

CLIMATE CHANGE(D): WEATHERING EXTREMES *TOGETHER*  
MODULE 2

# SEA LEVEL RISE AND FRESHWATER DROP

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**Melanie Mow Schumacher,**  
Soquel Creek Water District







# Pure Water Soquel

North Bay Watershed Association  
Conference  
April 8, 2022



Presenter: Melanie Mow Schumacher

[SoquelCreekWater.org](http://SoquelCreekWater.org)

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Transforming Your Water For the Future

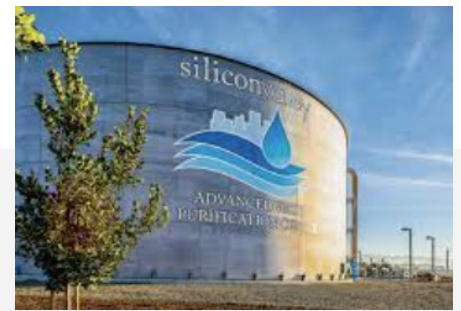
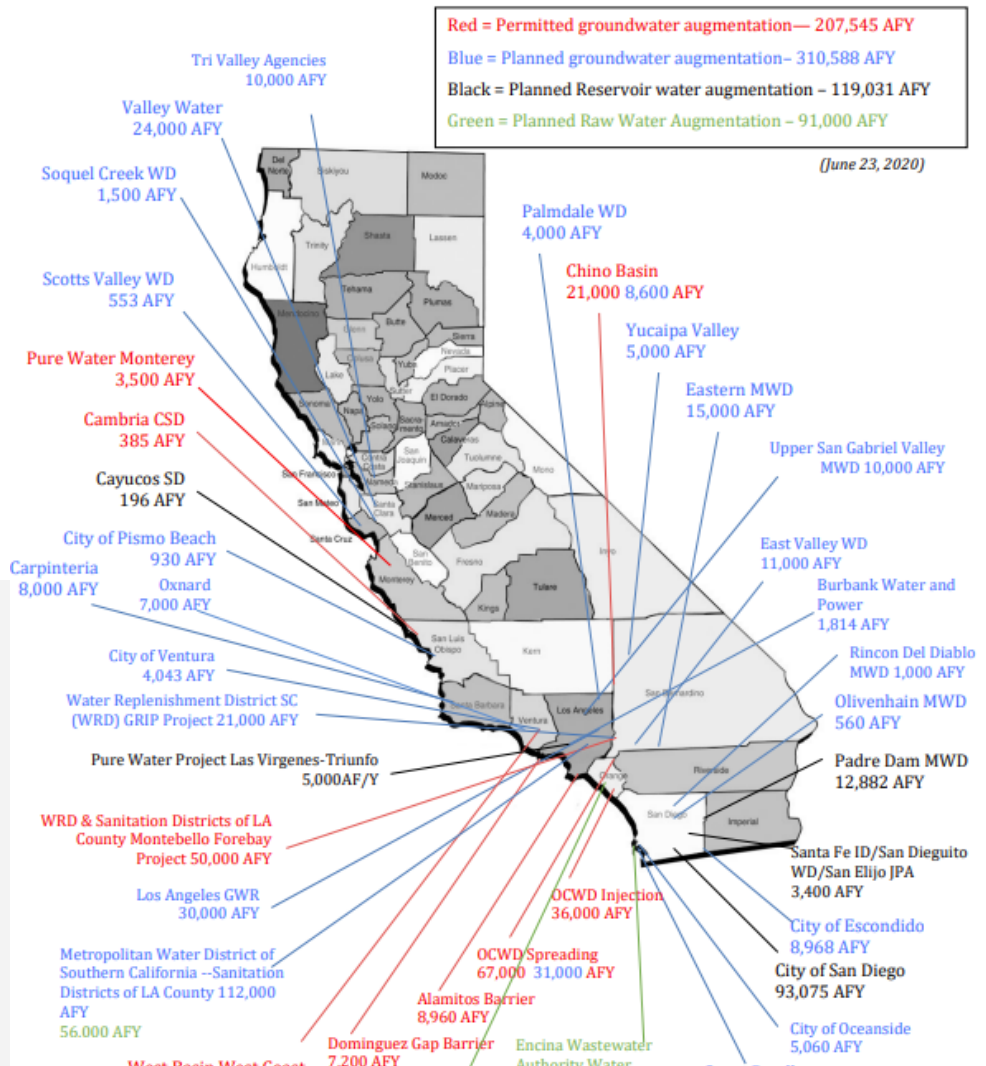


