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
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 21st 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 13th Meeting (COP 13) (Catania, Italy, 11-14 November 2003),

Recalling also the Catania Declaration, adopted by the Contracting Parties at their 13th 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 19th 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 20th 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
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terranean, with a view of submitting them to the Contracting Parties at their 21st 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 14th Meeting of Specially Protected Areas and Biological Diversity Thematic Focal Points (Portoroz, Slovenia, 18-21 June 2019) 1,

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 document2, as set out in the Annex I to the present Decision, and submit it for consideration by the Contracting Parties at their 22nd 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;

1 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))
2 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 22nd 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 muelleriae, Pourtalosmilia 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 endolitic 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 Circalittoral biogenic 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., Madracis sp., 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, Frondipora 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 fruticulosus)
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 paraplexauroideos, 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 bebricoides)

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. They can hold a “complex of habitats” and geoforms 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

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16 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

Table 1. Level 2 units of the marine component of the revised EUNIS habitats classification, including proposed level 2 codes

<table>
<thead>
<tr>
<th>Depth Zones</th>
<th>Hard/firm</th>
<th>Soft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Littoral</td>
<td>MA1</td>
<td>MA2</td>
</tr>
<tr>
<td>Infra littoral</td>
<td>MB1</td>
<td>MB2</td>
</tr>
<tr>
<td>Ciri littoral</td>
<td>MC1</td>
<td>MC2</td>
</tr>
<tr>
<td>Offshore ciri littoral</td>
<td>MD1</td>
<td>MD2</td>
</tr>
<tr>
<td>Upper bathyal</td>
<td>ME1</td>
<td>ME2</td>
</tr>
<tr>
<td>Lower bathyal</td>
<td>MF1</td>
<td>MF2</td>
</tr>
<tr>
<td>Abyssal</td>
<td>MG1</td>
<td>MG2</td>
</tr>
</tbody>
</table>

Table 2. Updated EUNIS habitat classification

Level 1: Marine habitats (code M)

Level 2: Depth zone

- LITTORAL (code A)
- INFRA LITTORAL (code B)
- CIRI LITTORAL (code C)
- OFFSHORE CIRI LITTORAL (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, Artic and Mediterranean (the latter corresponding to the code 5).

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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**: 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](#)

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 ≥ 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.