CLIMATE CHANGE(D): WEATHERING EXTREMES TOGETHER MODULE 2

SEALEVEL RISE AND FRESHWATER DROP



Melanie Mow Schumacher, Soquel Creek Water District





Pure Water Soquel

North Bay Watershed Association Conference April 8, 2022

Presenter: Melanie Mow Schumacher

SoquelCreekWater.org

Transforming Your Water For the Future



Soquel Creek Water District

- California Special District, which is a local government agency that provides essential services
- Not a land use authority, that is the responsibility of Santa Cruz County and City of Capitola within our service area boundary
- Serve the areas of Aptos, La Selva Beach, Opal Cliffs, Rio Del Mar, Seascape, Soquel, and portions of Capitola
- 100% groundwater conveyed through 165+ miles of pipeline
- 16 active groundwater wells, approximately 3,300 acre-feet per year
- https://www.soquelcreekwater.org/242/Facts-Figures-Maps





Red = Permitted groundwater augmentation— 207,545 AFY Blue = Planned groundwater augmentation- 310,588 AFY Tri Valley Agencies 10,000 AFY Black = Planned Reservoir water augmentation - 119,031 AFY Valley Water Green = Planned Raw Water Augmentation - 91,000 AFY 24,000 AFY (June 23, 2020) Soquel Creek WD 1,500 AFY Palmdale WD 4,000 AFY Chino Basin Scotts Valley WD 21,000 8,600 AFY 553 AFY Yucaipa Valley 5,000 AFY Pure Water Monterey 3,500 AFY Eastern MWD 15,000 AFY Cambria CSD 385 AFY Upper San Gabriel Valley MWD 10,000 AFY Cayucos SD 196 AFY City of Pismo Beach East Valley WD 930 AFY 11,000 AFY Carpinteria Burbank Water and 8,000 AFY 7,000 AFY Power 1.814 AFY Rincon Del Diablo City of Ventura MWD 1,000 AFY 4,043 AFY Water Replenishment District SC Olivenhain MWD (WRD) GRIP Project 21,000 AFY 560 AFY Pure Water Project Las Virgenes-Triunfo Padre Dam MWD 5,000AF/Y 12,882 AFY WRD & Sanitation Districts of LA County Montebello Forebay Santa Fe ID/San Dieguito Project 50,000 AFY WD/San Elijo JPA 3,400 AFY Los Angeles GWR OCWD Injection 36,000 AFY 30,000 AFY City of Escondido 8,968 AFY OCWD/Spreading 67,000 31,000 AFY Metropolitan Water District of City of San Diego Southern California -- Sanitation Districts of LA County 112,000 93,075 AFY Alamitos Barrier AFY 8,960 AFY/ 56.000 AFY City of Oceanside Encina Wastewater 5,060 AFY 7.200 AFY West Desir West Coast

Potable Reuse Is Expanding In California

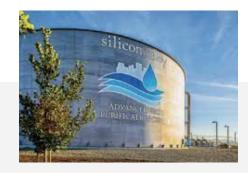














SWRCB's Three Recycled Water Goals (From 4/8/2019 Recycled Water Policy)



#1

0.714

Recycled Water

2015 2030

SWRCB - Recycled Water Use Goal for California (Million AFY)

2.5

#2

Reuse all dry weather direct discharges of treated wastewater to enclosed bays, estuaries and coastal lagoons, and ocean waters that can be viably put to a beneficial use.

#3

Maximize the use of recycled water in areas where groundwater supplies are in a state of overdraft