# Soquel Creek Water District

- 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>



# Potable Reuse Is Expanding In California



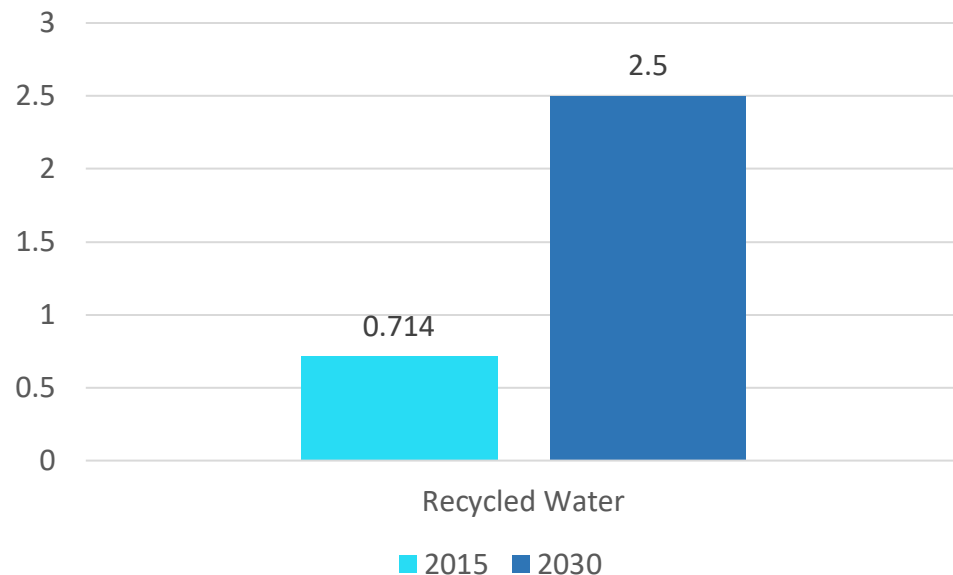
# SWRCB's Three Recycled Water Goals (From 4/8/2019 Recycled Water Policy)

#1

#2

#3

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



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.

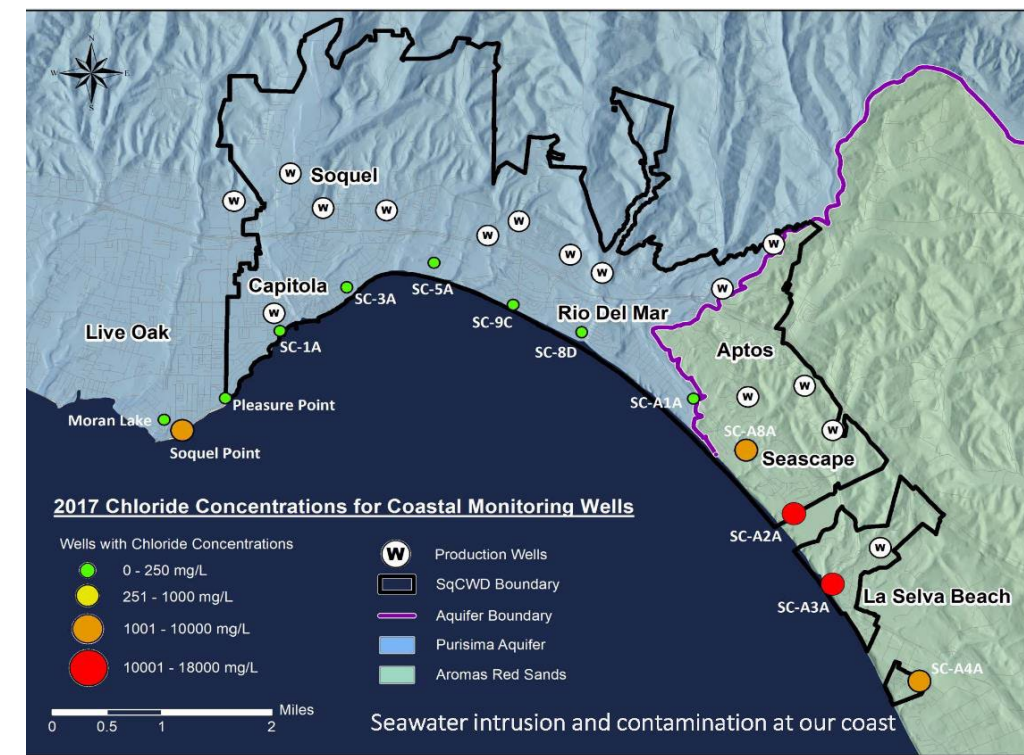
Maximize the use of recycled water in areas where groundwater supplies are in a state of overdraft



