

Partial bleaching in an assemblage of small apozooxanthellate corals of the genera *Heteropsammia* and *Heterocyathus*

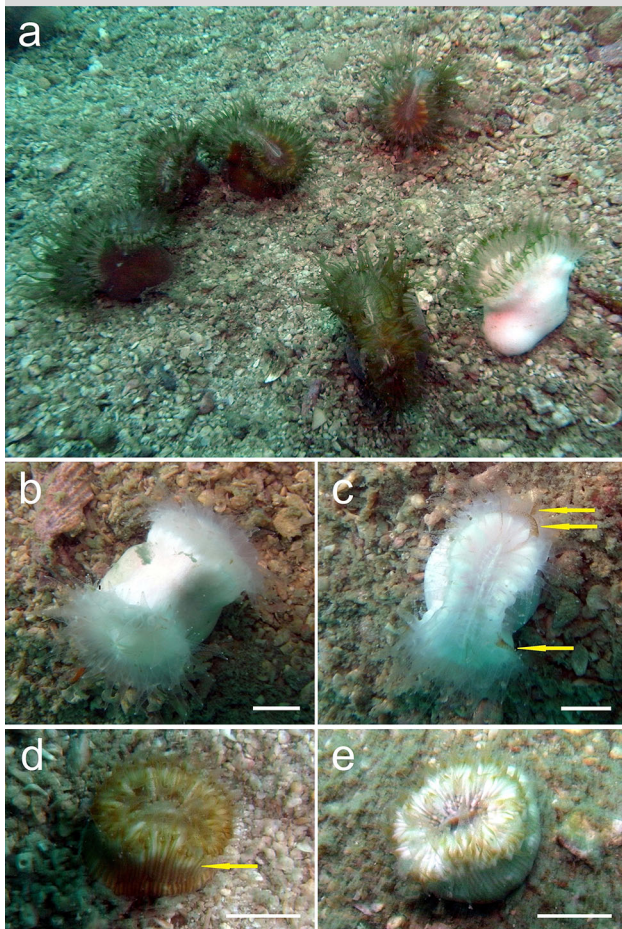


Fig. 1 Unbleached, bleached, and partially bleached *Heteropsammia* and *Heterocyathus* corals at Koh Tao (scale bars 0.5 cm). **a** Six specimens of *Heteropsammia cochlea*, one of them bleached (tentacles excepted). **b** A completely bleached *H. cochlea* with two polyps. **c** *H. cochlea* with zooxanthellae in three tentacles (arrows). **d** *Heterocyathus aequicostatus* bleaching at upper part (above arrow). **e** Nearly completely bleached *H. aequicostatus*

Corals of the genera *Heteropsammia* (Dendrophylliidae) and *Heterocyathus* (Caryophylliidae) consist of a small (<2.5 cm), free-living, single polyp that is pulled over sandy substrates by an endosymbiotic sipunculan worm (Hoeksema and Best 1991). They are considered to have a facultative symbiotic relationship with *Symbiodinium* zooxanthellae, by their presence at shallow depths (such as <40 m) and their absence at much greater depths (Hoeksema and Best 1991). Species of these genera should therefore be considered apozooxanthellate (Schuhmacher and Zibrowius 1985). However, the deep records are mostly based on studies of dry museum material, which could no longer be checked for the presence of zooxanthellae.

On February 18, 2011, an assemblage of *Heteropsammia cochlea* (Spengler, 1781) and *Heterocyathus aequicostatus* (Milne Edwards and Haime, 1848) was studied on a sandy bottom (16–19 m depth) near a coral reef at Koh Tao, Gulf of Thailand (10°7'12"N, 99°48'60"E). At that time, reef corals at this island were recovering from a major bleaching event that took place mid-2010. Although this event was over, some of the *Heteropsammia* and *Heterocyathus* corals showed partial or complete bleaching (Fig. 1). This is noteworthy because individuals of these small species have not been reported to bleach before in shallow water despite various accounts of interspecific variation in bleaching susceptibility among reef corals (e.g., Guest et al. 2012). The present observations confirm that these free-living corals usually contain zooxanthellae in shallow water and that it is possible that they may occur without symbiotic algae at greater depths.

References

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