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

Mediterranean, 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 document[2], 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.

Annex I

Conclusions and recommendations of the consultation process to evaluate the implementation of the SAP BIO (Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region), as reviewed by the 14th Meeting of SPA/BD Thematic Focal Points

1. The SAP BIO, adopted in December 2003, played an important role as a strategic framework for implementation of the SPA/BD Protocol at national and regional levels in terms of harmonization and alignment of planning for biodiversity conservation. It also played a role in facilitating exchanges among departments within and among countries on common concerns in biodiversity conservation.

2. Changes in the context of and the policies on biodiversity during the 15 years since adoption of the SAP BIO indicate that the post-2020 SAP BIO should have new orientations and should focus on priorities tailored to address current and future regional and national challenges in the Mediterranean.

3. While taking into account (as appropriate) the results of the assessment of implementation of SAP BIO during the period 2004-2018, it is crucial to ensure maximum harmonization between the new orientations and priorities to be promoted in the post-2020 SAP BIO and those that will be decided at global level in the post-2020 Biodiversity Framework to be adopted in October 2020 by the CBD. Harmonization should also be ensured between the post-2020 SAP BIO and other relevant global and regional frameworks, such as the 2030 Agenda and the SDGs.

4. The evaluation showed that one difficulty in implementation of SAP BIO during 2004-2018 was related to the complexity of the priorities, activities and NAPs. To facilitate its implementation, the post-2020 SAP BIO, while including high ambitions, should be based on a short list of concrete, realistic priorities and be focused and easy to monitor and evaluate, with well-defined benchmarks.

Recommended steps for elaboration of the post-2020 SAP BIO

Step A: Identification of priorities and orientations

5. The post-2020 SAP BIO should be based first on consultations in countries to identify national priorities for the conservation of marine and coastal biodiversity and the actions required. Common guidelines should be defined to ensure harmonization among national consultations and to establish close links with the orientations to be included in the post-2020 biodiversity framework of the CBD and with relevant initiatives at regional level, in particular the EcAp process and its IMAP.

6. The regional consultation to be conducted in step A should be done by a dedicated working group, facilitated by SPA/RAC and with online tools (such as video conferences and common online working platforms) to ensure collaboration and exchange among countries.

7. Based on the results of the consultations to be conducted at national level, SPA/RAC will identify the needed regional supporting activities to include in the regional component of the post-2020 SAP BIO, supported by a first meeting of the Advisory Committee and a first meeting of National Correspondents for the Post-2020 SAP BIO.

8. As step A will take place in parallel with meetings and workshops of the Secretariat of the CBD for elaboration of the post-2020 biodiversity framework, SPA/RAC should identify and participate in the most relevant of those meeting and workshops in order to ensure maximum harmonization between the new SAP BIO and the post-2020 biodiversity framework and to highlight work on the post-2020 agenda in the Mediterranean in a global arena.

Step B: Elaboration of the draft post-2020 SAP BIO

9. A first draft of the new SAP BIO will be prepared by SPA/RAC from the results of step A. It will be submitted for consultation by relevant organizations and the secretariats of relevant regional bodies (such as GFCM, ACCOBAMS, European Commission, IUCN). To this end, a second meeting of the SAP BIO Advisory Committee will be convened by SPA/RAC.

10. Should external funding support become available, technical expertise and expert coordination meetings could be organized to support preparation of key thematic regional documentation and draft marine and coastal NBSAPs in every country.

11. The first draft of the new SAP BIO could be presented to potential donors to indicate the main orientations and priorities and the funding required for implementation of the new SAP BIO.

12. A second meeting of National Correspondents for the post-2020 SAP BIO will be convened to review the first draft and amend it as necessary, with a view to submission for adoption by the Contracting Parties. The meeting should be held after COP15 of the CBD in October 2020, which is expected to adopt the post-2020 biodiversity framework.

Step C: Adoption of the post-2020 SAP BIO

13. The draft post-2020 SAP BIO finalized during the second meeting of National Correspondents for the post-2020 SAP BIO, held under Step B, will be reviewed by the SPA/BD thematic[3] focal points and the MAP focal points and submitted for adoption by the Contracting Parties during COP 22 of the Barcelona Convention.

Tentative calendar

Step A: Identification of priorities and orientations	January 2020 – February 2021
Step B: Elaboration of the draft post-2020 SAP BIO	January 2021 – May 2021
Step C: Adoption of the post-2020 SAP BIO	According to the calendar of meetings of thematic focal points, MAP focal points and Contracting Parties

[3] If the Contracting Parties agree to pursue such a thematic approach for future focal points meetings. Otherwise “SPA/BD focal points”

Annex II
Updated Regional strategy for the conservation of monk seal in the Mediterranean

Contents

I. Introduction and methodology

1. This Strategy follows guidelines which are detailed in "the manual for the construction of Species Conservation Strategies" (IUCN/SSC 2008). Accordingly, this Strategy is structured with the following elements:

   a. ***Vision**, with associated **Goals** and **Goal Targets** that are SMART[4];*
   b. *the **Objectives** needed to achieve the Goal Targets within the stated time span, with associated SMART **Objective Targets**.*

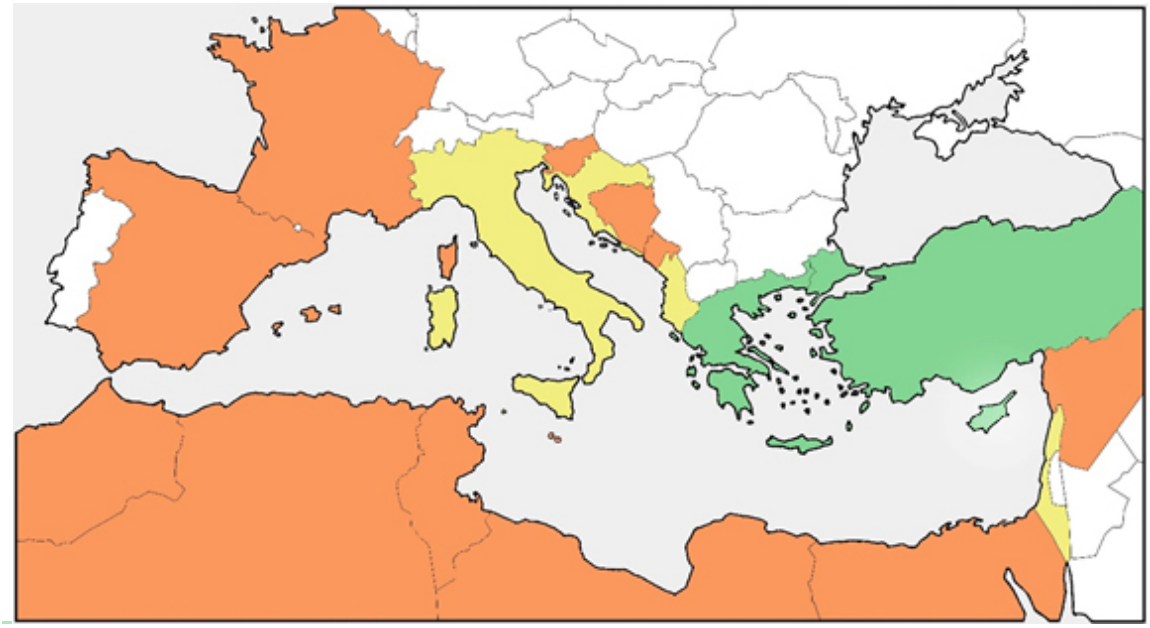

Figure 1. Monk seal conservation status by country (updated at 31.04.2019). Green: "Group A" countries (where monk seal breeding has been reported after year 2010). Yellow: "Group B" countries (where no monk seal breeding is reported, but where repeated sightings of monk seals (>3) were reported since 2010). Tan: "Group C" countries (where no monk seal breeding is reported, and where very rare or no sightings of monk seals (≤3) were reported since 2010).

2. The main problem encountered in envisaging a region-wide Strategy derives from the quite diverse conservation status of monk seals in the different portion of the Mediterranean and by consequence the quite different priorities and responsibilities saddled onto the various monk seal Range States.

3. To handle this challenge, it is here proposed to assign Mediterranean countries to three groups (Figure 1):

   A. Countries where monk seal breeding has been reported after year 2010[5];
   B. Countries where no monk seal breeding is reported, but where repeated sightings of monk seals (>3) were reported since 2010;
   C. Countries where no monk seal breeding is reported, and where very rare or no sightings of monk seals (≤3) were reported since 2010.

[4] Specific, Measurable, Achievable, Relevant, Time-bound

[5] Year 2010 was selected as a criterion to separate the present from the country assessment described in the past regional strategy (UNEP-MAP RAC/SPA, 2013)

4. We realise that the above are rough indicators (e.g., monk seals can be present in a location even if they are not seen, as sightings depend on the presence of observers and the animals can have very inconspicuous behaviours; breeding may not occur in some countries because of lack of breeding habitat, but there may be a healthy presence of animals in that country; etc.). However, the above indicators are conceived to separate countries into major categories according to their current importance for monk seals, thereby involving different types of actions.

5. **Group A** countries is where action is most urgent, because at the moment these countries are our best hope for the survival of the species. These countries host monk seal resident breeding populations and the majority of the species population.

6. **Group B** countries are important, because current monk seal sighting records suggest the potential for the species' survival and expansion in areas beyond Group A country borders. Group B countries may contain different extensions of monk seal critical coastal habitat, which is likely to be re-colonised, and may lead to resident breeding nuclei, if conditions are favourable (as demonstrated by the frequent appearances of monk seals in many locations).

7. **Group C** countries are also important because, although they are characterized by rare monk seal occurrence, they contain historical monk seal critical habitat. The reestablishment of monk seal presence will become more likely if actions in nearby Group B countries are successful and if environmental conditions in historical critical habitat become favourable. In the absence of sighting data collection mechanisms, some countries, known to host seals and suitable environmental conditions in the recent past, may currently qualify as Group C.

8. To fulfil the Vision, this Strategy identifies four Goals. The first Goal relates to the creation of a conservation support structure at the international level, whereas the other three Goals relate to each of the three Groups the various countries have been assigned to.

II. The Strategy

II.1 Vision

9. Over the next two decades, the ecological recovery of monk seals in the Mediterranean will deem to have occurred, when multiple colonies have become established within all major habitats in their historic range, interacting in ecologically significant ways with the fullest possible set of other species, and inspiring and connecting human cultures.

II.2 . Goals

10. **Goal 1.** Mediterranean Range States implement this Strategy in pursuance of the Vision, through the expeditious development and adoption of appropriate national policies and administrative frameworks, and with the effective, coordinated support from relevant international organizations and civil society.

11. **Goal 2.** Monk seal breeding nuclei in sites located in "Group A" countries are effectively protected from deliberate killings and habitat degradation, so that seal numbers in such sites increase and seals are able to disperse to and re-colonize the surrounding areas.

12. **Goal 3.** Monk seal presence in sites where they are repeatedly seen today in "Group B" countries is permanently established, and breeding resumes. "Group B" countries are upgraded to "Group A".

13. **Goal 4.** Monk seal presence is reported repeatedly in the species' historical habitat in "Group C" countries, and these "Group C" countries are upgraded to "Group B". Once all "Group C" countries are upgraded, Group C is deleted.

II.2 Goal Targets, Objectives and Objective Targets

GOAL 1. STRATEGY IMPLEMENTATION.

14. Mediterranean Range States implement this Strategy in pursuance of the Vision, through the development and adoption of appropriate national policies and administrative frameworks, and with the effective, coordinated support from relevant international organizations and civil society.

Goal Target 1.1. A framework for the implementation of the Mediterranean Monk Seal Conservation Strategy is established by the Mediterranean Range States. The framework will include the establishment of a Monk Seal Advisory Committee (MSAC).

15. **Objective 1.1.1.** SPA/RAC establishes a **Monk Seal Advisory Committee (MSAC).** Tasks of the MSAC will include:
    - provide support to SPA/RAC in the implementation of the Strategy and its review and updating (e.g., by defining the Actions needed to attain the different Objective Targets);
    - provide recommendations and advice on issues related to monk seal conservation;
    - support SPA/RAC in the creation and maintenance of a forum for monk seal conservation practitioners, where relevant information and experience is shared, exchanges are facilitated, challenges are discussed, cooperative initiatives are enhanced, transparency and openness of procedures are safeguarded.

16. The MSAC should be composed of geographically representative members of the region and membership to the committee should rotate within a specific timeframe to allow for adequate share of advisory roles by different experts.

17. The MSAC functioning is supported by SPA/RAC, and may benefit from relevant bodies within IUCN, the GFCM and other international organizations.

18. **Objective Target 1.1.1.1.** MSAC established by 2020. The Advisory Committee meets at least once a year to evaluate up-to-date achievement of Goals and Objectives within the Strategy's timeframe and to support the implementation of the Actions foreseen in the Strategy.

19. **Objective Target 1.1.1.2.** First meeting of MSAC in June 2020. Recommendations are submitted to SPA/RAC for coordination with Contracting Parties as appropriate.

20. **Objective Target 1.1.1.3.** MSAC activities are harmonized, wherever appropriate, with prescriptions of the EU Habitats Directive, and with efforts by UNEP-MAP within the Ecosystem Approach process for the attainment of Good Environmental Status in the Mediterranean, i.e., to attain Ecological Objective EO1 "Biodiversity" and Operational Objectives 1.1 ("Species distribution is maintained"), 1.2 ("Population size of selected species in maintained"), 1.3

("Population condition of selected species is maintained"), 1.4 ("Key coastal and marine habitats are not being lost"), as far as monk seals are concerned.

21. **Objective Target 1.1.1.4**. Member States establish a national multiannual program that draws from the Action Plan and the Strategy objectives, that incorporates monitoring, capacity building and conservation measures into relevant existing national programs involving monitoring of marine biodiversity and spatial protection measures that have been formulated for national and international policy implementation (i.e. monitoring as per ECAP region-wide programs and Habitats Directive and MSFD for EC Member States, MPA network development and marine Natura 2000 establishment for Mediterranean EC countries). The MSAC reviews the multiannual programs and reports to SPA/RAC, recommending content improvement so as to harmonize conservation efforts at a regional level with common objectives and comparable efforts. MSAC will provide support to SPA/RAC so national multiannual programs are defined by end of 2020.

22. **Objective 1.1.2.** The Parties to the Barcelona Convention ensure that the activities that the MSAC recommends are addressed.

23. **Objective Target 1.1.2.1.** The Parties to the Barcelona Convention adopt resolutions in support of specific MSAC recommendations concerning the implementation of this Strategy.

Goal Target 1.2. Based on this Strategy, the MSAC provides support to SPA/RAC in the development and implementation of specific conservation actions having a regional scope.

24. **Objective 1.2.1.** The first task of the MSAC is to support SPA/RAC on supervising the attainment of Goals 2, 3 and 4.

25. **Objective 1.2.2.** The Capacity building and awareness activities are planned and promoted in monk seal Range States by SPA/RAC with the advice and support of MSAC so that monk seal protection and recovery is effectively embraced at the national level. This will include the preparation of a dedicated website and the regular issuing and widely distributed monk seal information newsletter in an adequate number of different languages.

