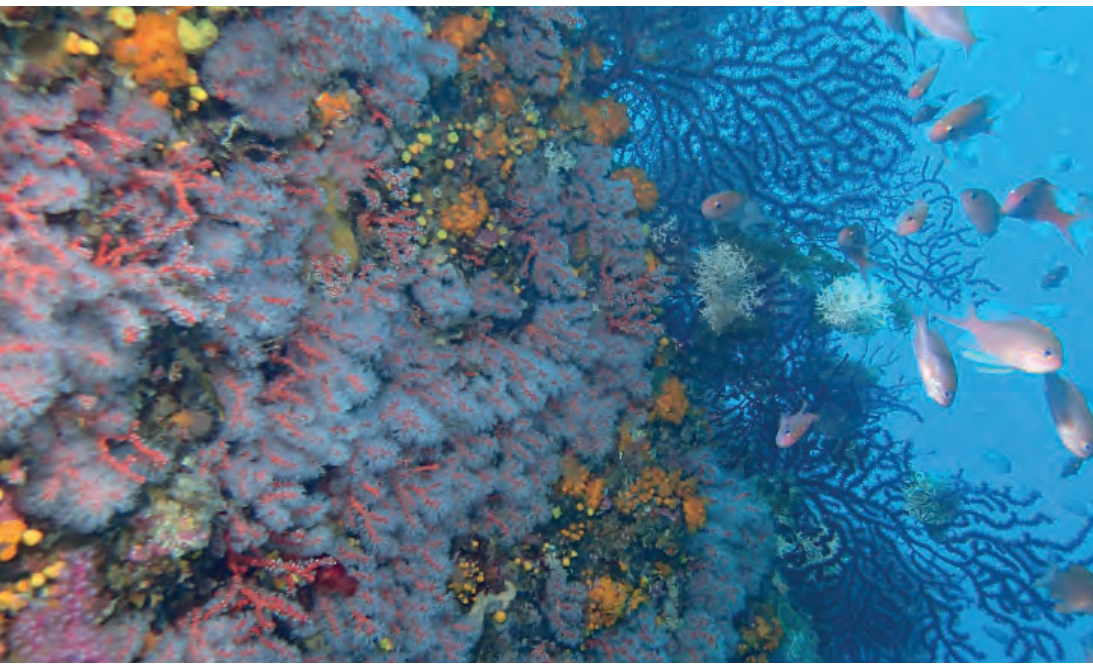


## Updated Reference List of Marine Habitat Types for the Selection of Sites to be Included in the National Inventories of Natural Sites of Conservation Interest in the Mediterranean



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## Decision IG.24/7

### **Strategies and Action Plans under the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, including the SAP BIO, the Strategy on Monk Seal, and the Action Plans concerning Marine Turtles, Cartilaginous Fishes and Marine Vegetation; Classification of Benthic Marine Habitat Types for the Mediterranean Region, and Reference List of Marine and Coastal Habitat Types in the Mediterranean**

*The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols at their 21<sup>st</sup> Meeting,*

*Recalling* the outcome document of the United Nations Conference on Sustainable Development, entitled “The future we want”, endorsed by the General Assembly in its resolution 66/288 of 27 July 2012, in particular those paragraphs relevant to biodiversity,

*Recalling also* General Assembly resolution 70/1 of 25 September 2015, entitled “Transforming our world: the 2030 Agenda for Sustainable Development”, and acknowledging the importance of conservation, the sustainable use and management of biodiversity in achieving the Sustainable Development Goals,

*Recalling further* the United Nations Environment Assembly resolutions UNEP/EA.4/Res.10 of 15 March 2019, entitled “Innovation on biodiversity and land degradation”,

*Bearing in mind* the international community’s commitment expressed in the Ministerial Declaration of the United Nations Environment Assembly at its fourth session to implement sustainable ecosystems restoration, conservation and landscape management measures to combat biodiversity loss, as well as to develop an ambitious and realistic post-2020 global biodiversity framework,

*Noting with appreciation* the comprehensive and preparatory process for the development of an ambitious and transformational post-2020 global biodiversity framework,

*Having regard* to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, in particular Articles 11 and 12 thereof, addressing national and cooperative measures for the protection and conservation of species,

*Recalling* the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAP BIO), adopted by the Contracting Parties at their 13<sup>th</sup> Meeting (COP 13) (Catania, Italy, 11-14 November 2003),

*Recalling also* the Catania Declaration, adopted by the Contracting Parties at their 13<sup>th</sup> Meeting (COP 13), by which the Contracting Parties agreed, *inter alia*, that the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAP BIO) constitutes a major contribution to the sustainable development in the Mediterranean and should be implemented, as appropriate, and followed up effectively with adequate support and resources,

