

Soquel Creek Water District

Background

Soquel Creek Water District, founded in 1961, is a water purveyor and groundwater management agency in one. Its service area encompasses seven miles of shoreline and extends from one to three miles inland into the foothills of the Santa Cruz Mountains.

Soquel Creek Water is a special district and operates under the laws of the State of California to produce and deliver water. Due to the sharing of aquifers and close proximity, the district works in concert with Central Water District.

The goal of Soquel Creek Water District is to provide safe, clean water now and in the future, and to protect the groundwater basin from the threat of seawater intrusion. Soquel Creek Water District annually delivers about 1.8 billion gallons per year, or 5,400 acre-feet per year. This water is primarily for residential use within the communities of Aptos, Rio Del Mar, Seascapes, Soquel, Capitola and Cañon del Sol. This equals about 4.9 million gallons per day. As of April 2005, there were 13,789 regular service connections and 1,008 fire service connections.

The district owns and operates 17 production wells. Sixteen are currently active and have an estimated production capacity of 15 million gallons per day.

The distribution system includes 130 miles of pipeline and 18 water storage tanks, which have a combined capacity of 7.5 million gallons.

The Purisima Formation Aquifer provides two-thirds of the district's annual production (3,600 acre-feet) for the service areas of Capitola, Soquel and Aptos. Water from this aquifer meets all state and federal standards but contains higher than desirable levels of iron and manganese. The Aromas Red Sands Aquifer provides the remaining one-third (1,800 acre-feet) for the service areas of Seascapes, Rio Del Mar and La Selva Beach. These aquifers are shared by public and private wells within the Soquel Creek, Central, PVWMA and Watsonville Water districts.

Soquel Creek Water District has an emergency response plan in case of disruption due to drought, earthquake or other factors that could stop the district's ability to provide water.

Sources

Interviewed:

Soquel Creek Water District personnel.

Reviewed:

Draft Integrated Resources Plan, 1999.

2004 – 2005 Santa Cruz County Grand Jury
Final Report and Responses

Groundwater Assessment Plan, 2004.
Integrated Resources Plan, 2003.
Metroactive News, “Dousing for Dollars,” December 2004 article.
Production and Monitoring Well-Monitoring Frequency Schedule, May 2005.
Santa Cruz County Draft Housing Element, December 15, 2004.
Santa Cruz County General Plan, 1994.
Soquel Creek Groundwater Management Work Plan and Budget, FY 2005/06.
Soquel Creek Water District Board of Directors meeting minutes, February 1, 2005,
April 9, 2005 and May 3, 2005.
Soquel Creek Water District web site, <http://www.soquelcreekwater.com>.
“Hot Topics in Energy Efficiency: Descriptions of Leading Projects,”
www.fypower.org.
Soquel Creek Water District, letter to the Santa Cruz County Board of Supervisors,
August 20, 2003.
Soquel Creek Water District Long Range Financial Plan, Powerpoint presentation to
Board of Directors, FY 2005-06, Spring 2005.
Statement of Future Water Demand Projections, presentation to Board of Directors,
Spring 2005.
Summary of Proposed 2005/06 Groundwater Management Expenses.
Three Potential Alternatives to Increasing Water to the District Outlines, June 2005.
Water Supply Emergency Response Plan from Urban Water Management Plan
Update 2000.
What’s on Tap, customer newsletter, April 2005.

Findings

Seawater Intrusion

1. Water is drawn almost exclusively from groundwater aquifers. These are either overdrafted or are in danger of contamination from seawater intrusion. According to district documents, “studies...show that mid-county groundwater wells are threatened by saltwater contamination, which could result in district customers and other well operators facing supply shortages.”¹

Response: Soquel Creek Water District PARTIALLY AGREES.

The word “almost” should be deleted from the first sentence as Soquel Creek Water District currently relies solely on groundwater for its water supplies.

2. The district’s 2004 Groundwater Assessment Report states that coastal wells are threatened by seawater intrusion. The wells are near Pleasure Point and the Seascape/La Selva Beach area. The report states that stronger protections are needed in these areas to preserve the quality of groundwater.

¹ Integrated Resources Plan, 2003: Statement of Future Water Demand Projections, Spring 2005.

Response: Soquel Creek Water District AGREES.

3. The Soquel Creek Water District has plans to experiment with injection wells to pump water from another part of the Purisima Aquifer and putting that water in wells near Aptos that are in danger of saltwater intrusion.

Response: Soquel Creek Water District DISAGREES.

