

Great Barrier Reef more volatile with sharp declines in coral cover

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Hard coral cover across the Great Barrier Reef has declined substantially from the high levels of recent years back to near long-term average levels, underscoring a new level of volatility, according to the Australian Institute of Marine Science's (AIMS) annual survey report of the Great Barrier Reef.

The Great Barrier Reef has experienced the largest annual decline in coral cover in two of the three regions since AIMS began monitoring 39 years ago. This was predominantly driven by climate change-induced heat stress leading to coral mortality from the 2024 mass bleaching event, but also by the impacts of cyclones and crown-of-thorns starfish outbreaks.

Coral cover dropped over the year:

- in the northern region (Cape York to Cooktown) by a quarter (from 39.8% to 30%)
- in the central region (Cooktown to Proserpine) by 13.9% (from 33.2% to 28.6%)
- in the southern region (Proserpine to Gladstone) by almost one third (from 38.9% to 26.9%).

AIMS LTMP leader [Dr Mike Emslie](#) said the effects of the substantial losses in regional hard coral cover were cushioned by the record high levels before the bleaching.

"This year's record losses in hard coral cover came off a high base, thanks to the record high of recent years," he said.

"We are now seeing increased volatility in the levels of hard coral cover. This is a phenomenon that emerged over the last 15 years and points to an ecosystem under stress. We have seen coral cover oscillate between record lows and record highs in a relatively short amount of time, where previously such fluctuations were moderate.

"Coral cover now sits near the long-term average in each region. While the Great Barrier Reef is in comparatively better condition than many other coral reefs in the world following the global mass coral bleaching event, the impacts were serious."

Dr Emslie said coral reefs dominated by the *Acropora* species were among the most impacted by mass coral bleaching and the two cyclones.

"We've said in the past that these corals are the fastest to grow and are the first to go, as they are susceptible to heat stress, cyclones and are a favourite food of crown-of-thorns starfish, and this year's results illustrate that," he said.

"This is also the first time we've seen substantial bleaching impacts in the southern region, leading to the largest annual decline since monitoring began."

AIMS' 2025 Long-Term Monitoring Program (LTMP) annual summary reports the results of reef surveys from August 2024 to May 2025 and assesses the impact of the 2024 mass bleaching event.

A total of 124 coral reefs were surveyed. Most reefs (77) recorded hard coral cover between 10% and 30%, 33 reefs had hard coral cover between 30% and 50%, while two reefs had more than 75% and two reefs less than 10%.

AIMS CEO Professor Selina Stead said the 2024 mass bleaching event was part of a global event that began in 2023 in the Northern Hemisphere.

It was the fifth mass bleaching on the Great Barrier Reef since 2016 and had the largest spatial footprint recorded, with high to extreme bleaching prevalence across the three regions.

“This year Western Australian reefs also experienced the worst heat stress on record. It's the first time we've seen a single bleaching event affect almost all the coral reefs in Australia,” she said.

“Mass bleaching events are becoming more intense and are occurring with more frequency, as evidenced by the mass bleaching events of 2024 and 2025. This was the second time in a decade that the Reef experienced mass bleaching in two consecutive years.

“These results provide strong evidence that ocean warming, caused by climate change, continues to drive substantial and rapid impacts to Reef coral communities.

“The future of the world’s coral reefs relies on strong greenhouse gas emissions reduction, management of local and regional pressures, and development of approaches to help reefs adapt to and recover from the impacts of climate change and other pressures.”

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Photos, video and audio resources: https://aimsimages.fotoware.com.au/fotoweb/albums/aHnJTaQ_w0GAGb79/

About the Long-Term Monitoring Program (LTMP)

[The LTMP](#) quantifies long term trends in the status of coral communities across the Great Barrier Reef. Researchers use hard coral cover as one indicator of the condition of each reef. Percentage hard coral cover is estimated by experienced scientists during manta tow surveys and is a metric which allows AIMS scientists to provide an overview of the Great Barrier Reef’s status and keep policy makers, managers and other scientists informed in a timely manner. AIMS invested in targeted, in-water bleaching surveys during and after the [2024 mass bleaching](#). These results have provided certainty around coral cover outcomes, verifying the results of the manta tows, and providing scientists with new insights into the coral bleaching. These findings will be shared in the peer review process. The LTMP also does more detailed surveys on fixed sites on 71 reefs across the Great Barrier Reef. The detailed information includes what types of corals and species of fish are present, their abundance, and causes of mortality like crown-of-thorns starfish numbers, coral disease and bleaching observations.

More about the Australian Institute of Marine Science:

The Australian Institute of Marine Science (AIMS) is Australia’s tropical marine research agency. In existence for half a century, it plays a pivotal role in providing large-scale, long-term and world-class research that helps governments, industry and the wider community to make informed decisions about the management of Australia’s marine estate. AIMS science leads to healthier marine ecosystems; economic, social and environmental benefits for all Australians; and protection of coral reefs from climate change. More here: <https://www.aims.gov.au/>