26. **Objective Target 1.2.2.1.** Capacity building: Categories of stakeholders are screened and suggested by MSAC and identified by SPA/RAC, taking stock of national frameworks pertaining to the relevant sectors, tailored to each different monk seal Range State (with first priority given to "Group A Countries" and second priority given to "Group B Countries"), and training courses are prepared and planned (see Goal Targets 2.2. and 3.5). Preferably, training events will be developed *in situ* at selected locations having special relevance to monk seal conservation, in collaboration with the local groups, and will be followed by a constant "advice service" or accompanying process to ensure that full and long-lasting advantage derives from the effort.

27. **Objective Target 1.2.2.2.** In order to facilitate collaboration and communication amongst monk seal conservation experts throughout the region, the MSAC provides support to SPA/RAC for organizing periodical workshops on best practices of monk seal monitoring and conservation techniques, preferably taking advantage of other meetings being periodically organized (e.g., CIESM Congresses, ECS Annual meetings). Proceedings are edited and widely diffused (e.g., by pdf through the Internet) in formats that will serve as "best practice guidelines".

28. **Objective Target 1.2.2.3.** In consultation with MSAC awareness actions are promoted by SPA/RAC, with first priority given to “Group A Countries” (with the exception of Greece) and second priority given to “Group B Countries”, in cooperation with local groups, targeting special-interest stakeholders such as fishermen and local coastal communities.

29. **Objective Target 1.2.2.4.** An electronic monk seal newsletter will be issued yearly by SPA/RAC based on the recommendations from the MSAC (e.g., by resuming the *Monachus Guardian*), starting in 2020.

30. **Objective 1.2.3.** Monitoring of monk seal distribution and abundance, as well as advances in knowledge important for monk seal conservation, are promoted and supported by SPA/RAC through training, workshops and the facilitation of research and monitoring programmes. The monitoring process is made to coincide with the similar monitoring requirements within the framework of the Ecosystem Approach process by UNEP-MAP, and (where appropriate) with the Marine Framework Strategy Directive and Habitats Directive of the EC. MSAC supports SPA/RAC to investigate ways of storing and of making the available monitoring data publicly accessible.

31. **Objective Target 1.2.3.1.** MSAC supports SPA/RAC in the completion of monk seal breeding site inventories in “Group A Countries” by 2025.

32. **Objective Target 1.2.3.2.** MSAC supports SPA/RAC in the yearly monitoring of monk seal population parameters (e.g., population abundance, trends, pup production) in breeding sites in “Group A Countries”, starting in 2025.

33. **Objective Target 1.2.3.3.** MSAC supports SPA/RAC in the monitoring of monk seal parameters (e.g. species distribution, population abundance, mortality levels and causes) in areas of “Group B countries” with recurrent sightings, habitat availability, and spatial protection measures for the species.

34. **Objective Target 1.2.3.4.** MSAC supports SPA/RAC in the set-up of common databases (e.g., photo-id catalogues).

35. **Objective 1.2.4.** The MSAC will provide support to SPA/RAC in facilitating the definition of a region-wide protocol for rescue and rehabilitation centres and programmes, and will provide support and advice, as required, to such centres and programmes supported by the different Range States.

36. **Objective Target 1.2.4.1.** Region-wide protocol for rescue and rehabilitation centres and programmes defined by the MSAC by 2022, taking stock of the successful initiatives developed during the last 30 years

37. **Objective 1.2.5.** MSAC supports SPA/RAC in the development of contingency plans for disastrous events (e.g., lethal epizootic outbreaks, massive oil spills within monk seal habitat), and for emergency conditions which may derive from catastrophic environmental change. Ideally, this should be done in cooperation with equivalent bodies dealing with the conservation of Mediterranean monk seals in the Atlantic, with the conservation of cetaceans in the Mediterranean (i.e., within the ACCOBAMS framework), and with the appropriate bodies within the “Barcelona System” (e.g., REMPEC). The contingency plan will include the collection and safe storage of Mediterranean monk

seal germplasm which may support in the future the recovery of the species, should it become necessary.

38. **Objective Target 1.2.5.1.** Contingency plan coordinated by SPA/RAC with support of MSAC in 2023 and adopted by the subsequent Barcelona Convention COP.

39. **Objective Target 1.2.6** MSAC supports SPA/RAC for the organization of a regular Mediterranean conference as an opportunity to assess the knowledge gained, to strengthen cooperation and the implementation of the Mediterranean strategy. This should be done in synergy with other regional bodies dealing with the conservation of the Monk seal.

GOAL 2. "GROUP A" COUNTRIES.

40. Monk seal breeding nuclei in sites located in "Group A" countries are effectively protected from deliberate killings and habitat degradation, so that seal numbers in such sites increase and seals are able to disperse to and re-colonise the surrounding areas.

Goal Target 2.1. Maintain and secure monk seal presence in Important Marine Mammal Areas (IMMAs) identified by the IUCN Marine Mammal Protected Areas Task Force[6], with special attention to the following locations: a) Greek Ionian islands (Lefkada, Kefallinia, Ithaca, Zakynthos, and surrounding islets and seas); b) Northern Sporades; c) Gyaros; d) Kimolos and Polyaigos; e) Karpathos-Saria; f) Turkish Aegean and Mediterranean coasts; g) Cyprus. Breeding nuclei in the locations listed above are effectively protected from deliberate killings and habitat degradation, so that seal numbers in such sites increase and young seals are able to disperse and re-colonise the surrounding areas.

41. **Objective 2.1.1.** Current legislation prohibiting to carry firearms and explosives aboard fishing vessels in Greece, Turkey, and Cyprus is enforced, with a special attention in locations listed in Goal Target 2.1.

42. **Objective Target 2.1.1.1.** Compliance with existing laws concerning firearms and explosives aboard fishing vessels in Greece, Turkey, and Cyprus is routinely enforced everywhere, to come into effect with immediate urgency. Appropriate statistics of infringements are kept and publicised. Infringements are prosecuted with penalties appropriate to address the destruction of an endangered, highly species. Current illegal fishing practices are eradicated.

43. **Objective 2.1.2.** Locations listed in Goal Target 2.1, and other equally important locations that may be eventually discovered in the future, are geographically delimited and legally protected/managed. The resulting MPA network should be ecologically coherent and effectively managed in order to guarantee favourable conservation status.

44. **Objective Target 2.1.2.1.** A monk seal MPA (or an MPA network) encompassing the most important monk seal habitat in the area is formally established in the Greek Ionian islands by 2024.

45. **Objective** Target **2.1.2.2.** The current Natura 2000 site around the island of Gyaros is formally established as a monk seal MPA by 2020.

[6] See https://www.marinemammalhabitat.org/imma-eatlas/

46. **Objective Target 2.1.2.3.** A monk seal MPA is formally established in Kimolos - Polyaigos by 2024.

47. **Objective Target 2.1.2.4.** A monk seal MPA is formally established in Karpathos - Saria by 2024[7].

48. **Objective Target 2.1.2.5.** Monk seal MPAs are formally established along the Aegean and Mediterranean coastline of Turkey by 2024, to protect monk seal critical habitat as determined and mapped by the Turkish National Monk Seal Committee.

49. **Objective Target 2.1.2.6.** Monk seal MPAs are formally established in Cyprus- Davlos, Karpasia Peninsula, and to the west of Limnidis and Peyia Sea Caves by 2024.

50. **Objective 2.1.3.** Areas in locations listed under Goal Target 2.1 are effectively protected through a) appropriate management actions, and b) the involvement of the local communities, which will both ensure the good conservation status of monk seals found there. A management framework is in place and implemented, defining the spatial, temporal and specific measures needed in the species' critical habitats (e.g., regulating access to caves), thereby affording effective protection to haul out and pupping sites.

51. **Objective Target 2.1.3.1.** Until formal protection of the areas listed under Goal Target 2.1 is established and enforced, patrolling of the most important haul out and pupping locations and caves is organised at least during the summer and breeding season, starting in 2020. Patrolling can be done by volunteers, well-trained and possibly local, who could also be performing awareness actions *in situ*, as well as solicit the intervention of law enforcers in case of need.

52. **Objective Target 2.1.3.2.** All monk seal MPAs established under Objective 2.1.2, as well as the National Marine Park of Alonissos – Northern Sporades, are endowed with an operant Management Body and a management plan that is adaptive, ecosystem-based and fully implemented by 2024.

53. **Objective Target 2.1.3.3.** Management in monk seal MPAs established under Objective 2.1.2, as well as the National Marine Park of Alonissos – Northern Sporades, is conducted in a participatory fashion, with the full involvement of local artisanal fishermen and local communities at large, and in cooperation with the fisheries sectors (e.g., see GFCM 2011). All proposals and decisions aiming at establishing or modifying conservation and protection measures must be based on sound and scientific data and evidence. Elements of participatory approach will include awareness campaigns as well as the experimentation/adoption of innovative mechanisms to address opportunity costs, damage mitigation and the generation of alternative sources of income (e.g., ecotourism).

Goal Target 2.2. Implementation of Goal Target 2.1. is enabled through appropriate capacity building activities.

54. **Objective 2.2.1.** Training sessions are organised in areas relevant to locations listed in Goal Target 2.1, with the support of the MSAC (see Objective Target 1.2.2.1). Training will concentrate, at least initially, on mitigating the main threats to monk seals (deliberate killing, habitat degradation, and accidental entanglements or bycatch), and will target stakeholders identified by the MSAC (e.g.,

[7] Greece has already established the protected area Management Body in Karpathos in 2007, however the MPA has not been legally declared yet.

fishermen, tourist operators, enforcement officers, judges). Training will be developed together with the local groups and will be followed by a constant "advice service" or accompanying process to ensure that full advantage is taken from the effort.

GOAL 3. "GROUP B" COUNTRIES.

55. Monk seal **presence** in sites where they are occasionally seen today in "Group B" countries is permanently established, and breeding resumes in areas characterised by sufficient and suitable coastal habitat. "Group B" countries are upgraded to "Group A".

56. Monk seal presence in "Group B" countries must be verified with appropriate methods so as to define the actual species' **use** of the coastal seas and identify the areas in which priority monitoring, awareness and protection actions need to be carried out. This implies that priority areas of usage be identified thorough sighting collection campaigns, habitat surveys in areas of hotspot sightings, and where the coastal habitat is most pristine (which implies analysis of coastal habitat characteristics and their distribution in each nation), followed by *in situ* monitoring to assess the eventual degree of habitat use by monk seals. Coastal areas with confirmed repeated use must be evaluated in terms of pressures and risks. Awareness activities to be carried out in each site will depend on the type of use of the coasts by the species, the degree of the pressures insisting in each site, and the risks involved. Spatial protection measures are established, and site-specific management actions are implemented to reduce the pressures on the basis of the monitoring and risk analysis outcomes.

Goal Target 3.1. Monk seal presence in Albania is confirmed and permanently established.

57. **Objective 3.1.1.** A **reporting** scheme to detect monk seal presence and alert authorities continues to be implemented along the Albanian coastal zone and awareness actions are conducted in areas with seal sightings.

58. **Objective 3.1.2**. Long-term cave monitoring is established in the caves identified in previous studies in the Karaburun Peninsula and nearby locations.

Goal Target 3.3. Monk seal presence in Italy, in areas with recurrent sightings, habitat availability and proximity to nearby breeding colonies, is permanently established, and monk seal breeding resumes.

59. **Objective 3.3.1.** A reporting scheme to detect occasional monk seal presence and alert authorities is enhanced along the coastal areas characterised by recurrent sightings and coastal habitat historically used by the species

60. **Objective 3.3.2.** Monitoring of monk seal distribution, abundance and behaviour (including eventual pup production) is continued in the Egadi islands.

61. **Objective Target 3.3.2.1.** Non-invasive and scientifically sound monitoring technologies, applied to caves in appropriate locations within the Egadi Islands MPA, is continued and enhanced.

62. **Objective Target 3.3.2.2.** A programme targeting the local community and visitors, aimed at increasing awareness and fostering species' protection measures is continued and enhanced.

63. **Objective 3.3.3.** Regular monitoring of monk seal presence and awareness actions are conducted in areas historically containing monk seal habitat and characterised by recurrent sightings in Sardinia.

64. **Objective 3.3.4.** Regular monitoring of monk seal presence and awareness actions are conducted in areas historically containing monk seal habitat in the Tuscan Archipelago.

65. **Objective 3.3.5.** Regular monitoring of monk seal presence and awareness actions are conducted in areas historically **containing** monk seal habitat and recurrent recent sightings in the lesser islands of the Sicily Strait (Pantelleria, Pelagie islands).

66. **Objective 3.3.5. Regular** monitoring of monk seal presence is conducted in Salento (Apulia) in coastal areas containing historical monk seal habitat and characterised by recurrent sightings.

Goal Target 3.4. Monk seal presence in Lebanon is permanently established.

67. **Objective 3.4.1.** A reporting scheme to detect occasional monk seal presence and alert authorities is implemented along the Lebanese coastal zone; awareness actions are conducted in the concerned areas.

68. **Objective 3.4.2.** A coastal habitat assessment study is conducted in the areas characterised by recent recurrent monk seal sightings and long-term cave monitoring program is initiated in northern Lebanon.

Goal Target 3.5. Monk seal presence in Israel is permanently established.

69. **Objective 3.5.1.** A **reporting** scheme to detect occasional monk seal presence and alert authorities is implemented along the Israeli coastal zone and awareness actions are conducted in areas characterised by recent sightings or coastal habitat suitability.

70. **Objective 3.5.2.** A coastal habitat assessment study is conducted, and a long-term cave monitoring program is **implemented** in northern Israel.

Goal Target 3.6. Monk seal presence in Montenegro is permanently established.

71. **Objective 3.6.1.** A reporting scheme to detect occasional monk seal presence and alert authorities is implemented along the coastal zone of Montenegro.

72. **Objective 3.6.2.** Coastal habitat assessment studies are completed, and long-term cave monitoring programmes are implemented in Montenegro.

Goal Target 3.7. Implementation of Goal Targets 3.1 - 3.6 is enabled through appropriate capacity building activities and sub-regional cooperation.

73. **Objective 3.7.1.** Capacity building. Training sessions are organised in areas relevant to locations listed in Goal Targets 3.1 - 3.6, with the support of the MSAC (see Objective Target 1.2.2.1). Training will concentrate, at least initially, on national / local groups working on the development of monitoring and awareness programs directed at mitigating the main threats to monk seals (deliberate killing, habitat degradation, and accidental entanglements). Capacity building activities can also target stakeholders identified by national/local groups with the support of the MSAC (e.g., fishermen, tourist operators, enforcement officers, judges). Training will be developed together with

the local groups and will be followed by a constant “advice service” or accompanying process to ensure that full advantage is taken from the effort.

