

Colonization and succession as drivers of small-scale spatial variability in epibionts on mangrove roots in the Southern Caribbean

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Supplement

History of development of assemblages and species replacement at each site

At El Conchal, LRNP, species composition and abundances were very similar at 2-months of development for both times of initiation, with richness around 5 and 7 species respectively (Figure S1). At this initial stage, the most common species were the barnacle *Balanus* sp. the hydrozoa *Nemalecium* sp., the sabellid polychaete *Branchiomma nigromaculatum* and the bryozoans *Bugula neritina*. Of these, *Balanus* sp. and *Nemalecium* sp. were the most abundant and were found in all AMRs (Table S1). Within 4-months, the richness increased to 11 and 9 species respectively; however, in AMRs from the 1st time of initiation, the sponge *Mycale* sp. was very abundant (14.7 ± 6.7 % cover) and frequent (found 8 times out of 8 AMRs) (Table S1). This species was absent in AMRs with 2-months from the 2nd time of initiation, and then did not recruit during the 4-months stage of this series. At 6-months in both time of initiation, the richness surpassed 11 species. During the 1st time of initiation, the sponge *Haliclona implexiformis* was present in 6 of 8 AMRs. For the 2nd time of initiation, the sponges *Mycale microsigmatosa* and *Scopalina* sp. were present in 5 of 8 AMRs (Table S1). At this stage, the most abundant species in AMRs of 1st timing were *Haliclona implexiformis* and *Mycale* sp., and for 2nd time of initiation were *Brachidontes exustus* and *Balanus* sp. Figure S1 shows how assemblages in El Conchal from different time of initiation become different with time.

At El Mánamo and La Entrada, LRNP, assemblages were very similar at 2-months of development in both time of initiation, with richness around 13-18 species (Figure S1). At this stage in El Mánamo, the most frequent species were *B. nigromaculatum*, *Balanus* sp., the colonial tunicates *Botrylloides nigrum* and *Symplegma brakenhielmi* (Table S2). The cover of these species was higher than other frequent species, like the solitary ascidia *S. canopus*. Simultaneously, at La Entrada, the most frequent and abundant species were *B. nigrum*, *S. brakenhielmi* and the bryozoan *S. circinatum* (Table S3). After 4-months in El Mánamo, the richness increased to 17-21 species for each time of initiation. At this successional stage, sponges like *Mycale* sp., *M. microsigmatosa*, *M. carmigropila* and *M. magnirhaphidifera* were very frequent and abundant independently of time of initiation (Table S2). After 4-months in La Entrada, species that appeared with high frequencies and covers in AMRs from both time of initiation were the oyster *Crassostrea rhizophorae*, the ascidia *Phallusia nigra*, the colonial bryozoan *Schizoporella pungens* and the sponge *M. carmigropila* (Table S3). In El Mánamo, after six months in AMRs from both time of initiation, assemblages were very similar, with richness around 23 species (Figure S1). The dominant species were *C. rhizophorae*, *Balanus* sp., *B. neritina*, *M. microsigmatosa* and the tunicate *Aplidium accareense* (Table S2). At La Entrada, after six months, the richness was relatively similar for both times of initiation (≈ 20 species, Figure S1), although structure of assemblages was not the same (Table S3). In both treatments, the colonial ascidians *C. oblonga* appeared in all AMRs with high covers, but for AMRs of the 1st time of initiation, the dominant species was *M. magnirhaphidifera*, while for AMRs of 2nd time of initiation was *M. microsigmatosa*. In all sites, some species were frequent independently of time of initiation and stage of development, they were *B. nigrum*, *Didemnum perlucidum*, *S. brakenhielmi* and *A. accareense* (at La Entrada and El Mánamo) and *Diplosoma listerianum* in El Conchal.

