**Supplementary Tables (Table S1-S5)**

**Table S1. Main characteristics of the monitored sites**

**Table S2**. **Percentage of cover (mean ± SD) of each of the species identified in this study.**

**Table S3.** **One-way PERMANOVA results from the temporal changes of functional identity (*FI*)across the multidimensional trait space for each of the monitored assemblages.**

**Table S4. Trait characteristics of the 8 clusters (functional groups) obtained from the Partition Around Medoids (PAM) clustering analysis**

**Table S5. Source references (N=236) for species trait information used to code the coarsely categorized (nominal / ranked) trait values of the 111 coralligenous taxonomic units included in the analyses**

**Table S1**. Main characteristics of the monitored sites; location, site, type of assemblage, depth, longitude, latitude, period of temperature monitoring and years of biological surveys.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Location** | **Site** | **Assemblage type** | **Depth****(m)** | **Longitude** | **Latitude** | **Temp.** **monitoring period**  | **Years of Biological surveys** |
| Scandola MPA  | Pzzu\_cor | *C. rubrum*  | 18 m | 8° 32' 46.19" E | 42° 22' 47.5" N | 2003-2018 | 2003, 2011, 2018 |
| Passe\_cor | *C. rubrum*  | 29 m | 8° 32' 46.19" E | 42° 22' 47.5" N | 2006-2018 | 2006, 2011, 2018 |
| Pzzu\_par | *P. clavata* | 18 m | 8° 32' 46.19" E | 42° 22' 47.5" N | 2006-2018 | 2006, 2011, 2018 |
| Pzzinu\_par  | *P. clavata* | 25 m | 8° 33' 0" E | 42° 22' 47.5" N | 2006-2016 | 2006, 2011, 2016 |
| Port-Cros MPA  | Gabin\_par | *P. clavata* | 25 m | 6° 23' 70.4" E | 42° 59' 28.5" N | 1999-2009 | 1999, 2007, 2009 |

**Table S2**. **Percentage of cover (mean ± SD) of each of the species identified in this study.** 24 quadrats of 25 cm\* 25 cm were sampled for each site and temporal point.

|  |
| --- |
| ***Corallium rubrum* - dominated habitats**  |

|  |  |
| --- | --- |
|  | **Passe\_cor** |
| **Taxa** |
| 2006 | 2011 | 2018 |
| **Bryozoa** |  |  |  |
| *Adeonella calveti* | 1.22 ± 2.22 | 0.83 ± 1.99 | 0.61 ± 1.18 |
| *Caberea boryi* | 0.06 ± 0.19 | 0.03 ± 0.14  | 0.06 ± 0.19 |
| *Cellaria sp.* | 0.58 ± 0.86 | 0.67 ± 1.51 | 0.39 ± 0.81 |
| *Chartella tenella* | 3.53 ± 4.53 | 2.94 ± 5.38 | 0.17 ± 0.69 |
| *Crisia sp.*  | 0.11 ± 0.26 | 0.03 ± 0.14 | 0.03 ± 0.14 |
| *Disporella hispida*  |  0.08 ± 0.3  | 0.03 ± 0.14 | - |
| *Encrusting Bryozoa no.id. orange* | 1.03 ± 1.32 | 0.81 ± 0.94 | 0.22 ± 0.61 |
| *Gregarinidra gregaria* | 11.58 ± 10 | 14.1 ± 9.18 | 10.4 ± 6.76 |
| *Idmidronea sp.*  | 0.08 ± 0.3 | - | - |
| *Reteporella grimaldii* | 6.72 ± 4.19 | 3.92 ± 2.86 | 3.53 ± 5.65 |
| *Scrupocellaria sp.*  | 0.03 ± 0.14 | 0.08 ± 0.4 | 0.11 ± 0.37 |
| *Turbicellopora sp.* | 0.14 ± 0.68 | 0.03 ± 0.13 | 0.03 ± 0.14 |
| **Cnidaria** |  |  |  |
| *Caryophyllia inornata* | 0.06 ± 0.19 | 0.08 ± 0.3 | 0.06 ± 0.19 |
| *Corallium rubrum* | 9.99 ± 3.16 | 10.5 ± 3.97 | 10.78 ± 3.9 |
| *Hoplangia durotrix* | 0.06 ± 0.19 | 0.03 ± 0.14 | 0.06 ± 0.19 |
| *Leptopsammia pruvoti* | 10.25 ± 3.5 | 7.17 ± 2.38 | 7.36 ± 2.66 |
| **Foraminifera**  |  |  |  |
| *Miniacina miniacea* | 0.77 ± 0.85 | 1.55 ± 1.12 | 1.5 ± 1.13 |
| **Hydrozoa**  |  |  |  |
| *Dynamena laomedea* | 1.39 ± 2.12 | - | 0.11 ± 0.55 |
| *Hydrozoa turf*  | 0.44 ± 0.99 | 0.22 ± 0.47 | 0.39 ± 0.70 |
| **Polychaeta**  |  |  |  |
| *Filograna implexa / Salmacina dysteri* | 0.42 ± 0.98 | 0.16 ± 0.45 | 0.16 ± 0.35 |
| *Protula sp./ Serpula vermicularis* | 0.08 ± 0.23 | 0.11 ± 0.26 | 0.22 ± 0.38 |
| *Serpulidae*  | 0.89 ± 0.92 | 2.25 ± 1.68 | 1.53 ± 1.58 |
| **Porifera**  |  |  |  |
| *Agelas oroides*  | 0.64 ± 1.66 | 0.36 ± 1.38 | 0.11 ± 0.56 |
| *Axinella damicornis* | 0.5 ± 0.91 | 0.47 ± 0.93 | 0.81 ± 1.32 |
| *Clathrina clathrus* | 0.08 ± 0.41 | 0.03 ± 0.14 | - |
| *Clathrina coriacea*  | - | 0.19 ± 0.5 | 0.06 ± 0.19 |
| *Dendroxea lenis* | 0.55 ± 1.54 | 1.64 ± 2.25 | 2.47 ± 4.41 |
| *Haliclona mucosa* | 0.06 ± 0.27 | 0.28 ± 0.62 | 0.42 ± 1.21 |
| *Hexadella pruvoti*  | 1.06 ± 3.99 | 1.86 ± 5.66 | 2.11 ± 7.33 |
| *Hexadella racovitzai* | 2.78 ± 13.6 | 2.53 ± 12.4 | 2.92 ± 14.3 |
| *Inv. mix. sponge thin layers* |  2.33 ± 3.4 |  5.8 ± 4.89 | 7.14 ± 5.74 |
| *Ircinia variabilis*  | 0.11 ± 0.32 | 0.14 ± 0.56 | 0.17 ± 0.49 |
| *Other sponge yellow encr.*  | 0.03 ± 0.14 | 0.33 ± 0.92 | 1.14 ± 1.52 |
| *Petrosia ficiformis* | 0.56 ± 1.22 | 0.64 ± 1.52 | 0.97 ± 1.74 |
| *Pleraplysilla spinifera* | 0.83 ± 1.29 | 1.72 ± 1.95 | 2.95 ± 3.23 |
| *Spongosorites intrincatus* | 1.08 ± 2.17 | 0.92 ± 1.3 | 5.45 ± 5.3 |
| **Tunicata** |  |  |  |
| *Didemnum vexillum* | 0.64 ± 2.34 | 0.06 ± 0.19 | 0.14 ± 0.67 |
| *Halocynthia papillosa*  | 0.03 ± 0.14 | 0.03 ± 0.14 | 0.03 ± 0.14 |
| **Mixture complex \***  | 38.6 ± 12.8 | 36.3 ± 8.1 | 35 ± 11.1 |
| **Rhodophyta**  |  |  |  |
| *Encrusting calcareous no id.* | 0.36 ± 0.94 | 0.75 ± 1.37 | 0.39 ± 0.81 |

