Our Ocean Backyard

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Fresh Water and Santa Cruz

*Dig a well before you get thirsty* – Ancient Chinese Proverb

June 13, 2021, California Department of Water Resources reported that 44% of the state was in the exceptional drought category, the most-dire level, up from 26% two weeks earlier. Lake Oroville, the 2nd largest reservoir in the state, has become the poster child for this year’s drought and is at just 37% of its total capacity with dozens of houseboats sitting on dry land as water levels have dropped.

Some parts of the Sierras that typically have over five feet of snowpack this time of year are now completely barren. While the snowpack usually provides about one-third of California’s water supply as it melts in the late spring and summer, this year’s lack of snow and warm weather removed nearly all of the snow about two months earlier than normal. What little remained melted or soaked into the soil. As a result, our reservoirs aren’t getting the runoff they typically receive. In addition, many farmers are now tearing out crops and fruit and nut trees having already been notified that they will either be receiving a greatly reduced allocation of water or none at all.

In normal years, California would get about 1/3 of its water from groundwater, 1/3 from reservoirs fed by snow melt and 1/3 from streamflow, but we have been seeing a lot of abnormal years, which we usually call droughts. We are facing a long dry hot summer that has already arrived with more impacts on the way as a result of two years of below average rainfall and snowpack, and in fact this two-year period is the second driest in 140 years of record since the drought of 1976-77.

Santa Cruz County is one of only a few counties in California that is completely independent of outside water sources (other than those hundreds of thousands of bottles of Evian, Pellegrino, Fiji, Perrier, Aquafina, and Dasani that get trucked in). One-hundred percent of Santa Cruz’s drinking water is supplied by local rainfall: 95% from surface water sources like rivers and creeks and the other 5% from groundwater. The City has just one reservoir, Loch Lomond, which holds about one year’s worth of water supply when full, but it is now at 68.6% of capacity. So simply put, when it doesn’t rain much – like this year where we received just half of our typical annual rainfall – our water supply is at risk. There is no back up supply or Plan B in place.

On April 13, the Santa Cruz City Council declared a Stage 1 Water Shortage Warning for city water customers, beginning May 1. During a Stage 1 Warning, each customer class (residential, commercial, irrigation,) is provided with a monthly allotment of water. The city is not telling us how to use our allotment– that’s up to us. But allotments have been designed primarily with indoor needs in mind. Penalties are not applied during a Stage 1 Warning. They are applied during a Stage 2 Water Shortage Alarm. Should dry conditions continue in Santa Cruz, which looks highly likely, we may well move to a Stage 2.

Fortunately, the Earth will never run out of water, we are just running short of fresh water, and in drought years the situation becomes worse. There are about 333,000,000 cubic miles of water on the planet, but 97.5% of this is salty and is in the oceans. Of the remaining 2.5% that is fresh, just over two-thirds are sequestered in glaciers and ice caps many thousands of miles away and inaccessible to most of the world’s population. So at present, we are nearly totally dependent on less than one percent of the water on the planet, and this volume is decreasing as the climate continues to warm and ice sheets and glaciers melt and flow into the ocean, producing more salty seawater.

Santa Cruz has faced the problem of droughts and water shortages many times in the past, with the most severe recent drought years being those of 1976-77, 1987-92, 2007-2009 and 2012-1016. Each new drought leads to a discussion of how we are going to continue to provide water during the next dry period. One recent proposal led to a study and planning for a joint desalination plant with the Soquel Creek County Water District. The plan was for a facility that would produce about 2.5 million gallons per day to be split between the two districts. The construction cost at the time was estimated at $120 million, but would have filled in the water supply gap during dry periods by using some of that 97.5 percent of the planet’s water that is sitting out there in our ocean backyard.

Opposition to that desalination plant led to the appointment of a Water Supply Advisory Committee (WSAC) by the City Council in 2013, a diverse group of residents charged with taking an exhaustive view of the city’s water issues and ways to address them. The question we each need to think about as we move further into this drought, and with no significant rain likely for at least five more months, where is our future water going to come from? More to come on this topic.