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Agenda Item 6: Conservation of sites of particular ecological interest
6.2: Outputs and deliverables of the Ad hoc Group of Experts for MPAs in the Mediterranean (AGEM); and evaluation of the AGEM and its activities during its trial period

Report on the Ad hoc group of Experts for MPAs in the Mediterranean (AGEM) during its trial period (2018-2019)

Report on the Ad hoc group of Experts for MPAs in the Mediterranean (AGEM) during its trial period (2018-2019)

Background and context

1. By the Decision IG.22/20[1] of the 19th ordinary meeting of the Contracting Parties to the Barcelona Convention (Athens, Greece, 9-12 February 2016), related to the Mediterranean Action Plan (MAP) Programme of Work and Budget for 2016-2017, the Specially Protected Areas Regional Activity Centre (SPA/RAC) was requested to set up an ad hoc group of experts on marine protected areas (MPAs) issues under the Specially Protected Areas and Biological Diversity Protocol (SPA/BD Protocol) (Key Output 3.1.1).

2. This decision stems from the challenges that the Mediterranean network of MPAs is facing. Despite the significant progress made during the last decade, the latter needs a stronger development and implementation effort.

3. Most of the Mediterranean States are committed under the Convention on Biological Diversity (CBD) to develop a comprehensive, well-managed, effective and equitable, ecologically representative and well-connected system of MPAs to achieve the Aichi Biodiversity Target 11. Reaching this target requires to increase the total surface area and natural features covered by MPAs and to improve their management and governance systems. Integrating MPAs within their social and economic context is another important challenge faced by the region.

4. Addressing these challenges implies that MPA governance be based on the best available knowledge, taking advantage of the expertise and experience of a wide range of disciplines. This could be reached through establishing an ad hoc group of experts that, based on the regular assessment of the status of the Mediterranean MPAs, provides countries and international organizations with advice on how to strengthen the Mediterranean network of MPAs.

5. Being multidisciplinary, the ad hoc group of experts will address the challenges through a more holistic vision towards a proper and timely achievement of the Aichi targets, Sustainable Development Goal (SDG) 14 on oceans, seas and marine resources, Good Environmental Status (GES) of the Mediterranean Sea targets stated by the Barcelona Convention Ecosystem Approach (EcAp) process, and/or other objectives to be reached at regional level.

6. The primary mission of this group of experts is to provide scientific and technical guidance to improve the Mediterranean network of MPAs in terms of coverage, representativity, connectivity and management effectiveness.

7. The first task to be undertaken by the Ad hoc group of experts for MPAs in the Mediterranean (AGEM) would be the monitoring of the progress in the implementation of the "Roadmap for a Comprehensive Coherent Network of Well-Managed Marine Protected Areas (MPAs) to Achieve Aichi Target 11 in the Mediterranean"[2] adopted by the 19th ordinary meeting of the Contracting Parties to the Barcelona Convention (Athens, Greece, 9-12 February 2016).

8. To that end, SPA/RAC has prepared draft terms of reference and submitted them to its 13th meeting of focal points (Alexandria, Egypt, 9-12 May 2017). The meeting reviewed the proposed rationale and terms of reference (appearing as Annex I to the present report) and agreed that the ad hoc

[1] https://wedocs.unep.org/bitstream/handle/20.500.11822/6085/16ig22_28_22_20_eng.pdf?sequence=1&isAllowed=y
[2] http://www.rac-spa.org/sites/default/files/action_plans/fdr_en.pdf

group of experts be established on a trial basis during the coming intersession (2018-2019), using the funds mobilized under the European Union-funded "MedMPA Network" project[3], which would be completed by September 2019.

9. The meeting requested SPA/RAC to evaluate the functioning of the group and its activities during the trial period and to submit a report to the 14th meeting of SPA/RAC focal points in mid-2019. During their 14th meeting, SPA/RAC focal points would assess the added value of the ad hoc group's outputs and deliverables and make a recommendation to the Contracting Parties on whether the group should be continued, adjusted or terminated.

10. The present report provides information on the main activities and deliverables produced by the Ad hoc group of Experts for MPAs in the Mediterranean (AGEM) in support to the SPA/RAC mandate on marine and coastal protected areas.

Report on the AGEM activities during the period 2018-2019

Establishment of the AGEM

11. After consultations with its focal points on the criteria for the identification of potential members as well as on the composition of the group of experts at its pilot phase, SPA/RAC established the AGEM and convened its first meeting on 22-23 February 2018, in Tunis (Tunisia).

12. The AGEM is made of 20 members, including:
- 16 specialists in the eight following disciplines (2 members per discipline): (i) MPA management, (ii) MPA planning, (iii) Marine Biology/Ecology, (iv) Law and regulation, (v) Socio-economics (other than fisheries and tourism), (vi) Fisheries, (vii) Nature-based tourism MPA, and (viii) Financing; and
- 1 representative of each of the following four scientific bodies: (i) the Scientific Committee of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), (ii) the Scientific Advisory Committee (SAC) of the General Fisheries Commission for the Mediterranean (GFCM), (iii) the Scientific Committee of the Network of Marine Protected Areas Managers in the Mediterranean (MedPAN), and (iv) the marine working group of the World Commission on Protected Areas (WCPA marine) of IUCN.

13. The AGEM composition has also respected a balanced geographical representativity of all the Mediterranean sub-regions.

14. The contribution of the AGEM members is on a voluntary basis and the group members contributed in their personal capacity and not as representatives of their countries or organizations.

15. The list of AGEM members during its trial period (2018-2019) appears in Annex II to the present report.

16. During its first meeting, based on a proposal by the secretariat, and in respect of the principles of geographical distribution, the AGEM members designated the following chair and vice-chair for two years:
- Chairperson: Mr. François Simard (WCPA marine, Gland, Switzerland), and

[3] Towards an ecologically representative and efficiently managed network of Mediterranean Marine Protected Areas: http://www.rac-spa.org/medmpanetwork

- Vice-chairperson: Mr. Hocein Bazairi (expert in marine biology/ecology, Mohammed V University, Rabat, Morocco).

17. The first meeting of the AGEM has mainly discussed the state of MPAs in the Mediterranean and assessed the progress made in the implementation of the "Roadmap for a Comprehensive Coherent Network of Well-Managed MPAs to Achieve Aichi Target 11 in the Mediterranean" (MPA Roadmap).

Assessment of the progress made in the implementation of the "Roadmap for a Comprehensive Coherent Network of Well-Managed MPAs to Achieve Aichi Target 11 in the Mediterranean"

18. Many ideas were raised during the discussions and recommendations to overcome the gaps in knowledge and governance of Mediterranean MPAs were provided. The main conclusions and recommendations of the AGEM assessment in relation to the four objectives of the MPA Roadmap appear as Annex III to this report.

19. The assessment of the progress made in the implementation of the MPA Roadmap led the AGEM to identify priority topics deserving special attention:

- The added value of MPAs in terms of socio-economic development and widening the benefits from the ecosystem services.
- MPAs as a tool of governance and integrated management of the coastal area (on land and at sea).
- How to reach the qualitative ("effectively and equitably managed systems") aspects of Aichi Target 11.
- The strengthening of the Mediterranean MPA network, as envisaged under the SPA/BD Protocol: legal challenges and recommendations to overcome them.
- The need of establishing a directory of Mediterranean MPAs under the Barcelona Convention.
- Reflexion on the need to increase the percentage of no-take-zones (NTZ) in the Mediterranean Sea.
- Reflexion on the causes impeding the creation of MPAs in the Mediterranean open sea.
- Assessment of the ecological coherence and adequacy of the Mediterranean MPA network.

20. For further details, please refer to the meeting report available on the following link: http://rac-spa.org/cormon1/docs/report_agem_feb.2018_eng.pdf.

21. Based on the above pool of topics, and given the limited time available, the AGEM members decided to work jointly on the elaboration of concept notes regarding the four following topics to be submitted to SPA/RAC and the SPA/BD Focal Points for consideration:

- Establishing a Mediterranean Specially Protected Areas (SPAs) Directory under the Barcelona Convention;
- How to reach the qualitative aspects of Aichi Target 11;
- The role of the Mediterranean MPAs as reference sites for the IMAP; and
- Strengthening the socio-economic role MPAs in the Mediterranean.

Concept notes elaborated by the AGEM about specific topics of particular importance for the development of MPAs in the Mediterranean

22. After their first face-to-face meeting, the AGEM members worked through exchange of e-mails on the elaboration of the draft concept notes with the help of SPA/RAC who convened a second face-to-face meeting of the AGEM held in Tunis (Tunisia), on 15 March 2019. The works of the second meeting focused on the review and finalisation of the concept notes with the view of submitting them

for consideration by the SPA/BD Focal Points during their meeting planned for June 2019. The outputs of the second face-to-face meeting of the AGEM were therefore the following concept notes:

- Guidelines for strengthening the sustainable socio-economic role of Mediterranean marine and coastal protected areas (MPAs) (Annex IV to this report);
- Draft Concept note on how to reach the qualitative aspects of Aichi Target 11 in the Mediterranean (Annex V to this report);
- Draft Terms of references for the establishment under the Barcelona Convention of a Directory of Mediterranean Marine and Coastal Protected Areas (SPAs) (Annex VI to this report); and
- Draft Concept note on the role of Marine Protected Areas as reference sites under the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) (Annex VII to this report).

23. These concept notes (attached as Annexes IV, V, VI and VII to the present report) are addressed to SPA/RAC and to the SPA/BD Focal Points as advices for recommendations to be considered and where relevant proposed to the Contracting Parties to move a step forward with the MPA agenda in the region.

Conclusion of the trial period and way forward

24. The AGEM had very rich discussions and good interactions among its members giving its multidisciplinary nature and its informal way of functioning.

25. The AGEM has produced by its own means with the support of the SPA/RAC secretariat valuable and timely outputs on topics of interest, requiring such insight and advice from specialists like the AGEM members.

26. The AGEM members showed a very voluntary spirit and have taken on their time in order to draft full technical documents, like for example the guidelines appearing in Annex III to this report.

27. Apart from the face-to-face meetings, the AGEM had exchanged by e-mail and via collaborative documents online.

28. Compared to the limited resources deployed for the functioning of the AGEM, the work of the group was efficient and of a great value.

29. The SPA/RAC has taken full advantage from the expertise and advice provided by the AGEM to tackle important subjects in relation to MPA agenda in the region.

30. Based on the above, it is proposed to continue the work of the AGEM. The group would continue its works and exchange via electronic-mailing, collaborative workspaces online and video-conferences. It may also take advantage of already planned gatherings and events attended by members, to plan physical meetings as needed and when necessary. In the coming months, the AGEM would help SPA/RAC and the SPA/BD Focal Points in defining the post-2020 priority actions regarding the MPA agenda in the Mediterranean.

ANNEX I:

Terms of reference of the Ad hoc Group of Experts for MPAs in the Mediterranean (AGEM)

Ad hoc Group of Experts for MPAs in the Mediterranean (AGEM)

Terms of reference

I. The Mediterranean Ad hoc Group of Experts for MPAs in the Mediterranean (AGEM): Rationale and objectives

1. Marine Protected Areas (MPAs) are recognised as an efficient tool for the conservation of the marine environment as well as for the management of living resources. Their role in delivering ecosystem services and ensuring sustainability of a wide range of human activities (tourism, fisheries, recreation, education, etc.) is also increasingly recognised. The benefits generated are visible especially when MPAs are managed effectively and have sufficient resources to address local management issues.

2. In the Mediterranean, MPAs are extremely diverse in terms of nature and typologies and are often closely linked to the legislative frameworks and to national and international regulations. Most of them were established as individual sites and not within a network approach, which ensures an adequate level of representativeness of the Mediterranean marine environment. This resulted in several gaps in the coverage of ecosystems and species in need of protection. The recent inventory of all existing Mediterranean MPAs carried out, in 2016, by MedPAN and SPA/RAC indicated that the 1,231 MPAs and Other Effective area-based Conservation Measures, OECMs (including national MPAs, marine Natura 2000 sites, the Pelagos Sanctuary, IMO Particularly Sensitive Sea Areas, UNESCO Biosphere reserves and World heritage sites, Ramsar sites and GFCM Fisheries Restricted Areas, FRAs - excluding the area of gear restrictions beyond 1000 m) account only for 7.14 per cent of the total surface area of the Mediterranean Sea. For the majority of sites, little is known on whether management measures are implemented, and if they are, whether these measures are effective to reach the site's conservation targets.

3. It is therefore clear that, although it plays a significant role in safeguarding hotspots of Mediterranean biodiversity and in preserving many natural sites from the adverse impacts of human activities, the Mediterranean network of MPAs needs a stronger development and implementation effort. Furthermore, most of the Mediterranean States are committed under the Convention on Biological Diversity (CBD) to develop a comprehensive, well-managed, effective and equitable, ecologically representative and well-connected system of MPAs to achieve the Aichi Biodiversity Target 11. Reaching this target requires to increase the total surface area covered by MPAs through extending the boundaries of existing MPAs, creating new coastal MPAs and new MPAs in areas beyond national jurisdiction (ABNJ), integrating other areas of usage restrictions which could contribute to biodiversity conservation (e.g. fisheries reserves). It requires also to improve the management of MPAs and their governance systems.

4. In other terms, the big challenge for the national authorities in charge of MPA planning and management as well as for the relevant international organisations, in the coming years, will be to improve the Mediterranean MPA network in relation to coverage, representativeness, connectivity and management effectiveness. A further challenge is to achieve more integration of MPAs within their social and economic context, in particular by promoting their role in contributing to marine spatial planning and delivering ecosystem services in terms of fisheries, tourism, resilience to climate change, etc.

5. Addressing these challenges implies that MPA governance be based on the best available knowledge, taking advantage of the expertise and experience of a wide range of disciplines. This could be reached through establishing an ad hoc group of experts that, based on the regular assessment of the status of the Mediterranean MPAs, provides countries and international organisations with advice on how to strengthen the Mediterranean network of MPAs and to orient it towards a proper and timely

achievement of the Aichi targets, Sustainable Development Goal (SDG) 14 on oceans, seas and marine resources, Good Environmental Status of the Mediterranean Sea targets stated by the Barcelona Convention Ecosystem Approach process, and/or other objectives to be reached at regional level.