|  |  |
| --- | --- |
|  | **Pzzu\_cor** |
| **Taxa** |
| 2003 | 2011 | 2018 |
| **Bryozoa** |  |  |  |
| *Adeonella calveti* | 0.17 ± 0.58 | 0.1 ± 0.29 | 0.03 ± 0.16 |
| *Caberea boryi* | - | - | 0.02 ± 0.08 |
| *Celleporina sp.*  | - | 0.02 ± 0.08 | 0.07 ± 0.19 |
| *Chartella tenella* | - | 0.6 ± 2.9 | - |
| *Crisia sp.*  | 0.18 ± 0.29 | 0.13 ± 0.30 | 0.03 ± 0.16 |
| *Disporella hispida*  | 0.05 ± 0.25 | 0.1 ± 0.24 | 0.14 ± 0.26 |
| *Encrusting Bryozoa no.id. orange* | 0.62 ± 1.04 | 1.95 ± 1.13 | 0.12 ± 0.27 |
| *Gregarinidra gregaria* | 3.03 ± 3.88 | 3.38 ± 3.26 | 9.88 ±4.53 |
| *Idmidronea sp.*  | - | - | 0.05 ± 0.25 |
| *Reteporella grimaldii* | 0.58 ± 0.98 | 0.03 ± 0.11 | 0.2 ± 0.82 |
| *Scrupocellaria sp.*  | 0.15 ± 0.5 | - | 0.35 ± 1.32 |
| *Turbicellopora sp.* | - | - | 0.05 ± 0.25 |
| **Cnidaria** |  |  |  |
| *Caryophyllia inornata* | 0.08 ± 0.17 | 0.15 ± 0.28 | 0.12 ± 0.28 |
| *Corallium rubrum* | 14.98 ± 9.4 | 9.1 ± 6.5 | 1.12 ± 1.44 |
| *Hoplangia durotrix* | 1.8 ± 1.20 | 2.45 ± 2 | 0.97 ± 1.21 |
| *Leptopsammia pruvoti* | 6.08 ± 3.56 | 6.5 ± 3.17  | 6.73 ± 4.20 |
| **Foraminifera**  |  |  |  |
| *Miniacina miniacea* | 0.48 ± 0.44 | 0.22 ± 0.33 | 1.37 ± 1.17 |
| **Hydrozoa**  |  |  |  |
| *Eudendrium sp.*  | - | 0.02 ± 0.08 | 0.15 ± 0.47 |
| **Polychaeta**  |  |  |  |
| *Filograna implexa / Salmacina dysteri* | 0.37 ± 1.11 | 0.93 ± 1.08 | 3.16 ± 4.59 |
| *Protula sp./ Serpula vermicularis* | 0.23 ± 0.35 | 0.4 ± 0.43  | 0.73 ± 0.84 |
| *Serpulidae*  | 0.57 ± 0.51 | 1.48 ± 0.75 | 3.28 ± 2.54 |
| **Porifera**  |  |  |  |
| *Acanthella acuta* | - | - | 0.05 ± 0.25 |
| *Agelas oroides*  | 0.76 ± 1.91 | 1.05 ± 2.22 | 1.13 ± 3.43 |
| *Axinella damicornis* | 0.03 ± 0.11 | 0.07 ± 0.19 | 0.11 ± 0.36 |
| *Clathrina clathrus* | 0.04 ± 0.17 | 0.05 ± 0.17 | 0.03 ± 0.16 |
| *Cliona sp.* | 0.08 ± 0.28 | 0.03 ± 0.16 | - |
| *Corticium candelabrum* | 0.05 ± 0.25 | 0.07 ± 0.32 | - |
| *Dendroxea lenis* | 1.6 ± 3.5 | 5.23 ± 7.15 | 2.43 ± 4.60 |
| *Haliclona fulva* | 0.82 ± 1.73 | 0.87 ± 1.94 | 0.95 ± 1.8 |
| *Haliclona mediterranea*  | 0.1 ± 0.29 | 0.93 ± 1.99 | 0.45 ± 0.89 |
| *Haliclona mucosa* | 0.63 ± 1.23 | 0.26 ± 0.65 | 0.2 ± 0.35 |
| *Inv. mix. sponge thins layers* | 0.58 ± 1.22 | 1.11 ± 1.74 | 0.63 ± 1.62 |
| *Ircinia variabilis*  | 1.25 ± 2.77 | 0.88 ± 1.92 | - |
| *Oscarella balibaloi* | - | 0.23 ± 0.92 | - |
| *Other sponge grey/white enc.* | 0.35 ± 0.58 | 1.02 ± 1.30 | 0.16 ± 0.33 |
| *Other sponge grey/white massv.* | 0.23 ± 0.79 | 0.05 ± 0.18 | - |
| *Other sponge orange encr.* | - | 0.32 ± 1.55 | - |
| *Other sponge yellow encr.*  | 0.27 ± 0.84 | 0.03 ± 0.16 | 0.26 ± 0.48 |
| *Petrosia ficiformis* | 3.9 ± 5.78 | 2.58 ± 4.01 | 1.35 ± 1.94 |
| *Phorbas tenacior*  | 0.08 ± 0.4 | 0.91 ± 2.48 | 0.95 ± 2.48 |
| *Plakina sp.* | 0.06 ± 0.32 | 0.12 ± 0.57 | - |
| *Pleraplysilla spinifera* | 1.47 ± 1.75 | 1.41 ± 2.33 | 0.7 ± 0.81 |
| *Prosuberites longispinus*  | - | - | 0.18 ± 0.62 |
| *Spongosorites intrincatus* | - | 0.18 ± 0.44 | 0.28 ± 0.67 |
| **Tunicata** |  |  |  |
| *Aplidium fuscum* | 0.32 ± 0.65 | 1.65 ± 2.02 | 0.8 ± 0.93 |
| *Halocynthia papillosa*  | 0.02 ± 0.16 | 0.02 ± 0.17 | 0.02 ± 0.16 |
| **Mixture complex \***  | 57.7 ± 9.59 | 52.9 ± 12.2 | 56.3 ± 7.6 |
| **Rhodophyta**  |  |  |  |
| *Encrusting calcareous no id.* | 0.23 ± 0.7 | 0.1 ± 0.4 | 0.08 ± 0.4 |