*Recalling further* Decision IG.22/7, adopted by the Contracting Parties at their 19<sup>th</sup> Meeting (COP 19) (Athens, Greece, 9-12 February 2016), on the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria,

*Recalling* Decision IG.23/8, adopted by the Contracting Parties at their 20<sup>th</sup> Meeting (COP 20) (Tirana, Albania, 17-20 December 2017), on Updated Action Plan for the Conservation of Marine and Coastal Bird Species listed in annex II to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean and Updated Reference List of Marine and Coastal Habitat Types in the Mediterranean, which requested the Specially Protected Areas Regional Activity Centre to finalize, in consultation with Focal Points, the classification of benthic marine habitat types for the Mediterranean region and the Reference List of Marine and Coastal Habitat Types in the

Mediterranean, with a view of submitting them to the Contracting Parties at their 21<sup>st</sup> Meeting (Naples, Italy, 2-5 December 2019),

*Recalling also* the mandate of SPA/RAC within the MAP-Barcelona Convention System and its relevance to the implementation of this Decision,

*Noting with appreciation* the efforts so far undertaken by the Contracting Parties and relevant organisations to the implementation of the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAP BIO), stressing the need to continue to concentrate efforts and resources to ensure an effective implementation of the SAP BIO,

*Bearing in mind* the developments in the Mediterranean Action Plan-Barcelona Convention work since the adoption of the Conservation of Biological Diversity in the Mediterranean Region (SAP BIO), as well as ongoing biodiversity-driven global processes, such as the Post-2020 Global Biodiversity Framework,

*Taking into account* the results of the assessment of the implementation of the Regional Strategy for the Conservation of Monk Seal in the Mediterranean, the Action Plan for the Conservation of Mediterranean Marine Turtles, the Action Plan for the Conservation of Cartilaginous Fishes (Chondrichthyans) in the Mediterranean Sea and the Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea,

*Committed* to further streamlining the Mediterranean Action Plan Ecological Objectives and associated Good Environmental Status and Targets, as well as the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria into the Regional Action Plans for the conservation of endangered and threatened species and key habitats adopted within the framework of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean,

*Having considered* the outcomes of the 14<sup>th</sup> Meeting of Specially Protected Areas and Biological Diversity Thematic Focal Points (Portoroz, Slovenia, 18-21 June 2019)<sup>1</sup>,

1. *Request* the Secretariat to prepare in 2020-2021 the “Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region” (Post-2020 SAP BIO), aligned with the Sustainable Development Goals, harmonised with the CBD Post-2020 Global Biodiversity Framework through the optic of the Mediterranean context, and following the recommendations and roadmap proposed in the evaluation document<sup>2</sup>, as set out in the Annex I to the present Decision, and submit it for consideration by the Contracting Parties at their 22<sup>nd</sup> Meeting (COP 22);

2. *Invite* the relevant organisations, in particular the members of the SAP BIO Advisory Committee, to contribute in developing the new Post-2020 SAP BIO;

3. *Adopt* the Updated Strategy for the Conservation of Monk Seal in the Mediterranean, the Updated Action Plan for the Conservation of Mediterranean Marine Turtles, the Updated Action Plan for the Conservation of Cartilaginous Fishes (Chondrichthyans) in the Mediterranean Sea and the Updated Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea, as set out in Annexes II, III, IV and V to the present Decision;

4. *Request* the Contracting Parties to take the necessary measures for the implementation of the updated Strategy and Action Plans and to report on their implementation in a timely manner, using the online Barcelona Convention reporting system;

<sup>1</sup> See UNEP/MED WG.468/Inf.7 (“Reports of the MAP Components’ Focal Points Meetings (April-June 2019)”: Report of the Fourteenth Meeting of SPA/BD Thematic Focal Points (UNEP/MED WG.461/28))

<sup>2</sup> See UNEP/MED WG.468/Inf.11, (“Evaluation of the implementation of the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAP BIO) and orientations for the elaboration of a post-2020 SAP BIO, as reviewed by the Fourteenth Meeting of SPA/BD Thematic Focal Points”)

5. *Also request* the Secretariat, to continue to provide technical support and capacity building for the full and effective implementation of the updated Strategy and Action Plans;

6. *Further request* the Secretariat to update the Action Plan for the conservation of cetaceans in the Mediterranean Sea and the Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea and submit them for adoption by the Contracting Parties at their 22<sup>nd</sup> Meeting (COP 22);

7. *Adopt* the Updated Classification of benthic marine habitat types for the Mediterranean region and the Updated Reference List of Marine Habitat Types for the Selection of Sites to be included in National Inventories of Natural Sites of Conservation Interest in the Mediterranean, as set out in annexes VI and VII to the present Decision;

8. *Encourage* the Contracting Parties to use the Reference List of Marine Habitat Types for the Selection of Sites to be included in National Inventories of Natural Sites of Conservation Interest in the Mediterranean, where necessary, as a basis for identifying reference habitats to be monitored at the national level under the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria.