6. The initiative to create such an "ad hoc group of experts" is based on the need to have a multidisciplinary think tank that can provide advice and timely orientations on MPAs planning and management.

7. A first added value of the AGEM will be to the "Regional Working Programme for the Coastal and Marine Protected Areas in the Mediterranean including the High Sea" mainly through the monitoring of the progress in the implementation of the "Roadmap for a Comprehensive Coherent Network of Well-Managed Marine Protected Areas (MPAs) to Achieve Aichi Target 11 in the Mediterranean" adopted by the 19th Meeting of the Contracting Parties (COP 19) to the Barcelona Convention (Decision IG.22/13).

8. It will also act as a think tank to identify the best approaches for achieving the four objectives of the roadmap (as adopted by COP 19):

- Objective 1: Strengthen networks of protected areas at national and Mediterranean levels, including in the high seas and in ABNJ, as a contribution to the relevant globally agreed goals and targets.
- Objective 2: Improve the Mediterranean MPA network through effective and equitable management.
- Objective 3: Promote the sharing of environmental and socio-economic benefits of Mediterranean MPAs, and the MPAs integration into the broader context of sustainable use of the marine environment and the implementation of the ecosystem and marine spatial planning approaches.
- Objective 4: Ensure the stability of the Mediterranean MPA network by enhancing their financial sustainability.

9. Furthermore, the AGEM will contribute in building a better science-policy interface in relation to the area-based approaches for the conservation of the Mediterranean marine biodiversity. Indeed, most of the challenges faced in the implementation of the Regional Working Programme for the Coastal and Marine Protected Areas in the Mediterranean require solid scientific advice to support decision-making. Through its scientific opinions and recommendations, the AGEM will support the works of the SPA/RAC Focal Points and facilitate bridging the gap between science, management and decision-making in MPA governance.

II. The Mediterranean ad hoc group of experts for MPAs (AGEM): Draft Terms of reference

A) Mission and objectives

1. The primary mission of the ad hoc group of experts is to provide scientific and technical guidance to improve the Mediterranean network of MPAs in terms of coverage, representativity, connectivity and management effectiveness. To this end, it will serve as a think tank addressing a wide range of topics of relevance to MPA planning and management in the Mediterranean context[1].

[1] The AGEM will be established on a trial basis using the funds mobilised under the European Union-funded "MedMPA Network" project, which would be completed by December 2018. SPA/RAC will evaluate the functioning of the group and its activities during the trial period and will submit a report to the 14th meeting of SPA/RAC Focal Points in mid-2019. The SPA/RAC focal points meeting would assess the added value of the ad hoc group's outputs and deliverables and make a recommendation to the Contracting Parties on whether the group should be continued, adjusted or terminated.

B) Tasks

2. The ad hoc group of experts will work to deliver scientific and technical advice regarding the future orientations in MPA planning and governance. It should also keep close watch on the Mediterranean network of MPAs with the view of providing assessments and ensuring the timely identification of gaps and hindrances that might impede the proper development of the network. It should deliver sound outputs, clearly drafted and timely issued, based on the state of the art in terms of knowledge. The main tasks it will undertake are:

- Regularly review the state of Mediterranean MPAs (including all spatial-based protection and management measures) and undertake by the end of 2019 an assessment of the status of the Mediterranean network of MPAs with the view of evaluating the progress made by the Mediterranean countries towards achieving the Aichi Target 11.

- Assess the representativity of the Mediterranean MPA network, in particular through a gap analysis to identify the ecosystems and other components of marine biodiversity that are under-represented and make recommendations to overcome the identified gaps.

- Monitor the progress made in implementing the Roadmap for a Comprehensive Coherent Network of Well-Managed Marine Protected Areas (MPAs) to Achieve Aichi Target 11 in the Mediterranean.

- Assess the financial needs and gaps for MPAs and propose innovative funding approaches, including through a proper marketing of the services and benefits generated by MPAs.

- Identify potential MPA sites including within the Mediterranean Ecologically or Biologically Significant Marine Areas (EBSAs).

- Assess the effectiveness of the governance and management systems existing in the Mediterranean and where possible identify the governance barriers that impede the adequate functioning of institutions and other bodies in charge of MPA management.

- Evaluate the current monitoring systems of MPAs and propose improvements and modifications as needed.

- Provide scientific information in response to requests from MPA managers and relevant national authorities addressed to it through SPA/RAC.

- Develop policy support tools addressing the cut-off points of existing approaches and allowing to overcome the sticking points in relation to the sustainability of the MPA governance systems in the region.

- Develop harmonized technical tools including guidelines, standards and indicators for:
  - the spatial planning of MPAs that ensures ecological connectivity and geographical balance across the region, both within and outside national jurisdiction;
  - the management of networks of MPAs, and MPAs extending over multiple jurisdictions and/or into ABNJ;
  - the MPA management evaluation, specifically adapted to the Mediterranean context;
  - the conciliation between the conservation objectives and the requirements for the local economic and social development;
  - the setting of cross-sectorial policies and mechanisms for integrating the MPA national strategies and policies with other human activity sectors, in particular fisheries and tourism;

- the development of systems enabling civil society to engage effectively in MPA management;
- the equitable sharing of social and economic benefits deriving from MPAs, including poverty alleviation and improving the standard of living of local populations, while ensuring conservation and sustainable use of resources.

C) Membership/Composition

3. To be effective the ad hoc group of experts should include a wide range of expertise and ensure a fair and geographically balanced representation of the Mediterranean sub-regions. It will be made of 20 members, including 16 specialists of the following disciplines (2 members/discipline):

- MPA management
- MPA planning
- Marine Biology/Ecology
- Law and regulation
- Socio-economics (other than fisheries and tourism)
- Fisheries
- Nature-based tourism
- MPA Financing

4. The 16 disciplinary specialist members of the ad hoc group of experts will be designated for a period of 2 years by the Meeting of the Focal Points for SPAs. To this end, at each of the ordinary meetings of the Focal Points for SPAs, SPA/RAC will propose a list of at least 32 qualified experts and their CVs (4 experts for each of the 8 disciplines referred to in paragraph 3). The Focal Points for SPAs may also propose experts and their CVs.

5. Furthermore, each of the 4 following scientific bodies will be invited to designate one representative to be member of the ad hoc group of experts:

- The Scientific Committee of ACCOBAMS;
- The Scientific Advisory Committee (SAC) of GFCM;
- The Scientific Committee of MedPAN;
- WCPA marine.

6. Contribution to the ad hoc group of experts should be on voluntary basis and the group members will contribute in their personal capacity and not as representatives of their countries or organisations. They will not be paid for their contributions and inputs to the works of the group of experts.

D) Working languages

7. The working languages of the ad hoc group of experts will be English and French.

E) Functioning modalities

8. At each of its first meeting after the appointment of members, the ad hoc group of experts shall elect among its members a chair and a vice-chair. SPA/RAC will designate one of its officers to provide backstopping services to the AGEM. The backstopping officer will act as the Secretariat of the AGEM and ensure liaison between the ad hoc group of experts and SPA/RAC.

9. During the first 3 years following its establishment, and thanks to a financial support from the

EU[2], the group of experts will meet physically at least once every year and will exchange electronically on a frequent and regular basis using appropriate means. After the first three-year period, the modalities for the meetings of the group of experts will be set taking into account the tasks to be undertaken, the availability of financial resources and the lessons learned from the first three-year period. The works of the ad hoc group will be mainly through remote meetings and webinars with the support of SPA/RAC.

F) Reporting and record-keeping

10. The conclusions and recommendations of each meeting of the AGEM will be adopted by the attending members and will be made available on the website of SPA/RAC. Furthermore, the Chair and Vice-Chair of AGEM will attend the meeting of the Focal Points for SPAs to report about the AGEM works and to present each of the outputs it issued during the covered period.

[2] The "MedMPA Network" project is financially supported by the EU, managed by UNEP/MAP and co-executed by SPA/RAC, WWF-MedPO and MedPAN. The setting up of such ad hoc group on MPAs is part of SPA/RAC activities within this project.

ANNEX II:

Members of the Ad hoc Group of Experts for MPAs in the Mediterranean (AGEM)

UN environment
United Nations Environment Programme

Mediterranean Action Plan
Barcelona Convention

The Mediterranean Biodiversity Centre
SPA / RAC

Members of the Ad hoc Group of Experts for MPAs in the Mediterranean (AGEM)

Discipline	Members
MPA management	1) **Mr Laurent SOURBES**, Director, National Marine Park of Zakynthos (**Greece**) 2) **Mr Marc DUNCOMBE**, Director / **Mr Hervé BERGERE**, Area Manager, National Park of Port-Cros (**France**) 3) **Jean-Marie Dominici**, Conservateur RN de Scandola, Parc Naturel Régional de Corse/ EN de Scandola (**France**) (*tbc*)
MPA planning	4) **Mr Zamir DEDEJ**, Director General, National Agency of Protected Areas (**Albania**) 5) **Mr Giuseppe NOTARBARTOLO DI SCIARA**, Senior marine conservation specialist (**Italy**)
Marine Biology/Ecology	6) **Mr Leonardo TUNESI**, Research Director, ISPRA (**Italy**) 7) **Mr Hocein BAZAIRI**, University teacher / Researcher, Faculty of Science of Rabat, Mohammed V University (**Morocco**)
Law and regulation	8) **Mr Tullio SCOVAZZI**, Professor of International Law, University of Milano-Bicocca (**Italy**) 9) **Ms Nilufer ORAL**, Marine Law Research Centre Deputy Director, Law Faculty, Istanbul Bilgi University / Member UN International Law Commission (**Turkey**)
Socio-economics	10) **Mr Said CHAKOUR**, University teaching staff, University of Jijel (**Algeria**) 11) **Ms Marta PASCUAL**, Researcher in Marine Ecosystem Services & MSP, Basque Centre for Climate Change (BC3) (**Spain**)
Fisheries	12) **Mr Othman JARBOUI**, Laboratory Head, INSTM (**Tunisia**) / Chair of the SAC of GFCM 13) **Mr Jean-Michel CULIOLI**, Head of "Protected areas" Department, Corsican Environment Office (**France**)
Nature-based tourism	14) **Mr Rémi BELLIA**, Consultant en développement local et tourisme durable (**France**) 15) **Mr Mostafa FOUDA**, Adviser to the Minister of Environment (**Egypt**)
MPA financing	16) **Mr Arturo LÓPEZ ORNAT**, Senior consultant (PA planning & management; Stakeholder participation; Payment for Environmental Services) (**Spain**) 17) **Mr Romain RENOUX**, Coordinator, Association for the Sustainable financing of Mediterranean MPAs (M2PA) (**Monaco**)
Representatives of relevant partner organizations scientific bodies	18) The Scientific Committee of ACCOBAMS 19) The Scientific Advisory Committee (SAC) of GFCM 20) The Scientific Committee of MedPAN 21) WCPA marine

ANNEX III:

Assessment of the progress made in the implementation of the "Roadmap for a Comprehensive Coherent Network of Well-Managed MPAs to Achieve Aichi Target 11 in the Mediterranean": Conclusions and recommendation of the AGEM First meeting (22-23 February 2018, Tunis, Tunisia)

Assessment of the progress made in the implementation of the "Roadmap for a Comprehensive Coherent Network of Well-Managed MPAs to Achieve Aichi Target 11 in the Mediterranean":

Conclusions and recommendation of the AGEM First meeting (22-23 February 2018, Tunis, Tunisia)

1. Many ideas were raised during the discussions and recommendations to overcome the gaps in knowledge and governance of Mediterranean MPAs were provided. Here are the main conclusions and recommendations of the AGEM assessment in relation to the four objectives of the MPA Roadmap:

2. Objective 1: Strengthen networks of protected areas at national and Mediterranean levels, including in the high seas and in ABNJ, as a contribution to the relevant globally agreed goals and targets:

- More efforts to declare MPAs is still needed in the Southern and East Mediterranean areas. It is highly recommended to encourage the countries in this portion of the Mediterranean to declare MPAs with a special attention to areas within the identified Ecologically or Biologically Significant Marine Areas (EBSAs).
- The regional platform on biodiversity (the Mediterranean Platform on Biodiversity: http://data.medchm.net/en/) developed by SPA/RAC is an interesting tool that could help MPA practitioners and relevant national authorities in further developing their MPA network.
- Establish a Mediterranean Marine and Coastal Protected Areas (SPAs) Directory under the Barcelona Convention compiling information (geographical location, physical and ecological characteristics, legal status, management and protection measures, and means for implementing them) about the individual MPAs composing the Mediterranean MPA network.
- Take advantage of the Barcelona Convention tools and processes, such as the SPAMI List and the Ecosystem Approach, in order to move forward with the creation and management of Mediterranean MPAs; and cooperate with the FAO/GFCM regarding fisheries related aspects in order to pursue common objectives.
- Fill in the knowledge gap concerning habitat distribution and mapping, especially in Southern and Eastern parts of the Mediterranean, taking into account under-represented habitats (e.g. pelagic habitats, deep-sea habitats).
- Implement standardized methodologies to monitor Mediterranean MPAs, valorising the experience developed in the framework of the Ecosystem Approach process (i.e. the Integrated Monitoring and Assessment Programme "IMAP") under the Barcelona Convention.
- Establish new MPAs with no-entry, no-take and no-fishing zones (NTZ).

3. Objective 2: Improve the Mediterranean MPA network through effective and equitable management:

- MPAs should be considered as experimental sites and laboratories to enforce actions and measures of sustainable management of natural resources. Capacity building is a key aspect to enhance MPA practitioners' skills.
- The use of the co-management approach remains very limited in the Mediterranean while it is proved to be among the governance options having the potential to improve MPA management, through scenarios and arrangements allowing that MPAs be managed by stakeholders other than governments, such as NGOs and various actors of the private sector. Such approach may also ensure more benefit sharing and equity (see Objective 3).

