

Table S1. Mean (\pm se) percent cover of maximum hard and soft coral cover per community type for GBR.

Coral taxa and growth forms		Turbid Inshore	Inshore branching <i>Acropora</i>	Massive <i>Porites</i> and Alcyoniidae	Northern mixed coral	Southern mixed coral	Northern <i>Acropora</i>	Southern <i>Acropora</i>	Northern soft coral	Southern soft coral
Acroporidae	Tabulate and corymbose <i>Acropora</i>	1.44 \pm 0.37	3.74 \pm 1.75	5.10 \pm 1.34	6.94 \pm 1.21	7.76 \pm 1.23	23.76 \pm 3.28	47.29 \pm 4.42	8.21 \pm 1.24	8.78 \pm 1.93
	Branching and bottlebrush <i>Acropora</i>	4.11 \pm 1.84	43.36 \pm 10.19	4.17 \pm 0.91	1.73 \pm 0.71	7.49 \pm 1.36	3.15 \pm 0.54	8.38 \pm 2.52	2.16 \pm 0.51	1.71 \pm 0.81
	Digitate <i>Acropora</i>	0.01 \pm 0.01	0.03 \pm 0.03	0.16 \pm 0.05	0.78 \pm 16	0.57 \pm 0.18	2.13 \pm 0.62	0.93 \pm 0.17	1.53 \pm 0.23	1.25 \pm 0.23
	<i>Montipora</i>	2.09 \pm 0.57	0.41 \pm 0.16	3.90 \pm 1.04	1.66 \pm 0.2	6.74 \pm 1.11	1.92 \pm 0.34	2.76 \pm 0.55	1.41 \pm 0.25	2.28 \pm 0.99
	<i>Isopora</i>	0.19 \pm 0.02	0 \pm 0	0.03 \pm 0.01	0.26 \pm 0.11	0.96 \pm 0.28	0.67 \pm 0.33	0.41 \pm 0.26	2.85 \pm 0.86	2.30 \pm 0.76
	<i>Astreopora</i>	0.06 \pm 0.03	0 \pm 0	0.08 \pm 0.02	0.09 \pm 0.04	0.12 \pm 0.03	0.09 \pm 0.02	0.02 \pm 0.01	0.07 \pm 0.04	0.04 \pm 0.01
	Poritidae	<i>Goniopora/Alveopora</i>	7.22 \pm 2.5	0 \pm 0	1.37 \pm 0.67	0.13 \pm 0.04	0.39 \pm 0.12	0.03 \pm 0.01	0.09 \pm 0.05	0.07 \pm 0.02
<i>Porites rus</i>		5.21 \pm 2.79	0 \pm 0	0.63 \pm 0.36	0 \pm 0	0.04 \pm 0.02	0 \pm 0	0 \pm 0	0.01 \pm 0.01	0 \pm 0
Encrusting and submassive <i>Porites</i>		0.44 \pm 0.13	0 \pm 0	0.69 \pm 0.19	1.61 \pm 0.24	1.82 \pm 0.29	0.84 \pm 0.14	1.10 \pm 0.45	1.10 \pm 0.28	4.50 \pm 0.74
Massive <i>Porites</i>		1.19 \pm 0.33	0.11 \pm 0.11	3.10 \pm 0.83	1.38 \pm 0.29	1.20 \pm 0.19	0.63 \pm 0.1	0.36 \pm 0.14	1.22 \pm 0.23	0.72 \pm 0.14
Branching <i>Porites</i>		2.15 \pm 0.81	0 \pm 0	0.87 \pm 0.19	0.07 \pm 0.03	1.31 \pm 0.42	0 \pm 0	0.05 \pm 0.03	0 \pm 0	0.03 \pm 0.01
Pocilloporidae	Other <i>Pocillopora</i>	0.01 \pm 0.01	0 \pm 0	0.19 \pm 0.09	1.08 \pm 0.37	0.03 \pm 0.01	2.40 \pm 0.45	0.27 \pm 0.06	2.93 \pm 0.36	0.12 \pm 0.04
	<i>Pocillopora damicornis</i>	0.19 \pm 0.05	0.11 \pm 0.09	1.11 \pm 0.32	1.44 \pm 0.29	1.73 \pm 0.34	1.31 \pm 0.51	0.45 \pm 0.17	1.01 \pm 0.28	1.46 \pm 0.15
	<i>Seriatopora</i>	0.07 \pm 0.06	0 \pm 0	0.55 \pm 0.19	1.27 \pm 0.82	1.15 \pm 0.25	1.07 \pm 0.53	1.26 \pm 0.58	0.15 \pm 0.03	1.24 \pm 0.42
	<i>Stylophora</i>	0.20 \pm 0.07	0 \pm 0	0.52 \pm 0.12	1.13 \pm 0.13	0.74 \pm 0.16	1.11 \pm 0.34	0.46 \pm 0.15	1.35 \pm 0.26	0.89 \pm 0.13
Favidae	Encrusting, submassive and massive <i>Favidae</i>	3.55 \pm 0.71	0.19 \pm 0.09	2.49 \pm 0.29	3.19 \pm 0.37	3.10 \pm 0.45	1.74 \pm 0.2	1.37 \pm 0.28	3.54 \pm 0.67	2.61 \pm 0.25
	Branching <i>Echinopora</i>	0.10 \pm 0.04	0 \pm 0	0.31 \pm 0.14	0.09 \pm 0.08	0.39 \pm 0.14	0.02 \pm 0.01	0 \pm 0	0 \pm 0	0 \pm 0
	Other <i>Echinopora</i>	0.72 \pm 0.28	0 \pm 0	0.91 \pm 0.27	0.99 \pm 0.38	1.63 \pm 0.34	0.36 \pm 0.11	0.68 \pm 0.31	0.63 \pm 0.11	0.73 \pm 0.23
Other hard	Foliose Agariciidae	2.58 \pm 0.77	0 \pm 0	0.73 \pm 0.22	0.02 \pm 0.01	0.13 \pm 0.01	0.01 \pm 0.01	0.01 \pm 0.01	0.02 \pm 0.01	0.02 \pm 0.01

