

Mediterranean Marine Science

Vol 19, No 1 (2018)

Vol 19, No 1 (2018)



The dynamics of phytobenthos and its main drivers on abrasion platforms with vermetids (Alicante, Southeastern Iberian Peninsula)

MARC TERRADAS FERNÁNDEZ, CARLOS BOTANA GÓMEZ, MIGUEL VALVERDE URREA, JOSÉ JACOBO ZUBCOFF, ALFONSO RAMOS ESPLA

doi: [10.12681/mms.14143](https://doi.org/10.12681/mms.14143)

To cite this article:

TERRADAS FERNÁNDEZ, M., BOTANA GÓMEZ, C., VALVERDE URREA, M., ZUBCOFF, J. J., & RAMOS ESPLA, A. (2018). The dynamics of phytobenthos and its main drivers on abrasion platforms with vermetids (Alicante, Southeastern Iberian Peninsula). *Mediterranean Marine Science*, 19(1), 58–68. <https://doi.org/10.12681/mms.14143>

Supplementary Data

The dynamics of phytobenthos and its main drivers on abrasion platforms with vermetids (Alicante, Southeastern Iberian Peninsula)

MARC TERRADAS FERNÁNDEZ, CARLOS BOTANA GÓMEZ, MIGUEL VALVERDE URREA, JOSÉ JACOBO ZUBCOFF and ALFONSO RAMOS ESPLA

Mediterranean Marine Science, 2018, 19 (1)

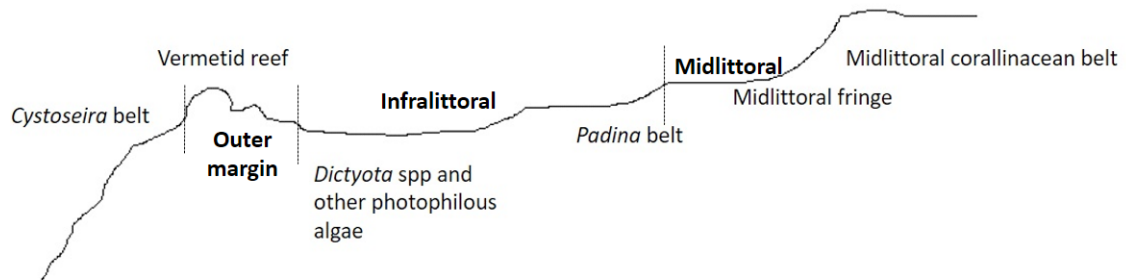


Figure S1: Schematic representation of the main belts found in the abrasion platforms at 10 locations in the Southeastern Iberian Peninsula (according to the present work and Terradas-Fernández, 2014). The outer wall (beyond the outer margin), usually having a significant presence of Fucales and/or articulated Corallinaceae, was not sampled in this study. The main zones were typified following Pérès & Piccard (1964).

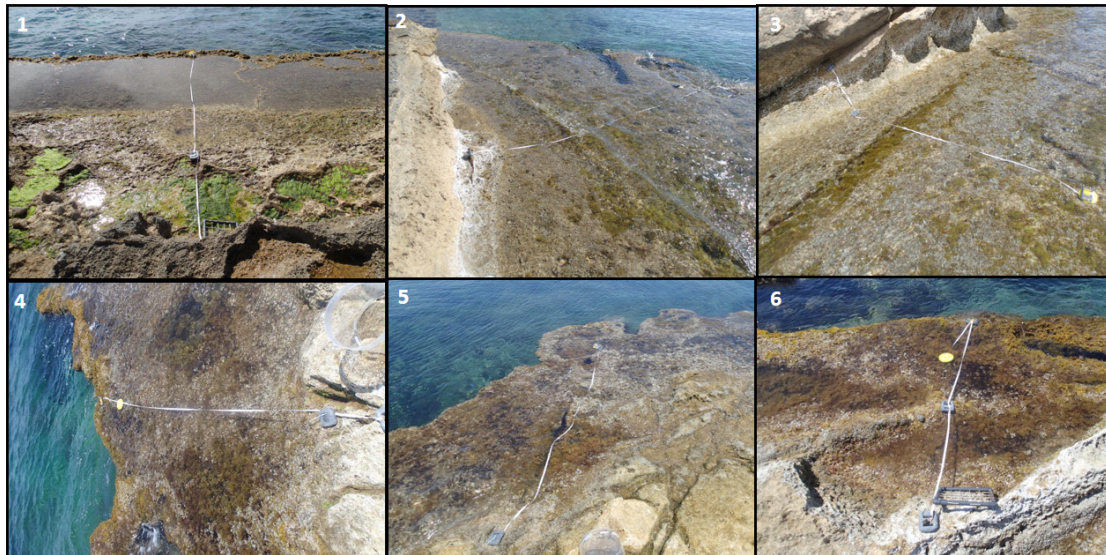


Figure S2: Areas where the six transects were performed. Numbers indicate each specific transect. The first three transects were performed at the Cabo de las Huertas location. The last three transects were performed at Isla de Tabarca. Exact positions of each transect are as follows:

Transect 1: 38.35319° N, 0.42089° W. Transect 2: 38.35340° N, 0.42053° W.
Transect 3: 38.35323° N, 0.42156° W. Transect 4: 38.16701° N, 0.48498° W.
Transect 5: 38.16702° N, 0.484240° W. Transect 6: 38.166990° N, 0.48450° W.

Table S1. Taxa found in all the zones studied at Cabo de las Huertas and Isla de Tabarca during an entire year: A, midlittoral; B, infralittoral; C, platform outer margin. Results are shown based on the seasonal average coverage (%). Some taxa were identified at genus or other higher taxonomic levels. Only taxa in bold were quantified. The remainder of taxa were identified in the laboratory from collected samples and adjoined at higher taxonomic categories easier to detect in the field. Standard deviation (σ) is also shown.

SEASON LOCATION TAXA	Midlittoral zone							
	Spring		Summer		Autumn		Winter	
	Huertas		Huertas		Huertas		Huertas	
	%	σ	%	σ	%	σ	%	σ
Anadyomene stellata (Wulfen) C. Agardh	0	0	0	0	0	0	0	0
Asparagopsis sp - tetrasporophyte	0	0	0	0	0	0	0	0
Ceramium s.l.spp.	0.4	0.8	0	0	0	0	0.1	0.2
<i>Ceramium ciliatum</i> (J.Ellis) Ducluzeau	-	-	-	-	-	-	-	-
Cerithiidae	0.1	0.3	0	0	0.1	0.2	0.1	0.2
Chaetomorpha linum (O.F.Müller) Kützing	0.8	1.7	0	0	0	0	0.1	0.2
Chondria sp.	0.2	0.3	0	0	0	0	0	0
Chondria capillaris (Hudson) M.J.Wynne	0.6	0.8	0.6	1.1	0.2	0.3	0	0
Chthamalus spp.	7.8	3.6	8.5	3.2	5.7	2.1	6.4	2.7
Cladophora spp.	15.1	5.5	8.1	14	6.9	6.7	0.5	0.8
<i>Cladophora dalmatica</i> Kützing	-	-	-	-	-	-	-	-
<i>Cladophora laetevirens</i> (Dillwyn) Kützing	-	-	-	-	-	-	-	-
<i>Cladophora vagabunda</i> (Linnaeus) Hoek	-	-	-	-	-	-	-	-
Cladophoropsis membranacea (Hofman Bang ex C.Agardh) Borgesen	0	0	0	0	0	0	0	0
Corallinaceae	23.9	7.4	13.7	11	13	5.2	22.8	2.9
Cystoseira compressa subsp. pustulata (Ercegovic) Verlaque	0	0	0	0	0	0	0	0
Dasya spp.	0	0	0	0	0	0	0	0
<i>Dasya ocellata</i> (Grateloup) Harvey	-	-	-	-	-	-	-	-
Dendropoma lebeche Templado, Richter & Calvo, 2016	5.3	2	1.9	0.2	2.5	2.4	6.9	0.3
Echinolittorina punctata (Gmelin, 1791)	0.1	0.3	0.2	0.3	0	0	0.1	0.2
Ectocarpaceae	0	0	0	0	0	0	0.1	0.2
<i>Ectocarpus fasciculatus</i> Harvey	-	-	-	-	-	-	-	-
<i>Feldmannia irregularis</i> (Kützing) G.Hamel	-	-	-	-	-	-	-	-
<i>Feldmannia mitchelliae</i> (Harvey) H.-S.Kim	-	-	-	-	-	-	-	-
Gelidiales	0	0	0.6	1	0.2	0.2	0.2	0.3
<i>Gelidiella lubrica</i> cf.	-	-	-	-	-	-	-	-
<i>Gelidium pusillum</i> (Stackhouse) Le Jolis	-	-	-	-	-	-	-	-
Herposiphonia secunda (C.Agardh) Ambronn	0	0	0	0	0	0	0	0
Jania spp.	1.7	2.8	14.1	7.2	21	4.5	7	5
Laurencia spp.	0	0	0.1	0.2	1.3	0.6	0	0
<i>Laurencia pyramidalis</i> Bory de Saint-Vincent ex Kützing	-	-	-	-	-	-	-	-
Lophosiphonia s.l.spp.	0	0	0	0	0	0	0.3	0
<i>Lophosiphonia cristata</i> Falkenberg	-	-	-	-	-	-	-	-
<i>Polysiphonia scopulorum</i> Harvey	-	-	-	-	-	-	-	-
Melarhaphe neritoides (Linnaeus, 1758)	0.1	0.1	0	0	0	0	0.2	0.3
Mytilidae	0.1	0.1	0	0	0	0	0.2	0.2