**Updated Reference List of Marine Habitat  
Types for the Selection of Sites to be Included  
in the National Inventories of Natural Sites of  
Conservation Interest in the Mediterranean**

**LITTORAL**

## MA1.5 Littoral rock

## MA1.51 Supralittoral rock

MA1.51a Supralittoral euryhaline and eurythermal pools (enclave of mediolittoral)

MA1.51b Wracks of dead leaves of macrophytes

## MA1.52 Mediolittoral caves

## MA1.53 Upper mediolittoral rock

MA1.531 Association with encrusting Corallinales creating belts (e.g. *Lithophyllum bissoides*, *Neogoniolithon* spp.)

## MA1.54 Lower mediolittoral rock

MA1.541 Association with encrusting Corallinales creating belts (e.g. *Lithophyllum bissoides*, *Neogoniolithon* spp.)

MA1.542 Association with Fucales

MA1.544 Facies with *Pollicipes pollicipes*MA1.545 Facies with Vermetidae (*Dendropoma* spp.) (vermetid reefs)

MA1.54a Mediolittoral euryhaline and eurythermal pools (enclave of infralittoral)

## MA2.5 Littoral biogenic habitat

## MA2.51 Lower mediolittoral biogenic habitat

MA2.511 Association with encrusting Corallinales creating platforms

MA2.512 Facies with *Sabellaria* spp. (reefs of *Sabellaria*)MA2.513 Facies with Vermetidae (*Dendropoma* spp.) (vermetid reefs)MA2.51a Banks of dead leaves of macrophytes (*banquette*)

## MA3.5 Littoral coarse sediment

## MA3.51 Supralittoral coarse sediment

MA3.511 Association with macrophytes

MA3.51a Deposit of dead leaves of macrophytes

## MA3.52 Mediolittoral coarse sediment

MA3.521 Association with indigenous marine angiosperms

MA3.52a Deposit of dead leaves of macrophytes

## MA4.5 Littoral mixed sediment

## MA4.51 Supralittoral mixed sediment

MA4.511 Association with macrophytes

MA4.51a Deposit of dead leaves of macrophytes

## MA4.52 Mediolittoral mixed sediment

MA4.521 Association with indigenous marine angiosperms

MA4.52a Deposit of dead leaves of macrophytes

MA5.5 Littoral sand

MA5.51 Supralittoral sands

MA5.511 Association with macrophytes

MA5.51a Deposit of dead leaves of macrophytes

MA5.52 Mediolittoral sands

MA5.521 Association with indigenous marine angiosperms

MA5.52a Deposit of dead leaves of macrophytes

MA6.5 Littoral mud

MA6.51 Supralittoral mud

MA6.511 Association with macrophytes

MA6.52 Mediolittoral mud

MA6.52a Habitats of transitional waters (e.g. estuaries and lagoons)

MA6.521a Association with halophytes (*Salicornia* spp.) or marine angiosperms (e.g. *Zostera noltei*, *Ruppia maritima*)

## **INFRALITTORAL**

MB1.5 Infralittoral rock

MB1.51 Algal-dominated infralittoral rock

MB1.51a Well illuminated infralittoral rock, exposed

MB1.511a Association with Fucales

MB1.513a Association with encrusting Corallinales creating belts (e.g. *Titanoderma trochanter*, *Tenarea tortuosa*)

MB1.514a Association with indigenous Mediterranean *Caulerpa* spp.

MB1.516a Facies with Scleractinia (e.g. *Cladocora caespitosa*)

MB1.51b Moderately illuminated infralittoral rock, exposed

MB1.512b Association with indigenous Mediterranean *Caulerpa* spp.

MB1.515b Facies with Scleractinia (e.g. *Astroides calycularis*)

MB1.51c Well illuminated infralittoral rock, sheltered

MB1.511c Association with Fucales

MB1.514c Association with indigenous Mediterranean *Caulerpa* spp.

MB1.516c Facies with Scleractinia (e.g. *Cladocora caespitosa*)

MB1.51d Moderately illuminated infralittoral rock, sheltered

MB1.512d Association with indigenous Mediterranean *Caulerpa* spp.

MB1.514d Facies with Alcyonacea (e.g. *Eunicella* spp.)

