

MARINE HEAT WAVES MAY BECOME MORE INTENSE, FREQUENT: STUDY

Relevant for: Geography | Topic: Important Geophysical Phenomenon - Atmosphere, its Composition and Circulation

Bleached massive coral (*Porites solida*) in Vilanguchalli island in Thoothukudi coast of Gulf of Mannar.

The mixed layer of the ocean which blankets the top 20 to 200 metres is becoming thinner each year, says a new study which warns that the continued loss of this buffer may lead to more frequent and destructive warming events such as marine heat waves.

Researchers from the University of Colorado at Boulder in the U.S. said the thickness of this top layer of the ocean is responsible for marine heat events.

The thicker this mixed layer, they said the more it can act as a buffer to shield the waters below from incoming hot air.

[According to the study](#), published in the journal *Bulletin of the American Meteorological Society*, the scientists found that this armour is thinning, causing the oceans to become more susceptible to rapid swings in temperature.

"Marine heatwaves will be more intense and happen more often in the future," said Dillon Amaya, lead author of the study. "When the mixed layer is thin, it takes less heat to warm the ocean more," Amaya explained.

In the study, Amaya and his team used a combination of ocean observations and models to estimate the depth of the mixed layer back to 1980, and also project out into the future.

They found that over the last 40 years, the layer has thinned by nearly three metres in some regions of the North Pacific.

By 2100, they believe the mixed layer could be four metres thinner which is about 30% less than what it is today.

According to the researchers, this thin mixed layer combined with warmer global temperatures could set the stage for drastic swings in ocean temperatures, leading to much more frequent and extreme heating events.

"Think of the mixed layer as boiling a pot of water. It will take no time at all for an inch of water to come to a boil, but much longer for a pot filled to the brim to heat through," Amaya said.

They also warned that as the climate continues to warm and the mixed layer continues to thin, scientists might lose the ability to predict annual ocean surface temperatures.

Fisheries and other coastal operations could be in danger without this ability to accurately forecast ocean temperatures, the scientists warned.

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