<i>Neosiphonia sertularioides</i> (Grateloup) K.W.Nam & P.J.Kang	1.3	2.5	0	0	0	0	0.8	0.8
Oscillatoriaceae	0	0	3.1	5.3	0	0	0	0
<i>Lyngbya confervoides</i> C.Agardh ex Gomont	-	-	-	-	-	-	-	-
<i>Padina pavonica</i> (Linnaeus) Thivy	0	0	0	0	0	0	0	0
Palisada spp.	7.1	3.4	7.6	2.5	4.7	2.8	6.3	2.3
Patella spp.	0.3	0.3	0.4	0.2	0.3	0	0.6	0
<i>Phorcus turbinatus</i> (Born, 1778)	0.6	0.9	0	0	0	0	0.2	0.3
Polyplacophora	0.2	0.2	0.2	0.2	0.5	0.4	0.6	0.2
<i>Polysiphonia opaca</i> (C.Agardh) Moris & De Notaris	0.6	0.7	1.9	1.1	0.8	1.2	0.7	0.4
<i>Pseudochlorodesmis furcellata</i> (Zanardini) Børgesen	0	0	0	0	0	0	0	0
<i>Ralfsia verrucosa</i> (Areschoug) Areschoug	0	0	0	0	0	0	0	0
Red thin turf	0	0	0	0	0	0	0	0
<i>Antithamnionella elegans</i> (Berthold) J.H.Price & D.M.John	-	-	-	-	-	-	-	-
<i>Taenioma nanum</i> (Kützling) Papenfuss	-	-	-	-	-	-	-	-
Rivulariaceae	7.8	4.5	7.5	13	4.8	4.4	5.8	3.9
<i>Scytosiphon lomentaria</i> (Lyngbye) Link	0	0	0	0	0	0	0.6	0.6
Sphacelaria spp.	0	0	0	0	0.3	0.5	0	0
<i>Sphacelaria cirrosa</i> (Roth) C.Agardh	-	-	-	-	-	-	-	-
<i>Sphacelaria tribuloides</i> Meneghini	-	-	-	-	-	-	-	-
<i>Spyridia filamentosa</i> (Wulfen) Harvey	0	0	0.6	1	1	1	0	0
Ulva spp.	17.2	12.3	2.6	4.5	0.6	1	19.1	7.2
<i>Ulva compressa</i> Linnaeus	-	-	-	-	-	-	-	-
<i>Ulva polyclada</i> Kraft	-	-	-	-	-	-	-	-
Vermetus spp.	0.5	0.8	0	0	0.1	0.2	0.9	0.7

SEASON LOCATION TAXA	Spring		Summer		Autumn		Winter	
	Tabarca		Tabarca		Tabarca		Tabarca	
	%	σ	%	σ	%	σ	%	σ
<i>Anadyomene stellata</i> (Wulfen) C.Agardh	0	0	0	0	0	0	0.8	1.2
<i>Asparagopsis sp - tetrasporophyte</i>	0	0	0	0	0	0	2.9	2.5
Ceramium s.l.spp.	0.4	0.7	0.4	0.7	0	0	3.1	1
<i>Ceramium ciliatum</i> (J.Ellis) Ducluzeau	-	-	-	-	-	-	-	-
Cerithiidae	0	0	0	0	0	0	0	0
<i>Chaetomorpha linum</i> (O.F.Müller) Kützling	0	0	0	0	0	0	0	0
Chondria sp.	0	0	0	0	0	0	0	0
<i>Chondria capillaris</i> (Hudson) M.J.Wynne	0	0	0	0	0	0	0.2	0.2
Chthamalus spp.	0	0	0.4	0.7	0	0	1	1.8
Cladophora spp.	2.5	4.4	0.9	1.4	0	0	2.3	1.5
<i>Cladophora vagabunda</i>	-	-	-	-	-	-	-	-
<i>Cladophora dalmatica</i>	-	-	-	-	-	-	-	-
<i>Cladophora laetevirens</i>	-	-	-	-	-	-	-	-
<i>Cladophoropsis membranacea</i> (Hofman Bang ex C.Agardh) Børgesen	0	0	0.4	0.7	0.4	0.7	0	0
Corallinaceae unidentified	16.5	19.6	24.2	3.6	26	11	26.7	4.4
<i>Cystoseira compressa subsp. pustulata</i> (Ercegovic) Verlaque	0	0	0	0	0	0	0.1	0.1

