

Bacterial communities associated with corals out-planted on the Great Barrier Reef are inherently dynamic over space and time

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	Mojo					Rayban					Sandbox				
Plot/Donor colony number	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Number of out-plants	19	17	12	14	18	17	17	15	11	13	19	17	17	23	23

Table S1. Number of out-plants at each plot in each plot within the three reef sites.

Taxon	Avg. dissim	Contrib. %	Mean RA Mojo	Mean RA Rayban	Avg. dissim	Contrib. %	Mean RA Mojo	Mean RA Sandbox
<i>g__Endozoicomonas1</i>	4.082	4.375	0.542	8.45	13.47	14.21	0.542	27.4
<i>g__Lactobacillus fermentum</i>	3.766	4.036	7.49	0.0769	3.743	3.947	7.49	0
<i>g__Endozoicomonas2</i>	3.24	3.473	0.0399	6.5	5.191	5.474	0.0399	10.4
<i>g__Ruegeria</i>	2.803	3.004	5.67	1.42	2.852	3.007	5.67	1.59
<i>g__Erythrobacter</i>	2.185	2.342	3.85	1.2	2.405	2.535	3.85	1.79
<i>g__Pseudovibrio</i>	1.581	1.694	3.16	0	1.587	1.674	3.16	0.0211

Table S2. Relative abundance, average dissimilarity and contribution of top 6 ASVs driving differences between sites identified via SIMPER analysis.

Category of variable low-high.	Sandbox	Rayban	Mojo
Temperature	High (31.61°C)	Mid (30.36°C)	Low (29.80°C)
Flow	Mid (0.335)	Low (0.240)	High (0.455)
Light Attenuation	Low (0.200m ⁻¹)	Mid (0.317m ⁻¹)	High (0.414m ⁻¹)
<i>Difference to Rayban (source).</i>	1.362	-	0.872

Table S3. Qualitative dissimilarity matrix of environmental parameters across reef sites organised according to mean value relative to Rayban (source site).

