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Marine heatwaves bleach Dweep corals: CMFRI

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Kochi: Vast parts of corals in the islands in Lakshadweep Sea have been severely bleached due to marine heat waves since Oct 2023, according to a survey by the Central marine fisheries research institute (CMFRI).

In Lakshadweep, the degree heating week (DHW) indicator, which measures accumulated heat stress, has surged above 4°C-weeks (DHW's measure is "degree Celsius-weeks"), combining the intensity and duration of the oceanic heat stress into one single number. According to the National Oceanic and Atmospheric Administration (NOAA), this level of DHW poses a substantial risk of coral bleaching, threatening the region's diverse marine ecosystems.

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CMFRI researchers said that marine heatwaves are rare extreme weather events that involve prolonged periods of abnormally high ocean temperatures. These temperatures often exceed the 90th percentile of typical regional ocean temperatures based on historical data. "Such heat stress levels signify a severe threat to coral health, leading to extensive bleaching where corals lose the symbiotic algae (zooxanthellae), compromising their survival by depriving them of essential nutrients. If the DHW continues to rise, reaching beyond 12°C-weeks, it could precipitate an unprecedented biodiversity crisis due to multispecies mortality," said K R Sreenath, senior scientist, CMFRI.

The primary causes of these marine heatwaves are excessive heat atmospheric transfer coupled with shifts in ocean currents, leading to unusually high-water temperatures. "Since Oct 27, 2023, the Lakshadweep Sea, spanning from 80° to 12° N latitude and 71° to 75° E longitude, has been experiencing these conditions, with temperatures consistently registering rises greater than 1°C above the norm," said Shelton Padua, senior scientist, CMFRI.

"The ongoing heat waves also threaten other critical marine habitats, including seagrass meadows. Like corals, seagrass meadows are experiencing detrimental impacts due to the heatwaves, such as impaired photosynthesis, reduced growth, and hindered reproductive functions. The degradation of these ecosystems can lead to the collapse of local marine food webs, affecting a wide range of marine species, from fish communities to marine mammals like dugongs and dolphins," Sreenath said.