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**Agenda item 5: Conservation of Species and Habitats**

**5.3. Updating of the Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea and the Reference List of Marine Habitat Types for the Selection of Sites to be included in the National Inventories of Natural Sites of Conservation Interest in the Mediterranean**

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

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## **Note by the Secretariat**

With regards to the update and/or adjustment of the work timetables of the Action plan, an assessment of the implementation of its previous calendar has been done at national and regional levels. This evaluation appears in the annex I of the present document.

The assessment of the implementation of the action Plan has considered the SPA/RAC Progress activities achieved during the last biennium's (since 2012) and the activities realized by Contracting Parties as requested by the adopted timetable.

Multilateral Environment Agreements, regional organizations and institutions as well as Partners to this action Plan were also invited to report on their achievements for the conservation of these species. All the answers received in due time were incorporated on the evaluation.

The draft updated implementation timetable is given in this document.

SPA/RAC received a request from Golder Associates for being partner to the action plan for the conservation of marine vegetation and conservation of the coralligenous and other calcareous bioconcretions in the Mediterranean Sea. The request appears in the annex II of the present document.

## **DRAFT UPDATING OF THE ACTION PLAN FOR THE CONSERVATION OF MARINE VEGETATION IN THE MEDITERRANEAN SEA**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## 2. Updated draft work programme and timetable

The work programme would be as follows:

Activities for implementation of Action Plan	Deadline	Who ?
<p><b>Regulatory activities</b></p> <ul style="list-style-type: none"> <li>- Encourage the Parties to better integrate all the plant species in Annexe II in the Party's regulatory tools (e.g. protected species, impact study procedures, ...)</li> <li>- Assist the Parties who have not already done so, to create MPAs for the conservation of Annex II plant species</li> <li>- Assist the Parties to create MPAs to strengthen the conservation of blue carbon ecosystems and the services they provide in particular to attenuate climate change impacts (carbon sinks)</li> </ul>	<p>As soon as possible</p> <p>As soon as possible</p> <p>As soon as possible</p>	<p>Parties &amp; SPA/RAC</p> <p>SPA/RAC &amp; Parties</p> <p>Parties &amp; SPA/RAC</p>
<p><b>Inventory activities and mapping</b></p> <ul style="list-style-type: none"> <li>- Initiate a systematic inventory of natural monuments so that they can be included in future MPAs to ensure their perennity</li> <li>- Establish a first inventory of plant formations considered as carbon sinks and generalize mapping them</li> <li>- Assist the countries in identifying the main pressures which could degrade the marine vegetation and elaborate strategies to develop better practices (e.g. restoration, strengthening of population)</li> </ul>	<p>As soon as possible</p> <p>As soon as possible</p> <p>Ongoing</p>	<p>SPA/RAC &amp; Parties</p> <p>SPA/RAC &amp; Parties</p> <p>SPA/RAC &amp; Parties</p>
<p><b>Surveillance and monitoring activities</b></p> <ul style="list-style-type: none"> <li>- Promote the setting up of monitoring networks of the main marine vegetation assemblages in conformity with the principles and common indicators of the integrated monitoring and evaluation programme (IMAP)</li> <li>- Assist the countries so that the monitoring networks of the main marine plant formations can be rendered sustainable so as to obtain long chronological series</li> </ul>	<p>As soon as possible</p> <p>Ongoing</p>	<p>SPA/RAC &amp; Parties</p> <p>SPA/RAC &amp; Parties</p>
<p><b>Capacity and knowledge building activities</b></p> <ul style="list-style-type: none"> <li>- Organize a symposium every 3 years and disseminate as widely as possible the conclusions and propositions formulated by the participants</li> <li>- Update and make accessible the data pertaining to the mapping of priority habitats and natural monuments</li> <li>- Complete and regularly revise the list of specialists, laboratories and institutions and encourage exchanges amongst themselves</li> <li>- Set up communication actions on annex II plant species by targeting the least well-known ones</li> <li>- Continue with capacity building activities and align them with the expectations of the Parties</li> <li>- Test the setting up of training of national trainers (professional staff – relays) and assess its efficacy</li> <li>- Assist the countries in setting up regular national training sessions</li> </ul>	<p>From 2021</p> <p>As soon as possible</p> <p>At symposiums</p> <p>As soon as possible</p> <p>Ongoing</p> <p>As soon as possible</p> <p>Ongoing</p>	<p>SPA/RAC</p> <p>SPA/RAC &amp; Parties</p> <p>SPA/RAC</p> <p>SPA/RAC &amp; Parties</p> <p>Parties &amp; SPA/RAC</p> <p>SPA/RAC</p> <p>Parties &amp; SPA/RAC</p>

## Annex I: Status of the implementation of the Action Plan for the conservation of marine vegetation in the Mediterranean Sea

### 1. General context and approach adopted

The Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea (Vegetation AP) was adopted in 1999 at the 11<sup>th</sup> Meeting of the Contracting Parties to the Barcelona Convention (Malta, 27-30 October 1999).

This Action Plan mainly aimed at:

- Ensuring the conservation of macroscopic marine plant species and plant formations in the Mediterranean by implementing legal protection and management measures
- Avoiding loss and degradation of meadows and other plant formations that are significant for the marine environment, and maintaining them in a favourable state of conservation
- Ensuring the conservation of marine plant formations that are considered to be natural monuments, such as the *Posidonia oceanica* barrier reefs, bioconstructions (e.g. *Lithophyllum byssoides* rims, vermetid platforms) and certain *Cystoseira* belts.