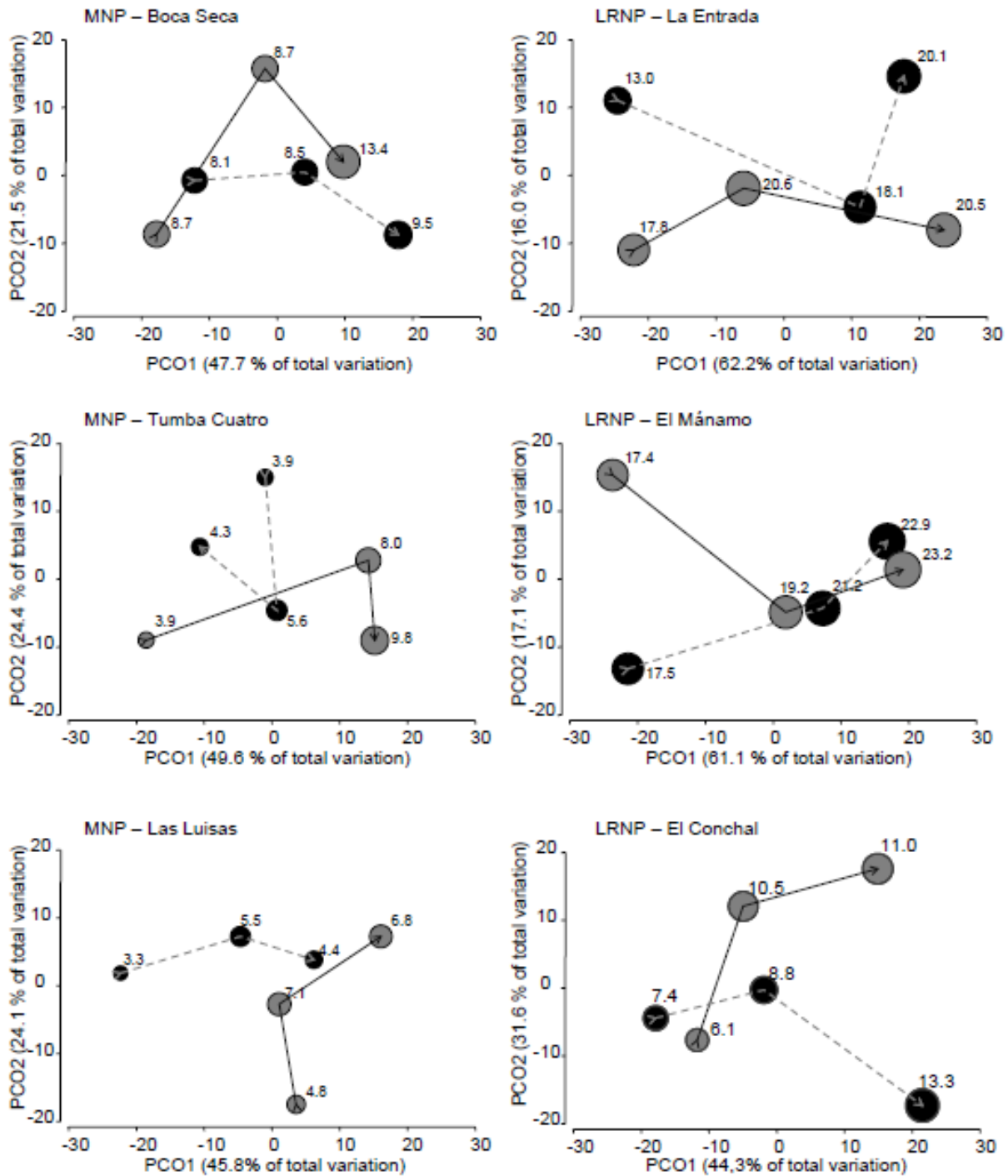


Figure S1. Principal coordinates ordination plots (PCO) showing centroids for the interaction term Time of initiation \times Successional stage for each site. Size of the bubbles indicate richness. Gray bubbles correspond to 1st time of initiation, Black bubbles are for the 2nd. The direction of succession development is indicated with arrows, starting at 2-month (base of arrow), through 4-months (middle point) until 6 months (point of arrow).

Table S1. Species with higher contribution to similarities among AMRs of each stage (2, 4 and 6 months) in El Conchal for both times of initiation. Frequency of appearance (f) and relative cover (mean (\bar{x}) and standard deviation (s)) are also presented.