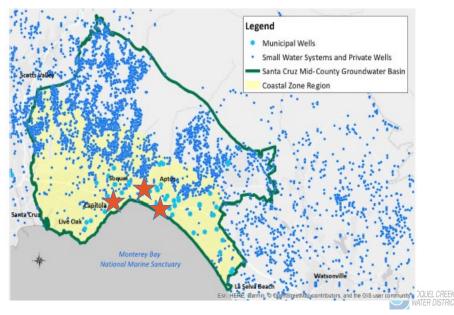
Santa Cruz Mid-County Water Challenge



Identified by State of CA in 2014 as Critically Overdrafted

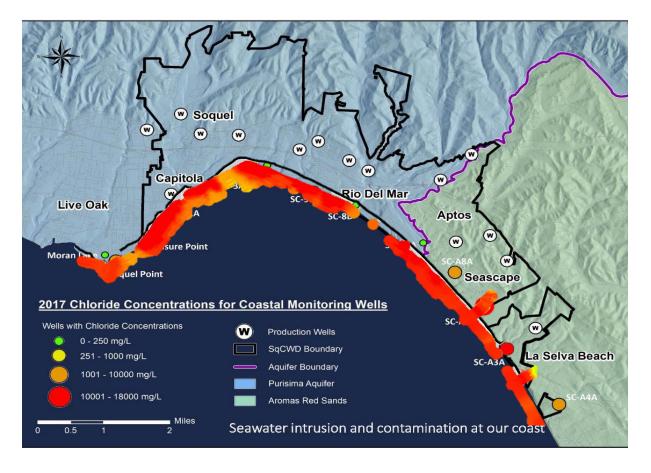
- Groundwater is the only source of water for Soquel Creek Water District
- Our Groundwater basin is
 - Shared with other municipal and private well pumpers
 - Critically Overdrafted as identified by the State of California with a mandate to be sustainable by 2040
 - Contaminated with seawater intrusion along the coast





Innovative SkyTEM Technology confirms

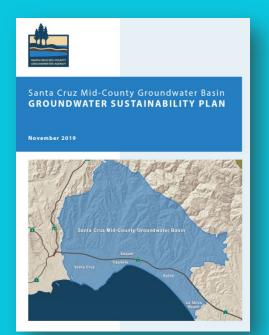
Freshwater-Seawater Interface is Already Onshore and Right at the Coastline

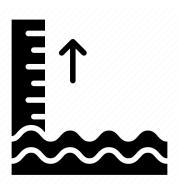






Consideration of Climate Change and Land Use









Warmer and drier climate with increase in temperature of 2.4 degrees F



Decrease in precipitation of up to 3.1 inches/year 6% increase in evapotranspiration

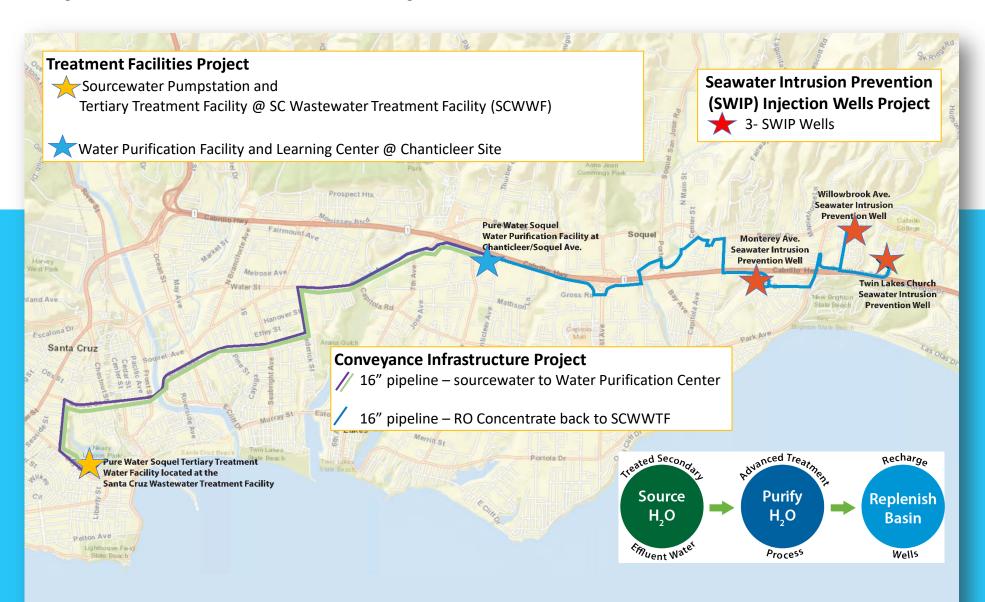


Projected regional population growth of 4.2% pre-2035 and 2.1% post 2035.



Learn more about these stats

Project Overview and Project Locations





Treatment facilities designed for:

- 1,500 acre feet per year (afy) of purified water for potable reuse
- 300 afy of tertiary water for non-potable reuse
- Footprint and expansion available for double capacity in the future