Although this concerned the whole set of Mediterranean marine macrophyte species, it directed special attention to species that are threatened or endangered, like those mentioned in Annex II to the Protocol on Specially Protected Areas and Biological Diversity (SPA/BD Protocol), amended in 2009 (Decision IG.19/12 of the 16<sup>th</sup> Meeting of Contracting Parties, Marrakesh, Morocco, 2009; Table 1), that came into force on 13 February 2011.

Table I: Species taken into account, as having priority, in the context of the Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea.

Magnoliophyta	<i>Cymodocea nodosa</i> , <i>Posidonia oceanica</i> , <i>Zostera marina</i> , <i>Zostera noltei</i>
Chlorophyta	<i>Caulerpa ollivieri</i>
Heterokontophyta	Genre <i>Cystoseira</i> (except for <i>Cystoseira compressa</i> ), <i>Fucus virsoides</i> , <i>Laminaria rodriguezii</i> , <i>Sargassum acinarium</i> , <i>Sargassum flavifolium</i> , <i>Sargassum hornschurchii</i> et <i>Sargassum trichocarpum</i>
Rhodophyta	<i>Gymnogongrus crenulatus</i> , <i>Kallymenia spathulata</i> , <i>Lithophyllum byssoides</i> , <i>Ptilophora mediterranea</i> , <i>Schimmelmannia schousboei</i> , <i>Sphaerococcus rhizophylloides</i> , <i>Tenarea tortuosa</i> , <i>Titanoderma ramosissimum</i> et <i>Titanoderma trochanter</i>

Moreover, it set out a five-year work programme that must be regularly evaluated and updated. In 2011, an evaluation of the working programme (UNEP-MAP-RAC/SPA, 2011) enabled the suggestion of new activities to be implemented during the period 2012-2017 (Table II).

Tableau II: Working program and timetable for the period 2012-2017.

<b>Type of action planned</b>	<b>Activities for implementing the Action Plan</b>	<b>Deadline</b>
<b>1. Regulatory activities</b>	Parties which have not yet done so ratify the SPA/BD Protocol	As soon as possible
	Help the Parties take new vegetation species in Annex II into account	As soon as possible
	Help the countries which have legal protections make them operational and efficacious	From 2013
	Urge the Parties to create MPAs to conserve marine vegetation	As soon as possible
<b>2. Scientific knowledge and communication</b>	Update the text of the Action Plan to integrate the amendments to Annex II to the SPA/BD Protocol	As soon as possible
	Organize a symposium every 3 years	From 2013
	Extend the bibliographical database to all the vegetal species in Annex II to the SPA/BD Protocol and regularly update it	From 2013
	Make the information layer on distribution of meadows accessible (MedSIG)	As soon as possible
	Update the information layer on mapping priority habitats	Every two years
	Complete and regularly revise the directory of specialists and laboratories, institutions and organizations concerned	When there are symposiums
<b>3. Inventorying and mapping the main vegetal assemblages</b>	Set up a program for making national inventories on macrophyte species, with staggered planning according to the regions' priorities	From 2012
	Make theoretical probable distribution maps for the main plant assemblages	As soon as possible
	Implement targeted mapping and inventorying actions (Annex II species, priority sites)	From 2012
<b>4. Monitoring and following up over time the main vegetal assemblages</b>	Establish a program for setting up monitoring networks for the main marine plant assemblages at national and regional level	As soon as possible
	Help the countries set up and/or extend their networks for follow-up of plants in the Mediterranean	From 2013
<b>5. Taking on the Action Plan and enhancing national capacities</b>	Urge the countries that have so far not done so to develop short-, medium- and long-term action plans according to national and regional priorities	From 2012
	Help countries implement action plans	As soon as possible
	Set up training of 'liaison executives' responsible for providing national training courses	From 2013
	Help the countries set up regular national training	From 2014

Thus, in order to assess this work programme and the implementing of the Vegetation AP, a questionnaire was crafted and sent to the SPA/RAC Focal Points, the bodies that are Action Plan partners, and several Mediterranean scientific institutions. The objectives in this approach were to not only establish a balance sheet of what has been done in this context, but also better determine the



pressures on marine plant species and the habitats they constitute in order to identify future stakes and suggest actions to be undertaken in the next work programme to guarantee their conservation and sustainable use

## **2. Balance sheet of activities undertaken in the context of the action plan on the conservation of vegetal species in the Mediterranean Sea since 2011**

The current balance sheet was established on the basis of:

- On-line reports provided by the Contracting Parties on the state of implementation of the SPA/BD Protocol over the period 2010 to 2015
- SPA/RAC's activity reports for the same period
- The replies to the questionnaire received by the SPA/RAC Focal Points and some scientific bodies mainly covering the period 2015-2017.

This enabled a review of the situation since the last assessment (UNEP-MAP-RAC/SPA, 2011) and focused on the activities identified as part of the work programme (Table II).

### **2.1 Regulatory activities**

#### **2.1.1 Ratifying the SPA/BD Protocol and its Annexes**

The regulatory activities basically aim at enabling the Parties to set up a legislative framework and legal measures that allow the plant species in Annex II to the SPA/BD Protocol to be taken into account, and better ensure their conservation.

In February 2018, 17 Contracting Parties to the Barcelona Convention are also Parties to the SPA/BD Protocol, while five are still Parties to the 1982 SPA Protocol. Also, at this date five Parties have not yet adopted the amendments on species listed respectively in Annexes II and III to the 2009 SPA/BD Protocol.