74. **Objective 3.7.2.** Streamlining of sighting and cave monitoring results carried out in Goal Targets 3.1 - 3.4 above is discussed at sub regional level in order to better assess the population status in the “Group B” countries within a geographic context that goes beyond country borders, and in order to identify priority areas in which spatial protection measures are necessary.

75. **Objective 3.7.3.** Capacity building of MPA managers acting in monk seal distribution areas identified through the implementation of Goal Targets 3.1 - 3. 6, is carried out so as to discuss improved management and mitigation measures to be introduced in existing MPAs.

76. **Objective 3.7.4.** The implementation of Goals 3.1-3.6 is carried out, as much as possible, through the development of international collaboration frameworks, directed at guaranteeing sharing of expertise and monitoring results amongst neighbour countries for the purpose of sub regional status assessments and conservation goal attainment. The latter is particularly important for countries that have limited suitable coastal habitat and recurrent sightings and which border countries with breeding colonies or countries with sightings and extensive and suitable habitat. This may involve cross collaboration initiatives that involve an array mixture of Group A, B and C countries (i.e. Turkey-Cyprus-Syria-Lebanon-Israel, Libya-Egypt, Greece-Albania-Italy-Montenegro-Croatia, Italy-Tunisia-Algeria-Morocco).

GOAL 4. “GROUP C” COUNTRIES.

77. Monk seal presence is again repeatedly reported in the species’ historical habitat in “Group C” countries, and these “Group C” countries are upgraded to “Group B”. Once all “Group C” countries are upgraded, Group C is deleted.

Goal Target 4.1. Monk seal presence in locations of the Maghreb’s Mediterranean coasts and annexed islands in Algeria, Morocco, Tunisia, and the Chafarinas Islands (Spain) is repeatedly reported and permanently established.

78. **Objective 4.1.1.** A reporting scheme to detect monk seal presence through sightings and to alert authorities is implemented along Maghreb’s Mediterranean coasts and annexed islands characterised by monk seal historical presence and recent sightings. This includes areas such as: northern Tunisia, Algeria, Morocco, and the Chafarinas Islands (Spain); awareness actions are conducted in the concerned areas.

79. **Objective 4.1.2.** Long-term cave monitoring activities are initiated in the coastal habitat identified as suitable in the Al Hoceima National Park and Cap Trois Fourches in order to assess monk seal presence in the Moroccan coastal area.

80. **Objective 4.1.3.** Long-term cave monitoring activities are initiated in the coastal habitat identified as suitable in the Chafarinas islands in order to assess monk seal presence in the area.
81. **Objective 4.1.4.** Long-term cave monitoring activities are initiated in the coastal habitat identified as suitable in previous studies carried out in selected Algerian locations in order to assess monk seal presence in the area.

82. **Objective 4.1.5.** Long-term cave monitoring activities are initiated in the coastal habitat identified as suitable in the La Galite Archipelago in order to assess monk seal presence in the area.

Goal Target 4.2. Monk seal presence in the Balearic Islands, Spain, is repeatedly reported and permanently established.

83. **Objective 4.2.1.** A reporting scheme to detect occasional monk seal presence and alert authorities is implemented; awareness actions are conducted around the Balearic Islands, Spain.

Goal Target 4.3. Monk seal presence in Bosnia Herzegovina and Slovenia repeatedly reported and permanently established.

84. **Objective 4.3.1.** Regular monitoring of monk seal presence and awareness actions are conducted in the species' historical habitat in, Bosnia Herzegovina and Slovenia.

Goal Target 4.4. Monk seal presence in Corsica is repeatedly reported and permanently established.

85. **Objective 4.4.1.** Regular monitoring of monk seal presence and awareness actions are conducted in the species' historical habitat in Corsica.

Goal Target 4.5. Monk seal presence is reported again from continental France.

86. **Objective 4.5.1.** Regular monitoring of monk seal presence and awareness actions are conducted in the species' historical habitat in Corsica and continental France.

Goal Target 4.6. Monk seal presence in Libya and nearby western Egypt is repeatedly reported and permanently established.

87. **Objective 4.6.1.** Monk seal ecology and behaviour is monitored in Libya (Cyrenaica) and nearby Egyptian coast (from the border with Libya, including Sallum MPA, to Marsa Matrouh).

88. **Objective Target 4.6.1.1.** Full survey of monk seal habitat in the Libyan easternmost coast bordering with Egypt is conducted and long-term cave monitoring is established in this area as well as in the caves identified in previous projects.

89. **Objective Target 4.6.1.2.** Awareness actions are conducted in Libya, targeting local residents and most notably fishermen, with the aim of fostering respect and data collection on sightings.

90. **Objective Target 4.6.1.3.** Full survey of monk seal presence through data collection on sightings and awareness actions organised in Egypt (from the border, including Sallum MPA, to Marsa Matrouh) by 2025.

91. **Objective Target 4.6.1.4.** Full survey of monk seal habitat in the Egyptian areas characterised by recurrent sightings and a geomorphologically suitable coast is conducted, and long-term cave monitoring is established.

Goal Target 4.7. Monk seal presence is reported from Malta.

92. **Objective 4.7.1.** Regular monitoring of monk seal presence and awareness actions are conducted in the species' historical habitat in Malta.

Goal Target 4.8. Monk seal presence in Syria is repeatedly reported and permanently established.

93. **Objective 4.8.1.** A reporting scheme to detect occasional monk seal presence and alert authorities is implemented along the Syrian coastal zone; awareness actions are conducted in the concerned areas.

Goal Target 4.9. Implementation of Goal Targets 4.1 - 4.8. is enabled through appropriate capacity building activities and sub-regional cooperation.

94. **Objective 4.9.1.** Capacity building: training courses are organised in locations listed in Goal Targets 4.1-4.8, with the support of the -MSAC (see Objective Target 1.2.2.1).

95. **Objective 4.9.2.** The implementation of Goals 4.1-4.8 is carried out, as much as possible, through the development of international collaboration frameworks, directed at guaranteeing sharing of expertise and monitoring results amongst neighbour countries for the purpose of sub regional status assessments and conservation goal attainment (see Objective 3.7.4).

III. Revision of the Strategy

96. The suggested time horizon of this Strategy is six years, to be concluded in 2025, when a comprehensive review of the Strategy's accomplishments and failures, with a consideration for potential actions to be taken beyond 2025, should be conducted. Such timing also coincides with the process requiring EU Member States to report concerning the Habitats, thereby facilitating the implementation of the Strategy's actions by such States. It will also contribute to the Marine Strategy Framework Directive (MSFD) programme of measures in 2022.

97. A mid-term assessment of the implementation results in 2022 is also recommended, to evaluate up-to-date attainment of Goals and Objectives within the Strategy's timeframe and to identify, if needed, moderate adjustments.

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Annex III

Updated Action Plan for the Conservation of Marine Turtles in the Mediterranean

TABLE OF CONTENT

I. Introduction

1. The Parties to the Barcelona Convention included among their priority targets for the period 1985-1995 the protection of Mediterranean marine turtles (Genoa Declaration, September 1985). To this purpose and as a response to growing international concern about the status of Mediterranean marine turtles, which encounter various threats, including mortality in fishing gear and loss of vital habitats on land (nesting beaches), they adopted in 1989 the Action Plan for the Conservation of Mediterranean Marine Turtles. In 1996, the Parties confirmed their commitment to the conservation of marine turtles by including the 5 species of marine turtle recorded for the Mediterranean in the List of Endangered and Threatened Species annexed to the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (Barcelona, 1995). The Protocol calls on the Parties to continue to cooperate in implementing the Action Plans already adopted.

2. Since 1989, the Action Plan has been revised three times. The first review was in 1999, when the updated version of the Action Plan was adopted by the 11th Conference of the Contracting Parties to the Barcelona Convention (COP11 Malta). The second review was in 2007 and concerned only the update of the timetable for the period 2008-2013. The last revision occurred in 2013 where the timetable has been updated for the period 2014-2019.

3. Two species of turtle nest in the Mediterranean, the Loggerhead turtle (*Caretta caretta*) and the Green turtle (*Chelonia mydas*). The Leatherback turtle (*Dermochelys coriacea*) is recorded fairly regularly in this sea, while the other two species (*Eretmochelys imbricata, Lepidochelys kempii)* are very rarely encountered. Loggerhead turtles also enter the Mediterranean from the Atlantic as juveniles in their oceanic stage and return to the Atlantic.

4. Marine turtles are reptiles and reptiles evolved on land. Though they have adapted well to living in the sea, their ties to their ancestors, leads them back to land to lay their eggs and reproduce. The intensive exploitation of turtles during much of last century has led to a virtual collapse of the turtle populations in the Mediterranean. Relatively new threats such as incidental catches and mortality in fishing gear and loss of nesting habitats as well as the plastic ingestion and entanglement face the remaining populations. The conservation of turtles, as a result of their biology, needs to address threats and issues both on land and in the sea. Marine turtles are long living reptiles and the recovery of populations is therefore a long process. Their reproduction on land poses threats to them, but it also provides opportunities, in a practical way, to help the species recover, for example by reducing predation. Good knowledge of their biology and needs is essential if this opportunity is to be used properly. Turtles do not nest every year and significant fluctuations from year to year in nesting activity are common, especially in green turtles. As a consequence, long term data are needed in studying populations and in drawing conclusions.

5. The wider issues of biodiversity conservation need to be taken into consideration in conserving any species, such as sea turtles. Threatened species are components of an ecosystem and the interdependence of the implementation of the various SPA/RAC Action Plans for endangered species and biodiversity conservation is stressed here.

6. There is clear evidence of important negative impacts on the populations of Mediterranean marine turtles by human activities. The most serious current threats/effects to turtles are:

a. deterioration of the critical habitats for the life cycle of marine turtles, such as nesting, feeding and wintering areas, and key migration passages
b. direct impacts on turtle populations of incidental capture in fisheries, intentional killing, consumption, egg exploitation and boat strikes
c. pollution, which can have impacts on both habitats and species

7. Knowledge of the genetic stocks, status, biology and behaviour of marine turtles is increasing rapidly in the Mediterranean and though gaps still exist, sufficient information is available for conservation purposes. This information has been used in updating and improving the provisions of the present MAP Action Plan for the Conservation of the Mediterranean Marine Turtles[45]. Sufficient information is also available in most cases to draw up National Action Plans for the conservation of marine turtles.

8. Elaborating and implementing action plans to confront the threats to biological diversity is an effective way of guiding, coordinating and stepping up the efforts made by the Mediterranean countries to safeguard the region's natural heritage. The adopted Ecosystem Approach (EcAp) to management of human activities with a view to conserve natural marine heritage and protecting vital ecosystem services recognizes that to achieve good environmental status "Biological diversity is maintained or enhanced". In this context, three common indicators related to marine turtles have been elaborated within the 27 common indicators of the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and related Assessment Criteria (IMAP):

COMMON INDICATOR 3: Species distributional range (EO1 related to marine mammals, seabirds, marine reptiles);
COMMON INDICATOR 4: Population abundance of selected species (EO1, related to marine mammals, seabirds, marine reptiles);
COMMON INDICATOR 5: Population demographic characteristics (EO1, e.g.body size or age class structure, sex ratio, fecundity rates, survival/mortality rates related to marine mammals, seabirds, marine reptiles)

9. The 2017 Mediterranean Quality Status Report (QSR)8, within the analysis conducted on Common Indicators 3 (Species distributional range), 4 (Population abundance of selected species) and 5 (Population demographic characteristics) related to EO1 on marine mammals, seabirds and marine reptiles, focused on the major existing gaps related to the current knowledge about the presence, distribution, habitat use and preferences of these marine species stressing the need to increase efforts on filling these gaps in order to predict with any certainty the future viability of sea turtles populations in the Mediterranean. .

10. Information from various sources has been taken into account in this Action Plan. Effective protection and management of nesting areas, practical measures to reduce turtle by-catches, as well as the management of feeding grounds, based on scientific information, are some of the key elements that can help to ensure the survival and the recovery of populations of marine turtles. These elements have been paid due attention. Scientific information on population dynamics, tagging, biology, physiology, public awareness etc have also been given due attention in this plan.

11. The effective and sustainable protection of the Mediterranean marine turtles implies

[8] UNEP(DEPI)/MED IG.23/23 – Annex I "Key findings of the Mediterranean Quality Status Report and Recommendations for the Further Implementation of the Ecosystem Approach Roadmap".

management of the Mediterranean as a whole, taking into account the ecosystem approach, and should take advantage of the actions of all the concerned stakeholders and be carried out in cooperation with organisations, programmes and plans, at the supranational and national level such as the Mediterranean Action Plan (MAP); Fisheries Management Plans (FAO/GFCM); the Marine Turtle Specialist Group (IUCN/SSC); International Commission for the Conservation of Atlantic Tunas (ICCAT); International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM); relevant NGOs, Research institutions, Universities etc.

12. This Action Plan outlines objectives, priorities, and implementation measures in different fields as well as their coordination. The different components of the Action Plan are mutually reinforcing and may act synergistically.

13. The progress in implementing the Action Plan will be reviewed at each meeting of the National Focal Points for SPAs/DB, on the basis of national reports and of reports by SPA/RAC on the regional aspects of the Action Plan. The Action Plan will be assessed and revised and updated as necessary, every five years, unless the SPA Focal Point Meetings deem otherwise.

II. Objectives

14. The objective of this Action Plan is the recovery of the populations of *Caretta caretta* and *Chelonia mydas* in the Mediterranean (with priority accorded to *Chelonia mydas*, wherever appropriate) through:

- Appropriate protection, conservation and management of marine turtle habitats, including nesting, feeding and wintering areas and key migration passages.
- Improvement of the scientific knowledge by research and monitoring

III. Priorities

15. Acknowledging the progress achieved over the past years and the proliferation of projects, activities and actions in many countries in the region, it is considered an overarching priority action to continue and enhance such ongoing projects and activities related to marine turtle conservation, research and monitoring. The following priorities have been identified for each component of this Action Plan:

III.1. Protection and management of the species and their habitats

a. Development, implementation and enforcement of specific legislation on sea turtles;
b. Protection and effective management of nesting areas (including the adjacent sea);
c. Protection and management of feeding, wintering and mating areas and key migration passages;
d. Minimization of incidental catches and elimination of intentional killings.
e. Restoration of degraded nesting beaches.

III.2. Research and monitoring

16. Knowledge needs to be improved in the following topics:

a. Identification of mating, feeding and wintering areas and key migration passages;

b. Identification of potential and new nesting areas;
c. Biology of the species, in particular aspects related to life cycles, population dynamics and population trends and genetics;
d. Assessment of fisheries interactions (e.g. Bycatch) and associated mortalities, including modification of fishing gear and related socioeconomic issues;
e. Assessment and improvement of nesting beach management techniques;
f. Strengthening the regional network of stranding networks
g. Strengthening the data collection of stranded sea turtles through National stranding networks and rescue centers;
h. Assessment of population trends through long term monitoring programmes, both on nesting beaches and at sea based on the IMAP developed within the framework of the EcAp process of the Barcelona Convention as well as the monitoring requirements set under the MSFD of the EU.
i. Impact of pollutants (including plastics) on the health of individuals and populations, as well as the impact of climate change.

