

Decadal variability in sponge abundance and biodiversity on an Indo-Pacific coral reef

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Table S1. List of the 42 taxonomically identified sponge taxa of the Hoga sponge assemblage. The remaining taxa were not possible to identify, largely due to lack of suitable samples or as a result of not being able to export specimens from Indonesia in many years of the survey.

Species	Family	Class
<i>Aaptos</i> sp.	Suberitidae	Demospongiae
<i>Acanthella</i> sp. 1	Dictyonellidae	Demospongiae
<i>Acanthella</i> sp. 2	Dictyonellidae	Demospongiae
<i>Agelas</i> sp.	Agelasidae	Demospongiae
<i>Axinella</i> sp.	Axinellidae	Demospongiae
<i>Axinyssa</i> sp.	Halichondriidae	Demospongiae
<i>Chalinula milnei</i>	Chalinidae	Demospongiae
<i>Chalinula nematifera</i>	Chalinidae	Demospongiae
<i>Chalinula</i> sp.	Chalinidae	Demospongiae
<i>Chelonaplysilla</i> sp. 1	Darwinellidae	Demospongiae
<i>Chelonaplysilla</i> sp. 2	Darwinellidae	Demospongiae
<i>Cinachyrella</i> sp. 1	Tetillidae	Demospongiae
<i>Cinachyrella</i> sp. 2	Tetillidae	Demospongiae
<i>Cinachyrella</i> sp. 3	Tetillidae	Demospongiae
<i>Clathria (Microcionia) mima</i>	Microcionidae	Demospongiae
<i>Clathrina</i> sp. 1	Clathrinidae	Calcarea
<i>Clathrina</i> sp. 2	Clathrinidae	Calcarea
<i>Clathrina</i> sp. 3	Clathrinidae	Calcarea
<i>Clathrina</i> sp. 4	Clathrinidae	Calcarea
<i>Clathrina</i> sp. 5	Clathrinidae	Calcarea
<i>Clathrina</i> sp. 6	Clathrinidae	Calcarea
<i>Cliona</i> sp.	Clionidae	Demospongiae
<i>Cribrochalina</i> sp.	Niphatidae	Demospongiae
<i>Dendrilla</i> sp.	Darwinellidae	Demospongiae
<i>Gelliodes</i> sp.	Niphatidae	Demospongiae
<i>Haliclona</i> sp.	Chalinidae	Demospongiae
<i>Jaspis splendens</i>	Ancorinidae	Demospongiae

<i>Lamellodysidea herbacea</i>	Dysideidae	Demospongiae
<i>Leucetta</i> sp.	Leucettidae	Calcarea
<i>Liosina</i> sp.	Dictyonellidae	Demospongiae
<i>Monanchora unguiculata</i>	Crambeidae	Demospongiae
<i>Niphates</i> sp. 1	Niphatidae	Demospongiae
<i>Niphates</i> sp. 2	Niphatidae	Demospongiae
<i>Niphates</i> sp. 3	Niphatidae	Demospongiae
<i>Niphates</i> sp. 4	Niphatidae	Demospongiae
<i>Pericharax</i> sp.	Leucettidae	Calcarea
<i>Placospongia melobesioides</i>	Placospongiidae	Demospongiae
<i>Protosuberites</i> sp.	Suberitidae	Demospongiae
<i>Pseudoceratina</i> sp. 1	Pseudoceratinidae	Demospongiae
<i>Pseudoceratina</i> sp. 2	Pseudoceratinidae	Demospongiae
<i>Sycon</i> sp.	Sycettidae	Calcarea
<i>Xestospongia</i> sp.	Petrosiidae	Demospongiae

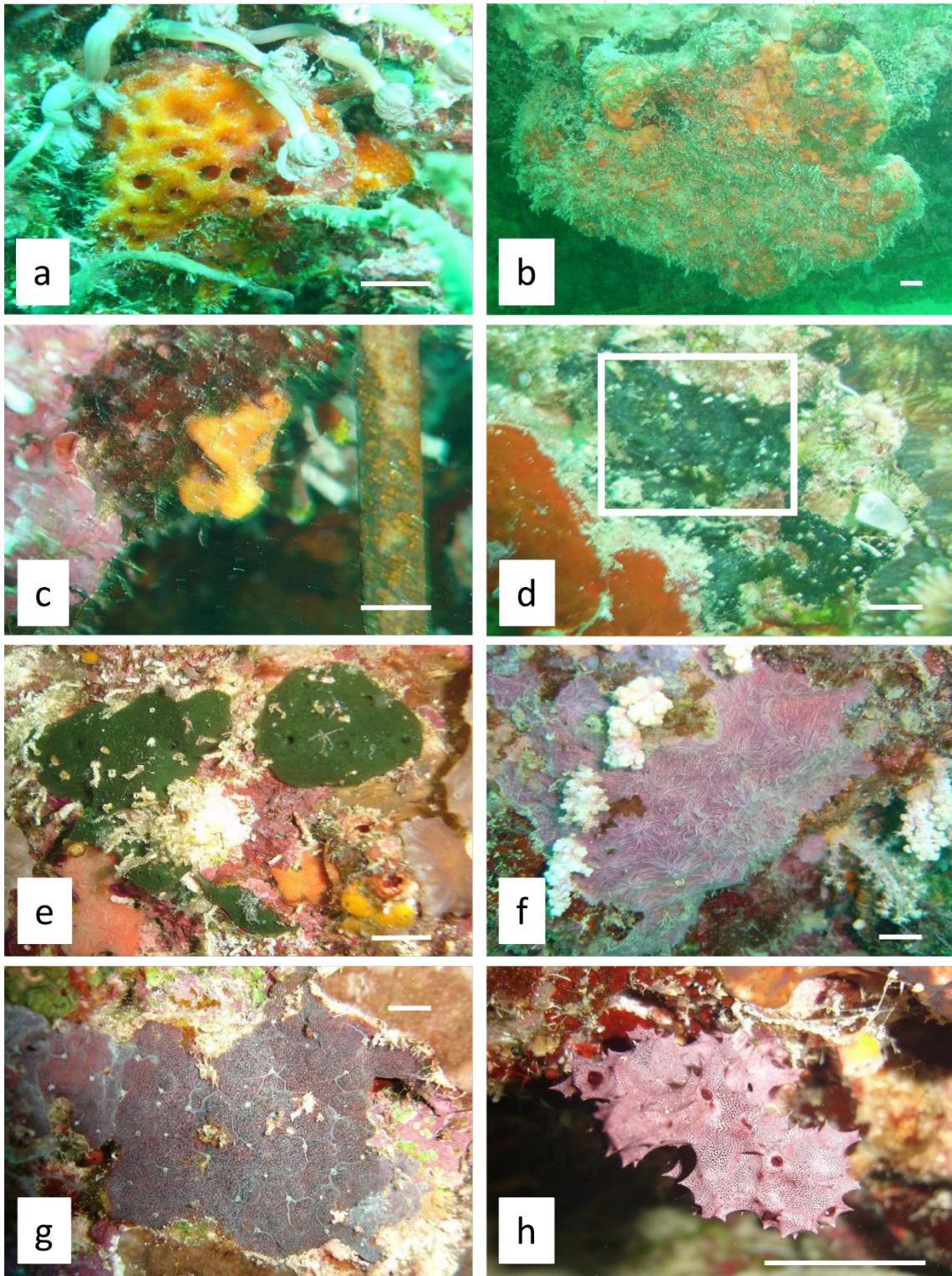


Fig. S1. Some common sponge taxa from the Hoga Island assemblage. Bars correspond to 1 cm. A: *Acanthella* sp.; b: *Agelas* sp.; c: *Axinella* sp.; d: *Axinyssa* sp.; e: *Chalinula milnei*; f: *Chalinula nematifera*; g: *Chalinula* sp.; h: *Chelonaplysilla* sp. 1.