MB1.51e Lower infralittoral rock moderately illuminated

MB1.511e Association with Fucales



- MB1.512e Association with Laminariales (kelp beds)
- MB1.513e Association with indigenous Mediterranean *Caulerpa* spp.
- MB1.515e Facies with Alcyonacea (e.g. *Eunicella* spp.)
- MB1.516e Facies with Scleractinia (e.g. *Cladocora caespitosa*)
- MB1.52 Invertebrate-dominated infralittoral rock
  - MB1.52a Moderately illuminated infralittoral rock, sheltered
    - MB1.521a Association with indigenous Mediterranean *Caulerpa* spp.
    - MB1.524a Facies with Scleractinia (e.g. *Astroides calycularis*, *Cladocora caespitosa*, *Polycyathus muellerae*, *Pourtalosmia anthophyllites*)
    - MB1.525a Facies with Alcyonacea (e.g. *Eunicella* spp., *Paramuricea clavata*, *Corallium rubrum*)
- MB1.53 Infralittoral rock affected by sediments
  - MB1.532 Facies with large and erect sponges (e.g. *Axinella polypoides*, *Axinella cannabina*)
  - MB1.533 Facies with Scleractinia (e.g. *Cladocora caespitosa*)
  - MB1.534 Facies with Alcyonacea (e.g. *Eunicella* spp., *Leptogorgia* spp.)
  - MB1.537 Facies with endolithic species (e.g. *Lithophaga lithophaga*, *Cliona* spp.)
- MB1.54 Habitats of transitional waters (e.g. estuaries and lagoons)
  - MB1.541 Association with marine angiosperms or other halophytes
  - MB1.542 Association with Fucales
- MB1.55 Coralligenous (enclave of circalittoral, see MC1.51)
- MB1.56 Semi-dark caves and overhangs (see MC1.53)
- MB2.5 Infralittoral biogenic habitat
  - MB2.51 Reefs in algal-dominated habitat
    - MB2.511 Facies with Vermetidae (*Dendropoma* spp.) (vermetid reefs)
  - MB2.52 Reefs on fine sand in very shallow waters
    - MB2.521 Facies with *Sabellaria* spp. (reefs of *Sabellaria*)
  - MB2.53 Reefs of *Cladocora caespitosa*
  - MB2.54 *Posidonia oceanica* meadows
    - MB2.541 *Posidonia oceanica* meadow on rock
    - MB2.542 *Posidonia oceanica* meadow on matte
    - MB2.543 *Posidonia oceanica* meadow on sand, coarse or mixed sediment
    - MB2.545 Natural monuments/Ecomorphoses of *Posidonia oceanica* (fringing reef, barrier reef, atolls)
    - MB2.546 Association of *Posidonia oceanica* with *Cymodocea nodosa* or *Caulerpa* spp.

MB2.547 Association of *Cymodocea nodosa* or *Caulerpa* spp. with dead  
matte of *Posidonia oceanica*

MB3.5 Infralittoral coarse sediment

MB3.51 Infralittoral coarse sediment mixed by waves

MB3.511 Association with maërl or rhodolithes (e.g. *Lithothamnion* spp.,  
*Neogoniolithon* spp., *Lithophyllum* spp., *Spongites fruticulosa*)

MB3.52 Infralittoral coarse sediment under the influence of bottom currents

MB3.521 Association with maërl or rhodolithes (e.g. *Lithothamnion* spp.,  
*Neogoniolithon* spp., *Lithophyllum* spp., *Spongites fruticulosa*)

MB5.5 Infralittoral sand

MB5.52 Well sorted fine sand

MB5.521 Association with indigenous marine angiosperms

MB5.53 Fine sand in sheltered waters

MB5.531 Association with indigenous marine angiosperms

MB5.533 Association with indigenous Mediterranean *Caulerpa* spp.

MB5.539 Facies of *Tritia neritea* and nematodes (in hydrothermal vents)

MB5.54 Habitats of transitional waters (e.g. estuaries and lagoons)

MB5.541 Association with marine angiosperms or other halophytes

MB5.542 Association with Fucales

MB6.5 Infralittoral mud sediment

MB6.51 Habitats of transitional waters (e.g. estuaries and lagoons)

MB6.511 Association with marine angiosperms or other halophytes

**CIRCALITTORAL**

MC1.5 Circalittoral rock

MC1.51 Coralligenous

MC1.51a Algal-dominated coralligenous

MC1.512a Association with Fucales or Laminariales

MC1.51b Invertebrate-dominated coralligenous

MC1.512b Facies with large and erect sponges (e.g. *Spongia lamella*,  
*Sarcotragus foetidus*, *Axinella* spp.)