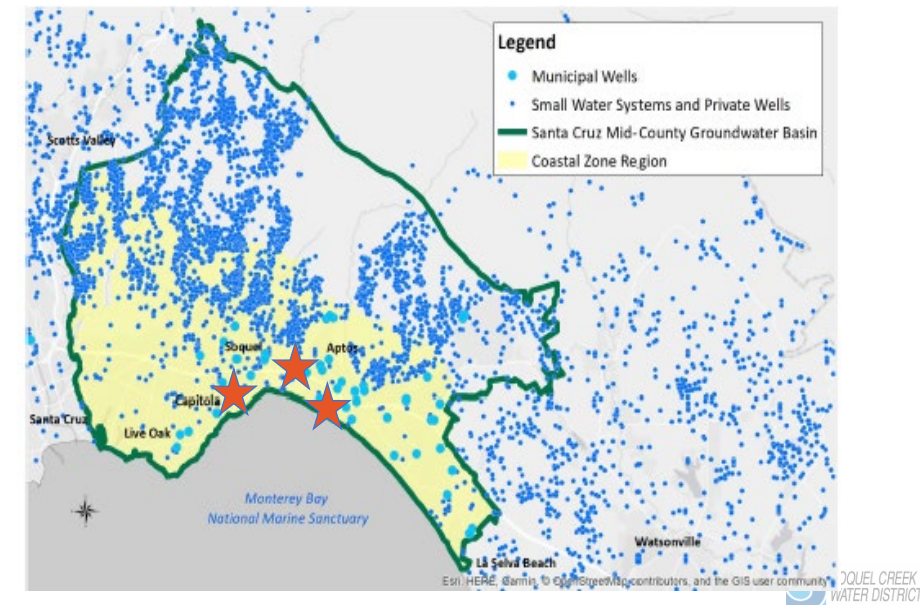
# Santa Cruz Mid-County Water Challenge



Identified by State of CA in 2014  
as Critically Overdrafted

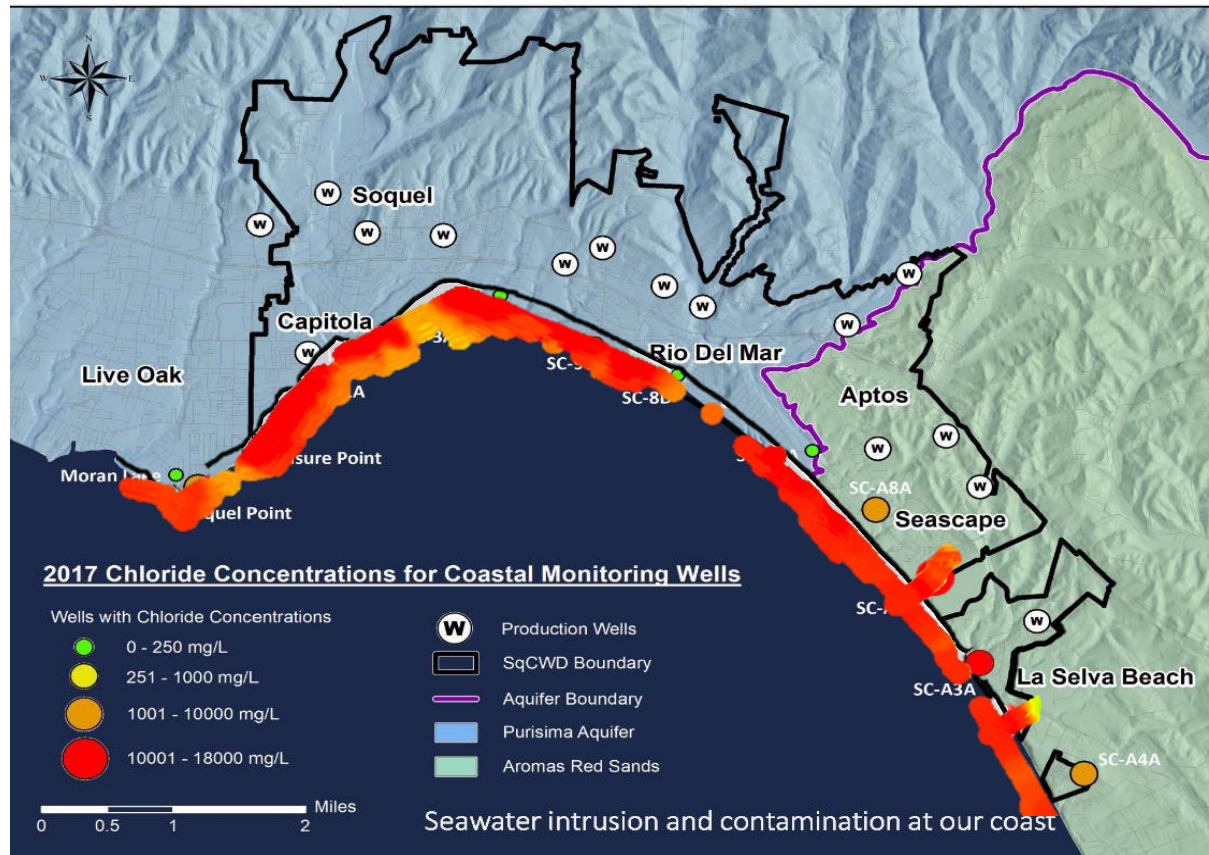


- **Groundwater** is the **only source** of water for Soquel Creek Water District
- Our Groundwater basin is
  - **Shared** with other municipal and private well pumpers
  - **Critically Overdrafted** as identified by the State of California with a mandate to be sustainable by 2040