	Other Agariciidae	0.39 ± 0.16	0 ± 0	0.14 ± 0.04	0.18 ± 0.07	0.34 ± 0.04	0.13 ± 0.04	0.13 ± 0.05	0.18 ± 0.09	0.17 ± 0.11
	Foliose <i>Turbinaria</i>	1.82 ± 0.55	0.02 ± 0.02	0.42 ± 0.18	0.04 ± 0.02	0.21 ± 0.05	0.03 ± 0.01	0.02 ± 0.01	0.01 ± 0	0.1 ± 0.04
	Other <i>Turbinaria</i>	0.02 ± 0.01	0.02 ± 0.02	0.05 ± 0.02	0.03 ± 0.01	0.15 ± 0.07	0.01 ± 0	0.04 ± 0.02	0.01 ± 0.01	0.01 ± 0.01
	Mushroom Fungiidae	0.47 ± 0.13	0.02 ± 0.02	0.57 ± 0.14	0.29 ± 0.14	0.9 ± 0.27	0.07 ± 0.02	0.29 ± 0.18	0.07 ± 0.03	0.1 ± 0.04
	Encrusting and foliose Fungiidae	0.27 ± 0.12	0 ± 0	0.02 ± 0.01	0.02 ± 0.01	0.01 ± 0.01	0 ± 0	0 ± 0	0.01 ± 0.01	0 ± 0
	Mussidae	0.73 ± 0.21	0.27 ± 0.23	0.92 ± 0.16	0.59 ± 0.11	0.87 ± 0.13	0.20 ± 0.05	0.17 ± 0.06	0.58 ± 0.11	0.65 ± 0.1
	<i>Galaxea</i>	2.44 ± 1.38	0 ± 0	0.36 ± 0.1	0.42 ± 0.19	0.28 ± 0.06	0.08 ± 0.03	0.10 ± 0.04	0.15 ± 0.03	0.23 ± 0.05
	Pectiniidae	1.91 ± 0.58	0.05 ± 0.05	0.86 ± 0.26	0.79 ± 0.33	0.55 ± 0.1	0.17 ± 0.06	0.16 ± 0.07	0.12 ± 0.03	0.14 ± 0.07
	<i>Merulina</i>	0.94 ± 0.34	0 ± 0	0.59 ± 0.16	0.18 ± 0.06	0.55 ± 0.09	0.07 ± 0.03	0.12 ± 0.04	0.11 ± 0.04	0.25 ± 0.06
	<i>Hydnophora</i>	0.37 ± 0.14	0 ± 0	0.16 ± 0.04	0.42 ± 0.18	0.33 ± 0.08	0.19 ± 0.05	0.12 ± 0.05	0.22 ± 0.06	0.30 ± 0.11
	Siderasteridae	0.69 ± 0.5	0.34 ± 0.34	0.10 ± 0.02	0.13 ± 0.03	0.11 ± 0.03	0.11 ± 0.04	0.08 ± 0.03	0.10 ± 0.03	0.12 ± 0.05
	Euphyllidae	0.13 ± 0.04	0 ± 0	0.07 ± 0.04	0.03 ± 0.02	0.03 ± 0.01	0 ± 0	0.01 ± 0.01	0.02 ± 0.01	0 ± 0
	Scleractinian	0.06 ± 0.04	0 ± 0	0.22 ± 0.09	0.52 ± 0.25	0.65 ± 0.12	0.46 ± 0.17	0.24 ± 0.07	0.87 ± 0.33	0.84 ± 0.26
Soft coral	Xeniidae	0.03 ± 0.01	0.40 ± 0.36	0.07 ± 0.03	1.12 ± 0.73	1.04 ± 0.33	1.07 ± 0.46	0.79 ± 0.26	8.84 ± 2.91	18.19 ± 3.42
	Alcyoniidae	2.24 ± 0.55	0.16 ± 0.14	9.73 ± 2.07	3.64 ± 0.83	1.99 ± 0.52	1.78 ± 0.29	0.98 ± 0.22	9.58 ± 2.2	1.56 ± 0.49
	Nephtheidae	0.06 ± 0.02	0 ± 0	0.58 ± 0.17	0.91 ± 0.24	0.77 ± 0.18	0.69 ± 0.20	0.39 ± 0.17	2.02 ± 0.48	2.37 ± 0.37
	Other soft coral	0.66 ± 0.27	0 ± 0	0.32 ± 0.07	0.44 ± 0.09	0.40 ± 0.08	0.37 ± 0.1	0.15 ± 0.05	2.24 ± 0.49	3.05 ± 0.64
	<i>Briareum</i>	2.48 ± 0.89	0 ± 0	1.36 ± 0.41	0.14 ± 0.06	0.44 ± 0.15	0.02 ± 0.01	0.16 ± 0.12	0.13 ± 0.05	0.95 ± 0.17

*Values in bold are indicator taxa for a community type derived from Dufrene–Legendre index ($p < 0.05$), while shaded values represent the coral taxa with the maximum mean percent cover for a community type.