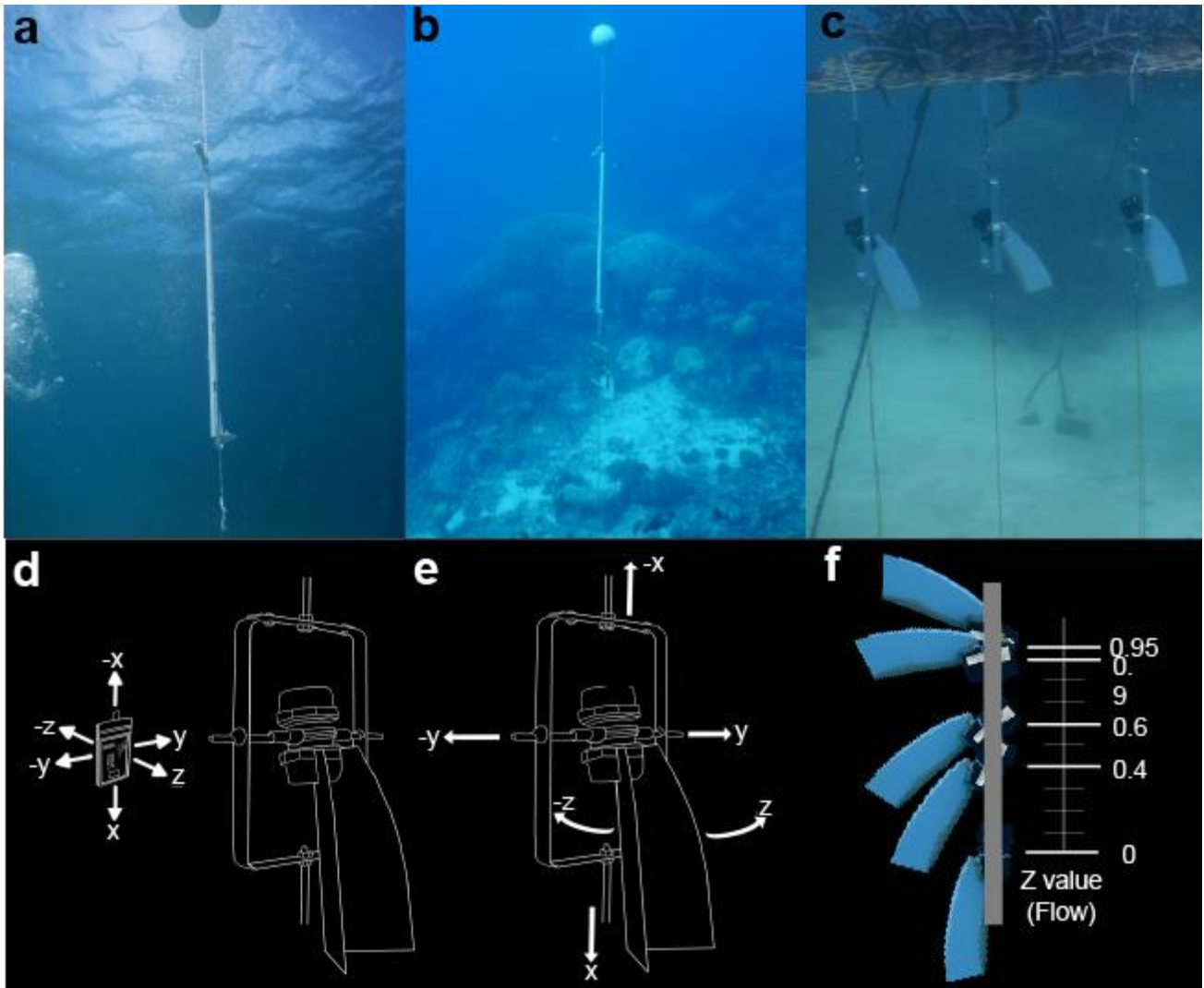


Fig. S1. (a) Light attenuation measurement system in situ, (b) tilting current meter in situ (with light attenuation measurement system) (c) three tilting current meters in situ during inter-calibration (d) Illustration of the tilting current meter and orientation of the internal HOBO Pendant G logger with (e) associated planes of measurement (f) orientation of tilting current meter at neutral (0) with corresponding Z value ≤ 1 as flow increases.

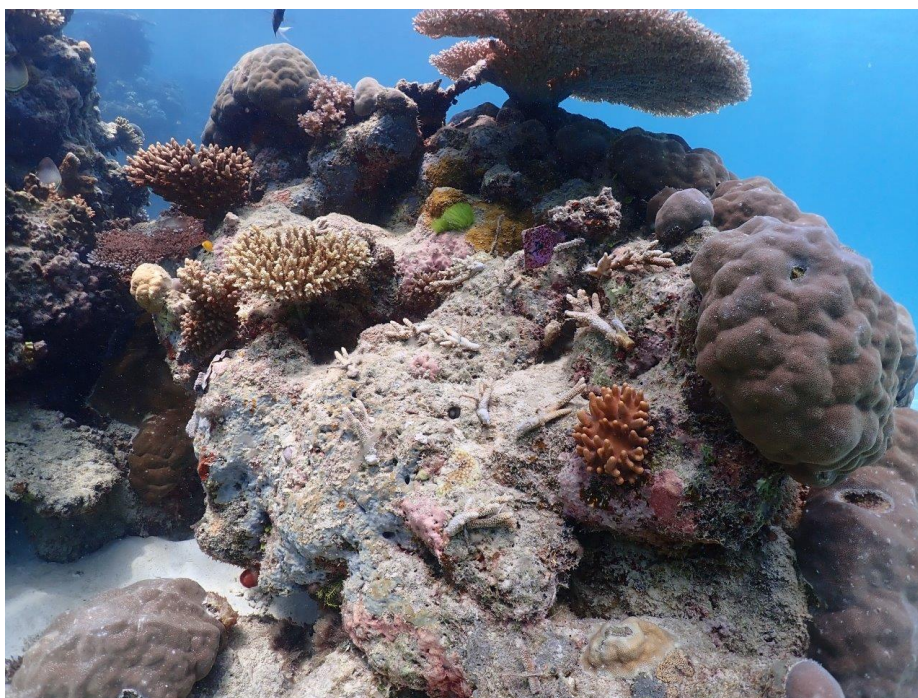


Fig. S2. Example of out-planting plot at Mojo.

