MEDIA RELEASE
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Reef and Rainforest Research Centre (RRRC), Cairns
For immediate release

Bleaching survey results in for key Cairns tourism sites

The results of coral bleaching assessment dives on reefs around Cairns show that fears of total loss of coral reefs in the area are unfounded. These reefs underpin the strength of Tropical North Queensland's $2.4 billion tourism industry and the 24,500 jobs it supports.

378 detailed surveys at 123 sites on 32 reefs between Cairns and Lizard Island have been conducted over the last week to determine the extent and severity of coral bleaching.

The results of the assessment show that key tourism sites around Cairns have experienced less severe bleaching, with **less than 5 per cent** severe bleaching and coral mortality. This indicates that these reefs stand a good chance of recovering.

The surveys also showed that bleaching intensified further north, but severe bleaching is patchy over the region.

Reefs in the surveyed area have on average experienced 3.21 per cent coral mortality so far, with the key tourism sites off Cairns so far experiencing less than 1 per cent coral mortality. The true extent of coral mortality should become clearer in another month.

Under the assessment program, three dives covering approximately 80 square metres were performed at each site, using standard Reef Health Indicator Survey (RHIS) methodology to determine the severity of bleaching on a site-by-site basis.

These sites have already been the focus of an intensive Crown of Thorns Starfish control program, with RHIS dives regularly performed at each site since 2012.

The data gathered through these surveys complements the more widespread work being undertaken by the Great Barrier Reef Marine Park Authority (GBRMPA)'s Coral Bleaching Task Force.

When exposed to stress factors (primarily high water temperatures and low water quality), coral will sometimes eject its symbiotic zooxanthellae (microscopic algae that provide energy to the coral polyp via photosynthesis) and lose colour as a result.

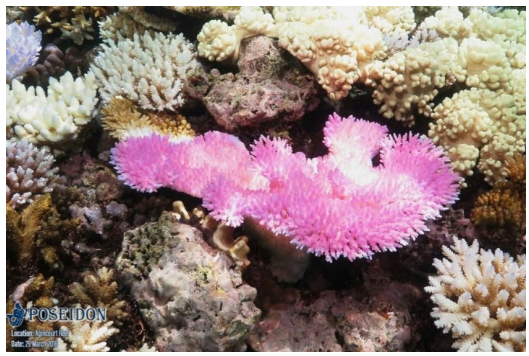
If bleached for long enough, coral can starve to death, but if conditions return to normal, coral can re-accept zooxanthellae from the water column and recover in health.

Under a standardised scale developed by the Great Barrier Reef Marine Park Authority, coral bleaching is given a severity rating between 1 and 4.

Level 1 Bleaching

4.1 per cent of live coral in the assessment area was found to have Level 1 bleaching. Level 1 indicates bleaching restricted to the tips of coral, equivalent to a minor burn or sunburn on a person's skin. Most coral can fully recover from this level of bleaching but if conditions worsen it can progress to level 2.

Level 2 Bleaching



37.39 per cent of coral in the assessment area was found to have Level 2 bleaching. Level 2 indicates a 'fluorescence' response from stressed coral. Fluorescing coral has ejected some of its zooxanthellae and takes on a paler colour and can even appear brighter than normal coral. This stage is akin to a second-degree burn - coral can still recover from it, but there is a chance of longer-term damage.

Level 3 Bleaching

21.69 per cent of coral in the assessment area was found to have Level 3 bleaching. These corals eject all their zooxanthellae and turn transparent, exposing the white limestone exoskeleton underneath. Although recovery is possible, Level 3 bleached coral will be weaker and more likely to die completely if poor conditions persist.

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Level 4 bleaching

In the current bleaching event, only an average of **3.21 per cent** of coral in the survey area has reached Level 4 bleaching (coral death). In Level 4 bleaching, coral polyps die off and the remaining limestone skeleton is rapidly colonised by marine algae.

It should be noted that key tourism dive sites are frequently covered by Marine National Parks ("green zones") which restrict fishing activities.

Data collected since the Marine National Parks program was implemented by GBRMPA in 2004 indicates that reefs in green zones have a 30 per cent advantage in coral resilience and recovery from damage due to improved ecosystem dynamics.

Additionally, Crown of Thorns Starfish control programs have been operating on these reefs for several years, protecting the reefs from damage that would otherwise be inflicted by outbreaks of the coral-eating starfish species.

Tourism operators also conduct other active reef health rehabilitation programs on dive sites, especially in the wake of major storm events or cyclones.

All of these effective reef health management techniques bestow advantages to reef resilience and recovery that appears to be a critical factor in coral's ability to resist bleaching.

Region	Av. Depth (m)	Total coral cover	Healthy coral	Level 1	Level 2	Level 3	Level 4 (Dead)	Number of surveys
Cairns South	3.1	47.33%	45.68%	14.67%	37.54%	4.93%	0.73%	129
Cairns North	3.9	37.76%	62.85%	5.95%	25.33%	5.09%	0.79%	144
Daintree	3.9	26.42%	14.34%	0.75%	56.09%	21.09%	2.72%	12
Ribbons South	3.2	47.59%	23.61%	0.75%	23.76%	40.70%	6.93%	36
Ribbons Central	3.2	47.59%	23.61%	0.75%	23.76%	40.70%	6.93%	27
Ribbons North	5.9	25.89%	21.48%	1.84%	57.89%	17.61%	1.19%	30
Overall Average	**3.87**	**38.76%**	**31.93%**	**4.12%**	**37.39%**	**21.69%**	**3.21%**	**378**

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