developing measurable objectives.

#### **Action Items**

Key action items from the meeting include the following:

- Technical staff to address the following as they continue their work on groundwater modeling:
  - Review the new State guidelines<sup>1</sup> on sea level rise assumption recommendations and update Committee members.

<sup>1</sup> State of California Sea-Level Rise Guidance 2018 update;  
[http://www.opc.ca.gov/webmaster/ftp/pdf/agenda\\_items/20180314/Item3\\_Exhibit-A\\_OPC\\_SLR\\_Guidance-rd3.pdf](http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf)



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- Present an example of how the model can be run to simulate potentially reduced recharge resulting from increases in storm intensity.
  - Double-check and confirm whether monitoring well SC-8 is above 100 mg/L for Chloride level.
  - Technical staff to invite Technical Advisory Committee (TAC) thoughts on climate change assumptions and report back to the GSP Advisory Committee
- Ms. Pruitt to send a reminder to Committee members to submit comments on the proposed draft for Groundwater Levels Sustainable Management Criteria, presented at the 9/26 meeting.
  - Committee members to review proposed draft by 10/10.
- Executive Team  
to discuss the possibility of replacing recently-resigned Advisory Committee member Doug Ley with the Mid-County Groundwater Agency (MGA) Board at the Board's next meeting (November 15, 2018).
- Kearns & West to prepare September 26 meeting summary.
- Executive Team to submit the August 22, 2018 Advisory Committee meeting summary to the MGA Board for information.
- Ms. Pruitt to send field trip update to Committee and field trip participants with carpooling details and publically post the field trip to inform the public consistent with the Brown Act.

### **Meeting attendance**

Committee members in attendance included:

1. Kate Anderton, Environmental Representative
2. John Bargetto, Agricultural Representative
3. David Baskin, City of Santa Cruz
4. Keith Gudger, At-Large Representative
5. Bruce Jaffe, Soquel Creek Water District
6. Jon Kennedy, Private Well Representative
7. Jonathan Lear, At-Large Representative
8. Marco Romanini, Central Water District
9. Charlie Rous, At-Large Representative
10. Allyson Violante, County of Santa Cruz
11. Thomas Wyner for Cabrillo College, Institutional Representative

Committee members who were absent included:

1. Rich Casale, Small Water System Management
2. Dana Katofsky McCarthy, Water Utility Rate Payer
3. Douglas P. Ley, Business Representative (resigned)



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## **Meeting Key Outcomes (linked to agenda items)**

### **1. Introduction and Discussion of GSP Process Timeline and Project Updates**

John Ricker, Santa Cruz County, opened the meeting and welcomed participants. Mr. Ricker asked the GSP Advisory Committee members MGA Executive Team, and the consultant support team around the room to introduce themselves. He also addressed members of the public in attendance and asked them for self-introductions.

Eric Poncelet, Facilitator, reviewed the agenda, meeting objectives, the updated GSP process timeline, and the iterative process funnel graphic, noting that the group is still in the initial design phase of the GSP process.

Mr. Poncelet then asked staff to provide the following project updates:

- **Advisory Committee Field Trip**

Darcy Pruitt, Regional Water Management Foundation (RWMF), announced that the final date and time for the field trip is October 23, 2018 from 9:00 AM to 1:00 PM. Ms. Pruitt indicated that she is in the process of coordinating transportation for Committee members, and she will send an updated on the logistics shortly. She also reminded Committee members to accept the calendar invitation to ensure that they receive the proper updates. Members of public are invited to attend but are responsible for their own transportation.

- **Committee Member Resignation**

Mr. Poncelet announced that Committee member, Doug Ley has submitted his resignation and that the Executive Team is discussing possible adjustments accordingly.

### **2. Oral Communications (for items *not* on the agenda)**

Members of the public provided comments on non-agenda items during this session.