MC1.514b Facies with Alcyonacea (e.g. *Eunicella* spp., *Leptogorgia* spp.,  
*Paramuricea* spp., *Corallium rubrum*)

MC1.516b Facies with the Zoantharia *Savalia savaglia*

MC1.517b Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Leptopsammia*  
*pruvoti*, *Madracis pharensis*)

MC1.518b Facies with Vermetidae and/or Serpulidae

MC1.519b Facies with Bryozoa (e.g. *Reteporella grimaldii*, *Pentapora fascialis*)

MC1.51c Invertebrate-dominated coralligenous covered by sediment

See MC1.51b for examples of reference facies

MC1.52 Shelf edge rock

MC1.52a Coralligenous outcrops

MC1.523a Facies with Alcyonacea (e.g. *Alcyonium* spp., *Eunicella* spp., *Leptogorgia* spp., *Paramuricea* spp., *Corallium rubrum*)

MC1.524a Facies with Antipatharia (e.g. *Antipathella subpinnata*)

MC1.525a Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Madracis pharensis*)

MC1.526a Facies with Bryozoa (e.g. *Reteporella grimaldii*, *Pentapora fascialis*)

MC1.52b Coralligenous outcrops covered by sediment

See MC1.52a for examples of reference facies

MC1.52c Deep banks

MC1.521c Facies with Antipatharia (e.g. *Antipathella subpinnata*)

MC1.522c Facies with Alcyonacea (e.g. *Nidalia studeri*)

MC1.523c Facies with Scleractinia (e.g. *Dendrophyllia* spp.)

MC1.53 Semi-dark caves and overhangs

MC1.53a Walls and tunnels

MC1.531a Facies with sponges (e.g. *Axinella* spp., *Chondrosia reniformis*, *Petrosia ficiformis*)

MC1.533a Facies with Alcyonacea (e.g. *Eunicella* spp., *Paramuricea* spp., *Corallium rubrum*)

MC1.534a Facies with Scleractinia (e.g. *Leptopsammia pruvoti*, *Phyllangia mouchezii*)

MC1.536a Facies with Bryozoa (e.g. *Reteporella grimaldii*, *Pentapora fascialis*)

MC1.53b Ceilings

See MC1.53a for examples of reference facies

MC1.53c Detritic bottom

See MC3.51 for examples of reference associations and facies

MC1.53d Brackish water caves or caves subjected to freshwater runoff

MC1.531d Facies with *Heteroscleromorpha* spp. sponges

MC2.5 Circalittoralbiogenic habitat

MC2.51 Coralligenous platforms

MC2.512 Association with Fucales

MC2.515 Facies with large and erect sponges (e.g. *Spongia lamella*, *Sarcotragus foetidus*, *Axinella* spp.)

MC2.517 Facies with Alcyonacea (e.g. *Alcyonium* spp., *Eunicella* spp., *Leptogorgia* spp., *Paramuricea* spp., *Corallium rubrum*)

MC2.518 Facies with the Zoantharia *Savalia savaglia*

MC2.519 Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Madraci sphaerensis*, *Phyllangia mouchezii*)

MC2.51A Facies with Vermetidae and/or Serpulidae

MC2.51B Facies with Bryozoa (e.g. *Reteporella grimaldii*, *Pentapora fascialis*)

### MC3.5 Circalittoral coarse sediment

#### MC3.51 Coastal detritic bottoms (without rhodoliths)

MC3.511 Association with Laminariales

MC3.512 Facies with large and erect sponges (e.g. *Spongia lamella*, *Sarcotragus foetidus*, *Axinella* spp.)

MC3.514 Facies with Alcyonacea (e.g. *Alcyonium* spp., *Eunicella* spp., *Leptogorgia* spp.)

MC3.515 Facies with Pennatulacea (e.g. *Pennatula* spp., *Virgularia mirabilis*)

MC3.518 Facies with Bryozoa (e.g. *Turbicellepora incrassata*, *Fron dipora verrucosa*, *Pentapora fascialis*)

MC3.519 Facies with Crinoidea (e.g. *Leptometra* spp.)

#### MC3.52 Coastal detritic bottoms with rhodoliths

MC3.521 Association with maërl (e.g. *Lithothamnion* spp., *Neogoniolithon* spp., *Lithophyllum* spp., *Spongites fruticulosa*)

MC3.522 Association with *Peyssonnelia* spp.

MC3.523 Association with Laminariales

MC3.524 Facies with large and erect sponges (e.g. *Spongia lamella*, *Sarcotragus foetidus*, *Axinella* spp.)

MC3.526 Facies with Alcyonacea (e.g. *Alcyonium* spp., *Paralcyonium spinulosum*)

MC3.527 Facies with Pennatulacea (e.g. *Veretillum cynomorium*)

### MC4.5 Circalittoral mixed sediment

#### MC4.51 Muddy detritic bottoms

MC4.512 Facies with Alcyonacea (e.g. *Alcyonium* spp., *Spinimuricea* spp.)

MC4.513 Facies with Pennatulacea (e.g. *Veretillum cynomorium*)

## MC6.5 Circalittoral mud sediment

## MC6.51 Coastal terrigenous muds

MC6.511 Facies with Alcyonacea (e.g. *Alcyonium* spp.) and Holothuroidea (e.g. *Parastichopus* spp.)