#### **2.1.2 Taking into account the new plant species in Annex II**

Taking into account plant species in Annex II of the SPA/BD Protocol involves very diverse approaches ranging from adopting new laws, and updating already existing legal documents, to setting up specific management measures that may concern either part (e.g. Marine Protected Areas, MPAs) or the whole of the Party's territory.

In 2009, 9 countries had a list of protected species that included species in Annex II to the SPA/BD Protocol, and 4 said that these lists were being prepared (UNEP-MAP-RAC/SPA, 2011). Today progress continues, since 14 Parties mention the setting up of regulatory measures relative to plant species in Annex II to the SPA/BD Protocol, and two state that progress is ongoing. Most of the Mediterranean countries have thus set up legal protection for at least one of the plant species in Annex II.

Among the Parties that state that they have no arrangement of this kind, one says that it has not included marine plant species on its 'Red List' of plant and animal species adopted during the period, because it has not yet made an investigation proving the presence of these species on its territory. The other Parties state that some of these plant species are despite everything being taken into account, either through management measures or because they enjoy protection because of their being present within the area of a MPA.

Regulatory measures consist of:

- Including species on the Party's national list of protected and/or endangered species
- Transcribing into national law of the SPA/BD Protocol, of some other international convention (e.g. the Bern Convention), or applying a European regulation (e.g. Habitat Directive – Fauna – Flora – EC 92/43; Regulation on fishing in the Mediterranean EC 1967/2006, modified by Rule no. 1343/2011).

For at least seven of the Parties, these procedures exist. Nine Parties state that dispensations may be granted concerning these regulatory measures, especially for scientific reasons for three of the Parties, but also when there is no other satisfactory solution and if the dispensation does not harm the maintaining in a favourable conservation state, populations in their zone of natural distribution, and also for major imperative reasons of public interest, for example. These dispensations, when legally provided for in the law, which is the case for at least four of the Parties, are granted by the Ministry or National Agency in charge of the Environment and may be accompanied by measures to compensate the destruction associated with these dispensations.

The species taken into account are usually marine magnoliophytes and/or the meadows they form, with priority given to the species *Posidonia oceanica*, which enjoys protection throughout the Mediterranean countries of the European Union and in five other Parties. Only two Parties report having regulations for all plant species in Annex II of the SPA/BD Protocol. Apart from magnoliophytes, only *Lithophyllum byssoides* is named by two Parties as a species, but also because it gives rise to remarkable natural monuments (e.g. vermet rims) as well as the genus *Cystoseira*, whereas this genus has only recently been added to Annex II of the SPA/BD Protocol (2009).

Out of the 20 Contracting Parties for which data has been provided, 19 cite impact assessment procedures at environmental level in the particular context of development. Two Parties state that since they do not have *Posidonia oceanica* meadows, the species is not specifically mentioned in the legal documents related to these impact study procedures. But 15 Parties, i.e. two more than in the last evaluation (UNEP-MAP-RAC/SPA, 2011), stress that particular attention has been given at least to *Posidonia oceanica* meadows, and even other magnoliophytes present on their territory, in these procedures, and three state that this also concerns the *Cystoseira* genus.

It can be seen that the existence of European Directives is expressed, for the member states concerned, by an enhancing of the management measures set up for species in Annex II when these, or the habitats they form, are included in these Directives, which is consistent with their binding nature.

Whether through impact study procedures or other actions, all the Parties which mention the presence of plant species in Annex II (i.e. 19 out of 22) cite setting up special management measures for their MPAs, even throughout their territory, or report that the procedure is in progress. But there are no elements that enable a real grasp of the efficacy of the whole set of these procedures, and three Parties recognise that no management measure evaluation has given rise to assessment, and four Parties state that an assessment was made, without being more precise about the modalities of this assessment.

### 2.1.3 Creating MPAs for the conservation of marine vegetation

Almost all the Parties that have MPAs can today claim to be working to protect one or other of the plant species listed in Annex II to the SPA/BD Protocol, by reason of the amendments to these Annexes and the addition of the genus *Cystoseira*. Furthermore, for the member states of the European Union (EU), setting up the Natura 2000 network at sea has been expressed, for several years now, in the designation

of a large number of Sites of Community Interest (SCI) and Special Conservation Zones, a majority of which shelter marine magnoliophyte meadows, particularly those of *Posidonia oceanica*.

Many Parties cite ongoing action either to set up their first MPA or to identify and list new sites on the Natura 2000 sea network, so that, for example, 50% of the Party's *Posidonia oceanica* meadows are included in a SCI. Finally, over this period, more than 20 MPAs have been created or for which management measures for plant species in Appendix II have been put in place (Table III). It appears that it is the *Posidonia oceanica* meadows that mostly benefit from the setting up of these new MPAs, even if this is not the only species in Annex II identified in these new sites (Table III). Also, only few of these MPAs shelters noteworthy monuments.

## 2.2 Scientific reports and knowledge

As provided for in the work programme (Table II), the Vegetation Action Plan was updated in 2012 to include the amendments to Annex II to the SPA/BD Protocol (UNEP-MAP-RAC/SPA, 2012).