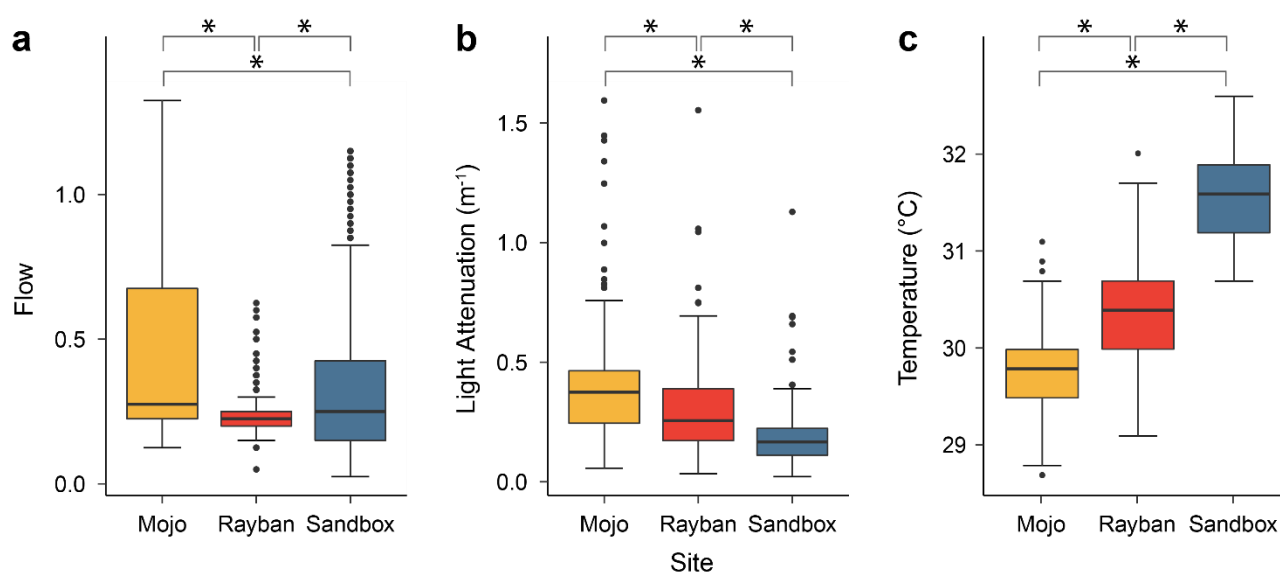


Fig S3. Flow (**a**), attenuation (**b**) and temperature (**c**) at each out-planting site during initial two-week site profiling). Boxes represent the 25th and 75th percentile, centre lines show medians. The whiskers mark 1.5 the inter-quartile range and the values beyond these upper and lower bounds are considered outliers, marked with dots. Wilcoxon rank sum test significance levels: $p_{adj} < 0.05 = *$. Source data are provided in Supplementary Data S1.