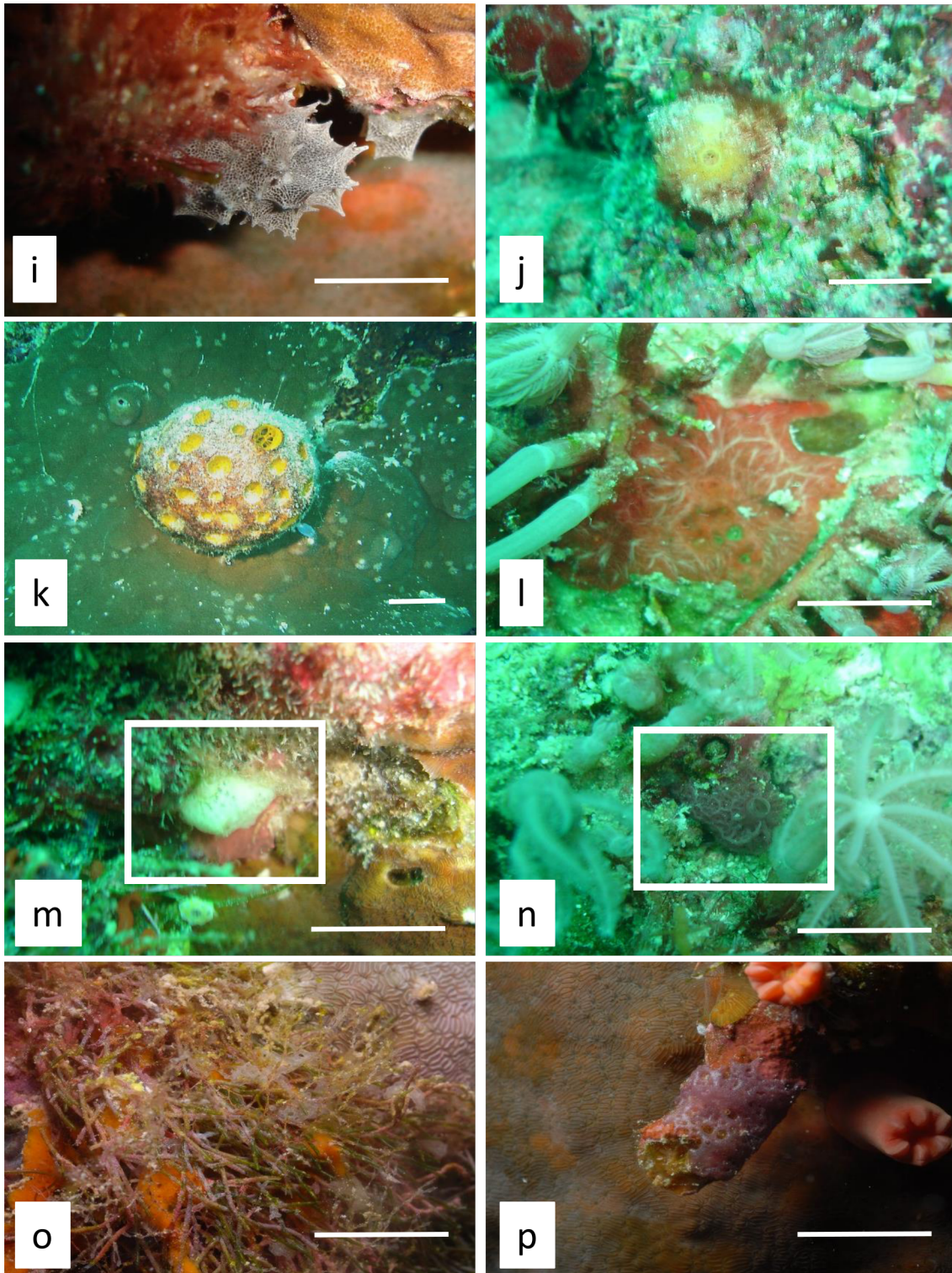


Fig. S1: Continued. i: *Chelonaplysilla* sp. 2; j: *Cinachyrella* sp. 2; k: *Cinachyrella* sp. 3; l: *Clathria (Microciona) mima*; m: *Clathrina* sp. 1; n: *Clathrina* sp. 2; o: *Clathrina* sp. 3 (white in association with turf algae); p: *Clathrina* sp. 4.

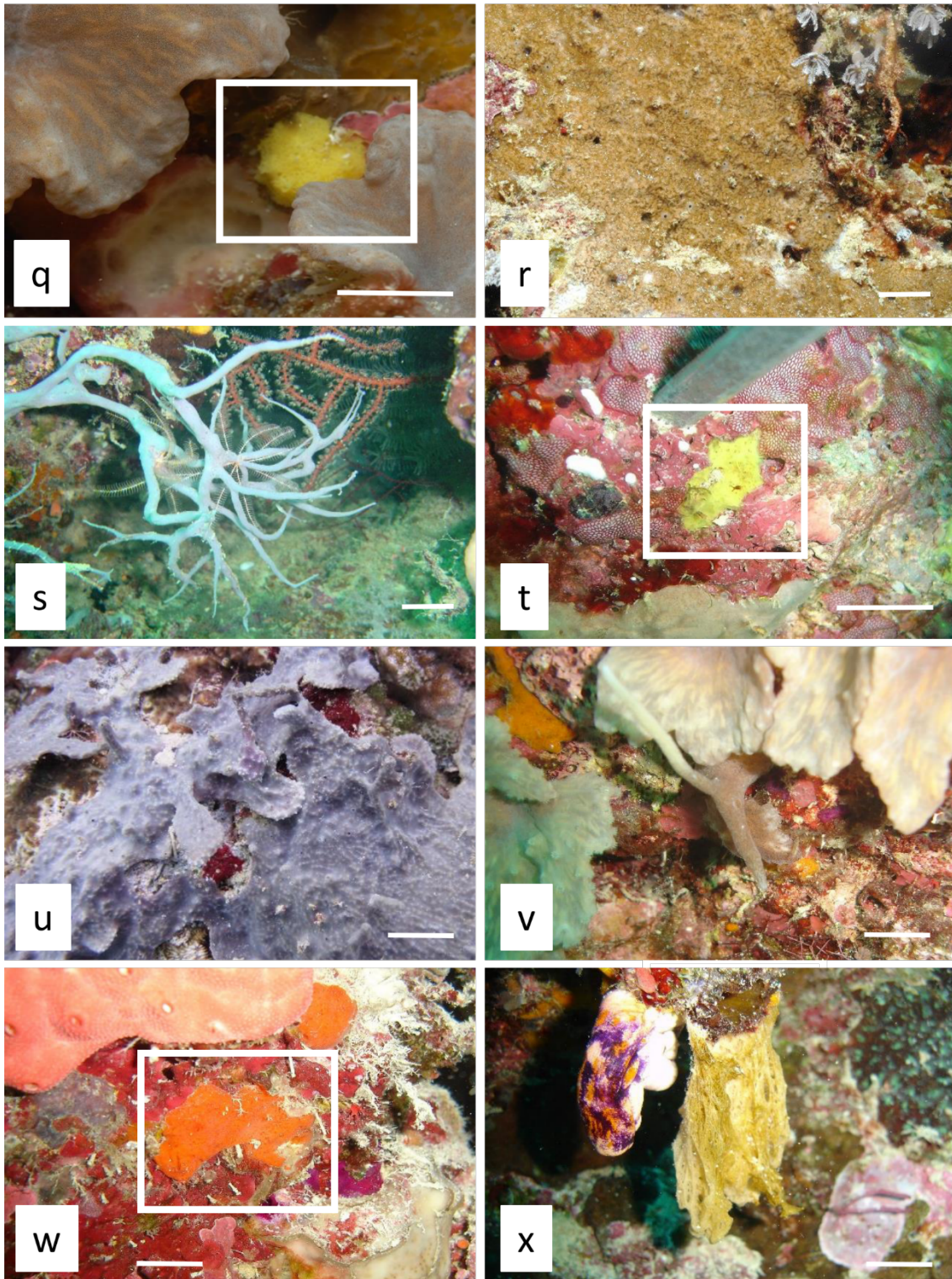


Fig. S1: Continued. Q: *Clathrina* sp. 6; r: *Cliona* sp.; s: *Cribrochalina* sp.; t: *Dendrilla* sp.; u: *Lamellodysidea herbacea*; v: *Haliclona* sp.; w: *Jaspis splendens*; x: *Leucetta* sp.