- Elaborate or update a specific management plan for each MPA with a clear zoning taking into account both environmental values and human uses, in order to safeguard the socio- economic needs of local population and ensuring the adequate involvement of stakeholders, including socio-economic actors, private sector and media, in the planning and management processes.
- Encourage the establishment and/or extension of zones with reinforced protection, i.e. no-entry, no-take and no-fishing zones (NTZ), within MPAs of at least 2% of their area and up to 10%.
- Enhance the management of declared MPAs taking into account all the qualitative aspects of Aichi target 11.
- Consider the integrated coastal zone management (ICZM) as a synergic and complementary tool to MPAs in order to regulate land-based activities occurring over the entire watershed.
- Further involve women to contribute actively in the sustainable activities and management of MPAs, as they could play a key role in the socio-economic sector and income generation and diversification.
- Improve governance and efficiency of operating MPAs in order to allow better integration of MPAs in their local socio-economic environment.
- Innovate and be a centre of excellence to show the long-term benefits of MPA management and conservation and convince decision-makers and local stakeholders.

4. Objective 3: Promote the sharing of environmental and socio-economic benefits of Mediterranean MPAs and the MPAs integration into the broader context of sustainable use of the marine environment and the implementation of the ecosystem and marine spatial planning approaches:

- The establishment of a comprehensive and coherent MPA network should be considered as a major step towards applying Marine Spatial Planning (MSP) in the Mediterranean. Unfortunately, there is a risk that MPAs, and environmental protection in general, are overlooked from MSP strategies. Ensuring better integration of marine conservation and MPAs within MSP plans is a major challenge that should be considered, particularly by proposing tools and guidelines demonstrating the socio- economic benefits of MPAs.
- Raising awareness of the public regarding MPAs could be made through the communication on flagship species (cetaceans, turtles, etc.). Sustainable tourism activities, in the example of pesca-tourism, could be a way to promote and communicate about MPAs.
- Promote the role of MPAs as generators of economic wealth and ecological services to their territories and populations, in particular by:
    - preserving and valorizing of the environmental capital of the MPA territory;
    - creating an added value through eco-compatible activities, including nature-based solutions;
    - further integrating sustainable economic development into management plans' objectives and as a tangible result to be achieved in the medium and long term;
    - strengthening participative approach with local stakeholders;
    - promoting endogenous development and equitable sharing of environmental and socio-economic benefits of MPAs.
- Identify and map all the stakeholders and socio-economic activities in and around MPAs, in the early stages of their establishment, in order to avoid use conflicts.
- Set agreements, including regional organisations, to build and share capacities to manage

transboundary and high sea areas.

- Promote the integration of MPAs in marine spatial planning (MSP) processes by advocating as appropriate the importance of marine conservation for the sectors involved in MSP.

5. Objective 4: Ensure the stability of the Mediterranean MPA network by enhancing their financial sustainability:

- One of the most common and crucial challenges for MPAs in the Mediterranean is financial resources availability. Without a secure funding, it is hard, or even impossible, to ensure a suitable and effective MPA management. It was mentioned that MPAs need core funding and operating funding. In this context, MPA practitioners, and in particular managers, should find a way to influence decision making processes and bring them to further value MPAs and allocate them with the needed financial and operating resources.

- The incomes generated by mature MPAs are higher than the costs required for their creation and management. Hence, it is recommended that countries invest in creating MPAs ("investment in nature capitals") and making them operational and effective. On the other hand, it was mentioned that the relation between investments and prospective incomes is still to be highlighted, clarified and advertised to decision makers, other stakeholders and the general public.

- Conservation trust funds are an innovative way to finance MPAs. Mediterranean countries should engage in that direction, and more particularly by supporting the regional initiative, jointly established by France, Monaco and Tunisia, aiming at establishing a sustainable financing mechanism (trust fund) for Mediterranean MPAs.

- Make use of funding opportunities and financing through regional and sub-regional projects, to reach common objectives and enhance the ecological coherence of the Mediterranean' MPAs network.

- Influence the decision makers, at national and international level (e.g. European Union), and donors to guarantee an adequate mobilization of resources for MPAs.

- Explore innovative approaches to raise and generate funds for MPA creation and effective and sustainable management.

- Make use of both public and private funds.

- Cooperate with NGOs to mobilize resources for MPAs.

6. During the discussion of the AGEM at its first meeting the following cross-cutting recommendations have been also raised:

- Organize periodically a regional meeting devoted to Mediterranean MPAs in conjunction to the COP of the Barcelona Convention where UN Environment/MAP and SPA/RAC take the lead of its organization and where States, inter-governmental and non-governmental organisations, as well as potential donors, are invited to actively contribute.

- Promote MPA twining programmes and recurrent/operational capacity-building programmes (with MPA as training centres) to enhance knowledge-sharing and MPA capacities.

- Enhance communication about MPAs with decision makers, donors, relevant economic sectors and the general public, using:

    - innovative, original and creative approaches; and

    - champions/ambassadors/opinion leaders to speak for MPAs and advocate their importance for marine conservation, job creation and other socio-economic benefits.

ANNEX IV:

(A) Draft Guidelines for Strengthening the Sustainable Socio-Economic Role (GSSER) of Mediterranean Marine and Coastal Protected Areas (MPAs)

(A) Draft Guidelines for Strengthening the Sustainable Socio-Economic Role (GSSER) of Mediterranean Marine and Coastal Protected Areas (MPAs)

Preamble

In view of the conclusions and recommendations of the 1st meeting of the Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean (AGEM) (Tunis, Tunisia, 22-23 February 2018), SPA/RAC proposed to develop draft of Guidelines for Strengthening the Socio-Economic Role (GSSER) of Mediterranean Marine and Coastal Protected Areas (MPAs).

This draft was discussed and validated during the 2nd meeting of the AGEM (Tunis, Tunisia, 15 March 2019).

This final product will be presented at the 14th meeting of SPA/BD Focal Points (Portorož, Slovenia, 18-21 June 2019) as one of the AGEM deliverables on its trial phase during 2018-2019.

As a main objective, this guideline document (GSSER) is intended *to provide practical guidance for developing a socio-economic analysis of the role of MPAs in the Mediterranean.*

The *specific objectives* of this document are:

- *To initiate a sustainable socio-economic approach applied to the context of Mediterranean MPAs.*
- *To strengthen the socio-economic role of Mediterranean MPAs.*
- *To guide MPA managers and stakeholders towards income generating activities in MPAs and surrounding territories.*
- *To change the perception of decision-makers on MPAs as a natural capital investment project.*
- *To guide integrated marine and coastal conservation policies in the Mediterranean.*

To the extent, this document represents an interesting piece of work for MPAs programme staff, economists, scientists, decision-makers in charge of the management of marine and coastal natural resources in the Mediterranean countries that are Contracting Parties in the Barcelona Convention.

Guiding Principles

This GSSER document builds also on the following guiding principles that should be kept in mind throughout its reading:

1) Any assessment of socio-economic benefits should be presented within the *context of biodiversity and based on a basic understanding of both ecology and environmental economics* (TEEB, 2010). Failure to do so may impede efforts to conserve and improve the marine environment and instead contribute to the continued degradation of marine ecosystems, placing at risk blue economy objectives, economic growth, and the wider benefits obtained through marine ecosystem.
2) Analyzing the socio-economic role of MPAs does *not aim to undermine the intrinsic value of biodiversity*. We are separating the intrinsic value and the benefits that MPAs provide in terms of biodiversity from those more anthropogenic-oriented considerations such as the socio-economic benefits. This document acknowledges that the ecological benefits that well managed MPA provide are key to obtaining socio-economic benefits.
3) *Sustainability* should be *the main driver of socio-economic assessments*. The role MPAs play in supporting well-being should not be seen as replacing or undermining MPAs focus, nor should it jeopardize their set objectives and goals for conservation. Identified benefits should always be used inside a sustainability framework that respects the area´s overall biodiversity, conservation or management goals beforehand.
4) *Assessments* should *consider the MPA carrying capacity* as the baseline against evaluations.
5) Socio-economic analysis *cannot always be captured in economic (monetary/market value) terms*. These can be structured and carried out in different ways and using different metrics of value (monetary/market; non-monetary/non-market; indirect use; non-use).
6) The term socio-economic analysis will be used along these guidelines so as to refer to the *analysis of incremental costs and benefits of MPAs* that affect the economic welfare and economic activity and the potential distributional or social impacts of these MPAs.

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1. Introduction

Marine Protected Areas (MPAs) are usually established to protect the world´s biological diversity (ecosystems, habitats, species and genes). However, in addition, these areas also maintain and deliver a range of benefits (direct and indirect) to societies and economies when well managed.

Highly and fully MPAs have been scientifically proven to enhance the earth's natural capital in the marine ecosystem, thus contributing to improved human wellbeing by providing healthy habitats that would enhance human activities and serve as buffers against environmental impacts.

While the awareness, understanding and appreciation of the value of nature is increasing, the benefits and related socio-economic values provided by MPAs remain limited and still there is a widespread under-appreciation of the variety of social and economic benefits that MPAs can provide us, especially at the practical level (Kettunen and ten Brink, 2013).

A concern sometimes raised about MPAs is that they may constrain or limit economic activities, adding costs to businesses and restricting opportunities for growth and jobs (even when businesses may benefit from improved marine biodiversity and environmental conditions). As such, MPAs and nature conservation can often be considered as a hindrance and perceived as imposing costs or restrictions on communities and economies rather than a benefit to increasing our welfare.

In this sense, work remains to be done to increase the understanding of the benefits associated with MPAs, raise socio-economic arguments and to demonstrate and take account of their values in concrete decision-making (Kettunen and ten Brink, 2013).

Being aware that sometimes the objectives of MPAs and those objectives of achieving socio-economic benefits can sometimes work in the same direction and sometimes not, causing conflicts, the potential positive outcomes of assessing and communicating the benefits merits their systematic assessment, while the risk of conflicts can often be addressed through careful planning.

Most recent literature review analysis performed under the "Study on the economic benefits of Marine Protected Areas" (EU, 2018) gathered 94 evidences from which 44 studies provided evidence of economic benefits of MPAs to fisheries, 33 studies to maritime tourism and 15 studies compared costs and benefits of MPAs to various degrees. This review also highlighted the observation that evidence base on blue economy benefits of MPAs is still incomplete and largely dominated by literature on economic benefits to maritime tourism and fisheries (those to fisheries seeming to be smaller and, in comparison, more difficult to quantify than those to tourism). Most evidences were also geographically located primarily in the Mediterranean and the North-east Atlantic Ocean.

Other previous socio-economic efforts for assessing Mediterranean MPAs impacts onto wider maritime activities (Pascual et al., 2016, Ojea et al., 2017) also highlighted other evidences of positive and negative impacts of MPAs onto other maritime uses such as recreational maritime uses, mariculture and marine aggregated, minerals, oil and gas and energy extractions. These authors, however, also found most benefit evidences to fisheries, recreational activities, tourism and beach-related activities and scientific activities, whilst little of no mentioning of either positive or negative impact evidence were found for the remaining maritime uses and, when found, these mostly relate to MPAs outside the Mediterranean basin (those in italics at Table 1 below).

The following table aims at summarizing the role of Mediterranean MPAs for positively and negatively impacting other maritime activities built from the literature reviews of Pascual et al. (2016), Ojea et al. (2017) and EU (2018). This table does not aim to measure impacts, but to gather all narratives of evidences found so far regarding the positive and negative impacts of MPAs in the Mediterranean.

Table 1. Stated positive and negative impacts of Mediterranean MPAs onto the various types and sub-types of maritime activities. (Source: Own source based on Pascual et al. (2016), Ojea et al. (2017) and EU (2018); Note: In italics those impacts that have been evidenced at MPAs outside the Mediterranean, but not yet at MPAs inside the Mediterranean Basin).

Type of Activity	Sub-type of Activity	Potential Positive Impacts	Potential Negative Impacts
Fisheries	Industrial / Commercial fisheries / Large scale	Improved catch mix Increased catch ('spill-over effect' and 'recruitment effect' Provide export of egg and larvae Increased biomass (reserve effect) Increased fish size (reserve effect) Reduce overfishing Higher functional diversity Protection of spawning stocks Undisturbed spawning sites/habitats Increased income and jobs, for professional and pleasure fisheries and for diving *Increased population fecundity* *Foster reproductive capacity* *Enhancement of eggs and larvae production* *Diminished fishery-related genetic impacts* *Increased selling prices* *Higher diversification of activities*	Closure of areas to fisheries / Loss of access /Displacements If retention rates inside the MPA are high (dispersal ability is low comparing to MPA size) there might be no benefit for nearby fisheries Lead to 'trophic cascade effect' Increased opportunistic and predatory species Increased invasive species *Lost income and jobs and impossibility to compete with imports* *Food security losses* *Increased competitions/conflicts* *Further expenses (time/fuel)* *Further environmental impacts from emissions* *Further collision risks* *Increased access costs (park fees)* *Increasing reporting costs (logbooks, VMS systems)* *Need to compile with regulations/limitations in gears or mesh size/ amounts of discards or catch*
	Artisanal fisheries / small scale	Improved catch mix Increased income and jobs, for professional and pleasure fisheries and for diving Exclusive access / less competition Increased catch ('spill-over effect' and 'recruitment effect' Built up fishery recruitment Reduce overfishing Protection of spawning stocks Undisturbed spawning sites/habitats *Increased security*	Closure of areas to fisheries / Loss of access /Displacements Limitation of access Income decrease Increased competitions/conflicts If retention rates inside the MPA are high (dispersal ability is low comparing to MPA size) there might be no benefit for nearby fisheries Lead to 'trophic cascade effect' Increased opportunistic and predatory species Further expenses (time/fuel) Further environmental impacts from emissions Further collision risks Increased access costs (park fees)

			Increasing reporting costs (logbooks, VMS systems)
Fisheries (cont.)	Anglers	*Protection of spawning stocks* *Undisturbed spawning sites/habitats*	Closure of areas to fisheries / Loss of access Limitation of access If retention rates inside the MPA are high (dispersal ability is low comparing to MPA size) there might be no benefit for nearby fisheries Increased costs (licenses) *Lead to 'trophic cascade effect'*
	Spearfishing	Supported sport trophy fisheries/ recreational fisheries Favor the return to natural behavior of fish fauna Allow scuba divers (visitors) to see the positive effects of protection measures on fish assemblages (in case of spearfishing the fish has a very fearful behavior) *Increased biomass (reserve effect)*	Closure of areas to fisheries / Loss of access Limitation of access
Recreational water-based activities	Diving	Increased visit Expanded non-consumptive recreation opportunities(scuba) Increased income and jobs for diving Increased returns directly (through diving club activities, accommodation, meals) or indirectly (through transportation, purchase of materials and equipment, and other induced commercial activities)	Limitation of access (visitor number quotas, limiting the number of visitors allowed) Non-consumptive divers impacts on the natural environment (Damage to ecosystem from tourist congestion / can end up in forbidding the activity) Increased access costs (park fees, diving fees)
	Sailing	Increased income and jobs for sailing and the use of boats to come and practice specific activities in a protected area (e.g. snorkeling, sea watching, scuba diving) or to simply enjoy the setting	Limitation of access Non-consumptive sailing impacts on the natural environment (Damage to ecosystem from tourist congestion, anchoring on seabed, etc.)