Dasya spp.	0.4	0.7	0	0	0	0	1.4	2.3
<i>Dasya ocellata</i> (Grateloup) Harvey	-	-	-	-	-	-	-	-
Dendropoma lebeche Templado, Richter & Calvo, 2016	1.2	1.2	0.8	1.4	1.7	0.7	12.4	4.7
Echinolittorina punctata (Gmelin, 1791)	0	0	0	0	0	0	0	0
Ectocarpaceae	0	0	0	0	0	0	2.6	4.5
<i>Ectocarpus fasciculatus</i> Harvey	-	-	-	-	-	-	-	-
<i>Feldmannia irregularis</i> (Kützing) G.Hamel	-	-	-	-	-	-	-	-
<i>Feldmannia mitchelliae</i> (Harvey) H.-S.Kim	-	-	-	-	-	-	-	-
Gelidiales	0	0	0.9	0.7	2.5	4.4	1.8	1.6
<i>Gelidiella lubrica</i> cf.	-	-	-	-	-	-	-	-
<i>Gelidium pusillum</i> (Stackhouse) Le Jolis	-	-	-	-	-	-	-	-
Herposiphonia secunda (C.Agardh) Ambronn	0	0	0	0	0	0	2	1.9
Jania spp.	0	0	0	0	0.4	0.7	2.1	2.1
Laurencia spp.	0.4	0.7	0.8	0.7	0.4	0.8	1.5	0.3
<i>Laurencia pyramidalis</i> Bory de Saint-Vincent ex Kützing	-	-	-	-	-	-	-	-
Lophosiphonia s.l.spp.	0	0	0.8	0.7	0	0	0.8	0.6
<i>Lophosiphonia cristata</i> Falkenberg	-	-	-	-	-	-	-	-
<i>Polysiphonia scopulorum</i> Harvey	-	-	-	-	-	-	-	-
Melarhapha neritoides (Linnaeus, 1758)	0	0	0	0	0	0	0	0
Mytilidae	0	0	0	0	0	0	0	0
Neosiphonia sertularioides (Grateloup) K.W.Nam & P.J.Kang	0	0	0.4	0.7	0	0	1.8	1.7
Oscillatoriaceae	0	0	0	0	0	0	0.1	0.2
<i>Lyngbya confervoides</i> C.Agardh ex Gomont	-	-	-	-	-	-	-	-
Padina pavonica (Linnaeus) Thivy	0	0	0	0	0	0	0.1	0.1
Palisada spp.	0	0	0	0	0	0	2.1	0.5
Patella spp.	1.8	0.7	0.4	0.7	1.7	1.4	4.3	2.5
Phorcus turbinatus (Born, 1778)	0	0	0	0	0	0	0	0
Polyplacophora	0	0	0.9	0.7	0.4	0.8	0	0
Polysiphonia opaca (C.Agardh) Moris & De Notaris	0	0	0	0	0	0	0.9	1.5
Pseudochlorodesmis furcellata (Zanardini) Borgesen	0	0	0	0	0	0	0.7	1.2
Ralfsia verrucosa (Areschoug) Areschoug	0	0	0	0	0	0	0.6	0.8
Red thin turf	0	0	0	0	0	0	0.1	0.1
<i>Antithamnionella elegans</i> (Berthold) J.H.Price & D.M.John	-	-	-	-	-	-	-	-
<i>Taenioma nanum</i> (Kützing) Papenfuss	-	-	-	-	-	-	-	-
Rivulariaceae	5.6	8.1	28.3	12	4.2	2.9	6.3	1.8
Scytosiphon lomentaria (Lyngbye) Link	0	0	0	0	0	0	1	1.8
Sphacelaria spp.	0	0	0	0	0	0	0.6	1.1
<i>Sphacelaria cirrosa</i> (Roth) C.Agardh	-	-	-	-	-	-	-	-
<i>Sphacelaria tribuloides</i> Meneghini	-	-	-	-	-	-	-	-
Spyridia filamentosa (Wulfen) Harvey	0	0	0	0	0	0	0	0
Ulva spp.	2.5	4.3	0	0	0	0	2.1	3.6
<i>Ulva compressa</i> Linnaeus	-	-	-	-	-	-	-	-
<i>Ulva polyclada</i> Kraft	-	-	-	-	-	-	-	-
Vermetus spp.	0	0	0	0	0	0	0	0

Infralittoral zone

SEASON LOCATION TAXA	Spring		Summer		Autumn		Winter	
	Huertas		Huertas		Huertas		Huertas	
	%	σ	%	σ	%	σ	%	σ
<i>Acanthonyx lunulatus</i> cf.	0	0	0	0	0	0	0	0
<i>Acetabularia acetabulum</i> (Linnaeus) P.C.Silva	0	0	0	0	0	0	0	0
<i>Acrothamnion preissii</i> (Sonder) E.M.Wollaston	0	0	0	0	0	0	0	0
<i>Aiptasia</i> sp.	0	0	0	0	0	0	0.2	0.1
<i>Alsidium corallinum</i> C.Agardh	0	0	0	0	0.2	0.3	0.2	0.3
<i>Amphiroa rigida</i> J.V.Lamouroux	0.1	0.1	0	0	0	0	0.1	0
<i>Asparagopsis</i> sp - tetrasporophyte	0	0	0	0	0	0	0	0
Blenniidae	0	0	0	0	0	0	0	0
<i>Calcinus tubularis</i> (Linnaeus, 1767)	0.2	0.1	0	0.1	0	0	0.1	0
<i>Caulerpa cylindracea</i> Sonder	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2
<i>Caulerpa prolifera</i> (Forsskål) J.V.Lamouroux	0	0	0	0	0	0	0	0
Ceramium s.l.spp.	0.1	0.1	0.1	0.2	0.1	0.1	0	0
<i>Ceramium codii</i> (H.Richards) Mazoyer	-	-	-	-	-	-	-	-
<i>Ceramium</i> aff. <i>diaphanum</i>	-	-	-	-	-	-	-	-
<i>Ceramium ciliatum</i> (J.Ellis) Ducluzeau	-	-	-	-	-	-	-	-
<i>Ceramium circinatum</i> (Kützinger) J.Agardh	-	-	-	-	-	-	-	-
<i>Gayliella flaccida</i> (Harvey ex Kützinger) T.O.Cho & L.J.MeIvor	-	-	-	-	-	-	-	-
Cerithiidae	0	0	0	0	0	0	0	0.1
<i>Chaetomorpha pachynema</i> (Montagne) Kützinger	0	0	0	0	0	0	0	0
Chondria spp.	0	0	0	0	0	0	0	0.1
<i>Chondria capillaris</i> (Hudson) M.J.Wynne	-	-	-	-	-	-	-	-
<i>Chondria dasyphylla</i> (Woodward) C.Agardh	-	-	-	-	-	-	-	-
Chthamalus spp.	0	0	0	0	0	0	0	0
Cladophora spp.	0.9	0.9	1.9	1.2	0.2	0.1	0.7	0.2
<i>Cladophora dalmatica</i> Kützinger	-	-	-	-	-	-	-	-
<i>Cladophora laetevirens</i> (Dillwyn) Kützinger	-	-	-	-	-	-	-	-
<i>Cladophora lehmanniana</i> (Lindenberg) Kützinger	-	-	-	-	-	-	-	-
<i>Cladophora nigrescens</i> cf.	-	-	-	-	-	-	-	-
<i>Cladophora prolifera</i> (Roth) Kützinger	-	-	-	-	-	-	-	-
<i>Cladophora vagabunda</i> (Linnaeus) Hoek	-	-	-	-	-	-	-	-
Cladophoropsis membranacea (Hofman Bang ex C.Agardh) Børgesen	0	0	0	0	0	0	0	0
<i>Cladosiphon lubricus</i> (Sauvageau) Kylin	0	0.1	0	0	0	0	0	0
<i>Cladostephus spongiosum</i> (Hudson) C.Agardh	0	0	0	0	0	0	0	0
Cliona sp.	0	0	0	0	0	0	0	0
Colpomenia sp.	0	0	0	0	0	0	0	0
<i>Columbella rustica</i> (Linnaeus, 1758)	0	0.1	0	0	0	0.1	0.1	0.1
Conus sp.	0	0	0	0	0	0	0	0
Corallinaceae unidentified	3.6	1.9	0.6	0.2	3.2	1.4	6.1	2.2
<i>Cystoseira algeriensis</i> Feldmann	0.1	0.1	0	0	0	0	0.1	0.1
<i>Cystoseira amentacea</i> (C.Agardh) Bory de Saint-Vincent	0	0	0	0	0	0	0.1	0.1
<i>Cystoseira compressa</i> subsp. <i>pustulata</i> (Ercegovic) Verlaque	9.2	5.2	0	0.1	0	0	2.6	0.9

