

Supplementary information

Table S1. The sampling site, sampling time and sampling depth in the South China Sea.

	Site	Depth	Latitude	Longitude	Date
	Sanjiao Reef (SJ)	2m	10°11'40.74"	115°19'48.03"	2015.06.03
Nansha Islands	Xian'e Reef (XE)	2m	9°24'44.94"	115°26'17.36"	2015.06.06
	Xinyi Reef (XY)	2m	9°19'20.56"	115°57'21.19"	2015.06.08
	East Island (EI)	2m	16°40'27.52"	112°44'13.38"	2015.06.16
	Huaguang Reef (HG)	2m	16°15'52.33"	111°48'12.98"	2015.06.20
	Yongxing Island (YX)	2m	16°50'53.72"	112°21'30.19"	2015.06.25
Xisha Islands	Panshi Island (PS)	6m	16°04'14.50"	111°47'16.24"	2015.06.22
	Langhua Reef (LH)	2m	16°03'12.45"	112°33'52.34"	2015.06.27
	Yuzhuo Reef (YZ)	3m	16°19'33.44"	111°57'23.75"	2015.06.30
	North Reef (NR)	2m	17°05'35.24"	111°30'14.55"	2015.06.12
	Qilian Islands (QL)	2m	16°55'26.58"	112°14'43.28"	2015.06.14
Huangyan Island	HY	2m	15°07'46.32"	117°51'34.13"	2015.07.04
Luhuitou fringing reef	LHT	2m	c.19"	109°29'16.10"	2015.07.23
Xuwen Coral reef	XW	2m	20°16'13.79"	109°54'38.75"	2015.07.29
Daya Bay	DYB	2m	22°36'55.64"	114°37'48.07"	2015.07.10

Table S2. Data of SST, DO, pH, salinity, transparency and turbidity in the nine coral reef regions.

Site		SST (°C)	DO	pH	Salinity (‰)	Transparency (m)	Turbidity (NTU)
Nansha	Xian'e Reef	30.6	6.77	8.17	33.5	23.7	0.2
Islands	Xinyi Reef	30.2	6.85	8.24	33.1	24.3	0.15
	East Island	29.5	6.83	8.26	34.4	18.3	0.84
	Huaguang Reef	29.7	7.02	8.24	34.5	18.5	0.35
Xisha Islands	Yongxing Island	30.2	6.75	8.27	33.9	13.5	0.81
	Langhua Reef	30.3	6.98	8.38	34.4	20.7	0.21
	North Reef	30.6	7.13	8.32	33.4	16.1	0.31
Huangyan Island	HY	31.4	6.82	8.38	34.1	15.8	0.33
Luhuitou fringing reef	LHT	28.8	6.83	8.18	33.3	4.6	1.1