	Marine sightseeing	Increased in marine sightseeing related to marine mammals or seabirds Increased wilderness opportunities	Limitation of access Non-consumptive sailing impacts on the natural environment (Damage to ecosystem from tourist congestion, anchoring on seabed, population impacts, etc.)
	Other activities (surfing, wind-surfing, paddle surfing, canoeing, swimming…)	Increased wilderness opportunities	Some activities may be restricted in the MPA
Tourism and Beach Access		Increased number of visits Increased wilderness opportunities Increased protection of habitats for tourism Expanded ecotourism Increased income and jobs	Limitation of access (visitor number quotas, limiting the number of visitors allowed, limiting the time (day/night time)) Increased access cost (park fees, accommodation taxes)
Cultural	Scientific Knowledge and Education	Provided educational opportunities Allowed research, monitoring and data collection from untouched sites Provided control areas for assessing human-induced impacts Provided income from scientific meetings Provided income for scientist and researchers (budget to their research projects) *Improved understanding of natural systems* *Preserved and expanded historical knowledge* *Provided cumulative understanding from multiple studies at one site over time* *Enhanced synergies from cumulative studies*	Economic costs for administration, supervision, monitoring, information policies, etc. of research projects.
	Underwater cultural heritage / underwater archaeology	NA	NA
Aquaculture / Mariculture /Shellfisheries		Increased in biomass (reserve effect) *Increased cage size (offshore)* *Increased productivity* *Provided quality water/* *Provided opportunities for diversification*	Increased competition Limitations of extraction, time allowances, etc. Need to compile with regulations (certification expenses) *Loss of access (closure of areas to shellfisheries / aquaculture / mariculture) / Displacement* *Lead to trophic cascade effects* *Increased opportunistic and predatory species* *Increased invasive species*

			Increased travel costs (travel further) *Increased environmental monitoring costs (escapees, fuel emissions, etc.)* Increased pollution
Other Biological Resources extraction	Macroalgae extraction / Aquarium trade	*Potential source of living resources now or for the future* *Increased Macroalgae biomass due to changes in other trophic levels*	Limitations of extraction
Mineral, aggregates, oil and gas and energy resources extraction	Sand / Gravel extraction	NA	*Loss of access (closure of areas to sand and gravel extraction)* *Limitations of extraction* *Mitigation costs (wastes, noise…)* *Monitoring and periodic review costs*
	Oil / Gas extraction	NA	*Loss of access (closure of areas to oil and gas extraction)* *Limitations of extraction* *Mitigation costs (wastes, noise…)* *Monitoring and periodic review costs*
	Offshore Wind Farms	*Coexistence with other marine uses (energy and aquaculture)*	*Limitation of allocation for cables*
	Wave Energy	NA	*Limitation of allocation for cables*
Maritime Transport	Commercial shipping	NA	*Effects on shipping lanes allocation* *Increased transport time by reducing speed limits* *Increased fuel costs*
Communications and Pipelines	Communication Cables	NA	Limitations in allocations
Building along the coastline	Ports, Harbours, Marinas, Pontoons, Service Areas	Protection from coastal erosion	Limitations for certain coastal activities
Military		NA	NA

If we look at the types of methods used within or outside Europe so as to determine the socio-economic impacts of MPAs, economic assessments such as Cost Benefit Analyses (CBAs) appear as the most common approach, few involving comprehensive ex-ante or ex-post CBAs (EU, 2018).

CBA involve: 1) Benefits Assessment & 2) Costs Assessment.

Whilst benefits assessments have usually been divided into economic (i.e. financial capital at the private or household level, i.e. income and employment) and welfare benefits (i.e. human capital, i.e. health, education, culture, ethics and aesthetics), empirical evidence of benefits in monetary terms is very limited and CBAs generally appear more complete in their monetary valuation of costs than benefits.

Costs assessments usually include management costs (direct physical expenditures on the equipment, infrastructure and human resources required to manage marine protected areas) and opportunity costs (land and resource uses which are foregone or precluded by protecting in marine areas and restricting the economic activities taking place in them, and the alternative income and profits which could have been generated by human, physical and financial resources had they been allocated elsewhere in the economy instead of being used to establish and run marine protected areas).

As stated above at the guiding principles of these guidelines, socio-economic analysis cannot always be captured in economic (monetary/market value) terms. These can be structured and carried out in different ways and using different metrics of value (monetary/market; non-monetary/non-market; indirect use; non-use).

In order to capture this non-monetary, non-market, indirect and non-use value of MPAs, other studies have primarily used an ecosystem services (ESS) framework[1], involve ESS valuation methods and techniques and suggest that a large proportion of benefits relate to non-market improvements in societal welfare rather than real economy benefits to sectors (EU, 2018).

Having the perception of these values is also important. As such, socio-economic benefits can partly be calculated using market-based monetary values (perceived and with market value) and partly using non-market monetary values (perceived but with no market value), but there is an additional component of unknown quantity that simply cannot be reflected using monetary or other metrics as it is often passive and benefits are not perceived.

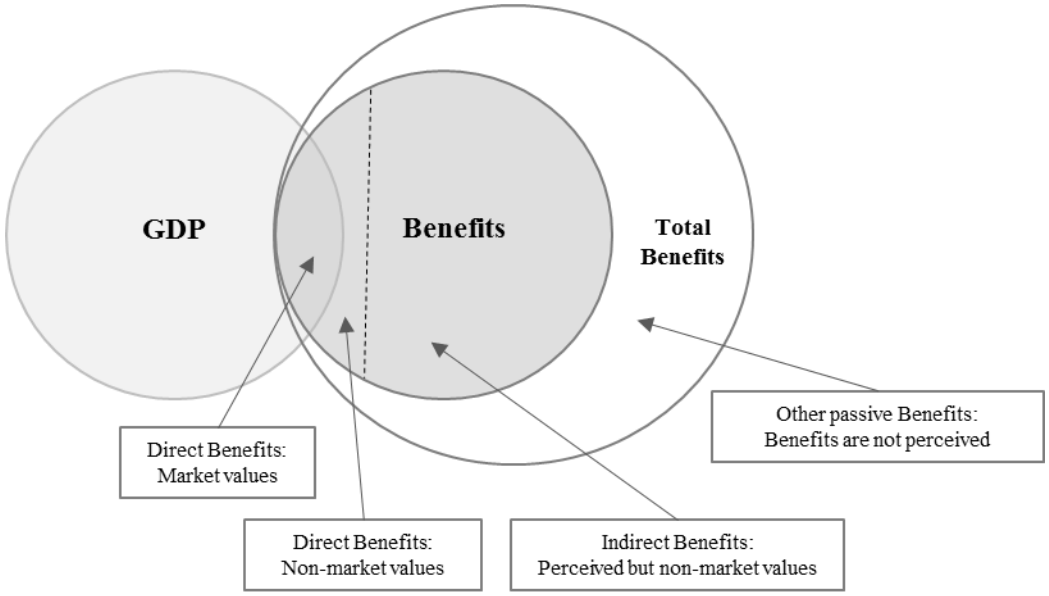

Figure 1. Direct, indirect, perceived and non-perceived benefits (Source: Own source modified from van den Belt & Cole, 2014).

[1] Ecosystem goods and services in general comprises of the goods and services provided by nature that are in one way or another valued by society.

As such, these guidelines do not solely focus on carrying out a monetary assessment of the final (net) value of MPAs nor to turn these benefits into a single aggregated monetary value. These guidelines aim to provide information on different approaches and methods available (qualitative, quantitative and monetary alike) that practitioners can use to highlights the socio-economy importance of MPAs, depending in the information and resources at their disposal.

2. Mediterranean MPAs as a tool for sustainable socio-economic development

Efforts in MPA resource´s management aims to strive for a balance between consuming now and leaving enough for future generations to continue to enjoy the benefits that MPAs provide us. Thus, one could say that MPAs become socially acceptable if they are able to contribute to both present and future needs and that their establishment should at least not be seen as a costs that outweighs the intended benefits that the present generation should be enjoying (Russi et al., 2016).

While, for some, biodiversity values alone might be enough to guarantee support to (and resources for) the establishment and management of MPAs, the assessment of the socio-economic role of MPAs could help to primarily evaluate the extent of how MPAs are delivering social and economic benefits to the surrounding communities beyond those already being measured by biophysical assessments (i.e. increasing fish biomass). When appropriately applied, identifying, assessing and valuing economically and socially related benefits and socio-economic values can be a useful tool for both supporting human welfare and stepping up or promoting conservation efforts.

Recently we have become increasingly aware that highlighting the social and economic values of biodiversity can help to shift the perception of MPA establishment from a public expenditure for conservation into a natural capital investment project (i.e. create incentives for businesses to change existing practices or invest in new opportunities through new fiscal mechanisms, new economic incentives for investing in nature-based solutions related to MPAs, etc. (Pascual 2018).

Furthermore, the understanding of the role nature plays in underpinning human welfare is slowly increasing thanks to initiatives such as The Millennium Ecosystem Assessment (MEA) (MEA, 2005), The Economics of Ecosystems and Biodiversity (TEEB) initiative, Aichi Biodiversity Targets 2 and 11 of the Convention on Biological Diversity (CBD) Strategic Plan (CBD, 2012). At the same time, various EU commitments (internal and international e.g. on the Natura 2000 network) envision a major role for MPAs as a method for reducing anthropogenic impacts, maintaining and improving biodiversity and building ecosystem resilience (Kettunen & ten Brink, 2013).

As such, MPAs can serve as a tool available to EU Member States to support the achievement of the requirements of various of their environmental directives such as the achieving of the good environmental status in their marine waters under the Marine Strategy Framework Directive (Directive 2008/56/EC), the sustainable development of marine areas and sustainable use of marine resources, applying an ecosystem-based approach under the Maritime Spatial Planning Directive (Directive 2014/89/EU) or those from the Habitats and Birds Directives.

With this increasing attention being focused on the benefits provided by nature and MPAs, there is arguably a need to provide information and advice to a range of interested stakeholders on how to identify, assess and communicate the values of MPAs. As many stakeholders have limited expertise in assessing the socio-economic benefits of nature, all efforts should be placed so as to allow those aiming to follow a socio-economic assessment in the most simple and efficient way.

These guidelines here does not aim to overrule existing adaptive monitoring and evaluation tools for socio-economic analysis, nor those tools, toolkits, methods and material already existing for performing a socio-economic assessments based on the ecosystem services framework (The rapid ecosystem services assessment (RESA) method (van den Belt & Cole, 2014); Toolkit for Ecosystem Service Site-based Assessment (TESSA) (Peh et al., 2017); A Tool for Integrating Ecosystem Services into Policy and Decision-Making (InVEST) (Sharp et al., 2018); Artificial Intelligence for Ecosystem Services Modelling (ARIES) (Villa et la. 2014); Protected Areas Benefit Assessment Tool (PA-BAT) (Stolton & Dudley, 2012); Social Assessment of Conservation Initiatives (Schreckenberg et al., 2010), The Socio-

Economic Assessment Tool (SEAT) (Rosales, 2018); the MPA Effectiveness Assessment Tool (MEAT) (MPA MEAT. 2010).

Within this working scope, our efforts to provide these guidelines aim to support MPA program staff, economists, scientists, decision-makers in charge of the management of marine and coastal natural resources to better understand and systematically identify, assess and communicate the benefits associated with MPAs in the Mediterranean with due references to key existing literature and guidance documents.

3. Practical guidelines for a socio-economic analysis of the role of MPAs

The conceptual framework and systematic approach of these guidelines is based on previous works carried out by Kettunen et al. (2009) and Kettunen and ten Brink (2013).

Due to the multidimensional character of the role of MPAs, a range of information is needed in order to assess its role. Thus, market data, secondary data for the performance of simulations, survey based primary data, data provided from literature review, consultation with experts and stakeholders and information coming from environmental impacts assessments are all deemed as important in the framework of socio-economic assessment. The proposed guidelines here are developed using a general framework of analysis and a method of analysis depending on whether the data is available or not. Under sufficient data availability all steps of the guidelines can be fully applied. Under limited data availability a more generic approach can be employed.

Step 1. Rapid "scoping" assessment

The scoping assessment provides a useful tool for identifying the most important positive and negative socio-economic impacts provided by a MPA, currently and potentially in the future. The scoping assessment also provides an initial indication of what type of value estimates (monetary, quantitative or qualitative) might be available and/or possible to obtain. This quality of information is likely to affect the socio-economic assessment especially when timescale and resources for developing the assessment are limited. Thus, it is a first step that allows to obtain a general view of the full range of positive and negative socio-economic impacts, their relative importance and determine which of these impacts could be used for a further in-depth analysis and valuation. (Step 2).

Under Step 1 of the analysis it is also suggested to perform what is known as a "Context Analysis" where those context specific characteristics of the assessed MPA are gathered. This context analysis would mainly involve gathering MPA objectives, targets and baseline conditions and well as the governance and stakeholder mapping.

As such, before starting a socio-economic assessment it is necessary to start with the objectives, targets and baseline profiling of the MPA which are object of the case study. This is essential so as to identify the driving forces of the management efforts, the target objectives and the context baseline starting conditions of the MPA. At the same time, it is necessary to describe the governance structures and the stakeholder´s structure so as to identify who is going to be impacted in terms of specific maritime activities stakeholder sectors as well as in terms of the regional and local population adjacent to the MPA. A regional profiling is also necessary in order to assess the indirect and the induced impacts. This regional profiling typically includes the population characteristics, the political and social resources, a description of historical factors, identification of the relationship with the biophysical environment, culture, attitudes and social- psychological conditions, the current status of maritime activities and the identification of the people who will be impacted by the MPA.