  - **Contaminated**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



# Innovative SkyTEM Technology confirms

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

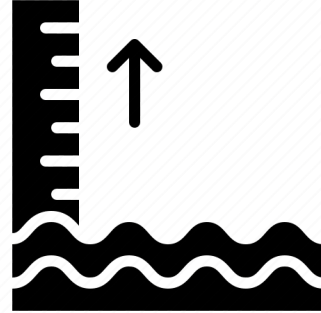
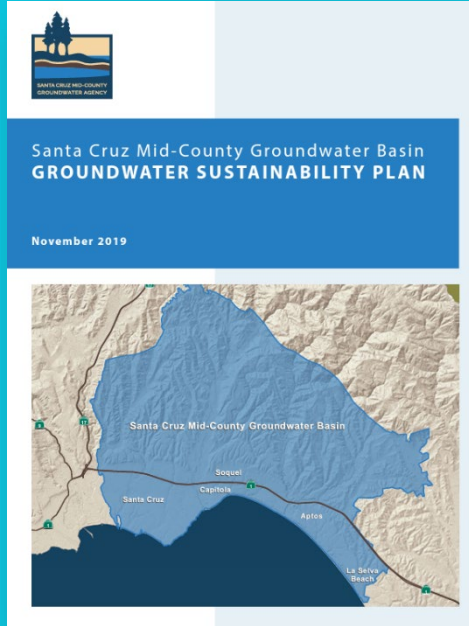


Peer Reviewed: [Journal of Hydrology: Regional Studies Volume 23, June 2019](#)





# Consideration of Climate Change and Land Use



Sea level rise of  
2.3 feet in 2070



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.





