

# Coral Disease Response Plan:

## Predicting, assessing and responding to outbreaks of coral disease on the Great Barrier Reef

### Summary

In response to the increasing threat of coral disease outbreaks, the Great Barrier Reef Marine Park Authority (GBRMPA) has developed the Coral Disease Response Plan. This response plan outlines the strategic approach the GBRMPA is employing to tackle coral disease outbreaks and provides practical tools for monitoring, assessing and reducing transmission risk and impacts. The response plan will be implemented prior to and during each summer season.



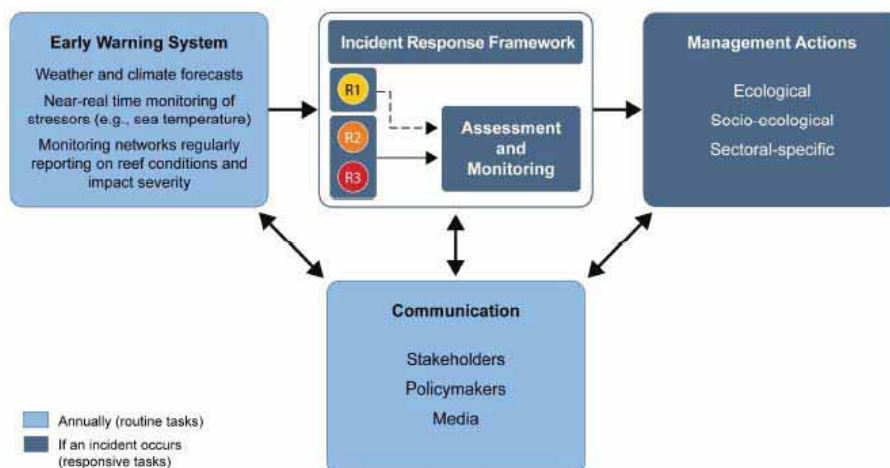
### Background

*Climate Change and the Great Barrier Reef: A Vulnerability Assessment* (GBRMPA: 2007) highlighted an increasing likelihood of more frequent and severe coral disease outbreaks under a changing climate. While the study of coral diseases is still in its early stages, studies based on long-term monitoring indicate that outbreaks of infectious coral diseases have been increasing worldwide over the past 40 years. A growing body of evidence suggests that warmer ocean temperatures promote the prevalence of some of these diseases.

To date, the only large-scale disease outbreak on the

Great Barrier Reef involved widespread increases in the abundance of the suite of coral diseases known collectively as “white syndromes”. This outbreak occurred following the exceptionally warm 2001/2002 summer. That summer also saw the largest coral bleaching event on record for the Great Barrier Reef, highlighting a potential link between bleaching and certain coral diseases. Not only do warmer ocean temperatures encourage both bleaching and the proliferation of diseases such as white syndromes, but bleaching increases the susceptibility of affected corals to diseases and vice versa. While mass bleaching events

The four components of the Coral Disease Response Plan.



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are caused almost exclusively by high temperatures, the cause of coral disease outbreaks are more complex and thus less is known about them.

As sea temperatures continue to increase, it is critical that Marine Park managers understand how coral reefs in the Great Barrier Reef Marine Park will respond and which species, regions, and industries are most likely to be affected. The Coral Disease Response Plan outlines a strategic approach for monitoring disease outbreak risk and responding to coral disease outbreaks when they occur.

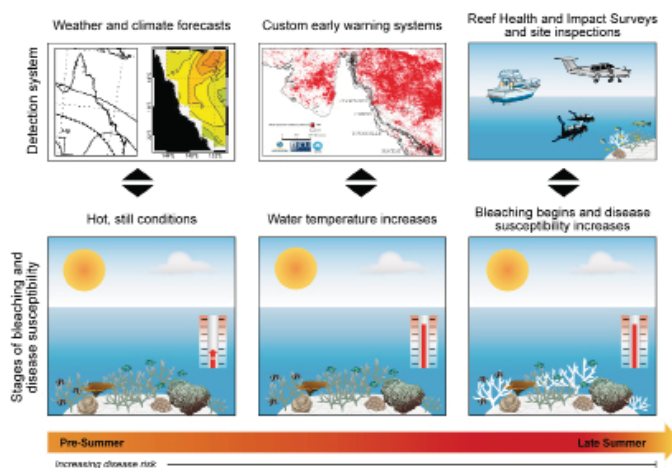
## Response Plan components

The Response Plan has four key components:

1. Early Warning System
2. Assessment and monitoring
3. Management actions
4. Communication.

The Early Warning System relies on forecasts of environmental conditions known to be conducive to the outbreak of disease. Predictive tools have been developed for diseases with known links to temperature stress. These and other diseases are also monitored by volunteer observers that report on disease incidents on the Reef. If a disease outbreak is predicted or documented, managers undertake detailed site inspections to assess the extent and severity of the impact.

Assessment and monitoring of outbreaks ensures robust data is collected to provide an understanding of the



Stages of the Early Warning System



To date, the only large-scale disease outbreak documented on the Great Barrier Reef involved large increases in the incidence of white syndromes in 2001-2002. This group of diseases is a key focus of monitoring efforts on the Great Barrier Reef (right).

spatial extent and severity of the outbreak and patterns of disease prevalence. This information forms the basis of management actions to build the resilience of affected coral reefs and promote recovery after disease outbreaks. Effective communication of reef health status and trends is vital at all stages.

## Responding to a coral disease outbreak

The Coral Disease Response Plan provides detailed protocols that guide the GBRMPA in detecting and monitoring coral disease, thus helping to increase our understanding of this impact. The plan also provides support tools to inform management decisions. In the event that a severe outbreak occurs, the GBRMPA uses the Climate Change Incident Response Framework to coordinate the governance, finance, planning and reporting procedures during the response. The GBRMPA works with the QPWS to measure the extent and severity of the impact. Potential management actions include measures such as introducing no-anchoring or no-entry Special Management Areas to reduce other stresses on the corals whilst they are recovering from diseases.

For further information, contact the:  
 Climate Change Group,  
 Great Barrier Reef Marine  
 Park Authority  
 PO Box 1379 Townsville, Qld 4810  
 07 4750 0759  
[www.gbrmpa.gov.au](http://www.gbrmpa.gov.au)