Climate change helped produce San Diego's huge ocean heat wave in 2018, researchers find

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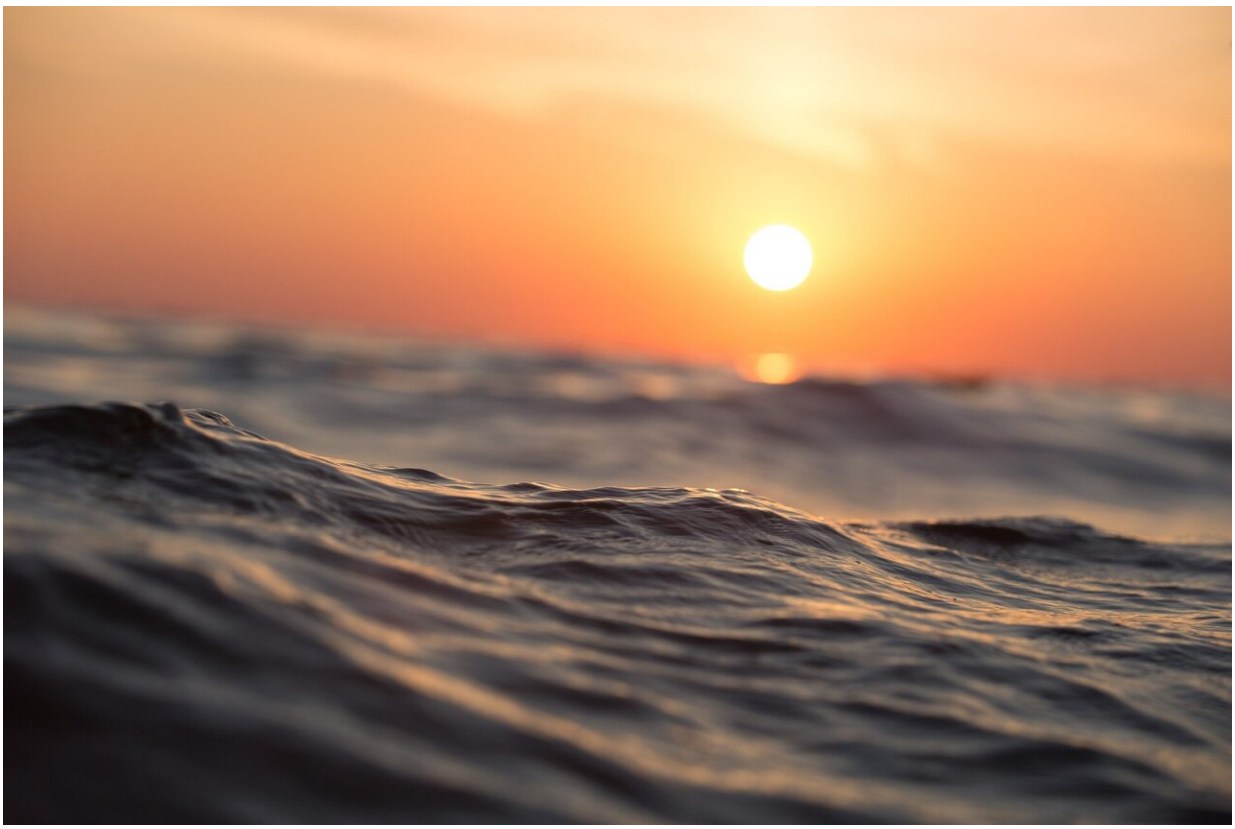

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University of California, San Diego researchers have confirmed that climate change helped produce the historic 43-day ocean heat wave that

drew big crowds to San Diego beaches during the summer of 2018.

The finding was published in the *Journal of Geophysical Research*-Oceans, in a paper that says the phenomenon could not be solely attributed to natural variations in the weather.

The average summer water temperature at the Scripps Pier in La Jolla is 70.7 degrees. But in 2018, ocean readings surpassed 73 degrees on every day of the heat wave, which lasted from July 19 to Aug. 30. And the temperature surpassed 75 on 30 of those days.

The heat wave peaked on Aug. 9 when the water temperature reached 79.5 degrees, the highest reading in the history of the pier, which opened in 1916.

UCSD's Scripps Institution of Oceanography says that coastal winds were unusually light that summer, which prevented cooler water from cycling to the surface. The marine layer also was weak, exposing the ocean to longer periods of sunlight. And monsoonal moisture flowed to the coast and helped the ocean hold its heat.

But UCSD says that the heat wave also was caused by global warming. Between 1916 and 2018 the baseline ocean temperature at the pier rose 2.2 degrees, Scripps says.

"Climate change is not only warming the atmosphere, it's warming the oceans," said Jimmy Fumo, a staff researcher at Scripps. "That's making marine heat waves more and more intense, and longer-lived. That's what we saw in 2018.

"The seemingly small bump in ocean temperatures can have massive impacts, and it doesn't just affect San Diego. It affects places all over the world."

Fumo was the lead author of UCSD's study of the heat wave.

Climate change is often cited as a factor in hurricanes, major rain events and heat waves. But scientists rarely take a deep look at how such change factors into a specific event, such as the warming that occurred in 2018.

The release of Fumo's paper coincided with a new period of unusually warm water along the San Diego County coastline. On May 4, the ocean hit 73 degrees at the pier, seven degrees above average.

At the time, the National Weather Service attributed the high temperatures to the absence of strong, seasonal winds along the coast. The winds have since picked up, and sea surface temperatures have returned to normal in many areas.