

Inhibition of coral settlement at multiple spatial scales by a pervasive algal competitor

Nicolas R. Evensen*, Christopher Doropoulos, Kathleen M. Morrow, Cherie A. Motti, Peter J. Mumby

*Corresponding author: nicolas.r.evensen@gmail.com

Marine Ecology Progress Series 612: 29–42 (2019)

Supplementary Figures

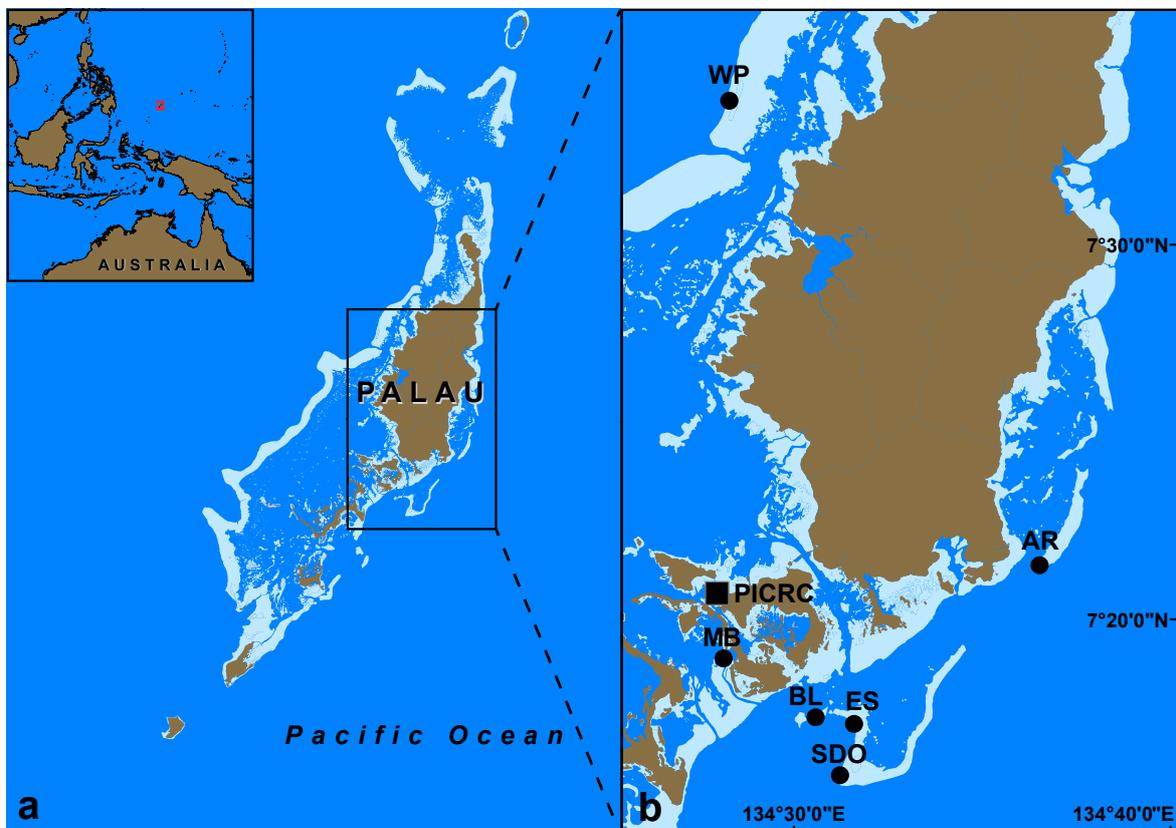


Figure S1. (a) Map of Palau, insert (b) shows collection sites of the adult coral colonies, along with the location of the Palau International Coral Reef Center (PICRC). *Acropora hyacinthus* colonies were collected at East Sheltered (ES), *A. gemmifera* colonies at Airai Reef (AR), and *A. aspera* colonies near West Pass (WP), while *Lobophora* thalli were collected in Malakal Bay (MB). Corals and algae were collected between 2-6 m depth at each site.