|  |
| --- |
| ***Paramuricea clavata* – dominated habitats** |

|  |  |
| --- | --- |
|  | **Pzzinu\_par** |
| **Taxa** |
| 2006 | 2011 | 2016 |
| **Bryozoa** |  |  |  |
| *Adeonella calveti* | - | 0.22 ± 0.54 | 0.08 ± 0.3 |
| *Caberea boryi* | - | - | 0.02 ± 0.08 |
| *Cellaria sp.* | 0.03 ± 0.14 | - | - |
| *Celleporina sp.*  | 0.06 ± 0.27 | - | 0.03 ± 0.14 |
| *Chartella tenella* | 3.8 ± 4.55 | 2.7 ± 4.87 | 0.22 ± 0.77 |
| *Crisia sp.*  | 0.06 ± 0.18 | 0.08 ± 0.40 | 0.30 ± 0.80 |
| *Disporella hispida*  | 0.06 ± 0.18 | 0.03 ± 0.14 | 0.06 ± 0.19 |
| *Encrusting Bryozoa no.id. orange* | 0.17 ± 0.45 | 0.06 ± 0.19 | 0.03 ± 0.14 |
| *Idmidronea sp.*  | 0.03 ± 0.14 | - | 0.14 ± 0.68 |
| *Lichenophora radiata* | - | 0.03 ± 0.14 | - |
| *Reteporella grimaldii* | 3.89 ± 3.66 | 3.36 ± 3.26 | 2.44 ± 1.91 |
| **Cnidaria** |  |  |  |
| *Caryophyllia inornata* | 0.22 ± 0.38 | 0.14 ± 0.28 | 0.08 ± 0.22 |
| *Corynactis viridis* | 12.1 ± 7.63 | 14.5 ± 6.35 | 7.69 ± 5.64 |
| *Hoplangia durotrix* | 0.39 ± 0.79 | 0.80 ± 1 | 0.47 ± 0.75 |
| *Leptopsammia pruvoti* | 0.25 ± 0.68 | 0.08 ± 0.22  | 0.17 ± 0.35 |
| *Paramuricea clavata* | 19.2 ± 11.2 | 20.4 ± 9.32 | 20 ± 10.94 |
| **Foraminifera**  |  |  |  |
| *Miniacina miniacea* | 0.86 ± 0.93 | 1.11 ± 1.11 | 1.36 ± 1.25 |
| **Hydrozoa**  |  |  |  |
| *Aglaophenia sp.*  | - | - | 0.13 ± 0.68 |
| *Eudendrium sp.*  | 0.25 ± 1.1 | 0.06 ± 0.19 | - |
| *Hydrozoa turf*  | 0.48 ± 1.49 |  0.3 ± 0.71 | 0.41 ± 1.08 |
| **Polychaeta**  |  |  |  |
| *Filograna implexa / Salmacina dysteri* | 0.11 ± 0.32 | 0.08 ± 0.30 | 0.11 ± 0.42 |
| *Protula sp./ Serpula vermicularis* | 0.11 ± 0.25 | 0.14 ± 0.34  | 0.08 ± 0.22 |
| *Serpulidae*  | 0.33 ± 0.52 | 0.16 ± 0.35 | 0.06 ± 0.19 |
| **Porifera**  |  |  |  |
| *Aplysina cavernicola* | 6.56 ± 7.31 | 5.33 ± 5.96 | 5.91 ± 5.26 |
| *Axinella damicornis* | 0.17 ± 0.35 | 0.25 ± 0.55 | 0.28 ± 0.48 |
| *Cacospongia scalaris*  | 13.9 ± 6.78  | 7.58 ± 5.55 | 8.86 ± 6.83 |
| *Chondrosia reniformis* | 0.31 ± 1.5 | 0.25 ± 1.22 | 0.72 ± 2.64 |
| *Clathrina clathrus* | 0.27 ± 0.7 | 0.11 ± 0.26 | 0.25 ± 0.78 |
| *Clathrina coriacea*  | 0.03 ± 0.14 | 0.03 ± 0.14 | 0.25 ± 0.7 |
| *Crella pulvinar* | 0.44 ± 1.41 | 1.14 ± 1.87 | 0.44 ± 1.22 |
| *Dendroxea lenis* | 0.03 ± 0.57 | 0.11 ± 0.26 | 0.28 ± 0.98 |
| *Fasciospongia cavernosa*  | 0.03 ± 0.14 | 0.19 ± 0.61 | 0.03 ± 0.14 |
| *Haliclona fulva* | 0.52 ± 1.17 | 0.52 ± 0.96 | 1.11 ± 1.97 |
| *Haliclona mediterranea*  | 2.86 ± 2.94 | 4 ± 2.65 | 2.5 ± 2.55 |
| *Inv. mix. sponge thin layers* | 6.19 ± 4.52 | 4.25 ± 3.42 | 4.41 ± 3.16 |
| *Ircinia oros type* | 1.69 ± 3.87 | 1.69 ± 4.38 | 0.94 ± 3.26 |
| *Ircinia variabilis*  | 0.25 ± 0.67 | 0.97 ± 1.55 | 0.41 ± 0.78 |
| *Oscarella balibaloi* | - | 0.11 ± 0.54 | 0.13 ± 0.44 |
| *Other sponge grey/white massv.* | - | - | 0.25 ± 0.65 |
| *Other sponge orange encr.* | 0.5 ± 0.99 | 0.11 ± 0.32 | - |
| *Other sponge yellow encr.*  | 0.22 ± 0.67 | 0.3 ± 0.7 | 0.22 ± 0.51 |
| *Petrosia ficiformis* | 1.89 ± 3.32 | 1.36 ± 1.90 | 2.44 ± 3.16 |
| *Phorbas tenacior*  | 2.13 ± 5.34 | 2.97 ± 3.07 | 1.66 ± 2.88 |
| *Plakina sp.* | - | 0.14 ± 0.39 | 0.31 ± 0.62 |
| *Pleraplysilla spinifera* | 4.06 ± 3.98 | 3.41 ± 3.24 | 3.8 ± 2.88 |
| *Prosuberites longispinus*  | - | 0.28 ± 0.76 | 0.14 ± 0.48 |
| *Spongosorites intrincatus* | - | - | 0.33 ± 0.34 |
| **Tunicata** |  |  |  |
| *Aplidium fuscum* | 0.25 ± 0.85 | 0.03 ± 0.14 | 0.42 ± 1.10 |
| *Clavelina dellavalei* | - | 0.06 ± 0.27 | - |
| **Mixture complex \***  | 11.9 ± 5.75 | 11.6 ± 5.17 | 18.75 ± 7.8 |
| **Algal turf**  | 0.05 ± 0.27 | 0.78 ± 1.68 | 0.08 ± 0.40 |
| **Chlorophyta** |  |  |  |
| *Bryopsis sp.*  | - | 0.11 ± 0.38 | - |
| *Palmophyllum crassum* | 0.08 ± 0.3 | 0.14± 0.39 | 0.47 ± 0.84 |
| *Valonia macrophysa*  | - | 0.25 ± 0.47 | 0.14 ± 0.34 |
| **Rhodophyta**  |  |  |  |
| *Encrusting calcareous no id.* | 1.89 ± 2.56 | 5.25 ± 3.67 | 8.5 ± 4.59 |
| *Erect corallinacea no id.*  |  |  |  |
| *Erythroglossum sandrianum* | 0.14 ± 0.43 | 0.11 ± 0.32 | 0.03 ± 0.14 |
| *Hildebrandia rubra*  | 0.44 ± 0.85 | 1.52 ± 1.61 | 1.44 ± 2.16 |
| *Lithophyllum stictaeforme* | 0.03 ± 0.14 | 0.03 ± 0.14 | 0.06 ± 0.19 |
| *Mesophyllum alternans*  | 0.03 ± 0.14 | 0.03 ± 0.14 | 0.11 ± 0.32 |

