

Coral community composition and reef development at the Similan Islands, Andaman Sea, in response to strong environmental variations

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SUPPLEMENT. More detailed and explicative data including descriptive lists and statistical results on coral cover, species composition, coral framework and environmental parameters along the Similan Islands, to complement data presented more shortly and condensed in the article

Table S1. Monthly temperature values (mode, maxima and minima) at 5 west (W) and 5 east (E) sites studied along the Similan Islands. Values recorded over a period of 21 mo (March 2007 to November 2008): Student's *t*-tests for testing of variability within replicate island sites (Group 1 and 2). N = number of temperature values; *0.05 > p ≥ 0.01

Gr 1 vs Gr 2	Mode					Maxima					Minima				
	<i>t</i> -value	N	N	df	p	<i>t</i> -value	N	N	df	p	<i>t</i> -value	N	N	df	p
		Gr 1	Gr 2				Gr 1	Gr 2	df			Gr 1	Gr 2		
West 20 m															
W 2.1 vs W 4.1	1.17	21	18	37	0.25	1.11	21	18	37	0.273	1.38	21	18	37	0.18
W 2.1 vs W 7.1	-0.19	21	17	36	0.85	-0.18	21	17	36	0.858	-0.21	21	17	36	0.84
W 2.1 vs W 8.1	0.19	21	21	40	0.85	0.23	21	21	40	0.819	-0.93	21	21	40	0.36
W 2.1 vs W 8.3	0.37	21	21	40	0.71	0.16	21	21	40	0.873	0.3	21	21	40	0.77
W 4.1 vs W 7.1	-1.25	18	17	33	0.22	-1.1	18	17	33	0.279	-1.31	18	17	33	0.2
W 4.1 vs W 8.1	-1.02	18	21	37	0.32	-0.86	18	21	37	0.396	-2.08	18	21	37	0.04*
W 4.1 vs W 8.3	-0.94	18	21	37	0.35	-0.9	18	21	37	0.373	-1.07	18	21	37	0.29
W 7.1 vs W 8.1	0.37	17	21	36	0.71	0.37	17	21	36	0.715	-0.57	17	21	36	0.57
W 7.1 vs W 8.3	0.55	17	21	36	0.58	0.31	17	21	36	0.761	0.44	17	21	36	0.66
W 8.1 vs W 8.3	0.17	21	21	40	0.87	-0.06	21	21	40	0.950	1.17	21	21	40	0.25
West 7 m															
W 2.1 vs W 4.1	-1.26	21	18	37	0.22	-1.32	21	18	37	0.19	-0.77	21	18	37	0.45
W 2.1 vs W 7.1	0.01	21	8	27	0.99	-0.01	21	8	27	0.99	-0.99	21	8	27	0.33
W 2.1 vs W 8.1	1.77	21	5	24	0.09	2.63	21	5	24	0.01*	-1.92	21	5	24	0.07
W 2.1 vs W 8.3	-0.05	21	21	40	0.96	-0.51	21	21	40	0.61	-2.16	21	21	40	0.04*
W 4.1 vs W 7.1	0.96	18	8	24	0.34	0.83	18	8	24	0.41	-0.35	18	8	24	0.73
W 4.1 vs W 8.1	2.83	18	5	21	0.01*	3.05	18	5	21	0.01*	-1.2	18	5	21	0.24