Over the period SPA/RAC organised, in Portoroz, with the support of Slovenia, the 5<sup>th</sup> Symposium on the Vegetation Action Plan in 2014 (UNEP-MAP-SPA/RAC, 2014). This event, common to several Action Plans, demonstrated the increased interest in knowledge of plant species and the growing number, and greater geographical diversity, of scientists participating in the Marine Vegetation Symposium. Similarly, although most of the reports were on marine magnoliophytes (81%), with over 59% devoted to *Posidonia oceanica* meadow, there was a growing interest in other marine magnoliophyte species, particularly the genus *Cystoseira*. The sixth symposium took place, with the support of Turkey, in Antalya in January 2019. The themes addressed during these events reflect the activities carried out both at national level and in the partnership framework, often initiated through SPA/RAC activities. During this last event, inventory and mapping actions accounted for 32% of communications and 26% for monitoring.

In order to help the Parties in their activities of promoting knowledge of marine biodiversity, in particular of plant species, during this period SPA/RAC:

- Set up in 2012 a database and a computerised version of the Standard Data Form (SDF)
- Produced and re-published various technical documents on the identifying of habitats and the mapping and monitoring of meadows (UNEP-MAP-SPA/RAC, 2014; UNEP-MAP-SPA/RAC, 2015 a and b).

Alongside, over ten Parties said they had carried out awareness and education activities on the conservation of marine plants. These actions are varied and involve publishing manuals (inventorying and monitoring marine habitats, inventorying and monitoring threatened and protected marine species...), making signs (importance of dead *Posidonia oceanica* leaves on the beaches, role of meadows...), setting up websites or pages on the topic in the media and on social networks, showing pop videos and interviews on the radio or holding photography competitions in public areas. This awareness also resulted in environment education material for primary schools and actions in the schools.

MPA managers and NGOs take an active part in this awareness for the wider public in many countries; one of the Parties stressed that although the importance of protected species, especially *Posidonia oceanica*, is generally recognised, and widespread, additional efforts must be made for the other, as yet little known, plant species. Implementing the European Life projects in Natura 2000 sites should improve this, at least as regards the Mediterranean countries that belong to the European Union.

Table III: Characteristics of MPAs devoted to the marine plant species in Annex II to the SPA/BD Protocol (Ann.II) set up over the period 2010-2018

Designation of the MPA	Date of creation – marine area	Does the MPA shelter species in Ann.II?	Does the MPA shelter natural monuments?	Have the MPA's marine habitats been mapped? (If so, 1- formations, 2- surface area, 3- date of survey)	Has the MPA got management measures specific to the species in Ann.II? (If so, which? If not, is this envisaged, and when?)	Is there monitoring of the species in Ann.II? (If so, what? If not, is this envisaged, and when?)
AMP Karaburun-Sazan / Albania	28/04/2010 (12570.82 ha total)	<i>Posidonia oceanica</i> , <i>Cymodocea nodosa</i> , <i>Cystosiera amanteccea</i> and coalligenous vegetal species	Three geological monuments (Haxhi Ali Cave; Grama Bay; Sazani Falez) and one biological monument (Devil's Throat Coral Reef)	yes 1- <i>P. oceanica</i> Meadows:2- 74,367 ha, 3- 2016	Management Plan (Environment Ministry no. 750 of 24.11.2017). A mapping of habitats was done and a set of mooring buoys and anti-trawling reefs for the protection of <i>Posidonia oceanica</i> meadows is being installed	No
Kouali MPA / Algeria	2016	<i>Posidonia oceanica</i>	No	Yes	No	Yes monitoring system
Cap Lindles Oran / Algeria	2018	<i>Posidonia oceanica</i> , <i>Cymodocea nodosa</i> ,	No	Yes	No	Yes
Kornati national Park / Croatia	13/8/1980 - 16 885,00 ha	<i>Posidonia oceanica</i> <i>Cymodocea nodosa</i> , <i>Zostera marine</i> <i>Zostera noltei</i>	No	No. Detailed mapping is planned through the ongoing ESI funded project "Mapping of coastal and seabed habitats in the area of Adriatic sea under the national jurisdiction".	After mapping and monitoring the status of marine flora ( <i>Posidonia oceanica</i> , <i>Cymodocea nodosa</i> , <i>Zostera noltii</i> and <i>Z. marina</i> ), appropriate conservation measures will be taken (Management plan of the MPA, 2014-2023).	Yes Monitoring of <i>P.oceanica</i> meadows (Management plan of the MPA, 2014-2023).
Lastovo Archipelago nature Park / Croatia	19/10/2006- 14 321,00 ha	<i>Posidonia oceanica</i> , <i>Caulerpa prolifera</i> , species of genus <i>Cystoseira</i> , species of genus <i>Sargassum</i> , <i>Cymodocea nodosa</i> ,	yes; Rača cave	1. <i>Posidonia oceanica</i> meadows, 2. 470ha, 3.2017)	Yes, Maintain good habitat conditions by keeping a high level of seawater quality; Prohibition of any kind of construction work in or near <i>Posidonia oceanica</i> meadows;	Yes Monitoring of <i>P.oceanica</i> meadows (Management plan of the MPA, 2017-2026).