|  |  |
| --- | --- |
|  | **Pzzu\_par** |
| **Taxa** |
| 2006 | 2011 | 2016 |
| **Bryozoa** |  |  |  |
| *Adeonella calveti* | 0.02 ± 0.1 | - | - |
| *Cellaria sp.* | - | 0.29 ± 1.43 | - |
| *Chartella tenella* | 6.67 ± 7.5 | 2.48 ± 3.79 | 0.06 ± 0.22 |
| *Crisia sp.*  | 0.1 ± 0.42 | 0.02 ± 0.1 | 0.18 ± 0.72 |
| *Disporella hispida*  | 0.56 ± 0.81 | 0.31 ± 0.35 | 0.16 ± 0.35 |
| *Encrusting Bryozoa no.id. orange* | 0.33 ± 0.79 | 0.10 ± 0.29 | 0.08 ± 0.28 |
| *Idmidronea sp.*  | 0.02 ± 0.1 | - | - |
| *Reteporella grimaldii* | 3.19 ± 3.57 | 0.81 ± 1.74 | 0.27 ± 0.8 |
| *Scrupocellaria sp.*  | - | - | 0.08 ± 0.28 |
| *Turbicellopora sp.* | 0.06 ± 0.31 | - | - |
| **Cnidaria** |  |  |  |
| *Caryophyllia inornata* | 0.06 ± 0.17 | 0.04 ± 0.14 | 0.04 ± 0.14 |
| *Corallium rubrum* | 4.06 ± 8.18 | 3.38 ± 6.34 | 0.89 ± 2.74 |
| *Eunicella cavolinii* | 0.87 ± 1.55 | 0.5 ± 0.93 | 0.06 ± 0.31 |
| *Hoplangia durotrix* | 0.25 ± 0.66 | 0.21 ± 0.39 | 0.06 ± 0.22 |
| *Leptopsammia pruvoti* | 6.73 ± 6.05 | 6.38 ± 4.79  | 7.89 ± 7.71 |
| *Paramuricea clavata* | 6.37 ± 8.28 | 2.85 ± 6.25 | 0.88 ± 3.37 |
| *Parazoanthus axinellae* | 15.5 ± 18.9 | 10.4 ± 10.48 | 9.1 ± 9.95 |
| **Foraminifera**  |  |  |  |
| *Miniacina miniacea* | 0.21 ± 0.41 | 0.42 ± 0.5 | 0.69 ± 0.95 |
| **Hydrozoa**  |  |  |  |
| *Eudendrium sp.*  | 0.19 ± 0.92 | 0.09 ± 0.24 | 0.04 ± 0.2 |
| *Hydrozoa turf*  | 0.83 ± 1.3 | 0.21 ± 0.64 | 0.46 ± 1.09 |
| **Polychaeta**  |  |  |  |
| *Filograna implexa / Salmacina dysteri* | 0.04 ± 0.2 | - | 0.02 ± 0.1 |
| *Protula sp./ Serpula vermicularis* | 0.06 ± 0.17 | -  | 0.04 ± 0.14 |
| *Serpulidae*  | 0.72 ± 0.9 | 0.33 ± 0.45 | 0.35 ± 0.67 |
| **Porifera**  |  |  |  |
| *Axinella damicornis* | 0.23 ± 0.49 | 0.17 ± 0.38 | 0.27 ± 0.51 |
| *Cacospongia scalaris*  | 3.18 ± 7.25  | 1.92 ± 3.5 | 0.17 ± 0.56 |
| *Clathrina clathrus* | 0.43 ± 1.42 | 0.13 ± 0.3 | -  |
| *Clathrina coriacea*  | - | 0.08 ± 0.4 | - |
| *Crella pulvinar* | - | 0.43 ± 1.5 | 0.38 ± 1.28 |
| *Dendroxea lenis* | 0.88 ± 3.87 | 0.69 ± 2.21 | 0.17 ± 0.46 |
| *Haliclona fulva* | 0.1 ± 0.29 | 0.17 ± 0.43 | 0.21 ± 0.38 |
| *Haliclona mediterranea*  | 0.94 ± 1.37 | 1.38 ± 1.43 | 0.14 ± 0.27 |
| *Haliclona mucosa* | - | 0.02 ± 0.1 | - |
| *Inv. mix. sponge thin layers* | 5.1 ± 3.72 | 12.4 ± 8.98 | 4.39 ± 3.79 |
| *Ircinia oros type* | 2.5 ± 4.6 | 0.64 ± 1.98 | 0.64 ± 3.16 |
| *Ircinia variabilis*  | 0.5 ± 1 | 1.06 ± 2.19 | 1.14 ± 2.10 |
| *Other sponge green encr.* | 0.13 ± 0.61 | 0.65 ± 2.25 | 0.42 ± 1.27 |
| *Other sponge grey/white enc.* | 0.13 ± 0.51 | 0.1 ± 0.36 | 0.02 ± 0.1 |
| *Other sponge orange encr.* | 0.21 ± 1.02 | 0.31 ± 0.93 | - |
| *Other sponge red encr.* | - | 0.13 ± 0.37 | 0.08 ± 0.41 |
| *Other sponge yellow encr.*  | 0.27 ± 0.96 | 0.06 ± 0.22 | 0.27 ± 0.51 |
| *Petrosia ficiformis* | 0.19 ± 0.38 | 0.44 ± 0.8 | 0.21 ± 0.49 |
| *Phorbas tenacior*  | 0.58 ± 2.02 | 0.81 ± 2.73 | 1.42 ± 4.65 |
| *Plakina sp.* | 0.48 ± 0.99 | 1.08 ± 1.78 | 1.54 ± 2.57 |
| *Pleraplysilla spinifera* | 1.44± 2.35 | 2.08 ± 2.33 | 1.06 ± 2.21 |
| *Prosuberites longispinus*  | - | 0.56 ± 0.92 | 1.48 ± 2.18 |
| *Spongia virgultosa*  | 0.02 ± 0.1 | 0.17 ± 0.43 | 0.06 ± 0.22 |
| *Spongosorites intrincatus* | - | 0.04 ± 0.2 | 0.9 ± 2.56 |
| **Tunicata** |  |  |  |
| *Aplidium fuscum* | 0.77 ± 1.33 | 0.42 ± 0.83 | 0.08 ± 0.28 |
| *Clavelina dellavalei* | - | 0.04 ± 0.2 | 0.04 ± 0.14 |
| *Clavelina lepadiformis* | 0.1 ± 0.36 | - | - |
| **Mixture complex \*** | 19.2 ± 9.26 | 10.37 ± 8.9 | 13.6 ± 13.4 |
| **Algal turf**  | 8.6 ± 15.1 | 8.95 ± 14.9 | 13.88 ± 12.8 |
| **Chlorophyta** |  |  |  |
| *Bryopsis sp.*  | 0.375 ± 1 | 0.98 ± 3.2 | 5.88 ± 5.5 |
| *Chondria sp.* | - | - | 0.02 ± 0.1 |
| *Flabellia petiolata* | 0.6 ± 1.2 | 1.46 ± 2.96 | 2.13 ± 3.15 |
| *Halimeda tuna* | 0.02 ± 0.1 |  0.04 ± 0.2 | 0.08 ± 0.32 |
| *Valonia macrophysa*  | - | 0.02 ± 0.1 | 0.04 ± 0.14 |
| **Phaeophyta**  |  |  |  |
| *Brown macroalgae erect no.id* | 0.08 ± 0.41 | 0.04 ± 0.2 | - |
| *Dictyopteris membranacea*  | 0.17 ± 0.82 | - | 0.73 ± 3.57 |
| **Rhodophyta**  |  |  |  |
| *Encrusting calcareous no id.* | 2.89 ± 3.73 | 18.81 ± 12.35 | 21.39 ± 12.39 |
| *Erect corallinacea no id.*  | 0.08 ± 0.41 | 0.25 ± 0.78 | 0.81 ± 1.56 |
| *Erythroglossum sandrianum* | - | 0.02 ± 0.1 | - |
| *Filamentous Falkenbergia type* | 0.46 ± 1.37 | .004 ± 0.14 | 0.13 ± 0.37 |
| *Haliptilon virgatum* | - | - | - |
| *Hildebrandia rubra*  | 0.44 ± 0.85 | 1.52 ± 1.61 | 1.44 ± 2.16 |
| *Liagora sp.* | - | .004 ± 0.01 | - |
| *Lithophyllum stictaeforme* | 0.19 ± 0.72 | 0.13 ± 0.27 | 0.02 ± 0.1 |
| *Mesophyllum alternans*  | 0.08 ± 0.32 | 0.1 ± 0.33 | 0.08 ± 0.24 |
| *Peysonnellia squamarina.*  | 0.88 ± 1.38 | 2.19 ± 2.25 | 3.42 ± 4.82 |
| *Red macroalgae laminar no. id* | 0.02 ± 0.1 | 0.25 ± 0.66 | 0.54 ± 1.12 |
| *Rhodymenia ardissone* | - | 0.23 ± 1.12 | - |