W 4.1 vs W 8.3	1.26	18	21	37	0.22	0.76	18	21	37	0.45	-1.16	18	21	37	0.25
W 7.1 vs W 8.1	1.59	8	5	11	0.14	1.74	8	5	11	0.11	-0.8	8	5	11	0.44
W 7.1 vs W 8.3	-0.05	8	21	27	0.96	-0.31	8	21	27	0.76	-0.51	8	21	27	0.61
W 8.1 vs W 8.3	-1.93	5	21	24	0.07	-2.56	5	21	24	0.02*	0.55	5	21	24	0.59
East 20 m															
E 2.1 vs E 4.1	-0.13	21	20	39	0.9	-0.12	21	20	39	0.9	-0.65	21	20	39	0.52
E 2.1 vs E 7.1	-0.4	21	20	39	0.69	-0.44	21	20	39	0.67	-2.15	21	20	39	0.04*
E 2.1 vs E 8.1	-0.16	21	19	38	0.87	-0.14	21	19	38	0.89	-1.95	21	19	38	0.06
E 2.1 vs E 8.3	-0.12	21	20	39	0.9	-0.12	21	20	39	0.9	-0.89	21	20	39	0.38
E 4.1 vs E 7.1	-0.27	20	20	38	0.79	-0.32	20	20	38	0.75	-1.53	20	20	38	0.13
E 4.1 vs E 8.1	-0.04	20	19	37	0.97	-0.02	20	19	37	0.99	-1.34	20	19	37	0.19
E 4.1 vs E 8.3	0.01	20	20	38	0.99	0	20	20	38	1	-0.25	20	20	38	0.81
E 7.1 vs E 8.1	0.22	20	19	37	0.82	0.3	20	19	37	0.77	0.18	20	19	37	0.86
E 7.1 vs E 8.3	0.29	20	20	38	0.78	0.31	20	20	38	0.76	1.28	20	20	38	0.21
E 8.1 vs E 8.3	0.05	19	20	37	0.96	0.01	19	20	37	0.99	1.09	19	20	37	0.28
East 7 m															
E 2.1 vs E 4.1	-0.02	21	21	40	0.98	-0.62	21	21	40	0.54	0.73	21	21	40	0.47
E 2.1 vs E 7.1	-0.41	21	20	39	0.68	-1.33	21	20	39	0.19	-1.41	21	20	39	0.17
E 2.1 vs E 8.1	-0.1	21	21	40	0.92	-0.74	21	21	40	0.47	-0.66	21	21	40	0.51
E 2.1 vs E 8.3	0.02	21	18	37	0.99	0.09	21	18	37	0.93	-0.53	21	18	37	0.6
E 4.1 vs E 7.1	-0.41	21	20	39	0.69	-0.73	21	20	39	0.47	-2.28	21	20	39	0.03*
E 4.1 vs E 8.1	-0.08	21	21	40	0.93	-0.12	21	21	40	0.9	-1.52	21	21	40	0.14
E 4.1 vs E 8.3	0.04	21	18	37	0.97	0.68	21	18	37	0.5	-1.3	21	18	37	0.2
E 7.1 vs E 8.1	0.32	20	21	39	0.75	0.6	20	21	39	0.55	0.95	20	21	39	0.35
E 7.1 vs E 8.3	0.41	20	18	36	0.68	1.36	20	18	36	0.18	0.93	20	18	36	0.36
E 8.1 vs E 8.3	0.11	21	18	37	0.91	0.79	21	18	37	0.44	0.08	21	18	37	0.93

Table S2. Percent cover of the 10 most abundant coral genera at all 7 west and 9 east sites studied along the Similan Islands. Abundance of coral genera given as a fraction of the total coral cover at the different sites studied. Percentage of total coral cover and coral genera cover calculated as means (\pm SE)

		All sites		West sites		East sites	
Total coral cover (%)		26.4 \pm 3.3		25.6 \pm 4.2		36.0 \pm 4.6	
Genus	No. of species	Fraction of cover (%)	Sites of occurrence (%)	Fraction of cover (%)	Sites of occurrence (%)	Fraction of cover (%)	Sites of occurrence (%)
<i>Porites</i>	6	43.0 \pm 7.2	100	15.7 \pm 3.8	100	64.2 \pm 5.8	100
<i>Acropora</i>	36	19.0 \pm 4.1	100	28.6 \pm 7.6	100	11.5 \pm 2.7	100
<i>Hydnophora</i>	3	8.3 \pm 4.8	56	8.5 \pm 8.2	43	8.1 \pm 6.1	67
<i>Pocillopora</i>	4	4.5 \pm 1.6	94	6.9 \pm 3.1	100	2.6 \pm 1.2	89
<i>Pavona</i>	8	3.2 \pm 1.4	81	6.4 \pm 2.9	86	0.8 \pm 0.4	78
<i>Millepora</i>	4	2.2 \pm 1.0	69	3.9 \pm 2.2	86	0.9 \pm 0.4	56
<i>Diploastrea</i>	1	2.0 \pm 0.6	69	2.7 \pm 1.1	71	1.5 \pm 0.6	67
<i>Echinopora</i>	3	1.4 \pm 0.6	50	0.7 \pm 0.4	43	2.0 \pm 1.0	56
<i>Heliopora</i>	1	1.4 \pm 0.9	31	1.2 \pm 0.9	29	1.5 \pm 1.4	33
<i>Goniopora</i>	6	0.8 \pm 0.4	50	0.8 \pm 0.3	57	0.8 \pm 0.6	44
Other	72	14.2 \pm 3.0	100	24.6 \pm 3.9	100	6.2 \pm 1.5	100