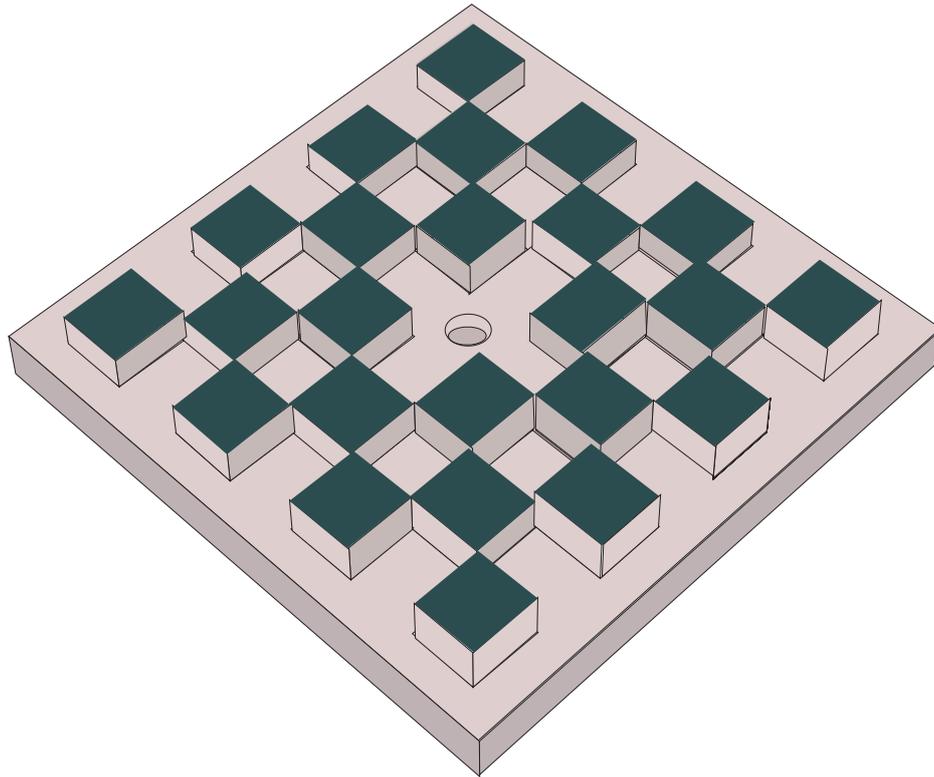


Figure S2. Illustration of the settlement tiles used for *Experiments 1-3*. These “chequered tiles” measured 10×10 cm and had 24 equally spaced crowns and crevices. Each crown measured $1.2 \times 1.2 \times 1.0$ cm ($l \times w \times d$), resulting in a total area of 34.56 cm^2 of exposed surface on the top of the crowns (dark grey) and 130.56 cm^2 of cryptic surface on the horizontal and vertical edges within the crevices (light grey). Tile were moulded using a mix of fine beach sand and cement at a ratio of 4:1, resulting in a matte surface. Tiles were designed after Doropoulos et al. (2016), with the design of the tile proven to increase rates of coral settlement in experimental settings.

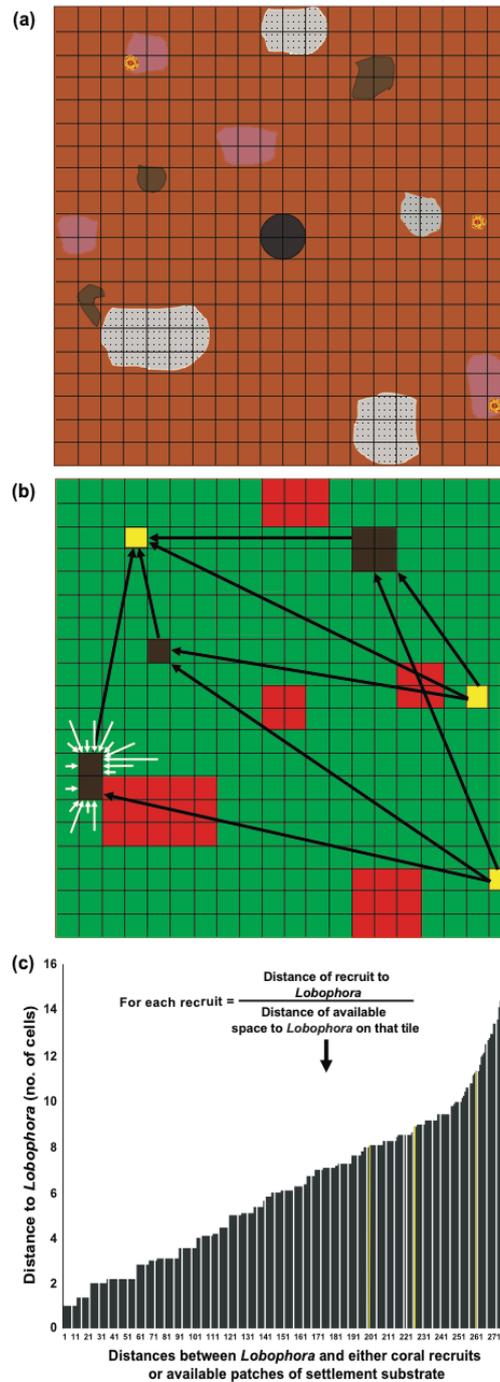


Figure S3. Schematic depicting the process of analysing field recruitment patterns. (a) A 20 × 20 grid superimposed onto images of 5 × 5 cm tiles, with each cell classified as suitable settlement substrata (e.g. CCA, pink areas), unsuitable settlement substrata (e.g. bryozoans, white dotted areas), *Lobophora* (brown areas), or *Acropora* recruit (orange circles). (b) Distance of each recruit (yellow) to each *Lobophora* patch (brown), represented by black arrows, and the distance of all available settlement space (green) to *Lobophora*, represented by white arrows, with red cells depicting the non-suitable settlement substrata. (c) Calculating the distance of each recruit from *Lobophora* (yellow bars), expressed as a percentile of the available settlement substrata on which recruits could have settled (grey bars).

LITERATURE CITED

Doropoulos C, Roff G, Bozec Y-M, Zupan M, Werninghausen J, Mumby PJ (2016) Characterising the ecological trade-offs throughout the early ontogeny of coral recruitment. *Ecol Monogr* 86:20–44