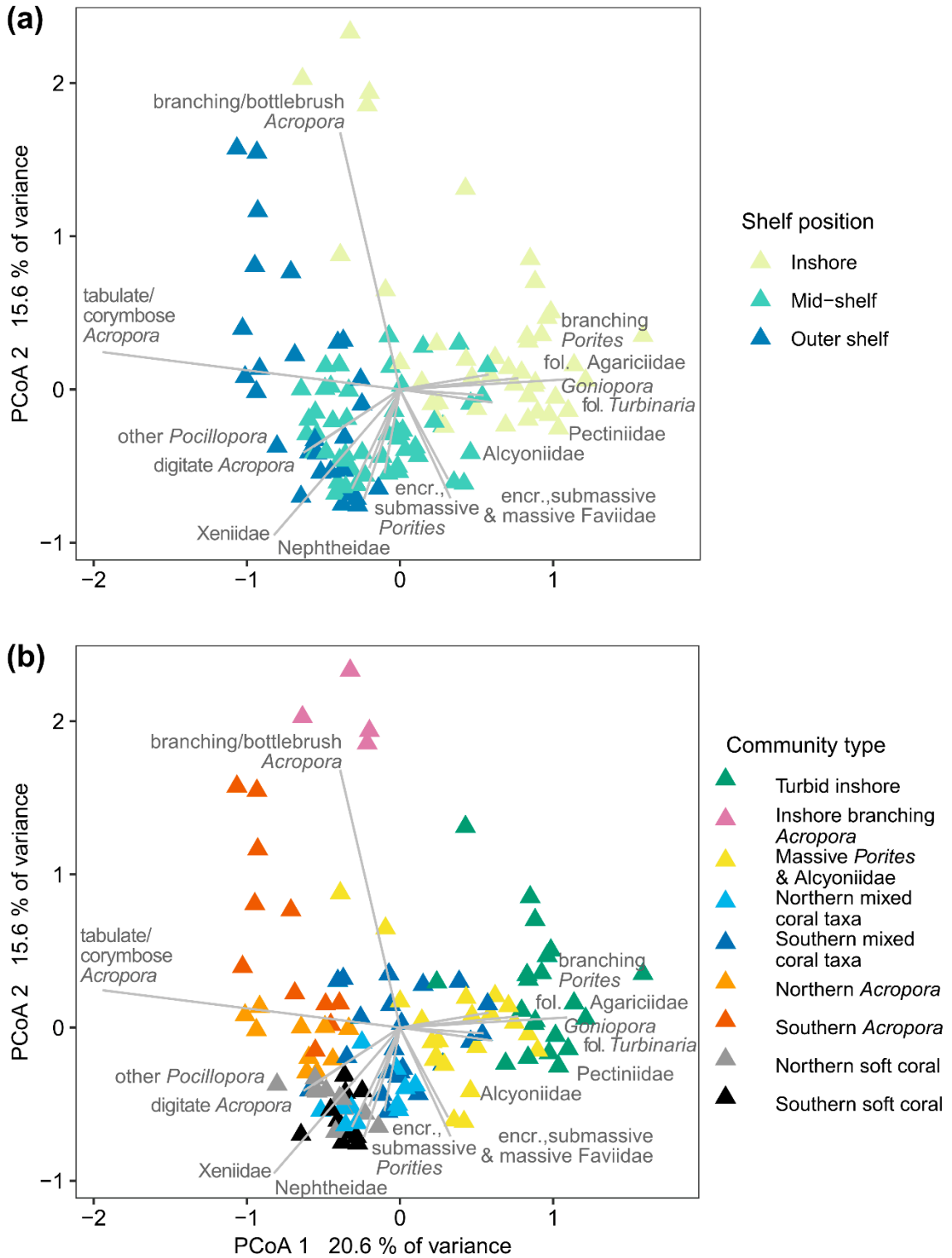


Figure S1. Principal coordinate analysis (PCoA) of maximum coral cover on reefs between 1997 and 2017. Vectors represent hard and soft coral types. (a) Color describes shelf position; (b) Color symbolizes community type. encr. = encrusting and fol = foliose.

Table S2. Summary tables of GLM and pairwise comparisons of juvenile densities for shelf and community type. *p*-values <0.05 are in bold.

GLM estimates based on gamma distribution of juvenile density for shelf.