		<i>Zostera noltii</i> , <i>Laminaria rodriguezii</i> , <i>Lithophyllum</i> <i>byssoides</i> )			Control the spreading of invasive algae species <i>W. setacea</i> and <i>C. racemosa</i> ; Ensure a sufficient number of environmentally friendly anchorages and strictly prohibit any anchoring in <i>Posidonia</i> meadows outside the permanent anchorage; Ensure the disposal of bilge and wastewater from land and ships; Regulate the use and the disposal of fishing gear that damages and destroys <i>Posidonia</i> meadows.	
Brijuni National park / Croatia	09/11/1983 -2 645,00 ha	<i>Posidonia oceanica</i> , <i>Cymodocea nodosa</i> , <i>Zostera noltei</i> & <i>marina</i>	No	1. <i>Posidonia oceanica</i> meadows. 2. 2,35ha. 3.201	Yes, for <i>Posidonia oceanica</i> , <i>Cymodocea nodosa</i> , <i>Zostera noltii</i> , <i>Zostera marina</i> . (All seagrasses are part of Zone 1a of the MPA - “Very Strict protection level”. All activities are prohibited except scientific research.)  Yes for <i>Posidonia oceanica</i> (Maintain good habitat conditions by keeping a high level of seawater quality; Prohibition of any kind of construction work in or near <i>Posidonia oceanica</i> meadows; Prohibition of any kind of construction work in or near <i>Posidonia oceanica</i> settlements; Prohibit anchoring in <i>P.oceanica</i>	Yes. Monitoring of <i>P.oceanica</i> meadows (Management plan of the MPA, 2016-2025).

					meadows; Monitoring of spreading of <i>C. racemosa</i> near Posidonia meadows)	
Mljet National park / Croatia	12/11/1960 - 2 375,00 ha	<i>Posidonia oceanica</i> , <i>Cymodocea nodosa</i> ,	No	1. <i>Posidonia oceanica</i> meadows. 2. 300ha 3.2016	Maintain good habitat conditions by keeping a high level of seawater quality; Prohibition of any kind of construction work in or near <i>Posidonia oceanica</i> meadows; Prohibition of any kind of construction work in or near <i>Posidonia oceanica</i> settlements; Control the spreading of invasive algae species; Ensure a sufficient number of environmentally friendly anchorages and strictly prohibit any anchoring in posidonia meadows outside the permanent anchorage; Regulate the use and the disposal of fishing gear that damages and destroys posidonia meadows.)	Yes. Monitoring of <i>Posidonia oceanica</i> meadows at Mljet National park. Second year of survey. Posidonia oceanica” – Association for Nature, Environment and Sustainable Development Sunce, 2012. Mapping and monitoring of the seagrass meadows and inventory of macrobenthos organisms in NP Mljet – DC “Špinut”, 2008 – active). Monitoring of P.oceanica meadows (Management plan of the MPA 2016– 2026).
Telascica Nature Park / Croatia	Telascica Nature Park	<i>Posidonia oceanica</i> , <i>Cymodocea nodosa</i> , <i>Zostera noltei</i>	No	1.Posidonia oceanica meadows 2. 21ha. 3. 2012	Yes, for Posidonia oceanica (Reduce the degradation of seagrass meadows (Posidonia oceanica) in places under human pressure compared to 2011 by: Implementing regular monitoring of seagrass Meadows; Establish zones in areas covered with Posidonia meadows where anchoring and trawling are	Monitoring of P.oceanica meadows, once a year( Management plan of the MPA 2012.- 2022.).

					forbidden.; Set up additional boat mooring buoys based on the results of the carrying capacity study.; Develop cooperation with IZO and other institutions to gain a better understanding of marine pollution (waste, bilge waters and other chemicals); Establish a monitoring system for heavy metals and other microbiological parameters in the Park's waters.)	
Natura 2000 areas / Croatia	On going designation	<i>Posidonia oceanica</i> and other Natura 2000 species	No	Detailed maps of marine habitats exist for certain areas of Natura 2000 sites where mapping was done through several projects. Detailed mapping of marine habitats is a part of an ongoing ESI funded project "Mapping of coastal and seabed habitats in the area of Adriatic sea under the national jurisdiction". One of the projects priority habitats for mapping is <i>Posidonia oceanica</i> meadows and other marine phanerogams	Croatia is in the process of setting up and adopting conservation objectives and measures for Natura 2000 sites	Setting up a long-term national monitoring for assessing the conservation status of Natura 2000 species and habitat types is planned through the ESI funded project "Establishment of the national species and habitats conservation status monitoring system" which started in 2018".
Akamas Natura 2000 site / Cyprus	1/1/2011 - 78,83 h	<i>Posidonia oceanica</i>			Management Plan being set up	
Sallum Gulf / Egypt	06/11/10	<i>Posidonia oceanica</i>			Management Plan being set up	

Marine natural Park Golfe du Lion / France	10/11/2011 - 4000, 00 ha	Trottoir with Lithophyllum sp., herbiers ( <i>Posidonia oceanica</i> et <i>Cymodocea nodosa</i> ), Coraligenous Species			Management Plan being set up	
National Park of Calanques / France	4/18/12 - 158 250,00 ha	<i>Posidonia oceanica</i>				
Secche della Meloria National MPA / Italy	10/21/09 - 9 372,00 ha				Management Plan adopted on 8.11.2016	
Santa Maria di Castellabate MPA /Italy	10/21/09 - 7 094,00 ha	<i>Posidonia oceanica</i>			Management Plan adopted on 4.30.2015	
AMP Cinque Terre /Italy	7/20/11 - 4 554,00 ha	<i>Posidonia oceanica</i>			Management Plan adopted on 7.20.2011	
AMP Penisola del Sinis-Isola Mal di Ventre / Italy	7/20/11 -26 703,00 ha	<i>Posidonia oceanica</i>			Management Plan adopted on 7.20.2011	
Ile Medes natural park / Spain	5/28/10 - 5 094.00 ha					
ESZZ16002, Canal de Menorca / Spain	01/07/14 - 335 353,6 ha	<i>Posidonia oceanica</i>		1854,3 ha	Not yet	
ESZZ16003, Sur de Almería - Seco de los Olivos / Spain	01/12/2014 – 282 924,54 ha	<i>Posidonia oceanica</i>		1106,86 ha	Not yet	
Debeli rtič Landscape park / Slovenia	2018	Yes	No	No	Measures to restrict mooring and fishing	No



## 2.3 Inventorying and mapping

### 2.3.1 Inventorying activities

Generally speaking, six Parties said they have carried out inventorying activities over the period and for six Parties these actions are still ongoing. Only three Parties said that these actions were being carried out at national level, and one stated that this inventorying is done every year as part of the Marine Strategy Framework Directive (MSFD). These inventorying activities usually remain local and are carried out as part of projects to identify priority sites that can become MPAs (e.g. MedMPANet project, MedKeyHabitat; Table IV).