- One participant indicated that he wanted to explore with the Committee water recycling and aquaculture utilizing the brackish groundwater that is in the basin due to seawater intrusion.
- Another participant requested the Committee's consideration of the Water for Santa Cruz project involving transfers from rivers to the Soquel Creek aquifers. The participant explained that she had presented this proposal to the Soquel Creek Water Board and that it has the Water Supply Advisory Committee's support.

### **3. Groundwater Modeling Results: Pumping Impacts on Sustainability Indicators**



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Georgina King, Montgomery & Associates, presented on pumping impacts on key sustainability indicators. Her presentation focused on modeled groundwater level sensitivity to changes related to different hypothetical scenarios, which included (1) management actions that redistribute and reduce municipal pumping, (2) sensitivity to changes in inland pumping, (3) sensitivity to changes in assumed septic return flow, and (4) sensitivity to increased assumed groundwater levels at the Pajaro Valley Water Management Agency (PVWMA) boundary.

Advisory Committee members asked questions to clarify their understanding of model performance. These questions involved underlying model assumptions regarding water use, return flow, and climate conditions that are included in the model report. Generally, the Committee members seemed satisfied with the water use and return flow assumptions.

Several members requested more details about the Technical Advisory Committee's (TAC) perspective on the historical climate catalog approach used by the model. Utilizing warmer and drier years from the historic record, the simulated future conditions used by the model assumptions are +1.5 degrees F temperature increase, 10% less rainfall, and 1.5 feet of sea level rise. Additionally, several members wanted more detailed information on how the climate catalog was introduced into the model over time. Some of these members thought temperatures might need to be hotter at a later time and that sea level rise might be higher. There was significant discussion on the nature of models and model assumptions. Advisory Committee members expressed a general willingness to rely on the TAC's opinion, but they wanted more details on the model assumptions and the TAC's perspective on those assumptions.

When asked about model scenarios, the Committee wanted more information on how the TAC viewed:

- (1) more extreme climate scenarios (higher temps as we get closer to 2070),
- (2) reduced recharge rate relative to rainfall due to increased storm intensity,
- (3) changes to climate over time (want to understand model assumptions on climate over time),  
and
- (4) continuing to check model calibration over time as projects are implemented (e.g., validate with results of water transfers.)

#### **4. Public Comment**

During this segment, Mr. Poncelet invited members of the public to comment on the Committee's discussions on the impacts of pumping on key sustainability indicators and any other Advisory Committee work.

One participant was interested in looking at economics of the model predictions and how changes in water quality impact traditional agriculture and point to potential benefits of aquaculture.



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## **5. Proposed Minimum Thresholds for Chronic Lowering of Groundwater Levels**

In this segment of the meeting, Ms. King presented on technical staff proposed Minimum Thresholds for Chronic Lowering of Groundwater Levels. Her presentation focused on a demand based approach to setting minimum thresholds for chronic lowering of Groundwater Levels using representative monitoring wells. Ms. King described the representative monitoring wells proposed for use and how they and the nearby production wells would be used to monitor this sustainability indicator.

The GSP Advisory Committee had questions about the interaction between this sustainability indicator and Groundwater Levels related to other sustainability indicators, including Seawater Intrusion and interconnected Surface Water. Ms. King explained that each sustainability indicator will, as appropriate, have its own set of representative monitoring wells. She also indicated that in situations where a monitoring well is used for more than one sustainability indicator, the higher groundwater elevation will be the target for that well. Further, she explained that currently there is no chronic lowering of groundwater levels in the basin, even though not all coastal monitoring wells are at their protective elevations to prevent Seawater Intrusion.

The Committee asked for recommendations on appropriately protective Groundwater Levels for the basin. Ms. King indicated that the Groundwater Levels should be realistic and should provide operational flexibility. There was general consensus that the basin's Measurable Objective should be aspirational but realistic in relationship to the basin's interest to prevent seawater intrusion and sustain stream flows.