Coefficient	Estimate	Standard error	<i>t</i> value	Pr(> <i>t</i>)
Intercept (Inshore)	0.18155	0.01785	10.170	0.000
Mid-shelf	−0.09712	0.01944	−4.997	0.000
Outer shelf	−0.09218	0.02057	−4.481	0.000

Pairwise comparisons for juvenile densities between shelf positions using the Benjamini–Hochberg method for *p*-value multi-comparison adjustments.

Shelf positions compared	<i>p</i> -value
Mid-shelf, Inshore	0.000
Outer shelf, Inshore	0.000
Outer shelf, Mid-shelf	0.700

GLM estimates for juvenile density for community type.

Coefficient	Estimate	Standard error	<i>t</i> value	Pr(> <i>t</i>)
Intercept (Turbid Inshore)	0.20247	0.02569	7.881	0.000
Inshore branching <i>Acropora</i>	0.69651	0.26264	2.652	0.009
Massive <i>Porites</i> and Alcyoniidae	−0.08259	0.02986	−2.766	0.007
Northern mixed coral taxa	−0.11281	0.03012	−3.745	0.000
Southern mixed coral taxa	−0.10806	0.02823	−3.827	0.000
Northern <i>Acropora</i>	−0.12558	0.02933	−4.282	0.000
Southern <i>Acropora</i>	−0.11498	0.02992	−3.843	0.000
Northern soft coral	−0.07047	0.03393	−2.077	0.040
Southern soft coral	−0.14464	0.02781	−5.201	0.000

Pairwise comparisons for juvenile densities between community types using the Benjamini–Hochberg method for *p* value multi-comparison adjustments.

Community types compared	<i>p</i> -value
Inshore branching <i>Acropora</i> , Turbid Inshore	0.018
Massive <i>Porites</i> and Alcyoniidae, Turbid Inshore	0.014
Northern mixed coral taxa, Turbid Inshore	0.001
Southern mixed coral taxa, Turbid Inshore	0.001
Northern <i>Acropora</i> , Turbid Inshore	<0.001
Southern <i>Acropora</i> , Turbid Inshore	0.001
Northern soft coral, Turbid Inshore	0.069
Southern soft coral, Turbid Inshore	<0.001
Massive <i>Porites</i> and Alcyoniidae, Inshore branching <i>Acropora</i>	0.008
Northern mixed coral taxa, Inshore branching <i>Acropora</i>	0.007
Southern mixed coral taxa, Inshore branching <i>Acropora</i>	0.007
Northern <i>Acropora</i> , Inshore branching <i>Acropora</i>	0.007
Southern <i>Acropora</i> , Inshore branching <i>Acropora</i>	0.007
Northern soft coral, Inshore branching <i>Acropora</i>	0.009

Southern soft coral, Inshore branching <i>Acropora</i>	0.007
Northern mixed coral taxa, Massive <i>Porites</i> and Alcyoniidae	0.223
Southern mixed coral taxa, Massive <i>Porites</i> and Alcyoniidae	0.237
Northern <i>Acropora</i> , Massive <i>Porites</i> and Alcyoniidae	0.069
Southern <i>Acropora</i> , Massive <i>Porites</i> and Alcyoniidae	0.185
Northern soft coral, Massive <i>Porites</i> and Alcyoniidae	0.711
Southern soft coral, Massive <i>Porites</i> and Alcyoniidae	0.005
Southern mixed coral taxa, Northern mixed coral taxa	0.831
Northern <i>Acropora</i> , Northern mixed coral taxa	0.634
Southern <i>Acropora</i> , Northern mixed coral taxa	0.921
Northern soft coral, Northern mixed coral taxa	0.179
Southern soft coral, Northern mixed coral taxa	0.160
Northern <i>Acropora</i> , Southern mixed coral taxa	0.408
Southern <i>Acropora</i> , Southern mixed coral taxa	0.762
Northern soft coral, Southern mixed coral taxa	0.185
Southern soft coral, Southern mixed coral taxa	0.044
Southern <i>Acropora</i> , Northern <i>Acropora</i>	0.688
Northern soft coral, Northern <i>Acropora</i>	0.069
Southern soft coral, Northern <i>Acropora</i>	0.349
Northern soft coral, Southern <i>Acropora</i>	0.161
Southern soft coral, Southern <i>Acropora</i>	0.176
Southern soft coral, Northern soft coral	0.008