Table IV: Activities, date, beneficiary sites, project and partnership on making an inventory of marine vegetation over the period<sup>1</sup>: *Financial partners – European Commission – Spanish International Cooperation Agency for Development, French Fund for the World Environment and SPA/RAC.*

Activities	Date	Country (sites) concerned	Project & Financial Partner
Characterisation of priority sites	2010	Libya (El Kouf)	MedMPANet <sup>1</sup>
Characterisation of priority sites	2011	Tunisia (Kuriat)	MedMPANet <sup>1</sup>
Characterisation of priority sites	2012	Lebanon (Enfeh peninsula, Ras Chekaa and Raoucheh)	MedMPANet <sup>1</sup>
Characterisation of priority sites	2012	Morocco (Cap des Trois Fourches)	MedMPANet <sup>1</sup>
Rapid evaluation and use of SDF	2012	Montenegro (Boka Kotorska)	MedMPANet <sup>1</sup>
Inventorying of elements of biodiversity	2013	Albania (Porto Palermo)	MedMPANet <sup>1</sup>
Characterisation of priority sites	2013	Lebanon (Nakoura, Tyre & Saida)	MedMPANet <sup>1</sup>
Compiling of elements of biodiversity	2014	Morocco (Djebell Moussa)	MedKeyHabitat <i>MAVA</i> <i>foundation</i>
Characterisation of priority sites	2015	Algeria (natural Reserve of Réghaia)	MedMPANet <sup>1</sup>
Characterisation of priority sites	2015	Libya (El Kouf)	MedMPANet <sup>1</sup>
Compiling of elements of biodiversity	2015	Tunisia (Cap Negro-Cap Serat)	MedKeyHabitat <i>MAVA</i> <i>Foundation</i>

### 2.3.2 Mapping activities

Mapping activities were much developed over the period and concerned most of the Mediterranean countries, though with great disparities. It is clear that in the Mediterranean countries that belong to the European Union, these activities are mainly the result of national initiatives, sometimes carried out with the support of the European Commission (EC). They aim at designating new sites to be included in the Natura 2000 network and its sea extension (Table V).

Table V. Beneficiary countries and sites, date, project and partnership related to mapping marine plants over the period1: Financial partners – European Commission – Spanish Agency for International Cooperation for Development – French Fund for the World Environment and SPA/RAC

Country	Site	Date	Project/Funding partner
Albania	Porto Palermo	2013	MedMPANet/European Commission, Spanish Agency for International Cooperation for Development, French Fund for the World Environment and SPA/RAC
	Karaburun Sazan MPA	2016	
Algeria	Rachgoun island	2015	MedKeyHabitat / <i>MAVA Foundation</i>
Cyprus	Cyprus Natura 2000 sea sites Limassol Bay	2013	State + EC
Croatia	Prvić, Goli Otok, Sv. Grgur, Unije, île Susak	2013	MedMPANet/see above
Spain	The entire littoral	2015	Atlas of Spanish marine habitats
France	Natura 2000 sea sites Corsican littoral	2011	CARTHAM/ <i>FBA</i>
		2013	CORALCORSE/ <i>French Biodiversity Agency (FBA), Corsican Environment Office</i>
		2015	POSIDCORSE/ <i>FBA, Corsican Territorial Authority</i>
Greece	Greek littoral	2015	Locating Posidonia meadows, mapping and marine maps of the Greek seas/General Fishery Board
Israel	Mapping of algae		Mapping of algae
Italy	MPA		
Lebanon	Ras el Chakaa, Enfeh, Raouch		Support the management of important species and marine habitats in Lebanon/ <i>IUCN-Med</i>
Morocco	Jbel Moussa	2015	MedKeyHabitat /see above
Montenegro	Boka Kotorska bay Platamuni & Ratac	2012	MedMPANet & Medkeyhabitats /see above Setting up the Katič MPA and assessing marine and coastal ecosystems/ <i>Italian Ministry of the Environment, Land and Sea and Montenegrin Ministry of Sustainable Development and Tourism</i>
	AMP Katic		
Tunisia	Cap Negro-Cap Serat	2015	MedKeyHabitat /see above
Turkey	Natural Park Ayvalik Adalari	2011	Projet PIM / Conservatoire du Littoral
	MPA Kaş-Kekova	2016/2018	
	Güllük-Muğla	2016	Habitat mapping
	MPA Foça	2018	
Gökçeada-Çanakkale	2018		

In the other Mediterranean countries, this mapping gives priority to sites identified as being important for the conservation of biodiversity. Thus, it is often done after the inventorying phase (Table IV) and concerns the same sites (Table V). The mapping is done as part of regional programmes thanks to a number of partners (e.g. the Fund for the World Environment–GEF, UNEP, EC, French Fund for the World Environment, Spanish Agency for International Cooperation for Development, Italian Ministry of the Environment, Land and Sea, MAVA Foundation, Mediterranean IUCN, MedPAN, WWF, etc. Apart from one Party, which has taken an interest in all the marine magnoliophytes throughout its territory, the two other Parties which said they have national mapping state that this only concerns *Posidonia oceanica*, the other magnoliophytes only being partly mapped. A research programme bringing together several Mediterranean scientific institutions has, with the support of the EC, produced a species distribution map (Figure 1) and an evaluation of the surface areas occupied (Telesca *et al.*, 2015; Table VI). Insofar as the data considered for this evaluation is sometimes outdated, known current values are given as well as areas partially measured as part of the MedKeyHabitat Programme (Table VI).