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|  | **Gabin\_par** |
| **Taxa** |
| 2006 | 2011 | 2016 |
| **Bryozoa** |  |  |  |
| *Adeonella calveti* | 0.17 ± 0.48 | 0.15 ± 0.62 | - |
| *Crisia sp.*  | 0.08 ± 0.4 | - | - |
| *Dentiporella sardonica* | 0.08 ± 0.4 | - | 0.08 ± 0.4 |
| *Disporella hispida*  | 0.04 ± 0.2 | - | - |
| *Encrusting Bryozoa no.id. orange* | 0.04 ± 0.2 | - | 0.04 ± 0.2 |
| *Myriapora truncata* | 0.04 ± 0.2 | - | - |
| *Pentapora fascialis* | 0.75 ± 2.09 | 1.4 ± 3.95 | 0.5 ± 1.56 |
| *Schizomavella linearis* | 0.04 ± 0.2 | - | - |
| *Schizomavella mamillata*  | 1.08 ± 1.09 | - | - |
| *Scrupocellaria sp.*  | 0.04 ± 0.2 | - | 0.08 ± 0.28 |
| *Smittoidea sp.* | - | 0.04 ± 0.2 | - |
| **Cnidaria** |  |  |  |
| *Paramuricea clavata* | 55.8 ± 21.3 | 21.6 ± 16 | 19.6 ± 17.4 |
| *Parazoanthus axinellae* | 0.88 ± 3.49 | 2.98 ± 6.28 | 2.46 ± 4.63 |
| **Foraminifera**  |  |  |  |
| **Hydrozoa**  |  |  |  |
| *Aglaophenia sp.*  | - | 0.27 ± 0.79 | 0.38 ± 1.28 |
| *Dynamena laomedea* | - | 4.79 ± 7.02 | 0.20 ± 1.02 |
| *Eudendrium sp.*  | - | 0.17 ± 0.81 | - |
| *Hydrozoa turf*  | 0.29 ± 1.08 | 1.72 ± 4.20 | 0.08 ± 0.4 |
| **Polychaeta**  |  |  |  |
| *Filograna implexa / Salmacina dysteri* | 3.04 ± 5.6 | 0.21 ± 0.64 | 0.04 ± 0.2 |
| *Serpulidae*  | 0.08 ± 0.28 | - | - |
| **Porifera**  |  |  |  |
| *Axinella damicornis* | 0.25 ± 0.74 | 0.02 ± 0.1 | - |
| *Cacospongia scalaris*  | 3.18 ± 7.25  | 1.92 ± 3.5 | 0.17 ± 0.56 |
| *Crambe crambe* | 1.12 ± 2.33 | 2.04 ± 2.86 | 4.63 ± 5.06 |
| *Dysidea avara* | 0.75 ± 2.89 | 0.13 ± 0.61 | 0.21 ± 1.02 |
| *Haliclona fulva* | - | - | 0.5 ± 1.62 |
| *Hemymicale columella* | 0.04 ± 0.2 | - | 0.13 ± 0.34 |
| *Inv. mix. sponge thin layers* | 0.58 ± 2.06 | 0.23 ± 0.83 | 0.21 ± 0.66 |
| *Ircinia oros type* | 2.75 ± 13.4 | 0.66 ± 3.27 | - |
| *Other sponge black encr.* | 8 ± 15.74 | 2.88 ± 5.96 | 0.88 ± 4.29 |
| *Other sponge grey/white enc.* | - | 0.17 ± 0.82 | 0.04 ± 0.2 |
| *Other sponge orange encr.* | 0.08 ± 0.28 | 0.08 ± 0.31 | - |
| *Other sponge red encr.* | 0.21 ± 1.02 | 0.31 ± 0.93 | 0.17 ± 0.48 |
| *Other sponge yellow encr.*  | 0.04 ± 0.2 | - | 0.04 ± 0.2 |
| *Phorbas tenacior*  | 0.46 ± 2.24 | - | - |
| *Pleraplysilla spinifera* | 1.21 ± 2.02 | 0.04 ± 0.2 | - |
| **Tunicata** |  |  |  |
| *Aplidium conicum* | 0.04 ± 0.2 | 0.25 ± 0.78 | - |
| *Pycnoclavella sp.*  | 0.08 ± 0.4 | 22.9 ± 13.2 | 12 ± 10.1 |
| **Mixture complex \*** | 11.1 ± 12.6 | 10.37 ± 8.9 | 13.6 ± 13.4 |
| **Algal turf**  | 1.88 ± 4.75 | 14.1 ± 18.7 | 17.1 ± 14.2 |
| **Chlorophyta** |  |  |  |
| *Bryopsis sp.*  | - | 0.02 ± 0.1 | - |
| *Caulerpa cylindracea* | - | 9.17 ± 14.27 | 16.17 ± 15.2 |
| **Phaeophyta**  |  |  |  |
| *Brown macroalgae erect no.id* | 0.70 ± 3.47 | 0.1 ± 0.51 | - |
| *Dictyota dichotoma var. intr.* | - | - | 1.38 ± 3.35 |
| *Dictyota sp.* | 0.92 ± 2.48 | 0.52 ± 1.13 | 6.58 ± 8.55 |
| *Dictyopteris membranacea*  | 0.17 ± 0.82 | - | 0.73 ± 3.57 |
| *Padina pavonica* | 0.33 ± 0.92 | - | 0.17 ± 0.82 |
| *Sargassum vulgare* | - | - | 6.83 ± 13.05 |
| **Rhodophyta**  |  |  |  |
| *Corallina elongata* | - | 1.41 ± 3.53 | 0.04 ± 0.2 |
| *Encrusting calcareous no id.* | 3.04 ± 7.11 | 5.46 ± 7.69 | 4.2 ± 5.62 |
| *Erect corallinacea no id.*  | - | 0.61 ± 1.13 | - |
| *Filamentous Falkenbergia type* | 0.62 ± 3.06 | 0.25 ± 0.86 | - |
| *Haliptilon virgatum* | - | 0.02 ± 0.1 | 0.13 ± 0.61 |
| *Lithophyllum stictaeforme* | 0.13 ± 0.45 | 0.15 ± 0.5 | - |
| *Mesophyllum alternans*  | - | 0.02 ± 0.1 | - |
| *Peysonnellia squamarina*  | 0.04 ± 0.2 | 0.46 ± 1.26 | 0.58 ± 1.1 |
| *Red macroalgae laminar no. id* | 0.13 ± 0.61 | - | - |

\* Mixture complex refers to an arbitrary category that correspond to basal invertebrates and algae that due to their small size cannot be separated from other species co-occurring in the same complex and thus neither identified by usual macroscopic means.

**Table S3.** **One-way PERMANOVA results from the temporal changes of functional identity (*FI*)across the multidimensional trait space for each of the monitored assemblages, and considering time as a fixed factor**. Df: degrees of freedom, SumSq: sum of squares, Pseudo-F: pseudo F statistic and P: PERMANOVA p-value. Significance levels: \*\*\*: p-value < 0.001, \*\*: p-value < 0.01, \*: p-value < 0.05 and **n.s**: not significant.

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| ***Corallium rubrum* - dominated habitats**  |
|  |  |  |  |  |  |  |  |
| **Passe\_cor** |
| **Factor**  | **Factor levels** | **Df** | **SumSq** | **R^2** | **Pseudo-F** | **P**  | **Significance** |
| Time (Fixed)  | Time 1, Time 2, Time 3 | 2 | 0.1018 | 0.028 | 1.0055 | 0.437  |  **(n. s)**  |
| Res |  | 69 | 3.4932 | 0.971 |  |  |  |
| Total  |  | 71 | 3.5950 | 1 |  |  |  |

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|  |
| **Pzzu\_cor** |
| **Factor**  | **Factor levels** | **Df** | **SumSq** | **R^2** | **Pseudo-F** | **P**  | **Significance** |
| Time (Fixed)  | Time 1, Time 2, Time 3 | 2 | 4.4247 | 0.3234 | 16.487 | **0.001** |  \*\*\*  |
| Res |  | 69 | 9.259 | 0.6767 |  |  |  |
| Total  |  | 71 | 13.6837 | 1 |  |  |  |

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| --- |
| ***Paramuricea clavata* – dominated habitats** |
|  |  |  |  |  |  |  |  |
| **Pzzinu\_par**  |
| **Factor**  | **Factor levels** | **Df** | **SumSq** | **R^2** | **Pseudo-F** | **P**  | **Significance** |
| Time (Fixed)  | Time 1, Time 2, Time 3 | 2 | 0.2065 | 0.045 | 1.6209 | 0.139 |  **(n. s)**  |
| Res |  | 69 | 4.3952 | 0.955 |  |  |  |
| Total  |  | 71 | 4.6016 | 1 |  |  |  |

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| --- |
| **Pzzu\_par** |
| **Factor**  | **Factor levels** | **Df** | **SumSq** | **R^2** | **Pseudo-F** | **P**  | **Significance** |
| Time (Fixed)  | Time 1, Time 2, Time 3 | 2 | 4.1207 | 0.2223 | 9.745 | **0.001** | \*\*\*  |
| Res |  | 69 | 14.5884 | 0.7798 |  |  |  |
| Total  |  | 71 | 18.7091 | 1 |  |  |  |

|  |
| --- |
| **Gabin\_par**  |
| **Factor**  | **Factor levels** | **Df** | **SumSq** | **R^2** | **Pseudo-F** | **P**  | **Significance** |
| Time (Fixed)  | Time 1, Time 2, Time 3 | 2 | 3.4688 | 0.2384 | 10.8 | **0.001** | \*\*\*  |
| Res |  | 69 | 11.081 | 0.7616 |  |  |  |
| Total  |  | 71 | 14.5498 | 1 |  |  |  |