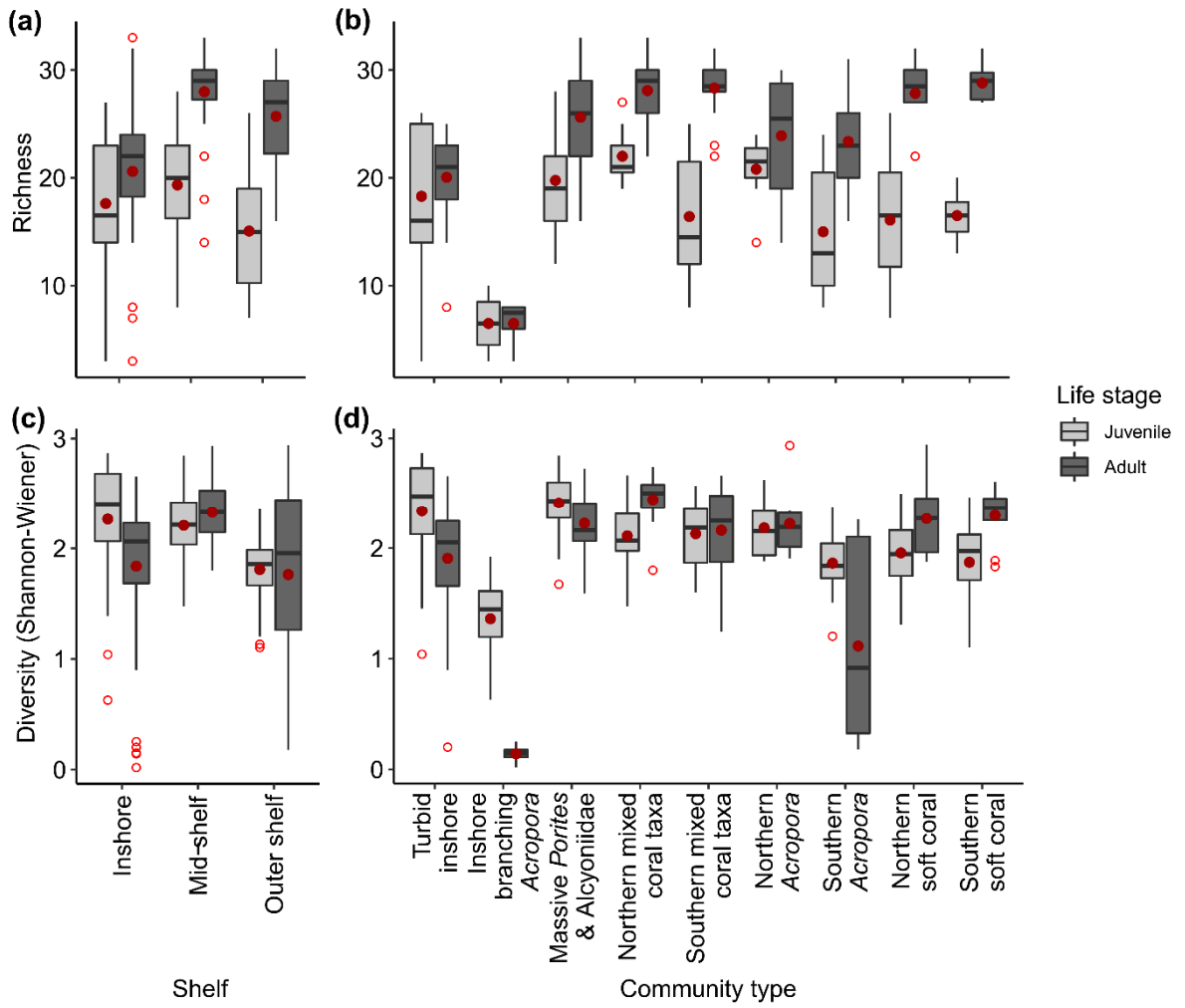


Figure S2. Boxplots of mean juvenile and adult taxonomic richness (a) across the shelf, (b) by community types; mean diversity measured using the Shannon–Wiener index (c) across the shelf and (d) by community types. Dark red circles are the mean values life stage per group and red outlines represent unusual points.

Table S3. Summary of GLM and pairwise comparison tables of juvenile and adult coral richness and diversity across the continental shelf. *p*-values <0.05 are in bold.

GLM based on gamma distribution for juvenile richness by shelf position.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept				
(Inshore)	0.056757	0.002811	20.192	<0.001
Mid-shelf	−0.00505	0.003662	−1.379	0.170
Outer shelf	0.009615	0.004799	2.004	0.047

GLM based on gamma distribution for adult richness by shelf position.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept (Inshore)	0.048555	0.001666	29.149	<0.001
Mid-shelf	−0.01282	0.002009	−6.378	<0.001
Outer shelf	−0.00964	0.002295	−4.201	<0.001

GLM based on gamma distribution for juvenile diversity by shelf position.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept (Inshore)	0.44148	0.01228	35.937	<0.001
Mid-shelf	0.01132	0.01686	0.671	0.503
Outer shelf	0.1117	0.02197	5.084	<0.001

GLM based on gamma distribution for adult diversity by shelf position.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept (Inshore)	0.54398	0.02778	19.579	<0.001
Mid-shelf	−0.11438	0.0343	−3.335	0.001
Outer shelf	0.0233	0.04413	0.528	0.599

Pairwise comparisons for juvenile and adult coral taxonomic richness and diversity across the continental shelf. *p*-values in each column were adjusted using the Benjamini–Hochberg method.

Shelf positions compared	Juvenile richness	Adult richness	Juvenile diversity	Adult diversity
Inshore, Mid-shelf	0.168	<0.001	0.502	0.001
Inshore, Outer shelf	0.068	<0.001	<0.001	0.598
Mid-shelf, Outer shelf	0.004	0.102	<0.001	0.001

Table S4. Summary of percent of reefs within the thresholds for low or high dissimilarity across the continental shelf.