Pipelines designed and constructed for up to 3,000 afy of purified water

Project Benefits



Reduces Ocean Discharge by 25%



Uses Green Energy



Provides a Seawater Intrusion Barrier



Promotes Economic Vitality



Reliable, Drought-Proof and Resilient to Climate Change



Produces High Quality Water



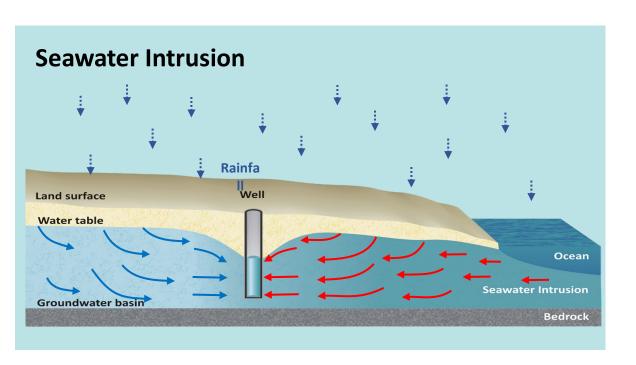
Can be Accomplished Soon

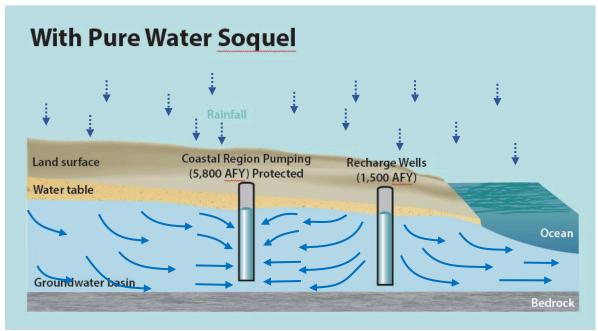


Can be Scaled-Up



Prevent Seawater Intrusion





When purified water is stored in the basin through recharge wells, it creates a barrier to prevent seawater contamination from reaching our production wells.



Groundwater Modeling Results

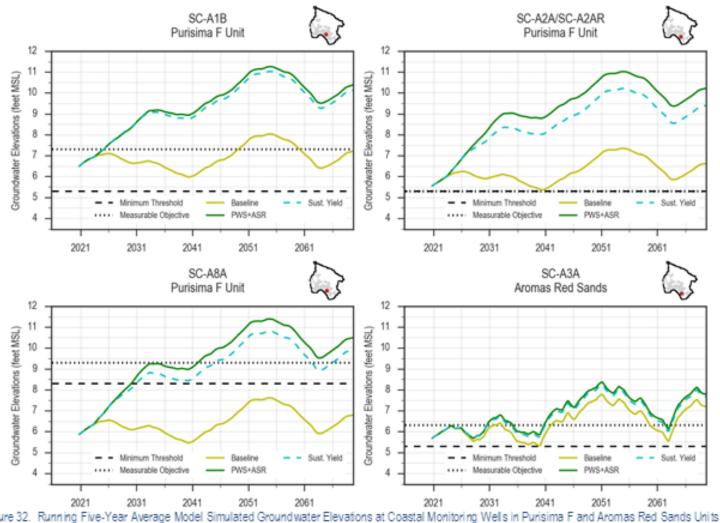
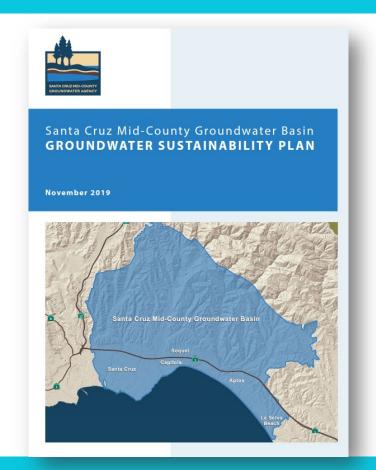


Figure 32. Running Five-Year Average Model Simulated Groundwater Elevations at Coastal Monitoring Wells in Purisima F and Aromas Red Sands Units for Sustainable Yield Estimate





Regional Benefits

Pure Water Soquel

- Produces 1,500 acre-feet of water per year that provides 5,800 acre-feet per year benefits
- Serves 92,130 people (broader coastal region)
- Project can expand to double capacity (Expansion requires additional CEQA and other approvals)

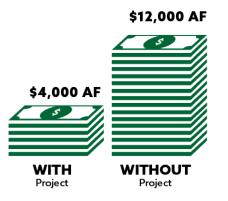
\$903M
Total Economic Benefit







Without Pure Water Soquel



HIGHER COST OF WATER TO CUSTOMERS



725 JOB LOSSES



2,100 LESS
HOMES BUILT



Agency Collaboration & Community Support

AGREEMENT

BY AND BETWEEN SOQUEL CREEK WATER DISTRICT
AND THE CITY OF SANTA CRUZ

REGARDING SOURCE WATER, DESIGN, CONSTRUCTION, START-UP AND OWNERSHIP

THE TERTIARY FACILITY COMPONENT OF THE PURE WATER SOQUEL PROGRAM

This AGREEMENT ("AGREEMENT") is entered into and made effective this 19 day of 2019 (the "effective date"), by and between Soquel Creek Water District (DISTRICT) and the City of Santa Cruz, a municipal corporation ("CITY"), together sometimes referred to herein as the PARTIES.