Timeline															
30/07/2009				01/10/2009				27/11/2009				01/02/2010			
2 (74% similarity)				4 (70% similarity)				6 (62% similarity)							
Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s				
<i>Balanus</i> sp.	1.0	17.3	12.5	<i>Balanus</i> sp.	1.0	8.5	3.4	<i>Balanus</i> sp.	1.0	3.5	2.6				
<i>Nemalécium</i> sp.	1.0	16.7	15.5	<i>Nemalécium</i> sp.	1.0	11.5	9.8	<i>B. nigromaculatum</i>	1.0	1.8	1.4				
<i>B. nigromaculatum</i>	1.0	4.7	3.5	<i>Mycale</i> sp.	1.0	14.7	6.7	<i>Hydroïdes</i> sp.	0.9	1.7	1.5				
<i>B. neritina</i>	0.9	7.8	8.0	<i>B. nigromaculatum</i>	1.0	4.8	3.9	<i>H. implexiformis</i>	0.8	12.4	15.8				
<i>Hydroïdes</i> sp.	0.8	1.3	1.1	<i>S. canopus</i>	0.9	2.0	1.8	<i>B. neritina</i>	0.8	4.8	9.0				
<i>D. listerianum</i>	0.5	6.7	9.6	<i>Hydroïdes</i> sp.	0.9	1.7	1.3	<i>Nemalécium</i> sp.	0.8	4.4	3.7				
				<i>D. listerianum</i>	0.8	3.8	4.1	<i>S. circinatum</i>	0.6	4.2	5.6				
				<i>B. neritina</i>	0.6	4.7	7.2	<i>B. exustus</i>	0.6	1.5	1.6				
								<i>D. listerianum</i>	0.5	4.4	5.2				
								<i>Mycale</i> sp.	0.5	12.5	17.3				
				2 (72% similarity)				4 (65% similarity)				6 (64% similarity)			
				Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s
				<i>Balanus</i> sp.	1.0	21.2	14.5	<i>Nemalécium</i> sp.	1.0	7.5	2.3	<i>B. exustus</i>	1.0	22.2	14.2
				<i>D. listerianum</i>	1.0	11.0	7.3	<i>Balanus</i> sp.	0.9	10.7	5.1	<i>B. neritina</i>	1.0	8.8	7.7
				<i>Nemalécium</i> sp.	1.0	18.6	10.4	<i>B. neritina</i>	0.9	5.4	6.0	<i>Balanus</i> sp.	1.0	15.0	8.4
				<i>B. nigromaculatum</i>	0.9	6.8	4.4	<i>B. nigromaculatum</i>	0.9	3.6	3.8	<i>Nemalécium</i> sp.	1.0	4.5	1.6
				<i>B. neritina</i>	0.8	6.5	7.4	<i>B. exustus</i>	0.8	2.9	2.8	<i>Hydroïdes</i> sp.	1.0	3.0	2.4
								<i>D. listerianum</i>	0.8	13.0	14.0	<i>M. microsigmatosa</i>	0.6	0.2	0.2
								<i>Mycale</i> sp.	0.5	3.0	4.2	<i>Styela</i> sp. 1	0.6	1.2	1.5
												<i>Scopalina</i> sp.	0.6	0.3	0.4
												<i>B. nigromaculatum</i>	0.4	0.4	0.6
												<i>N. nudicollis</i>	0.4	0.1	0.2
												<i>S. brakenhielmi</i>	0.4	0.8	1.4

Table S2. Species with higher contribution to similarities among AMRs of each stage (2, 4 and 6 months) in El Manamo for both times of initiation. Frequency of appearance (f) and relative cover (mean (\bar{x}) and standard deviation (s)) are also presented.