Table S3. Summary of presence and absence of hard coral species with an approximate quantitative assessment of the proportion of the total substrate cover measured with one 100 m line intercept transect at 14 m depth at all west (W) and east (E) sites studied along the Similan Islands

Cover (%): ■ 0 - 1, ■ 1.01 - 5, ■ 5.01 - 10, ■ 10.01 - 20, ■ >20																
Coral taxa	West							East								
	W2.1	W4.1	W7.1	W8.1	W8.2	W8.3	W9.1	E1.1	E2.1	E4.1	E4.2	E7.1	E8.1	E8.2	E8.3	E9.1
<i>Acropora austera</i>	■		■	■	■		■					■				■
<i>Acropora clathrata</i>	■	■	■	■	■	■	■	■				■		■	■	■
<i>Acropora cytheria</i>	■															
<i>Acropora divaricata</i>	■								■	■		■				
<i>Acropora danei</i>	■		■		■			■				■				■
<i>Acropora echinata</i>										■			■			■
<i>Acropora elseyi</i>														■	■	
<i>Acropora formosa</i>							■	■							■	
<i>Acropora florida</i>		■						■					■			■
<i>Acropora gemmifera</i>	■				■						■					
<i>Acropora grandis</i>								■						■		
<i>Acropora granulosa</i>												■				
<i>Acropora humilis</i>	■	■	■		■	■	■				■					■
<i>Acropora hyacinthus</i>							■									
<i>Acropora kosurini</i>				■												
<i>Acropora longicyathus</i>										■						
<i>Acropora microphthalma</i>							■									
<i>Acropora nasuta</i>													■			
<i>Acropora nobilis</i>					■		■									■
<i>Acropora palifera</i>	■	■			■	■	■	■			■		■			■
<i>Acropora robusta</i>					■											
<i>Acropora rudis</i>		■														
<i>Acropora samoensis</i>																■
<i>Acropora secale</i>											■					
<i>Acropora selago</i>														■		
<i>Acropora subglabra</i>												■				
<i>Acropora subulata</i>									■							■
<i>Acropora tenuis</i>		■	■	■		■				■		■			■	■
<i>Acropora yongei</i>			■				■									
<i>Acropora</i> sp.1 (corymbo- tabulate)	■	■	■													
<i>Acropora</i> sp.2 (corymbo- tabulate)	■	■														
<i>Acropora</i> sp. (juvenile)											■		■	■		
<i>Astreopora myriophthalma</i>													■			
<i>Astreopora</i> sp.		■	■													

<i>Coeloseris mayeri</i>			■	■	■	■	■	■	■	■	■	■	■			■
<i>Cyphastrea</i> sp.	■	■	■	■	■	■	■	■	■	■	■	■	■			■
<i>Diploastrea heliopora</i>	■			■	■	■	■		■	■	■	■			■	■
<i>Echinophyllia aspera</i>		■														
<i>Echinopora horrida</i>																■
<i>Echinopora lamellosa</i>				■				■	■				■			
<i>Echinopora gemmacea</i>					■	■		■			■					
<i>Favia amicorum</i>						■										
<i>Favia helianthoides</i>	■															
<i>Favia matthaii</i>		■		■				■						■		■
<i>Favia pallida</i>				■									■			
<i>Favia pallifera</i>		■														
<i>Favia speciosa</i>		■														
<i>Favia stelligera</i>													■		■	■
<i>Favia</i> sp.	■	■														■
<i>Favites abdita</i>	■	■	■	■	■		■						■			■
<i>Favites pentagona</i>	■	■		■												
<i>Favites</i> sp.	■						■									
<i>Fungia echinata</i>													■		■	
<i>Fungia fungites</i>												■				■
<i>Fungia paumotensis</i>													■			
<i>Fungia repanda</i>													■			
<i>Fungia scutaria</i>								■								
<i>Fungia</i> sp.				■			■									
<i>Galaxea fascicularis</i>				■												
<i>Gardineroseris planulata</i>	■			■	■	■	■		■		■	■				■
<i>Goniastrea pectinata</i>				■	■	■	■		■		■	■		■		■
<i>Goniastrea retiformis</i>									■			■		■		
<i>Goniopora burgosi</i>															■	
<i>Goniopora lobata</i>							■	■						■		
<i>Goniopora stutchburyi</i>					■									■		
<i>Goniopora</i> sp. - massive									■							
<i>Goniopora</i> sp. - soft med										■						
<i>Goniopora</i> sp.		■			■											
<i>Heliopora coerulea</i>						■	■					■	■			■
<i>Herpetoglossa simplex</i>																■
<i>Herpolitha limax</i>		■											■			■
<i>Hydnophora exesa</i>					■											
<i>Hydnophora microconos</i>		■		■									■	■		
<i>Hydnophora rigida</i>				■	■				■			■	■		■	■
<i>Leptastrea</i> sp.	■	■		■	■	■	■					■	■		■	■
<i>Leptoria phrygia</i>	■				■	■	■						■			■
<i>Leptoseris mycetoseroides</i>		■	■			■						■				
<i>Merulina ampliata</i>		■			■		■					■				■
<i>Millepora tenella</i>	■														■	■