## **6. Draft Proposal for Developing Measurable Objectives**

Ms. King provided the Committee with a presentation on proposed approaches to take for setting Measurable Objectives for Sustainability Indicators in the Santa Cruz Mid-County Groundwater Basin. She discussed setting desirable groundwater elevations for the basin, because except for Water Quality, groundwater elevations will be the primary indicator used to measure progress toward sustainability. Ms. King noted that Measurable Objectives are not enforceable but should be achievable and provide operational flexibility for the basin.

The Committee discussed Measurable Objectives as aspirational goals. There was general consensus that the groundwater elevations should:

- (1) provide a drought reserve,
- (2) provide for ecological needs,
- (3) protect against climate uncertainty,



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- (4) protect the basin under stress, and
- (5) provide resilience to the basin's water supply.

The Committee discussed and provided initial feedback on the proposed processes for setting measurable objectives for each of the sustainability indicators. Key comments are captured below:

- (1) *Seawater Intrusion*. The Committee discussed key issues regarding chloride isocontours and protective elevations as follows.
  - a. For chloride, Committee members expressed some concern about using isocontours that cannot be accurately measured. In addition, they wanted to know if monitoring well SC-8 is over or under 100 mg/L. If it is over 100 mg/L, it might not be appropriate to select 100 mg/L as the Measurable Objective. [The data has been reviewed; SC-8 has always been below 100 mg/L.]
  - b. For protective elevations, the Committee members wanted to know the relative cost to set Measurable Objective at increments between 70% and 100% of model simulations protect against seawater intrusion.
- (2) *Chronic Lowering of Groundwater Levels*. As there is currently no chronic lowering of groundwater levels occurring in the basin, Committee members noted the following:
  - a. The technical proposal of 2013-2017 average groundwater elevation is a good starting point to develop a Measurable Objective.
  - b. Some Committee members expressed the interest to better understand the overall water budget
- (3) *Reduction of Groundwater in Storage*. The Committee discussed water budget and model information that would be provided at future meetings, including the following points:
  - a. The Committee wanted to understand the available information, especially modeling results regarding changing volume of groundwater in storage.
  - b. There was some discussion about the limited usefulness of thinking in terms of the total storage volume for the entire basin, including contemplation of the following questions:
    - i. Would it be useful to look at different areas within the basin?
      - 1. Purisima v. Aromas Red Sands
      - 2. Municipal and agricultural pumping impacts in specific areas
    - ii. Would analysis of aquifer storage and recovery provide useful information to understand changes within the basin?
- (4) *Depletion of Interconnected Surface Water*. The Committee recognized that the modeling work needed to address this sustainability indicator is still in process and will be reviewed first by the





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Surface Water working group. The Committee will revisit this topic once it receives the next report back from the Surface Water working group.

- (5) *Groundwater Quality*. Committee members acknowledged that native Groundwater Quality, with a few exceptions, is good.
  - a. Committee members selected Maximum Contaminant Levels (MCLs) as Minimum Thresholds and discussed the following:
    - i. They accept that exceedances that occur naturally or from septic systems or agriculture in the Aromas Red Sands, which are preexisting conditions that don't need to be addressed except as they impact delivered water.
    - ii. They thought that using 2013-2017 average groundwater quality was a good Measurable Objective.
- (6) *Subsidence*. This sustainability indicator is not applicable in the Santa Cruz Mid-County Groundwater Basin, and therefore there was no discussion.

## **7. Public Comment**

During this last public comment session, Mr. Poncelet invited members of the public to focus comments on the Committee's recent discussions on staff's proposed minimum thresholds for chronic lowering of Groundwater Levels and staff's proposal for developing Measurable Objectives for each applicable sustainability indicator for the basin, and on any other Advisory Committee work.

There were no public comments during this session.

## **8. Confirm August 22, 2018 Advisory Committee Meeting Summary**

The Advisory Committee did not have any edits or comments on the draft August 22, 2018 Advisory Committee meeting summary. Mr. Poncelet confirmed it for submission to the MGA Board.

## **9. Next Steps**

In closing, Mr. Poncelet provided an overview of the GSP process timeline from October through December 2018.