III.3. Public awareness and education

17. For the implementation of this action plan, public support is needed. Information and education campaigns on relevant turtle conservation issues should target groups such as:

a. Local residents and visitors to nesting areas;
b. Fishermen and other stakeholders;
c. Tourists and tourism-related organizations;
d. Schoolchildren and teachers;
e. Decision makers at national, regional and local levels.
f. Appropriate training/education of stakeholders can be given (e.g., to fishermen and tourism workers)

III.4. Capacity building/Training

18. Training of managers and other staff of protected areas in conservation and management techniques and of scientists, researchers and other staff in conservation, research and monitoring in the priority issues covered by the Action Plan.

III.5. Coordination

19. Promote and enhance cooperation and coordination among the Contracting Parties, the UNEP/MAP partners, relevant organizations and projects carried out in the field of sea turtles conservation. Priority should be given to the regular assessment of the progress in the implementation of this Action Plan.

IV. Implementation Measures

20. The implementation of the measures recommended in this Action Plan will only be possible with the appropriate support by the Parties and by competent international organizations, particularly as regards the provision of adequate financial support, through national and regional funding programmes and through support for applications to donors for projects. Much progress has been achieved over the past years, with the proliferation of projects, programmes, activities and actions in many countries around the Mediterranean. The implementation and coordination of such ongoing activities related to marine turtle conservation, research and monitoring is expected to benefit from the provisions of this Action Plan.

IV.1. Protection and Management

21. With regard to protection and management, the following measures are recommended:

(a) Legislation

22. The Contracting Parties that have not yet extended legal protection to marine turtles should do so as soon as possible.

23. Each Contracting Party should develop and implement as soon as possible the necessary legislation for the protection, conservation and/or management of areas important for marine turtles, such as nesting (including the adjacent sea), feeding, wintering and mating areas and key migration passages.

24. In pursuing the above the Contracting Parties should take into account the provisions of the relevant international conventions and supranational legislation as well as the SPA/RAC "Guidelines to Design Legislation and Regulations Relative to the Conservation and Management of Marine Turtles Populations and their Habitats".

25. Legislation on deliberate killing must be enforced and updated in some Countries and developed in others totally lacking these measures

(b) Protection and Management of Habitats

26. Integrated management plans should be elaborated and implemented for terrestrial and marine areas critical for nesting, feeding, wintering and mating, as well as key migration passages.

27. Measures and management rules aimed at protecting critical habitats, on land and at sea, should be developed and implemented. In the case of nesting areas, such measures should cover issues such as public access, use of vehicles and horse riding, use of artificial lights, nautical activities, minimization of predation, inundation, disturbance during nesting, disturbance in adjacent waters, etc. In the case of marine areas such measures should address boat traffic and fishing. Contracting Parties are encouraged to use the SPA/RAC "Guidelines for setting up and management of Specially Protected Areas for marine turtles in the Mediterranean"[9]

28. Training of the staff involved in protection and management activities is a pre-requisite to good management.

(c) Minimisation of Incidental Catches and Elimination of Intentional Killings

29. A reduction of incidental catches and mortality can be achieved by:

a. Applying appropriate regulations concerning fishing depth, season, gear, etc, especially in areas with a high concentration of turtles;
b. The modification of fishing gear, methods and strategies proven to be effective, and as appropriate, their introduction in fisheries legislation and fishing practices;
c. Education/training of fishermen to correctly haul, handle, release and record incidentally caught turtles. Use of appropriate methods are described inter alia in

[9] http://www.rac-spa.org/sites/default/files/doc_turtles/g_l_manag_mpa_turtles_en_fr.pdf

the SPA/RAC publication “sea turtle handling guidebook for fishermen”

30. Deliberate killing and exploitation of marine turtles can be eliminated by:

a. Applying and enforcing appropriate legislation;
b. Carrying out campaigns among fishermen in order to urge them to release marine turtles caught incidentally and to participate in the information networks on turtles (report sightings of turtles, of tags, participation in tagging programmes, etc.);
c. Carrying out campaigns for fishermen and local populations to facilitate the implementation of legislation to ban the exploitation/consumption and trade/use of all products derived from marine turtles.
d. The above will help also in reducing mutilations and killing of turtles due to ignorance and/or prejudice.

(d) Other Measures to Minimise Mortality

31. The setting up and proper operation of Rescue Centers and First Aid Stations is suggested as an additional means to minimize individual turtle mortality. Rescue Centers may also play an important role for the conservation of the populations by contributing to activities such as awareness, education, and data collection. The use of the SPA/RAC “Guidelines to Improve the Involvement of Marine Rescue Centers for Marine Turtles is recommended.

32. There is a need to develop a common methodology for the management of rescue centers including methods for the collection and transfer of related data

33. Training of the staff involved is necessary. In addition, a Mediterranean-wide rescue network should be set up, to assist the exchange of knowledge and experience among those who work with turtles in facing difficulties. The network should include already existing rescue centers and promote the establishment of new rescue centers in countries, which are currently lacking adequate structures.

IV.2. Scientific Research and Monitoring

34. The development of research and monitoring programmes and the exchange of information, should focus on the priority fields for the conservation of marine turtle populations, by using various methods, such as beach surveys and monitoring of nesting beaches - especially long term monitoring, tagging (keeping in mind the provisions of the SPA/RAC tagging guidelines), data logging, satellite telemetry, Geographic Information Systems (GIS), genetics, on-board observers and modelling.

(a) Scientific Research

For research these should cover inter alia the following (not in order of priority):

a. Identification of mating, feeding and wintering areas and key migration passages;
b. Identification of potential or new nesting areas;
c. Biology of the species, in particular aspects related to life cycles, population dynamics and population trends and genetics. Contracting parties are encouraged to use the “Guidelines to standardize methodologies to estimate demographic parameters for marine turtles populations in the Mediterranean”.
d. The assessment of turtle by-catch and respective mortality rates from different

fishing gear, including small scale and artisanal fisheries;

e. Data on the effects of gear modifications (new hooks etc.) and fishing strategies should be collected to evaluate the effects of these on turtle mortality and catch rates as well as the effects on other species;
f. The socio-economic effects of the implementation of turtle conservation measures that can impact fisheries need to be evaluated;
g. Development of management techniques for nesting beaches and foraging areas;
h. Impact of climate change on marine turtles;

(b) Monitoring

35. For monitoring, programmes should follow the recommendation of the MAP ecological objectives, the IMAP and the relevant Protocol[10]. They should cover inter alia the following (not in order of priority):

a. Encourage long-term monitoring programmes for important nesting beaches and foraging areas. All Contracting Parties that have nesting beaches or foraging areas should encourage the uninterrupted and standardized monitoring taking into account their national monitoring programmes related to the biodiversity. Where such programmes do not exist, the Parties should set up such programmes or encourage them. Surveys of nesting beaches of lesser importance and of scattered nesting need also to be undertaken occasionally if possible, so that a more complete picture of populations can be formed. Contracting Parties are encouraged to use the SPA/RAC" Guidelines for the long-term Monitoring programmes for marine turtles nesting beaches and standardized monitoring methods for nesting beaches, feeding and wintering areas"
b. Onboard observation programmes to gather precise data on species biology and fisheries induced mortality should complement nesting beaches and foraging areas monitoring;
c. Strengthening the data collection of stranded sea turtles through National stranding networks and rescue centers
d. Contracting Parties, with the help of national, regional or international organisations, should undertake, when appropriate, joint monitoring initiatives on a pilot basis, with the aim to share and exchange best practices, using harmonized methodologies, and ensuring cost efficiency.
e. Contracting Parties should support and take part in regional initiatives and projects led by competent partner organizations that will contribute to the implementation of the initial phase of the IMAP in order to strengthen strategic and operational regional synergies.
f. Contracting Parties should report regularly quality assured data

36. For some Contracting Parties there is still little information on turtle nesting beaches and size of breeding populations. These Parties should undertake urgently more comprehensive surveys and encourage the setting up of long-term monitoring programmes taking into account their national monitoring programmes related to biodiversity.

IV.3. Public Awareness and Education

37. Public-awareness programmes, including appropriate multiple information tools (special documentary information material, electronic media etc), should be developed for fishermen, local residents, tourists and tourism-related organizations, to help reduce the

[10] Monitoring protocol of marine turtles in the Mediterranean

mortality rates of marine turtles, to induce respect for nesting, feeding and wintering and mating areas, and to promote the reporting of any useful information concerning sea turtles. Appropriate training/education of stakeholders can be given (e.g., to fishermen, tourism workers).

38. Information campaigns directed at local authorities, residents, teachers, visitors, fishermen, decision makers at local, regional and national levels and other stakeholders, are urgently needed in order to enlist their participation in the efforts for the conservation of marine turtles and for their support for conservation measures.

IV.4. Capacity Building/Training

39. Existing training programmes should be continued, particularly for those Parties that need more expertise and/or experts with specialized knowledge of marine turtles, and for managers and other staff of protected areas, in the conservation and management techniques needed (these include inter alia beach management, tagging and monitoring).

40. In particular, training programmes in the setting up and operation of Rescue Centers should be continued, with the aim of guaranteeing that these centers have skilled personnel, appropriate equipment and adopt common methodologies for data collection. Training programmes to be elaborated for other fields, as needed, especially where fisheries managers are concerned.

IV.5. National Action Plan

41. Contracting Parties should establish National Action Plans for the conservation of marine turtles.

42. National Action Plans should address the current factors causing loss or decline of turtle population and their habitats, suggest appropriate subjects for legislation, give priority to the protection and management of coastal and marine areas, the regulation of fishing practices and ensure continued research and monitoring of populations and habitats as well as the training and refresher courses for specialists and the awareness-raising and education for the general public, actors and decision-makers.

43. The national plans must be brought to the attention of all concerned actors and, when possible, coordinated on a regional basis.

IV.6. Regional Coordination Structure

44. It is necessary to develop cooperation and exchange of information among the Contracting Parties for the implementation of the Action Plan and to improve the coordination of activities within the region.

45. SPA/RAC is considered to be the most appropriate existing mechanism for this coordination. The implementation of the Action Plan may be carried out, in cooperation with other bodies concerned, through establishing MoCs, as necessary.

46. The major function of the coordinating mechanism with regard to marine turtles would be to:

- Assess the progress achieved in implementing this Action Plan. SPA/RAC will

request at regular intervals, not exceeding two years, update reports from the Parties and, on the basis of these ongoing national reports and of its own assessment of the progress in the regional component of this Action Plan, prepare reports to be submitted to the SPA National Focal Point meetings, which will make follow-up suggestions to the Contracting Parties.

- Collect and evaluate the data at Mediterranean level
- Prepare inventories of networks of protected areas for marine turtles in the Mediterranean and facilitate the operation of such networks and of networks on such issues as marine turtle habitats, ecology, conservation etc
- Prepare a timetable of activities and financing proposals for the Contracting Parties' meetings;
- Contribute to the dissemination and exchange of information;
- Work further and create more opportunities with relevant partner organizations, in order to strengthen technical support that countries might need to implement the IMAP in relation with marine turtles.
- Assist and/or organize expert meetings on specific topics regarding marine turtles
- Continue to support the organisation of the Mediterranean Marine Turtle Conferences
- Assist and/or organise, training courses and support and catalyse the participation of appropriate scientists and other staff in such courses.

47. Complementary work carried out by other international bodies, NGOs and UNEP/MAP partners aiming at the same objectives should be encouraged and capitalized to prevent possible overlapping and help disseminate their knowledge across the Mediterranean Community.

48. Coordinate the activities needed for the revision/updating of this Action Plan every five years, or earlier, if this is deemed necessary by the SPA/DB National Focal Point meetings, or on the basis of important new information becoming available.

49. The inventory of marine turtle critical habitats, including key migrations passages, in the Mediterranean, should be regularly reviewed in the light of increased knowledge and published online through the Mediterranean biodiversity Platform[11].

IV.7. Participation

50. Any interested international and/or national organisation is invited to participate in actions necessary for the implementation of this Action Plan

51. Links with other bodies responsible for Action Plans dealing with one or more species of marine turtles should be made, to strengthen co-operation and avoid duplication of work.

52. The co-ordination structure shall set up a mechanism for regular dialogue between the participating organisations and where necessary, organise meetings to this effect.

IV.8. "Action Plan Partners"

53. Implementing the present Action Plan is the province of the national authorities of the Contracting Parties. The concerned international organisations and/or NGOs, laboratories and any organisation or body are invited to join in the work necessary for implementing the Action

[11] http://data.medchm.net

Plan. At their ordinary meetings, the Contracting Parties may, at the suggestion of the meeting of National Focal Points for SPAs/BD, grant the status of «Action Plan Partner» to any organization or laboratory which so requests and which carries out, or supports (financially or otherwise) the carrying out of concrete actions (conservation, research, etc.) likely to facilitate the implementation of the present Action Plan, taking into account the priorities contained therein.