**Drought.gov**

National Integrated Drought Information System

🔍 Search [f](#) [t](#) [v](#)

Data and Maps ▾

By Sector ▾

By Location ▾

Research and Learn ▾

About ▾

News and Events ▾

BY LOCATION | COUNTY

## Drought Conditions for Santa Cruz County

[Go To California State Page](#)

Get notified when conditions change

[Sign Up for Alerts](#)

**262,382**

people in Santa Cruz  
County are affected by  
drought

No change since last week  
No change since last month

**100%**

of people in Santa Cruz  
County are affected by  
drought

No change since last week  
No change since last month

**3rd**

driest February on record,  
over the past 128 years

↓ 6.09  
inches from normal

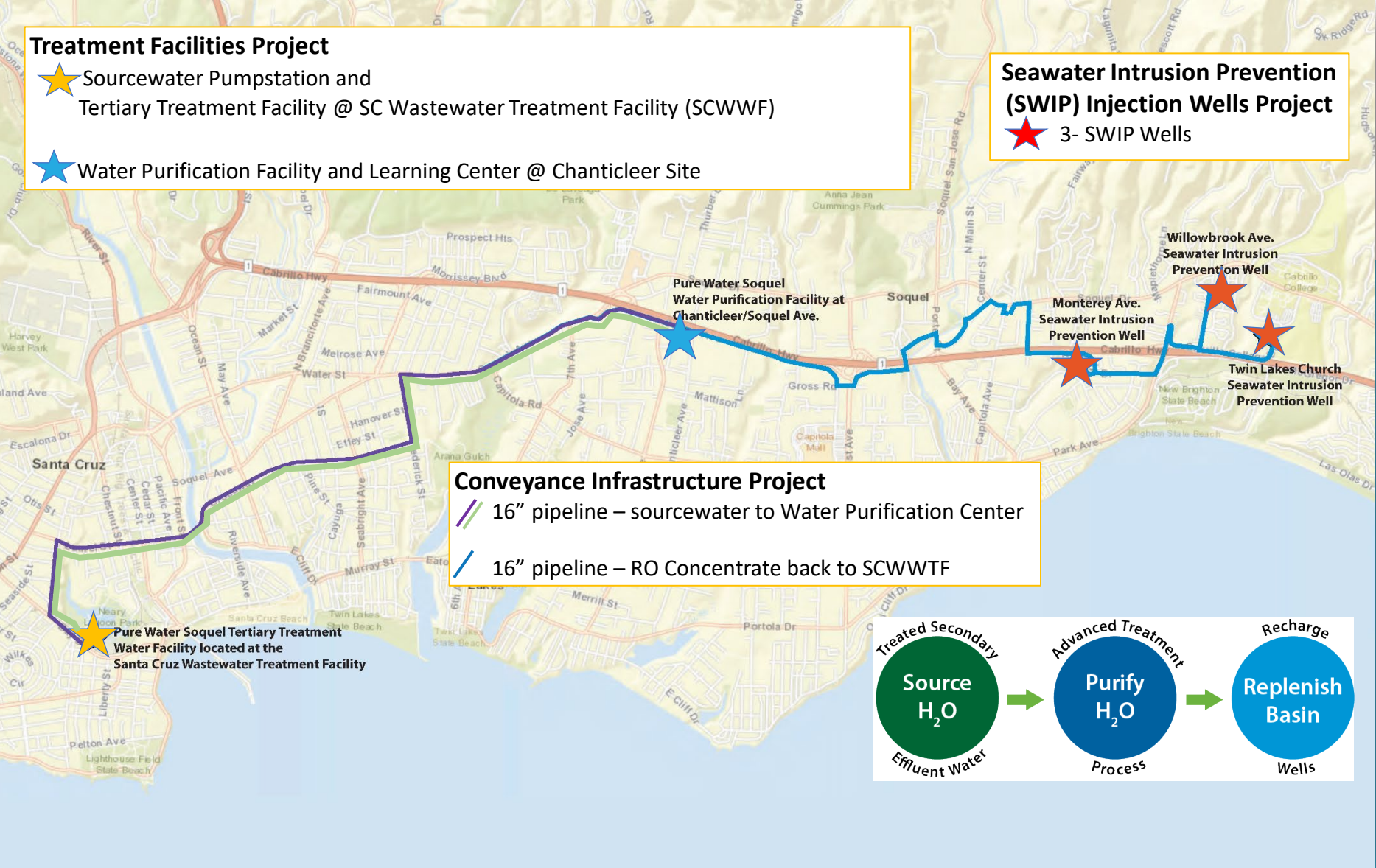
**1st**

driest year to date over the  
past 128 years (January-  
February 2022)

