

Could Be Due To Shallow Depth In Gulf Of Mannar: Scientists Sudden rise in temp bleaches Gulf of Mannar corals again

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UNDERWATER SURVEY

➤ Sea surface temperature (SST) ranged between 28.7°C and 31°C throughout monsoon and post-monsoon season from August 2018 to February 2019

➤ No bleaching was observed during the period

➤ SST temperatures increased between 32°C and 36°C from March to May

➤ For monitoring, transects were laid in Mandapam (72), Keezhakarai (80) and Palk Bay (30)

➤ Underwater cameras for both video and photographs were used

➤ The 21 islands in Gulf of Mannar have 128 species of corals

FINDINGS

➤ Corals distributed beyond 5m were unaffected

➤ No bleaching observed in the restoration sites in Mandapam group of islands



Partially affected corals in Gulf of Mannar



Scientists suggest coral reefs in Gulf of Kachchh, Malvan, Lakshadweep Islands and Andaman and Nicobar Islands be surveyed to check for mass bleaching

RESTORATION

➤ A team from NCCR has started restoration of coral reefs in Gulf of Mannar after 16 years

➤ Restoration was done in Hare and Manali islands

➤ Polyps are tied to small concrete slabs on an iron frame and placed at 3m depth

➤ After six months, when the corals grow about 4 to 5cm, they are transplanted in the surrounding area

➤ Scientists are studying impact of sediment on corals and the effect of temperature and other environmental parameters on survival rate of corals

Months after showing signs of recovery following two mass bleaching events in 2016 and 2017, corals in the Gulf of Mannar are turning white again. Surveys said it was due to a sudden rise in the sea surface temperature by a maximum of 5°C, a phenomenon not seen at least in the last two years. Scientists suggest a similar study in other locations to confirm if it is yet another mass bleaching.

A National Centre for Coastal Research (NCCR) camera showed certain coral species, at a depth of zero to four metres, were partially or completely bleached between March and May 2019 when the sea temperature rose from a maximum of 31°C to 36°C. "Most of it was recovering in the last two years as the temperatures remained favourable. We now hope corals will recover in the next six months," said T Shanmugaraj of NCCR which has been monitoring the impact of climate change on coral reefs and restoring them in the Gulf of Mannar since 1998. No bleaching was observed beyond five metres depth. Shanmugaraj, who led the survey team, said sea surface temperatures between August 2018 and February 2019 ranged from 28.7°C to 31°C, considered favourable for recovery. But between March and May, they rose to between 32°C and 36°C.

According to NOAA, most reef-building corals can grow in water temperatures between 23°C and 29°C, while only a few can survive in temperatures of 40°C for short periods.

When oceans get warmer, corals expel algae (zooxanthellae), which give them their colour as well as food, causing them to turn white. Corals can survive bleaching events, but die if under more stress for longer periods. Same with temperatures below 18°C.

Oceanographers said the temperature rise could be due to the shallow depth in the Gulf of Mannar that lets heat penetrate faster. However, its sudden occurrence seems a mystery.

"We are collecting satellite data of the region from INCOIS, which includes sea surface temperature, for the last one year to analyse it. It will give us an idea as to what exactly led to the rise in temperature," said NCCR director M V Ramana Murthy.

Meteorologists too are puzzled over the change in ocean parameters. "Unlike atmospheric temperature, change in sea surface temperature is a mystery for oceanographers. If it could be predicted, phenomenon like El Nino and La Nina could be understood and forecast better..." said N Puviarasan, director, Area Cyclone Warning Centre, IMD, Chennai.