Timeline															
30/07/2009				01/10/2009				27/11/2009				01/02/2010			
2 (66% similarity)				4 (60% similarity)				6 (69% similarity)							
Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s				
<i>B. nigrum</i>	1.0	12.3	9.7	<i>B. nigrum</i>	1.0	15.0	10.3	<i>A. accareense</i>	1.0	6.8	8.2				
<i>C. oblonga</i>	1.0	10.4	9.6	<i>Balanus</i> sp.	1.0	6.3	4.5	<i>B. nigrum</i>	1.0	2.2	1.4				
<i>B. nigromaculatum</i>	1.0	7.6	3.7	<i>M. microsigmatosa</i>	1.0	9.0	7.1	<i>B. neritina</i>	1.0	11.3	6.6				
<i>S. canopus</i>	1.0	1.9	1.7	<i>B. nigromaculatum</i>	1.0	2.0	1.7	<i>C. rhizophorae</i>	1.0	12.8	6.3				
<i>S. brakenhielmi</i>	1.0	13.1	6.5	<i>Nemalécium</i> sp.	0.8	9.8	8.2	<i>Balanus</i> sp.	1.0	3.6	2.6				
<i>Balanus</i> sp.	0.9	9.0	6.9	<i>D. perlucidum</i>	0.8	5.7	8.3	<i>D. perlucidum</i>	1.0	2.7	1.4				
<i>Hydroïdes</i> sp.	0.9	0.9	1.0	<i>C. rhizophorae</i>	0.8	4.6	4.9	<i>E. turbinata</i>	1.0	5.3	8.3				
<i>A. curvata</i>	0.8	1.3	1.2	<i>Mycalé</i> sp.	0.8	7.8	8.8	<i>Perna viridis</i>	1.0	1.4	1.2				
<i>Lissoclinum</i> sp.	0.8	2.3	2.6	<i>B. exustus</i>	0.7	1.6	2.2	<i>B. nigromaculatum</i>	1.0	1.1	0.1				
<i>S. pungens</i>	0.8	2.5	2.5	<i>M. exasperatus</i>	0.7	0.4	0.4	<i>Styela</i> sp. 1	1.0	2.7	3.2				
<i>Nemalécium</i> sp.	0.6	0.9	0.6	<i>S. pungens</i>	0.7	1.0	1.4	<i>M. microsigmatosa</i>	0.8	10.4	9.9				
<i>Exaíptasia pallida</i>	0.6	0.3	0.3	<i>S. brakenhielmi</i>	0.5	1.0	1.3	<i>S. pungens</i>	0.8	3.7	6.2				
<i>D. perlucidum</i>	0.6	2.1	3.5	<i>S. circinatum</i>	0.5	0.7	1.4	<i>B. exustus</i>	0.8	1.8	2.2				
<i>B. neritina</i>	0.6	0.9	0.9	<i>S. canopus</i>	0.5	0.3	0.4	<i>C. oblonga</i>	0.8	1.6	2.1				
				<i>Styela</i> sp. 2	0.5	0.8	1.3	<i>M. exasperatus</i>	0.8	0.7	0.9				
				<i>M. carmigropila</i>	0.5	2.2	4.7	<i>S. canopus</i>	0.8	0.8	1.3				
								<i>S. brakenhielmi</i>	0.8	1.2	0.8				
				2 (70% similarity)				4 (60% similarity)				6 (65% similarity)			
				Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s
				<i>B. nigrum</i>	1.0	12.70	5.60	<i>D. perlucidum</i>	1.0	3.2	3.4	<i>A. accareense</i>	1.0	2.9	3.2
				<i>Balanus</i> sp.	1.0	20.40	8.20	<i>B. neritina</i>	0.9	4.2	3.1	<i>B. neritina</i>	1.0	5.4	3.5
				<i>D. perlucidum</i>	1.0	3.40	3.20	<i>A. accareense</i>	0.9	4.9	3.1	<i>C. rhizophorae</i>	1.0	8.9	4.7
				<i>B. nigromaculatum</i>	1.0	12.09	8.80	<i>B. nigrum</i>	0.9	3.6	3.1	<i>S. circinatum</i>	0.9	3.8	5.0
				<i>S. brakenhielmi</i>	1.0	5.65	3.80	<i>C. rhizophorae</i>	0.9	8.6	5.9	<i>M. exasperatus</i>	0.9	1.4	1.4
				<i>Nemalécium</i> sp.	0.9	3.90	5.40	<i>Balanus</i> sp.	0.9	6.8	5.7	<i>Balanus</i> sp.	0.9	7.5	6.9
				<i>A. accareense</i>	0.9	5.50	6.40	<i>S. brakenhielmi</i>	0.8	3.5	6.3	<i>Nemalécium</i> sp.	0.9	7.5	12.0
				<i>A. curvata</i>	0.9	0.90	0.78	<i>Nemalécium</i> sp.	0.8	5.0	3.9	<i>M. microsigmatosa</i>	0.9	18.2	9.9

<i>Mycale</i> sp.	0.9	1.75	1.80	<i>S. canopus</i>	0.8	0.3	0.4	<i>B. nigromaculatum</i>	0.9	2.5	3.2
<i>Styela</i> sp. 1	0.9	2.08	2.08	<i>Mycale</i> sp.	0.8	4.8	4.9	<i>B. nigrum</i>	0.7	1.6	2.0
<i>C. rhizophorae</i>	0.8	6.40	7.70	<i>Styela</i> sp. 1	0.8	1.2	1.4	<i>S. rubra</i>	0.7	1.1	1.4
<i>Hydroides</i> sp.	0.6	0.36	0.35	<i>T. ignis</i>	0.6	0.8	1.2	<i>Exaiptasia pallida</i>	0.7	0.4	0.3
<i>S. rubra</i>	0.6	0.38	0.36	<i>M. exasperatus</i>	0.6	0.9	1.3	<i>S. pungens</i>	0.7	2.1	3.9
<i>S. circinatum</i>	0.6	1.50	2.80	<i>S. rubra</i>	0.6	0.9	0.9	<i>D. perlucidum</i>	0.7	1.7	2.5
<i>S. canopus</i>	0.6	0.96	0.99	<i>M. microsigmatosa</i>	0.6	8.6	8.0	<i>C. oblonga</i>	0.7	7.2	12.8
				<i>S. circinatum</i>	0.5	2.4	4.0	<i>E. turbinata</i>	0.7	0.7	0.7
				<i>M. magnirhaphidifera</i>	0.5	3.2	5.2	<i>B. exustus</i>	0.7	0.5	0.5
				<i>Exaiptasia pallida</i>	0.5	0.3	0.3	<i>M. magnirhaphidifera</i>	0.7	3.0	3.3
								<i>S. canopus</i>	0.7	0.3	0.2
								<i>Styela</i> sp. 1	0.7	0.9	0.9

Table S3. Species with higher contribution to similarities among AMRs of each stage (2, 4 and 6 months) in La Entrada for both times of initiation. Frequency of appearance (f) and relative cover (mean (\bar{x}) and standard deviation (s)) are also presented.