↓ 12.78  
inches from normal

[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%**



**Provides a Seawater Intrusion Barrier**



**Reliable, Drought-Proof and Resilient to Climate Change**



**Can be Accomplished Soon**



**Uses Green Energy**



**Promotes Economic Vitality**



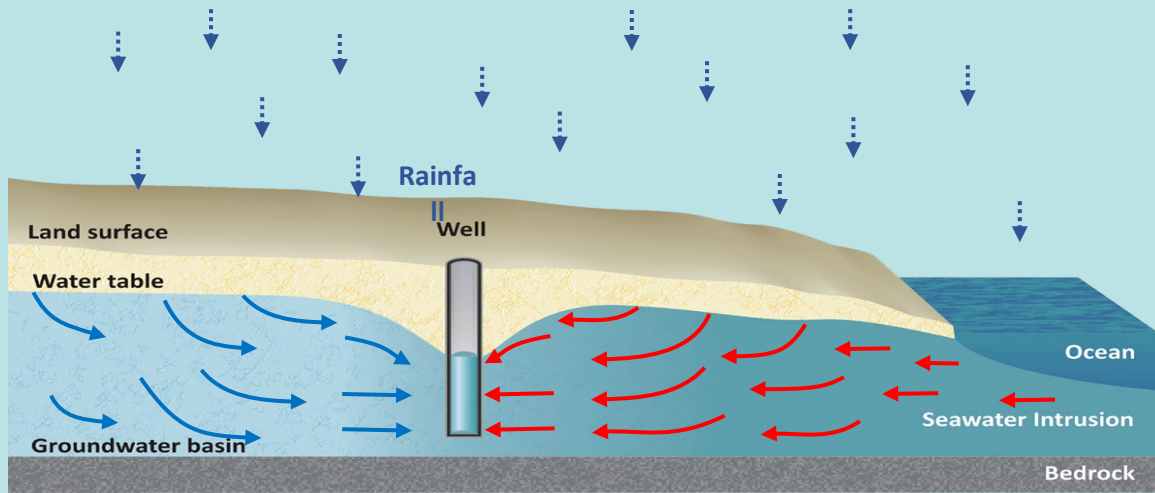
**Produces High Quality Water**



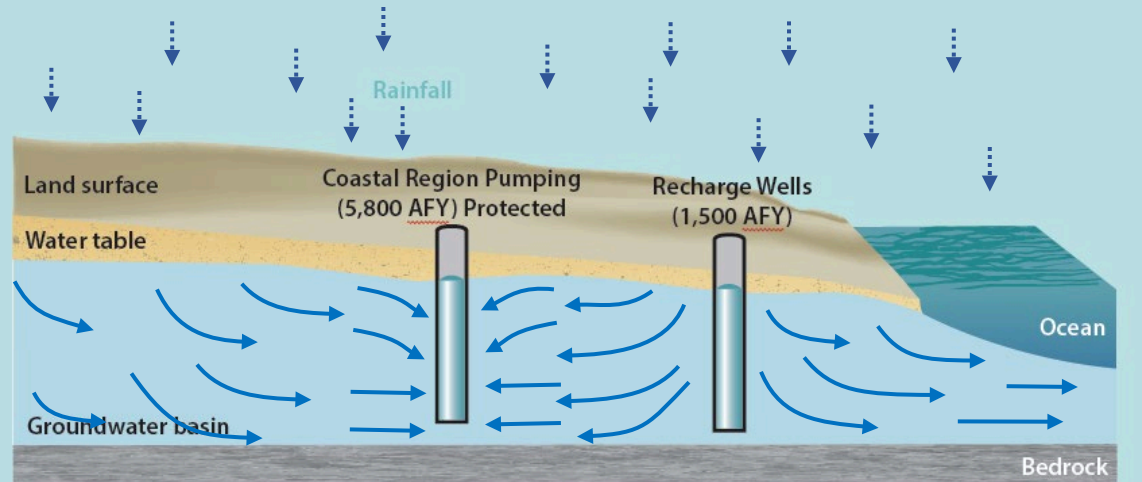
**Can be Scaled-Up**

# Prevent Seawater Intrusion

## Seawater Intrusion



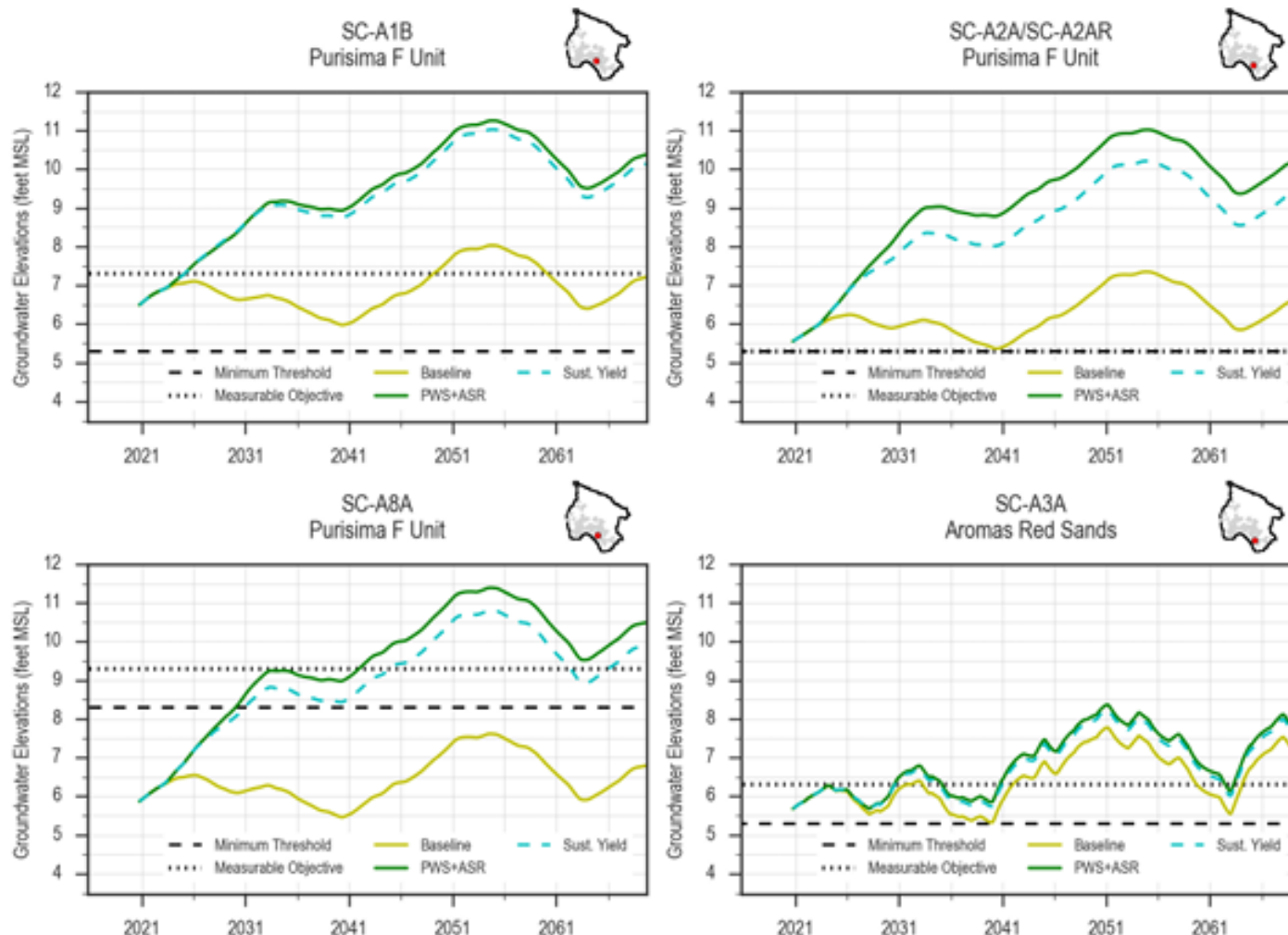
## With Pure Water Soquel



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



## Santa Cruz Mid-County Groundwater Basin GROUNDWATER SUSTAINABILITY PLAN

November 2019



## 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**



RESIDENTIAL

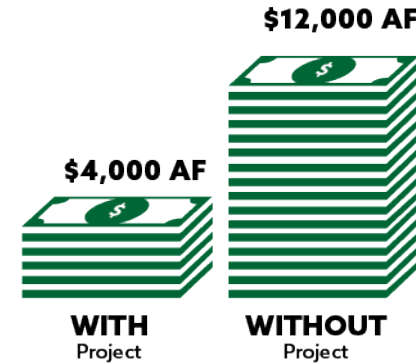


BUSINESS



ENVIRONMENTAL

## 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  
OF  
THE TERTIARY FACILITY COMPONENT OF THE PURE WATER SOQUEL PROGRAM