Before the meeting adjourned, a Committee member asked staff for a brief update on water supply projects that may be under consideration for the basin and whether the focus will be only on projects in the basin. Staff responded that the MGA Board will discuss and provide guidance on which projects to consider in the GSP. Staff also noted that some projects being considered in adjacent basins could have impacts on the Mid-County basin and will therefore be taken into account in the GSP.



*Groundwater is a vital resource, together let's protect it.*

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Staff and the Committee also discussed how the selected projects will be implemented and the associated costs, which agencies will be coordinating on the projects, and land use considerations. Staff indicated that the Committee will interact more with the MGA Board on project details early next year.

Executive Team members closed the meeting by thanking the attendees for their participation.



## **WRITTEN COMMUNICATION AND CORRESPONDENCE**

## State Water Resources Control Board

# NOTICE OF PUBLIC WORKSHOP

## Groundwater-Surface Water Workshop

December 3, 2018 – 9:00 a.m. - to 4:00 p.m.

Joe Serna Jr. - CalEPA Headquarters Building  
Klamath Room  
1001 I Street, Second Floor  
Sacramento, CA 95820

**NOTICE IS HEREBY GIVEN** that the State Water Resources Control Board (State Water Board or Board) will hold a public staff workshop to help California water managers identify options and better prepare, plan, and account for new Sustainable Groundwater Management Act (SGMA) requirements and the impacts of groundwater pumping on surface water instream flows. This will be an informational workshop only and the State Water Board will take no formal action.

### WORKSHOP OVERVIEW

The workshop will include

- Discussion of surface water depletion requirements and authorities under the California Water Code and California Constitution (SGMA, public trust, waste and unreasonable use).
- Presentations by experts on potential strategies for preventing or managing depletions based on realistic scenarios.
- Opportunities for attendees to weigh-in on the benefits and drawbacks of those strategies.

The goal of the workshop is to provide water managers, including GSAs and others, with a menu of approaches to consider as they contemplate managing their own watersheds to prevent or manage depletions of interconnected surface water.

### PROCEDURAL MATTERS

The workshop will be informational only. While a quorum of the State Water Board may be present, the Board will not take formal action at the workshop. There will be no sworn testimony or cross-examination of participants, but the State Water Board and its staff may ask clarifying questions. Time allowing, attendees will be invited to ask questions or provide comments on the topics of presentation.

**Meeting Space is limited. To attend, please RSVP to [SGMA@waterboards.ca.gov](mailto:SGMA@waterboards.ca.gov) by October 21, 2018.**

**DOCUMENT AVAILABILITY**

Workshop agenda and related materials will be made available on the State Water Board website at [https://www.waterboards.ca.gov/water\\_issues/programs/gmp/sgma.html](https://www.waterboards.ca.gov/water_issues/programs/gmp/sgma.html).

Notices and submittals are available electronically at [http://www.waterboards.ca.gov/board\\_info/calendar/index.shtml](http://www.waterboards.ca.gov/board_info/calendar/index.shtml)

**PARKING AND ACCESSIBILITY**


For directions to the Joe Serna, Jr. (CalEPA) Building and public parking information, please refer to the map on the State Water Board website: <http://www.calepa.ca.gov/headquarters-sacramento/location/>.

The CalEPA Building is accessible to persons with disabilities. Individuals requiring special accommodations are requested to call (916) 341-5254 at least 5 working days prior to the meeting. Telecommunications Device for the Deaf (TDD) users may contact the California Relay Service at (800) 735-2929 or voice line at (800) 735-2922.

All visitors to the CalEPA Building are required to sign in and obtain a badge at the Visitor Services Center located just inside the main entrance (10<sup>th</sup> Street entrance). Valid picture identification may be required. Please allow up to 15 minutes for receiving security clearance.

For additional information about the workshop, please email [SGMA@waterboards.ca.gov](mailto:SGMA@waterboards.ca.gov) or call (916) 322-6508.

October 2, 2018  
\_\_\_\_\_  
Date

  
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Jeanine Townsend  
Clerk to the Board