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Supplementary material

Ephemeral effects of El Niño–Southern Oscillation events on an Eastern Tropical Pacific coral community

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Table S1. Pairwise PERMANOVA comparisons of the variation in the cover of (1) corals of varying health classifications (healthy, pale, bleached, or dead) and (2) non-coral competitors over-growing recently dead corals for three coral genera at Islas Marietas National Park

Values highlighted in bold correspond to statistically significant findings ($P < 0.01$)

Season	Year	Pseudo-*F*	*P*(perm)	Permutations
Porites				
Cold *v*. Warm	2011	2.48	**0.008**	9943
Cold *v*. Warm	2012	0.939	0.371	9951
Cold *v*. Warm	2013	1.23	0.207	9945
Cold *v*. Warm	2014	6.02	**<0.001**	9949
Cold *v*. Warm	2015	2.40	**0.003**	9966
Cold	2011 *v*. 2012	2.06	0.024	9950
Cold	2012 *v*. 2013	0.941	0.358	9955
Cold	2013 *v*. 2014	0.289	0.938	9950
Cold	2014 *v*. 2015	2.723	**0.004**	9943
Warm	2011 *v*. 2012	1.41	0.144	9950
Warm	2012 *v*. 2013	1.04	0.304	9961
Warm	2013 *v*. 2014	6.15	**<0.001**	9957
Warm	2014 *v*. 2015	2.74	**<0.001**	9960
Pocillopora				
Cold *v*. Warm	2011	3.41	**<0.001**	9953
Cold *v*. Warm	2012	1.28	0.168	9945
Cold *v*. Warm	2013	1.13	0.267	9947
Cold *v*. Warm	2014	2.45	**<0.001**	9954
Cold *v*. Warm	2015	2.49	**<0.001**	9939
Cold	2011 *v*. 2012	3.70	**<0.001**	9949
Cold	2012 *v*. 2013	1.02	0.336	9960
Cold	2013 *v*. 2014	0.711	0.624	9945
Cold	2014 *v*. 2015	1.27	0.181	9946
Warm	2011 *v*. 2012	1.47	0.089	9946
Warm	2012 *v*. 2013	0.862	0.519	9952
Warm	2013 *v*. 2014	2.156	**0.002**	9949
Warm	2014 *v*. 2015	1.60	0.042	9952
Pavona				
Cold	2011 *v*. 2012	1.20	0.2152	9949
Cold	2012 *v*. 2013	0.951	0.3917	9946
Cold	2013 *v*. 2014	1.76	0.0381	9959
Warm	2014 *v*. 2015	1.25	0.1801	9954

Table S2. Multivariate similarity percentage analysis (SIMPER) across various pairwise comparisons of season and year (C, cold season; W, warm season) for the absolute cover of *Porites* spp. and the coral competitors (coralline algae) present on dead coral (i.e. available calcareous substrate, CA)

The contribution to percent dissimilarity (% CD), cumulative dissimilarity (% CAD; to 99%), and average dissimilarity (AD) have also been presented

	CA	CA	%CD	%CAD		CA	CA	%CD	%CAD
AD = 34.48	**C2011**	**W2011**			**AD = 20.54**	**W2013**	**C2014**		
healthy	2.41	2.69	79.73	7973	healthy	2.53	2.08	82.10	82.10
pale	0.02	0.07	15.39	9512	coralline algae	0.00	0.01	4.60	86.69
					pale	0.01	0.00	4.24	90.93
AD = 21.89	**W2011**	**C2012**			**AD = 43.65**	**C2014**	**W2014**		
healthy	2.69	2.42	76.73	7673	healthy	2.08	1.17	40.53	40.53
pale	0.07	0.00	20.67	9740	pale	0.00	0.47	39.87	80.40
					bleached	0.00	0.18	17.67	98.07
AD = 20.21	**C2012**	**W2012**			**AD = 42.72**	**W2014**	**C2015**		
healthy	2.42	2.10	86.38	8638	pale	0.47	0.00	45.22	45.22
pale	0.00	0.04	12.41	9879	healthy	1.17	1.22	33.55	78.78
					bleached	0.18	0.00	19.88	98.66
AD = 22.19	**W2012**	**C2013**			**AD = 32.82**	**C2015**	**W2015**		
healthy	2.10	2.33	82.68	8268	healthy	1.22	1.03	59.05	59.05
pale	0.04	0.00	12.81	9549	pale	0.00	0.13	25.56	84.61
					bleached	0.00	0.03	11.14	95.75
AD = 21.30	**C2013**	**W2013**							
healthy	2.33	2.53	82.02	8202					
pale	0.00	0.01	5.68	8770					
coralline algae	0.01	0.00	4.93	9263					