<i>Dasycladus vermicularis</i> (Scopoli) Krasser	0.2	0.1	0	0	0.1	0	0.2	0.1
Dasya spp.	0	0	0	0	0	0	0	0
<i>Dasya hutchinsiae</i> Harvey	-	-	-	-	-	-	-	-
<i>Dasya ocellata</i> (Grateloup) Harvey	-	-	-	-	-	-	-	-
<i>Dasya rigidula</i> (Kützing) Ardissonne	-	-	-	-	-	-	-	-
Dendropoma lebeche Templado, Richter & Calvo, 2016	0.1	0.3	0	0	0	0	0.2	0.3
Dictyota spp.	20.7	7.3	0.4	0.4	10.5	6.6	19	1.5
<i>Dictyota fasciola</i> (Roth) J.V.Lamouroux	-	-	-	-	-	-	-	-
<i>Dictyota mediterranea</i> (Schiffner) G.Furnari	-	-	-	-	-	-	-	-
<i>Dictyota spiralis</i> Montagne	-	-	-	-	-	-	-	-
Echinolittorina punctata (Gmelin, 1791)	0	0	0	0	0	0	0	0
Ectocarpaceae	0	0	0	0	0	0	1.1	1.5
<i>Acinetospora crinita</i> (Carmichael) Sauvageau	-	-	-	-	-	-	-	-
<i>Ectocarpus fasciculatus</i> cf.	-	-	-	-	-	-	-	-
<i>Feldmannia irregularis</i> (Kützing) G.Hamel	-	-	-	-	-	-	-	-
<i>Feldmannia mitchelliae</i> cf.	-	-	-	-	-	-	-	-
<i>Feldmannia paradoxa</i> (Montagne) G.Hamel	-	-	-	-	-	-	-	-
Ellisolandia elongata (J.Ellis & Solander) K.R.Hind & G.W.Saunders	0	0	0	0	0	0	0	0
Elysia timida (Risso, 1818)	0	0	0	0	0	0	0	0
Eriphia verrucosa (Forskål, 1775)	0	0	0	0	0	0	0	0
Gastroclonium clavatum (Roth) Ardissonne	0	0	0	0	0	0	0	0
Gelidiales	0	0	0	0	0	0	0	0
<i>Gelidiella lubrica</i> cf.	-	-	-	-	-	-	-	-
<i>Gelidium pusillum</i> (Stackhouse) Le Jolis	-	-	-	-	-	-	-	-
Halimeda tuna (J.Ellis & Solander) J.V.Lamouroux	0	0	0	0	0	0	0	0
Halopteris scoparia (Linnaeus) Sauvageau	1.7	0.7	0	0.1	0	0	1.4	1.1
Herposiphonia secunda (C.Agardh) Ambronn	0.1	0.2	0	0	0	0	0	0
Hildenbrandia sp.	0	0	0	0	0	0	0	0
Hypnea musciformis (Wulfen) J.V.Lamouroux	0	0	0	0	0	0	0	0
Jania spp.	3.9	3.2	33.1	19.8	35.9	7.6	20	12.8
Laurencia pyramidalis Bory ex Kützing	0	0	0	0	0	0	0	0
Laurencia sp.	0.1	0.3	0.1	0	0	0.1	0	0
Liagora sp.	0	0	0	0	0	0	0	0
Liagora viscida (Forsskål) C.Agardh	0	0	0	0	0	0	0	0
Lophosiphonia s.l.spp.	0.1	0.3	0.2	0.3	0	0.1	0.1	0.1
<i>Lophosiphonia cristata</i> Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia obscura</i> (C.Agardh) Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin	-	-	-	-	-	-	-	-
<i>Polysiphonia scopulorum</i> Harvey	-	-	-	-	-	-	-	-
Myriactula sp.	0	0	0	0	0	0	0	0
Mytilidae	0	0	0	0	0	0	0	0
Neosiphonia ferulacea (Suhr ex J.Agardh) S.M.Guimarães & M.T.Fujii	0	0	0	0	0	0	0	0
Neosiphonia sertularioides (Grateloup) K.W.Nam & P.J.Kang	0	0	0	0	0	0	0	0
Oscillatoriaceae	0.2	0.3	0	0	0	0	0.8	0.9

<i>Blennothrix lyngbyacea</i> (Kützing ex Gomont) Anagnostidis & Komárek	-	-	-	-	-	-	-	-
<i>Lyngbya</i> spp.	-	-	-	-	-	-	-	-
<i>Pachygrapsus marmoratus</i> (Fabricius, 1787)	0	0	0	0	0	0	0	0
<i>Padina pavonica</i> (Linnaeus) Thivy	45.2	8	19.2	12.9	22.9	1.9	31	10.1
<i>Palisada</i> spp.	1.7	0.8	0.1	0.1	0.5	0.5	1.7	0.9
<i>Palisada tenerrima</i> (Cremades) Serio, Cormaci, G.Furnari & Boisset	-	-	-	-	-	-	-	-
<i>Patella</i> sp.	0	0	0	0	0	0	0.1	0.1
<i>Phaeophila dendroides</i> (P.L.Crouan & H.M.Crouan) Batters	0	0	0	0	0	0	0	0
<i>Polysiphonia opaca</i> (C.Agardh) Moris & De Notaris	0	0	0	0	0	0	0.1	0.1
<i>Pseudochlorodesmis furcellata</i> (Zanardini) Borgesen	0	0	0	0	0	0	0	0
Red thin turf	0	0	0	0	0	0	0	0.1
<i>Acrochaetium</i> sp.	-	-	-	-	-	-	-	-
<i>Antithamnion cruciatum</i> (C.Agardh) Nägeli	-	-	-	-	-	-	-	-
<i>Erythrotrichia carnea</i> (Dillwyn) J.Agardh	-	-	-	-	-	-	-	-
<i>Spermothamnion</i> spp.	-	-	-	-	-	-	-	-
Rivulariaceae	0.1	0.1	0.1	0.2	0.1	0.1	0	0
<i>Sabella</i> sp.	0	0	0	0	0	0	0	0
<i>Scytosiphon lomentaria</i> (Lyngbye) Link	0	0	0	0	0	0	0.1	0.1
<i>Siphonocladus pusillus</i> (C.Agardh ex Kützing) Hauck	0	0	0	0	0	0	0	0
<i>Sphacelaria</i> spp.	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.3
<i>Sphacelaria cirrosa</i> (Roth) C.Agardh	-	-	-	-	-	-	-	-
<i>Sphacelaria rigidula</i> Kützing	-	-	-	-	-	-	-	-
<i>Sphacelaria tribuloides</i> Meneghini	-	-	-	-	-	-	-	-
<i>Spyridia filamentosa</i> (Wulfen) Harvey	0.4	0.6	0.7	0.8	0	0	0.1	0
<i>Stramonita haemastoma</i> (Linnaeus, 1767)	0	0	0	0	0	0	0	0
<i>Symploca</i> sp.	0	0	0	0	0	0	0	0
<i>Ulva</i> spp.	0.3	0.5	0	0	0	0	0.6	0.9
<i>Ulva compressa</i> Linnaeus	-	-	-	-	-	-	-	-
<i>Ulva polyclada</i> Kraft	-	-	-	-	-	-	-	-
<i>Ulva prolifera</i> cf.	-	-	-	-	-	-	-	-
<i>Valonia utricularis</i> (Roth) C.Agardh	0	0	0	0	0	0	0	0
<i>Vermetus</i> spp.	2.5	1	0.4	0.1	1.6	1.1	2.2	0.5

SEASON	Spring		Summer		Autumn		Winter	
	Tabarca		Tabarca		Tabarca		Tabarca	
LOCATION	Tabarca		Tabarca		Tabarca		Tabarca	
TAXA	%	σ	%	σ	%	σ	%	σ
<i>Acanthonyx lunulatus</i> cf.	0	0	0	0	0	0	0	0
<i>Acetabularia acetabulum</i> (Linnaeus) P.C.Silva	1.3	1	0	0	0	0	0	0
<i>Acrothamnion preissii</i> (Sonder) E.M.Wollaston	0	0	0	0	0	0	0	0
<i>Aiptasia</i> sp.	0	0.1	0	0	0	0	0	0
<i>Alsidium corallinum</i> C.Agardh	0	0	0	0	0	0	0	0
<i>Amphiroa rigida</i> J.V.Lamouroux	0	0	0	0	0	0.1	0	0
<i>Asparagopsis</i> sp - tetrasporophyte	0	0	0	0	0	0	0.2	0.2
Blenniidae	0	0	0	0	0	0.1	0	0

