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'Marine heat waves causing coral bleaching'

Our Bureau
Kochi

Scientists at the ICAR-Central Marine Fisheries Research Institute (CMFRI) have recorded an alarming situation of severe coral bleaching in the Lakshadweep sea owing to marine heat waves.

CMFRI's study revealed that a significant percentage of the hard coral species have undergone severe bleaching, primarily due to a prolonged period of marine heat waves, affecting the region since late October 2023.

Marine heat waves 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. In Lakshadweep, the Degree Heating Week (DHW) indicator, which measures accumulated heat stress, has surged above 4 °C-weeks.

THE DYING REEFS. CMFRI's study found that a significant portion of hard coral species in Lakshadweep have experienced severe bleaching on marine heat waves since late October 2023

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.

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," KR Sreenath, senior scientist at CMFRI, said.

1°C ABOVE THE NORM

Shelton Padua, another senior scientist, identified the primary causes of these marine heat waves as excessive heat atmospheric transfer coupled with shifts in ocean currents, leading to unusually high water temperatures. Since October 27, 2023, the Lakshadweep Sea, spanning from 80.0 to 12.0 N latitude and 71.0 to 75.0 E longitude, has been experiencing these conditions, with temperatures consistently registering rises greater than 1°C above the norm.

The heat waves also threaten other critical marine habitats, including seagrass meadows. Similar to corals, sea-grass meadows are experiencing detrimental impacts due to the heat waves 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 added.

CMFRI has initiated a comprehensive national project aimed at investigating the resilience potential of various coral reefs in India.