RECITALS

- A. The CITY owns and operates a regional wastewater treatment facility ("WWTF") that provides wastewater treatment and disposal services to the City of Santa Cruz, Santa Cruz County Sanitation District (including Live Oak, Soquel, Capitola and Aptos areas) and disposal services to the City of Scotts Valley; and
- B. Wastewater generated by development in the service area of the DISTRICT is conveyed through facilities owned and operated by the Santa Cruz County Sanitation District to the CITY WWTF for treatment and disposal, making the CITY's wastewater facility a regional asset for the treatment of wastewater; and
- C. The WWTF pumps approximately on average eight (8) million gallons per day of

Community Water Plan and Advanced Water Purification Project Statements of Support

I support the Community Water Plan and the long-range planning and action-oriented efforts by Soquel Creek Water District to create and maintain a safe, reliable and sustainable water supply for the community it serves and environmental stewardship of protecting the Santa Cruz Mid-County Groundwater Basin.

The Community Water Plan reinforces the District's commitment for continued water conservation and proactive groundwater management while recognizing that new sources of water are needed to protect groundwater resources from further seawater intrusion and meet the needs of our community.

☑ I support the efforts of the District in evaluating and pursuing an Advanced Water Purification Project.

Provide us your name to be added to our official list of supporters. You will occasionally receive emails with program updates.



























Funding Support and Investment

Grants and Low Interest Loans

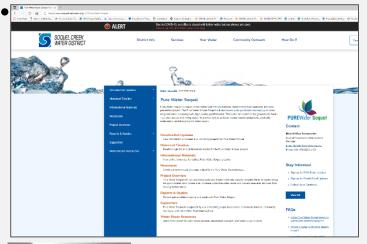






Ways to Stay Informed

Visit our website



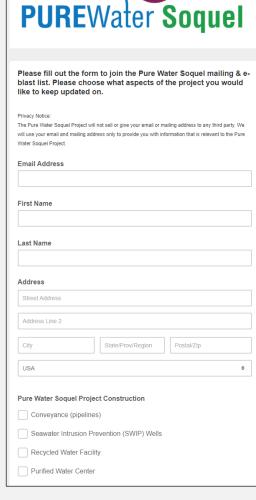




Visit Our On-Line Library

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Construction Updates	Morne y Your Water y Pure Water Sequel y Informational Materials	
Historical Timeline	Informational Materials	
Informational Materials	Pure Water Soquel Project Information	
Newsroom	Pure Water Soquel Project Overview Handout (PDF)	
Project Overview	 Willowbrook SWP Well Fact Sheet (PDF) Frequently Asked Questions about Pure Water Soquel 	
	Pure Water Soquel Historical Timeline	
Reports & Studies	Chanticleer Water Purification Center Community Meeting Informational Boards	
	 How the System Vlorks (PDE) 	
Supporters	Project Benefits (PDF)	
Water Reuse Resources	Project Site Locations (PDF)	
Water Reuse Resources	Salt Levels in Monitoring Wells (PDE)	
	 Unhealthy Aguifer Due to Seawater Intrusion (PDF) 	
	 Healthy Aquifer (PDF) 	
	 Environmental Impacts at Chanticleer Site (PDF) 	
	 Conceptual Rendering - Integrating Nature Board 1 (PDF) 	
	 Conceptual Rendering - Integrating Nature Board 2 (PDF) 	
	 Conceptual Rendering - Neighborhood Campus Board 1 (PDF) 	
	 Conceptual Rendering - Neighborhood Campus Board 2 (PDF) 	
	Water Reuse Information	
	Water Purification Technology	
	 Interactive Map of others using Advanced Water Purification 	
	 Map of Potable Use Projects (PDF) 	
	Advanced Water Purification	
	Water Reuse Terminology (PDF)	
	FAQ on Water Reuse	
	Presentations & Videos	
	Award-Winning Pure Water Sequel Education Trailer	
	 Pure Water Sequel Advanced Water Treatment Video 	
	 3D mapping of the seawater and freshwater interface 	
	 Videos about Water Use and Reuse (ViateReuse Foundation) 	