Once the context analysis is performed, Step 1 can be performed through filling-up a checklist table that gathers the following tasks:

a) Identification of impacts: It is important that ALL possible or observed economic and social benefits and costs that MPAs can provide are accounted (with or without market value) as this "long list" of benefits and costs would serve as the basis for the entire socio-economic analysis.

b) Definition of the impacts: Impacts should come with a definition so as to better explain what each of the benefits accounts or does not account for.

c) Identification of the beneficiaries: Identification of those that directly and indirectly are benefited or affected by these impacts in terms of individuals, local communities, businesses and industries, local, regional and national governments or the global community.

d) Scale of the impacts: Defining the scale of the impacts is also important as could be accounted at a Local; Regional; National or Global scale (with the various implications that these have).

e) Estimated importance of the impacts: The overall socio-economic importance of the impacts is related not only to its "quantity", but also to the number of people benefited or affected as well as on their subsistence dependency (few people benefited or affected, but essential for their subsistence). As such, the assessment should also analyze the estimated or perceived socio-economic importance of those benefits previously identified (on a scale of 1-5; being 0 = benefit is not relevant at the site; 1 = benefit is of very limited importance; 2 = benefit if or limited importance; 3 = benefit is of moderate importance; 4 = benefit if of high importance; 5 = benefit is of very high importance).

f) Estimated present and future value of the impacts: The estimation of the present and future value of those impacts listed through the use of various methods or approaches. Estimations can be pursued at three levels: qualitative, quantitative and monetary (along a resource-intensive gradient). As Kettunen and ten Brink (2013) stated: "In practice, the type of approach used depends on the time and resources available and the type of impacts measured".

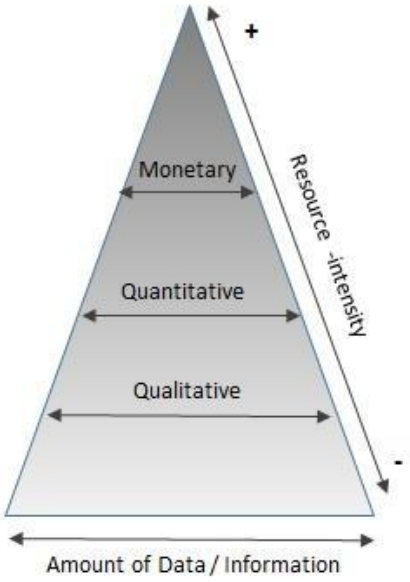

Figure 2. The three levels of the pyramid to perform estimations at a socio-economic assessment. (Source: Figure modified from Kettunen & ten Brink, 2013).

g) Method or approach used: Estimations can be performed through the use of various methods or approaches (see Step 2).

Table 2. Sample checklist table for Step 1 of the socio-economic analysis of the benefits provided by MPAs in the Mediterranean.

(Source: Own source based on Kettunen et al., 2009, Cruz and Bendicto (2009) and Cruz et al., 2011. Note: one sample on how to fill in this checklist table is given).

Identified Impacts	**Type of Impacts**				**Definition of Benefits**	**Beneficiaries[2]**	**Scale of Benefits[3]**	**Estimated importance (1-5)[4]**	**Estimated Present Value**	**Method/approach used**	**Estimated Future Value**	**Method/approach used**
	Benefit	**Cost**	**Economic**	**Social**								
Food (for subsistence)	X		X	X	The site is a source of food for subsistence	Individuals, Local communities	Local	5	Fish Prices at local market value.	Market Prices Social statistics	Future estimates of fish prices or individuals feed	Modelling, Contingent Valuation, Choice experiment, etc.
Etc.												
Etc.												
Etc.												

[2] Individuals, local communities, businesses and industries, local, regional and national governments or the global community

[3] Local; Regional; National or Global scale

[4] On a scale of 1-5; being 0 = benefit is not relevant at the site; 1 = benefit is of very limited importance; 2 = benefit is of limited importance; 3 = benefit is of moderate importance; 4 = benefit is of high importance; 5 = benefit is of very high importance).

Once all benefits and costs have been identified at table 2 the next step suggested is to build a joint qualitative table of net impacts (Table 3) so as to better align what has been found at Step 1; think of preliminary assumptions to be made over the general outcomes of Step 1 and suggest which benefits and costs could be further looked at Step 2 of the analysis.

Table 3. Joint qualitative table of net impacts (Source: Own source based on Kettunen and ten Brink, 2013. Note: Some sample on how to fill in this table are given).

Identified benefits	**Estimated scale of socio-economic value[5]**	**Identified Costs**	**Estimated scale of socio-economic costs[5]**
Food (for subsistence)	5	Management Costs: guards	3
Natural medicines	5	Management Costs: infrastructures	2
Recreation	3	Opportunity Costs: Displacement of fisheries	2
Regulation of Floods	3	Opportunity Costs: Displacement of recreation	1
Etc.			

It is improbable that the information given by Step 1 would allow for any detailed quantitative and monetary comparison of the benefits and costs of MPAs. This is why, when resources and time are available a more detailed socio-economic assessment which looks at all the observed and potential impacts (as suggested by Step 2 here below) is encouraged.

Step 2. Detailed socio-economic assessment

As mentioned, this Step 2 of the assessment would allow to further estimate the socio-economic impacts of MPAs. Through the explanation and introduction of existing methodologies and approaches used to derive estimates of the qualitative, quantitative and monetary value, one could focus on those estimates that are considered as more feasible to obtain.
We should however highlight that the most appropriate approach and methods for socio-economic assessment would always depend on the decision-making context and the purpose of the assessment.
Values can be divided into: Direct, indirect, option, existence, bequest and intrinsic.

- Direct values: raw materials and physical products that can be bought, sold and consumed directly, such as recreation, foods, building materials, fuel and handicrafts which are obtained from MPAs and the species found in them
- Indirect values: services and functions provided by MPAs which maintain and protect natural and human systems such as coastal protection, storm control, carbon sequestration and the provision of breeding grounds and habitat for marine fish, bird and mammal species
- Option values: the premium placed on maintaining MPAs and their component species for future possible uses, some of which may not even be known now, such as extractive and tourism opportunities, pharmaceutical and industrial applications
- Existence values: the intrinsic value of the existence of MPAs to people, regardless of their direct use, including cultural, scientific, aesthetic, heritage and bequest significance.
- Bequest Values: the value of satisfaction from preserving a natural environment for future generations.
- Intrinsic Values: the intrinsic value of MPAs. Non-human values.

The following Figure 3 below aims at summarizing these values.

[5] On a scale of 1-5; being 0 = very low; 1 = low; 2 = moderate; 3 = significant; 4 = high; 5 = very high).

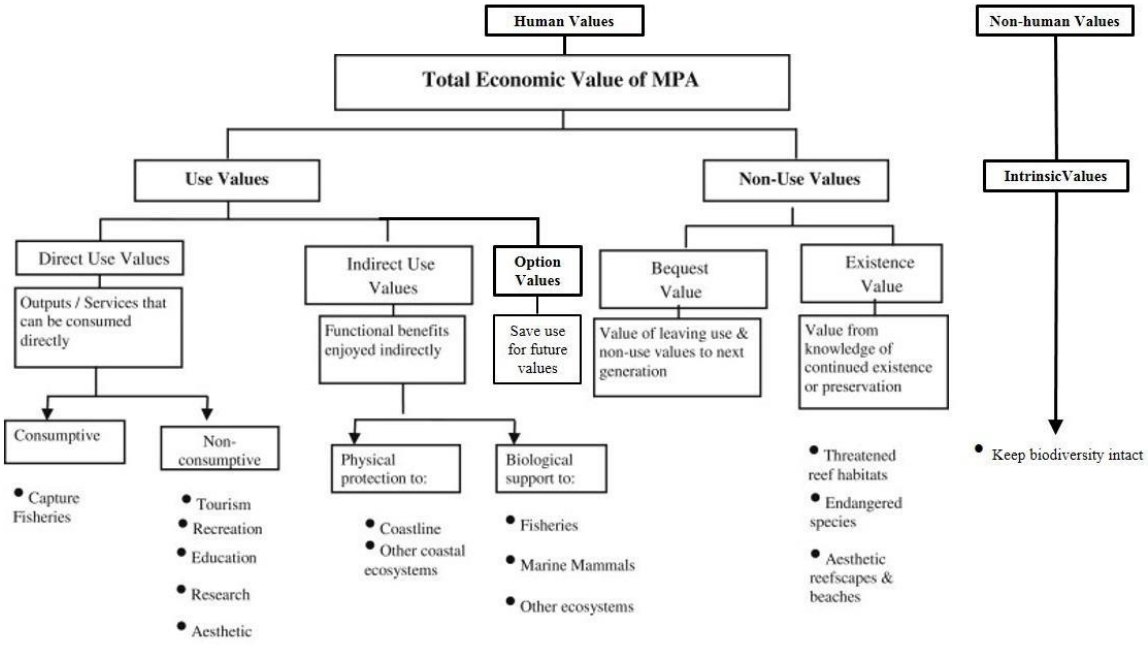

Figure 3. Human and non-human values from MPAs. Source (Modified from Emerton, 2005)

In order to measure all these values, various methods and approached exists. The following Table 4 aims at summarizing currently existing methods including a short explanation, their implications in terms of resources, their level of required knowledge so as to perform them and some examples on how these can be applied in a MPA context.

Table 4. Methods available for the socio-economic assessment of the impacts of MPAs

(Source: Own source based on Ojea et al., 2017 and Kettunen and ten Brink, 2013) (Notes: LOK = Level of Knowledge; MP = Market Price; PF = Production function approach; AC = Avoided Cost; RC = Restoration Cost; REC = Replacement Cost; TC = Travel Cost; HP = Hedonic Pricing; WTP = Willingness to Pay; WTA = Willingness to Accept; CV = Contingent Valuation; CE = Choice Experiment; P = Participatory; FTE = Full-time equivalents; PES = Payments for ESS)

Value	Type of Use	Type of Method	Method/ Approach	Explanation	Resource Implication	Required LOK	Some examples
Use	Direct	Monetary (Market)	MP (adjusted or non-adjusted)	Current selling price of the goods originated in the MPA and traded in domestic or international market. Preferably adjusted for distortions such as subsidies and taxes.	Easy to obtain (non-adjusted values) Resources needed (adjusted values).	Low (non-adjusted values) Basic economics (adjusted values)	Market price of fish; shells, algae, turtle meat, sea cucumbers, shark find, aquarium fish…; market price for diving; entry fees; diving fees; hotel charges; taxes
			PF	Estimating the share of the market value that can be attributed solely to the MPA (- value of human inputs).	Resource-intensive and time-consuming.	High	Bio-economic models outputs of biomass of fish; biomass-fishing efforts
		Revenue-based (monetary)	Jobs and employment	Direct employment and revenues values	Easy to estimate	Basic economics	Nº of jobs; income equivalents; FTE; salary cost; staff costs, guards costs
			Socio-economic investments	Investments values on MPAs	Easy to obtain	Basic economics	Public/ Private investments; donors; management costs; restoration costs; purchase costs, visitor infrastructure
	Indirect	Monetary (non-market)	AC	Costs which are avoided by not allowing damage. Relies on the assumption that damage estimates are a measure of value.	Easy to obtain	Basic economics.	Avoided costs of protecting the shoreline from impacts of storms and floods, avoided costs of sequestering carbon; displacement costs
			RC	Costs associated with restoration activities	Easy to obtain	Basic economics	Costs of restoring an ecosystem
			REC	Prices of alternatives, substitutes or compensations (incentives, PES)	Easy to obtain[6].	Basic economics	Market price of protein food; plastic coral ornaments; other building materials, infrastructure needed for the protection of the shoreline
			Revealed preferences (TC, HP)	Expenditures for using the goods provided by MPA. TC = costs incurred in visiting and using the MPA HP = revenues based on how close to the MPA (property prices, resting, etc.)	Resource-intensive and time-consuming	Detailed understanding on economics	Costs of travelling for arriving to the MPA (petrol, bus fares, labor time, accommodation and other charges); Cost of a property nearby an MPA

[6] Assumptions need to be clearly stated as these are used as proxy for the real value of goods

			Stated preferences (WTP, WTA, CV, CE, P)	Expenditure "potential" assessed via surveys exploring the "potential" demand for a benefit in a hypothetical market. WTP = people´s willingness to pay for maintaining/restoring MPA related goods WTA = people´s willingness to accept a situation in an MPA CV = people´s quantification of benefits which have no market and whose value simultaneously incorporates multiple components CE = people´s values for status choices/scenarios P = focus group/survey/ review based valuations to express the values in non-monetary terms	Resource-intensive and time-consuming	Detailed understanding on economics Participatory Methods knowledge	Replies to questions such as: - How much would you be prepared to pay for a license to collect shells? - What charge would you be willing to accept to enter this marine park? - If coral reefs became badly degraded how much compensation would you need to be given?
	Option	Monetary (non-market)	CV, CE	Future benefit for direct and indirect uses (insurance values)	Resource-intensive and time-consuming	Detailed understanding on economics Modelling scenarios knowledge	Replies to questions such as: - How much would you be prepared to pay certain scenario?
Non-Use	Existence	Non-monetary; Non-market	CV, CE	Intrinsic value of species, habitats, biodiversity…	Resource-intensive and time-consuming	Detailed understanding on economics and ecology	Replies to questions such as: - How much do you value MPAs biodiversity?
	Bequest	Non-monetary; Non-market	Bequest	Is the value of satisfaction from preserving a natural environment for future generations	Resource-intensive and time-consuming	Detailed understanding on economics and ecology	Replies to questions such as: - How much will you pay so as to protect a habitat for future generations?

4. Conclusions and recommendations

In the absence of guidelines to strengthen the socio-economic role of MPAs, efforts to promote income generating activities in MPAs are often doomed to failure. For all these reasons, conservation policies in the Mediterranean are struggling to make MPAs operational and effective in conservation while offering possibilities for socio-economic development.