This AGREEMENT ("AGREEMENT") is entered into and made effective this 19 day of July, 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

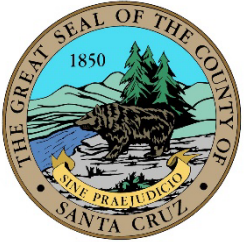
## Community Water Plan and Advanced Water Purification Project Statements of Support

☒ 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.



CALIFORNIA DEPARTMENT OF  
**WATER RESOURCES**

# Funding Support and Investment

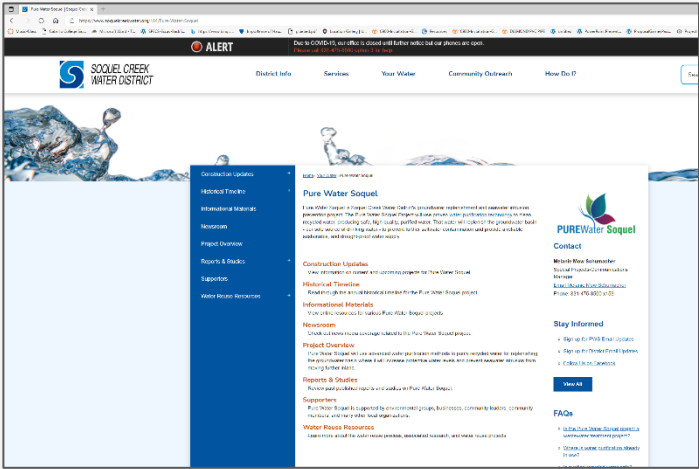
## Grants and Low Interest Loans




— BUREAU OF —  
**RECLAMATION**

# Ways to Stay Informed

Visit our website



Sign-up for Email Updates



Please fill out the form to join the Pure Water Soquel mailing & e-blast list. Please choose what aspects of the project you would like to keep updated on.

**Privacy Notice:**  
The Pure Water Soquel Project will not sell or give your email or mailing address to any third party. We will use your email and mailing address only to provide you with information that is relevant to the Pure Water Soquel Project.