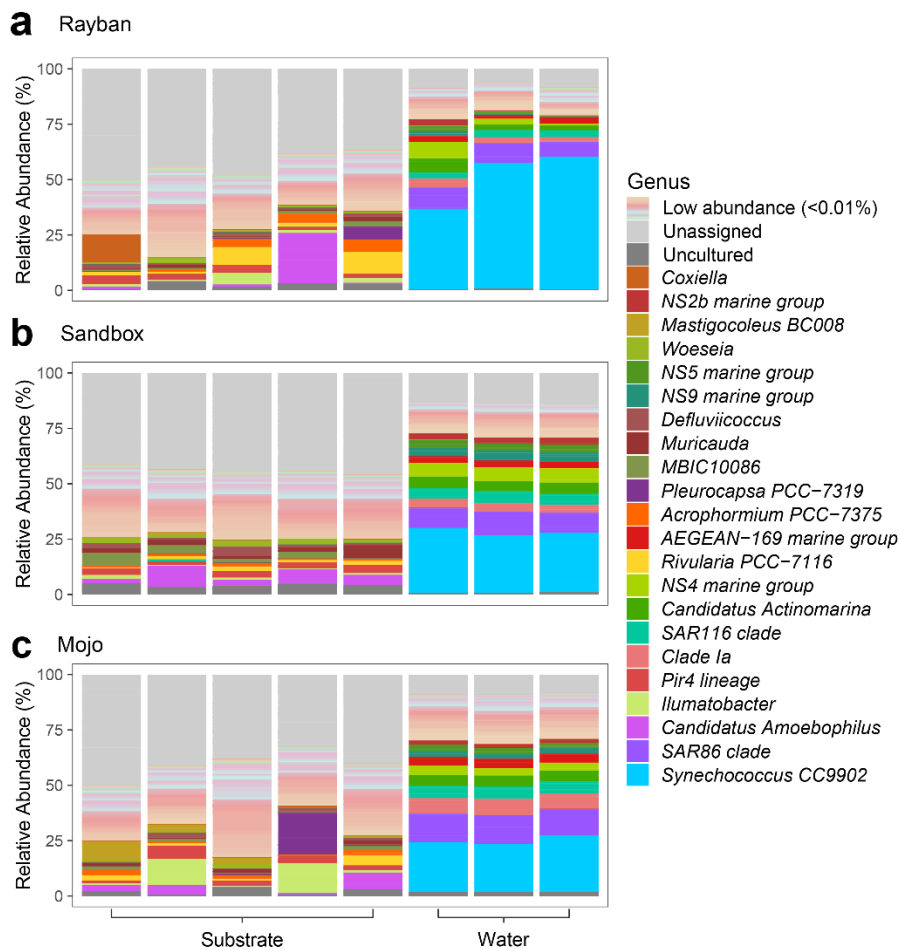


Fig S4. Bacterial community composition (relative abundances) by genus of water and substrate at the start of the experiment at (a) Rayban, (b) Sandbox and (c) Mojo. Pastel colours represent genera with an average relative abundance of < 0.1% in all samples, full legend provided as supplemental data (Supplementary Data S7.).

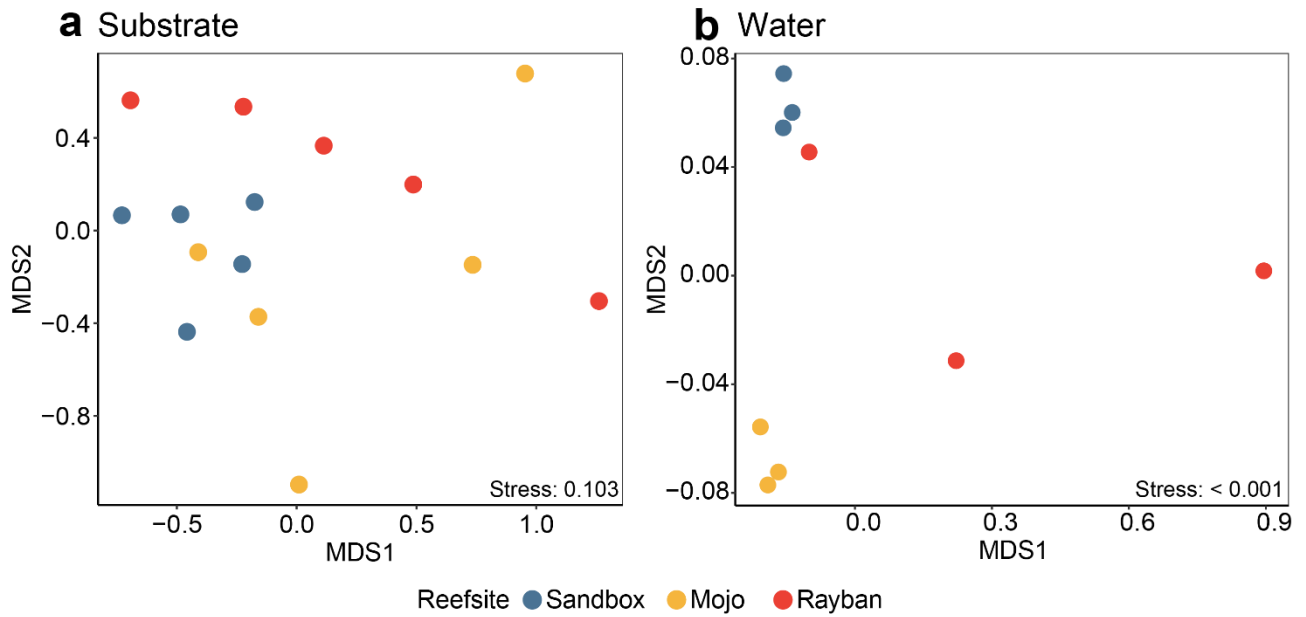


Fig S5. Bacterial community structure and relative dispersion of the microbial communities of (a) substrate and (b) water at the start of the experiment at Mojo, Sandbox and Rayban. Plots are based on non-metric multidimensional scaling (n-MDS) of Bray-Curtis distances of bacterial community structure. Source data are provided as a Source data file.