**Table S4. Trait characteristics of the 8 clusters (functional groups) obtained from the Partition Around Medoids (PAM) clustering analysis.** Only the percentage of the two most common trait values in a given cluster and trait are shown, unless a 100% is reached with the first three trait values, in which the three most common are shown. Abbreviations used: For morphology; **M-Hem**. = Massive-Hemispheric, **M-Encr**. = Massive-Encrusting. For feeding strategy: **F.F. by pumping** = Filter Feeder by pumping, **A. F. F. Ciliated** = Active Filter Feeder Ciliated, **P. F. F**. = Passive Filter Feeder. For physical defences: **No-Calc. Spic**. = Non-Calcareus Spicules, **Calc. Spi/Scl** = Calcareus Spicules/Sclerites, **Carb. Cont.** = Carbonate Continuous, **Carb. Disc.** = Carbonate Discontinuous. See **Table S1** for further information on the traits ranks and categories.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Functional cluster** | **Cluster 1** | **Cluster 2** | **Cluster 3** | **Cluster 4** | **Cluster 5** | **Cluster 6**  | **Cluster 7**  | **Cluster 8**  |
| **N. *Sp*** | 40 | 25 | 10 | 14 | 15 | 3 | 4 | 3 |
| **Morphology** | M-Hem (34%)M-Enc. (33%)*Others (33%)* | Corymbose (50%)Encrusting (42%)Tree (8%) | Encrusting (75%)Articulated (25%) | Encrusting (50%)M.-Enc. (25%)*Others (25%)* | Foliose Erect (38%)Filaments (37%)*Others (25%)* | Stolonial (100%) | Cup (75%)Corymbose (25%)  | Tree (100%) |
| **Coloniality** | Colonial (100%) | Colonial (83%)Solitary (17%) | Solitary (100%) | Colonial (75%)Solitary (25%) | Solitary (88%)Colonial (12%) | Colonial (100%) | Solitary (75%)Colonial (25%) | Colonial (100%) |
| **Longevity**  | High (67 %)Very High (33%) | High (58.%)Medium (25%)Low (17%) | High (75%)Medium (25%) | Low (38%)Medium (37%)Very Low (25%) | Low (62%)Medium (25%)Very Low (13%) | Medium (67%)High (33%) | Very High (75%)High (25%) | Very High (100%) |
| **Height** | Very Low (33%)Medium (25%)*Others (42%)* |  Very Low (50%)Low (25%)*Others (25%)* | Low (50%)Very Low (50%) | Very Low (50%)Low (37%)Medium (13%) | Low (50%)Medium (25%)*Others (25%)* | Medium (100 %) | Low (100 %) | Very High (50%)High (50%) |
| **Width** | Moderate (58%)High (25%)Very High (18%) | Low (42%)High (25%)*Others (33%)* | Medium (50%)Low (25%)High (25%) | Very Low (38%)Low (37%)*Others (25%)* | Low (88%)Medium (12%) | Medium (67%)Low (33%) | Low (75%)Medium (25%) | Very High (50%)High (50%) |
| **Epibiosis** | Never (59%)Facultative (41%) | Facultative (75%)Never (17 %)Obligate (8 %) | Never (50%)Facultative (50%) | Facultative (50%)Never (38%)Obligate (12%) | Facultative (88%)Never (12%) | Facultative (100%) | Never (75%)Facultative (25%) | Never (100%) |
| **Energetic resource** | Heterotroph (75%)Mixed (25%) | Heterotroph (100%) | Autotroph (100%) | Heterotroph (75%)Autotroph (13 %)Mixed (12 %) | Autotroph (100%) | Autotroph (100%) | Heterotroph (100%) | Heterotroph (100%) |
| **Major photosynt. pigment** | None (75%)Cyanobacteria (17%)Dinoflagellate (8%) | None (100%) | Red pigment (75%)Green pigment (25%) | None (75%)Red pigment (13%)Mixture (12%) | Brown pigment (38%)Red pigment (25%)Others (37%) | Green pigment(100%) | None(100%) | None(100%) |
| **Feeding strategy** | F.F by pumping (100%) | A.F.F ciliated (92%)P.F.F (8.%) | None (100%) | F.F by pumping (50%)A.F.F ciliated (12%)*Others (38%)* | None (100%) | None (100%) | P.F.F (100%) | P.F.F (100%) |
| **Age at reproduction** | Moderate (100 %) | Moderate (58%)Low (42%) | Low (100%) | Low (63%)Very Low (25 %)Moderate (12%) | Low (88%)Very Low (12%) | Moderate (67%)Low (33%) | Moderate (100%) | High (100%) |
| **Growth rates** | Moderate (75%)High (8%)*Others (17 %)* | Moderate (75%)High (17%)Extreme slow (8%) | High (75 %)Moderate (25%) | High (50 %)Very High (38%)Moderate (12%) | Very High (88%)Moderate (12%) | Moderate (67%)Very High (33%) | Slow (50%)Extreme Slow (25%)High (25%) | Extreme Slow (50%)Moderate (50%) |
| **Physical defenses** | No-Calc. Spic (83%)Calc. Spi/Scl (17%) | Carb. Cont. (92%)No phys. defense (8%) | Carb. discount. (50%)Carb. Cont. (2 %)None (25%) | None (63%)Carb. discount. (25%)Mixture (13%) | None (100%) | Carb. discount. (67%)None (33%) | Carb. Cont. (75%)None (25%) | Calc. Spi/Scler (100%) |