Annex I - Implementation Timetable

ACTION	Deadline[12] / periodicity	By Whom
A. PROTECTION AND MANAGEMENT		
A.1 Legislation		
a. Protection of turtles – general species protection	As soon as possible	Contracting Parties
b. Enforce legislation to eliminate deliberate killing	As soon as possible	Contracting Parties
c. Habitat protection and management (nesting, mating, feeding, wintering and key migration passages)	As soon as possible	Contracting Parties
A.2 Protection and Management of habitats		
a. Setting up and implementing management plan	Immediate and continuous	Contracting Parties
b. Restoration of damaged nesting habitats	Immediate and continuous	Contracting Parties
A.3 Minimisation of incidental Catches		
a. Fishing regulations (depth, season, gear) in key areas	Immediate and continuous	Contracting Parties
b. Modification of gear, methods and strategies	Immediate and continuous	SPA/RAC, Partners & Contracting Parties
A.4 Other Measures to Minimise individual Mortality		
a. Setting up and/or improving operation of Rescue Centres	Continuous	Contracting Parties
a.1 Elaborate guidelines for the management of rescue centers, including methods for data collection	1 year after adoption	SPA/RAC
B. SCIENTIFIC RESEARCH AND MONITORING		
B.1 Scientific Research		
a. Identification of new mating, feeding and wintering areas and key migration passages;	Continuous	Contracting Parties and Partners
b. Elaboration and execution of cooperative research projects of regional importance aimed at assessing the interaction between turtles and fisheries	Continuous	SPA/RAC, Partners & Parties
c. Tagging and genetic analysis (as appropriate)	Continuous	SPA/RAC and Contracting Parties and Partners
d. Facilitate the networking between managed and monitored nesting sites, aiming at the exchange of information and experience	Continuous	SPA/RAC
B.2. Monitoring		

[12] The deadlines mentioned are not intended in any way to postpone or delay the drafting and/or the implementation of legislation or management plans or of monitoring programmes etc. that already exist and/or are ongoing

a. Setting up and/or improving long-term monitoring programmes for nesting beaches, feeding and wintering areas	Continuous	Contracting Parties and SPA/RAC
b. Elaboration of protocol for data collection on stranding	2 years from adoption	SPA/RAC
d. Setting up national stranding networks	As soon as possible	Contracting Parties
C. PUBLIC AWARENESS AND EDUCATION		
Public awareness and Information campaigns in particular for fishermen and local populations	Continuous	SPA/RAC, Partners and Contracting Parties
D. CAPACITY BUILDING		
Training courses	Continuous	SPA/RAC and Partners
E. NATIONAL ACTION PLANS		
Elaboration of National Action Plans	Continuous	Contracting Parties
F. COORDINATION		
a. Assessment of progress in the Implementation of the Action Plan	Every Five years	SPA/RAC and Parties
b. Cooperation in organising the Mediterranean Conferences on marine turtles	Every three year	SPA/RAC
c. Updating the Action Plan on Marine Turtles	Five years from adoption	SPA/RAC

Annex II - Recommendations and Guidelines on Tagging[13] in the Mediterranean

VI.1. General Recommendations:

a. It is stressed to all prospective tagging projects that **tagging is not a conservation measure** and that it is not an alternative to conservation. All it can do, at best, is to help get information on which to base conservation policy and actions

b. Encourage enforcement, at national level, of permitting legislation for tagging. This is to ascertain that **aimless tagging** does not take place and that tagging teams/persons or organizations have well thought out plans and aims and adequate training for what they are intending to do

c. There is a need for **training courses** in planning and undertaking tagging projects and/or support in training in the field (with the provision of experts), particularly for new projects

d. There is a need for **support** for tagging, with equipment, materials etc for projects that are qualified for such work (having undertaken adequate planning, training etc)

e. Tagging equipment should if possible be provided after a request and the tags provided should carry the **return address** of the project or country

f. There is a need in the countries for **advice and guidelines**, given inter alia through SPA/RAC and its website www.spa-rac.org, on tagging issues, providing links to key websites such as www.seaturtle.org and its **Tag Finder** site, as well as to the **ACCSTR Sea Turtle Tag Inventory** www.accstr.ufl.edu , encouraging visitors to register their tag series in this database. Duplication of effort will be avoided this way

g. Tagging is not to be taken lightly and minimum guidelines are needed to ensure the wellbeing of turtles (the basic **Guidelines to minimize damage/disturbance to turtles by tagging** were drafted by the relevant SPA/RAC WG - see below)

h. The development of simple practical materials (stickers etc) for **awareness** campaigns for fishermen and other stakeholders (e.g., coastal communities) will be useful.

i. A **Regional Inventory of Tagging Projects** is needed and is in fact a priority issue. This should be updated as new information becomes available and should be available on line. (A **questionnaire** was drafted by the working group and was submitted to the participants of the workshop for completion. It is available from SPA/RAC for anybody who wishes to be included in the Inventory).

VI.2. Guidelines to minimize disturbance/damage to turtles by tagging

Metal tags

j. Do not use Style 1005-49 metal tags (National Band and Tag Company (NBTC) USA)

k. Use size 681C (National Band and Tag Company (NBTC) USA) - for turtles over 30 cm CCL (i.e., do not tag turtles smaller than 30cm CCL)

l. Do not use tags in juvenile turtles in such a way as to constrict the growth of the flipper

[13] Though explicit mention is made in the Guidelines above of specific trade names (Dalton and National Band and Tag Company), the guidelines are applicable to similar tags (material, size etc) made by other manufacturers. Specific mention was made of these manufacturers and tags, as these are the tags most commonly used for tagging turtles and are hence well known.

Plastic tags

m. Do not use Jumbo tags (Jumbotag - Dalton supplies Ltd, UK) for turtles smaller than 50cm CCL

n. Do not use Rototags (Rototag - Dalton supplies Ltd, UK) for turtles smaller than 30 cm CCL

Pit tags

o. Do not use PIT tags (Passive Integrated Transponder tags) in turtles smaller than 30 cm CCL

p. If you use PIT tags, then apply them under the scales or between the digits, in the muscle, on the front left flipper.

General

q. Do not use tagging methods proven to be unsatisfactory

r. Do not tag a turtle on her way up the beach or during egg-laying. Tag after the egg chamber is covered or if the turtle is on her way back to the sea.

s. Do not turn turtles over for tagging

Annex IV

Updated Action Plan for the Conservation of Cartilaginous Fishes (Chondrichtyans) in the Mediterranean Sea

CONTENTS

FOREWORD

Chondrichthyan fishes constitute a class within the zoological classification which includes the cartilaginous fish commonly named sharks, skates, rays and chimaeras. The skates and the rays, or batoids, are flattened shark-like fish.

The Action Plan for the Conservation of Chondrichthyan Fishes in the Mediterranean Sea is in line with:

1) the Barcelona Convention adopted by the Mediterranean countries and the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean;

2) the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) proposed by FAO and adopted by the UN member states in 1999 [Note: in the FAO documents 'sharks' is used for chondrichthyans];

3) the UN Fish Stocks Agreement (UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks) in effect since 11th December 2001;

4) paragraph 31 of the Implementation Plan of the Resolution of the World Summit for Sustainable Development adopted in Johannesburg in September 2002.

In the implementation of the IPOA-Sharks, the Mediterranean Action Plan for the Conservation of Chondrichthyan Fishes constitutes a proposal for regional strategies, pointing out priorities and actions to be undertaken at national and regional level, since regional coordination is needed to ensure implementation of conservation measures. The IPOA-Sharks suggests that member states of the FAO should develop national action plans when their fishing fleets conduct target or by-catch fisheries for sharks. With regards to this recommendation, the Contracting Parties to the Barcelona Convention are strongly urged to elaborate national action plans according to the priorities herein defined, in order to ensure the conservation, management and long-term sustainable use of the chondrichthyan resources in their environment.

Twenty-four species enlisted in the Annex II (list of endangered or threatened species) of the SPA/BD Protocol are already protected which based on Recommendation GFCM/36/2012/1 (now GFCM/42/2018/2) cannot be retained on board, trans-shipped, landed, transferred, stored, sold or displayed or offered for sale, and must be released unharmed and alive to the extent possible. Also, some Mediterranean countries have taken specific protection measures for these species to reinforce their conservation status. Many species of the list appear on the IUCN Red List and in the appendices to the Bern and Bonn Conventions, and some have been included in the CITES appendices.

Although such conservation measures that focus on particular species have been proving to be useful at species level, they are not sufficient at ecosystem level. That is why habitat and environment parameters should be included in the Action Plan. As a result, the guidelines for elaborating an Action Plan are the following:

- species conservation
- biodiversity maintenance
- habitat protection
- management for sustainable use

- scientific research
- monitoring
- funding for research, implementation and monitoring
- public awareness
- international cooperation for controls in the open sea.

Thus, implementation of the Action Plan should involve a great number of stakeholders and its success requires increasing cooperation between different jurisdictions, professional fishermen, conservation and environmental bodies, recreational and game fishing associations, scientific and research organisations and academic institutions, and military and administrative bodies, at national, regional and international levels.

INTRODUCTION

1. The chondrichthyan fish fauna of the Mediterranean is relatively diverse, with at least 48 species of sharks, 40 of batoids and two of chimaeras, even if some of them have to confirmed. All species are fished as bycatch. however, many of them are sold at fish markets, among them some species are very rare and may never have been common. However, there is evidence of the important negative impact of unmanaged and irresponsible fisheries on the populations of these chondrichthyan species.

2. Chondrichthyan fishes have specific biological characteristics, such as low reproduction productivity due to late sexual maturity and low fecundity, which make them vulnerable to long-lasting stresses and disturbances and slow to recover once depleted.

3. For chondrichthyan fishes, there also exists a close relationship between the number of young produced and the size of the breeding biomass (stock-recruitment relationship) and complex spatial structures (size/sex segregation and seasonal migration) that contribute to their vulnerability to habitat deterioration, environmental pollution, and over-exploitation.

4. Most sharks and some skates and rays are apex predators and have an important trophic function in the marine ecosystem. Therefore, the ecosystem approach is particularly important to understand the role of these fishes in the structuring and functioning of this system. The integrated effects of irresponsible fishing, pollution, and habitat destruction can result in changes in abundance, size structure and biological features, and in the extreme could lead to extinction. The indirect impacts include changes in species prey/predator composition, with species replacement, since fishing tends to remove larger species and larger individuals from ecosystems. Exploitation of chondrichthyans should respect the principles of sustainability and the precautionary principle as defined in the FAO Code of Conduct for Responsible Fisheries.

5. Elasmobranches are by far the most endangered group of marine fish in the Mediterranean Sea. The IUCN Red List shows clearly the vulnerability of elasmobranchs and the lack of data; 39 species (53% of 73 assessed species (2016)) are critically endangered, endangered, or vulnerable.13 % are data deficient (DD).

6. The Contracting Parties to the Barcelona Convention, within the framework of the Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Area of the Mediterranean (MAP Phase II), give priority to ensuring the protection of sensitive species, habitats and ecosystems in the Mediterranean Sea.

7. The decline of some chondrichthyan populations has become a matter for international concern, and a growing number of organisations have expressed the need for urgent measures to be introduced for the conservation of these fish. To this end, SPA/RAC was entrusted (Monaco, November 2001) by the Contracting Parties to the Barcelona Convention with the task of elaborating an action plan for the conservation of the chondrichthyan populations of the Mediterranean. This action plan was adopted within the frame work of the Barcelona Convention for the protection of the marine Environment and the Coastal Region of the Mediterranean in 2003.

8. Parties to Barcelona Convention requested SPA/RAC during the COP 20 (Tirana, Albania, 17-20 December 2017) to update this Action Plan. The updating, herein presented, was based mainly on:

- New scientific contribution on the ecology, biology and systematic of cartilaginous fish;
- New conservation technics;
- New data, resolutions and recommendations (GFCM…);
- IUCN red list new assessment.

9. Today, the serious threats to the populations of chondrichthyan fishes are widely acknowledged: mainly unmanaged and irresponsible fishing, pollution and the negative aspects of some littoral development. These threats affect both chondrichthyan biodiversity and abundance. The Mediterranean Sea being a semi-enclosed sea with strongly populated coastal countries, critical habitats have been damaged by some littoral development and pollution. Pollution may harm the marine ecosystem because contaminants, concentrating along the food webs, can alter the physiology and good functioning of individuals and populations.

10. Although the Mediterranean chondrichthyan fish fauna have been studied for a long time, scientific research still needs to be undertaken to study the biology, ecology, population dynamics and status of stocks of most of the species. These studies are necessary to better understand their ecological role. The taxonomic status of several species is still uncertain. A few species are endemic to the Mediterranean. Some Red Sea species penetrate into the eastern Mediterranean through the Suez Canal (Lessepsian migrants); the progression of the populations of these species, and the effect of these invaders on the Mediterranean ecology, should be carefully studied.

11. Since many chondrichthyans are wide-ranging and/or migratory, regional coordination is required for research, monitoring and enforcement. Also, information should be widely disseminated amongst the public to make it aware of the threats to chondrichthyans and the urgent need for their conservation and the management of their exploitation.

A. OBJECTIVES

12. The present Action Plan is aimed at promoting:

12.1. The general conservation of the chondrichthyan populations of the Mediterranean, by supporting and promoting national and regional programmes on reducing bycatch and all other kind of disturbance.

12.2. The protection of chondrichthyan species, mainly whose populations are considered vulnerable;

12.3. The identification, the protection and the restoration of critical habitats, such as mating, spawning and nursery grounds;

12.4. The improvement of scientific knowledge by research and scientific monitoring, including the creating of regional standardised databases;

12.5. The recovery of depleted chondrichthyan stocks;

12.6. Public awareness and capacity-building about conservation of chondrichthyans.

B. PRIORITIES

13. The following general priorities are recommended:

13.1. Urgent provision of legal protection status for the species enlisted in the Annex II (list of endangered or threatened species) of the SPA/BD Protocol, which based on Recommendation GFCM/36/2012/1 (now GFCM/42/2018/2) cannot be retained on board, trans-shipped, landed, transferred, stored, sold or displayed or offered for sale, and must be released unharmed and alive to the extent possible.

13.2. Other species are currently data-deficient with inadequate information to assess extinction risk. Thus, there is an urgent need to assess the status of these species: marbled Stingray (*Dasyatis marmorata*), Reticulate Whipray (*Himantura uarnak*), Lusitanian Cownose (*Rhinoptera marginata*), Round Fantail Stingray (*Taeniurops grabata*), bignose Shark (*Carcharhinus altimus*), copper Shark (*Carcharhinus brachyurus*), blacktip Shark (*Carcharhinus limbatus*), dusky Shark (*Carcharhinus obscurus*), spinner Shark (*Carcharhinus brevipinna*), sharpnose Sevengill Shark (*Heptranchias perlo*), longnose Spurdog (*Squalus blainville*), Shortnose Spurdog (*Squalus megalops*), Bigeyed Sixgill Shark (*Hexanchus nakamurai*) and Longfin Mako (*Isurus paucus*).

13.3. Identify further management and technical measures to minimize bycatch and mortality of sharks and develop management programmes for species currently marketed.

*13.3.1. Primarily for the endangered species: the dogfish (*Squalus acanthias*), the thresher sharks (*Alopias* spp.), the blue shark (*Prionace glauca*).

*13.3.2. Secondly, for the other commercially important species: the catsharks (*Scyliorhinus* spp. and *Galeus melastomus*), the hound sharks (*Mustelus* spp.), the requiem sharks (*Carcharhinus falciformis, C. limbatus, C. obscurus* and *C. plumbeus*), the skates (*Leucoraja* spp., *Raja* spp.), and the stingrays (*Dasyatis* spp.).

13.4. Ensure good practice for handling rays and sharks caught accidentally and encourage fishing practices that reduce chondrichthyan by-catch and/or facilitate live release.

13.5. Identify critical habitats for their protection and restoration, especially mating areas, and spawning and nursery grounds.

13.6. Develop research programmes on general biology (feeding, reproduction and growth parameters), taxonomy, ecology and population dynamics, with particular regard to genetic and migration studies.

13.7. Develop both systems for the monitoring of fisheries and fishery-independent monitoring programmes.

13.8. Develop training to ensure capacity-building at national and regional level, mainly in the following fields: taxonomy, biology, ecology, monitoring methods and stock assessment.

13.9. Develop information and education programmes for professionals and public awareness.

C. IMPLEMENTATION MEASURES

In order to implement the above-mentioned general priorities, specific measures should be taken at national and regional level:

C.1. Protection

14. Strict legal protection of elasmobranchs species under Annex II (list of endangered or threatened species) of the SPA/BD Protocol to the Barcelona Convention, which concerned by Recommendation GFCM/42/2018/2 on fisheries management measures for the conservation of sharks and rays in the GFCM area of application, amending Recommendation GFCM/36/2012/3 (cf. paragraphs 10.2 and 11.1) in accordance with national and international laws and conventions. The status of Mediterranean chondrichthyans should be regularly reviewed in order to recommend, when necessary, legal protection for threatened species.