Table. S3. Multivariate similarity percentage analysis (SIMPER) across various pairwise comparisons of season and year (C, cold season; W, warm season) for the absolute cover of *Pocillopora* spp. and the coral competitors (coralline algae, macroalgae, turf algae, and sponges) present on dead coral (i.e. available calcareous substrate, CA)

The contribution to percent dissimilarity (% CD), cumulative dissimilarity (% CAD; to 96%), and average dissimilarity (AD) have also been presented

	CA	CA	%CD	%CAD		CA	CA	%CD	%CAD
AD = 58.43	C2011	W2011			AD = 43.85	W2013	C2014		
healthy	6.91	7.99	34.02	34.02	healthy	10.18	9.92	58.30	58.30
pale	2.27	0.80	18.91	52.94	pale	0.55	0.31	14.59	70.44
macroalgae	1.72	0.02	18.28	71.21	coralline algae	0.29	0.34	14.18	84.62
bleached	0.69	0.03	11.19	82.41	sponge	0.03	0.10	7.86	92.47
dead	0.05	0.14	6.12	88.52					
coralline algae	0.00	0.22	5.88	94.41					
AD = 48.68	W2011	C2012			AD = 55.32	C2014	W2014		
healthy	7.99	8.34	46.57	46.57	healthy	9.92	6.80	44.79	44.79
pale	0.80	0.45	15.78	62.35	pale	0.31	2.19	21.97	66.76
coralline algae	0.22	0.35	11.50	73.85	bleached	0.01	1.51	15.22	81.97
sponge	0.11	0.18	7.97	81.82	coralline algae	0.34	0.14	9.43	91.40
dead	0.14	0.02	7.28	89.09					
turf algae	0.00	0.21	6.65	95.74					
AD = 49.29	C2012	W2012			AD = 52.90	W2014	C2015		
healthy	8.34	10.86	51.54	51.54	healthy	6.80	13.71	48.59	48.59
coralline algae	0.35	0.64	14.39	65.93	pale	2.19	0.17	21.23	69.81
pale	0.45	0.50	13.25	79.18	bleached	1.51	0.00	14.69	84.50
sponge	0.18	0.10	7.73	86.91	coralline algae	0.14	0.28	8.26	92.75
turf algae	0.21	0.00	6.51	93.42					
AD = 47.50	W2012	C2013			AD = 44.38	C2015	W2015		
healthy	10.86	11.28	54.61	54.61	healthy	13.81	9.84	39.56	39.56
pale	0.50	1.13	15.79	70.40	pale	0.17	1.90	20.92	60.48
coralline algae	0.64	0.72	15.24	85.63	bleached	0.00	195	19.67	80.15
sponge	0.10	0.18	7.78	93.41	coralline algae	0.28	0.19	9.20	89.35
					turf algae	0.05	0.14	5.23	94.58
AD = 45.27	C2013	W2013							
healthy	11.28	10.18	54.98	54.98					
pale	15.79	0.55	16.52	71.50					
coralline algae	0.72	0.29	14.25	85.75					
sponge	0.18	0.03	7.50	93.25					

Table S4. Multivariate similarity percentage analysis (SIMPER) for the absolute cover of *Pavona* spp. (healthy, pale, or bleached) and its non-coral competitors (coralline algae only) that colonized its barren skeleton (CA)

Contribution to dissimilarity (CD; %), cumulative contribution to dissimilarity (CAD; to 93%), and average dissimilarity (AD) have also been presented

	CA	CA	%CD	%CAD		CA	CA	%CD	%CAD
AD = 46.90	**2011**	**2012**			**AD = 50.99**	**2013**	**2014**		
healthy	4.96	6.55	64.25	64.25	healthy	6.34	4.60	56.25	56.25
coralline algae	0.11	0.54	18.08	82.33	coralline algae	0.80	0.33	23.72	79.97
pale	0.22	0.18	8.24	90.58	pale	0.02	0.45	10.06	90.03
AD = 41.54	**2012**	**2013**			**AD = 55.55**	**2014**	**2015**		
healthy	6.5	6.34	59.22	59.22	healthy	4.60	3.51	55.14	55.14
coralline algae	0.54	0.80	26.88	86.09	coralline algae	0.33	0.32	18.80	73.93
pale	0.18	0.02	5.48	91.57	pale	0.45	0.16	12.21	86.14
					bleached	0.25	0.01	6.42	92.57