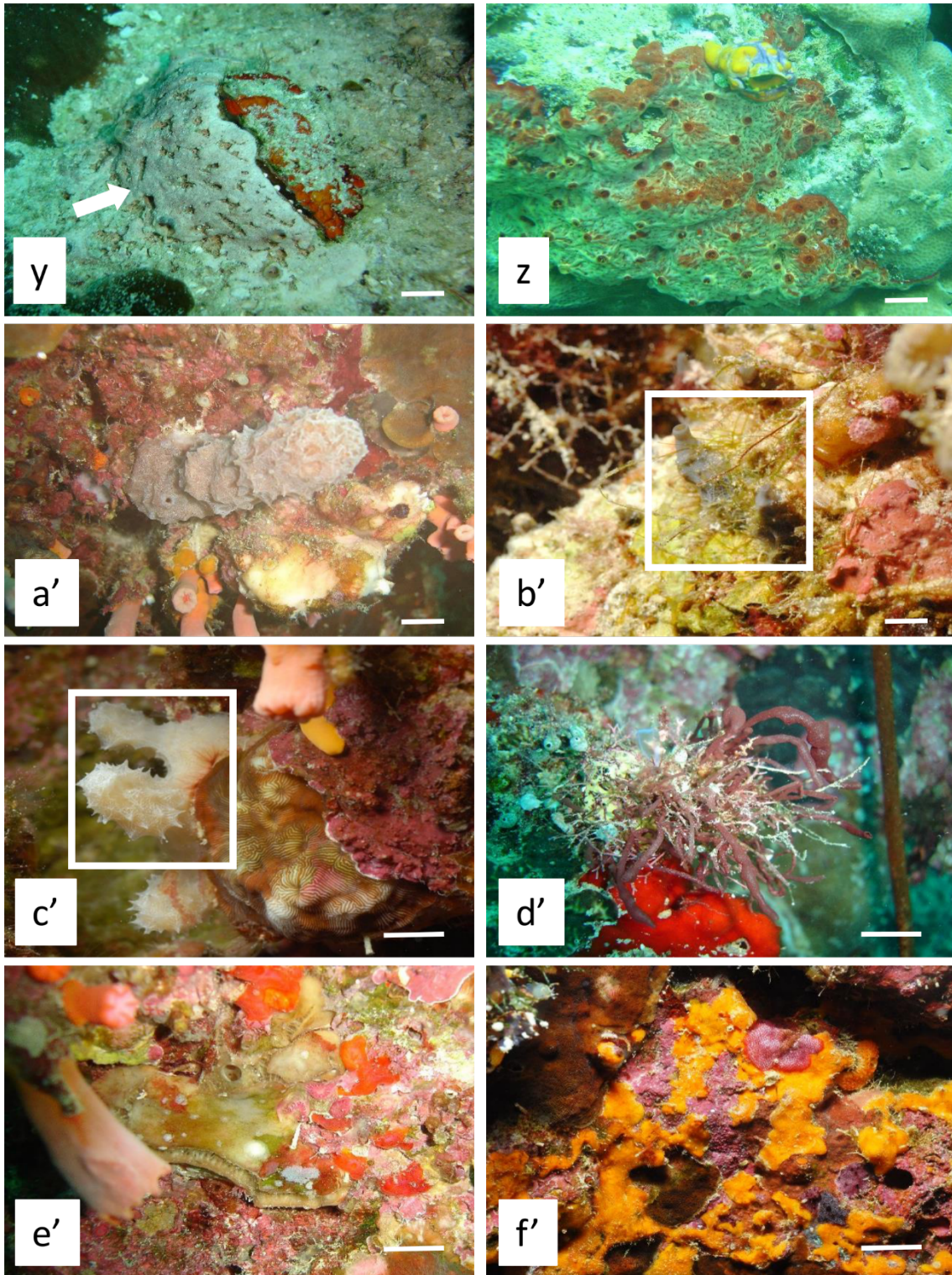


Fig. S1: Continued. Y: *Liosina* sp.; z: *Monanchora unguiculata*; a' *Niphates* sp. 1; b': *Niphates* sp. 2; c': *Niphates* sp. 3; d': *Pericharax* sp.; e': *Placospongia melobesioides*; f': *Protosuberites* sp.

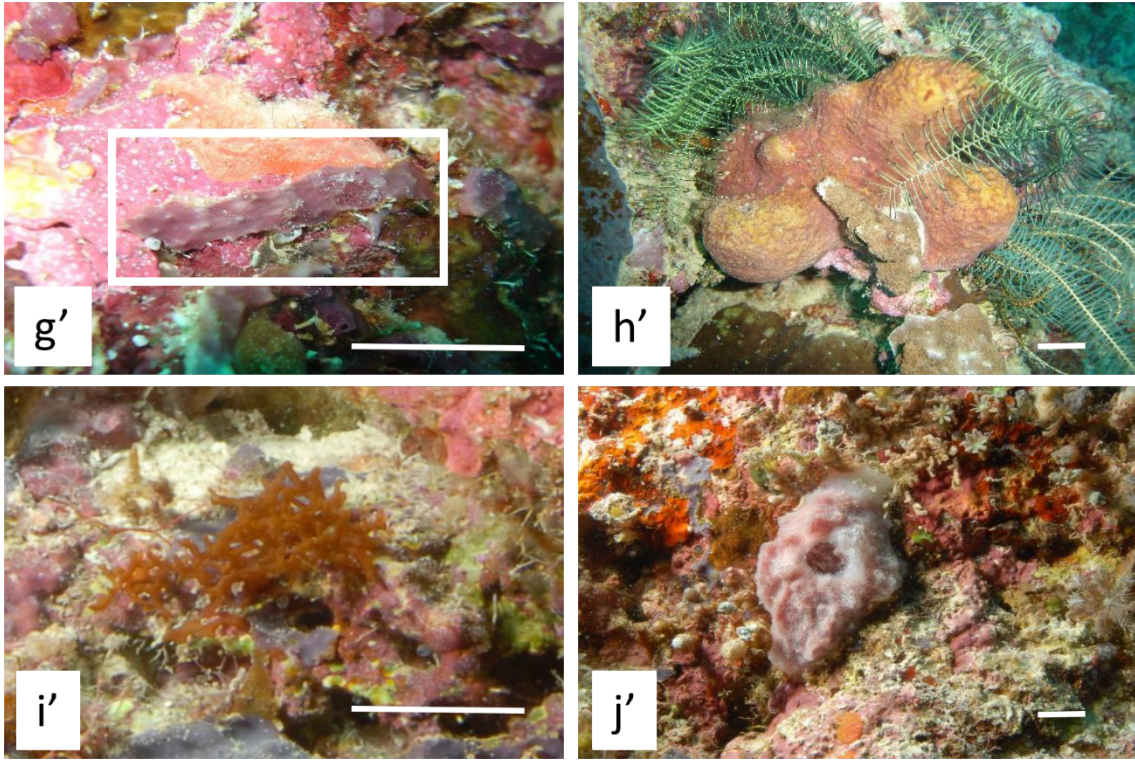


Fig. S1: Continued. G': *Pseudoceratina* sp. 1; h': *Pseudoceratina* sp. 2; i': *Sycon* sp.; j': *Xestospongia* sp.

