

Coral-feeding fishes slow progression of black-band disease

Received: 2 March 2009 / Accepted: 25 May 2009 / Published online: 12 June 2009
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Outbreaks of coral disease are a major contributor to coral mortality and subsequent reef degradation (Weil et al. 2006). One of the most common coral diseases on the Great Barrier Reef (GBR) is black-band disease. This disease forms a distinctive band which marks the interface between live, healthy tissue and dead coral skeleton (Fig. 1). If, as has been suggested, corallivorous fishes act as transmission vectors of disease (e.g., Aeby and Santavy 2006), they must feed directly upon the infected area. This direct feeding may actually be beneficial as it could lessen the extent and progression of the disease. In fact, it is conceivable that under intense or preferential predation on diseased tissue that the infecting agent could be removed and coral health promoted.

At Lizard Island on the GBR, six species of coral-feeding fishes *Chaetodon baronessa*,



Fig. 1 *Chaetodon baronessa* feeding on black-band disease under natural conditions

C. aureofasciatus, *C. plebius*, *C. rainfordi*, *C. lunulatus* (Chaetodontidae) and *Labrichthys unilineatus* (Labridae), were observed to feed directly on the diseased band of naturally infected *Acropora muricata* colonies (Fig. 1).

Following these observations, a pilot study was undertaken which found that *C. plebius* fed very intensively on the black band and actually acted to slow the progression of this disease. After 1 h of feeding the diseased band had been partially removed (Fig. 2) and

thereafter the band failed to progress along the branch over the next 48 h. In control nubbins, however, the disease continued to progress along coral branches at a rate of 1.1 mm h^{-1} and resulted in the mortality of these nubbins. While ongoing experiments are yet to show that corallivorous butterflyfishes contribute to the spread of coral disease, these fishes may be essential in reducing the incidence and severity of black-band disease on the GBR.

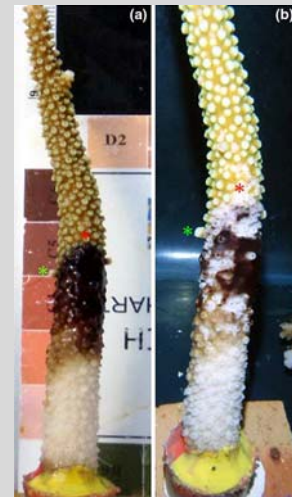


Fig. 2 *Acropora muricata* nubbins infected with black-band disease **a** before predation and **b** after predation by *C. plebius*. Asterisks mark common points in the two photos

Acknowledgements The authors thank the Wildlife Preservation Society of Australia, Australian Geographic and Project AWARE Foundation for financial support. Comments from the two anonymous reviewers greatly improved this manuscript

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Reef sites

Coral Reefs (2009) 28:965
DOI 10.1007/s00338-009-0519-3