<i>Calcinus tubularis</i> (Linnaeus, 1767)	0	0	0	0	0	0	0	0
<i>Caulerpa cylindracea</i> Sonder	1	0.9	0	0.1	1	0.5	0.5	0.2
<i>Caulerpa prolifera</i> (Forsskål) J.V.Lamouroux	0	0	0	0	0	0	0	0
Ceramium s.l.spp.	0.2	0.4	0	0	0.1	0.1	0.2	0.2
<i>Ceramium codii</i> (H.Richards) Mazoyer	-	-	-	-	-	-	-	-
<i>Ceramium aff. diaphanum</i>	-	-	-	-	-	-	-	-
<i>Ceramium ciliatum</i> (J.Ellis) Ducluzeau	-	-	-	-	-	-	-	-
<i>Ceramium circinatum</i> (Kützing) J.Agardh	-	-	-	-	-	-	-	-
<i>Gayliella flaccida</i> (Harvey ex Kützing) T.O.Cho & L.J.McIvor	-	-	-	-	-	-	-	-
Cerithiidae	0	0	0	0	0	0	0	0
<i>Chaetomorpha pachynema</i> (Montagne) Kützing	0	0	0	0	0	0	0.1	0.1
Chondria spp.	0.4	0.9	0	0	0	0	0	0.1
<i>Chondria capillaris</i> (Hudson) M.J.Wynne	-	-	-	-	-	-	-	-
<i>Chondria dasyphylla</i> (Woodward) C.Agardh	-	-	-	-	-	-	-	-
Chthamalus spp.	0	0	0	0	0	0	0	0
Cladophora spp.	0	0	0.2	0.3	0.1	0.1	0	0
<i>Cladophora dalmatica</i> Kützing	-	-	-	-	-	-	-	-
<i>Cladophora laetevirens</i> (Dillwyn) Kützing	-	-	-	-	-	-	-	-
<i>Cladophora lehmanniana</i> (Lindenberg) Kützing	-	-	-	-	-	-	-	-
<i>Cladophora nigrescens</i> cf.	-	-	-	-	-	-	-	-
<i>Cladophora prolifera</i> (Roth) Kützing	-	-	-	-	-	-	-	-
<i>Cladophora vagabunda</i> (Linnaeus) Hoek	-	-	-	-	-	-	-	-
<i>Cladophoropsis membranacea</i> (Hofman Bang ex C.Agardh) Børgesen	0	0	0	0	0.2	0.3	0	0.1
<i>Cladosiphon lubricus</i> (Sauvageau) Kylin	0	0	0	0	0	0	0	0
<i>Cladostephus spongiosum</i> (Hudson) C.Agardh	0	0.1	0	0	0	0	0	0
Cliona sp.	0	0	0	0	0	0	0	0
Colpomenia sp.	0	0	0	0	0	0	0	0
<i>Columbella rustica</i> (Linnaeus, 1758)	0	0	0	0	0	0	0	0
Conus sp.	0	0	0	0	0	0	0	0
Corallinaceae unidentified	2.7	1.9	1.5	1.2	6.2	3.8	3	1
<i>Cystoseira algeriensis</i> Feldmann	0	0	0	0	0	0	0	0
<i>Cystoseira amentacea</i> (C.Agardh) Bory de Saint-Vincent	0.1	0.3	0	0	0	0	0.2	0.4
<i>Cystoseira compressa subsp. pustulata</i> (Ercegovic) Verlaque	12.5	5.6	0.1	0.1	0	0	2.8	3.5
<i>Dasycladus vermicularis</i> (Scopoli) Krasser	3	1.9	0.3	0.1	3.1	1.5	1.9	0.8
Dasya spp.	0	0	0	0	0	0	0.1	0.1
<i>Dasya hutchinsiae</i> Harvey	-	-	-	-	-	-	-	-
<i>Dasya ocellata</i> (Grateloup) Harvey	-	-	-	-	-	-	-	-
<i>Dasya rigidula</i> (Kützing) Ardissonne	-	-	-	-	-	-	-	-
<i>Dendropoma lebeche</i> Templado, Richter & Calvo 2016	0.2	0.3	0	0.1	0.4	0.3	0.6	0.1
Dictyota spp.	23.1	9.6	0.1	0.2	7.1	4	20	1.6
<i>Dictyota fasciola</i> (Roth) J.V.Lamouroux	-	-	-	-	-	-	-	-
<i>Dictyota mediterranea</i> (Schiffner) G.Furnari	-	-	-	-	-	-	-	-
<i>Dictyota spiralis</i> Montagne	-	-	-	-	-	-	-	-

<i>Echinolittorina punctata</i> (Gmelin, 1791)	0	0	0	0	0	0	0	0
Ectocarpaceae	0	0	0	0	0	0	0.3	0.5
<i>Acinetospora crinita</i> (Carmichael) Sauvageau	-	-	-	-	-	-	-	-
<i>Ectocarpus fasciculatus</i> cf.	-	-	-	-	-	-	-	-
<i>Feldmannia irregularis</i> (Kützing) G.Hamel	-	-	-	-	-	-	-	-
<i>Feldmannia mitchelliae</i> cf.	-	-	-	-	-	-	-	-
<i>Feldmannia paradoxa</i> (Montagne) G.Hamel	-	-	-	-	-	-	-	-
<i>Ellisolandia elongata</i> (J.Ellis & Solander) K.R.Hind & G.W.Saunders	0	0	0	0	0.1	0.1	0	0
<i>Elysia timida</i> (Risso, 1818)	0	0	0	0	0	0	0	0
<i>Eriphia verrucosa</i> (Forskål, 1775)	0	0	0	0	0	0	0	0
<i>Gastroclonium clavatum</i> (Roth) Ardissonne	0	0	0	0	0	0	0	0
Gelidiales	0.4	0.7	0	0	0.3	0.3	0	0
<i>Gelidiella lubrica</i> cf.	-	-	-	-	-	-	-	-
<i>Gelidium pusillum</i> (Stackhouse) Le Jolis	-	-	-	-	-	-	-	-
<i>Halimeda tuna</i> (J.Ellis & Solander) J.V.Lamouroux	0	0	0	0	0	0	0	0
<i>Halopteris scoparia</i> (Linnaeus) Sauvageau	22.6	5.5	10.7	17.7	0.1	0.1	8.8	6.1
<i>Herposiphonia secunda</i> (C.Agardh) Ambronn	0	0	0.1	0.1	0.5	0	0.5	0.4
<i>Hildenbrandia</i> sp.	0	0	0	0	0	0	0	0
<i>Hypnea musciformis</i> (Wulfen) J.V.Lamouroux	0	0	0	0	0	0	0	0
<i>Jania</i> spp.	13.2	6.6	62	18.7	59.6	5.3	58	18.6
<i>Laurencia pyramidalis</i> Bory ex Kützing	3.3	5.2	0	0	0	0	0.2	0.1
<i>Laurencia</i> sp.	0.5	0.9	0	0.1	0.1	0.1	0.3	0
<i>Liagora</i> sp.	0.1	0.3	0	0	0	0	0	0
<i>Liagora viscida</i> (Forsskål) C.Agardh	0	0	0	0	0	0	0	0
<i>Lophosiphonia</i> s.l.spp.	0	0	0	0	0	0	0	0.1
<i>Lophosiphonia cristata</i> Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia obscura</i> (C.Agardh) Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin	-	-	-	-	-	-	-	-
<i>Polysiphonia scopulorum</i> Harvey	-	-	-	-	-	-	-	-
<i>Myriactula</i> sp.	0	0	0	0	0	0	0	0
Mytilidae	0	0	0	0	0	0	0	0
<i>Neosiphonia ferulacea</i> (Suhr ex J.Agardh) S.M.Guimarães & M.T.Fujii	0	0	0	0	0	0	0	0
<i>Neosiphonia sertularioides</i> (Grateloup) K.W.Nam & P.J.Kang	0	0	0	0	0	0	0	0.1
Oscillatoriaceae	0	0	0	0	0.1	0.2	0	0
<i>Blennothrix lyngbyacea</i> (Kützing ex Gomont) Anagnostidis & Komárek	-	-	-	-	-	-	-	-
<i>Lyngbya</i> spp.	-	-	-	-	-	-	-	-
<i>Pachygrapsus marmoratus</i> (Fabricius, 1787)	0	0	0	0	0	0	0	0
<i>Padina pavonica</i> (Linnaeus) Thivy	26.5	10	18.3	6.8	5	3.5	12	2.8
<i>Palisada</i> spp.	0	0	0	0	0	0	0	0
<i>Palisada tenerrima</i> (Cremades) Serio, Cormaci, G.Furnari & Boisset	-	-	-	-	-	-	-	-
<i>Patella</i> sp.	0	0	0	0	0	0	0	0