The conceptual Soquel Creek Off-Stream Diversion project includes a component for injecting surplus surface water into the groundwater basin for later withdrawal and use, but the two preferred regional supplemental supply alternatives being evaluated in the conjunctive use alternative program EIR both restore groundwater levels through “in-lieu recharge,” i.e. pumping less groundwater from coastal wells by directly using the supplemental supply source to meet customer demand.

4. The Groundwater Model Project consists of updating the district’s computer-generated groundwater model. The model would assist in developing pumping strategies that would restore and retain sufficient coastal groundwater levels to serve as a barrier against seawater intrusion.

Response: Soquel Creek Water District PARTIALLY DISAGREES.

The district has extensively evaluated the potential for updating the Integrated Ground and Surface Water (IGSM) Model. The conclusion from several modeling experts is that flaws in the model design preclude its use to simulate changes in local groundwater conditions with enough accuracy to be used as a predictive tool for developing pumping strategies. The district applied for a state groundwater grant that included developing a new model of the coastal areas using the USGS developed ModFlow program to be used for groundwater management; however, the district did not receive the grant. At this time, there are no specific plans or funding for developing a new groundwater model, although it is a project the district will continue to pursue.

Overdraft and Building

5. Current demand exceeds the safe yield of local aquifers. The water district is seeking new water supplies. One solution is to import water from the Central Valley, in cooperation with the Pajaro Valley Water Management Agency. The second is to build a regional desalination plant, in cooperation with the City of Santa Cruz.

Response: Soquel Creek Water District PARTIALLY AGREES.

The source for imported water to serve Soquel Creek Water District has not been determined, but would more likely be purchased municipal water from Santa Clara Valley Water District originating in areas north of the Sacramento-San Joaquin Delta.

6. Santa Cruz County's 1994 General Plan anticipated that the cumulative demand of growth both within Soquel Creek Water District and outside the urban service line will result in an overdraft of 500 acre feet by 2010.

Response: The Soquel Creek Water District PARTIALLY AGREES.

The 1994 General Plan is the source Soquel Creek Water District used to develop its projections for increased demand associated with growth. It is actually the district that made the finding of a 500-acre-foot overdraft by 2010 after considering conservation savings that have substantially lowered projected demand from a previous estimate prepared in the 1990's.

7. Technical studies prepared by Soquel Creek Water District indicate that existing groundwater sources in mid-county cannot support projected demand at buildout of the current General Plan. These studies show that another 2,000 acre-feet per year are needed to meet buildout of the General Plan, even with a substantial conservation effort.

Response: Soquel Creek Water District PARTIALLY AGREES.

The amount of supplemental water supply needed to meet demand at buildout and limit district groundwater pumping to the estimated sustainable safe yield of 4,800 acre-feet per year is closer to 1,300 acre-feet per year; however, the district is evaluating supplemental supplies that would yield approximately 2,000 acre-feet per year in order to allow flexibility to accelerate groundwater recovery and to provide a margin for error in the demand/yield projections since the buildout horizon is predicted to be 2050.

8. The Santa Cruz County Draft Housing Element would re-zone 44 acres for higher density housing to provide affordable housing. The proposed affordable housing provisions will increase water demand within the district.

Response: Soquel Creek Water District PARTIALLY DISAGREES.

Only a portion of the 44 acres for higher density affordable housing identified in the Santa Cruz County Housing Element is located within Soquel Creek Water District. Based on information submitted by the County Planning Director at the May 3, 2005 Soquel Creek Water District Board meeting, the estimated net developable acres within the district that could be designated for high density affordable housing is less than 30. The difference in per parcel water usage if all of these parcels were to be developed at the higher density allowed in an affordable housing overlay district is 15.76 acre-feet per year. Discussions have begun with the County Planning Director about possibly having the County Redevelopment Agency offset the anticipated water demand increase resulting from an affordable housing overlay district through retrofits or other means to reduce existing demand.

9. The district has three options for acquiring more water:
 - the regional seawater desalination plant with the City of Santa Cruz

- the water import/groundwater banking option with the City of Watsonville and PVWMA
- a creek diversion project which would skim excess winter water (December to May) into a holding pond. The water would be available for immediate use or placed in storage. This privately owned land would have to be purchased by the district. The stream diversion project would cost between \$19 and \$25 million.²

Response: Soquel Creek Water District PARTIALLY AGREES.

To clarify, the two preferred alternatives being evaluated in the District's Conjunctive Use Water Supply Alternatives EIR are the two regional options. The creek diversion is the only "local" option that would provide a conjunctive use source of supply to supplement groundwater production throughout the district, but it is not being actively considered at this time and is a back-up alternative if both regional options turn out not to be viable. The district is also evaluating parcel-based options that could further contribute to groundwater recovery, including enhanced groundwater recharge and satellite reclamation plants for large irrigation water users. These options would be adjunct to the selected conjunctive use water supply project.