MC6.512 Facies with Pennatulacea (e.g. *Pennatula* spp., *Virgularia mirabilis*)

**OFFSHORE CIRCALITTORAL**

## MD1.5 Offshore circalittoral rock

## MD1.51 Offshore circalittoral rock invertebrate-dominated

MD1.512 Facies with large and erect sponges (e.g. *Spongia lamella*, *Axinella* spp.)

MD1.513 Facies with Alcyonacea (e.g. *Alcyonium* spp., *Callogorgia verticillata*, *Ellisella paraplexauroides*, *Eunicella* spp., *Leptogorgia* spp., *Paramuricea* spp., *Swiftia pallida*, *Corallium rubrum*)

MD1.514 Facies with Antipatharia (e.g. *Antipathella subpinnata*)

MD1.515 Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Madracis pharensis*)

MD1.517 Facies with the Zoantharia *Savalia savaglia*

MD1.51B Facies with Bryozoa (e.g. *Myriapora truncata*, *Pentapora fascialis*)

## MD1.52 Offshore circalittoral rock invertebrate-dominated covered by sediments

See MD1.51 for examples of reference facies

## MD1.53 Deep offshore circalittoral banks

MD1.531 Facies with Antipatharia (e.g. *Antipathella subpinnata*)

MD1.532 Facies with Alcyonacea (e.g. *Nidalia* spp.)

MD1.533 Facies with Scleractinia (e.g. *Dendrophyllia* spp.)

## MD2.5 Offshore circalittoral biogenic habitat

## MD2.51 Offshore reefs

MD2.511 Facies with Vermetidae and/or Serpulidae

MD2.52 Thanatocoenosis of corals, or Brachiopoda, or Bivalvia (e.g. *Modiolus modiolus*)

See MD1.51 for examples of reference facies

## MD3.5 Offshore circalittoral coarse sediment

## MD3.51 Offshore circalittoral detritic bottoms

MD3.511 Facies with the Bivalvia *Neopycnodonte* spp.

MD3.514 Facies with Crinoidea (e.g. *Leptometra* spp.)

## MD4.5 Offshore circalittoral mixed sediment

## MD4.51 Offshore circalittoral detritic bottoms

See MD3.51 for examples of reference facies

MD5.5 Offshore circalittoral sand

MD5.51 Offshore circalittoral sand

See MD3.51 for examples of reference facies

MD6.5 Offshore circalittoral mud

MD6.51 Offshore terrigenous sticky muds

MD6.511 Facies with Pennatulacea (e.g. *Pennatula* spp., *Virgularia mirabilis*)

MD6.513 Facies with the Bivalvia *Neopycnodonte* spp.

**UPPER BATHYAL**

ME1.5 Upper bathyal rock

ME1.51 Upper bathyal rock invertebrate-dominated

ME1.512 Facies with large and erect sponges (e.g. *Spongia lamella*, *Axinella* spp.)

ME1.513 Facies with Antipatharia (e.g. *Antipathes* spp., *Leiopathes glaberrima*, *Parantipathes larix*)

ME1.514 Facies with Alcyonacea (e.g. *Acanthogorgia* spp., *Callogorgia verticillata*, *Placogorgia* spp., *Swiftia pallida*, *Corallium rubrum*)

ME1.515 Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Madrepora oculata*, *Desmophyllum cristagalli*, *Desmophyllum pertusum*, *Madracis pharensis*)

ME1.516 Facies with Cirripeda (e.g. *Megabalanus* spp., *Pachylasma giganteum*)

ME1.517 Facies with Crinoidea (e.g. *Leptometra* spp.)

ME1.518 Facies with the Bivalvia *Neopycnodonte* spp.

ME1.52 Caves and ducts in total darkness

ME2.5 Upper bathyal biogenic habitat

ME2.51 Upper bathyal reefs

ME2.512 Facies with large and erect sponges (e.g. *Leiodermatium* spp.)

ME2.513 Facies with Scleractinia (e.g. *Madrepora oculata*, *Desmophyllum cristagalli*)

ME2.514 Facies with the Bivalvia *Neopycnodonte* spp.

ME2.515 Facies with Serpulidae reefs (e.g. *Serpula vermicularis*)

ME2.52 Thanatocoenosis of corals, or Brachiopoda, or Bivalvia, or sponges

See ME1.51 for examples of reference facies

ME3.5 Upper bathyal coarse sediment

ME3.51 Upper bathyal coarse sediment

ME3.511 Facies with Alcyonacea (e.g. *Alcyonium* spp., *Chironephthya mediterranea*, *Paralcyonium spinulosum*, *Paramuricea* spp., *Villogorgia bebrycoides*)

ME4.5 Upper bathyal mixed sediment

ME4.51 Upper bathyal mixed sediment

ME4.511 Facies with the Bivalvia *Neopycnodonte* spp.