<i>Phaeophila dendroides</i> (P.L.Crouan & H.M.Crouan) Batters	0	0	0	0	0	0	0	0
<i>Polysiphonia opaca</i> (C.Agardh) Moris & De Notaris	0	0	0	0	0	0.1	0	0
<i>Pseudochlorodesmis furcellata</i> (Zanardini) Børgesen	0	0	0	0	0	0	0	0
Red thin turf	0	0	0	0	0	0	0	0
<i>Acrochaetium</i> sp.	-	-	-	-	-	-	-	-
<i>Antithamnion cruciatum</i> (C.Agardh) Nägeli	-	-	-	-	-	-	-	-
<i>Erythrotrichia carnea</i> (Dillwyn) J.Agardh	-	-	-	-	-	-	-	-
<i>Spermothamnion</i> spp.	-	-	-	-	-	-	-	-
Rivulariaceae	0.2	0.4	0	0	0.1	0.1	0.2	0.2
<i>Sabella</i> sp.	0	0	0	0	0	0	0	0
<i>Scytosiphon lomentaria</i> (Lyngbye) Link	0	0	0	0	0	0	0	0.1
<i>Siphonocladus pusillus</i> (C.Agardh ex Kützing) Hauck	0	0	0	0	0	0	0	0
Sphacelaria spp.	0.2	0.2	0.1	0.1	0	0	0.4	0.6
<i>Sphacelaria cirrosa</i> (Roth) C.Agardh	-	-	-	-	-	-	-	-
<i>Sphacelaria rigidula</i> Kützing	-	-	-	-	-	-	-	-
<i>Sphacelaria tribuloides</i> Meneghini	-	-	-	-	-	-	-	-
<i>Spyridia filamentosa</i> (Wulfen) Harvey	0.3	0.5	0.1	0.1	0	0	2.2	0.1
<i>Stramonita haemastoma</i> (Linnaeus, 1767)	0	0	0	0	0	0	0	0.1
<i>Symploca</i> sp.	3.2	3.8	0	0.1	0	0	0	0.1
Ulva spp.	0	0	0	0	0	0	0	0
<i>Ulva compressa</i> Linnaeus	-	-	-	-	-	-	-	-
<i>Ulva polyclada</i> Kraft	-	-	-	-	-	-	-	-
<i>Ulva prolifera</i> cf.	-	-	-	-	-	-	-	-
<i>Valonia utricularis</i> (Roth) C.Agardh	0	0	0	0	0	0	0	0
Vermetus spp.	0	0.1	0	0	0	0	0.2	0.3

Outer margin

SEASON LOCATION TAXA	Spring		Summer		Autumn		Winter	
	Huertas		Huertas		Huertas		Huertas	
	%	σ	%	σ	%	σ	%	σ
<i>Acetabularia acetabulum</i> (Linnaeus) P.C.Silva	0	0	0	0	0	0	0	0
<i>Amphiroa rigida</i> J.V.Lamouroux	0.3	0.5	0	0	0	0	0.3	0.5
<i>Anadyomene stellata</i> (Wulfen) C.Agardh	0	0	0	0	0	0	0	0
<i>Asparagopsis</i> sp - tetrasporophyte	0	0	0	0	0	0	0	0
<i>Calcinus tubularis</i> (Linnaeus, 1767)	0.3	0.5	0	0	0.3	0.5	0	0
<i>Caulerpa cylindracea</i> Sonder	0.8	0.9	0.3	0.5	0.6	0.5	0.3	0.5
Ceramium s.l.spp.	0.6	0.9	0	0	0	0	0.3	0.5
<i>Ceramium codii</i> (H.Richards) Mazoyer	-	-	-	-	-	-	-	-
<i>Ceramium</i> aff. <i>diaphanum</i>	-	-	-	-	-	-	-	-
<i>Gayliella flaccida</i> (Harvey ex Kützing) T.O.Cho & L.J.McIvor	-	-	-	-	-	-	-	-
<i>Chaetomorpha pachynema</i> (Montagne) Kützing	0	0	0	0	0	0	0.3	0.5
<i>Chondracanthus acicularis</i> (Roth) Fredericq	0.1	0.2	0	0	0	0	0	0

<i>Chondria boryana</i> (De Notaris ex J.Agardh) De Toni	0.1	0.2	1.7	2.9	0	0	0.3	0.5
Chondria sp.	0.6	0.5	0	0	0	0	0	0
Cladophora spp.	1.7	2.9	0.6	0.5	0	0	0.3	0.5
<i>Cladophora dalmatica</i> Kützing	-	-	-	-	-	-	-	-
<i>Cladophora laetevirens</i> (Dillwyn) Kützing	-	-	-	-	-	-	-	-
<i>Cladophora lehmanniana</i> (Lindenberg) Kützing	-	-	-	-	-	-	-	-
<i>Cladosiphon lubricus</i> (Sauvageau) Kylin	0	0	0	0	0	0	0	0
<i>Cladostephus spongiosum</i> (Hudson) C.Agardh	0.1	0.2	1.7	2.9	0	0	0	0
Colpomenia sp.	0.1	0.2	0	0	0	0	0	0
Corallinaceae unidentified	14.2	4.2	7.5	5.8	11.1	5.9	17.8	12
<i>Cystoseira algeriensis</i> Feldmann	3.3	2.9	0	0	0	0	5.8	6.3
<i>Cystoseira amentacea</i> (C.Agardh) Bory de Saint-Vincent	0	0	0	0	0	0	2.2	2.4
<i>Cystoseira compressa subsp. pustulata</i> (Ercegovic) Verlaque	18.8	7.8	0	0	0.3	0.5	6.7	7.6
<i>Dasycladus vermicularis</i> (Scopoli) Krasser	0	0	0	0	0	0	0	0
Dasya spp.	0	0	0	0	0	0	0	0
<i>Dasya hutchinsiae</i> Harvey	-	-	-	-	-	-	-	-
<i>Dasya ocellata</i> (Grateloup) Harvey	-	-	-	-	-	-	-	-
Dendropoma lebeche Templado, Richter & Calvo, 2016	5.4	4.6	0	0	5.8	10.1	6.9	3.4
Dictyota spp.	4.2	1.4	0.3	0.5	3.6	2.4	10.3	3.8
<i>Dictyota fasciola</i> (Roth) J.V.Lamouroux	-	-	-	-	-	-	-	-
<i>Dictyota spiralis</i> Montagne	-	-	-	-	-	-	-	-
Ectocarpaceae	0	0	0	0	0	0	13.3	14
<i>Acinetospora crinita</i> (Carmichael) Sauvageau	-	-	-	-	-	-	-	-
<i>Feldmannia irregularis</i> (Kützing) G.Hamel	-	-	-	-	-	-	-	-
<i>Feldmannia lebelii</i> (J.E. Areschoug ex P.L.Crouan & H.M.Crouan) G.Hamel	-	-	-	-	-	-	-	-
Ellisolandia elongata (J.Ellis & Solander) K.R.Hind & G.W.Saunders	6.4	6.3	0.6	0.5	0	0	8.6	6.7
Gastroclonium clavatum (Roth) Ardisson	0.4	0.4	0	0	0	0	2.2	2.4
Gelidiales	0	0	0	0	0	0	0	0
<i>Gelidiella lubrica</i> cf.	-	-	-	-	-	-	-	-
<i>Gelidium pusillum</i> (Stackhouse) Le Jolis	-	-	-	-	-	-	-	-
Halimeda tuna (J.Ellis & Solander) J.V.Lamouroux	0	0	0	0	0	0	0	0
Halopteris scoparia (Linnaeus) Sauvageau	0	0	0	0	0	0	0	0
Herposiphonia secunda (C.Agardh) Ambronn	0.3	0.5	0	0	0.3	0.5	0	0
Hildenbrandia sp.	0	0	0	0	0.3	0.5	0.3	0.5
Hypnea musciformis (Wulfen) J.V.Lamouroux	1.7	2.9	7.5	4.3	5.8	6.3	0	0
Jania spp.	3.6	5.5	47	19.7	40.6	4.6	23.1	8.1
Laurencia obtusa (Hudson) J.V.Lamouroux	0.1	0.3	0	0	0	0	0	0
Laurencia pyramidalis Bory ex Kützing	1.6	2.1	0	0	0	0	0	0
Laurencia sp.	2	3.4	0	0	1.9	2.7	2.5	2.9
Liagora sp.	0	0	0	0	0	0	0	0
Lophosiphonia s.l.spp.	0	0	0	0	0	0	0	0
<i>Lophosiphonia cristata</i> Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia obscura</i> (C.Agardh) Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin	-	-	-	-	-	-	-	-
<i>Polysiphonia scopulorum</i> Harvey	-	-	-	-	-	-	-	-