Table VI: Extent of *Posidonia oceanica* meadows for the various Mediterranean countries, time interval of updated values and data and source behind this new data.1 Absence of *P. oceanica* confirmed; 2 the pre-1990 value of the meadow area of 331 900 ha in the Gulf of Gabes is included in the total surface area calculated by Telesca *et al.* (2015).

Country	Total surface area occupied by <i>Posidonia oceanica</i> meadows (in ha) according to Telesca <i>et al.</i> , 2015	Data time interval (Telesca <i>et al.</i> , 2015)	Current value (in ha) (partial surface area):	Updated data source & comment
Albania	4 803	2007–2008		No update outside MPAs
Algeria	4 072	2010	(12,68 ha : île Rachgoun)*	In the process of being updated * PNUE/PAM-CAR/ASP (2016)
Bosnie-H.	-	-		
Cyprus	9 040	2008		
Croatia	31 437	2010		
Egypt	—	2006		
Spain	172 669	1993–2011	115 904	
France	94 030	1980–2011	87 680	Quemmerais-Amice (2018) & Valette (2018).
Greece	44 939	2011	251 000	Traganos <i>et al.</i> , 2018
Israel	Absent <sup>1</sup>	2003	0	
Italy	337 611	1990–2005		
Lebanon	Absent <sup>1</sup>	2003	0	
Libya	1 235	2011		
Malta	5 860	2002		
Morocco	—	2006		
Monaco		-	14	Focal Point (2018)
Montenegro	—	2004	(12,66 ha : Ratac 38,62 ha : Platamuni)*	* PNUE/PAM-CAR/ASP (2016)
Slovenia	9	2004	0,6	Focal Point (2018)

Syria	Absent <sup>1</sup>	2003	0	
Tunisia	518 685 <sup>2</sup>	1972–2010	32 795 (20 ha : Cap Negro- Cap Serrat)*	Hattour & Ben Mustapha (2013) * PNUE/PAM-CAR/ASP (2016)
Turkey	287	2009	(11 156,3 ha) <sup>o</sup>	<sup>o</sup> Okus <i>et al.</i> , 2006 ; 2007 ; Derinsu, 2009 ; Akçali <i>et al.</i> 2010 ; ODTU, 2011 ; Bakirman <i>et al.</i> , 2016 ; Volkan <i>et al.</i> , 2016 ; Aslan <i>et al.</i> , 2018 ; Akçali <i>et al.</i> , 2019 ; Yucel <i>et al.</i> , 2019 / Point Focal (2018)

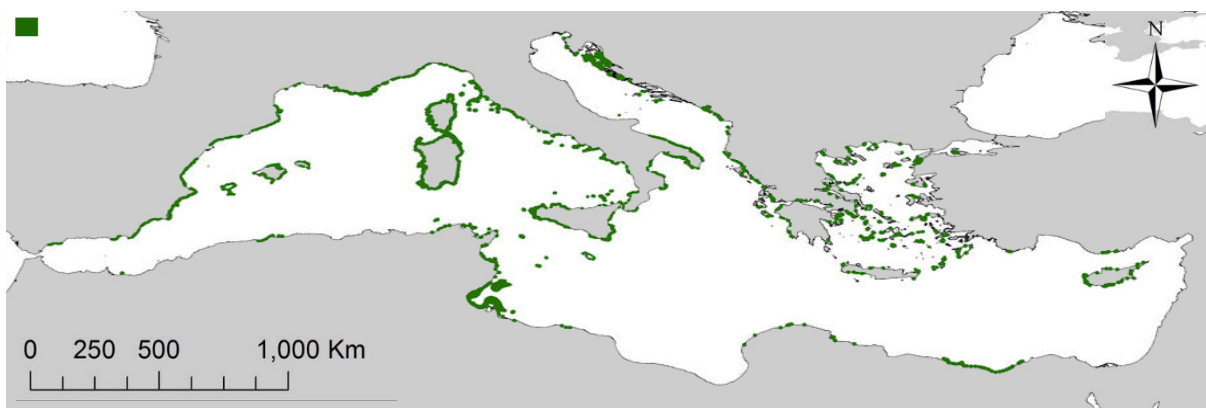


Figure 1: Map of distribution of *Posidonia oceanica* meadows (in green) according to Telesca *et al.*, 2015.