Sign-up for Email Updates





Schedule a Presentation

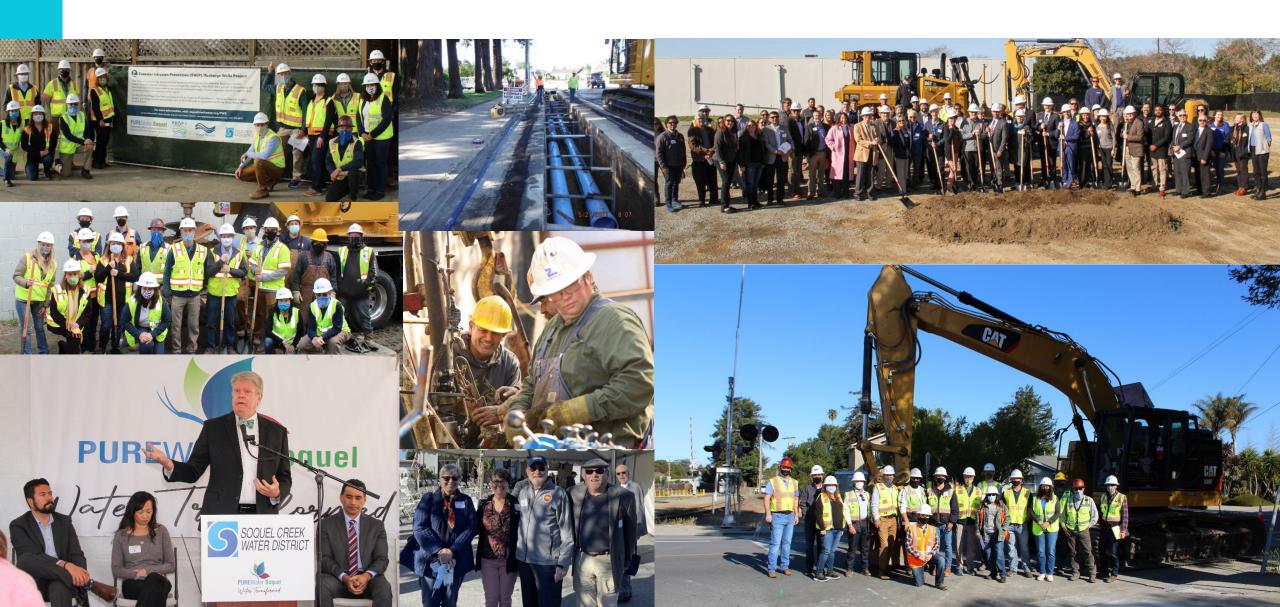
Home > Community Outreach > Outreach > Speakers Bureau

Speakers Bureau

Do you have an upcoming meeting where your members may be interested in learning about our midcounty water issues such as groundwater, water reliability, water conservation, and long-term actions towards sustainability? We are available to speak to small and large groups. We regularly present to:

- Chamber of Commerces
- Church groups
- Community groups
- HOAs
- Kiwanis clubs
- Neighborhoods
- Non Profit organizations
- · Professional organizations
- Rotary clubs
- Schools

In 2021 Celebrated Milestones And Beginning Construction



In 2022... It's Construction...and More Construction

Seawater Intrusion and Prevention Wells and Monitoring Wells Construction in Capitola and Aptos





Pipeline Installation in Santa Cruz, Live Oak, Soquel, Capitola, Aptos





Treatment Facilities Construction in Santa Cruz and Live Oak





Celebrating the Transformation of Water



State Water Resources Control Board Chair Joaquin Esquivel



Traci Hart, SqCWD HR Mgr.



Dr. Tom LaHue (SqCWD President), Kent-Harris Repass (Congressman Panetta's Representative), Taj Dufour (SqCWD Engineering Mgr), and Kyle Graff (DDW Engr.)



Black and Veatch Construction Inc. Representatives



Dr. Bruce Jaffe, SqCWD Boardmember





THANK YOU!



Melanie Mow Schumacher

melanies@soquelcreekwater.org
Soquelcreekwater.org/PWS



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Resources



Soquel Creek Water District's Pure Water Soquel Webpages

https://www.soquelcreekwater.org/184/Pure-Water-Soquel



CSWRCB Recycled Water Policy and Regulations

https://www.waterboards.ca.gov/water_issues/programs/recycled_water/



California Watereuse Action Plan (2019)

https://watereuse.org/wp-content/uploads/2019/07/WateReuse-CA-Action-Plan_July-2019_r5-2.pdf