As such, socio-economic assessments can provide some concrete benefits showing the wider value of MPAs. These include efforts for: advocacy and awareness, support for decision-making and management, identifying and addressing social impacts and increasing the potential for mobilizing funds.

Opportunities for MPAs also rise from Maritime Spatial Planning (MSP), Integrated Coastal Zone Management (ICZM), Blue Economy and Blue Growth, Climate Change adaptation and mitigation mechanisms and Risk protection (insurance values).

In what regards to MSP and ICZM, MPA designation may trigger opposition due to the real or perceived losses to interested parties potentially affected by use exclusions, possibly including economic losses. In these cases, socio-economic analysis and information can aid in designing the proposed MPA Regulations and management plans that lessen these impacts. This helps demonstrate that economic impacts may be less severe than is commonly perceived, thereby alleviating fears on the part of the interested parties active in the area. Indeed, a primary focus of economics is to better understand the economic trade-offs associated with public policy. Increasing stakeholder acceptance we will thus also increase the probability of conservation success.

Inside blue economy and blue growth efforts, proposals for income-generating activities could be promoted in Mediterranean MPAs with a view of stimulating the role of the Mediterranean MPAs as a socio-ecological system network generator of ecological, social and economic welfare. Without ecological benefits, however, there won't be any socio-economic benefits and thus the first step is always to support highly and fully MPA. MPAs may make an important contribution to the growth of a greener blue economy – one that places the conservation of marine resources and the development of innovative and clean industry at its heart. To plan and manage for this and to maximize the flow of potential benefits (to the environment, the blue economy and society more generally) the linkages between maritime sectors and these potential benefits need to be better understood, including how the design and management of MPAs can help facilitate their realization.

Similarly, MPAs may also play an important role in supporting the monitoring and evaluation tasks for Climate Change adaptation/mitigation mechanisms as they can contribute to tracking and reporting on performance relative to the conservation objectives of the MPA.

Last, but not least, MPAs could improve risk protection (i.e. coastline and coastal community protection, erosion protection, etc.) through their insurance capacity, potentially increasing ecosystem´s resilience and capacity to maintain benefits under changing conditions, over time, including the value of conserving genetic, species, habitats and functional diversity of ecosystems.

However, performing a socio-economic assessment may also entail some weaknesses and threats, none of which are insurmountable, but need to be taken into consideration when planning and carrying out a socioeconomic assessment.

Weaknesses include: the difficulty to assess the non-monetary benefits, difficulty to assess all complexity, difficulty in assessing net benefits (the assessment of net benefits (benefits minus costs) is crucial), the uneven distributional impacts (benefits may differ between stakeholders view), the need for stakeholder compliance and proper stakeholder engagement for management effectiveness, the need to understand the intensity and pattern of human uses, acknowledging that values change over time, that new values emerge over time and that the attention might be diverted from the primary role of MPAs.

Other difficulties to consider when performing a socio-economic analysis may include that the positive impact on local economy may be clear but it is difficult to measure, that the analysis is usually dependent on accurate data collection (in contexts of data limitations) and that it is usually difficult to segregate

the effects of MPAs in local economy and employment from those in the neighboring municipalities (as people may be move or work outside the MPA core limits).

Having these opportunities, weaknesses and difficulties in mind, these guidelines also recommend to have in mind the following considerations:

- That because of its high complexity, it is recommended that socio-economic analysis focus on a selection of the main stakeholders, not on the broader community (Rodríguez-Rodríguez, 2015). Especially since the resilience to changes from different stakeholders should also be considered (some may recover soon from an initial impact whilst others in weaker condition may not).

- That conservation is the first objective in MPA and that any assessment should have this in mind at the same time that the carrying capacity of the different natural resources is being considered.

- That socio-economic indicators should be meaningful for decision makers, and also easy to obtain by the MPA managers and local society.

- That most loses are not usually complete, inevitable or permanent, that values change over time, that new values emerge over time and that short-term winners (e.g. recreation) may compensate short term losers (e.g. local fishermen) (Sala & Giakoumi, 2017).

- That new fiscal mechanisms are emerging (e.g. PES) which can shift the way MPAs are being managed and incorporate new funding opportunities for MPAs and conservation initiatives (Pascual, 2018).

With all this, we hope these guidelines would help those aiming to follow a socio-economic assessment put the available data, information and estimates into a proper context, so as to better interpret and communicate their results.

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ANNEX V:

(B1) Draft concept note on how to reach the qualitative aspects of Aichi Target 11 in the Mediterranean

(B1) Draft concept note on how to reach the qualitative aspects of Aichi Target 11 in the Mediterranean

1) Introduction

1. Aichi Target 11: "By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape (CBD)".

2. The riparian countries of the Mediterranean Sea have trusted the protection of the Mediterranean biodiversity, their species and habitats on an area-based strategy in the form of Marine Protected Areas or MPAs, aligned with the main international conservation conventions and agreements. In 2010, the Convention on Biological Diversity (CBD) adopted in the tenth meeting of the Conference of the Parties held in Nagoya, a revised and updated Strategic Plan for Biodiversity, including the Aichi Biodiversity Targets, compromises addressed to the States Parties for the 2011-2020 period. One of the most demanding was Target 11: by 2020 the Parties should have protected at least 10% of their coastal and marine areas. This area threshold was defined as Aichi´s quantitative target, and to become effective it was coupled with five additional qualitative requirements, by virtue of which MPAs should be:

(QL1) ecologically representative,
(QL2) effectively and equitably managed,
(QL3) well connected,
(QL4) integrated into the surrounding landscapes and seascapes, and
(QL5) they embrace areas of particular importance for biodiversity and ecosystem services.

3. As 2020 approaches, reaching the quantitative target in the Mediterranean seems theoretically feasible, but the qualitative mandatory ads-on have revealed as a hard task to accomplish and are far from being achieved. A proposal of boosting the qualitative requirements is presented in this note, as guidelines to advance towards a more effective, robust and equitable network of Mediterranean MPAs, in need of reinforcement of the current structures rather than a dimensional increase.

2) Problematic and gaps in the Mediterranean MPA network

2.1 Mapping values

4. The protection of the Mediterranean waters, their species and habitats has been extensively afforded through the establishment of a "system" –as the Aichi declaration states-, a network of MPAs. In the Mediterranean, the latest estimation of protected surface waters was 7.14% (MedPAN & UNEP-MAP-SPA/RAC, 2016). This remarkable figure of coverage has been reached by including a range of national and international protection figures, and apparently offers good perspectives of reaching the desired accomplishment of the Aichi target 11. There are several positive added values which serve as facilitators:

a) The Mediterranean network of MPAs is remarkably developed in some countries. There are several MPAs which have been properly set up, planned and developed. They have a managerial background which can be useful to reinforce the rest of the network, offering opportunities for a model of convergence and work in cooperation.

b) The Mediterranean network of MPAs enjoys a healthy integration and coordination at the technical level thanks to MedPAN, the network of Mediterranean MPA managers, which provides

coordination and help in the form of technical and scientific know-how, specific capacitating activities and funding or coordination of specific long-term projects.

c) The region is the target of international treaties and agreements focused specifically on the protection and conservation of the Mediterranean Sea, -like the UNEP-Mediterranean Action Plan (MAP) and the Barcelona Convention-, or the conservation and sustainable use of marine resources, like de FAO-General Fisheries Commission for the Mediterranean (GFCM) and its provisions. For example, the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (the SPA/BD Protocol) of the Barcelona Convention which entered into force in 1999, set up a procedure for the protection of the whole Mediterranean, including the high seas, through the signature of agreements between neighbouring countries and the declaration of Specially Protected Areas of Mediterranean Importance, or SPAMIs (Scovazzi, 2004, 2011). Important international organizations and NGOs develop marine programs addressed specifically to the Mediterranean, such as IUCN and WWF. Most of them usually adopt synergistic proposals and share common objectives, information and expertise.

d) There are financial structures addressed specifically for the conservation of MPAs or the conservation of the marine resources, either coming from the European Union –in the form of compensatory measures like the LIFE Funds for the Natura 2000 Network, or the fishery funds provided by the new Fisheries Common Policy-, or from the financial tool of the UNEP-Mediterranean Action Plan, the Mediterranean Trust Fund (MTF). But also, there are other funds at disposal, coming from active and engaged private or private/public donors: the *Association for the Sustainable Financing of Mediterranean MPAs* (M2PA) has set up a trust fund (The MedFund) that has already received financial contributions from governments and private donors, and is currently granting its first funding to marine protected areas in the Mediterranean.

e) Although partial and incomplete, there is a huge amount of information on the scientific and ecological values of the marine biome and its biodiversity in the Mediterranean Sea, which has been useful for the subdivision of the Mediterranean into ecological/biological units of conservation, and the definition of hotspots for biodiversity.

f) Ecological representativeness (QL1) is effectively accomplished at the coastal habitats of the EU riparian countries through the marine Natura 2000 network. It is a highly structured network which can serve as a model for the non-EU countries.

g) The FAO General Fisheries Commission for the Mediterranean (GFCM) is developing its own strategy of area-based conservation policy through the declaration of International Fisheries Reserve Areas or FRAs, with specific regulations for the exploitation of the marine resources, in some cases with remarkable results.

2.2 Mapping threats

5. In the Mediterranean, the roadmap to accomplishing Aichi target 11 has been focused on reaching the quantitative threshold of 10% of protected waters. As 2020 comes up the qualitative requirements or QLs are far from being achieved even on the MPAs already declared. These are the main limiting factors for the qualitative achievement of the Target detected:

a) For QL1 (ecologically representative):

- Mediterranean MPAs have suffered from opportunistic instead of a structured and planned designation (Baldi et al, 2017).
- The geographical bias of the network is fully explained by socio-economic reasons: four European countries accumulate 88% of the Mediterranean GDP and manage 102 out of 186 of the national declared MPAs. These 102 MPAs cover nearly 60% of the total marine area protected by this category (MAPAMED, MedPAN-SPA/RAC, 2016), and all of them are in the north of the basin.

- There is a strong bias in the network regarding the type of ecosystems protected, as they are mainly coastal and located in waters less than 50 meters deep (Ramos-Esplá et al., 2004). The proportion of waters protected in the territorial 12 nautical mile fringe rises to 8.22%, whereas beyond 12 nautical miles it does not reach 3% (European Commission, 2015), resulting in an underrepresentation of deeper ecosystems.

b) For QL2 (effectively managed):

- There is a striking contrast between the current financing of Mediterranean MPAs and the budget needed to fulfil the Target 11 objectives. The total available resources for Mediterranean MPAs—54.5 million €— constitutes a mere 7% of the ideal budget of 700 million €/year. Considering that an additional 7,000 million € will be needed to effectively protect 10% of Mediterranean waters by 2020, current resources fall quite far short of needs (Binet et al., 2015).
- For the majority of sites, there is a lack of information on management measures and their implementation, and if they are, on their effectiveness to reach the site's conservation targets (MedPAN & UNEP-MAP-SPA/RAC, 2016).
- Many Mediterranean MPAs lack legal, managerial and staff capacity to provide effective protection to the area. MPA managers suffer from the legislative framework where they operate, weakening their capacity to enforcement. Sufficient and efficient patrolling and surveillance occurs in only 31% of Mediterranean MPAs, while less than 10% have sufficient staff to meet conservation requirements (Gaines et al., 2010; MedPAN & UNEP-MAP-SPA/RAC, 2016; Amengual & Alvarez, 2018).

c) For QL2 (effectively managed) and QL4 (integrated into the surrounding landscapes and seascapes):

- Although 80% of the fish stocks assessed in the Mediterranean are outside biologically safe limits (GFCM Scientific Advisory Committee, 2017) there is a weak convergence of action between the environmental administration and the fisheries administration, both at a national and regional level, and between the MPA managers and the fishing communities as one of the main local stakeholders at the local level.

d) For QL3 (well connected):

- There are not national or regional MPAs set up to promote species conservation and resilience through ecological connectivity (Gabrié et al., 2012).

e) For QL4 (integrated into the surrounding landscapes and seascapes):

- The Aichi Biodiversity Target 11 calls also for an "equitable" management of MPAs. The Mediterranean ranks remarkably low in the managerial equity indicators already set in place:
    - inclusive decision-making procedures,
    - management shared between the national authorities and local stakeholders/NGOs, or placed fully in the hands of non-governmental organizations (Gill et al., 2018),
    - Gender policy through women empowerment in the MPA regional strategy.

f) For QL5 (embrace areas of particular importance for biodiversity and ecosystem services):

- Threatened and/or protected species in the Mediterranean are often not considered or adequately sheltered by the design and goals of the current MPAs. There is only a maximum 2% overlap between existing marine protected areas and the predicted areas of biodiversity concern (Coll et al., 2012).

3) Towards Aichi qualitative target 11: necessary changes

6. In order to advance, we propose a list of measures which can be considered to effectively advance in each of the qualitative requirements included in Aichi target 11. They are the following:

3.1 QL1: "ecologically representative"

7. Considering the current social, political and economic reality of the Mediterranean, a network ecologically representative of the Mare Nostrum in 2020 seems rather unrealistic. But we have the chance to positively advance in this direction if:

- the Mediterranean States, Parties to UNCLOS, tackle legislative changes related with the UN-Law of the Sea,
- national efforts to reach the Aichi target 11 are structured in the form of a sub-regional initiative, with subunits (regions and nodes) defined by socio economic and ecological descriptors, (also affecting QL2 and QL3)
- there is a creative use of the concept of *other effective area-based conservation measures*, and this is inclusive with: (i) the fisheries sector, and (ii) the private sector/environmental NGOs. (affecting also QL2)

8. While every State is free to establish or not to establish an exclusive economic zone (EEZ), a Mediterranean without waters beyond national jurisdiction (WBNJ) would manage its pelagic fisheries and conservation values more effectively, because comprehensive Economic Exclusive Zone (EEZ) declarations of the countries which have not yet exerted national rights into the open sea would facilitate the managerial capacity over pelagic fisheries and MPAs eventually declared in current WBNJ. Management of those waters through agreements supported by multinational treaties is quite limited, as it is not legally binding to non-Party countries. The EEZ declarations may provide important opportunities for large-scale conservation of marine ecosystems and biodiversity in this zone, including the underrepresented bathyal and abyssal habitats. Encouraging the countries which have not already declared their EEZ to do so would be a crucial change. Alternatively, the SPAMI tool, brought by the SPA/BD Protocol of the Barcelona Convention, allows for the establishment of intergovernmental cooperation and the adoption of joint measures necessary for the protection of the environment of all the maritime waters of the Mediterranean, irrespective of their legal condition, to the seabed and its subsoil and to the terrestrial coastal areas designated by each of the Parties.