C.2. Fisheries management

15. According to the principles of the IPOA-Sharks and of the UN Straddling Fish Stocks Agreement, states that contribute to fishing mortality for a species or stocks should participate in their management.

16. Existing assessment reports and fisheries management programmes should be adjusted to chondrichthyan fishes or specific plans should be developed within the framework of the IPOA-Sharks and the GFCM recommendation GFCM/42/2018/2.

17. It is urgent to collect precise fisheries statistics, mainly on catches and landings by species. For this purpose, field identification sheets should be published in appropriate languages, with the vernacular names included, and dispatched to fishery people. Also, data on fishing efforts should be collected, as far as possible.

17. bis. capacity building training of statistics collectors should be ensured and statistics categories defined.

18. Management programmes for chondrichthyan fishes should be based on studies of the assessment of stocks and populations. Management should be also based on by-catch and measures to reduce incidental catches studies.

19. To this end, guidelines for measures reducing by-catch and good handling practices of caught protected species should be published in the appropriate languages and circulated to all potential users. Protected species must be promptly released unharmed and alive to the extent possible.

20. Implementing a permanent monitoring of fisheries where chondrichthyans are impacted is a fundamental management measure, useful for the conservation-of these species. This action would permit the timely detection of an obvious decline in their biomasses that could be an unequivocal sign of over-fishing. This monitoring could be done through surveys, landing-site observation and the examining of logbooks. This action should also address sightings (strandings and observations at sea).

21. For most species, cooperative management is necessary at national, regional and international levels. The mechanisms for achieving a cooperative approach may consist of the following elements:

- information on existing exploited resources and management systems;
- the defining and provision of legal instruments;
- the use of a participatory planning approach;
- the defining of clear management agreements;
- the building and development of national groups.

22. Mediterranean countries shall ban finning following GFCM recommendation GFCM/42/2018/2; it shall be prohibited to remove shark fins on board vessels and to retain, tranship or land shark fins.

C.3. Critical habitats and environment

23. Field studies are needed to inventory and map critical habitats around the Mediterranean.

24. Legal protection should be given to these habitats, in conformity with the national and international laws and conventions on the subject, to prevent their deterioration due to the negative effects of human activity. When these habitats have deteriorated, restoration programmes should be undertaken. One example of legal protection is the creation, where possible, of marine protected areas in which human activity is regulated.

25. Such protection measures could be part of fishery management programmes as well as of integrated coastal zone management.

C.4. Scientific research and monitoring

26. Parallel to protection and conservation measures, properly funded and staffed scientific research programmes should be undertaken or developed, mainly on species biology and ecology, emphasising growth, reproduction, diet, geographical and bathymetric distribution, migration, population genetics and dynamics and risk assessment. Regional tagging (conventional, pop-up and satellite tag) programmes should be developed for migratory species. Also, fishing efforts exploratory cruises and the status of resources within the precautionary principle, should be assessed. In the same way, discard should be evaluated in terms of quantity and composition. Research on tools to avoid or reduce by-catch should be fostered.

27. For the monitoring of fisheries, the standardised collection of data at landing places and fish markets should be supplemented and completed by on-board observation programmes to gather

precise data on fisheries and on species biology. Also, logbooks adapted to chondrichthyan fisheries should be distributed to fishermen. The following set of data would be required:

- species composition of the catch with length frequency distribution by sex;
- retained catch by species in number and weight;
- discarded catch in number and weight (+ reasons for discard);
- released species in number (sex, length when possible);
- gear and vessel specifications and cruise characteristics;

Furthermore samples (vertebrae, dorsal spines) should be taken and adequately preserved for age determination, and tissue samples for genetic analysis (DNA).

28. Mediterranean countries should design, at both national and regional level, specific programmes, or widen existing ones, to cover the whole Mediterranean Sea, and to collect standardised quantitative data to estimate fish density (relative abundance). This would help evaluate the risk status of the various species.

C.5. Capacity building/training

29. The Contracting Parties should promote the training of specialists, fisheries officers and managers in the study and conservation of chondrichthyan fishes. To this end, it is important to identify already existing initiatives and to give priority to taxonomy, conservation biology and techniques for monitoring research programmes (cf. above paragraph on scientific research).

30. Training programmes should also focus on methods of fisheries data collection and stock assessment, especially data analysis.

C.6. Education and public awareness

31. For protection and conservation measures to be effective, public support should be obtained. In this respect, (1) information campaigns should be directed at national authorities, residents, teachers, visitors, professional fishermen, sport anglers, divers and any other stakeholder (2) Publication materials should be produced to present the life history, and vulnerability, of chondrichthyans and (3) education programme on the issue should be taught for school children.

32. Also, guidelines for chondrichthyan watching should be published and widely distributed to potential observers such as anglers, yachtsmen, divers, shark-fans, etc, in order to make them actively involved in the conservation of chondrichthyan fishes.

33. In this process of education and public awareness, the help of associations and other bodies involved in nature conservation should be solicited.

C.7. Regional coordinating structure

34. All the above-mentioned recommended actions related to the protection and the conservation of species and their habitats, and the research and educational programmes, should be monitored and implemented, with as much regional cooperation between all the countries operating in the Mediterranean basin as is possible.

35. These actions should be undertaken in cooperation with, and with the support of, other regional fisheries organisations (e.g. GFCM, ICCAT), through establishing MoUs where necessary. Non-governmental organisations, associations and national environmental bodies should also be involved.

36. Implementation of the present Action Plan will be regionally coordinated by the Mediterranean Action Plan's (MAP) Secretariat through the Regional Activity Centre for Specially Protected Areas (SPA/RAC). The main functions of the coordinating structure shall consist in:

- favouring and supporting the collection of data and publishing and circulating results at Mediterranean level;
- promoting the drawing up of inventories of species and areas of importance for the Mediterranean marine environment;
- promoting transboundary cooperation;
- preparing reports on progress in the implementation of the Action Plan, to be submitted to the Meeting of National Focal Points for SPAs/BD and to meetings of the Contracting Parties;
- organising meetings of experts on specific subjects relating to Mediterranean chondrichthyans, and training courses;
- promoting the review of status of species and fisheries by relevant organisations;
- One year after the adoption of the Action Plan, coordinating the organisation of a Mediterranean symposium aiming at defining the state of knowledge on chondrichthyan fishes and taking stock of the progress made in implementing the Action Plan;
- five years after the present updating of the Action Plan, organising a meeting to review the progress of the Action Plan and to propose a revision of the Action Plan if needed.

37. Complementary work done by other international organisations with the same objectives shall be encouraged by SPA/RAC, promoting coordination and avoiding possible duplication of effort.

38. Initiatives aiming at ensuring enforcement of the current Action Plan, particularly in international waters, should be promoted.

D. PARTICIPATION IN THE IMPLEMENTATION

39. Implementing the present Action Plan is the responsibility of the national authorities of the Contracting Parties. Parties should facilitate coordination between their national, environmental and fisheries departments to ensure implementation of activities directed at protected and non-protected chondrichthyan species. Organisations or bodies concerned are invited to associate themselves with the work of implementing the present Action Plan. At their ordinary meetings, the Contracting Parties may, at the suggestion of the Meeting of National Focal Points for SPAs/BD, grant the status of 'Action Plan Associate' to any organisation or laboratory which so requests and which carries out, or supports (financially or otherwise) the carrying out of, concrete actions (conservation, research, etc.) likely to facilitate the implementation of the present Action Plan, taking into account the priorities contained therein. NGOs can submit their applications directly to SPA/RAC.

A. The coordinating structure shall set up a mechanism for regular dialogue between the Action Plan Associates and, where necessary, organise meetings to this effect. Dialogue should be conducted mainly by mail, including e-mail.

E. TITLE OF ACTION PLAN PARTNER

40. To encourage and reward outside contributions to the Action Plan, the Contracting Parties may at their ordinary meetings grant the title of 'Action Plan Partner' to any organisation (governmental, NGO, economic, academic etc.) that has to its credit concrete actions likely to help protect chondrichthyan fishes in the Mediterranean. The title of Action Plan Partner will be awarded by the

Contracting Parties following recommendations made by the Meeting of National Focal Points for SPAs/BD.

F. ASSESSING THE IMPLEMENTATION AND REVISION OF THE ACTION PLAN

41. At each of their Meetings, the National Focal Points for SPAs/BD will assess the progress made in implementing the Action Plan, on the basis of national reports and of a report made by the SPA/RAC on implementation at regional level. In the light of this assessment, the Meeting of the National Focal Points for SPAs/BD will suggest recommendations to be submitted to the Contracting Parties, and, if necessary, suggest adjustments to the timetable given in the Annex to the Action Plan.

Implementation Timetable for the period 2020-2024

ACTIONS	CALENDER	BY WHOM
Tools		
1. Establish a network, enrich and update directory of national, regional and international experts on chondrichthyan fishes. (cf. § 33 of C.7 "Regional coordinating structure")	Continuous action (2020-2024)	SPA/RAC, CMS Shark MOU Secretariat, IUCN SSG, RFMO Shark Working Groups
2. Promote the use of the existing Field identification sheets (cf. § 15 of C.2. "Fisheries management")	Continuous action (2020-2024)	Contracting Parties & RFMOs
3. Promote the use of the GFCM manual (2019) “Monitoring the incidental catch of vulnerable species in the Mediterranean and the Black Sea: methodology for data collection” (cf. § C.2. "Fisheries management")	Continuous action (2020-2024)	Contracting Parties
Formalize/reinforce synchronous submission of catch, bycatch and discard data annually to the GFCM according to DCRF (Data Collection Reference Framework). (cf. § 25 of C.4. "Scientific research and monitoring")	Every year	Contracting Parties
5. Information campaigns and publishing materials for public awareness (cf. § C. 6 "Education and public awareness")	Continuous action (2020-2024)	SPA/RAC
6. Promote the use of existing guidelines for reducing the presence of sensitive species in by-catch and releasing them if caught. (cf. § 16 of C.2 «Fisheries management")	Continuous action (2020-2024)	SPA/RAC and RFMO
7.Update and promote protocols and programmes for improved compilation and analysis of data, for contribution to regional stock assessment initiatives. (cf. § 16 of C2 “Fisheries management” and 25 of C.4. "Scientific research and monitoring")	From 2020 to 2024	National and regional agencies and advisory bodies, CMS, GFCM and FAO.
8. Training manual on cartilaginous fish eco-biology (Taxonomy, biological parameters determination, identification and monitoring of fisheries and	ASAP	SPA/RAC

critical habitats, conservation…) (cf. § 29 of C.6 "Education and public awareness")		
9. Training courses on cartilaginous fish eco-biology (cf. § 27 of C.5 "Capacity building / Training")	ASAP	SPA/RAC
10. Symposium on Mediterranean chondrichthyan fishes (cf. § 33 of C.7 "Regional coordinating structure")	One year after adoption	SPA/RAC
11. Meeting to review progress made on the Action Plan (cf. § 33 of C.7 and § F "Assessing the implementation and revision of the Action Plan")	5 years after adoption	SPA/RAC
Legal processes		
12 a. Legal protection established for endangered species, recommended in this Action Plan, identified by country (species enlisted in Annex II of the SPA/BD Protocol) 12 b. Urgent assessment of the status of data deficient species, recommended in this Action Plan (assessed by IUCN) (cf. § 11.1. of B "Priorities"; C1 "Protection")	ASAP	Contracting Parties,
13. Legal protection for prohibiting "finning" according to the GFCM recommendation (GFCM/42/2018/2) (cf. § 19 of C.2 "Fisheries management")	ASAP	Contracting Parties & RFMOs
14. Critical habitats legally protected and monitored, as soon as they are identified. (cf. § C.3 «Critical habitats and environment")	ASAP	Contracting Parties
15. Establish and promote national, sub-regional and regional plans or strategies for cartilaginous fish species (mainly listed in Annexes II and III). (cf. § 14 of C.2 "Fisheries management")	2020-2024	Contracting Parties, SPA/RAC, GFCM, CMS
16. Facilitating the enforcement of legal measures aiming to set up a system for enforcement of monitoring fisheries in international waters such as extending MEDITS programme to all Mediterranean countries (Mediterranean International Trawl Survey). (cf. § 35 C. 7 "Regional coordinating structure")	2020-2024	Contracting Parties SPA/RAC, GFCM, CMS and EU
Monitoring and data collection		

17. Establishing research programmes, mainly on the biology, ecology and population dynamics of the main species identified by the countries (cf. § C. 4 "Scientific research and monitoring")	2020-2024	Contracting Parties
18. Support the establishing of, or feed the existing, centralised databases (DCRF, MEDLEM…) (cf. § C.7 "Regional coordinating structure")	2020-2024	Contracting Parties and SPA/RAC
19. Inventory of critical habitats (mating, spawning and nursery grounds) (cf. § 11.4 of "Priorities" and § C.3 "Critical habitats and environment")	2020-2024	Contracting Parties
20. Promote existing research proposals developed under the SPA/RAC Action Plan to funding agencies (cf. § C. 4 "Scientific research and monitoring")	2020-2024	SPA/RAC, CPs, AP partners
21.Promote programs on the status of bycatch to propose measures for attenuation of the phenomenon. Such programs should be developed with onboard observers and multispecies approach. (cf. § C. 4 "Scientific research and monitoring")	2020-2024	SPA/RAC, CPs, AP partners
22. Increase compliance with obligations to collect and submit species-specific commercial catch and bycatch data to FAO and GFCM, including through increased use of observers. (cf. § C. 7 "Regional coordinating structure")	From 2020 to 2024	Contracting Parties
23. Support expert participation in RFMO and other relevant meetings and workshops, to share expertise and build capacity for data collection, stock assessment and bycatch mitigation. (cf. § C.5 "Capacity building / Training")	As soon as possible	Contracting Parties, RFMO, SPA/RAC
Management and assessment procedures		
18. Continuously review data and undertake new studies to clarify the status of Mediterranean chondrichthyan species focusing on endemics and species assessed as Data Deficient or Near Threatened (cf. § 11.2 of B "Priorities"; 12 of C.1 ‘Protection’; 25 of C.4 "Scientific research and monitoring")	2020-2024	International organisations
20. Develop and adopt (where these do not exist) national Shark Plans (cf. § C.1 ‘Protection’, C.2. "Fisheries management", & C.3 "Critical habitats and environment").	2020-2024	Contracting Parties
21. Identify further management and technical measures to minimize bycatch and mortality of sharks in fisheries impacting cartilaginous fishes. (cf. § 11.4 of B "Priorities"’)	2020-2024	Contracting Parties& RFMOs

Annex V

Updated Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea

Updating of the calendar of the Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea

1. Review and actions to be envisaged within the framework of continuing with the action plan

On the basis of the review of the actions carried out during the 2012-2018 period, it is possible to propose activities to be undertaken in the following five years:

A regulatory approach should take the marine magnoliophytes into consideration (e.g. inclusion on the list of protected species, impact studies procedures before any developments, creation of an MPA targeting these species) even if some progress still needs to be made for most of the other plant species of annex II, which, apart from the Cystoseira genus, are practically never mentioned in these procedures.