**Table S5. Source references (N=236) for species trait information used to code the coarsely categorized (nominal / ranked) trait values of the 111 coralligenous taxonomic units included in the analyses. NA;** Not applicable**. ETM;** Expertise of Team Member**.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Morphology | Coloniality  | Maximum longevity | Height | Width | Epibiosis | Energetic resource | Major photos.pigment  | Feeding strategy | Age at rep. maturity | Growth rates | Physical defenses |
| **Bryozoa**  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Adeonella calveti* | 1,2, 3, 4,5, 11 | 11,14 | 12 | 2,4,5, 11,15 | 2,6,5,11,15 | ETM  | 6, 7 | NA | 6, 7 | 12, | 9  | 5,8,10,11,13 |
| *Caberea boryi* | 2,3,11,16,17  | 11,14 | 12 | 2,3,4,11,17 | 2,3,4,11,17 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11,13,17 |
| *Cellaria sp.* | 6,7,9,18,19 | 11,14 | 12  | 2,3,4,11,19 | 2,3,4,11,19 | ETM | 6,7 | NA | 6,7 | 12, | 20,21 | 10, 11, 13,19 |
| *Celleporina sp.*  | 22,23,24,25, 26 | 11,14,26 | 12,26 | 11,24,25,26 | 11,24,25,26 | ETM | 6,7, | NA | 6,7 | 12, | 9,26 | 10,11,13,24,26 |
| *Chartella tenella* | 2, 8, 27,28 | 11,14 | 12 | 11,28, 29 | 11,28,29 | ETM  | 6,7 | NA | 6,7 | 12, | 9 | 8,10,11, 28 |
| *Crisia sp.*  | 11, 30 | 11,14 | 12 | 11 | 11 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10, 11 |
| *Dentiporella sardonica* | 2,11, 31,32,33 | 11,14 | 12 | 11 | 11 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 2,8,10,32,33 |
| *Disporella hispida*  | 2,3,4,23,33,34, 35 | 11,14 | 12 | 35 | 35 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 2,3,4,10,11,33,35 |
| *Encrusting Bryozoa no.id. orange* | ETM | 11,14 | 12 | ETM | ETM | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11 |
| *Gregarinidra gregaria* | 23,36 | 11,14 | 12 | ETM | ETM | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11 |
| *Idmidronea sp.*  | 2,37, 38,39,40 | 11,14 | 12 | 11,40 | 11,40 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11,38,39,40 |
| *Lichenophora radiata* | 11,26 | 11,14 | 12 | 26 | 26 | ETM, 26 | 6,7 | NA | 6,7 | 12, | 9 | 10,11,26 |
| *Myriapora truncata* | 2,3,4, 11,23, 41,42,43 | 11,14 | 12 | 15,43 | 15,43 | ETM  | 6,7 | NA | 6,7 | 12, | 9,44 | 10,11,42,43 |
| *Pentapora fascialis* | 2,3,4,11,45,46 | 11,14 | 12,47 | 15,47,48 | 15,47,48 | ETM | 6,7 | NA | 6,7 | 12, | 9,50 | 10,11,46 |
| *Reteporella grimaldii* | 2,3,4,11,51,52 | 11,14 | 12 | 15 | 15 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11,52 |
| *Schizomavella linearis* | 2,23,53,54 | 11,14 | 12 | 54 | 54 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11,54 |
| *Schizomavella mamillata*  | 2,11,55 | 11,14 | 12 | 11,55 | 11,55 | ETM  | 6,7 | NA | 6,7 | 12, | 9 | 10,11,55 |
| *Scrupocellaria sp.*  | 2,11,56,57 | 11,14 | 12 | 11 | 11 | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11,57 |
| *Smittoidea sp.* | 11, 58 | 11,14 | 12 | ETM | ETM | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11 |
| *Turbicellopora sp.* | 11,26,59 | 11,14 | 12 | ETM | ETM | ETM | 6,7 | NA | 6,7 | 12, | 9 | 10,11 |
| **Cnidaria** |  |  |  |  |  |  |  |  |  |  |  |  |
| *Caryophyllia inornata* | 4,23,60,61,62 | 60,62,63 | 60,64 | 60,61 | 60,61 | ETM  | 62, 65 | NA | 62,65 | 60 | 60,61,64, 66 | 61,62,63 |
| *Corallium rubrum* | 26,68,69 | 4,69 | 68,69,70 | 68 | 68 | ETM | 4,71 | NA | 4, 71  | 72,73 | 64,68,69,72,74,73,,70 | 75,76 |
| *Corynactis viridis* | 4,77 | 4,77 | ETM | 77 | 77 | ETM | 4,77 | NA | 4,77 | ETM | ETM | 77 |
| *Eunicella cavolinii* | 4,23,78,79 | 4,80 | 79,81 | 79,80,82,83 | 79,80,82,83 | ETM | 4,84 | NA | 4,84 | 79 | 79,81,85 | 84 |
| *Hoplangia durotrix* | 86,87 | 87, | 88 | 87 | 87 | ETM  | 87  | NA | 87  | ETM  | 88 | 88 |
| *Leptopsammia pruvoti* | 4,23,89,90 | 4,90  | 64,91 | 90,91 | 90,91 | ETM | 90 | NA | 90 | 92 | 64,91 | 4,91 |
| *Paramuricea clavata* | 23,93 | 94,95 | 96 | 96  | 96  | ETM | 97  | NA  | 97  | 99100 | 9495 | 4,98 |
| *Parazoanthus axinellae* | 23,101,102 | 3,4,102 | 69,102 | 102 | 102 | ETM | 102 | NA | 102 | ETM  | 102 | 3,4,102 |
| **Foraminifera**  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Miniacina miniacea* | 4,23,103 | 4,104,105 | ETM | 4,105 | 4,105 | ETM  | 105 | NA | 105 | ETM  | ETM  | 4,105 |
| **Hydrozoa**  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Aglaophenia sp.*  | 106,ETM  | 106 | 106 | 106 | 106 | ETM | 106 | NA | 106 | 106 | 106 | 106 |
| *Dynamena laomedea* | 106,ETM | 106 | 106 | 106 | 106 | ETM | 106 | NA | 106 | 106 | 106 | 106 |
| *Eudendrium sp.*  | 106,ETM | 106 | 106 | 106 | 106 | ETM  | 106 | NA | 106 | 106 | 106 | 106 |
| *Hydrozoa turf*  | 106,ETM | 106 | 106 | 106 | 106 | ETM | 106 | NA | 106 | 106 | 106 | 106 |
| **Polychaeta**  |  |  |  |  |  | ETM |  |  |  |  |  |  |
| *Filograna implexa / Salmacina dysteri* | 107  | 108 | ETM | 4,108 | 4,108 | ETM | 108,109 | NA | 108,109 | 108 | 108 | 108 |
| *Protula sp./ Serpula vermicularis* | 3,4,23,111  | 3,4,109,110 | 112 | 3,4,111 | 3,4,111 | ETM  | 109,111 | NA | 109,111 | 112 | 113 | 110,111 |
| *Serpulidae*  | 23  | 110 | ETM  | ETM | ETM  | 6  | 109 | NA | 109 | ETM | ETM | 110  |
| **Porifera**  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Acanthella acuta* | 3,4,23,114,115,116  | 116,117 | 118 | 115 | 115 | ETM  | 119,120 | NA | 119,120 | ETM  | 118 | 115,121 |
| *Agelas oroides*  | 3,4,23,122,123  | 116,117 | 124 | 123  | 123 | ETM | 119,120 | NA | 119,120 | ETM | 121  | 121,123  |
| *Aplysina cavernicola* | 4,23,125 | 116,117 | 64 | 126 | 126 | ETM | 119,120 | NA | 119,120 | ETM | 64,127 | 121,126 |
| *Axinella damicornis* | 4,23,128,129 | 116,117 | 118 | 129 | 129 | ETM | 119,120 | NA | 119,120 | ETM | 118 | 121,129 |
| *Cacospongia mollior type*  | 130,131,132 | 116,117 | 26,64,118 | 26,131 | 26,131 | ETM  | 119,120 | NA | 119,120 | ETM | 26,64,118 | 121,132 |
| *Chondrosia reniformis* | 3,4,133,134 | 116,117 | 26,64 | 26,134 | 26,134 | ETM | 119,120 | NA | 119,120 | 26  | 26,64,135 | 121,134 |
| *Clathrina clathrus* | 3,4,23,136,137 | 116,117 | 135 | 137 | 137 | ETM | 119,120 | NA | 119,120 | ETM  | 135 | 121,137 |
| *Clathrina coriacea*  | 3,4,23,138,140 | 116,117 | 139 | 140 | 140 | ETM | 119,120 | NA | 119,120 | 141 | 139 | 121,140 |
| *Cliona sp.* | 3,4,23,141,142,143 | 116,117 | ETM | 143 | 143  | ETM  | 119,120 | NA | 119,120 | ETM | ETM  | 121,144 |
| *Corticium candelabrum* | 23,116,145,146 | 116,117 | 147 | 146,147 | 146,147 | ETM | 119,120 | NA | 119,120 | ETM | 147 | 121,146 |
| *Crambe crambe* | 3,4,23,26,148,149 | 116,117 | 26,64 | 26,149,150 | 26,149,150 | ETM | 119,120 | NA | 119,120 | 26,150 | 26,150,151,152 | 121,149  |
| *Crella pulvinar* | 23,116,153,154 | 116,117 | 118 | 154 | 154 | ETM | 119,120 | NA | 119,120 | ETM | ETM  | 121,154 |
| *Dendroxea lenis* | 23,116,155,156 | 116,117 | ETM | ETM  | ETM  | ETM  | 119,120 | NA | 119,120 | ETM  | ETM  | 121,156 |
| *Dysidea avara* | 23,157,159  | 116,117 | 118 | 131 | 131 | ETM | 119,120,123 | NA | 119,120,123 | 118 | 160,161 | 121,159 |
| *Fasciospongia cavernosa*  | 23,131,162,162 | 116,117 | ETM | 163 | 163 | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121,163 |
| *Haliclona fulva* | 23,164,165 | 116,117 | 64,118,166  | 165 | 165 | ETM | 119,120 | NA | 119,120 | 64,118  | 64,118 | 121,165 |
| *Haliclona mediterranea*  | 23,26166,167,168,  | 116,117 | 26 | 26,168 | 26,168 | ETM  | 119,120 | NA | 119,120 | 26 | 26 | 26,121,168 |
| *Haliclona mucosa* | 23,116,166,169,170 | 116,117 | 166 | 170 | 170 | ETM | 119,120 | NA | 119,120 | ETM | 64  | 121,170 |