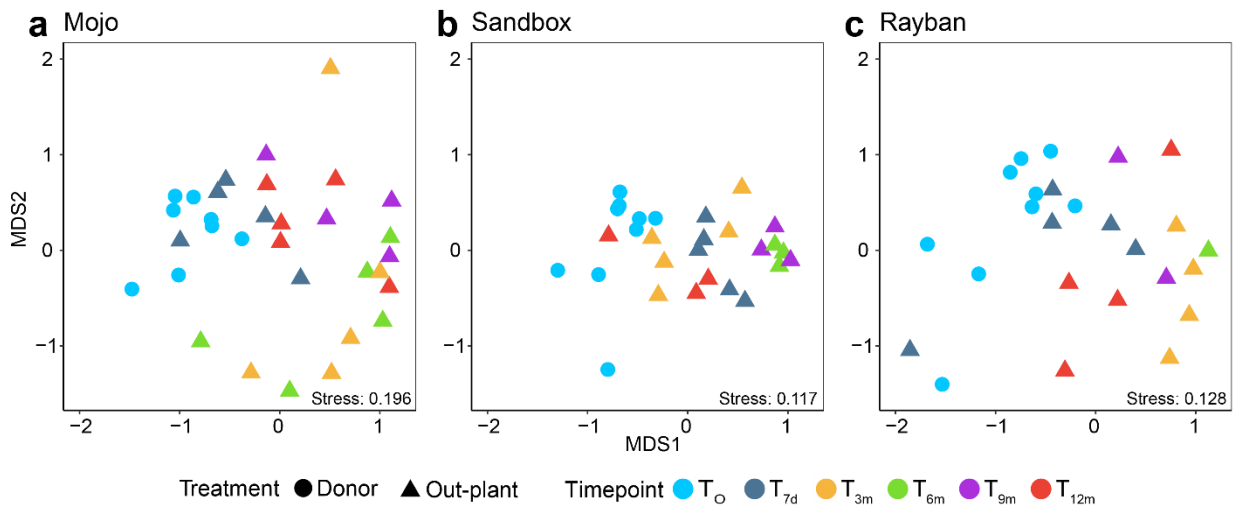


Fig S6. Bacterial community structure and relative dispersion of the microbial communities of the donor colonies ($T_{out-planting}$) and out-planted fragments at (a) Mojo, (b) Sandbox and (c) Rayban over time. Plots are based on non-metric multidimensional scaling (n-MDS) of Bray-Curtis distances of bacterial community structure. Source data are provided as a Source data file.

Appendix 1.

Construction of tilting current meter

Flow was recorded using a G data logger (HOBO Pendant® UA-004-64) that was assembled into a tilting current meter (based on Crookshanks et al. 2008); the G data logger was secured inside a PVC pipe casing, that was suspended in the water column with fins that allowed the device to orient to the direction of flow (detail in Supps). caps were attached to either end and fastened with plumbers tape. Hollow aluminium rods were secured to the logger casing using marine epoxy and a cable tie. Two eye bolts were fastened to the top and bottom of a rectangular aluminium frame. Two holes were drilled on either side of the aluminium frame, lined with rubber grommets/o-rings and aluminium rods were fed through to sit within the hollow aluminium rods attached to the logger casing. Two plastic fins were attached to the logger casing with marine grade adhesive and the logger casing was able to tilt freely and orient to the flow (Fig. S1b – e.). HOBO Pendant G loggers record tilt in 3 planes, however only the Z plane was recorded as this aligned to the direction of tilt induced by water flow (Fig. S1e). The tilting flow meter was suspended in the water column with tethers from each eye bolt attached to a weight or float (where convenient an established nursery was used as the float (Fig. S1b-c.)) and tilt was recorded every 20 min.