<i>Millepora exaesa</i>	■	■	■	■	■	■							■	■		
<i>Millepora platyphylla</i>	■	■										■	■			
<i>Millepora</i> sp. - encrust										■						■
<i>Montastrea valenciennesi</i>				■												■
<i>Montastrea</i> sp.	■			■				■								
<i>Montipora aequituberculata</i>			■		■				■							
<i>Montipora calculata</i>	■		■	■	■			■				■	■			■
<i>Montipora corbettensis</i>					■											
<i>Montipora danae</i>		■														
<i>Montipora efflorescens</i>	■		■		■								■			
<i>Montipora foveolata</i>		■														
<i>Montipora hispida</i>	■		■		■						■					
<i>Montipora informis</i>		■	■		■							■				■
<i>Montipora peltiformis</i>				■	■											
<i>Montipora tuberculosa</i>	■		■	■	■		■	■			■		■			■
<i>Montipora venosa</i>						■										
<i>Montipora</i> sp. - encrust	■	■	■	■	■	■		■				■				■
<i>Montipora</i> sp.2 encrust						■										■
<i>Montipora</i> sp.3 - encrust						■										■
<i>Montipora</i> sp.4 - encrust																■
<i>Montipora</i> sp. - massive					■			■			■		■			
<i>Montipora</i> sp.		■		■												■
<i>Pachyseris speciosa</i>						■								■		
<i>Pavona clavus</i>					■											
<i>Pavona decussata</i>		■			■	■										
<i>Pavona duerdeni</i>				■												
<i>Pavona explanulata</i>		■			■			■						■		
<i>Pavona madivensis</i>					■											
<i>Pavona minuta</i>	■		■			■										
<i>Pavona varians</i>	■	■	■	■	■	■		■	■		■	■	■	■		■
<i>Pavona venosa</i>	■			■	■											
<i>Pectinia</i> sp.													■			
<i>Physogyra litchtensteini</i>											■					
<i>Platygyra daedalea</i>	■	■		■	■	■					■					
<i>Platygyra lamellina</i>		■											■			■
<i>Platygyra sinensis</i>		■					■									
<i>Pleasiastrea versipora</i>		■														
<i>Pocillopora damicornis</i>			■				■		■				■	■		
<i>Pocillopora eydouxi</i>	■	■	■	■	■	■	■				■	■				

<i>Pocillopora meandrina</i>	■		■		■		■		■			■	■			■
<i>Pocillopora verrucosa</i>	■						■	■	■					■	■	
<i>Polyphyllia talpina</i>				■												
<i>Porites annae</i>					■											■
<i>Porites cylindrica</i>								■	■					■	■	■
<i>Porites lobata</i>																■
<i>Porites lutea</i>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<i>Porites nigrescens</i>					■	■		■	■	■	■	■	■		■	
<i>Porites stephensoni</i>	■	■	■		■	■	■	■			■		■	■	■	■
<i>Porites</i> sp. - massive								■								
<i>Porites (Synaraea) rus - branch.</i>	■		■		■	■		■	■	■	■	■	■	■	■	■
<i>Porites (Synaraea) rus - columnar</i>						■		■	■	■		■		■	■	■
<i>Psammocora digitata</i>					■			■			■					
<i>Psammocora profundacella</i>		■														
<i>Seriatopora hystrix</i>								■								
<i>Stylocoeniella quentheri</i>		■														■
<i>Stylophora pistillata</i>	■	■	■	■		■					■	■				
<i>Symphyllia agaricia</i>	■				■											
<i>Symphyllia radians</i>	■	■		■			■									
Total	42	44	32	36	48	33	29	32	18	14	30	27	35	21	18	48