| *Hemymicale columella* | 23,171,173,176  | 116,117 | 175  | 176 | 176  | ETM | 119,120 | NA | 119,120 | 172,175  | 135,174 | 121,173 |
| *Hexadella pruvoti*  | 23,177,178 | 116,117 | ETM  | 178 | 178 | ETM | 119,120 | NA | 119,120 | ETM  | ETM | 121,178 |
| *Hexadella racovitzai* | 23,116,179,180 | 116,117 | ETM  | 180 | 180 | ETM  | 119,120 | NA | 119,120 | ETM | ETM | 121,180 |
| *Inv. mix. sponge thin layers* |  ETM | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Ircinia oros type* | 23,181,182  | 116,117 | 118 | 182 | 182 | ETM | 119,120 | NA | 119,120 | EMT  | 183  | 121,182 |
| *Ircinia variabilis*  | 23,184,185 | 116,117 | 118 | 185 | 185 | ETM | 119,120 | NA | 119,120 | ETM  | 183 | 121,185 |
| *Oscarella balibaloi* | 23,186,187 | 116,117 | 118 | 187 | 187 | ETM  | 119,120 | NA | 119,120 | ETM | 118,135 | 121,187,188 |
| *Other sponge black encr.* | ETM | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Other sponge green encr.* | ETM | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Other sponge grey/white enc.* | ETM | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Other sponge grey/white massv.* | ETM | 116,117 | ETM | ETM | ETM | ETM  | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Other sponge orange encr.* | ETM | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Other sponge red encr* | ETM | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Other sponge yellow encr.*  | ETM | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Petrosia ficiformis* | 23,26,189,190,191  | 116,117 | 26,64  | 26,190  | 26,190 | ETM  | 119,120 | NA | 119,120 | 26 | 26,124 | 26,121,190,191 |
| *Phorbas tenacior*  | 4,23,192,193 | 116,117 | ETM | 193 | 193 | ETM | 119,120 | NA | 119,120 | ETM  | ETM  | 121,193 |
| *Plakina sp.* | 23,194 | 116,117 | ETM | ETM | ETM | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121 |
| *Pleraplysilla spinifera* | 23,84,116,195,196 | 116,117 | 118 | 4,196 | 4,196 | ETM | 119,120 | NA | 119,120 | 118 | 118 | 121,196 |
| *Prosuberites longispinus*  | 23,116,197,198 | 116,117 | ETM  | 198 | 198 | ETM  | 119,120 | NA | 119,120 | ETM  | ETM  | 121,198 |
| *Spongia virgultosa*  | 131,199,200 | 116,117 | ETM | 131,200 | 131,200 | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121,131,200 |
| *Spongosorites intrincatus* | 201 | 116,117 | ETM | 201 | 201 | ETM | 119,120 | NA | 119,120 | ETM | ETM | 121,201 |
| **Tunicata** |  |  |  |  |  |  |  |  |  |  |  |  |
| *Aplidium conicum* | 4,202  | 202 | 204, 205  | 202 | 202,204 | ETM  | 202,204 | NA | 202,204  | 205 | 206 | 202,203 |
| *Aplidium fuscum* | 207 | 207 | 205 | 207 | 207 | ETM | 204,207 | NA | 204,207 | 205 | ETM | 203,207 |
| *Clavelina dellavalei* | 4,208,209 | 209 | 205 | 205 | 205 | ETM | 204,209 | NA | 204,209 | 205 | ETM | 203,209 |
| *Clavelina lepadiformis* | 3,4,210,211 | 211 | 205 | 211 | 211 | ETM | 204,205,211 | NA | 204,205,211 | 205 | 150 | 203,211 |
| *Didemnum vexillum* | ETM  | ETM | 205 | ETM | ETM | ETM  | 205 | NA | 205 | 205  | ETM  | 203 |
| *Halocynthia papillosa*  | 3,4,23,212,213 | 213 | 214 | 213,214 | 213,214 | ETM | 204,213,214,215 | NA | 204,213,214,215 | 214 | 215 | 203,214 |
| *Pycnoclavella sp.*  | ETM | ETM | 205 | ETM | ETM | ETM |  204 | NA |  204 | 205 | ETM  | 203 |
| **Mixture complex**  | ETM | ETM | ETM | ETM | ETM | ETM | ETM | ETM | ETM | ETM | ETM | ETM |
| **Algal turf**  | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 | 26 |
| **Chlorophyta** |  |  |  |  |  |  |  |  |  |  |  |  |
| *Bryopsis sp.*  | 26,216 | 26,216 | 26 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26 | 26,216 |
| *Caulerpa cylindracea* | 26,217 | 26,216 | 26 | 26,217 | 26,217 | 26,217 | 26,217 | 26,217 | 26,217 | 26,216 | 26 | 26,217 |
| *Chondria sp.* | 26,216 | 26,216 | 26 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 218 | 26,216 |
| *Flabellia petiolata* | 2,26,216,220 | 26,216,220 | 26 | 26,216,220 | 26,216,220 | 26,216,220 | 26,216,220 | 26,216,220 | 26,216,220 | 26,216 | 26 | 26,216,220 |
| *Halimeda tuna* | 4,26,216,221,222 | 26,216,222 | 26 | 26,216,222 | 26,216,222 | 26,216,222 | 26,216,222 | 26,216,222 | 26,216,222 | 26,222 | 26 | 26,216,222 |
| *Palmophyllum crassum* | 216,223,224,225 | 216,218,224,225 | 216,224 | 216,224,225 | 216,224 | 216,224 | 216,224,225 | 216,224,225 | 216,224,225 | 216,224 | 218 | 216,224,225 |
| *Valonia macrophysa*  | 26,216,218,226,227 | 26,216,218,227 | 26,216,227 | 26,216,227 | 26,216,218,227 | 26,216,218,227 | 26,216,218,227 | 26,216,218,227 | 26,216,218,227 | 26,216, | 26 | 26,216,218,227 |
| **Phaeophyta**  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Brown macroalgae erect no.id* | 216 | 216 | 216,218 | ETM | ETM | 216,218 | 216,218 | 216,218 | 216,218 | 218 | 218 | 216,218 |
| *Dictyota dichotoma var. intr.* | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26 | 26 | 26,216 |
| *Dictyota sp.* | 4,26,216,218,228 | 26,216,218,228 | 26,216,218,228 | 26,216, 228 | 26,216,228 | 26,216,218,228 | 26,216,218,228 | 26,216,218,228 | 26,216,218,228 | 26,218,228 | 26,218 | 26,216,218,228 |
| *Dictyopteris membranacea*  | 216 | 216,218 | 216,218 | 216 | 216 | 216,218 |  216,218 | 216,218 | 216,218 | 218 | 218 | 216,218 |
| *Padina pavonica* | 3,4,26,216,229 | 26,216,229 | 26,216,229 | 26,216,229 | 26,216,229 | 26,216,229 | 26,216,229 | 26,216,229 | 26,216,229 | 26 | 26 | 26,216,229 |
| *Sargassum vulgare* | 216 | 216,218 | 216,218 | 216 | 216 | 216,218 | 216,218 | 216,218 | 216 | 218 | 218 | 216 |
| **Rhodophyta**  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Corallina elongata* | 4,26,216,230 | 26,216,230 | 26,216,230 | 26,216,230 | 26,216,230 | 26,216,230 | 26,216,230 | 26,216,230 | 26,216,230 | 26 | 26 | 26,216,230 |
| *Encrusting calcareous no id.* | 216 | 216 | 216,218 | 216 | 216 | 216,218 | 216,218 | 216,218 | 216,218 | 218 | 231 | 216 |
| *Erect corallinacea no id.*  | 216 | 216 | 216,218 | 216 | 216 | 216,218 | 216,218 | 216,218 | 216,218 | 218 | ETM | 216 |
| *Erytroglossum sandrianum* | 216,232 | 216,232 | 216,218 | 216,232 | 216,232 | 216,232 | 216,232 | 216,232 | 216,232 | 218 | ETM | 216,232 |
| *Filamentous Falkenbergia type* | 216 | 216 | 216,218 | 216 | 216 | 216 | 216 | 216 | 216 | 216 | ETM | 216 |
| *Haliptilon virgatum* | 26,216 | 26,216 | 26 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26 | 26 | 26,216 |
| *Hildebrandia rubra*  | 216,225,233 | 216,225,233 | 216,225,233 | 216,225,233 | 216,225,233 | 216,225,233 | 216,225,233 | 216,225,233 | 216,225,233 | 216,225,233 | 26 | 26,216,225,233 |
| *Liagora sp.* | 216 | 216 | 216,218 | 216 | 216 | 216,218 | 216,218 | 216,218 | 216,218 | 218 | ETM | 216 |
| *Lithophyllum stictaeforme* | 4,216,225,234 | 216,234 | 216,225,234 | 216,225,234 | 216,225,234 | 216,225,234 | 216,225,234 | 216,225,234 | 216,225,234 | 225,234 | 225,235 | 216,225,234 |
| *Mesophyllum alternans*  | 216,231 | 216,231 | 231 | 216,231 | 216,231 | 216 | 216 | 216 | 216 | 231 | 231 | 216 |
| *Peysonnellia squamarina*  | 4,26,216,225,236 | 26,216,236 | 26 | 26,216,225,236 | 26,216,225,236 | 26,216,225,236 | 26,216,225,236 | 26,216,225,236 | 26,216,236 | 26 | 26 | 26,216,236 |
| *Red macroalgae laminar no. Id* | 216 | 216 | 216,218 | 216 | 216 | 216 | 216 | 216 | 216 | 218 | ETM | 216 |
| *Rhodymenia ardissone* | 26,216 | 26,216 | 26 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26,216 | 26 | 26 | 26,216 |

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