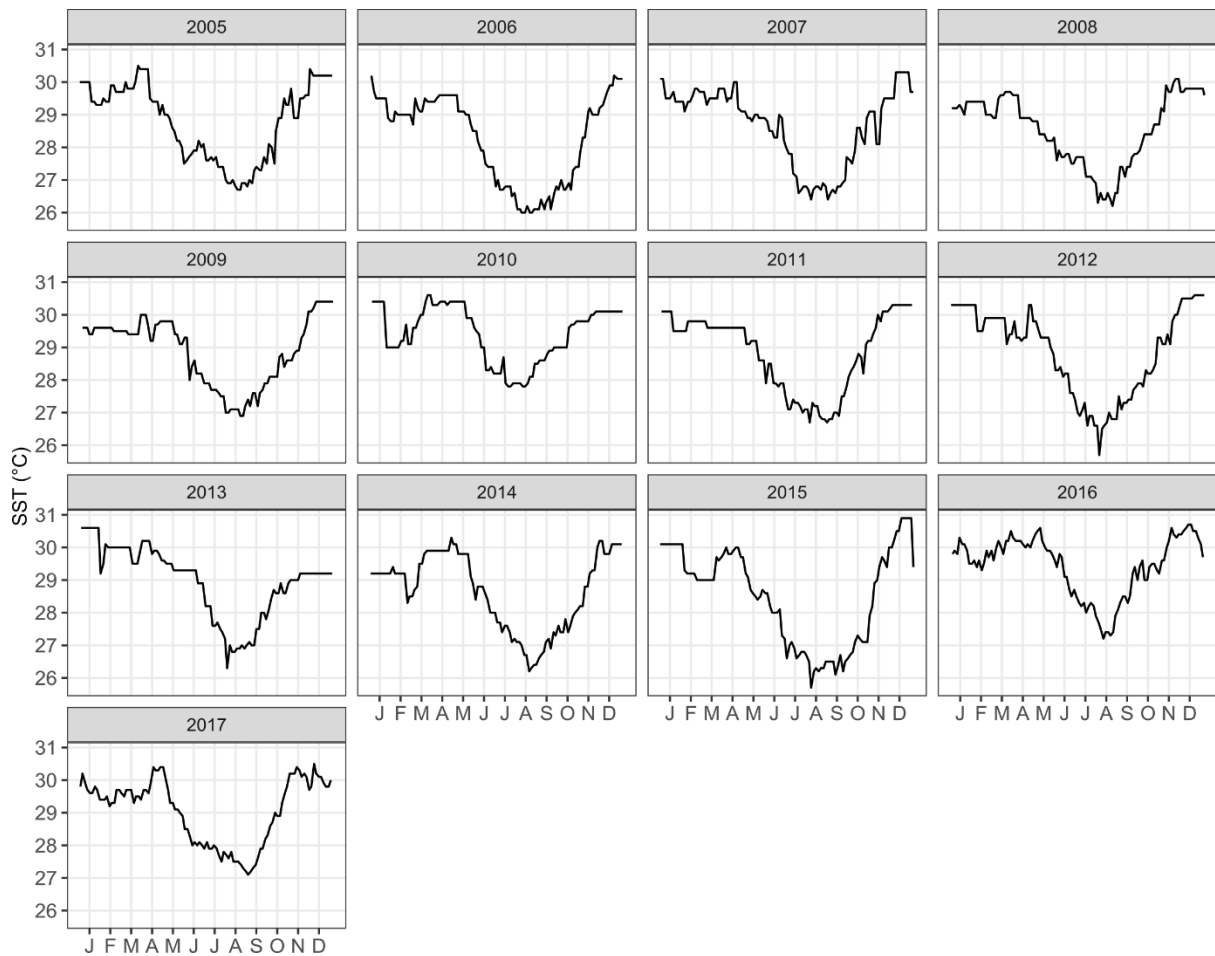


Fig. S2. Sea surface temperature (SST) from the Wakatobi Virtual Station between 2005 and 2017. Satellite data from the National Oceanic and Atmospheric Administration's Coral Reef Watch programme (NOAA 2000, available at https://www.ospo.noaa.gov/data/cb/TS_vs/vs_ts_Wakatobi_Indonesia.txt).

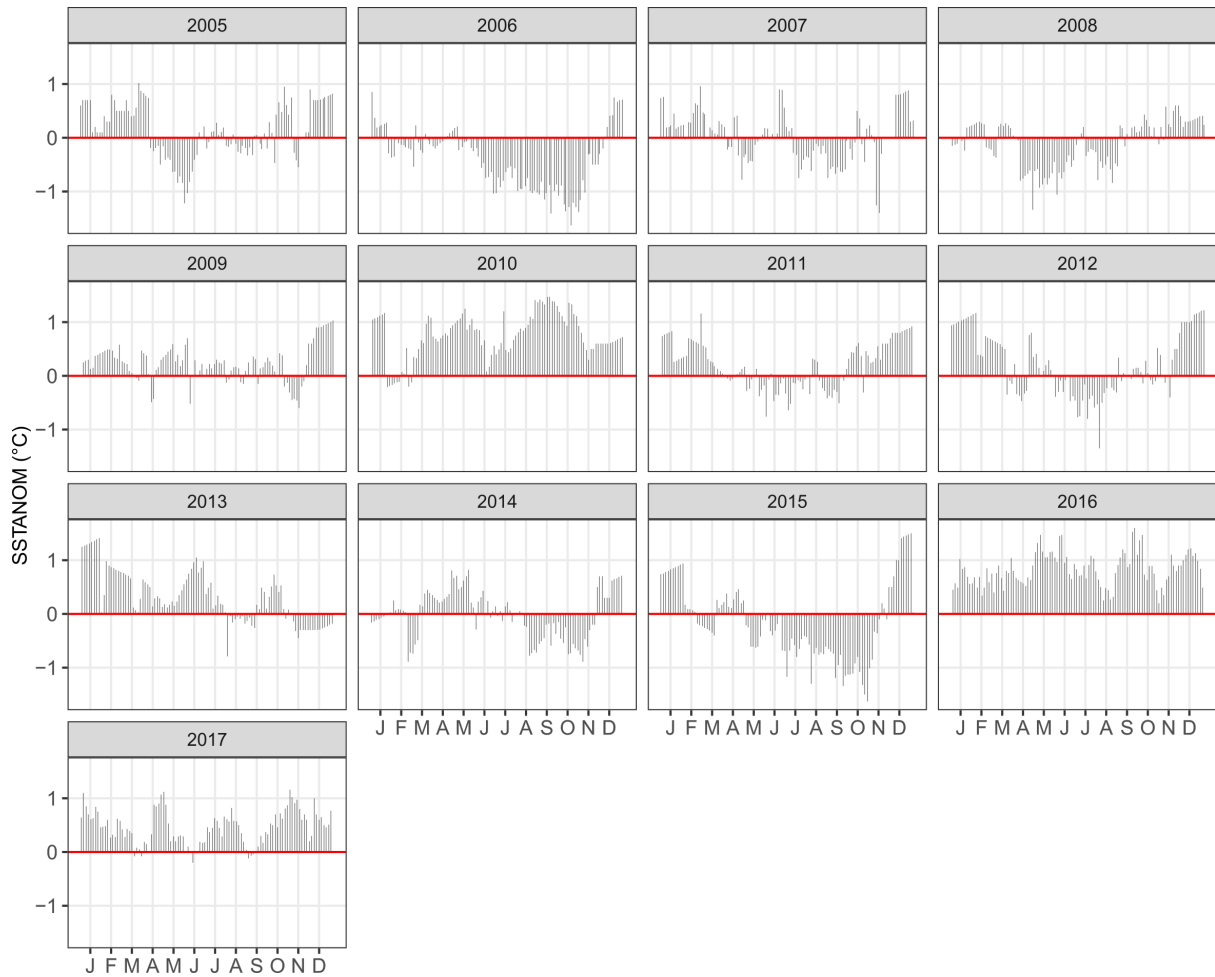


Fig. S3. Sea surface temperature anomalies (SSTANOM) from the Wakatobi Virtual Station between 2005 and 2017. Satellite data from the National Oceanic and Atmospheric Administration's Coral Reef Watch programme (NOAA 2000, available at https://www.ospo.noaa.gov/data/cb/TS_vs/vs_ts_Wakatobi_Indonesia.txt).