Table S4. Inter-site comparison of coral communities with the top 10 coral species contributing most to (A) the dissimilarities (diss) between west and east, (B) similarities (sim) within the west, and (C) similarities within the east sides of the Similan Islands. Values denote means (\pm SE) percentage of total living coral cover; SD: standard deviation of dissimilarity and similarity, respectively.

A Average dissimilarity (%): 83.16

Genus	Species	Percentage of living coral (%)		Average diss	Diss/ SD	Contrib diss (%)	Cum contrib diss (%)
		West	East				
<i>Porites</i>	<i>lutea</i>	12.68 (3.58)	25.17 (6.59)	12.39	1.11	14.9	14.9
	<i>rus</i>	1.40 (0.58)	22.37 (5.15)	11.71	2.55	14.08	28.98
<i>Hydnophora</i>	<i>rigida</i>	8.13 (8.13)	8.02 (6.08)	8.85	0.61	10.64	39.62
<i>Porites</i>	<i>nigrescens</i>	0.37 (0.27)	11.13 (4.11)	6.77	0.94	8.14	47.76
<i>Acropora</i>	<i>clathrata</i>	10.83 (5.21)	0.86 (0.53)	4.7	0.73	5.65	53.41
<i>Porites</i>	<i>cylindrica</i>	0.00 (0.00)	4.79 (3.28)	2.96	0.47	3.56	56.97
<i>Acropora</i>	<i>palifera</i>	6.63 (4.95)	0.69 (0.35)	2.37	0.58	2.85	59.82
<i>Pocillopora</i>	<i>eydouxi</i>	5.46 (2.76)	0.23 (0.16)	2.31	0.7	2.78	62.60
<i>Millepora</i>	<i>exaesa</i>	2.94 (1.43)	0.09 (0.07)	1.38	0.74	1.66	64.26
<i>Pavona</i>	<i>clavus</i>	2.57 (2.57)	0.00 (0.00)	1.17	0.4	1.41	65.67

B Average similarity (%): 24.27

Genus	Species	Percentage of living coral (%)		Average sim	Sim/ SD	Contrib sim (%)	Cum contrib sim (%)
		West	East				
<i>Porites</i>	<i>lutea</i>	12.68 (3.58)		6.44	1.31	26.52	26.52
<i>Acropora</i>	<i>clathrata</i>	10.83 (5.21)		3.27	0.57	13.49	40.01
<i>Cyphastrea</i>	sp.	2.55 (0.70)		1.47	2.68	6.06	46.07
<i>Pocillopora</i>	<i>eydouxi</i>	5.46 (2.76)		1.38	0.79	5.68	51.75
<i>Pavona</i>	<i>varians</i>	2.82 (0.95)		1.29	1.05	5.3	57.05
<i>Acropora</i>	<i>palifera</i>	6.63 (4.95)		0.98	0.63	4.04	61.09
<i>Millepora</i>	<i>exaesa</i>	2.94 (1.43)		0.89	1.01	3.68	64.77
<i>Diploastrea</i>	<i>heliopora</i>	2.65 (1.06)		0.88	0.72	3.63	68.40
<i>Acropora</i>	<i>austera</i>	1.90 (1.08)		0.54	0.58	2.21	70.61
<i>Porites</i>	<i>stephensoni</i>	1.21 (0.38)		0.51	0.93	2.08	72.69

C Average similarity (%): 31.91

Genus	Species	Percentage of living coral (%)		Average sim	Sim/ SD	Contrib sim (%)	Cum contrib sim (%)
		West	East				
<i>Porites</i>	<i>lutea</i>		25.17 (6.59)	12.28	1.05	38.49	38.49
	<i>rus</i>		22.37 (5.15)	11.19	2.43	35.08	73.57
	<i>nigrescens</i>		11.13 (4.11)	4.11	0.53	12.88	86.45
	<i>cylindrica</i>		4.79 (3.28)	0.53	0.47	1.66	88.11
<i>Diploastrea</i>	<i>heliopora</i>		1.52 (0.61)	0.44	0.51	1.38	89.49
<i>Hydnophora</i>	<i>rigida</i>		8.02 (6.08)	0.42	0.22	1.3	90.79

