

from rivers, such as the Stanislaus, Tuolumne, and Merced. Limiting the taking of river water is aimed at improving habitat and conditions for fish and wildlife. Such actions may set a precedent for local river water management; certainty of this water is questionable.

WHAT ABOUT DEVELOPING STORMWATER CAPTURE?

Stormwater capture (use of captured stormwater to boost the groundwater supply) is estimated to yield approximately 50 to 100 acre-feet of supplemental water per year. This is only a small fraction of the District's water shortage needs. This option is dependent on rainfall, and on land availability and suitability — so the reliability of this option is very limited. Costs and timing are uncertain.

WHAT ABOUT PURCHASING DESALINATED WATER FROM THE DEEP WATER DESAL PROJECT?

As a water supply option for the District, the reliability of desalinated water is contingent on the development and timing of the privately-proposed DeepWater Desal project. The project's schedule is unknown and thus it is unclear if this project could meet the Board's goal of having a supplemental water project on-line by 2022, as well as whether it could aid in meeting the state sustainability mandate under the Sustainable Groundwater Management Act (SGMA).

COULD THE DISTRICT CONSIDER MORE THAN ONE WATER SUPPLY OPTION TO MEET THEIR LONG-TERM NEEDS?

Yes. To maximize resiliency, develop a robust water portfolio, and be best positioned for future climate change, the District is open to its water supply solution being a combination of programs and projects. Project approval of purified recycled water does not mean the District will not consider water transfers or stormwater capture options in the future if they are proven to be reliable and cost-effective.

It is likely that, to meet the State's mandate of groundwater sustainability by 2040, a combination of projects basin-wide will also be needed.

WHAT IF THE DISTRICT DECIDES NOT TO IMPLEMENT ANY PROJECT?

If the District Board decides not to proceed with plans to implement any project, the consequences of such actions would likely be:

- Advancement of seawater intrusion, causing additional harm to our water supply
- Increase overdraft conditions in the Santa Cruz Mid- County Groundwater Basin
- No reduction of discharge of treated wastewater to Monterey Bay National Marine Sanctuary
- Adoption of more drastic water restrictions
- Higher water rates (cost of water would have to increase with water restrictions)



COMMUNITY WATER PLAN

Our Path to a Reliable Water Supply

Conservation • Groundwater Management • New Water Supplies



DECEMBER 2018

FREQUENTLY ASKED QUESTIONS



WHAT IS THE COMMUNITY WATER PLAN (CWP)?

In 2015, the District developed an action-oriented plan that serves as the agency's roadmap to meeting its goal of groundwater sustainability by 2040. The CWP was co-created with community input over an intensive yearlong process. The CWP's elements include promoting water conservation and water neutral development to reduce groundwater extractions; being proactive with our groundwater management program to protect our aquifers; and seeking supplemental water supplies to meet our water needs. The four supplemental water supply options noted in the CWP are Pure Water Soquel (groundwater replenishment using purified water), surface water transfers with the City of Santa Cruz, use of desalinated water from the potential DeepWater Desal private project, and stormwater capture. Our water future will likely involve a combination of supply options to protect our endangered groundwater resources, ensure water supply reliability and resiliency to our customers, and prepare for climate change.

WHAT ARE THE PRIMARY WATER CHALLENGES FACING THE SANTA CRUZ MID-COUNTY REGION?

The Santa Cruz Mid-County Groundwater Basin, from which we draw 100% of our water supply, is classified by the State of California as "Critically Overdrafted". The main challenges in our region include:

- Seawater intrusion detected along our entire coastline from Pleasure Point to La Selva Beach

- Saltwater contamination occurring at municipal monitoring wells and private extraction wells in the Aptos/La Selva Beach area
- The state mandate that the groundwater basin must be sustainable by 2040
- Future climate change impacts including sea level rise and reduced groundwater recharge

Seawater intrusion is a problem worldwide. About 70% of populated coastal communities have impaired groundwater resources due to saltwater contamination. Preserving our water supply for current and future generations is one of the District's top priority.

HOW MUCH WATER DOES SOQUEL CREEK WATER DISTRICT NEED?

Based on projections of future water needs and the necessity to limit groundwater withdrawals from our wells near the coast, approximately 1,500 acre-feet per year of supplemental water is needed.

WHAT DO OUR CUSTOMERS FEEL ARE THE MOST IMPORTANT VALUES IN A PROVIDING A SUSTAINABLE WATER SUPPLY?

Based on phone surveys and on-line surveys, our community's top values are:

1. **Reliability:** Available year-round, even in times of drought

FOR MORE INFORMATION ON THE COMMUNITY WATER PLAN VISIT SOQUELCREEKWATER.ORG

1 acre-foot = 325,851 gallons



- 2. Quality:** Water that meets or is better than local, state, and federal water quality requirements
- 3. Timeliness:** Ability to build the project in a timely manner before seawater intrusion worsens
- 4. Environment:** Minimal environmental impacts
- 5. Scalable:** Ability to expand or scale operations to adjust to changing needs and climate change
- 6. Affordable/Affordability:** Potential to share costs of water production with other agencies and/or receive grant funding

WHAT IS PURE WATER SOQUEL (PWS)?

This project would involve capturing about 25% of the already treated wastewater that is currently being sent out to the Monterey Bay National Marine Sanctuary, purifying it through a multi-step process, and then sending it into the ground through recharge wells to replenish the groundwater basin and create a seawater intrusion barrier to prevent saltwater contamination from moving further inland.

WHAT IS ADVANCED WATER PURIFICATION?

Advanced water purification produces high-quality drinking water through the most advanced treatment processes available. Though technologies can vary, many advanced water purification systems include three processes: microfiltration, reverse osmosis, and advanced oxidation with ultraviolet light.