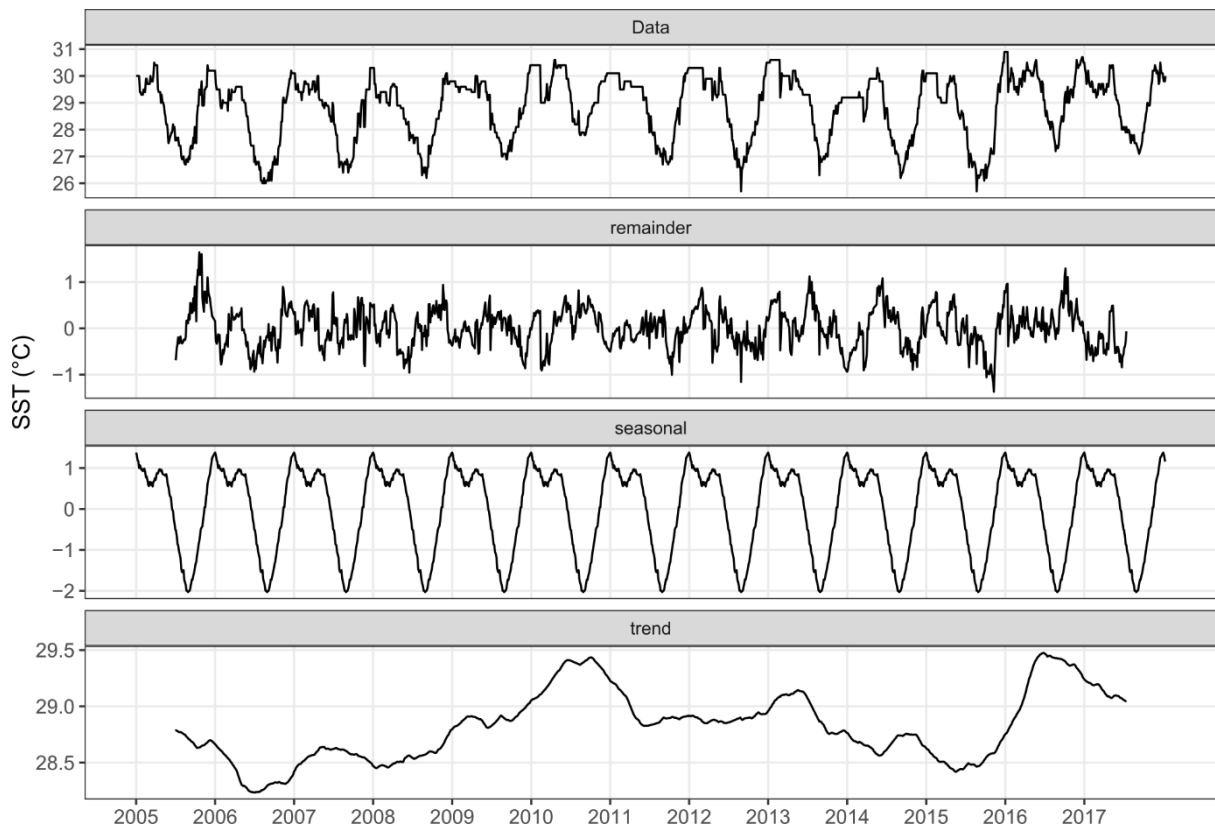


Fig. S4. Decomposed sea surface temperature (SST) time series data. Random, seasonal, and trend component extracted with moving average decomposition.

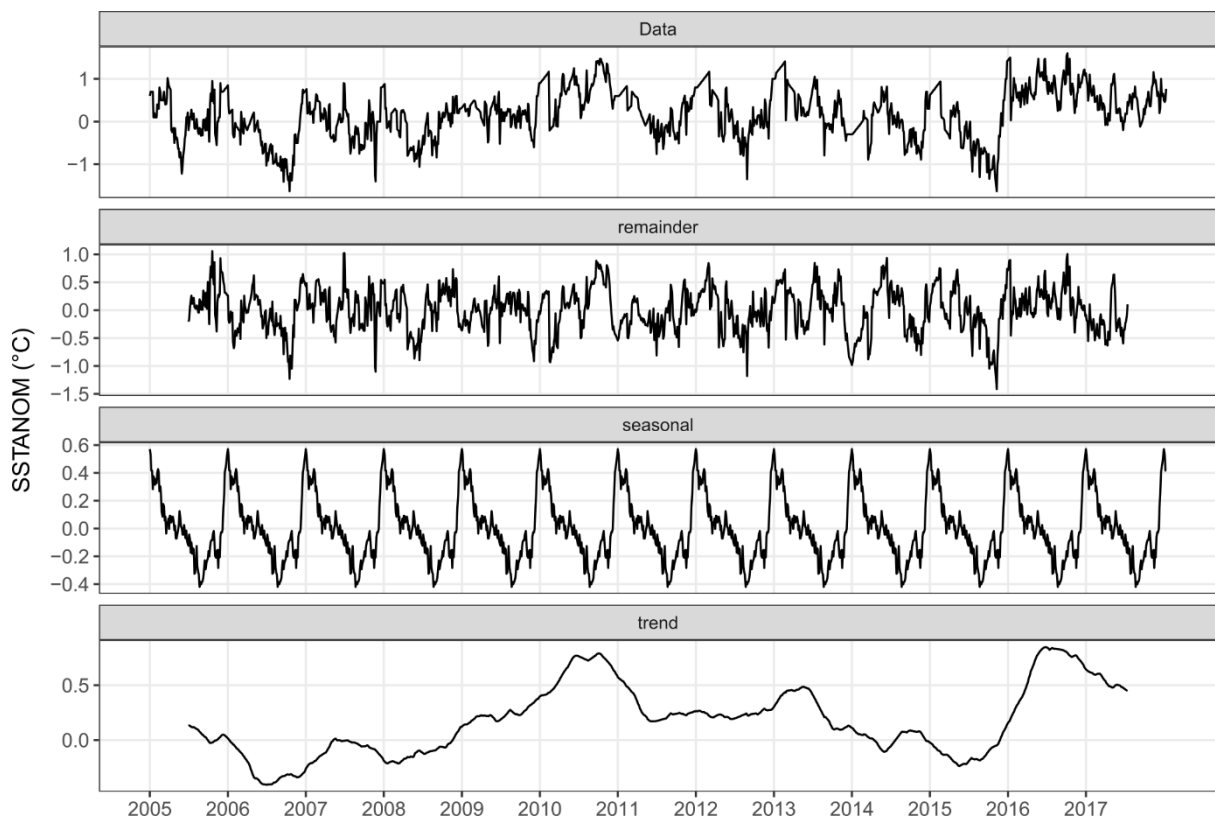


Fig. S5. Decomposed sea surface temperature anomalies (SSTANOM) time series data. Random, seasonal, and trend component extracted with moving average decomposition.