ME5.5 Upper bathyal sand

ME5.51 Upper bathyal detritic sand

ME5.512 Facies with Pennatulacea (e.g. *Pennatula* spp., *Pteroeides griseum*)

ME5.513 Facies with Crinoidea (e.g. *Leptometra* spp.)

ME5.515 Facies with the Bivalvia *Neopycnodonte* spp.

ME5.517 Facies with Bryozoa

ME5.518 Facies with Scleractinia (e.g. *Caryophyllia cyathus*)

ME6.5 Upper bathyal muds

ME6.51 Upper bathyal muds

ME6.512 Facies with Pennatulacea (e.g. *Pennatula* spp., *Funiculina quadrangularis*)

ME6.513 Facies with Alcyonacea (e.g. *Isidella elongata*)

ME6.514 Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Madrepora oculata*, *Desmophyllum cristagalli*)

ME6.516 Facies with Crinoidea (e.g. *Leptometra* spp.)

ME6.518 Facies with the Bivalvia *Neopycnodonte* spp.

ME6.51B Facies with Bryozoa (e.g. *Candidae* spp., *Kinetoskias* spp.)

ME6.51C Facies with giant Foraminifera (e.g. *Astrorhizida*)

## **LOWER BATHYAL**

MF1.5 Lower bathyal rock

MF1.51 Lower bathyal rock

MF1.512 Facies with Alcyonacea (e.g. *Dendrobrachia* spp.)

MF1.513 Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Madrepora oculata*, *Desmophyllum cristagalli*, *Desmophyllum pertusum*)

MF1.514 Facies with chemiosynthetic benthic species (e.g. *Siboglinidae*, *Lucinoma* spp.)

MF2.5 Lower bathyal biogenic habitat

MF2.51 Lower bathyal reefs

MF2.511 Facies with Scleractinia (e.g. *Dendrophyllia* spp., *Madrepora oculata*, *Desmophyllum cristagalli*, *Desmophyllum pertusum*)

MF2.52 Thanatocoenosis of corals, or Brachiopoda, or Bivalvia, or sponges

See MF1.51 for examples of reference facies

MF6.5 Lower bathyal muds

MF6.51 Sandy muds

MF6.512 Facies with Alcyonacea (e.g. *Isidella elongata*)

MF6.514 Facies with Pennatulacea (e.g. *Pennatula* spp., *Funiculina quadrangularis*)

## **ABYSSAL**

MG1.5 Abyssal rock

MG1.51 Abyssal rock

MG1.512 Facies with Alcyonacea

MG6.5 Abyssal mud

MG6.51 Abyssal mud

MG6.512 Facies with Alcyonacea (e.g. *Isidella elongata*)

There are some geomorphologic / hydrologic features not included in the above list because their presence is independent from the depth zone and the substrate type, but they must also be considered due to the role they play in the Mediterranean ecosystem<sup>16</sup>. They can hold a “complex of habitats” and geofoms that cannot be treated isolated, and therefore, they do not fit inside other categories. Among them:

- Hydrothermal vents
- Cold seeps (sulfide, methane – e.g. pockmarks, mud volcanoes)
- Brine pools
- Freshwater resurgences
- Seamounts (including banks, hills, etc.)
- Submarine canyons
- Escarpments
- Boulders fields

<sup>16</sup>Action Plan for the conservation of habitats and species associated with seamounts, underwater caves and canyons, aphotic hard beds and chemo-synthetic phenomena in the Mediterranean Sea (Dark Habitats Action Plan)



**Annex I: the revised the marine section of the EUNIS habitat classification<sup>17</sup>**Table 1. Level 2 units of the marine component of the revised EUNIS habitats classification, including proposed level 2 codes

			Hard/firm		Soft			
			Rock*	Biogenic habitat**	Coarse	Mixed	Sand	Mud
Depth Zones	Phytoplankton gradient/ hydrodynamic gradient	Littoral	MA1	MA2	MA3	MA4	MA5	MA6
		Infralittoral	MB1	MB2	MB3	MB4	MB5	MB6
		Circalittoral	MC1	MC2	MC3	MC4	MC5	MC6
	Aphytoplankton/ hydrodynamic gradient	Offshore circalittoral	MD1	MD2	MD3	MD4	MD5	MD6
		Upper bathyal	ME1	ME2	ME3	ME4	ME5	ME6
		Lower bathyal	MF1	MF2	MF3	MF4	MF5	MF6
		Abyssal	MG1	MG2	MG3	MG4	MG5	MG6

Table 2. Updated EUNIS habitat classification

Level 1: Marine habitats (code M)

Level 2: Depth zone

LITTORAL (code A)  
 INFRA-LITTORAL (code B)  
 CIRACLITTORAL (code C)  
 OFFSHORE CIRCALITTORAL (code D)  
 UPPER BATHYAL (code E)  
 LOWER BATHYAL (code F)  
 ABYSSAL (code G)

Substrate type

ROCK (including soft rock, marls, clays, artificial hard substrata) (code 1)  
 BIOGENIC HABITAT (code 2)  
 COARSE (code 3)  
 MIXED (code 4)  
 SAND (code 5)  
 MUD (code 6)

Level 3: Regions: Atlantic, Baltic, Black Sea, Arctic and Mediterranean (the latter corresponding to the code 5).