Shelf position	Low dissimilarity	High dissimilarity	Number of reefs
Inshore	7%	33%	42
Mid-shelf	49%	16%	49
Outer shelf	13%	32%	31

Table S5. Summary of GLM and pairwise comparison tables of Bray–Curtis dissimilarity of juvenile and adult coral assemblages across the continental shelf and by community type. *p*-values <0.05 are in bold.

GLM based on beta distribution for Bray–Curtis dissimilarity by shelf position.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept (Inshore)	−0.28465	0.05835	−4.878	<0.001
Mid-shelf	−0.47169	0.08164	−5.778	<0.001
Outer shelf	−0.17087	0.09027	−1.893	0.061

Pairwise comparisons for Bray–Curtis dissimilarity of juvenile and adult coral assemblages between shelf positions. *p*-values were adjusted using the Benjamini–Hochberg method.

Shelf positions compared	<i>p</i> -value
Mid-shelf, Inshore	<0.001
Outer shelf, Inshore	0.061
Outer shelf, Mid-shelf	0.002

GLM based on beta for Bray–Curtis dissimilarity of juvenile and adult coral by community type.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept (Turbid inshore)	−0.24335	0.08325	−2.923	0.004
Inshore branching <i>Acropora</i>	0.31954	0.20703	1.543	0.126
Massive <i>Porites</i> and Alcyoniidae	−0.22998	0.11884	−1.935	0.055
Northern mixed coral taxa	−0.54479	0.14809	−3.679	<0.001
Southern mixed coral taxa	−0.38436	0.11859	−3.241	0.002
Northern <i>Acropora</i>	−0.45634	0.15152	−3.012	0.003
Southern <i>Acropora</i>	−0.25271	0.14398	−1.755	0.082
Northern soft coral	−0.31998	0.14066	−2.275	0.025
Southern soft coral	−0.42192	0.15098	−2.795	0.006

Pairwise comparisons for Bray–Curtis dissimilarity values of juvenile and adult coral assemblages between community types. *p*-values in each column were adjusted using the Benjamini–Hochberg method.

Community types compared	<i>p</i> -value
Inshore branching <i>Acropora</i> , Turbid Inshore	0.266
Massive <i>Porites</i> and Alcyoniidae, Turbid Inshore	0.143
Northern mixed coral taxa, Turbid Inshore	0.006
Southern mixed coral taxa, Turbid Inshore	0.009
Northern <i>Acropora</i> , Turbid Inshore	0.017
Southern <i>Acropora</i> , Turbid Inshore	0.197
Northern soft coral, Turbid Inshore	0.074
Southern soft coral, Turbid Inshore	0.024
Massive <i>Porites</i> and Alcyoniidae, Inshore branching <i>Acropora</i>	0.034
Northern mixed coral taxa, Inshore branching <i>Acropora</i>	0.006
Southern mixed coral taxa, Inshore branching <i>Acropora</i>	0.009
Northern <i>Acropora</i> , Inshore branching <i>Acropora</i>	0.009
Southern <i>Acropora</i> , Inshore branching <i>Acropora</i>	0.038
Northern soft coral, Inshore branching <i>Acropora</i>	0.020

Southern soft coral, Inshore branching <i>Acropora</i>	0.009
Northern mixed coral taxa, Massive <i>Porites</i> and Alcyoniidae	0.102
Southern mixed coral taxa, Massive <i>Porites</i> and Alcyoniidae	0.358
Northern <i>Acropora</i> , Massive <i>Porites</i> and Alcyoniidae	0.280
Southern <i>Acropora</i> , Massive <i>Porites</i> and Alcyoniidae	0.876
Northern soft coral, Massive <i>Porites</i> and Alcyoniidae	0.677
Southern soft coral, Massive <i>Porites</i> and Alcyoniidae	0.358
Southern mixed coral taxa, Northern mixed coral taxa	0.443
Northern <i>Acropora</i> , Northern mixed coral taxa	0.731
Southern <i>Acropora</i> , Northern mixed coral taxa	0.198
Northern soft coral, Northern mixed coral taxa	0.342
Southern soft coral, Northern mixed coral taxa	0.648
Northern <i>Acropora</i> , Southern mixed coral taxa	0.731
Southern <i>Acropora</i> , Southern mixed coral taxa	0.525
Northern soft coral, Southern mixed coral taxa	0.731
Southern soft coral, Southern mixed coral taxa	0.852
Southern <i>Acropora</i> , Northern <i>Acropora</i>	0.394
Northern soft coral, Northern <i>Acropora</i>	0.587
Southern soft coral, Northern <i>Acropora</i>	0.872
Northern soft coral, Southern <i>Acropora</i>	0.743
Southern soft coral, Southern <i>Acropora</i>	0.492
Southern soft coral, Northern soft coral	0.681

Table S6. Summary of GLM and pairwise comparison for juvenile and adult coral richness and diversity for community types. *p*-values <0.05 are in bold.

GLM based on gamma distribution of juvenile taxonomic richness by community type.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept (Turbid Inshore)	0.054687	0.003665	14.924	<0.001
Inshore branching <i>Acropora</i>	0.099159	0.023903	4.148	<0.001
Massive <i>Porites</i> and Alcyoniidae	-0.00409	0.004993	-0.818	0.415
Northern mixed coral taxa	-0.00923	0.00558	-1.655	0.101
Southern mixed coral taxa	0.006254	0.005417	1.155	0.251
Northern <i>Acropora</i>	-0.00661	0.005935	-1.114	0.268
Southern <i>Acropora</i>	0.011979	0.007178	1.669	0.098
Northern soft coral	0.007489	0.006619	1.131	0.260
Southern soft coral	0.005919	0.006933	0.854	0.395

GLM based on gamma distribution of adult taxonomic richness by community type.