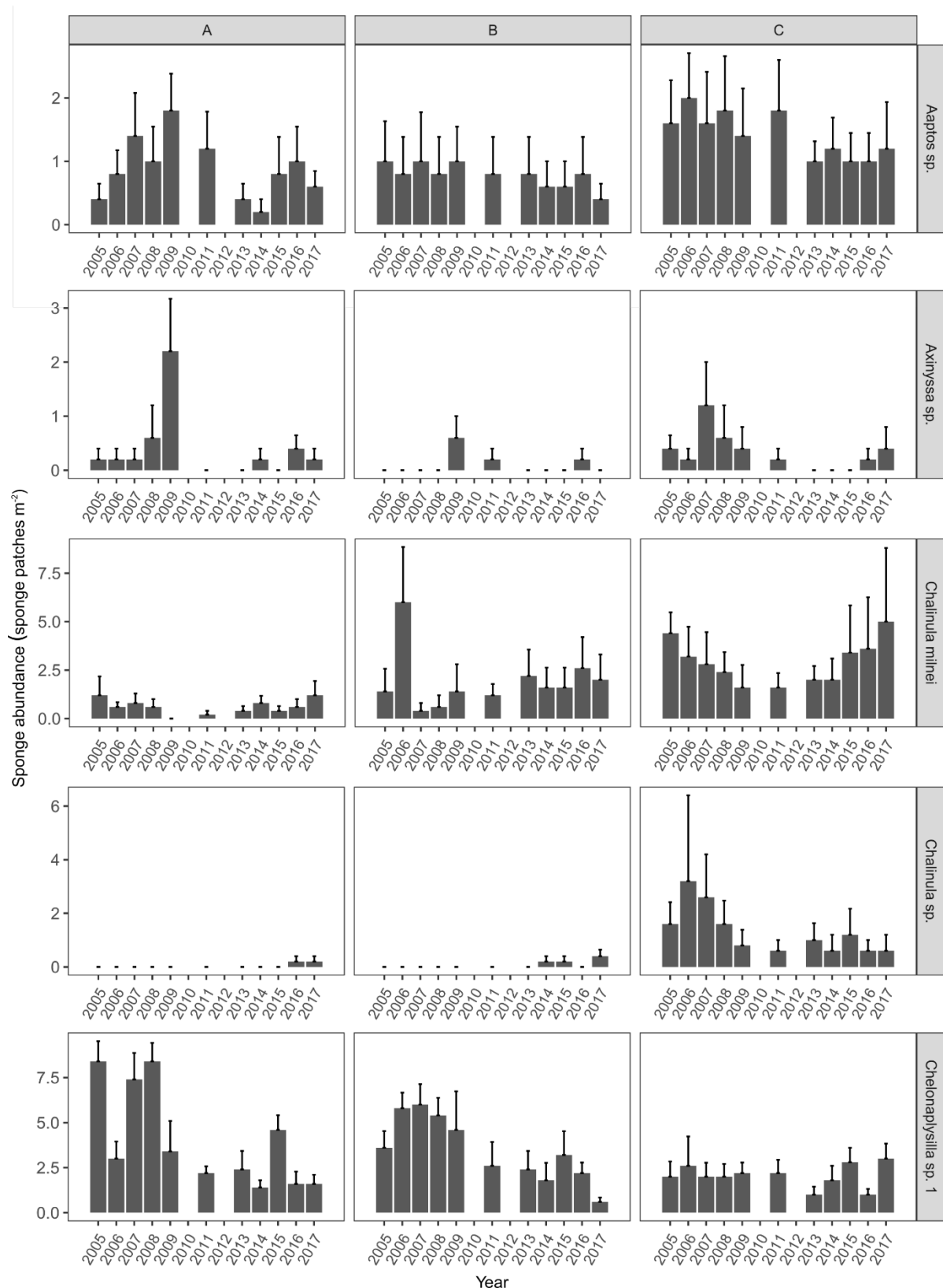


Figure S6. Mean abundance (sponge patches m^{-2}) of the most common, taxonomically identified taxa at the Hoga Island site. Of the 30 taxa that, summed, comprised $>90\%$ of the total sponge abundance in each photoquadrate, these 25 could be identified to genus level (25 of the total 141). Note the different scales on y-axes. Error bars indicate standard error of the mean. Letters A, B and C indicate the three sites.

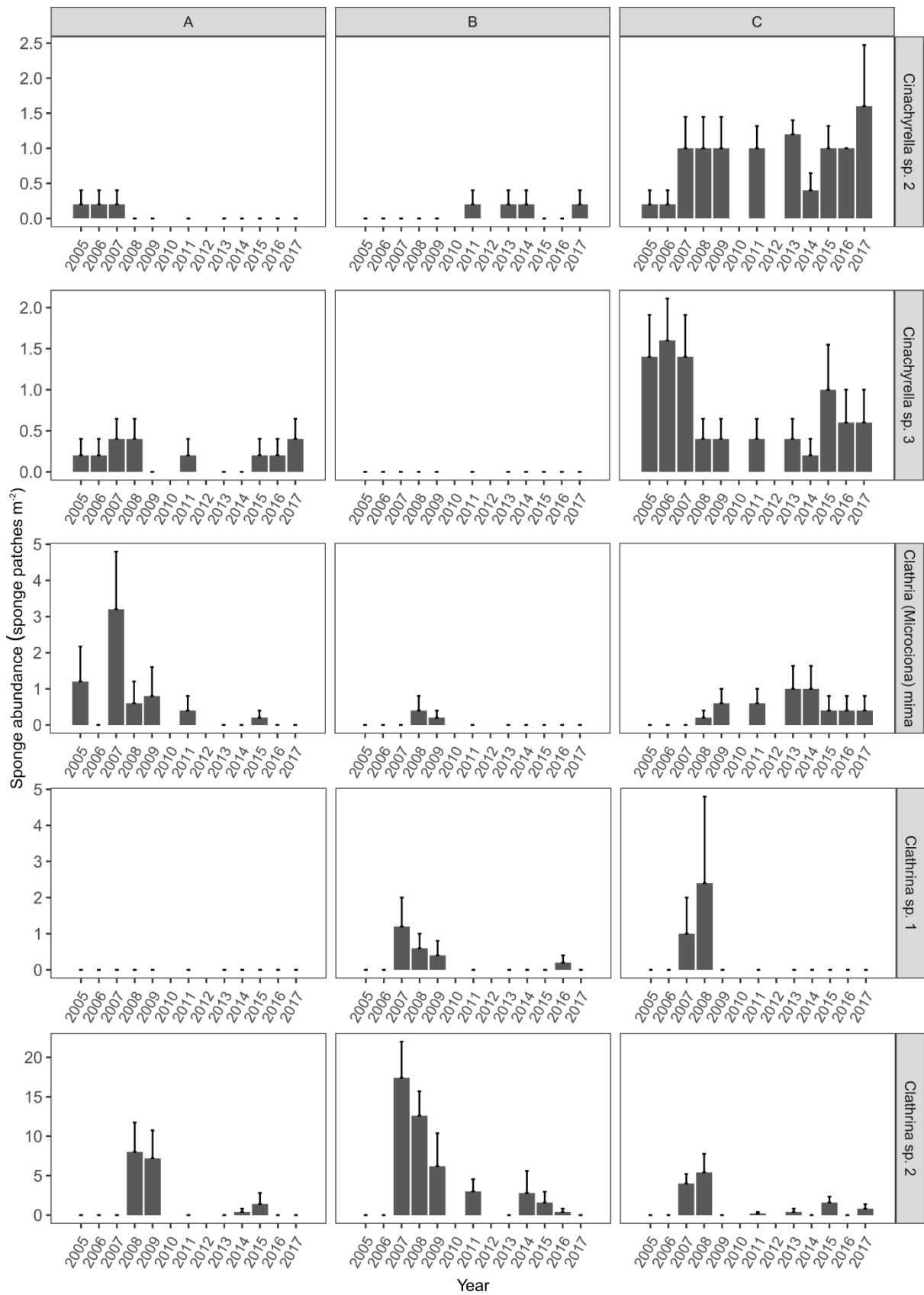


Figure S6: Continued.

