

Size-dependent dispersal by *Goniopora stokesi* corals at Semporna, eastern Sabah, Malaysia

Abstract

Free-living corals of *Goniopora stokesi* Milne Edwards & Haime, 1851 (Scleractinia: Poritidae) were observed at various sites during the Semporna Marine Ecological Expedition (SMEE 2010) in eastern Sabah, from 29 November to 18 December 2010. At two out of 63 sites, dense aggregations (75–100% cover) with extended polyps had formed only on the sandy bottom of depressions (at 16–20 m depth). These corals could not leave, unlike scattered *G. stokesi* corals found on sandy slopes, which may migrate in downward direction (Hoeksema 1988). The largest coral patch (Fig. 1a) was c. 200 m² (Denawan I.) and the other only c. 40 m² (Larapan I.). Some colonies showed budding through the formation of polyp balls (Fig. 1b), which is a known trait in this species (Boschma 1923; Rosen and Taylor 1969). A few parent individuals had loose polyp balls around them, which had dropped and rolled to available space nearby. Most large specimens were dome-shaped with their dead, flattened base on the sand or partly buried inside it (Fig. 1b). Only a few were found in upside-down position or laying on a side (Fig. 1c). The heavy weight and flat underside of these large corals would likely hinder any further migration and may render them practically immobile. Our observations suggest that free-living *G. stokesi* corals can disperse easily when they are small and may eventually form dense fields when they are physically entrapped by the surrounding reef.