10. The district hopes to include the City of Santa Cruz and the county as partners in groundwater conservation and management. The district is working to resolve water supply issues by implementing a groundwater management program, establishing a conservation program to reduce demand and evaluating new water supply options to supplement groundwater.

Response: Soquel Creek Water District AGREES.

11. According to Soquel Creek Water District personnel, the county permit process may cause any new water projects to take several years.

Response: Soquel Creek Water District PARTIALLY DISAGREES.

The county permit process for a supplemental water supply is not anticipated to delay a project; however, permit approval from the numerous local, state, and federal regulatory agencies (varies depending on the project) could indeed take several years to acquire.

12. The water district has adopted a Water Demand Offset policy as an interim measure to allow development to continue without increasing the ground water overdraft. This requires developers to retrofit existing customers with enough water-saving items to provide water savings equal to the amount of water the new developments would require. Retrofits include waterless urinals, synthetic turf and low-flow toilets.

Response: Soquel Creek Water District AGREES.

² Metroactive News, "Dousing for Dollars," December 2004.

Although to be entirely accurate, the offset requirement is actually 120% of projected demand in order to allow a margin for error and for a decrease in water savings over time.

13. All residential, commercial and industrial buildings within the part of the City of Capitola served by the Soquel Creek Water District are required to be retrofitted with low-consumption plumbing fixtures when a property is sold. Soquel Creek Water District certifies property as conforming and issues a certificate.

Response: Soquel Creek Water District AGREES.

But it should be noted that the unincorporated area is subject to the same requirement under a county ordinance with the only difference being that the county program does not require water district inspection and certification.

14. The district has established water-use efficiency requirements for new development to help protect water supply. They include the following:
- limited lawn area
 - limited spray irrigation
 - irrigation designed to avoid runoff and overspray
 - the use of soil conditioners to help retain moisture

Response: Soquel Creek Water District AGREES.

However, this is only a partial list of the water-use efficiency requirements.

15. Soquel Creek Water District has several innovative water efficiency programs. In 2004, they were able to save both electrical energy and 140-acre-feet of water through several innovative water efficiency programs. By 2010, the district aims to conserve an additional 600 acre-feet and, through reduced pumping alone, cut annual energy use by more than 2 million kilowatt hours.

Response: Soquel Creek Water District AGREES.

District Finances

16. The district receives no tax revenues. Current rates generate funds for operations and management plus approximately \$1 million annually for capital programs.

Response: Soquel Creek Water District AGREES.

17. District water bills increased in January 2005. The amount of the increase depended on meter size and water usage.

Response: Soquel Creek Water District AGREES.

18. A water rate fee consultant supported the need to increase fees.³ Rate increases were needed to:

- maintain existing infrastructure and operations;
- enable the district to fund its ongoing capital program;
- allow the district to build and maintain fund reserves; and
- keep rates in line with the cost of inflation.

Response: Soquel Creek Water District AGREES.

However, the footnote should be changed to Brown and Caldwell Rates and Fees Study.

19. In 2003-04, the district began with about \$4 million in reserves. That amount fell to \$800,000 by the end of the year with the completion of capital projects.

Response: Soquel Creek Water District PARTIALLY AGREES.

The \$800,000 ending reserve for 2003-04 was the budgeted amount, but the actual year-end reserve for that year was \$3.1 million. The amount was higher than projected in the budget due to delays and deferrals of several major capital improvement projects.

The district currently pays for all of its capital improvement projects on a cash basis funded by both new revenues and accumulated reserves that exceed a minimum amount maintained for operating contingencies. The ending reserve balance above the set operating contingency level each year is applied toward funding the following year's capital improvement program.

20. To lessen the impact of increasing charges on rate-payers, the district has payment options and a schedule for projected rate increases.

Response: Soquel Creek Water District PARTIALLY DISAGREES.

The reference to payment options appears to be a misinterpretation. The district does allow amortized payments as required by law and accepts credit cards, but nothing beyond this. We believe the intention was to refer to the financing plan adopted by the district, which does lay out annual rate increases intended to avoid future rate spikes when the capital and operating expenditures will significantly increase as the result of developing the new water supply. The intention is to gradually build up to the revenue levels that will be necessary in order to lessen the impact on ratepayers while continuing to complete much-needed infrastructure improvements to the system on a pay-as-you-go basis.