9. The GFCM is taking up regulations on the fisheries policy in the Mediterranean through their FRAs programme, which are positively contributing to its conservation through a convergent area-based strategy based on spatial management tools. In 2005, the GFCM endorsed the decision of prohibiting bottom-trawling activities in waters deeper than 1000 m. The decision has had more extensive and long-lasting effects than any other conservation action taken in the Mediterranean so far and affected underrepresented habitats. Combined fisheries and conservation objectives can be achieved by merging diverse management actions, but the strategies of the conservation and the fisheries management bodies, although convergent in their objectives, need to be progressively much more tightly aligned. The attention afforded to the scientific definition, identification and assessment of the FAO Vulnerable Marine Ecosystems (VME) in the Mediterranean high seas, and Essential Fish Habitats (EFH) by the GFCM, and the selection of FRAs sites based on them, clearly shows a common action around the area-based conservation concept which is fully included in Target 11 qualitative provisions. The results of this common view should inevitably lead to a combination of efforts between the fisheries and conservation actors in the Mediterranean, as the FishForum has recently stated (FF conclusions, 2018) but which surprisingly is far from being achieved. If effectively afforded, can be great in results, reduce conflicts with a key stakeholder and be attained at a much more reasonable cost (embracing also QL2, QL4 and QL5).

10. Management of some MPAs based on private-led initiatives, such as delegate governance in the hands of NGOs, might be considered as an exploration of the term "other effective area-based conservation measures" of the Aichi 11 goal statement, a line of action which has not been fully explored so far. Limitations of these organizations in terms of law enforcement can be subdued by a co-management formula and the establishment of agreements with the national marine security authorities. This alternative vision could play a role, particularly in the Southeast littoral countries, supplying expertise, funds and human resources in the critical phase I of MPA declaration and management (Gomei & Di Carlo, 2012).

11. The coverage and implementation of no-entry, no-take and no-fishing zones, within either existing or future MPAs, should be increased from the current coverage of 0.04% of the Mediterranean Sea to reach at least 2% of no-take zones, especially in key functional areas.

3.2 QL2: "effectively managed"

12. It is mandatory a strong reinforcement of the financial mechanisms addressed specifically for Mediterranean MPAs, both at national and international level.

13. At a national level, States Parties to the Barcelona Convention should (i) reinforce strongly their commitment to their national system of MPAs through the adoption of a national programme reasonably provided; (ii) adopt a financial compromise with their national protected areas system in terms of percentage of the annual budget dedicated to.

14. At the regional level (for the whole of the Mediterranean), through a strong and decisive reinforcement of the UNEP/MAP Mediterranean Trust Fund (MTF) which is insufficient in its current configuration; of the LIFE programme and the environmental and fisheries structural funds of the UE; through the reinforcement of the financial instrument specifically addressed to MPAs in the Mediterranean (The MedFund) and giving a renewed impulse and reorientation of the European financial aid for development to the Mediterranean non-EU states. The participation of EU countries in the context of bilateral or multilateral aid for development agreements is advisable. Additionally, there is a need to increase the participation of private donors, an active which has not been fully explored in the region, through a creative stimulus of the use of tax exemption. Also, supporting the development of small funding programmes within MPAs will enable to develop local project management capacities and as a lever to attract new and matching funding sources.

15. It is essential that MPAs established by the Contracting Parties to the Barcelona Convention fulfil the baseline requirements set by the SPA/BD Protocol for the establishment of Specially Protected Areas (SPAs), that are the objectives for which such areas are established and the protection measures required to pursue these objectives. A more explicit norm of declaration, establishing clear and indisputable limits, a minimum specific national budget, a management plan with legal capacity over other legal regulations affecting the area, a minimum capacity of surveillance -"no boat, no park"- and a minimum capacity of enforcement could be defined.

16. There should be decisive advances in capacity building for an effectively managed MPA network in the form of coordinated and stable formative forums.

17. Supporting MPA effective and equitable management, and especially of "young MPAs" by having a specific policy for such MPAs in their initial stages, and by adopting minimum standards for their effective management and recommendations for good governance, through sharing the best field practices.

18. It is important to strengthen exchange of experience, best practices and knowledge among MPA managers, including through increased cooperation between EU and non-EU Mediterranean countries, especially for addressing conservation needs for highly mobile marine species. MPA Twining initiatives may help in this context (also serving QL3).

19. In order to objectively evaluate advances towards QL2 (but also QL4 and QL5), a set of state and response indicators should be set up, specifically designed to this objective at the Mediterranean. There are multiple examples of sets of indicators already tested which could eventually be adapted and used by national authorities or by an independent and external body under the auspices of the Barcelona Convention and SPA/RAC. In this respect, in the framework of the implementation of the Integrated Monitoring and Assessment Programme (IMAP) of the Barcelona Convention, the Contracting Parties, while updating their national monitoring programmes, need to include at least one monitoring area in a

low pressure area (e.g. marine protected area / Specially Protected Area of Mediterranean Importance (SPAMI)). It may be useful to differentiate two or three categories of MPAs according to their empowerment and enforcement phase and not to their actual age or date of establishment (e.g. "young", "mid-aged" and "mature" MPAs), as they may not have the same priorities and capacities according to their "maturity". This concern is also important when communicating about various MPAs across the Mediterranean region.

3.3 QL3: "well connected"

20. The SPA/BD Protocol set up a procedure for the declaration of SPAMIs both in the high seas and between neighbourhood countries, a strategy which unfortunately has not been fully developed. Only one among the SPAMIs so far established, namely the French-Italian-Monegasque sanctuary for marine mammals (so-called Pelagos sanctuary) covers also areas of high seas. The Barcelona Convention and its SPA/RAC should vigorously promote the adoption of this figure of protected areas between neighbouring Parties, a promising development which apart from enhancing ecological connectivity will empower MPAs as a relevant tool for regional cooperation in a region in urgent need of. In this regard, cooperation among SPAMIs should be reinforced and promoted. This would result in significant advances in QL4 and QL1 as well.

21. The application of adequate and well validated hydrodynamic models linked to the development of bio-transport networks are providing maps of MPA functional connectivity and could help significantly in the appropriate design of well-connected MPAs (Rossi et al., 2014) and the identification of the Mediterranean eco-regions if managers work in synergy with motivated oceanographers.

3.4 QL4 "integrated into the surrounding landscapes and seascapes"

22. This is the "equitable" component of Target 11. MPAs are more likely to be successful when attention is given to local development. There is an urgent need to advance and adopt effective actions to increase the participation of the local stakeholders, especially those from the touristic and the fishery sector, using inclusive decision-making procedures in the MPA management bodies from the inception phase. This is of particular relevance when there are local communities in the vicinity of or within the MPA with subsistence economies.

23. The habits of consumption, the overfishing of coastal fisheries and the levels of pollution in the Mediterranean shores are unsustainable. To ameliorate this, we need inevitably an expanded vision to strengthen the conservation premises and to link and align them more tightly with the fisheries objectives of the UNEP/MAP Mediterranean Strategy for Sustainable Development 2016-2025 (MSSD) (Strategic direction 1.2) on the one hand, and with the Sustainable Consumption and Production Regional Action Plan for the Mediterranean on the other.

24. Working towards creating a win-win relationship of MPAs with decision-makers, donors and private sector interested in marine and maritime spatial planning, integrated coastal zone management, blue growth strategies, sustainable tourism and sustainable fisheries policies, in order to respond to pressures beyond MPA borders, while considering MPAs as natural capital and a management instrument to reach sustainability targets.

25. Incorporating gender policy into MPA design can lead to increased benefits for the local community affected. Women participation in the MPA management should be facilitated at all levels, and needs reinforcement as a regional strategy, aligned with the European Union and the Mediterranean Strategy for Sustainable Development (MSSD) commitment to gender equality and women's empowerment, the IUCN Gender Programme and especially the Union for the Mediterranean's Strategy for Women's Empowerment 2018-2020.

26. MPAs can -and should- contribute to poverty reduction in riparian economies of subsistence (Bennett & Dearden, 2014). A managerial action which negatively affects local community only might

be adopted if no other less impacting solution is found for the area or activity affected, and always adopting compensatory measures and/or incentives for the stakeholders economically affected by an MPA –through the reduction or complete loss of fishing rights, for example. This should be compulsory in the Mediterranean MPA system: in MPAs indeed, no fair deal means no managerial capacity.

27. Positive results in QL4 are keystones, and they should be converted into an essential argument to lobby in favor of the MPA system in the national and international forums and media. The evaluation of the ecosystem services provided by each MPA should be afforded and evaluated in economic terms immediately, particularly when the tourism and fisheries economies are positively affected by the area. The results of this kind of analysis should be fully publicized in the media but also as scientifically sound publications.

3.5 QL5: "embrace areas of particular importance for biodiversity and ecosystem services"

28. There is a reasonable knowledge of Mediterranean hotspots or areas of biological concern (IBAs for birds, IMMAs for marine mammals, etc.) or for endangered, threatened and/or endemic species, and their habitats, so decisive advances can be attained in the matching with the MPA system, especially at regional level. The decision to declare a new MPA should be fully supported by biological and ecological evidence of the relevance of the area in conservation terms. This strategy would be particularly relevant also for QL1.

29. Declaration of new areas based on singular geomorphologic or oceanographic elements linked to VMEs or EFHs as criteria for selection of new areas should be intensively used (seamounts, guyots, canyons and trenches, hydrothermal vents, continental drop-offs, fronts and eddies, etc.).

30. We need to select, design and set up new MPAs with socioeconomic criteria. The IUCN category V -Protected Landscapes/ Seascapes- and VI -protected areas with sustainable use of natural resources- have not been fully promoted and used in the Mediterranean, rather surprisingly. Biosphere reserves fit perfectly with these categories of protected areas and their extensive used could mean simultaneous advances both in the quantitative and the qualitative criteria of Target 11.

31. As a final note, the new strategy for the years beyond 2020 should not focus on new area threshold, thus, a new quantitative target, but on the contrary, on the reinforcement or strengthening of the network we will have at that time, paying most and special attention to the qualitative components of the target. The targets should also be pragmatic and backed by an actual will and enforcement means by the governments, including human and financial. The network has a paramount necessity to grow up not in surface, but in (i) managerial capacity, (ii) social and political component of the MPA socioeconomic, (iii) sustainable financing, (iv) strengthening the synergy with the fisheries area-based policy, and (v) strengthening the synergy with marine spatial planning in order to better take into account all the sectors of activities which could impact MPAs. And this should be the new target for the future of the Mediterranean MPA network to come after Aichi. However, given, the financial implications, commitments should be sought only for realistic orientations for which funding can be reasonably expected.

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ANNEX VI:

(B2) Draft Terms of References for the establishment under the Barcelona Convention of a Directory of Mediterranean Marine and Coastal Protected Areas (SPAs)

(B2) Draft Terms of References for the establishment under the Barcelona Convention of a Directory of Mediterranean Marine and Coastal Protected Areas (SPAs)

1. The Protocol concerning Mediterranean Specially Protected Areas[1] (SPA Protocol) adopted in 1982 in the framework of the Barcelona Convention indicates in its Article 8 that the Contracting Parties should notify to the Specially Protected areas Regional Activity Centre (SPA/RAC) information concerning the Specially Protected Areas (SPAs) that they created within their territories. This information should include in particular SPA boundaries as well as the regulation applicable to them. They are to be compiled by SPA/RAC to set up, publish and keep up to date a directory of Specially Protected Areas in the areas to which the Protocol applies.

2. In the framework of the implementation of the SPA Protocol provisions, SPA/RAC elaborated a Directory composed of information sheets on SPAs notified by the Contracting Parties. After its first publication, this directory[2] was updated in 1989.

3. Since the notification of SPAs by Parties has not been included in the provisions of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean[3] (SPA/BD Protocol) of 1995, there has not been any official notification on SPAs after the Directory version published in 1989. As a result, there is no longer any official directory of Specially Protected Areas (SPAs) in the Barcelona Convention's application area. Indeed, the only list of protected areas maintained by SPA/RAC, based on official notifications, is the List of SPAMIs, although the SPA/BD Protocol provides for the establishment of both SPAs and SPAMIs. This makes it difficult to monitor the status of protected areas in the Mediterranean as well as to assess countries' efforts to preserve sites.

4. To address this situation, it is proposed to set up a procedure, based on the provisions of the SPA/BD Protocol that allows SPA/RAC to develop a directory listing the specially marine and coastal protected areas that are created by the Contracting Parties within the SPA/BD Protocol's application area. This directory must contain for each listed site information on its geographical location, surface, boundaries, objectives, the applicable regulations, main protection measures required (in particular presence and surface of no-take areas and of areas where industrial fishing (beam-trawling and purse seine) is forbidden), and an overview of its main natural features. This directory should not, in any way, duplicate or be confused with the SPAMI List, that includes sites intended to have a value of example and model for the protection of the natural heritage in the region.

Proposed modality for the directory establishment and elaboration:

5. The directory could be established by a decision of the forthcoming meeting of the Contracting Parties (COP 21, Naples, Italy, 2-5 December 2019) according to Articles 16, 19 and 23 of the SPA/BD Protocol.

6. Based on the decision by the Parties, SPA/RAC shall work in close consultation with the SPA/BD Focal Points and with the assistance of the Ad hoc Group of Experts for Marine Protected Areas in the Mediterranean (AGEM) (i) to elaborate criteria for inclusion of SPAs in the Directory and (ii) to compile a draft version of the Directory.