<i>Myriactula</i> sp.	0	0	0	0	0	0	0	0
<i>Neosiphonia sertularioides</i> (Grateloup) K.W.Nam & P.J.Kang	0	0	0	0	0.3	0.5	0.3	0.5
<i>Padina pavonica</i> (Linnaeus) Thivy	31.7	2.2	11	4.6	6.1	0.5	14.4	8.3
<i>Palisada</i> spp.	7.5	4.3	5	0	0	0	5	0
<i>Palisada tenerrima</i> (Cremades) Serio, Cormaci, G.Furnari & Boisset	-	-	-	-	-	-	-	-
<i>Phaeophila dendroides</i> (P.L.Crouan & H.M.Crouan) Batters	0	0	0	0	0	0	0	0
<i>Polysiphonia opaca</i> (C.Agardh) Moris & De Notaris	0.4	0.4	0.3	0.5	0	0	0.3	0.5
<i>Polysiphonia</i> spp.	0	0	0	0	0	0	0	0
<i>Pseudochlorodesmis furcellata</i> (Zanardini) Børgesen	0	0	0	0	0	0	0	0
Red thin turf	0	0	0	0	0	0	0	0
<i>Acrochaetium</i> sp.	-	-	-	-	-	-	-	-
<i>Antithamnion cruciatum</i> (C.Agardh) Nägeli	-	-	-	-	-	-	-	-
<i>Erythrotrichia carnea</i> (Dillwyn) J.Agardh	-	-	-	-	-	-	-	-
<i>Spermothamnion</i> spp.	-	-	-	-	-	-	-	-
<i>Rhodophyllis divaricata</i> (Stackhouse) Papenfuss	0	0	0	0	0	0	0	0
Rivulariaceae	0	0	0	0	0	0	0	0
<i>Scytosiphon lomentaria</i> (Lyngbye) Link	0	0	0	0	0	0	0.3	0.5
<i>Siphonocladus pusillus</i> (C.Agardh ex Kützing) Hauck	0	0	0	0	0	0	0	0
<i>Sphacelaria</i> spp.	0.2	0.3	0	0	1.1	1.4	0.3	0.5
<i>Sphacelaria cirrosa</i> (Roth) C.Agardh	-	-	-	-	-	-	-	-
<i>Sphacelaria rigidula</i> Kützing	-	-	-	-	-	-	-	-
<i>Sphacelaria tribuloides</i> Meneghini	-	-	-	-	-	-	-	-
<i>Spyridia filamentosa</i> (Wulfen) Harvey	1.7	2.9	3.3	2.9	0	0	0.3	0.5
<i>Stramonita haemastoma</i> (Linnaeus, 1767)	0	0	0.3	0.5	0	0	0	0
<i>Symploca</i> sp.	0	0	0	0	0	0	0	0
<i>Ulva</i> spp.	0	0	0	0	0	0	1.7	2.9
<i>Ulva compressa</i> Linnaeus	-	-	-	-	-	-	-	-
<i>Ulva polyclada</i> Kraft	-	-	-	-	-	-	-	-
<i>Vermetus</i> spp.	1.7	2.9	0.8	0	6.9	2.7	2.5	2.9

SEASON	Spring		Summer		Autumn		Winter	
LOCATION	Tabarca		Tabarca		Tabarca		Tabarca	
TAXA	%	σ	%	σ	%	σ	%	σ
<i>Acetabularia acetabulum</i> (Linnaeus) P.C.Silva	0.6	0.4	0	0	0	0	0	0
<i>Amphiroa rigida</i> J.V.Lamouroux	0.4	0.5	0	0	0.6	1	0.3	0.5
<i>Anadyomene stellata</i> (Wulfen) C.Agardh	0	0	0	0	0.3	0.5	0	0
<i>Asparagopsis</i> sp - tetrasporophyte	0	0	0	0	0.1	0	0.1	0
<i>Calcinus tubularis</i> (Linnaeus, 1767)	0	0	0	0	0	0	0	0
<i>Caulerpa cylindracea</i> Sonder	0.9	0.7	0	0	1.1	0.5	1.1	1
<i>Ceramium</i> s.l.spp.	0.5	0.9	0	0	0	0	0.9	1
<i>Ceramium codii</i> (H.Richards) Mazoyer	-	-	-	-	-	-	-	-
<i>Ceramium</i> aff. <i>diaphanum</i>	-	-	-	-	-	-	-	-
<i>Gayliella flaccida</i> (Harvey ex Kützing) T.O.Cho & L.J.McIvor	-	-	-	-	-	-	-	-
<i>Chaetomorpha pachynema</i> (Montagne) Kützing	0	0	0	0	0	0	0	0
<i>Chondracanthus acicularis</i> (Roth) Fredericq	0	0	0	0	0	0	0.3	0.5