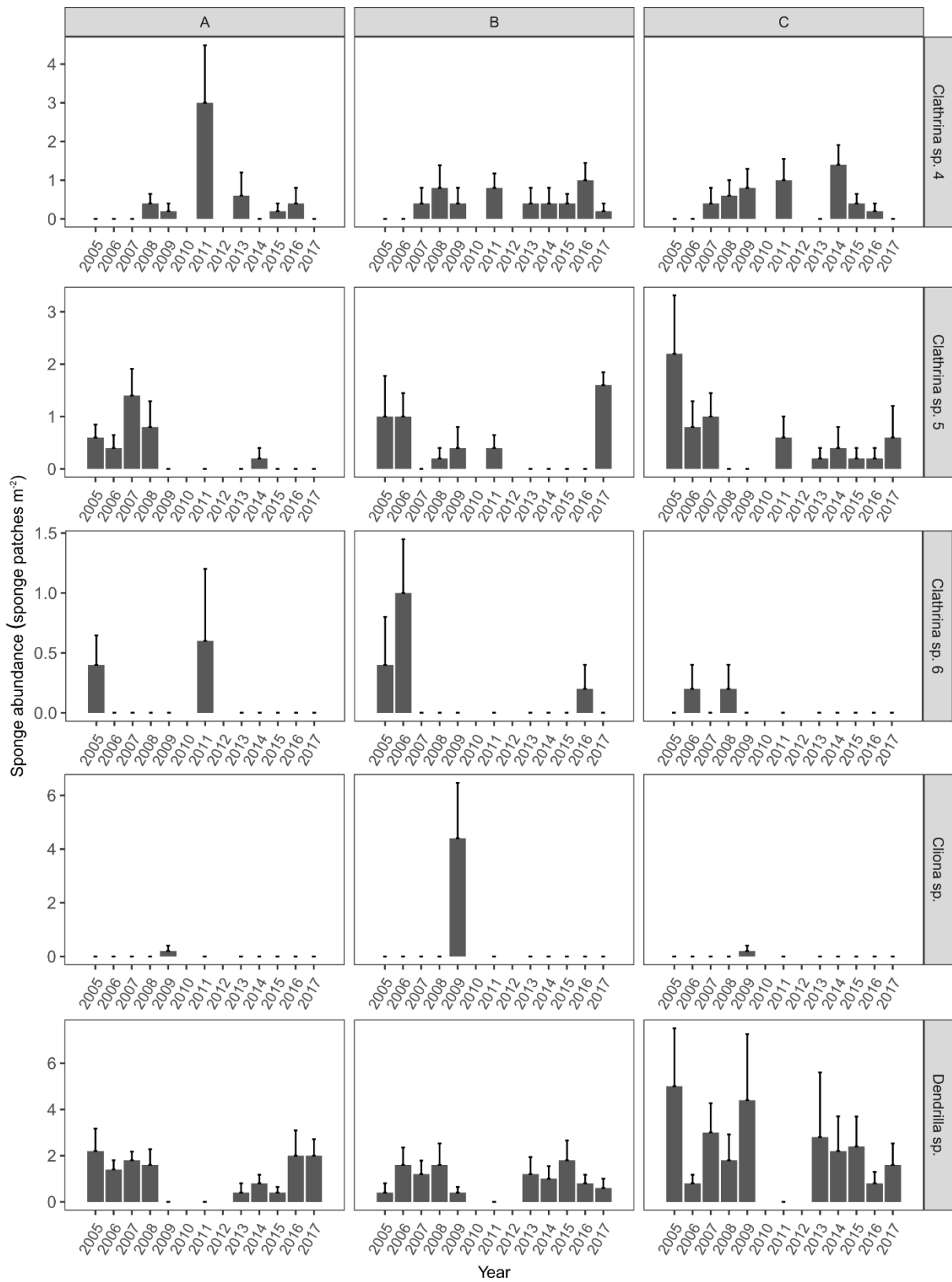


Figure S6: Continued.