Table S5. Analysis of similarity (ANOSIM) results after 999 permutations of differences in benthic composition between 3 x 50 m transects (triplicate transects) at island Ko Miang (west and east at 7 and 20 m depths). Consecutive transects numbered as 1, 2, and 3. The low R-values (close to zero) imply little or no segregation between the 3 transects at each site with respect to their benthic composition. Directly consecutive transects (transects 1 and 2 or transects 2 and 3) are not more similar to each other than external transects (1 and 3). For this reason triplicate transects were treated as replicates for statistical analyses

E 7 m			E 20 m		
Sample statistic (Global R):	0.04		Sample statistic (Global R):	0.026	
Sign. level %:	0.1		Sign. level %:	0.3	
Pairwise tests:			Pairwise tests:		
	R statistic	Sign. level %		R statistic	Sign. level %
transect 1 vs 2	0.019	1.6	transect 1 vs 2	0.035	0.5
transect 1 vs 3	0.018	1.7	transect 1 vs 3	0.046	0.2
transect 2 vs 3	0.084	0.1	transect 2 vs 3	-0.002	50.4
W 7 m			W 20 m		
Sample statistic (Global R):	0.023		Sample statistic (Global R):	0.048	
Sign. level %:	0.2		Sign. level %:	0.1	
Pairwise tests:			Pairwise tests:		
	R statistic	Sign. level %		R statistic	Sign. level %
transect 1 vs 2	0.006	14.7	transect 1 vs 2	0.004	17.4
transect 1 vs 3	0.035	0.1	transect 1 vs 3	0.09	0.1
transect 2 vs 3	0.027	0.2	transect 2 vs 3	0.05	0.1

Table S6. Benthic composition at the Similan Islands at all west and east sides studied at 14 m depth. Data displayed as means (\pm SE)

Substrate	Cover (%)		
	All sites	West	East
Hard substrate			
living coral, dead coral, rock	70.42 (3.42)	67.71 (6.59)	72.83 (3.34)
Living coral	30.98 (3.42)	25.57 (4.22)	35.95 (4.62)
Dead coral	35.67 (3.09)	34.06 (5.51)	36.87 (3.44)
Rock	3.78 (3.51)	8.09 (8.00)	0.00 (0.00)
Sand and loose coral fragments	27.82 (3.49)	29.75 (6.89)	25.88 (3.29)
Fleshy algae	0.38 (0.15)	0.20 (0.07)	0.50 (0.24)
Sponge	0.25 (0.13)	0.39 (0.30)	0.10 (0.07)
Other	0.25 (0.23)	0.00 (0.00)	0.39 (0.37)

Table S7. ANOVA for coral framework on the east and west of the Similan Islands (4.1 and 8.1). Side (E and W) and depth (7, 14 and 20 m) were used as treatment factors; post hoc, pairwise comparisons were performed via Tukey HSD-tests (**0.01 > p ≥ 0.001, ***p < 0.001)

Factor	df	MS	F	p
Side	1	107393.5	369.9	***
Depth	1	4597.1	15.8	***
Side & depth	2	2057.7	7.1	**
Error	2	290.3		

Tukey HSD, significantly different, pairwise comparisons:				p
W 20 m	<	W 14 m		***
		E all depths		***
W 14 m	>	W 20 m		***
	<	E all depths		***
W 7 m	<	E all depths		***

Table S8. Comparison of temperature parameters (mode, mean, monthly range = maximum to minimum, degree days cooling (DDC, °C d) of 5 west and 5 east sites recorded along the Similan Islands. Non-parametric Kruskal-Wallis ANOVA and median test followed by multiple comparisons of mean ranks with side (E and W) and depth (7 and 20 m) as treatment factors. (mean ± SD, *0.05 > p ≥ 0.01, **0.01 > p ≥ 0.001, ***p < 0.001)

Mode					Mean				
Kruskal-Wallis test: **					Kruskal-Wallis test: **				
	W 20 m	W 7 m	E 20 m	E 7 m		W 20 m	W 7 m	E 20 m	E 7 m
W 20 m	28.7 (0.6)			**	W 20 m	28.5 (0.7)			**
W 7 m		28.9 (0.1)			W 7 m		28.8 (0.6)		
E 20 m			28.8 (0.6)		E 20 m			28.8 (0.5)	*
E 7 m				29.0 (0.6)	E 7 m				29.1 (0.5)

