

**Supplementary material**

**Facing the future: the importance of substratum features for ecological engineering of artificial habitats in the rocky intertidal**

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**Table S1. Summary of relative frequencies of different species towards north- and south-facing surfaces**

Data (presence or absence) are pooled across factors (Type, Location Height, Inclination) because of the large number of zeros. A Chi-Square test was performed only on species that occurred more than 10 times. N, northern–boreal geographic distribution; S, southern–lusitanean geographic distribution; U, ubiquitous distribution; NT, no statistical test. Significant values are shown in bold. \*,  $P < 0.05$ ; \*\*,  $P < 0.01$

Species and taxa	Biogeographic origin	Total frequency of occurrence	Proportion that were north-facing	<i>P</i>
Canopy & subcanopy				
<i>Ascophyllum nodosum</i>	N	66	51.5	0.806
<i>Blidingia minima</i>	U	85	56.5	0.233
<i>Chondrus crispus</i>	N	8	50.0	NT
<i>Cladophora</i> spp.	U	14	50.0	1.000
<i>Cladospephus spongiosus</i>	U	2	50.0	NT
<i>Fucus serratus</i>	N	33	60.6	0.223
<i>Fucus spiralis</i>	N	202	48.0	0.574
<i>Fucus vesiculosus</i>	N	73	50.7	0.907
<i>Fucus</i> spp.	N	12	58.3	0.564
<i>Lomentaria articulata</i>	U	5	40.0	NT
<i>Mastocarpus stellatus</i>	N	2	100.0	NT
<i>Nemalion helminthoides</i>	U	11	72.7	0.132
<i>Osmundea</i> spp.	U	41	56.1	0.435
<i>Palmaria palmata</i>	U	26	76.9	0.006
<i>Pelvetia canaliculata</i>	N	60	40.0	0.121
<i>Phyllophora pseudoceranoides</i>	U	2	0.0	NT
<i>Porphyra</i> spp.	U	<b>16</b>	<b>25.0</b>	<b>0.046*</b>
<i>Ulva lactuca</i>	U	9	44.4	NT
<i>Ulva</i> spp.	U	175	54.3	0.257

Species and taxa	Biogeographic origin	Total frequency of occurrence	Proportion that were north-facing	P
<b>Turf algae</b>				
<i>Catanella caespitosa</i>	U	31	61.3	0.209
<i>Chaetomorpha</i> spp.	U	3	33.3	NT
<i>Corallina</i> spp.	U	13	61.5	0.405
<i>Polysiphonia</i> spp.	U	25	64.0	0.162
<i>Rhodothamnella floridula</i>	U	30	60.0	0.273
<i>Sphacelaria</i> spp.	U	17	35.3	0.225
<b>Encrusting algae</b>				
<i>Hildenbrandia rubra</i>	U	<b>14</b>	<b>92.9</b>	<b>0.001**</b>
<i>Lithothamnia</i> spp.	U	48	62.5	0.083
<i>Ralfsia</i> spp.	U	24	54.2	0.683
<b>Lichens</b>				
<i>Lichina pygmaea</i>	S	5	40.0	NT
<i>Ochrolechia parella</i>	U	4	75.0	NT
<i>Verrucaria</i> spp.	U	159	52.2	0.579
<b>Cyanobacteria</b>				
<i>Rivularia</i> spp.	U	13	76.9	0.052
<b>Filterfeeders</b>				
<i>Actinia equina</i>	U	10	40.0	0.527
Bryozoa	U	6	33.3	NT
<i>Halichondria panicea</i>	U	9	77.8	NT
<i>Hymenacidon perleve</i>	U	13	69.2	0.166
Hydroidea	U	8	37.5	NT
<i>Mytilus edulis</i>	U	291	51.9	0.519
<i>Spirorbis spirorbis</i>	U	25	44.0	0.549
<i>Acanthochitona crinitus</i>	U	2	50.0	NT

Species and taxa	Biogeographic origin	Total frequency of occurrence	Proportion that were north-facing	P
Grazers				
Amphipoda	U	32	50.0	1.000
<i>Calliostoma ziziphynum</i>	S	3	0.0	NT
<i>Gibbula umbilicalis</i>	S	96	58.3	0.102
Isopoda	U	2	100.0	NT
<i>Ligia oceanica</i>	U	2	100.0	NT
<i>Littorina littorea</i>	N	84	40.5	0.081
<i>Littorina obtusata-mariae</i>	U	31	35.5	0.106
<i>Littorina saxatilis</i>	N	208	47.6	0.488
<i>Littorina</i> spp.	U	<b>266</b>	<b>58.6</b>	<b>0.005**</b>
<i>Melarhaphe neritoides</i>	S	33	39.4	0.223
<i>Patella vulgata</i>	N	<b>619</b>	<b>56.9</b>	<b>0.001**</b>
<i>Phorcus lineatus</i>	S	10	50.0	1.000
Predators				
<i>Carcinus maenas</i>	U	6	50.0	NT
<i>Eulalia viridis</i>	U	7	85.7	NT
<i>Nucella lapillus</i>	N	<b>74</b>	<b>63.5</b>	<b>0.020*</b>