Coefficient	Estimate	Standard error	<i>t</i> value	Pr(> <i>t</i>)
Intercept (Turbid Inshore)	0.049881	0.001881	26.512	<0.001
Inshore branching <i>Acropora</i>	0.103965	0.013427	7.743	<0.001
Massive <i>Porites</i> and Alcyoniidae	-0.01085	0.002389	-4.541	<0.001
Northern mixed coral taxa	-0.01428	0.002642	-5.405	<0.001
Southern mixed coral taxa	-0.01457	0.002288	-6.368	<0.001
Northern <i>Acropora</i>	-0.00804	0.002961	-2.715	0.008

Southern <i>Acropora</i>	−0.00708	0.002918	−2.426	0.017
Northern soft coral	−0.01395	0.002599	−5.369	<0.001
Southern soft coral	−0.01516	0.002672	−5.672	<0.001

GLM based on gamma distribution of juvenile taxonomic diversity by community type.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
(Intercept)	0.42791	0.01673	25.584	<0.001
Inshore branching <i>Acropora</i>	0.30697	0.06791	4.52	<0.001
Massive <i>Porites</i> and Alcyoniidae	−0.01353	0.02328	−0.581	0.562
Northern mixed coral taxa	0.0458	0.03057	1.498	0.137
Southern mixed coral taxa	0.0417	0.02452	1.7	0.092
Northern <i>Acropora</i>	0.03003	0.03086	0.973	0.333
Southern <i>Acropora</i>	0.10866	0.03346	3.248	0.002
Northern soft coral	0.08332	0.03128	2.664	0.009
Southern soft coral	0.10644	0.03458	3.078	0.003

GLM based on gamma distribution of adult taxonomic diversity by community type.

Coefficient	Estimate	Standard error	<i>t</i> value	<i>p</i> -value
Intercept (Turbid Inshore)	0.52429	0.03619	14.486	<0.001
Inshore branching <i>Acropora</i>	6.56781	1.12236	5.852	<0.001
Massive <i>Porites</i> and Alcyoniidae	−0.07497	0.04767	−1.573	0.119
Northern mixed coral taxa	−0.11511	0.05323	−2.163	0.033
Southern mixed coral taxa	−0.06163	0.04779	−1.29	0.200
Northern <i>Acropora</i>	−0.07447	0.05775	−1.29	0.200
Southern <i>Acropora</i>	0.37261	0.09289	4.011	<0.001
Northern soft coral	−0.08342	0.05414	−1.541	0.126
Southern soft coral	−0.08907	0.05662	−1.573	0.118

Pairwise comparisons for juvenile and adult coral richness and diversity for community types. *p*-values in each column were adjusted using the Benjamini–Hochberg method. *p*-values <0.05 are in bold.

Community types compared	Juvenile richness	Adult richness	Juvenile diversity	Adult diversity
Inshore branching <i>Acropora</i> , Turbid Inshore	<0.001	<0.001	<0.001	<0.001
Massive <i>Porites</i> and Alcyoniidae, Turbid Inshore	0.531	<0.001	0.636	0.231
Northern mixed coral taxa, Turbid Inshore	0.168	<0.001	0.201	0.069
Southern mixed coral taxa, Turbid Inshore	0.382	<0.001	0.153	0.338
Northern <i>Acropora</i> , Turbid Inshore	0.382	0.015	0.410	0.338
Southern <i>Acropora</i> , Turbid Inshore	0.168	0.028	0.005	<0.001
Northern soft coral, Turbid Inshore	0.382	<0.001	0.020	0.234
Southern soft coral, Turbid Inshore	0.524	<0.001	0.007	0.231
Massive <i>Porites</i> and Alcyoniidae, Inshore branching <i>Acropora</i>	<0.001	<0.001	<0.001	<0.001
Northern mixed coral taxa, Inshore branching <i>Acropora</i>	<0.001	<0.001	0.001	<0.001

