

Algal blooms on coral reefs with low anthropogenic impact in the Great Barrier Reef

Received: 14 February 2006 / Accepted: 22 February 2006 / Published online: 23 May 2006
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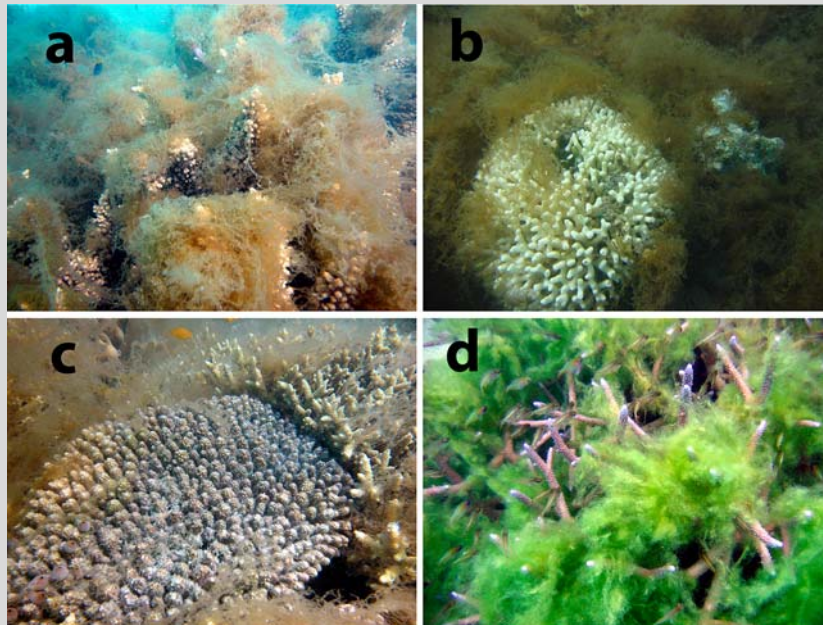


Fig. 1 **a** *Hydroclathrus clathratus* smothering *Acropora florida*. **b** *Seriatopora caliendrum* colony bleached after being smothered by *H. clathratus*. **c** Removing *H. clathratus* reveals stressed colony of *Acropora* sp. producing mucus. **d** *Ulva flexuosa* ssp. *Paradoxa* smothering branching *Acropora* sp

Macroalgal blooms of the species *Hydroclathrus clathratus* (Phaeophyta: Scytosiphonaceae) and *Ulva flexuosa* ssp. *Paradoxa* (Chlorophyta: Ulvaceae) on a number of coral reefs from 13°15'S to 15°25'S were recently observed (October 2005) during annual surveys of the far northern region of the Great Barrier Reef (GBR). Ephemeral blooms of benthic algae have been linked to elevated levels of nutrient runoff from agricultural or urban land-use. *H. clathratus* grows rapidly in response to nutrient pulses (Schaffelke 1999) and has even been suggested as an 'indicator species' for eutrophication on coral reefs (Delgado and Lapointe 1994). However, the observed blooms occurred on reefs distributed over a large area of the GBR where the adjacent coast and hinterland (~15–20 km away) were sparsely populated and with minimal development. Blooms occurred in the dry-season when no or very little nutrient runoff from the land should be expected. Both species were observed smothering live corals (Fig. 1a–d). Corals smothered by *H. clathratus* appeared bleached (Fig. 1b) or were producing excessive mucus (Fig. 1c), both signs of stress; however, the ultimate fate of these corals is not known. Although blooms were found over a large geographic area, they were highly localised with extensive blooms occurring in shallow (5 m depth) and sheltered areas of some reefs, but not necessarily on adjacent reefs. Due to the lack of documented cases of ephemeral blooms of benthic algae on coral reefs, especially the GBR, it is unclear what causes them, how long they persist, what effect they have on corals and coral reef systems, and whether such blooms are uncommon or if they have simply gone unnoticed.

Acknowledgements This work forms part of the Long-Term Monitoring Program at the Australian Institute of Marine Science. Helpful discussions and identification of samples under microscope by B. Schaffelke are greatly appreciated.

References

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Reef sites

Coral Reefs (2006) 25: 390
DOI 10.1007/s00338-006-0108-7