<i>Chondria boryana</i> (De Notaris ex J.Agardh) De Toni	0	0	0	0	0	0	0	0
Chondria sp.	0	0	0	0	0	0	0	0
Cladophora spp.	0.2	0.4	0	0	0	0	0	0
<i>Cladophora dalmatica</i> Kützing	-	-	-	-	-	-	-	-
<i>Cladophora laetevirens</i> (Dillwyn) Kützing	-	-	-	-	-	-	-	-
<i>Cladophora lehmanniana</i> (Lindenberg) Kützing	-	-	-	-	-	-	-	-
<i>Cladosiphon lubricus</i> (Sauvageau) Kylin	0	0	0	0	0	0	0	0
<i>Cladostephus spongiosum</i> (Hudson) C.Agardh	2.5	2.9	1.9	2.7	0	0	2	2.7
Colpomenia sp.	0	0	0	0	0	0	0	0
Corallinaceae unidentified	19.2	8.2	5.8	0	14.7	6.7	13.9	7.7
<i>Cystoseira algeriensis</i> Feldmann	0	0	0	0	0	0	0	0
<i>Cystoseira amentacea</i> (C.Agardh) Bory de Saint-Vincent	0	0	0	0	0	0	0	0
<i>Cystoseira compressa subsp. pustulata</i> (Ercegovic) Verlaque	27.7	7.8	0	0	0	0	3.9	5.4
<i>Dasycladus vermicularis</i> (Scopoli) Krasser	0	0	0	0	0	0	0.3	0.5
Dasya spp.	0	0.1	0	0	0	0	0.3	0.5
<i>Dasya hutchinsiae</i> Harvey	-	-	-	-	-	-	-	-
<i>Dasya ocellata</i> (Grateloup) Harvey	-	-	-	-	-	-	-	-
Dendropoma lebeche Templado, Richter & Calvo, 2016	2.9	5.3	0.8	0.8	2	3.4	1.7	2.9
Dictyota spp.	25.8	6.8	0	0	7.2	6.9	18.3	3.8
<i>Dictyota fasciola</i> (Roth) J.V.Lamouroux	-	-	-	-	-	-	-	-
<i>Dictyota spiralis</i> Montagne	-	-	-	-	-	-	-	-
Ectocarpaceae	0	0	0	0	0	0	0.3	0.5
<i>Acinetospora crinita</i> (Carmichael) Sauvageau	-	-	-	-	-	-	-	-
<i>Feldmannia irregularis</i> (Kützing) G.Hamel	-	-	-	-	-	-	-	-
<i>Feldmannia lebelii</i> (J.E. Areschoug ex P.L.Crouan & H.M.Crouan) G.Hamel	-	-	-	-	-	-	-	-
Ellisolandia elongata (J.Ellis & Solander) K.R.Hind & G.W.Saunders	1.3	0.5	0	0	2.2	3.2	2.5	3
<i>Gastroclonium clavatum</i> (Roth) Ardissonne	0	0	0	0	0	0	1.7	2.9
Gelidiales	0	0	0	0	0	0	0	0
<i>Gelidiella lubrica</i> cf.	-	-	-	-	-	-	-	-
<i>Gelidium pusillum</i> (Stackhouse) Le Jolis	-	-	-	-	-	-	-	-
Halimeda tuna (J.Ellis & Solander) J.V.Lamouroux	0	0	0	0	0	0	0	0
<i>Halopteris scoparia</i> (Linnaeus) Sauvageau	0	0	0	0	0	0	0.3	0.5
<i>Herposiphonia secunda</i> (C.Agardh) Ambronn	0.2	0.4	0.3	0.5	0.8	0	0.8	0.8
Hildenbrandia sp.	0	0	0	0	0	0	0	0
<i>Hypnea musciformis</i> (Wulfen) J.V.Lamouroux	1.1	1	0	0	0	0	1.7	2.9
Jania spp.	15.2	12	76	4.8	59.7	4.8	59.7	13
<i>Laurencia obtusa</i> (Hudson) J.V.Lamouroux	0	0	0	0	0	0	0	0
<i>Laurencia pyramidalis</i> Bory ex Kützing	8.1	9.9	0	0	0	0	2	2.7
Laurencia sp.	0	0	0	0	0	0	0.8	0
Liagora sp.	1.3	2.5	0	0	0	0	0	0
Lophosiphonia s.l.spp.	0	0	0	0	0	0	0.3	0.5
<i>Lophosiphonia cristata</i> Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia obscura</i> (C.Agardh) Falkenberg	-	-	-	-	-	-	-	-
<i>Lophosiphonia reptabunda</i> (Suhr) Kylin	-	-	-	-	-	-	-	-
<i>Polysiphonia scopulorum</i> Harvey	-	-	-	-	-	-	-	-

<i>Myriactula</i> sp.	0	0	0	0	0	0	0	0
<i>Neosiphonia sertularioides</i> (Grateloup) K.W.Nam & P.J.Kang	0	0	0	0	0.3	0.5	0.3	0.5
<i>Padina pavonica</i> (Linnaeus) Thivy	17.1	6.8	13	11.8	5.6	4.2	11.7	4.4
<i>Palisada</i> spp.	0	0	0	0	0	0	0	0
<i>Palisada tenerrima</i> (Cremades) Serio, Cormaci, G.Furnari & Boisset	-	-	-	-	-	-	-	-
<i>Phaeophila dendroides</i> (P.L.Crouan & H.M.Crouan) Batters	0	0	0	0	0	0	0	0
<i>Polysiphonia opaca</i> (C.Agardh) Moris & De Notaris	0	0	0	0	0	0	0	0
<i>Polysiphonia</i> spp.	0	0	0	0	0	0	0	0
<i>Pseudochlorodesmis furcellata</i> (Zanardini) Børgesen	0	0	0	0	0	0	0	0
Red thin turf	0.2	0.4	0	0	0	0	0	0
<i>Acrochaetium</i> sp.	-	-	-	-	-	-	-	-
<i>Antithamnion cruciatum</i> (C.Agardh) Nägeli	-	-	-	-	-	-	-	-
<i>Erythrotrichia carnea</i> (Dillwyn) J.Agardh	-	-	-	-	-	-	-	-
<i>Spermothamnion</i> spp.	-	-	-	-	-	-	-	-
<i>Rhodophyllis divaricata</i>	0	0	0	0	0	0	0	0
Rivulariaceae	0.2	0.4	0	0	0	0	0	0
<i>Scytosiphon lomentaria</i> (Lyngbye) Link	0	0	0	0	0	0	0	0
<i>Siphonocladus pusillus</i> (C.Agardh ex Kützing) Hauck	0	0	0	0	0	0	0	0
<i>Sphacelaria</i> spp.	0.7	0.8	0.3	0.5	0	0	0.8	1.4
<i>Sphacelaria cirrosa</i> (Roth) C.Agardh	-	-	-	-	-	-	-	-
<i>Sphacelaria rigidula</i> Kützing	-	-	-	-	-	-	-	-
<i>Sphacelaria tribuloides</i> Meneghini	-	-	-	-	-	-	-	-
<i>Spyridia filamentosa</i> (Wulfen) Harvey	1.7	2.3	0	0	0.6	0.5	8.9	2.7
<i>Stramonita haemastoma</i> (Linnaeus, 1767)	0	0	0	0	0	0	0.3	0.5
<i>Symploca</i> sp.	0	0	0.3	0.5	0	0	0	0
<i>Ulva</i> spp.	0	0	0	0	0	0	0	0
<i>Ulva compressa</i> Linnaeus	-	-	-	-	-	-	-	-
<i>Ulva polyclada</i> Kraft	-	-	-	-	-	-	-	-
<i>Vermetus</i> spp.	0	0	0.3	0.5	0	0	0.6	0.5

Table S2. A. Results of distance-based permutational two-way PERMANOVA comparing α -diversity using *zone* and *season* as fixed factors. B. Results of pairwise analyses. Se, *season*; Z, *zone*; df, degrees of freedom; SS, sums of squares; MS, mean squares; Pseudo-F, pseudo-F ratio; t, pseudo-t statistic; P(perm), permutation P-value

A

PERMANOVA table of results						
Source	df	SS	MS	Pseudo-F	P(perm)	Unique perms
Se	3	104.46	34.821	45.68	0.001	999
Z	2	43.369	21.685	28.447	0.001	998
Se x Z	6	20.238	3.373	4.425	0.002	998
Res	959	731.02	0.76228			
Total	970	970				

B

Pairwise analysis						
within levels of factor <i>zone</i>	Midlittoral		Infralittoral		Outer margin	
Groups	t	P(perm)	t	P(perm)	t	P(perm)
Spring, Summer	2.881	0.004	11.194	0.001	6.635	0.001
Spring, Autumn	2.898	0.003	8.819	0.001	5.193	0.001
Spring, Winter	0.958	0.322	1.620	0.122	0.042	0.965
Summer, Autumn	0.022	0.987	2.958	0.006	1.963	0.053
Summer, Winter	1.879	0.050	10.030	0.001	6.048	0.001
Autumn, Winter	1.880	0.071	7.497	0.001	4.550	0.001