Timeline				01/10/2009				27/11/2009				01/02/2010			
30/07/2009				01/10/2009				27/11/2009				01/02/2010			
2 (69% similarity)				4 (74% similarity)				6 (61% similarity)							
Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s
<i>B. nigrum</i>	1.0	23.2	8.6	<i>B. nigrum</i>	1.0	2.1	2.6	<i>C. oblonga</i>	1.0	19.5	9.6				
<i>S. circinatum</i>	1.0	6.8	7.4	<i>S. circinatum</i>	1.0	10.3	9.7	<i>Nemalecium</i> sp.	1.0	4.7	2.3				
<i>Balanus</i> sp.	1.0	6.1	4.5	<i>B. neritina</i>	1.0	1.4	1.4	<i>M. exasperatus</i>	1.0	3.6	3.0				
<i>D. perlucidum</i>	1.0	4.1	3.2	<i>Balanus</i> sp.	1.0	7.8	2.7	<i>Styela</i> sp. 1	0.9	1.5	1.3				
<i>Nemalecium</i> sp.	1.0	4.5	5.7	<i>D. perlucidum</i>	1.0	9.4	4.9	<i>A. accareense</i>	0.9	9.2	10.3				
<i>S. brakenhielmi</i>	1.0	11.2	6.6	<i>B. nigromaculatum</i>	1.0	2.4	1.6	<i>Balanus</i> sp.	0.9	1.7	1.8				
<i>S. canopus</i>	0.9	1.2	1.0	<i>S. canopus</i>	1.0	2.0	1.5	<i>S. circinatum</i>	0.9	1.4	1.6				
<i>B. nigromaculatum</i>	0.9	5.4	5.0	<i>S. brakenhielmi</i>	1.0	4.6	3.7	<i>Phallusia nigra</i>	0.9	3.4	2.8				
<i>Styela</i> sp. 1	0.9	2.1	1.9	<i>M. carmigropila</i>	0.9	10.3	9.9	<i>B. nigromaculatum</i>	0.8	1.7	1.3				
<i>S. rubra</i>	0.8	1.4	1.1	<i>S. rubra</i>	0.9	2.0	1.5	<i>M. magnirhaphidifera</i>	0.8	10.8	12.8				
<i>B. neritina</i>	0.8	4.3	5.1	<i>C. oblonga</i>	0.8	4.2	5.0	<i>M. microsigmatosa</i>	0.8	4.3	6.2				
<i>P. constellatum</i>	0.8	1.1	1.1	<i>Hydroides</i> sp.	0.8	0.5	0.4	<i>S. rubra</i>	0.6	2.7	3.1				
<i>Hydroides</i> sp.	0.6	0.4	0.4	<i>C. rhizophorae</i>	0.8	1.3	1.5	<i>D. perlucidum</i>	0.6	2.7	4.2				
				<i>Nemalecium</i> sp.	0.8	2.4	2.6	<i>S. pungens</i>	0.6	2.0	2.8				