³ Integrated Resources Plan 2003, Statement of Future Water Demand Projections, Spring 2005.

21. The district has submitted an application for up to \$250,000 from the State of California's Department of Water Resources' Local Groundwater Assistance Grant Program. Two projects eligible for groundwater assistance grant funding are:
- the Groundwater Management Plan Update; and
 - the Groundwater Model Update.

Response: Soquel Creek Water District AGREES.

It should be noted that the district was not awarded the grant.

22. Staff representatives from the City of Santa Cruz, Santa Cruz County Environmental Health and the Central Water District have begun meeting to discuss a proposed cooperative agreement for managing the entire Soquel-Aptos Groundwater Basin.

Response: The Soquel Creek Water District PARTIALLY AGREES.

The Soquel Creek Water District also is a party to the proposed cooperative agreement. Soquel Creek Water District initiated this collaboration and has assumed responsibility for organizing and leading the discussions.

23. The district is working with other agencies within the county to apply for approximately \$25 million under Proposition 50 (the Water, Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002). This includes preparing a Santa Cruz County Integrated Water Resources Management Plan. The plan will identify the highest priority water resource projects and will determine water supply reliability, quality and water resource management.

Response: The Soquel Creek Water District AGREES.

But to clarify, the total grant amount is \$31 million, and the plan being prepared is titled "Northern Santa Cruz County Integrated Regional Water Management Plan."

Conclusions

1. The Soquel Creek Water District's water supply is currently in overdraft mode.
2. Mid-county wells located near the coast are experiencing seawater intrusion. The district is working to slow this process by pumping water from inland wells to coastal wells to keep the basin recharged. When water is plentiful in inland wells, water is pumped to coastal wells to prevent overdraft and seawater intrusion.
3. There is a countywide effort to cooperatively manage the Soquel-Aptos Groundwater Basin.
4. Water production would be increased with either PVWMA's imported water pipeline project or Santa Cruz's desalination plant.
5. The district has adopted creative and effective means of reducing water demand and maintaining water quality: pumping water from inland wells to coastal wells, cutting

energy used in pumping, requiring retrofitting with water-saving devices and tiered pricing.

6. The district's water rates continue to increase. This is the main source of revenue.
7. An overdraft of the groundwater sources is already projected based on current growth. Additional proposals to increase this density will add further strain on the water supply.

Recommendations

1. Soquel Creek Water District should aggressively address its overdraft problems through continued conservation, retrofitting and pumping groundwater from inland areas to coastal areas.

Response: Soquel Creek Water District PARTIALLY AGREES.

The first two items have been implemented and will continue to be expanded; the third item will not be implemented because it is unreasonable. Instead, the district is pursuing redistributing pumping impacts away from the coast through greater operation of its more inland wells and is developing a Well Master Plan that would construct new wells in inland areas to further enable reduced pumping in coastal areas.

2. Due to its proximity to the PVWMA service area, and the advanced state of the project. Soquel Creek Water District should consider connecting to PVWMA's pipeline project to import water from the Central Valley.

Response: Soquel Creek Water District PARTIALLY AGREES.

Has not yet been implemented because it is contingent on PVWMA's ability to successfully construct the import pipeline, and there may be legal constraints to exporting groundwater from the Pajaro Valley to Soquel Creek Water District's service area. The district is evaluating all feasible options to determine which can be successfully implemented.

3. Soquel Creek Water District, in cooperation with the City of Santa Cruz and the Santa Cruz County Environmental Health Agency and the Central Water District, should continue to meet to discuss the future of the Soquel-Aptos Groundwater Basin.

Response: Soquel Creek Water District AGREES.

Has been implemented and will continue.

4. Soquel Creek Water District should be commended for its conservation and water use reduction programs.

Response: Soquel Creek Water District AGREES.

Has been implemented. The district appreciates the commendation.

5. Soquel Creek Water District may need to continue to increase rates to build up capital reserves until additional funding sources are secured.

Response: Soquel Creek Water District AGREES.

Has been implemented. The district has prepared a multi-year financing plan in order to prepare for increased capital and operational costs associated with developing the supplemental water supply. It should be clarified and noted that the district's reserves will stay relatively constant and will be expended down to a fixed amount through funding of the pay-as-you-go capital improvement program and potential future debt service resulting from financing the supplemental water supply project and associated system upgrades. The capital cost of a supplemental water supply project is beyond the district's means to fund on a cash basis and will likely require debt financing. The district is also actively pursuing grant-funding opportunities.

Responses Required

Entity	Findings	Recommendations	Respond Within
Soquel Creek Water District	1-23	1-5	90 Days (September 30, 2005)