<sup>17</sup>Evans D., Aish A., Boon A., Condé S., Connor D., Gelabert E., Michez N., Parry M., Richard D., Salvati E., Tunesi L. 2016. Revising the marine section of the EUNIS habitat classification. Report of a workshop held at the European Topic Centre on Biological Diversity, 12-13 May 2016. ETC/BD report to the EEA: 8 pp.

## Annex II: criteria for the selection of the Reference List of Marine Habitat Type

The eight traits used for the selection are the following:

1. Fragility: degree of susceptibility of the habitat to degradation (i.e., maintaining its structure and functions) when faced to natural and anthropogenic disturbances;
2. Resilience<sup>1</sup>: inability to recover quickly from a disturbance. Usually it is related to life-history traits of component species that make recovery difficult (i.e., slow growth rates, late age of maturity, low or unpredictable recruitment, long-lived);
3. Uniqueness or rarity: degree of rarity, i.e. unusual or very infrequent, at the Mediterranean level;
4. Importance of the habitat for hosting rare, threatened, endangered or endemic species that occur only in discrete areas;
5. Species diversity: the number of species hosted in the habitat;
6. Structural complexity: degree of complexity of physical structures created by biotic and abiotic features;
7. Capacity of modifying the physical environment and the ecosystem processes (i.e., geomorphological traits, fluxes of matter and energy), with a particular relevance to the occurrence of bio-constructors;
8. Significance of the habitat for the survival, spawning/reproduction of species not necessarily typical for the habitat during all their life cycle, and other (ecosystem) services provided by the habitat.

The 3-levels of score have been used to score each habitat type, in relation to each trait and in relation to other habitats situated in the same bathymetric zone. The score 1 corresponds to a low level, the score 2 to a medium level, and the score 3 to a high level. All habitat types having a rating of 3 in “Uniqueness or Rarity” (i.e., those that are extremely rare) have been selected for the inclusion in the reference list regardless of their final rating. No water column habitats or habitats of anthropogenic origin have been considered for the inclusion in the reference list. When the main habitat-forming species is a non-indigenous species, it has not been selected for the references list whatever it is its final rating.

Inclusion of a habitat in the reference list depends on the final rating (i.e., the total score) adding the values of the eight traits altogether. The minimum score reached by a habitat can be 8 (score 1 to each of the eight traits), whilst the maximum score can be 24 (score 3 to each of the eight traits). Following an analysis on the frequency distribution of the total scores for all the habitats (up to the level 5 of the classification), two groups with a normal distribution have been clearly identified (Fig. 1).

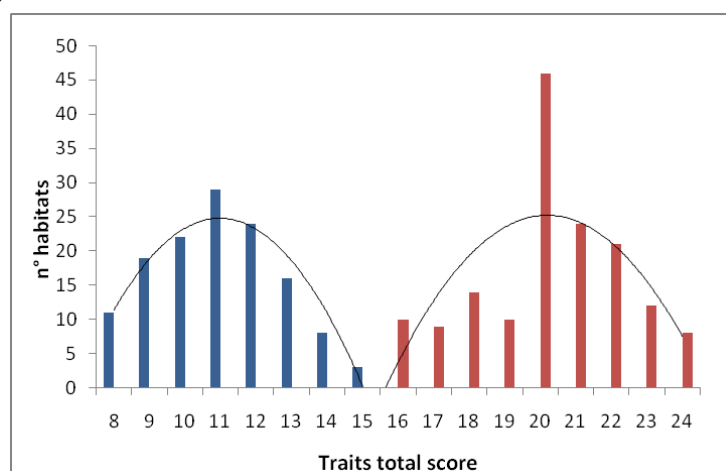


Figure 1. Number of habitats (up to the level 5 of the classification) belonging to each class of the traits total score. The model describing a normal distribution is also represented for both groups.

The two groups are separated by a threshold value of 16. All habitats reaching a total score in the eight traits equal or higher than 16, should be included in the updated reference list as priority habitats. In particular, the following two categories of habitats can be defined:

- Priority habitats: are habitats reaching a total score  $\geq 16$ . For these habitats conservation and strict protection are absolutely mandatory;
- Least relevant habitats are habitats reaching a total score  $< 16$ . These habitats do not require special conservation or management measures and can thus be used, but always provided a sustainable use of them.



United Nations  
Environment Programme



Mediterranean Action Plan  
Barcelona Convention



*The Mediterranean  
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