[1] http://www.rac-spa.org/sites/default/files/doc_cop/82ig35_final_act_eng.pdf
[2] https://wedocs.unep.org/bitstream/handle/20.500.11822/399/mts26.pdf?sequence=2&isAllowed=y
[3] http://rac-spa.org/sites/default/files/protocole_aspdb/protocol_eng.pdf

7. To compile the draft version of the Directory SPA/RAC will use the relevant information in the National reports to the Barcelona Convention[4] and other concerned international authorities as well as relevant databases, reports, publications and other sources of available information.

8. SPA/RAC will submit to each Party, through its SPA/BD Focal Point, the information to be included in the draft Directory and that concerns sites under its jurisdiction, for validation.

9. The draft Directory and the related criteria will be reviewed by the Fifteenth Meeting of the SPA/BD Focal Points.

10. Once finalized by the SPA/BD Focal Points, the Directory will be made available on the SPA/RAC website. To keep the Directory updated, the SPA/BD Focal Points may provide information to SPA/RAC which may also collect relevant information and submit it for the approval by the concerned SPA/BD Focal Point before including it in the Directory.

11. At the occasion of each ordinary meeting of SPA/BD Focal Points, SPA/RAC shall prepare and submit a report on the evolution of the directory.

[4] The Revised reporting format for the implementation of the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean and its Protocols (Decision IG.23/1 of COP 20, Tirana, Albania, 17-20 December 2017) includes a section (Part II) dedicated for Specially Protected Areas, including a table (Table III) containing the List of SPAs within the SPA/BD Protocol´s geographical coverage.

ANNEX VII:

(B3) Draft Concept note on the role of Marine Protected Areas as reference sites under the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria

(B3) Draft Concept note on the role of Marine Protected Areas as reference sites under the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria

1. Within the framework of the application of the Ecosystem Approach (EcAp) to the management of the Mediterranean marine and coastal environment, covering pollution and marine litter, biodiversity and non-indigenous species, and coast and hydrography, the Contracting Parties to the Barcelona Convention followed several subsequent steps starting by the definition of an ecological regional vision and common strategic goals, and the development of the following eleven Ecological Objectives (EOs):

- (EO1) Biodiversity is maintained or enhanced. The quality and occurrence of coastal and marine habitats and the distribution and abundance of coastal and marine species are in line with prevailing physiographic, hydrographic, geographic and climatic conditions.
- (EO2) Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem.
- (EO3) Populations of selected commercially exploited fish and shellfish are within biologically safe limits, exhibiting a population age and size distribution that is indicative of a healthy stock
- (EO4) Alterations to components of marine food webs caused by resource extraction or human-induced environmental changes do not have long-term adverse effects on food web dynamics and related viability
- (EO5) Human-induced eutrophication is prevented, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algal blooms and oxygen deficiency in bottom waters.
- (EO6) Sea-floor integrity is maintained, especially in priority benthic habitats
- (EO7) Alteration of hydrographic conditions does not adversely affect coastal and marine ecosystems.
- (EO8) The natural dynamics of coastal areas are maintained, and coastal ecosystems and landscapes are preserved.
- (EO9) Contaminants cause no significant impact on coastal and marine ecosystems and human health.
- (EO10) Marine and coastal litter does not adversely affect coastal and marine environment.
- (EO11) Noise from human activities cause no significant impact on marine and coastal ecosystems.

2. To assess the state of the Mediterranean marine environment in a quantitative and integrated manner and based on the agreed eleven Ecological Objectives (i.e. elaborate the Mediterranean Quality Status Report (MED QSR) and the State of Environment and Development Report (SoED)), the Contracting Parties adopted a series of common indicators to be regularly calculated using data to be collected through standardised methodologies. The common and candidate indicators agreed upon, which are at the core of the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP), include:

- (1) Habitat distributional range (EO1) to also consider habitat extent as a relevant attribute;
- (2) Condition of the habitat's typical species and communities (EO1);
- (3) Species distributional range (EO1 related to marine mammals, seabirds, marine reptiles);
- (4) Population abundance of selected species (EO1, related to marine mammals, seabirds, marine reptiles);
- (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);
- (6) Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species);
- (7) Spawning stock Biomass (EO3);
- (8) Total landings (EO3);

- (9) Fishing Mortality (EO3);
- (10) Fishing effort (EO3);
- (11) Catch per unit of effort (CPUE) or Landing per unit of effort (LPUE) as a proxy (EO3);
- (12) Bycatch of vulnerable and non-target species (EO1 and EO3)
- (13) Concentration of key nutrients in water column (EO5);
- (14) Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria 14. Chlorophyll-a concentration in water column (EO5);
- (15) Location and extent of the habitats impacted directly by hydrographic alterations (EO7) to also feed the assessment of EO1 on habitat extent;
- (16) Length of coastline subject to physical disturbance due to the influence of man-made structures (EO8) to also feed the assessment of EO1 on habitat extent;
- (17) Concentration of key harmful contaminants measured in the relevant matrix (EO9, related to biota, sediment, seawater);
- (18) Level of pollution effects of key contaminants where a cause and effect relationship has been established (EO9);
- (19) Occurrence, origin (where possible), and extent of acute pollution events (e.g. slicks from oil, oil products and hazardous substances) and their impact on biota affected by this pollution (EO9);
- (20) Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood (EO9);
- (21) Percentage of intestinal enterococci concentration measurements within established standards (EO9);
- (22) Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source.) (EO10);
- (23) Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10);
- (24) Candidate Indicator: Trends in the amount of litter ingested by or entangling marine organisms focusing on selected mammals, marine birds and marine turtles (EO10);
- (25) Candidate Indicator: Land use change (EO8);
- (26) Candidate indicator: Proportion of days and geographical distribution where loud, low, and mid-frequency impulsive sounds exceed levels that are likely to entail significant impact on marine animals (EO11);
- (27) Candidate Indicator: Levels of continuous low frequency sounds with the use of models as appropriate (EO11).

3. Considering that monitoring and assessment, based on scientific knowledge and reliable up-to-date data, is the indispensable basis for the calculation of the agreed common indicators, the Contracting Parties adopted at their 19th Ordinary Meeting (COP 19, Athens, Greece, 9-12 February 2016), the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and related Assessment Criteria (IMAP)[1].

4. IMAP is meant as a collaborative effort aiming at assessing through a set of indicators the state of the marine and coastal environment in the Mediterranean. It is to be implemented by the Contracting Parties with the support of the MAP Components (RACs, Coordinating Unit, MED POL, etc.) and key regional partners, in particular the Secretariats of the General Fisheries Commission for the Mediterranean (GFCM) and of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS).

5. For each common indicator, a methodological sheet (Common Indicator Guidance Fact Sheet) and monitoring protocols have been developed (and will be further updated based on the Contracting Parties requirements) to allow data to be collected by countries according to a common methodology allowing consistency and comparability of the results obtained. Most of these fact sheets recommend the inclusion of reference sites, in particular Marine Protected Areas (MPAs) or Specially Protected Areas of Mediterranean Importance (SPAMIs).

[1] https://wedocs.unep.org/bitstream/handle/20.500.11822/17012/imap_2017_eng.pdf?sequence=5&isAllowed=y

How can MPAs contribute to IMAP?

6. Thanks to the effective protection and management they enjoy, MPAs are in principle less prone to alterations of their environment compared to unprotected marine areas or MPAs with low levels of enforcement. By comparing the state of the marine environment in effectively managed MPAs with that of other areas, it is therefore possible to measure trends of monitored parameters.

7. It should be noted, however, that species, habitats and assemblages in MPAs may also be affected by alterations, which is why it is important to have baseline data for the monitored parameters in the considered effectively managed MPAs. Since such data is not available at the moment in several Mediterranean MPAs, using these sites as reference should start therefore by establishing the baseline situation based on existing data or collecting new ones that will serve as reference.

8. Only non-destructive monitoring methods should be used in MPAs, such as visual observation, visual census, photo sampling, multibeam or side scan sonars.

9. The MPAs may be good reference sites for most of the adopted common indicators in particular for those relating to EO1 (Biodiversity), EO2 (Non-indigenous species), EO4 (Marine food webs), EO5 (Eutrophication), EO6 (Sea-floor integrity), EO7 (Hydrographic conditions) and the pollution Ecological Objectives (EO9, EO10 and EO11). It should be noted that MPAs would work well as reference sites for most biological aspects (including species with a commercial interest) but may not particularly highlight the widespread conditions of invasive species, diffuse water pollution, or plastics.

10. The relevance of the MPAs as reference sites for the Common Indicators (CIs) is presented in the following table.

Common Indicator 1: Habitat distributional range (EO1)	**Including MPAs as reference sites may help in case of the loss of habitat extent generated by anthropogenic cause(s).** The fact sheet elaborated for this indicator stipulates that the reference sites to be monitored should be located in zones with infrastructure developments or significant physical activities having the potential to generate damages to the marine habitats (dredging, trawling activities, etc.). Each Contracting Party should cover the reference habitat in at least two monitoring areas: - low pressure area (e.g. **marine protected area /Specially Protected Area of Mediterranean Importance (SPAMI)**); - high pressure area from human activity. The monitoring sites should be selected among those which can showcase the relationship between environmental pressures and their main impacts on the marine environment.
Common Indicator 2: Condition of the habitat's typical species and communities (EO1)	**MPAs having historical data series on typical species and communities of habitats could be used as reference sites.** The methodologies proposed in the fact sheet of this indicator include using standardized grabs, drill

	sampling or corers. These should not be allowed in MPAs and only non-destructive monitoring methods should be used, such as visual observation, visual census, photo sampling, multibeam or side scan sonars.
Common Indicator 3: Species distributional range (EO1)	**Three categories of species are recommended for the monitoring under IMAP: Sea turtles, Seabirds and marine mammals. MPAs where these species exist may be excellent reference sites for IMAP programmes in particular for the population abundance and population demographic conditions.**
Common Indicator 4: Population abundance of selected species (EO1)	
Common Indicator 5: Population demographic characteristics (EO1)	
Common Indicator 6: Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species in the water column and seabed, as appropriate)	**The monitoring of non-indigenous species under IMAP is to be undertaken following a risk-based approach, focusing therefore on hotspots for non-indigenous species introductions (ports and their surrounding areas, docks, roadstead or anchorage areas, marinas, aquaculture sites, offshore structures, etc.).** **MPAs may be used as reference sites for IMAP depending on the proximity to invasive alien species introduction hotspots.** **Generally speaking, MPAs should not include non-indigenous species, and the arrival of such species in MPAs must be fought and their introduction must be clearly forbidden.**
Common Indicator 7: Spawning Stock Biomass (EO3)	**Fishing being banned, restricted or controlled in most Mediterranean MPAs, monitoring of the parameters needed for these common indicators cannot provide reliable reference figures. However, the monitoring of spawning biomass within MPAs could provide good indication to compare with spawning stocks for a given exploited species outside MPAs.** **For the MPAs where fishing is authorised, the monitoring of Catch Per Unit Effort (CPUE) would also provide reference figures for the fishing activities (CI 11).**
Common Indicator 8: Total landing (EO3)	
Common Indicator 9: Fishing mortality (EO3)	
Common Indicator 10: Fishing effort (EO3)	
Common Indicator 11: Catch per unit of effort (CPUE) or Landing per unit of effort (LPUE) as a proxy (EO3)	

Common Indicator 12: Bycatch of vulnerable and non-target species (EO1 and EO3)	
Common Indicator 13: Concentration of key nutrients in water column (EO5)	**MPAs having historical data series of concentration of key nutrients and Chlorophyll-a concentration in water column could be used as reference sites for these indicators.**
Common Indicator 14: Chlorophyll-a concentration in water column (EO5)	
Common Indicator 15: Location and extent of the habitats impacted directly by hydrographic alterations (EO7, to also feed the assessment of EO1 on habitat extent)	**MPAs are not particularly relevant as reference sites for these indicators.**
Common Indicator 16: Length of coastline subject to physical disturbance due to the influence of man-made structures (EO8) to also feed the assessment of EO1 on habitat extent	
Common Indicator 17: Concentration of key harmful contaminants measured in the relevant matrix (EO9, related to biota, sediment, seawater)	**Since the sampling for biota and sediment will involve destructive method, it is not recommended to use MPAs as reference sites for this indicator except for the concentration of key harmful contaminants measured in the seawater.**
Common Indicator 18: Level of pollution effects of key contaminants where a cause and effect relationship has been established (EO9)	**MPAs are not relevant as reference monitoring sites under IMAP for these indicators.**
Common Indicator 19: Occurrence, origin (where possible), and extent of acute pollution events (e.g. slicks from oil, oil products and hazardous substances) and their impact on biota affected by this pollution (EO9)	
Common Indicator 20: Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood (EO9)	
Common Indicator 21: Percentage of intestinal enterococci concentration measurements within established standards (EO9)	**Even if MPAs waters should not contain intestinal enterococci, MPAs having historical data series of concentration of intestinal enterococci, could be used as reference sites for this indicator.**
Common Indicator 22: Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source) (EO10)	**MPAs are not particularly relevant as reference monitoring sites under IMAP for these indicators.**
Common Indicator 23: Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10)	
Candidate Indicator 24: Trends in the amount of litter ingested by or entangling marine organisms focusing on selected mammals, marine birds and marine turtles (EO10)	
Candidate Indicator 25: Land use change (EO8)	

Candidate Iindicator 26: Proportion of days and geographical distribution where loud, low, and mid-frequency impulsive sounds exceed levels that are likely to entail significant impact on marine animals (EO11)	
Candidate Indicator 27: Levels of continuous low frequency sounds with the use of models as appropriate (EO11)	

11. SPA/BD Focal Points, for both EU and non-EU countries, should involve and regularly inform the managers of the MPAs selected as reference sites within the national IMAPs, about the progress made in this regard. The capacities of such managers should be strengthened accordingly in order to assure a full and adequate contribution of MPAs and SPAMIs as reference sites in the IMAP.

12. MPA managers are encouraged to learn about the processes for setting up monitoring programmes for their respective countries under IMAP and evaluate to what extent their MPAs could be used as reference sites taking into account their geographical location and their habitats and species. However, they should analyse carefully the proposed sampling protocols and check if their compatibility with the regulation applicable in their MPAs. Providing the MPA managers with guidelines or manuals on how to develop and implement integrated monitoring following the IMAP objectives is highly recommended.