	<i>Phallusia nigra</i>	0.8	1.2	1.2	<i>S. canopus</i>	0.6	0.6	0.8				
	<i>S. pungens</i>	0.6	3.9	3.9	<i>Amathia</i> sp.	0.5	0.7	1.1				
	<i>Styela</i> sp. 1	0.6	1.6	1.5								
	2 (63% similarity)				4 (58% similarity)				6 (56% similarity)			
	Species	<i>f</i>	\bar{x}	<i>s</i>	Species	<i>f</i>	\bar{x}	<i>s</i>	Species	<i>f</i>	\bar{x}	<i>s</i>
	<i>Balanus</i> sp.	1.0	2.0	1.9	<i>Nemalécium</i> sp.	1.0	4.7	4.5	<i>C. oblonga</i>	1.0	14.6	9.1
	<i>S. circinatum</i>	0.9	14.5	11.8	<i>D. perlucidum</i>	0.9	3.2	2.8	<i>D. perlucidum</i>	1.0	2.2	2.4
	<i>B. nigromaculatum</i>	0.9	2.3	1.8	<i>Balanus</i> sp.	0.9	2.0	2.7	<i>C. rhizophorae</i>	0.9	3.2	2.0
	<i>B. nigrum</i>	0.9	10.7	9.0	<i>M. exasperatus</i>	0.9	2.6	2.5	<i>A. accarensis</i>	0.9	6.6	6.3
	<i>D. perlucidum</i>	0.9	4.6	6.0	<i>C. rhizophorae</i>	0.8	1.6	2.1	<i>B. nigromaculatum</i>	0.9	2.2	2.1
	<i>P. constellatum</i>	0.9	4.7	6.5	<i>D. bermudensis</i>	0.8	2.4	3.2	<i>S. circinatum</i>	0.8	11.9	13.5
	<i>S. brakenhielmi</i>	0.9	7.6	8.9	<i>S. rubra</i>	0.8	7.4	7.4	<i>M. exasperatus</i>	0.8	3.4	3.0
	<i>B. neritina</i>	0.8	8.2	10.0	<i>B. nigromaculatum</i>	0.8	2.6	4.9	<i>S. pungens</i>	0.6	3.8	6.6
	<i>S. pungens</i>	0.6	1.0	1.3	<i>A. accarensis</i>	0.8	13.7	13.5	<i>B. neritina</i>	0.6	1.2	1.4
	<i>S. canopus</i>	0.6	2.0	2.7	<i>C. oblonga</i>	0.6	12.7	20.8	<i>M. microsigmatosa</i>	0.6	7.1	6.9
					<i>S. pungens</i>	0.6	4.3	8.6	<i>D. bermudensis</i>	0.6	4.2	6.6
					<i>Styela</i> sp. 1	0.6	1.9	2.3	<i>S. brakenhielmi</i>	0.6	2.2	3.8
					<i>S. circinatum</i>	0.6	1.1	1.6	<i>B. nigrum</i>	0.6	0.5	0.6
					<i>P. constellatum</i>	0.6	1.2	1.5	<i>S. rubra</i>	0.6	5.8	6.2
					<i>S. canopus</i>	0.6	0.8	1.1	<i>Balanus</i> sp.	0.6	0.3	0.5
					<i>Amathia</i> sp.	0.6	0.6	0.9	<i>Styela</i> sp. 1	0.6	1.7	2.0
					<i>S. brakenhielmi</i>	0.6	3.2	4.7	<i>Amathia</i> sp.	0.5	0.3	0.6
									<i>M. magnirhaphidifera</i>	0.4	0.9	1.6

At Boca Seca, in MNP, averaged richness after 2-months of colonization was 8 species for AMRs of both time of initiation (Figure S1). The most frequent species during this 2-month period were the red algae *Acanthophora spicifera* and the bryozoa *Synnotum circinatum* (Table S4). Within 4-months, richness remained without major changes, but the bryozoan *Scrupocellaria* sp. and the incrusting sponge *M. microsigmatosa* appeared. After 6-months, the richness in AMRs for 1st time of initiation increased to 12 species, and 10 species for 2nd timing. At this stage, sponge species like *Haliclona manglaris* and *Mycale carmigropila* were very frequent. On the other hand, the red algae *A. spicifera* gradually reduced its cover and eventually it was displaced by sponge species at the final stages of colonization of both times of initiation.

In Tumba Cuatro, MNP, within first 2-months, richness was around 4 species in AMRs from both time of initiation (Figure S1). The only common species between moments was *Scrupocellaria* sp. The most common species were the bryozoan *S. circinatum*, for AMRs of 1st time of initiation, and the green algae *Rhizoclonium* sp. in AMRs from 2nd. After 4-months, the richness increased to 8 and 6 species, respectively. The new species for this stage were *Rhizoclonium* sp. the red algae *Aglaothamnion* sp. and the hydrozoa *Nemalecium* sp. Within 6-months, AMRs from different time of initiation were very different. For 1st time of initiation, the averaged species richness was 10, being the sponge *M. microsigmatosa* the most common and abundant species. For 2nd time of initiation, richness decrease to 4 species.

AMRs from Las Luisas, MNP, were the poorest in species richness. During first 2-months period in both time of initiation, species richness was around 4. Most frequent and abundant species in AMRs of 1st time of initiation were *S. circinatum* and *Scrupocellaria* sp., while the red algae *Aglaothamnion* sp. and the green algae *Rhizoclonium* sp. were the most common in AMRs from 2nd time of initiation. After 4-months in 1st, richness increased to 6 species, with *Rhizoclonium* sp., *Scrupocellaria* sp., *A. spicifera* and *M. microsigmatosa* as most common species. In AMRs of 2nd time of initiation, richness also increase after 4 months to 6 species, but having as dominant species *Aglaothamnion* sp. and *M. microsigmatosa*. Assemblages after 6 months were very similar irrespective of time of initiation (Figure S1.). The dominant and common species at this stage were the bryozoan *Scrupocellaria* sp. and the sponge *M. microsigmatosa*.