> **A better integration of all the plant species of annex II of the SPA/BD Protocol in regulatory procedures is to be encouraged.**

Several plant species of annex II are registered within the MPA perimeter, due to efforts deployed for the creation of an MPA in order to comply with the commitments of the States within the framework of international conventions (CBD) and deployment of the Natura 2000 Network on the seas. Several MPAs have management plans in order to take better care of the conservation of these plant species. However, natural monuments are still not adequately described, especially within the MPAs whereas the investigations undertaken by France show that they are not necessarily as rare as previously thought, but as they are so superficially located, they are strongly threatened by human activities.

> **A systematic inventory of natural monuments should be given more attention so that they can be included in future MPAs and thus guarantee their sustainability.**

A significant increase in communication in favour of protected species with much more diverse communication actions such as the means used and the target public; the most publicized species in this domain is still *Posidonia oceanica* and the seagrasses it creates.

> **Communication actions must also be undertaken in favour of other plant species.**

A high frequentation rate of symposiums focusing of the plant action plan which reflects the progress made by the scientific community in terms of knowledge of the plant formations and which identifies the prioritary actions to be undertaken. Thus the 2014 symposium in Slovenia stressed the necessity of identifying the cause of the observed regressions so as to propose concrete measures as a remedy (e.g. Taking them into consideration during impact studies). The last edition (Turkey, January 2019), was along the same lines by requesting restoration actions to be carried out (Posidonia, Cystoseiras) to reconstitute/strengthen the natural populations and their ecological functions and allow them to maintain their eco-systemic services. These measures cannot compensate for the destruction of the species or habitats but must be part of a Code of Good Conduct so as to avoid any interventions which could fragilize these habitat (e.g. reimplantation, inappropriate sites):

These symposiums must be maintained as they provide an opportunity to assess the knowledge gained, to initiate cooperation and to elaborate strategies. There must also be a better understanding of the degradation of the plant formations (the cause and intensity) so as to implement measures (eg. restrictions, strengthening the populations, restoration) to effectively attenuate these impacts.

There is a significant improvement in knowledge in terms of the inventory and mapping of the seagrasses, compared with the previous evaluation. Despite the actions of several Parties to complete the data, considerable efforts still need to be deployed especially in the Southern and Eastern Mediterranean. The emergence of new investigation tools (Images Copernicus Sentinel 2/ Landsat 8, drones) should facilitate the mapping of large surface areas and other species of macrophytes (eg. Cymodosea, Cystoseira), especially as their distribution, apart from the Spanish littoral, are only partial and under-estimated. The adoption by the Contracting Parties of the Regional Climate Change Adaptation Framework (Decision IG 22/6; MAP/UNEP, 2016) made the mapping of marine and coastal ecosystems and the evaluation of the role of the services they provide and resilience to climate change a priority (operational objective 4.1). In view of the importance of the marine magnoliophytes meadows and in particular those of Posidonia in fixing and especially in the sequestration of organic carbon (Mateo et Romero, 1997; Pergent *et al*. 2014, Herr & Landis, 2016), actions in this domain should therefore be continued.

In conformity with the Regional Climate Change Adaptation Framework, the mapping of magnoliophyte meadows should be generalized so as to have an updated inventory of blue carbon sinks on a regional level and to ensure their future through adapted management measures (eg. restricted anchorage, prohibition of trawling, inclusion in the MPAs).

Initiatives have been taken for monitoring and the surveillance of plant formations. The implementation of the European directives (DHFF, DCE, DCSMM) as well as the commitments of the Contracting Parties to the Barcelona Convention for the implementation of the integrated monitoring and assessment programme (IMAP) within the framework of the ecosystemic approach process (UNEP-MAP-CAR/ASP- RAC/SPA, 2017) should, in the short term, be reflected through a generalisation of these approaches. Some Parties have indicated that they already started the planning process for the progressive introduction of IMAP into their national monitoring system. The experience acquired by the Parties who have pluri-annual monitoring systems shows that only long and sustainable chronological series can help to understand and quantify the evolutions of the habitats/species of conservation interest (vitality, habitats limits).

It is thus necessary to extend, strengthen and ensure the sustainability of the monitoring activities of the plant species in annex II, as envisaged within the IMAP framework.

Capacity building of the stakeholders on a regional and national level is ongoing even if the expectations of the Parties are still very high. Training sessions for national trainers, already mentioned during the previous evaluation, apparently have not been crystallized whereas this could be an approach to be tested in order to improve the competence of the local stakeholders.

Capacity building activities should be continued and aligned with the expectations of the Parties.

2. Updated work programme and timetable

The work programme would be as follows:

Activities for implementation of Action Plan	Deadline	Who ?
Regulatory activities		
- Encourage the Parties to better integrate all the plant species in Annexe II in the Party's regulatory tools (eg. protected species, impact study procedures, …)	As soon as possible	Parties & SPA/RAC
- Assist the Parties who have not already done so, to create MPAs for the conservation of Annex II plant species	As soon as possible	SPA/RAC & Parties
- Assist the Parties to create MPAs to strengthen the conservation of blue carbon ecosystems and the services they provide in particular to attenuate climate change impacts (carbon sinks)	As soon as possible	Parties & SPA/RAC
Inventory activities and mapping		
- Initiate a systematic inventory of natural monuments so that they can be included in future MPAs to ensure their sustainability	As soon as possible	SPA/RAC & Parties
- Establish a first inventory of plant formations considered as carbon sinks and generalize mapping them	As soon as possible	SPA/RAC & Parties
- Assist the countries in identifying the main pressures which could degrade the marine vegetation and elaborate strategies to develop better practices (eg. restoration, strengthening of population)	Ongoing	SPA/RAC & Parties
Surveillance and monitoring activities		
- Promote the setting up of monitoring networks of the main marine vegetation assemblages in conformity with the principles and common indicators of the integrated monitoring and evaluation programme (IMAP)	As soon as possible	SPA/RAC & Parties
- Assist the countries so that the monitoring networks of the main marine plant formations can be rendered sustainable so as to obtain long chronological series	Ongoing	SPA/RAC & Parties
Capacity and knowledge building activities		
- Organize a symposium every 3 years and disseminate as widely as possible the conclusions and propositions formulated by the participants	From 2021	SPA/RAC
- Update and make accessible the data pertaining to the mapping of priority habitats and natural monuments	As soon as possible	SPA/RAC & Parties
- Complete and regularly revise the list of specialists, laboratories and institutions and encourage exchanges amongst themselves	At symposiums	SPA/RAC
- Set up communication actions on annex II plant species by targeting the least well-known ones	As soon as possible	SPA/RAC & Parties Parties & SPA/RAC
- Continue with capacity building activities and align them with the expectations of the Parties	Ongoing	SPA/RAC
- Test the setting up of training of national trainers (professional staff – relays) and assess its efficacy	As soon as possible	Parties & SPA/RAC
- Assist the countries in setting up regular national training sessions	Ongoing	

Annex VI

Updated Classification of Benthic Marine Habitat Types for the Mediterranean Region

Updated Classification of Benthic Marine Habitat Types for the Mediterranean Region

LITTORAL

MA1.5 Littoral rock

MA1.51 Supralittoral rock

MA1.511 Association with Cyanobacteria and lichens (e.g. *Verrucaria* spp.)

MA1.512 Association with Ochrophyta

MA1.513 Facies with Gastropoda (e.g. Littorinidae, Patellidae) and Chthamalidae

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

MA1.51b Wracks of dead leaves of macrophytes

MA1.52 Mediolittoral caves

MA1.521 Association with encrusting Corallinales or other Rodophyta

MA1.53 Upper mediolittoral rock

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

MA1.532 Association with Bangiales or other Rodophyta, or Chlorophyta

MA1.533 Facies with Bivalvia (e.g. *Mytilus* spp.)

MA1.534 Facies with Gastropoda(e.g. *Patella* spp.) and with Chthamalidae

MA1.54 Lower mediolittoral rock

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

MA1.542 Association with Fucales

MA1.543 Association with algae (algal belts), except Fucales and Corallinales

MA1.544 Facies with *Pollicipes pollicipes*

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

MA1.546 Facies with Bivalvia (e.g. *Mytilus* spp.)

MA1.547 Facies with Gastropoda (e.g. *Patella* spp.)

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

MA3.51b Beaches with slowly-drying wracks

MA3.52 Mediolittoral coarse sediment

MA3.521 Association with indigenous marine angiosperms

MA3.522 Association with *Halophila stipulacea*

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

MA4.51b Beaches with slowly-drying wracks

MA4.52 Mediolittoral mixed sediment

MA4.521 Association with indigenous marine angiosperms

MA4.522 Association with *Halophila stipulacea*

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

MA5.51b Beaches with slowly-drying wracks

MA5.52 Mediolittoral sands

MA5.521 Association with indigenous marine angiosperms

MA5.522 Association with *Halophila stipulacea*

MA5.523 Facies with Polychaeta

MA5.524 Facies with Bivalvia

MA5.52a Deposit of dead leaves of macrophytes

MA6.5 Littoral mud

MA6.51 Supralittoral mud

MA6.511 Association with macrophytes

MA6.51a Beaches with slowly-drying wracks under glassworts

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*)

MA6.522a Habitats of salinas

INFRALITTORAL

MB1.5 Infralittoral rock

MB1.51 Algal-dominated infralittoral rock

MB1.51a Well illuminated infralittoral rock, exposed

MB1.511a Association with Fucales

MB1.512a Association with photophilic algae, except Fucales, Corallinales and Caulerpales

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

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

MB1.515a Association with non-indigenous Mediterranean *Caulerpa* spp.

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

MB1.517a Facies with Bivalvia (e.g. *Mytilus* spp.)

MB1.518a Facies with Echinoidea on encrusting Corallinales (barren ground)

MB1.51b Moderately illuminated infralittoral rock, exposed

MB1.511b Association with encrusting Corallinales

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

MB1.513b Association with non-indigenous Mediterranean *Caulerpa* spp.

MB1.514b Facies with Hydrozoa

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

MB1.51c Well illuminated infralittoral rock, sheltered

MB1.511c Association with Fucales

MB1.512c Association with photophilic algae, except Fucales, Corallinales and Caulerpales

MB1.513c Association with encrusting Corallinales

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

MB1.515c Association with non-indigenous Mediterranean *Caulerpa* spp.

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

MB1.51d Moderately illuminated infralittoral rock, sheltered

MB1.511d Association with encrusting Corallinales

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

MB1.513d Association with non-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.

MB1.514e Association with non-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.

MB1.522a Association with non-indigenous Mediterranean *Caulerpa* spp.

MB1.523a Facies with small sponges (sponge ground)

MB1.524a Facies with Scleractinia (e.g. *Astroides calycularis,Cladocora caespitosa, Polycyathus muellerae, Pourtalosmilia anthophyllites*)

MB1.525a Facies with Alcyonacea (e.g. *Eunicella* spp., *Paramuricea clavata, Corallium rubrum*)

MB1.53 Infralittoral rock affected by sediments

MB1.531 Facies with small sponges (sponge ground)

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.)

MB1.535 Facies with Ascidiacea

MB1.536 Facies with Bivalvia (e.g. *Pholas dactylus*)

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

MB2.544 Dead matte of *Posidonia oceanica*

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*)

MB3.522 Facies with Polychaeta

MB3.53 Infralittoral pebbles

MB3.531 Facies with *Gouania willdenowi*

MB4.5 Infralittoral mixed sediment

MB5.5 Infralittoral sand

MB5.51 Fine sand in very shallow waters

MB5.511 Facies with Bivalvia (e.g. *Lentidium mediterraneum*)

MB5.52 Well sorted fine sand

MB5.521 Association with indigenous marine angiosperms

MB5.522 Association with *Halophila stipulacea*

MB5.523 Association with photophilic algae

MB5.53 Fine sand in sheltered waters

MB5.531 Association with indigenous marine angiosperms

MB5.532 Association with *Halophila stipulacea*

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

MB5.534 Association with non-indigenous Mediterranean *Caulerpa* spp.

MB5.535 Association with photophilic algae, except Caulerpales

MB5.536 Facies with Bivalvia

MB5.537 Facies with Polychaeta

MB5.538 Facies with Crustacea Decapoda

MB5.539 Facies of *Tritianeritea* 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

MB5.543 Association with photophilic algae, except Fucales

MB5.544 Facies with Polychaeta

MB5.545 Facies with Bivalvia (e.g. *Mytilus* spp.)

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

MC1.511a Association with encrusting Corallinales

MC1.512a Association with Fucales or Laminariales

MC1.513a Association with algae, except Fucales, Laminariales, Corallinales and Caulerpales

MC1.514a Association with non-indigenous Mediterranean *Caulerpa* spp.

MC1.51b Invertebrate-dominated coralligenous

MC1.511b Facies with small sponges (sponge ground, e.g. *Ircinia* spp.)

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

MC1.513b Facies with Hydrozoa

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

MC1.515b Facies with Ceriantharia (e.g. *Cerianthus* spp.)

MC1.516b Facies with Zoantharia (e.g. *Parazoanthus axinellae*, *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*)

MC1.51Ab Facies with Ascidiacea

MC1.51c Invertebrate-dominated coralligenous covered by sediment

See MC1.51b for examples of facies

MC1.52 Shelf edge rock

MC1.52a Coralligenous outcrops

MC1.521a Facies with small sponges (sponge ground)

MC1.522a Facies with Hydrozoa

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*)

MC1.527a Facies with Polychaeta

MC1.528a Facies with Bivalvia

MC1.529a Facies with Brachiopoda

MC1.52b Coralligenous outcrops covered by sediment

See MC1.52a for examples of 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. D*endrophyllia* 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*)

MC1.532a Facies with Hydrozoa

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

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

MC1.535a Facies with Zoantharia (e.g. *Parazoanthus axinellae*)

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

MC1.537a Facies with Ascidiacea

MC1.53b Ceilings

See MC1.53a for examples of facies

MC1.53c Detritic bottom

See MC3.51 for examples of 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

MC2.511 Association with encrusting Corallinales

MC2.512 Association with Fucales

MC2.513 Association with non-indigenous Mediterranean *Caulerpa* spp.

MC2.514 Facies with small sponges (sponge ground, e.g. *Ircinia* spp.)

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

MC2.516 Facies with Hydrozoa

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

MC2.518 Facies with Zoantharia (e.g. *Parazoanthus axinellae, Savalia savaglia*)

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

MC2.51A Facies with Vermetidae and/or Serpulidae

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

MC2.51C Facies with Ascidiacea

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.)

MC3.513 Facies with Hydrozoa

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

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

MC3.516 Facies with Polychaeta (Salmacina-Filograna complex included)

MC3.517 Facies with Bivalvia (e.g. *Pecten jacobaeus*)

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

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

MC3.51A Facies with Ophiuroidea (e.g. *Ophiura* spp., *Ophiothrix* spp.)

MC3.51B Facies with Echinoidea (e.g. *Neolampas* spp., *Spatangus purpureus*)

MC3.51C Facies with Ascidiacea

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.)

