

Our Ocean Backyard  
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It's Getting Hotter Everywhere

Many of the earliest summer visitors to Santa Cruz came here to get away from the heat of the Santa Clara and Central Valleys where temperatures were in the 90s and low 100s. They actually looked forward to the fog and cooler air. This may help to explain how the streets on Depot Hill in Capitola (Sacramento, Livermore and Hollister), and on the far west side of Santa Cruz (Chico, Auburn, Sacramento, Modesto, Merced, Stockton and Coalinga) got their names. Some of the earlier developers believed that these names would entice those inland visitors to buy lots or homes here.

While I believe most visitors today would rather see sun than fog when they drive over the hill, we still typically experience June gloom and Faugust - I've not figured out a word yet for foggy July, however. We are very fortunate to be able to live here and to have the moderating influence of the Pacific Ocean on our local climate. Yeah, it does on occasion get into the 90s and rarely, over 100 degrees, but let's face it, we have a remarkable climate to enjoy year around.

A quick look at the news makes it abundantly clear, however, that much of the rest of the world is now suffering, with record high temperatures and an increasing number of fatalities from heat stroke. Northwest India and Pakistan suffered through a spring with weeks of temperatures well over 100 degrees Fahrenheit. March was the hottest month ever recorded in India. New Delhi reached 116 degrees in May, and Jacobabad in Pakistan hit 123.8 degrees. The air was so hot at the Bhalswa landfill on the edge of Delhi that the accumulated debris actually spontaneously combusted, sending toxic fumes into the surrounding neighborhoods making breathing difficult. A nearby school was forced to close and it took two weeks for firefighters to put out the fire.

On July 23, climate activist groups converged on the streets of London and Glasgow to demand action on climate change in response to the record-breaking heat that hit the British Isles the past week. The weather agency for the United Kingdom on the 19<sup>th</sup> of July reported the highest temperature ever registered in the UK, 104.5 degrees Fahrenheit. The intense heat damaged airport runways and paralyzed major railway lines. Several climate groups stated that they will plan more disruptive action in the fall, to bring Parliament to a standstill until significant action is taken.

This past week, daily temperature records were broken as a heat wave hit the Northeast and mid-Atlantic states. Newark, New Jersey, reached 100 degrees for five days in a row, the longest stretch of 100 plus days since record keeping began in the 1930s. Boston hit 100 degrees on July 24, breaking a record set in 1933. While evening temperatures usually drop significantly, allowing the human body to recover, in New York, Boston and Washington, evening temperatures remained in the high 70s, providing little relief.

Again, on July 25, an extreme heat warning was issued in the Pacific Northwest for the following days as a record-breaking heat wave was predicted. High temperatures were likely to break historic records in Seattle, Portland and parts of Northern California, and were predicted to reach 95 to 110 degrees in inland areas. The weather folks called it right – Seattle was 94 on Tuesday

and Portland reached 102. Not the kind of weather that Portland is accustomed to. Oregon health officials reported a significant increase in the number of heat-related illnesses in emergency departments. The Pacific Northwest, including parts of British Columbia, was hit with a deadly heat wave in late June and early July of last year that reached 118 degrees, leading to an estimated 800 fatalities across the Pacific Northwest. Many of those who died were elderly and lived alone. British Columbia isn't known for its heat and this was an extremely unusual event.

These heat waves are becoming more intense and occurring more often as global temperatures continue to climb. Urban populations feel the heat more intensely due to what has now been recognized as an urban heat island effect. With less vegetation, more concrete and asphalt, and higher population densities, the impact of heat are greater, especially for certain groups, such as the elderly, those with medical conditions, those without homes, and those without air conditioning.

Perhaps a surprise to many, heat is the largest weather-related killer in the United States, resulting in more annual fatalities every year than hurricanes, floods or wildfires, which we spend far more time worrying about and which are far more headline-grabbing.

Generally speaking, the human body evolved to be able to deal with heat fairly effectively. As your body temperature increases, your brain sends messages to your peripheral blood vessels to dilate, which increases the blood flow near your skin where heat can dissipate through sweating. As temperatures continue to rise, however, it becomes more difficult for your body to deal with the excess heat. Your metabolic activity increases, your cells require more oxygen, your heart rate quickens and you breathe more rapidly. A number of other physiologic changes occur that lead to your likely experiencing dizziness, confusion, nausea, seizures or coma.

In extreme cases, the body sends more blood to your extremities to release the accumulating heat, which starves internal organs of oxygen causing damage to the liver, nerves and blood vessels. This is heatstroke, and up to two-thirds of cases are fatal.

People across the planet are more and more feeling the effects of a warming planet. It's more than just a few degrees hotter and records being broken. The most vulnerable members of society and those that have to work outside, farm workers, for example, are being hit the hardest. We are running a massive global-scale chemistry experiment and we need to turn it off now. This is a sad reality that we are burdening the next generations with and keep this in mind when you vote in the next election.