**Email Address**

**First Name**

**Last Name**

**Address**

Street Address

Address Line 2

City

State/Prov/Region

Postal/Zip

USA

**Pure Water Soquel Project Construction**

☐ Conveyance (pipelines)

☐ Seawater Intrusion Prevention (SWIP) Wells

☐ Recycled Water Facility

☐ Purified Water Center



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 mid-county 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



Visit Our On-Line Library





# In 2021 Celebrated Milestones And Beginning Construction





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

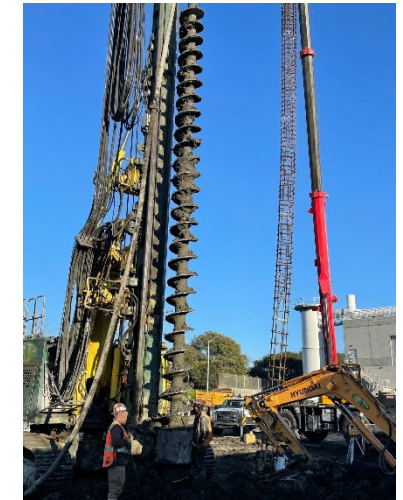
## Seawater Intrusion and Prevention Wells and Monitoring Wells Construction in Capitola and Aptos



## 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](mailto:melanies@soquelcreekwater.org)

[Soquelcreekwater.org/PWS](http://Soquelcreekwater.org/PWS)





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