MC3.525 Facies with Hydrozoa

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

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

MC3.528 Facies with Zoantharia (e.g. *Epizoanthus* spp.)

MC3.529 Facies with Ascidiacea

MC4.5 Circalittoral mixed sediment

MC4.51 Muddy detritic bottoms

MC4.511 Facies with Hydrozoa(e.g. *Lytocarpia myriophyllum*, *Nemertesia* spp.)

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

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

MC4.514 Facies with Polychaeta

MC4.515 Facies with Ophiuroidea (e.g. *Ophiothrix* spp.)

MC4.516 Facies with Ascidiacea

MC5.5 Circalittoral sand

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*)

MC6.513 Facies with Gastropoda (e.g. *Turritella* spp.)

OFFSHORE CIRCALITTORAL

MD1.5 Offshore circalittoral rock

MD1.51 Offshore circalittoral rock invertebrate-dominated

MD1.511 Facies with small sponges (sponge ground, e.g. *Haliconas*pp., *Phakellia* spp., *Poecillastra* spp.)

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*)

MD1.516 Facies with Ceriantharia (e.g. *Cerianthus* spp.)

MD1.517 Facies with Zoantharia (e.g. *Savalia savaglia*)

MD1.518 Facies with Polychaeta

MD1.519 Facies with Bivalvia

MD1.51A Facies with Brachiopoda

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 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 (yellow corals forest, 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 facies

MD3.5 Offshore circalittoral coarse sediment

MD3.51 Offshore circalittoral detritic bottoms

MD3.511 Facies with Bivalvia (e.g. *Neopycnodonte* spp.)

ME2.512 Facies with Brachiopoda

MD3.513 Facies with Polychaeta

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

MD3.515 Facies with Ophiuroidea

MD3.516 Facies with Echinoidea

MD4.5 Offshore circalittoral mixed sediment

MD4.51 Offshore circalittoral detritic bottoms

See MD3.51 for examples of facies

MD5.5 Offshore circalittoral sand

MD5.51 Offshore circalittoral sand

See MD3.51 for examples of facies

MD6.5 Offshore circalittoral mud

MD6.51 Offshore terrigenous sticky muds

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

MD6.512 Facies with Polychaeta

MD6.513 Facies with Bivalvia (e.g. *Neopycnodonte* spp.)

MD6.514 Facies with Brachiopoda

MD6.515 Facies with Ceriantharia (e.g. *Cerianthus* spp., *Arachnanthus* spp.)

UPPER BATHYAL

ME1.5 Upper bathyal rock

ME1.51 Upper bathyal rock invertebrate-dominated

ME1.511 Facies with small sponges (sponge ground; e.g. *Farrea bowerbanki*, *Halicona* spp., *Podospongia loveni*, *Tretodictyum* spp.)

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 Bivalvia (e.g. *Neopycnodonte* spp.)

ME1.519 Facies with Brachiopoda

ME1.52 Caves and ducts in total darkness

ME2.5Upper bathyal biogenic habitat

ME2.51 Upper bathyal reefs

ME2.511 Facies with small sponges (sponge ground)

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 Bivalvia (e.g. *Neopycnodonte* spp.)

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

ME2.516 Facies with Brachiopoda

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

See ME1.51 for examples of 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 Bivalvia (e.g. *Neopycnodonte* spp.)

ME4.512 Facies with Brachiopoda

ME5.5 Upper bathyal sand

ME5.51Upper bathyal detritic sand

ME5.511 Facies with small sponges (sponge ground, e.g. *Rhizaxinella* spp.)

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

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

ME5.514 Facies with Echinoidea

ME5.515 Facies with Bivalvia (e.g. *Neopycnodonte* spp.)

ME5.516 Facies with Brachiopoda

ME5.517 Facies with Bryozoa

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

ME6.5 Upper bathyal muds

ME6.51 Upper bathyal muds

ME6.511 Facies with small sponges (sponge ground, e.g. *Pheronema* spp., *Thenea* spp.)

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*)

ME6.515 Facies with Crustacea Decapoda (e.g. *Aristeus antennatus*, *Nephrops norvegicus*)

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

ME6.517 Facies with Echinoidea (e.g. *Brissopsis* spp.)

ME6.518 Facies with Bivalvia (e.g. *Neopycnodonte* spp.)

ME6.519 Facies with Brachiopoda

ME6.51A Facies with Ceriantharia (e.g. *Cerianthus* spp., *Arachnanthus* 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

MF1.511 Facies with small sponges (e.g. *Stylocordyla* spp.)

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

MF2.511Facies 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 facies

MF6.5 Lower bathyal muds

MF6.51 Sandy muds

MF6.511 Facies with small sponges (e.g. *Thenea* spp.)

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

MF6.513 Facies with Echinoidea (e.g. *Brissopsis* spp.)

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

MF6.515 Facies with bioturbations

ABYSSAL

MG1.5 Abyssal rock

MG1.51 Abyssal rock

MG1.511 Facies with small sponges

MG1.512 Facies with Alcyonacea

MG1.513 Facies with Polychaeta

MG1.514 Facies with Crustacea (Amphipoda, Isopoda, Tanaidacea)

MG6.5 Abyssal muds

MG6.51 Abyssal muds

MG6.511 Facies with small sponges

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

MG6.513 Facies with Polychaeta

MG6.514 Facies with Crustacea (Amphipoda, Isopoda, Tanaidacea)

MG6.515 Facies with bioturbations

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[14]. They can hold a "complex of habitats" and geoforms that cannot be treated in isolation, 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

[14]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 marine section of the EUNIS habitat classification[15]

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	Phytal gradient/ hydrodynamic gradient	Littoral	MA1	MA2	MA3	MA4	MA5	MA6
		Infralittoral	MB1	MB2	MB3	MB4	MB5	MB6
		Circalittoral	MC1	MC2	MC3	MC4	MC5	MC6
	Aphytal/ hydodynamic 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)
INFRALITTORAL (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, Artic and Mediterranean (the latter corresponding to the code 5).

[15]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 VII

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

Updated Reference List of Marine Habitat Types for the 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*, *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. D*endrophyllia* 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 spharensis*, *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 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

ME2.5Upper 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

ME5.51Upper 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

MF2.511Facies 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[16]. 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

[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[17]

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	Phytal gradient/ hydrodynamic gradient	Littoral	MA1	MA2	MA3	MA4	MA5	MA6
		Infralittoral	MB1	MB2	MB3	MB4	MB5	MB6
		Circalittoral	MC1	MC2	MC3	MC4	MC5	MC6
	Aphytal/ hydodynamic 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)
INFRALITTORAL (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, Artic and Mediterranean (the latter corresponding to the code 5).

[17]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^{-1}: 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).

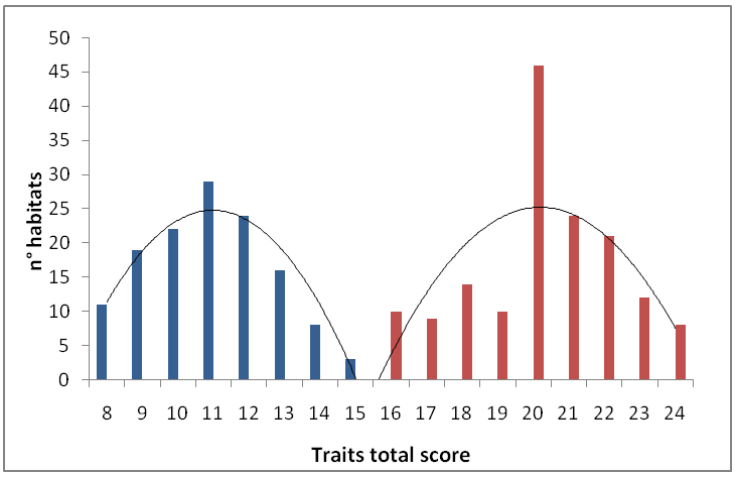

Figure 1. Number of habitats (up to the level 5 of the classification) belonging to each class of the traits total score. The model describing a normal distribution is also represented for both groups.

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 ≥ 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.

Decision IG.24/8

Road Map for a Proposal for the Possible Designation of the Mediterranean Sea, as a whole, as an Emission Control Area for Sulphur Oxides Pursuant to MARPOL Annex VI, within the Framework of the Barcelona Convention

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 United Nations General Assembly in its resolution 66/288 of 27 July 2012,

Recalling also the United Nations General Assembly resolution 70/1 of 25 September 2015, entitled "Transforming our world: the 2030 Agenda for Sustainable Development",

Recalling further the United Nations Environment Assembly resolution UNEP/EA.4/Res. 21 of 15 March 2019, entitled "Towards a pollution-free planet",

Having regard to the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (2002), in particular article 4 thereof, whereby the Parties shall take measures in conformity with international law to prevent the pollution of the Mediterranean Sea from ships in order to ensure the effective implementation in that Area of the relevant international conventions in their capacity as flag State, port State and coastal State, and their applicable legislation,

Recalling further the Regional Strategy for Prevention of and Response to Marine Pollution from Ships, adopted by the Contracting Parties at their 14th Meeting (COP 14) (Portoroz, Slovenia, 8-11 November 2005), which, under Specific Objective 13, aimed at examining the possibility of designating the Mediterranean Sea, as a whole, as a sulphur oxides (SO_x) Emission Control Area (ECA) under Annex VI to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and as further amended by the Protocol of 1997 (MARPOL), hereinafter referred to as the proposed Mediterranean Emission Control Area (Med SO_x ECA),

Recalling further Decision IG.22/4 on the Regional Strategy for Prevention of and Response to Marine Pollution from Ships (2016-2021) adopted by the Contracting Parties at their 19th Meeting (COP 19) (Athens, Greece, 9-12 February 2016), which, under Specific Objective 15, aims at examining the possibility of designating the proposed Mediterranean Emission Control Area (Med SO_x ECA) and effectively implementing the existing energy efficiency measures,

Acknowledging the role of the International Maritime Organization (IMO) and the importance of cooperating within the framework of this Organisation, in particular in promoting the adoption and the development of international rules and standards to prevent, reduce and control pollution of the marine environment from ships,

Having also regard to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, and as further amended by the Protocol of 1997 (MARPOL), in particular Annex VI thereof on regulations for the prevention of air pollution from ships, as amended, and regulation 14 thereof on sulphur oxides (SO_x) and particulate matter, as well as Appendix III thereto on criteria and procedures for designation of emission control areas (ECAs),

Recalling the mandate of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) within the MAP-Barcelona Convention System and its relevance to the implementation of this Decision,

Conscious that international shipping must be regulated at the global level for any control regime to be effective and to maintain a level playing field for all ships,

Noting with concern the impacts of emissions of SO_x from ships on human health and the environment in the Mediterranean region and, *underlining* the importance of taking actions to deal with such an issue, including through a proposal for the possible designation of the Mediterranean Emission Control Area (Med SO_x ECA),

Recognising the willingness and benefits of designating the Mediterranean Sea, as a whole, as a sulfur oxides Emission Control Area (SO_x ECA),

Acknowledging the existing studies on the technical feasibility of a designation of a nitrogen oxides ECA in the Mediterranean Sea, as a whole, carried out by the European Union (EU) and France for consideration of further work,

Highlighting the importance of providing continued assistance for the ratification and effective implementation of MARPOL Annex VI to the Contracting Parties to the Barcelona Convention, which so request,

Stressing the need to complete the knowledge gathering and to carry out further studies notably socio-economic in support of the proposal for the possible designation of the Mediterranean Emission Control Area (Med SO_x ECA),

Noting that, as from 1 January 2020, in accordance with MARPOL Annex VI and relevant resolutions of the International Maritime Organization (IMO), the limit for sulphur in fuel oil used on board ships will be reduced to 0.50% m/m from 3.5% m/m, which will bring about substantive influence on the fuel supply and other related businesses,

Emphasising the importance of designating the Mediterranean Sea, as a whole, as a sulfur oxides Emission Control Area (SOx ECA),

Having considered the report of the Thirteenth Meeting of the Focal Points of REMPEC, held in Floriana, Malta, from 11 to 13 June 2019,

1. *Adopt* the road map for a proposal for the possible designation of the Mediterranean Sea, as a whole, as an emission control area for sulphur oxides pursuant to MARPOL Annex VI, within the framework of the Barcelona Convention, set out in the Annex to the present Decision and with the view of formally submitting the proposal to the 78th Session of the IMO's Marine Environment Protection Committee (MEPC78) scheduled for 2022;

2. *Agree* to finalize, based on the outcome of the further studies and the preparatory work, the development of a mutually agreed joint and coordinated proposal for the possible designation by the IMO of the Mediterranean Sea, as a whole, as an Emission Control Area for sulphur oxides pursuant to MARPOL Annex VI;

3. *Request* the Secretariat to provide the necessary technical and financial support to Contracting Parties and to address any needs identified with the studies before the designation of the proposed Mediterranean Emission Control Area (Med SO_x ECA);

4. *Agree* to extend the mandate of the Mediterranean Action Plan (MAP) sulfur oxides (SOx) Emission Control Area (ECA)(s) Technical Committee of Experts, until 30 April 2021, to oversee the completion of the knowledge gathering and the preparations of further studies, notably socio-economic impacts on individual Contracting Parties *inter alia* as indicated in the Annex to the

present Decision, including the development of their respective terms of reference, through correspondence coordinated by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), when examining the possibility of designating the proposed Mediterranean Emission Control Area (Med SO_x ECA);

5. *Request* the Secretariat to update the initial draft submission to the International Maritime Organization (IMO) for a proposal for the possible designation of the Mediterranean Sea, as a whole, as an Emission Control Area for sulfur oxides pursuant to MARPOL Annex VI, under the guidance of the Mediterranean Action Plan (MAP) sulfur oxides (SO_x) Emission Control Area (ECA)(s) Technical Committee of Experts referred to in paragraph 4 above in line with the agreed road map;

6. *Call upon* the Contracting Parties to provide full support, both technically, in terms of expertise, and financially, in terms of voluntary contributions, where appropriate, to the further work of the Mediterranean Action Plan (MAP) sulfur oxides ($SO_{x)}$ Emission Control Area (ECA)(s) Technical Committee of Experts in order to ensure that the above-mentioned knowledge gathering is completed and the above-mentioned further studies are carried out in a coordinated, timely and effective manner;

7. *Encourage* the Contracting Parties to the Barcelona Convention to ratify and effectively implement MARPOL Annex VI, if they have not yet done so, as soon as possible;

8. *Underline* the need to ensure the necessary synergy in supporting these efforts, through the technical cooperation and capacity-building activities carried out by the International Maritime Organization (IMO), the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), the European Commission and the European Maritime Safety Agency, in the Mediterranean region;

9. *Request also* the Secretariat to prepare an information document related to the adoption of the present Decision and submit it to the next session of the International Maritime Organization (IMO)’s Marine Environment Protection Committee for its consideration;

10. *Underline also* the need to encourage and support preparation efforts and mitigate potential impacts as relevant, in line, with outcomes of further knowledge gathering through relevant frontrunner activities and financial, and capacity building mechanisms.