



Coral disease at Ningaloo Marine Park

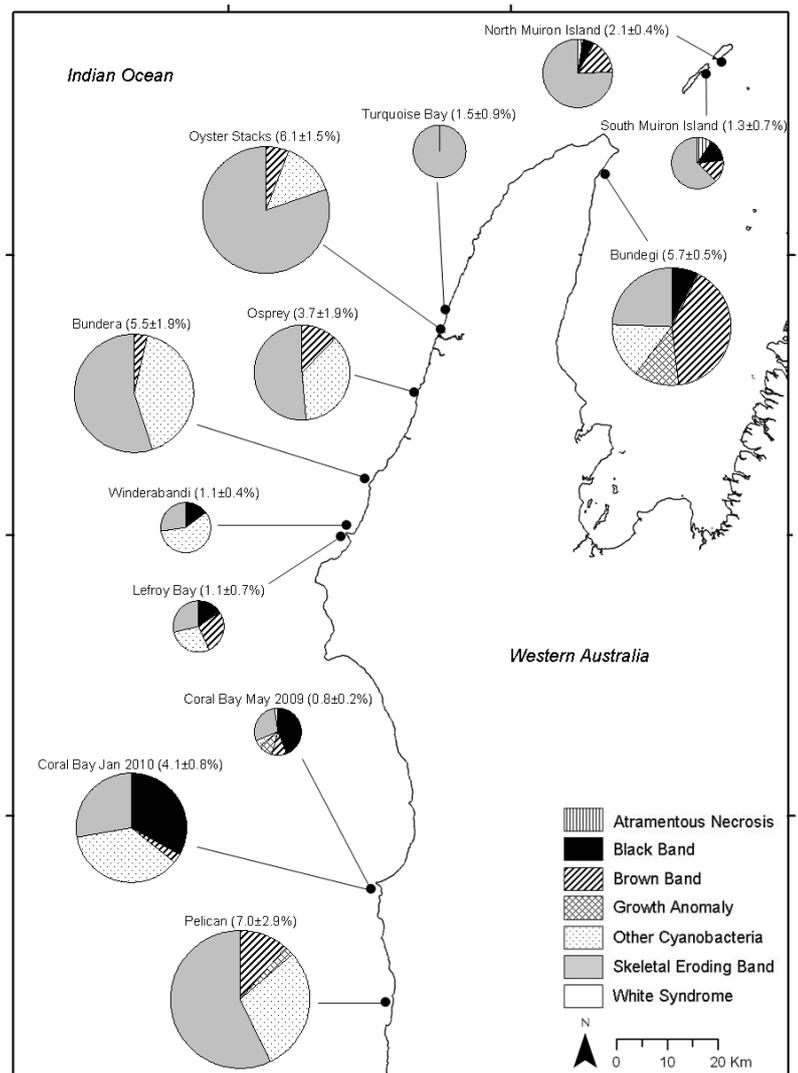
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Background

Coral disease occurs when an abnormal condition impairs the health of the coral colony. This is often associated with infections from microbes which leave characteristic lesions on the colony surface. Disease is a natural component of ecosystems; however when corals become stressed their susceptibility to disease increases, which may lead to disease outbreaks. These outbreaks have contributed to regional declines in coral cover and have been linked to increased stress from both natural and anthropogenic pressures. Most of the work on coral disease has been carried out on reefs within the Caribbean or the Pacific Ocean. There is comparatively little information on levels of coral disease on Western Australia reefs. To address this lack of information the prevalence of coral disease along the Ningaloo Marine Park was assessed in 2009 and 2010.

Findings

- Prevalence of coral disease at Ningaloo was low, with only 2.3 per cent of colonies affected by disease. This is similar to levels recorded on other healthy reef systems. Seven different disease types were identified from WA reefs. Skeletal Eroding Band (SEB) was the most common disease but was only detected on ~1 per cent of all colonies.
- Corals of the family Acroporidae were the most susceptible to disease. Of this family 3.7 per cent of colonies showed disease signs or lesions. Tabulate morphologies (*Acropora*) were particularly susceptible, 6.0 per cent of all colonies examined being diseased.
- High incidences of coral disease were detected at Pelican Sanctuary, Oyster Stacks, Bundegi and Bundera. Spatial variation in disease was related to the abundance of feeding scars from coral eating snails, *Drupella* spp. There was no strong link between human presence and occurrence of disease.



Mean number of coral colonies (± SE) showing signs of disease at sites along Ningaloo reef

Management Implications

The study provides valuable baseline information on the prevalence of coral disease. This information can be used to detect changes in disease prevalence through time and disease outbreaks.

These results are unique to Ningaloo, but the methodology used here can be easily adopted to monitor disease at other reefs. As disease was strongly correlated to the presence of *Drupella* feeding scars, it is suggested that disease and *Drupella* surveys are conducted concurrently,

providing a basis to assess the relative importance of this relationship in any future disease outbreak.

Although human presence was not related to disease at Ningaloo, disease prevalence has previously been linked to anthropogenic derived disturbances at other locations. As human interactions with the reef increase, so too does the potential for greater disease prevalence. It is important therefore to have accurate and regular measures of human activities along the Western Australian coastline.



Feeding scars from coral eating snails, *Drupella* Spp. Prevalence of disease was related to the presence of feeding scars (Photo Suzanne Long)



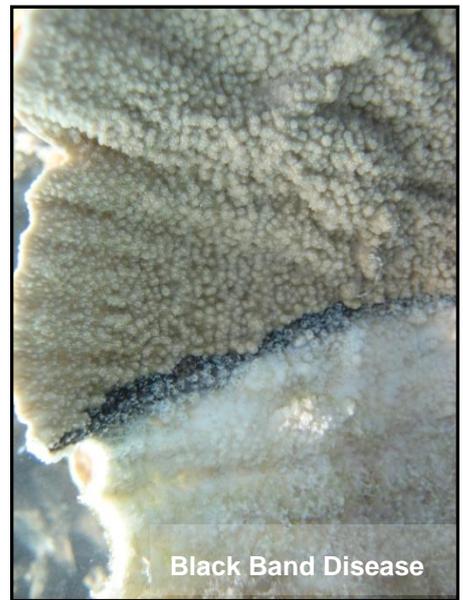
Tourists on the beach at Ningaloo. The presence of humans was not directly related to prevalence of coral disease along the Ningaloo Coast. (Photo Suzanne Long)



White Syndrome



Growth anomaly



Black Band Disease

Some of the coral diseases encountered during surveys along Ningaloo reef. (Photos Cathie Page)

For more information see: Onton K, Page CA, Wilson SK, Neale S, Armstrong S. (2011) Distribution and drivers of coral disease at Ningaloo reef, Indian Ocean. *Marine Ecology Progress Series* 433: 75-84.

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