

# PUREWater Soquel

# PROJECT OVERVIEW

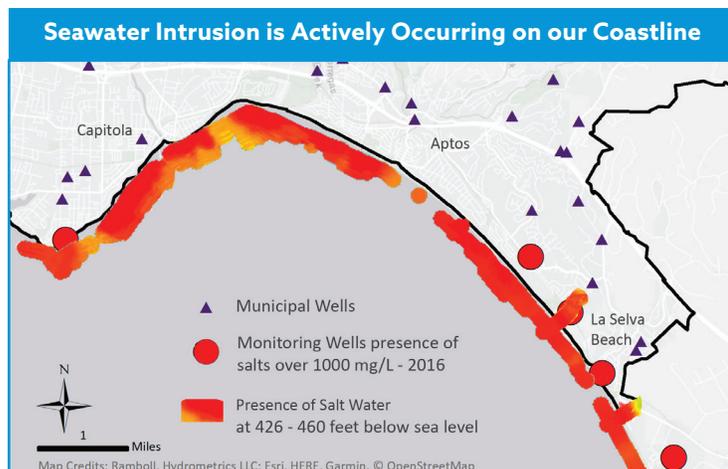
## Groundwater Replenishment and Seawater Intrusion Prevention Project

### WHY IS PURE WATER SOQUEL BEING IMPLEMENTED?

The State of California has declared the Santa Cruz Mid-County Groundwater Basin — which supplies water to the Soquel Creek Water District (District), Central Water District, City of Santa Cruz, and over a thousand private well users and private mutual systems — as critically overdrafted and mandated that the basin be brought into sustainability by 2040. This mandate affects all basin users, not just the District.

The District is solely dependent on groundwater as is most of the Santa Cruz Mid-County area. In addition to the groundwater basin being overdrafted, seawater intrusion is present in Pleasure Point, Aptos, Seascapes, and La Selva Beach; data collected in 2017 confirmed the entire coastline is at-risk.

The District continues to move forward with its Pure Water Soquel Project to address these challenges by promoting environmental stewardship and ensuring a diverse and reliable water supply for current and future generations.



### WHAT ARE THE PROJECT BENEFITS?

**PROVIDES A BARRIER AGAINST SEAWATER INTRUSION** — Helps prevent seawater intrusion from moving farther inland and contaminating drinking water wells. Southern Santa Cruz County, Monterey County, and many other communities around the world are challenged with seawater intrusion.

**RELIABLE AND DROUGHT-PROOF WATER SUPPLY** — Provides a diversified water portfolio that is available year-round and is drought-proof to supplement our overdrafted groundwater supply.

**HIGH-QUALITY WATER** — Using proven technology (see back), provides purified water that meets all state and federal water quality criteria and is cleaner than most bottled water.

**BENEFICIAL REUSE OF EXISTING SOURCE** — Eliminates one-quarter of the 8 million gallons a day (average) of treated wastewater that goes out into the Pacific Ocean. Instead of being discharged to the ocean, it can be put to beneficial reuse by storing it underground for environmental protection and to meet future community needs.

**TIMELINESS** — Water rights, that are typical of surface water projects, and marine issues, that are typical of desalination projects, will not apply to the District's purified water project, thus potentially reducing the time to acquire permits.

**ECONOMIC VITALITY** — the Project will support over \$900 million dollars in economic benefits to our community.

### WHAT IS PURE WATER SOQUEL?

Pure Water Soquel will involve taking already treated municipal wastewater from the City of Santa Cruz, purifying it through advanced water purification methods, replenishing the basin through recharge wells, and creating a seawater barrier.

Cost estimates of the Pure Water Soquel Project are about \$90 million. The District is actively seeking grant funding and low-interest loans to help offset these costs. The goal is to have the Project operational by 2022.

## WHY PURIFIED WATER?

Many communities with long-term water shortages have either implemented or are currently evaluating purified water projects. Orange County Water District has been purifying recycled water to use as groundwater replenishment for over 40 years. Utilities in San Diego, Los Angeles, the San Francisco Bay Area, Monterey, and Silicon Valley are all seriously considering purified water as a part of their water supply portfolios.



Orange County Water District's Groundwater Replenishment System has produced over 200 billion gallons of purified water and has been in operation for 40 years. (photo credit: Orange County Water District)

## PURE WATER SOQUEL TIMELINE AND MILESTONES

### 2014

- Soquel Creek Water District Board selects Purified Water for Groundwater Replenishment as a water supply option to further evaluate

### 2014-2018

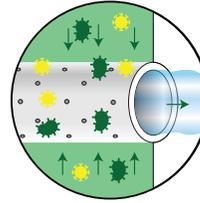
- District awarded over \$2 million in grant money for planning and technical evaluation from the State Water Resources Control Board and the US Bureau of Reclamation
- National Water Research Institute, a third party expert review panel, gives thumbs up and declares the Project is feasible and protective of public health
- District conducts environmental review under CEQA and certifies Environmental Impact Report
- District Board approves Project

### 2019-2022

- District continues to seek grant funding, potentially to reduce Project cost by half
- District conducts permitting, design, and construction
- Goals of the Project are to be operational by the end 2022 and aid in meeting state mandate of sustainability by 2040

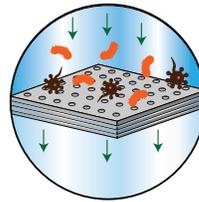
## UNDERSTANDING THE WATER PURIFICATION PROCESS

Currently, most advanced water purification processes involve a multi-stage process of micro-filtration, reverse osmosis, and ultraviolet light with advanced oxidation.



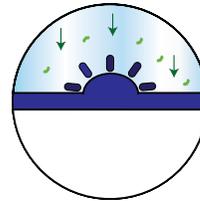
### MICROFILTRATION

Water moves through a bundle of filters (that look like straws). Each filter is perforated with small holes 1/300th the width of human hair! These holes allow water to pass through while capturing solids, bacteria, protozoa, and many viruses.



### REVERSE OSMOSIS

Contaminants 100x smaller than a virus and chemicals are stopped by this barrier, resulting in water that's near distilled quality. This same process is used by bottled water companies, baby food manufacturers, and for kidney dialysis.



### ULTRAVIOLET LIGHT & ADVANCED OXIDATION PROCESS

Concentrated light and oxidation, similar to the sun's rays and adding bleach, is responsible for destroying trace level chemicals and pharmaceuticals should they remain after reverse osmosis.

## TECHNICAL & ENVIRONMENTAL STUDIES

Numerous studies have been conducted to help inform the planning and implementation of the project. These include:

**Feasibility Study** — completed December 2017

**Geochemical Characterization** — Phase I completed October 2016, Phase 2 underway

**Water Quality/Constituents of Emerging Concern (CEC) Testing** — completed December 2017; Reviewed and approved by a scientific technical advisory panel

**Groundwater Modeling** — completed June 2018

**Cost Evaluation** — completed December 2018

**Environmental Impact Report** — completed December 2018

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