Southern mixed coral taxa, Inshore branching <i>Acropora</i>	0.001	<0.001	0.001	<0.001
Northern <i>Acropora</i> , Inshore branching <i>Acropora</i>	<0.001	<0.001	0.001	<0.001
Southern <i>Acropora</i> , Inshore branching <i>Acropora</i>	0.002	<0.001	0.016	<0.001
Northern soft coral, Inshore branching <i>Acropora</i>	0.001	<0.001	0.006	<0.001
Southern soft coral, Inshore branching <i>Acropora</i>	0.001	<0.001	0.016	<0.001
Northern mixed coral taxa, Massive <i>Porites</i> and Alcyoniidae	0.472	0.204	0.100	0.659
Southern mixed coral taxa, Massive <i>Porites</i> and Alcyoniidae	0.108	0.087	0.053	0.918
Northern <i>Acropora</i> , Massive <i>Porites</i> and Alcyoniidae	0.738	0.351	0.214	0.993
Southern <i>Acropora</i> , Massive <i>Porites</i> and Alcyoniidae	0.062	0.211	0.001	<0.001
Northern soft coral, Massive <i>Porites</i> and Alcyoniidae	0.147	0.232	0.006	0.934
Southern soft coral, Massive <i>Porites</i> and Alcyoniidae	0.230	0.105	0.002	0.918
Southern mixed coral taxa, Northern mixed coral taxa	0.027	0.900	0.921	0.465
Northern <i>Acropora</i> , Northern mixed coral taxa	0.738	0.056	0.725	0.743
Southern <i>Acropora</i> , Northern mixed coral taxa	0.018	0.026	0.170	<0.001
Northern soft coral, Northern mixed coral taxa	0.049	0.900	0.396	0.824
Southern soft coral, Northern mixed coral taxa	0.087	0.844	0.197	0.860
Northern <i>Acropora</i> , Southern mixed coral taxa	0.087	0.026	0.753	0.918
Southern <i>Acropora</i> , Southern mixed coral taxa	0.541	0.010	0.100	<0.001
Northern soft coral, Southern mixed coral taxa	0.881	0.844	0.257	0.860
Southern soft coral, Southern mixed coral taxa	0.962	0.844	0.118	0.842
Southern <i>Acropora</i> , Northern <i>Acropora</i>	0.049	0.844	0.097	<0.001
Northern soft coral, Northern <i>Acropora</i>	0.108	0.066	0.214	0.934
Southern soft coral, Northern <i>Acropora</i>	0.168	0.028	0.105	0.918
Northern soft coral, Southern <i>Acropora</i>	0.682	0.028	0.622	<0.001
Southern soft coral, Southern <i>Acropora</i>	0.573	0.014	0.958	<0.001
Southern soft coral, Northern soft coral	0.881	0.773	0.636	0.951

Table S7. Summary of percent of reefs in the within the thresholds for low and high dissimilarity per community type.

Community type	Low dissimilarity	High dissimilarity	Number of reefs
Turbid Inshore	10%	43%	21
Inshore branching <i>Acropora</i>	-	75%	4
Massive <i>Porites</i> and Alcyoniidae	10%	10%	21
Northern mixed coral taxa	36%	-	11
Southern mixed coral taxa	27%	27%	22
Northern <i>Acropora</i>	50%	10%	10
Southern <i>Acropora</i>	36%	55%	11
Northern soft coral	42%	33%	12
Southern soft coral	20%	-	10

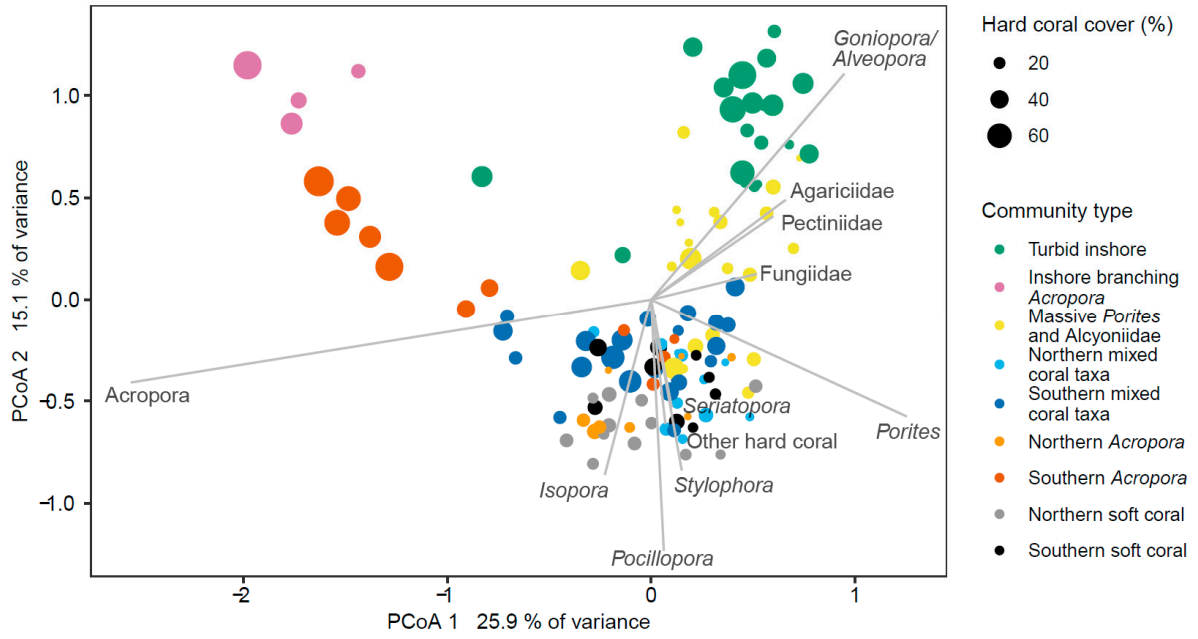


Figure S3. Principal coordinate analysis (PCoA) of adult coral assemblages on GBR. Size of dots relates to hard coral cover (%) values in this study. Community types are represented by the corresponding colors in the legend.