Microfiltration involves passing wastewater through very fine hollow fiber membranes (about 1/300 the width of a human hair) which remove particulate matter, protozoa, and some viruses.

Reverse osmosis (RO) involves forcing filtered water through a special membrane at high pressure to remove impurities such as dissolved salts, viruses, pesticides and most organic compounds. RO produces water of a higher level of purity than drinking water. It is the same process used to desalinate seawater.

Exposure to ultraviolet light combined with an oxidizer such as bleach or hydrogen peroxide sterilizes the water and eliminates remaining organic compound traces. The UV intensity is around 300 times that of the sun's rays.

IS PURIFIED RECYCLED WATER SAFE?

Yes. The State of California, which regulates the treatment of groundwater and surface water, is also responsible for regulating the production of purified water. Regulations ensure water purveyors meet state and federal water quality standards, making certain the water is safe. This also includes testing and strict water quality requirements for removing constituents of emerging concern such as pharmaceuticals and personal care products.

Water quality sampling confirms: purified water that undergoes this level of treatment has a much higher level of water quality than treated groundwater or surface water.

IS WATER PURIFICATION ALREADY IN USE? WHERE?

Yes, using purified water for drinking is not new in the US and has been in use for more than 40 years since the 1970s. Many other communities such as Monterey, San Diego, Ventura, Pismo Beach, and Santa Clara in California, as well as Singapore, Australia, Texas, Virginia, and Colorado, are currently operating or evaluating this type of project — with many more in various stages of consideration or development.

Orange County Water District's Groundwater Replenishment Project has produced over 200 billion gallons of purified water to recharge its groundwater basin. Disneyland theme park proudly promotes its participation in this type of water recycling and purification program, boasting that, "...almost all the water used at the Resort is recycled in this manner."

HOW IS WATER QUALITY MONITORED?

Water is continuously monitored before, during, and after treatment. Safeguards are built-in to the process to ensure that public health is not compromised.

WHAT IS THE PROJECTED CAPITAL COST AND THE UNIT COST OF PURIFIED WATER?

The capital cost is estimated to be \$90M and the unit cost is estimated to be ~\$4,600 per acre-foot (in 2022 dollars). This equates to approximately one penny per gallon.

WHEN COULD PURE WATER SOQUEL BE OPERATIONAL TO PREVENT FURTHER SEAWATER INTRUSION?

The project is currently undergoing environmental review with a project-level Environmental Impact Report (EIR) and, if approved, the project could be in operation by the end of 2022.

IS THE DISTRICT PURSUING GRANTS OR LOANS?

Yes, the District has been awarded over \$2M for planning studies and is currently applying for a grant of up to \$50M through CA Prop 1. The District is also exploring a grant of up to \$20M through the US Bureau of Reclamation, and low-interest loans.

Grants and low-interest loans are available to projects that have capital infrastructure (such as Pure Water Soquel).

The District cannot apply for grants and loans if they purchase water (state and federal grant programs do not reimburse for water purchases) from the City of Santa Cruz or DeepWater Desal.

WHY DID THE DISTRICT BOARD MOVE FORWARD TO CONDUCT A PROJECT-LEVEL EIR AND SEEK GRANT MONEY FOR PURE WATER SOQUEL?

The PWS project meets the community values (see above) as purified water is a drought-proof/reliable supply, has a proven track record of high-water quality from multiple projects already operating, could potentially be operational by 2022, would enhance the environment by reducing treated wastewater discharged out to the ocean and restoring the groundwater basin, and could be less costly and built in a more timely manner than other water supply options under consideration.

Thus, following feasibility, it was important for the District to understand what the environmental impacts of the PWS project could be and also explore ways to reduce the cost impacts to our ratepayers.

WHAT ABOUT PURCHASING WATER FROM THE CITY OF SANTA CRUZ?

As a pilot project, the District has an agreement to purchase ~300 acre-feet of water from the City of Santa Cruz in the winter, if available, through 2020 at a discounted rate of \$325 per acre-foot. This could meet

about 20% of the District's water supply shortfall. The long-term cost to obtain this water after the pilot project concludes is unknown — but estimates, based on what the City charges its existing customers, are in the range of \$5,400–\$6,270 per acre-foot.

WHAT ABOUT JOINING THE CITY OF SANTA CRUZ IN THEIR SURFACE WATER PROJECT THEY ARE CONSIDERING?

The City of Santa Cruz is currently in the 'proof-of-concept' phase of taking more water from its surface water sources (San Lorenzo River, Majors Creek, Laguna Creek, and Liddell Spring) to meet its water shortage needs during droughts. They are conducting feasibility studies on aquifer storage and recovery (ASR) and working on amending their water rights since it is currently illegal for the City to provide water to other agencies from the San Lorenzo River. Per the City's published reports and District communications with City staff, they anticipate determining if ASR will work within the next two years. They are also exploring the use of recycled water for irrigation or to purify for groundwater recharge. At the end of 2020, the City anticipates they'll determine whether their long-term project will consist of more surface water or recycled water, and will then embark on a project-level Environmental Impact Report.

If the City determines that there is excess water available that they could reliably sell or provide to the District, and have acquired the legal water rights, the District Board has expressed interest. It is also recognized that a surface water project could take up to 5 or more years from the City's decision in 2020 to go forward with environmental, permitting, design, and construction before it's operational.

Currently, the District does not consider the City's option as viable to fully replace the PWS project since:

- City efforts are 'proof of concept' through 2020
- Uncertainty in the volume of water available to the District

Regulations and water rights issues could further delay the City's own development of its water supply option.

In December 2018, newly-initiated State and federal actions (State Water Board's approval of the Bay-Delta Plan) are intended to limit the amount of water taken