Monthly range					DDC				
Kruskal-Wallis test: ***					Kruskal-Wallis test: **				
	W 20 m	W 7 m	E 20 m	E 7 m		W 20 m	W 7 m	E 20 m	E 7 m
W 20 m	5.2 (1.7)	**	***	***	W 20 m	-58.3 (1.9)			**
W 7 m		4.3 (1.7)			W 7 m		-31.6 (3.8)		
E 20 m			2.7 (1.3)	**	E 20 m			-24.8 (2.5)	
E 7 m				2.1 (0.1)	E 7 m				-11.8 (4.9)

Table S9. Comparison of environmental parameters at Ko Miang (W 4.1, E 4.1). Non-parametric Kruskal-Wallis ANOVA and median test followed by multiple comparisons of mean ranks with side (E and W) and depth (7 and 20 m) as treatment factors. (A) Light values (lux [lm m^{-2}]) recorded over a period of 4 mo (December 2007 to April 2008) and (B) parameters determined from water sample analyses collected in February, March 2007 and 2008 (* $0.05 > p \geq 0.01$, ** $0.01 > p \geq 0.001$, *** $p < 0.001$, ns: not significant)

A Lux (lm m^{-2})									
Kruskal-Wallis test					***				
	W 20 m	W 7 m	E 20 m	E 7 m					
W 20 m									
W 7 m	***								
E 20 m	***	***							
E 7 m	***	***	***						
B Silicate ($\mu\text{mol l}^{-1}$)					Phosphate ($\mu\text{mol l}^{-1}$)				
Kruskal-Wallis test					**				
	W 20 m	W 7 m	E 20 m	E 7 m		W 20 m	W 7 m	E 20 m	E 7 m
W 20 m						W 20 m			
W 7 m	ns					W 7 m	ns		
E 20 m	**	ns				E 20 m	ns	ns	
E 7 m	***	ns	ns			E 7 m	ns	ns	ns
Nitrate + Nitrite ($\mu\text{mol l}^{-1}$)					Ammonium ($\mu\text{mol l}^{-1}$)				
Kruskal-Wallis test					**				
	W 20 m	W 7 m	E 20 m	E 7 m		W 20 m	W 7 m	E 20 m	E 7 m
W 20 m						W 20 m			
W 7 m	ns					W 7 m	ns		
E 20 m	ns	ns				E 20 m	ns	ns	
E 7 m	**	ns	ns			E 7 m	ns	ns	ns
Dissolved organic carbon (ppm)					Suspended particulate matter (mg l^{-1})				
Kruskal-Wallis test					ns				
	W 20 m	W 7 m	E 20 m	E 7 m		W 20 m	W 7 m	E 20 m	E 7 m
W 20 m						W 20 m			
W 7 m	ns					W 7 m	ns		
E 20 m	ns	ns				E 20 m	ns	ns	
E 7 m	ns	ns	ns			E 7 m	ns	ns	ns

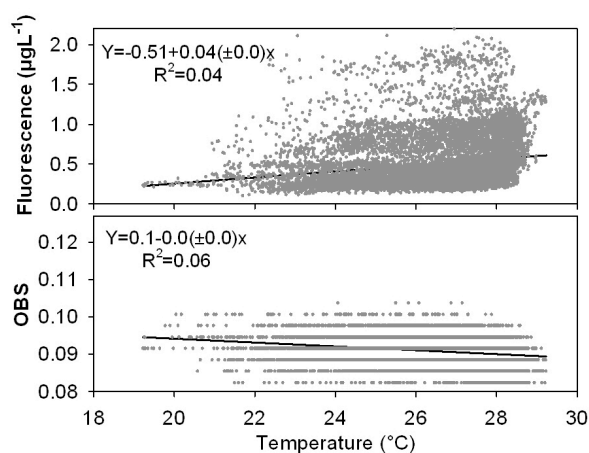


Fig. S1. Linear regression analysis with fluorescence and optical backscatter (OBS) as dependent variables and temperature as an independent variable. Data for analysis taken from a 48 h section of a CTD-recording at Site W 4.1 at 20 m depth in March 2007