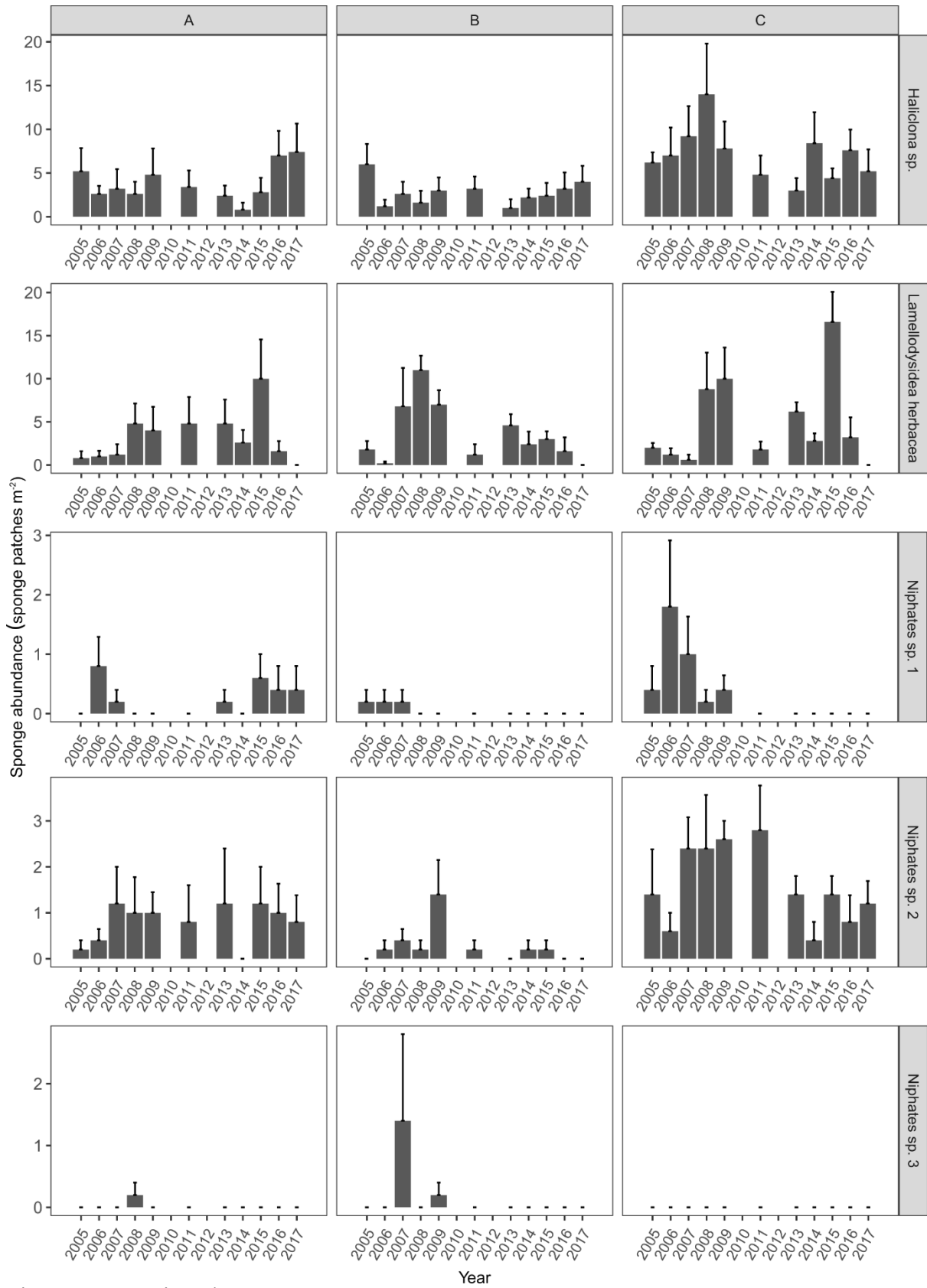


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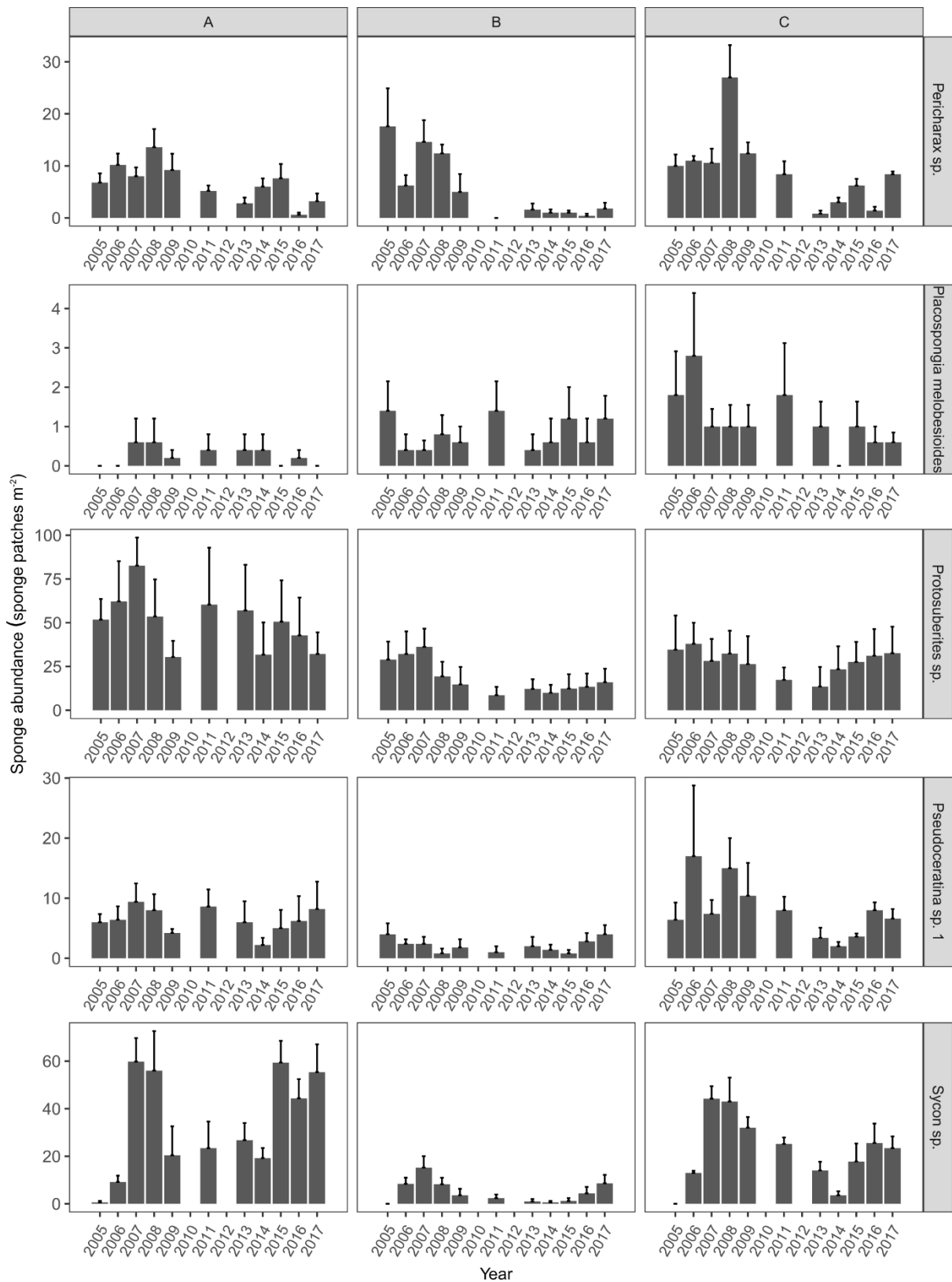


Figure S6: Continued.

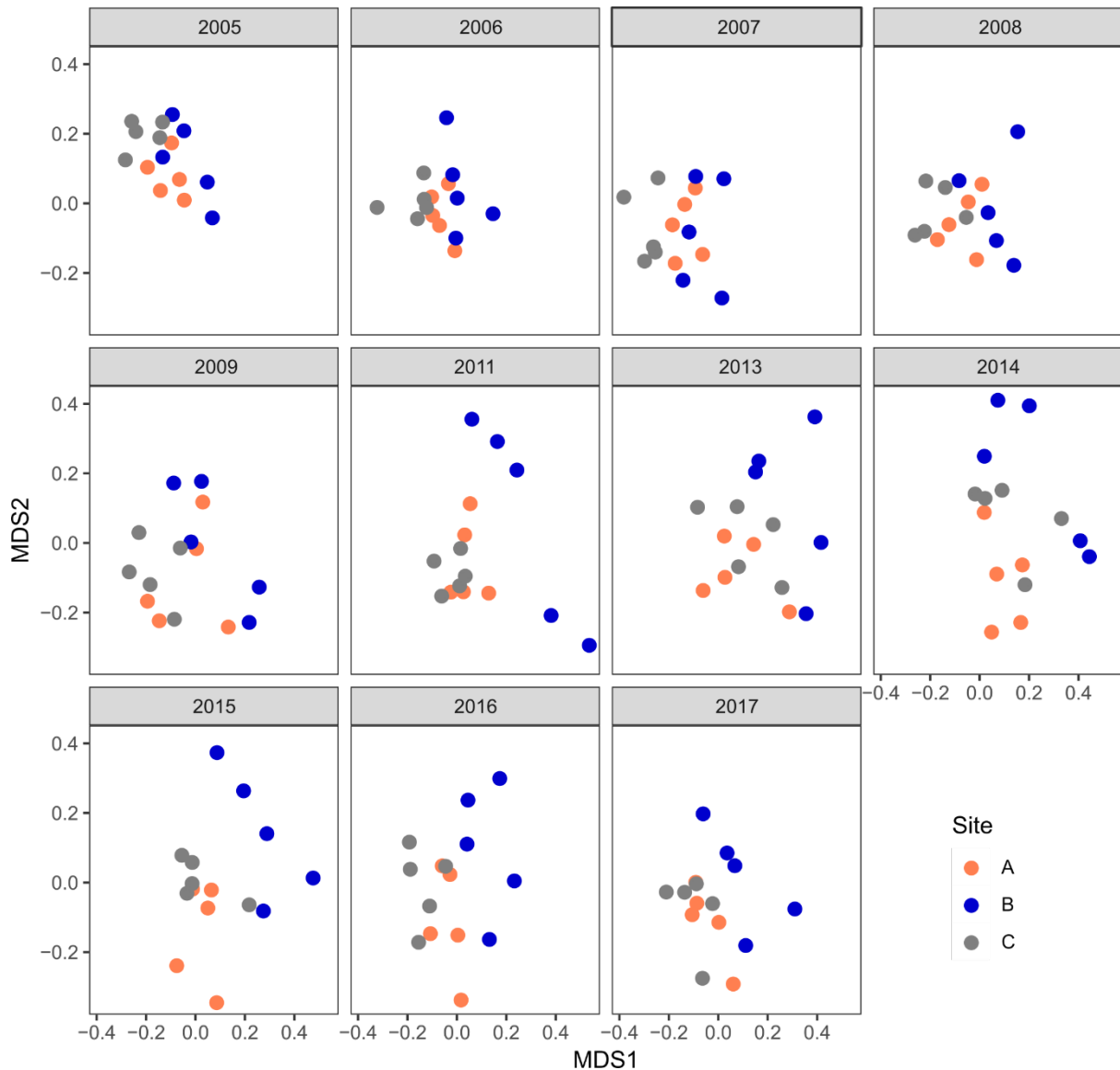


Fig. S7. Non-metric multidimensional scaling (MDS) plot of the sponge assemblage at Hoga Island, split by survey year to aid visualisation.

References

NOAA Coral Reef Watch. 2000, updated twice-weekly. NOAA Coral Reef Watch 50-km Satellite Virtual Station Time Series Data for Wakatobi, Jan. 1, 2005-Dec. 31, 2017. Silver Spring, Maryland, USA: NOAA Coral Reef Watch. Data set accessed 2018-02-14 at https://coralreefwatch.noaa.gov/satellite/vs/docs/list_vs_group_latlon_201103.php.