Table S4. Species with higher contribution to similarities among AMRs of each stage (2, 4 and 6 months) in Boca Seca for both times of initiation. Frequency of appearance (f) and relative cover (mean (\bar{x}) and standard deviation (s)) are also presented.

Timeline															
25/06/2009				26/08/2009				26/10/2009				28/01/2010			
2 (74% similarity)				4 (70% similarity)				6 (62% similarity)							
Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s				
<i>A. spicifera</i>	1.0	11.6	8.9	Cyanophyta	1.0	26.3	23.6	<i>Scrupocellaria</i> sp.	1.0	6.7	4.3				
<i>S. circinatum</i>	0.9	1.7	1.7	<i>Scrupocellaria</i> sp.	0.9	3.4	2.8	Cyanophyta	1.0	10.4	12.1				
<i>B. nigromaculatum</i>	0.9	1.5	1.3	<i>S. circinatum</i>	0.9	3.4	2.1	<i>M. carmigropila</i>	1.0	4.5	5.6				
<i>Hydroides</i> sp.	0.8	1.0	0.7	<i>A. spicifera</i>	0.6	14.2	16.1	<i>B. nigromaculatum</i>	0.9	0.5	0.4				
Cyanophyta	0.6	4.5	5.8	<i>C. diaphanum</i>	0.6	1.1	1.0	<i>S. circinatum</i>	0.9	1.7	1.3				
<i>Bryopsis</i> sp.	0.6	0.9	1.0	<i>B. tenella</i>	0.5	1.2	2.5	<i>A. spicifera</i>	0.8	3.0	4.8				
<i>C. diaphanum</i>	0.6	0.6	0.5	<i>M. microsigmatosa</i>	0.5	1.5	2.0	<i>M. microsigmatosa</i>	0.6	4.3	0.7				
								<i>B. nigrum</i>	0.6	0.8	1.4				
								<i>Botrylloides</i> sp. 1	0.5	1.0	1.5				
								<i>H. manglaris</i>	0.5	1.5	1.7				
				2 (72% similarity)				4 (65% similarity)				6 (64% similarity)			
				Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s
				<i>A. spicifera</i>	1.0	8.1	11.4	<i>Scrupocellaria</i> sp.	0.9	3.6	3.2	<i>S. circinatum</i>	1.0	3.8	4.2
				<i>S. circinatum</i>	1.0	2.3	1.5	Cyanophyta	0.9	9.3	15.6	<i>M. microsigmatosa</i>	1.0	11.3	9.8
				<i>Scrupocellaria</i> sp.	1.0	3.0	2.0	<i>S. circinatum</i>	0.9	1.7	1.2	Cyanophyta	0.9	5.7	4.4
				<i>C. diaphanum</i>	0.9	3.0	3.3	<i>M. microsigmatosa</i>	0.8	5.5	5.5	<i>A. spicifera</i>	0.9	1.5	1.8
				<i>Rhizoclonium</i> sp.	0.5	4.2	5.3	<i>B. nigromaculatum</i>	0.6	0.4	0.4	<i>Scrupocellaria</i> sp.	0.9	4.5	5.1
								<i>A. spicifera</i>	0.6	3.1	5.8	<i>H. manglaris</i>	0.7	2.6	3.2
												<i>Ficopomatus</i> sp.	0.6	1.0	1.4
												<i>M. carmigropila</i>	0.4	0.7	1.1

Table S5. Species with higher contribution to similarities among AMRs of each stage (2, 4 and 6 months) in Tumba Cuatro for both times of initiation. Frequency of appearance (f) and relative cover (mean (\bar{x}) and standard deviation (s)) are also presented.

