

# bi annual multi spesific spawning

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**Submission date:** 26-Sep-2018 11:20AM (UTC+0700)

**Submission ID:** 1008591209

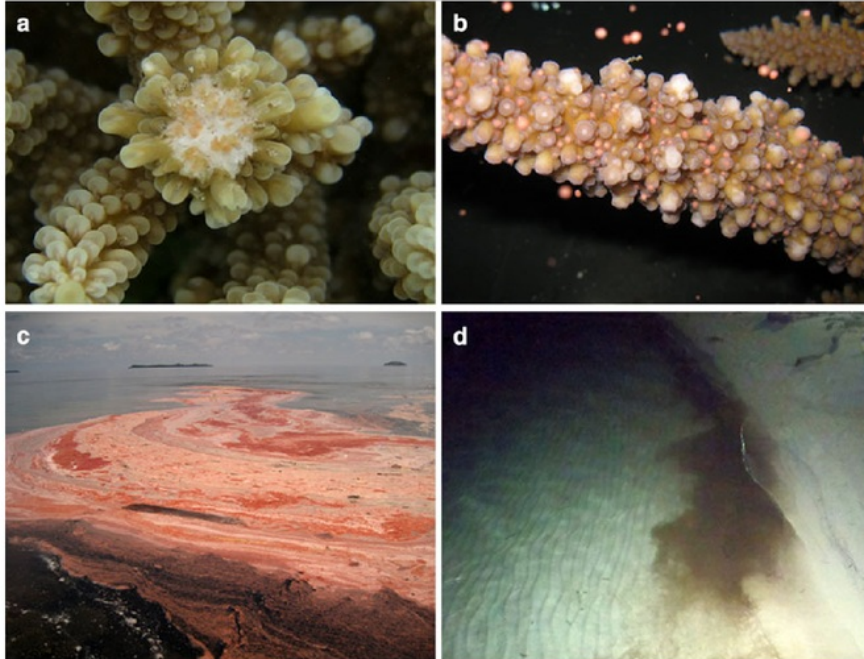
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# Reef sites

## Biannual multispecific spawning in Karimunjawa Archipelago, Indonesia



**Fig. 1** Biannual multispecific synchronous spawning in Karimunjawa Archipelago **a** Oocytes were seen within polyp of *Acropora tenuis*; **b** in March *A. gomezi* released gametes without setting; slicks were seen around Sambangan Island on **c** 17 March 2011 and **d** 14 September 2011

Multispecies synchronous spawning has now been described from 23 regions globally (Baird et al. 2009). The first observation of multispecific synchronous spawning in Indonesia was in the Karimunjawa Archipelago in October 1995 (Edinger et al. in Tomascik et al. 1997). In 2009, the reproductive condition of coral colonies was examined at three sites around Sambangan Island (05°50'39.2"S, 110°35'12.4"E) along a line transect (100 m). In March, 40 % (n = 132) of the colonies on these transects contained mature oocytes (Fig. 1a). A total of 53 (of 132) tagged colonies from 8 of 13 species released their gametes between 1940 and 2215 hours on the night of 20 March 2009 (8 days after the full moon; Fig. 1b). Spawning also occurred on 3 April 2009 when 24 of 64 colonies from 6 of 13 species spawned their gametes at the same time of night as the previous spawning.

**4** In 2009 and 2011, multispecific spawning events were recorded in March, April (Fig. 1c), and October; in 2011, spawning occurred in March and September (Fig. 1d). September/October events were dominated by faviids and agaricids, while March/April by acroporids. This is the first indication that there are two peak periods of spawning in the Java Sea, a phenomenon that

appears to be common in Southeast Asia (Guest et al. 2005; Baird et al. 2009) and North Western Australia (Gilmour et al. 2009). The two distinct spawning seasons appear to be associated with changes in the monsoon that likely are driven by two annual peaks in insolation and or temperature (van Woesik et al. 2006).

**Acknowledgments** Many thanks to AH Baird for his suggestion on sample collection. DPW received Dikti's Competention Grants.

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Received: 20 October 2011 / Accepted: 20 April 2012 / Published online: 9 May 2012  
© Springer-Verlag 2012

Coral Reefs (2012) 31:907  
DOI 10.1007/s00338-012-0909-9

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