Timeline															
25/06/2009				26/08/2009				26/10/2009				28/01/2010			
2 (66% similarity)				4 (60% similarity)				6 (69% similarity)							
Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s				
<i>S. circinatum</i>	0.9	2.9	2.3	<i>Rhizoclonium</i> sp.	1.0	12.4	10.6	<i>Rhizoclonium</i> sp.	1.0	11.6	12.1				
<i>Scrupocellaria</i> sp.	0.8	6.7	11.7	<i>S. pungens</i>	0.8	19.4	24.2	<i>S. pungens</i>	1.0	9.2	7.42				
<i>Nemalecium</i> sp.	0.6	3.4	6.8	<i>Aglaothamnion</i> sp.	0.6	3.4	4.6	<i>Scrupocellaria</i> sp.	0.9	9.3	8.2				
				<i>Nemalecium</i> sp.	0.6	3.7	3.9	<i>Aglaothamnion</i> sp.	0.8	4.5	4.4				
				Cyanophyta	0.6	4.02	5.3	<i>M. microsigmatosa</i>	0.8	5.1	9.7				
				<i>D. perlucidum</i>	0.5	4.5	5.5	<i>D. listerianum</i>	0.6	1.3	1.2				
				<i>C. diaphanum</i>	0.5	0.4	0.5	<i>Nemalecium</i> sp.	0.6	0.9	1.0				
				<i>Scrupocellaria</i> sp.	0.5	4.6	7.5	<i>D. perlucidum</i>	0.6	2.3	3.0				
								Cyanophyta	0.5	2.8	5.8				
				2 (70% similarity)				4 (60% similarity)				6 (65% similarity)			
				Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s
				<i>Rhizoclonium</i> sp.	0.6	28.0	32.4	<i>Scrupocellaria</i> sp.	0.9	10.5	8.6	<i>Aglaothamnion</i> sp.	0.6	6.2	7.9
				<i>Aglaothamnion</i> sp.	0.5	6.3	8.1	<i>Rhizoclonium</i> sp.	0.9	3.7	3.7	<i>Rhizoclonium</i> sp.	0.5	4.9	6.7
				<i>Scrupocellaria</i> sp.	0.5	3.5	5.5	<i>Aglaothamnion</i> sp.	0.9	3.6	3.2	<i>Scrupocellaria</i> sp.	0.5	2.1	2.7
				Cyanophyta	0.4	7.7	14.2	<i>Nemalecium</i> sp.	0.6	2.5	2.8	Cyanophyta	0.5	3.2	4.2
								Cyanophyta	0.5	4.8	7.1				

Table S6. Species with higher contribution to similarities among AMRs of each stage (2, 4 and 6 months) in Las Luisas for both times of initiation. Frequency of appearance (f) and relative cover (mean (\bar{x}) and standard deviation (s)) are also presented

Timeline															
25/06/2009				26/08/2009				26/10/2009				28/01/2010			
2 (69% similarity)				4 (74% similarity)				6 (61% similarity)							
Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s				
<i>S. circinatum</i>	0.8	3.0	2.9	<i>Rhizoclonium</i> sp.	1.0	8.6	7.4	<i>Cyanophyta</i>	0.9	3.8	3.4				
<i>Scrupocellaria</i> sp.	0.8	6.6	5.6	<i>Scrupocellaria</i> sp.	1.0	6.9	4.7	<i>Scrupocellaria</i> sp.	0.8	10.7	14.7				
<i>Rhizoclonium</i> sp.	0.5	2.2	3.2	<i>A. spicifera</i>	0.8	1.4	2.2	<i>Rhizoclonium</i> sp.	0.5	1.9	4.2				
<i>Cyanophyta</i>	0.5	1.8	2.2	<i>M. microsigmatosa</i>	0.6	2.8	3.6	<i>M. microsigmatosa</i>	0.5	12.0	23.8				
				<i>Hydroides</i> sp.	0.6	0.8	1.5	<i>Aglaothamnion</i> sp.	0.5	3.5	7.9				
				<i>Cyanophyta</i>	0.6	3.1	4.1	<i>Dictyota</i> sp.	0.5	3.6	4.8				
				2 (63% similarity)				4 (585% similarity)				6 (56% similarity)			
				Species	f	\bar{x}	s	Species	f	\bar{x}	s	Species	f	\bar{x}	s
				<i>Rhizoclonium</i> sp.	0.9	6.6	4.8	<i>M. microsigmatosa</i>	0.8	6.2	9.3	<i>Scrupocellaria</i> sp.	0.9	7.0	6.0
				<i>C. diaphanum</i>	0.5	0.6	0.7	<i>Aglaothamnion</i> sp.	0.8	3.0	2.4	<i>M. microsigmatosa</i>	0.8	9.7	13.9
				<i>Aglaothamnion</i> sp.	0.5	3.5	5.0	<i>Scrupocellaria</i> sp.	0.6	1.7	3.1	<i>Aglaothamnion</i> sp.	0.5	3.1	3.9
								<i>Rhizoclonium</i> sp.	0.5	1.2	1.9	<i>Cyanophyta</i>	0.5	5.9	7.9