#### 2.4 Monitoring and follow-up

Marine plant monitoring actions seem to be little developed over the period in the light of the replies provided by the Parties. Only six Parties have carried out actions over the period in their territory, one Party set up monitoring within its MPAs and one Party said action is ongoing. Three of the Parties state that these surveillance activities are carried out at the level of their MPAs. However, the Member States of the EU, within the framework of the implementation of the DHFF realize, every 6 years (2012 and 2018), an evaluation, on their territory, of the state of conservation of *Posidonia* meadows. which is similar to a surveillance activity (not necessarily indicated in the questionnaire responses). Similarly, these Parties monitor the application of other directives (eg Water Framework Directive - WFD, MSFD). As part the MedKeyHabitats program, allowed to initiate monitoring systems in some test sites (Table VII). At this stage these monitoring actions only target marine magnoliophytes, with a strong predominance of the species *Posidonia oceanica*. However, the implementing of the MSFD should see these actions extended to all the Mediterranean EU member states.

Table VII: Activities, dates, beneficiary sites, project and partnership related to the monitoring of marine plants over the period.<sup>1</sup> *Financial partners – European Commission, Spanish Agency for International Cooperation for Development, French Fund for the World Environment and SPA/RAC*

Activities	Date	Country (sites) concerned	Framework and finance
Prospecting sites for the monitoring of <i>Posidonia oceanica</i> meadows	2013	Algeria	Agence Protection et Promotion du Littoral de la Wilaya d'Alger et Direction des Pêches
Monitoring <i>Posidonia oceanica</i> meadows	2014	Croatia (Primorje & Gorski Kotar)	MedMAPnet1
Monitoring <i>Posidonia oceanica</i> meadows	2015	Algeria (Ile de Rachgoun)	Medkeyhabitat MAVA Foundation
Monitoring <i>Zostera marina</i> meadows	2015	Morocco (Jbel Moussa)	Medkeyhabitat MAVA Foundation
Monitoring <i>Posidonia oceanica</i> meadows	2015	Monaco (Larvotto)	MPA monitoring State
Monitoring <i>Posidonia oceanica</i> meadows	2015	Montenegro (Platamuni & Ratac)	Medkeyhabitat MAVA Foundation
Monitoring <i>Posidonia oceanica</i> meadows	2015	Tunisia (Cap Negro-Cap Serat)	Medkeyhabitat MAVA Foundation
Monitoring <i>Posidonia oceanica</i> meadows	2016	Algeria (Sidi Fredj, El Jamila, Miramar, île Bounettah)	Monitoring all on MedPosidonia protocol <i>APPL</i>
Monitoring <i>Posidonia oceanica</i> meadows	2016-2017	Montenegro (Rt Arza à Platamuni)	State
Monitoring <i>Posidonia oceanica</i> meadows	2017	Spain(Andalusia – 17 sites ; Balearic islands – 35 sites ; Catalogna – 24 sites ; Murcia -14 sites ; Valencia – 28 sites)	Regional monitoring & european program LIFE regional <i>Agency &amp; EC</i>
Monitoring <i>Posidonia oceanica</i> meadows	2017	France (Corsic – 20 sites)	Regional monitoring all 4 years <i>OEC</i>
Monitoring <i>Posidonia oceanica</i> meadows	2017-2018	France (53 sites on lower limit & 47 sites -15m)	Regional monitoring all 3 years WFD <i>Agence Eau Rhône-Méditerranée &amp; Corse</i>
Monitoring <i>Posidonia oceanica</i> meadows	2017-2018	Malta (15 à 24 sites)	National monitoring all 3 to 5 years, WFD & <i>MSFD</i>

## 2.5 Adopting the approach and enhancing national capacities

Few Parties said they have set up national action plans for marine plants; many said that specific measures are being undertaken within the strategies and national action plans set up either within their

commitment to the Convention on Biological Diversity or as part of implementing the DCSMM. Six Parties state that such actions are ongoing.

At the previous assessment, stress was laid on the importance of capacity building in the appropriation by the Contracting Parties. Thus, several training courses were organised, either at regional level or in the national context (Table VIII). They usually fall within the framework of international projects for which RAC / SPA is a partner (eg MedMPANet, MedKeyHabitat, ECAP II, Table VIII), but can also be carried out within the framework of bilateral cooperation actions.

Tableau VIII : Nature et caractéristiques des sessions de renforcement des capacités, organisées au cours de la période, en relation avec les activités du PA Végétation.

Name	Parties Concerned	Date	Place	Framework and Financial partners
Techniques for identifying and classifying marine and coastal species for the ecological monitoring of MPAs	All	Sept. 2011	Santa Pola / Spain	MedMPANet
Enhancing capacities for inventorying marine biodiversity	Croatia	2013	Primorje & Gorski Kotar / Croatia	MedMPANet
Inventorying, characterising, mapping and monitoring key marine habitats of conservation importance	All	August 2014	îles Kuriat – Monastir / Tunisia	MedMPANet
Enhancing capacities for mapping key habitats of conservation interest	Libya	Jun 2015	Corse - France	MedKeyHabitat MAVA Foundation
Applying GIS techniques for mapping the main marine habitats of conservation interest	Libya	Oct. 2015	Alicante - Spain	MedKeyHabitat MAVA Foundation
Integrated monitoring of biodiversity in the Mediterranean	Algeria, Cyprus, Egypt, Lebanon, Libya, Malta, Morocco, Syria, Tunisia	Jul. 2016	îles Kuriat - Monastir / Tunisia	MedKeyHabitat MAVA Foundation
Techniques for monitoring common indicators linked to biodiversity and non-native invasive species	Algeria, Egypt, Lebanon, Libya, Morocco, Montenegro, Tunisia	Jul. 2017 Sept. 2017	îles Kuriat / Tunisia Samos / Greece	ECAP-MED II – UNEP-MAP & EC
Techniques for monitoring marine habitats and seabirds and non-native invasive species	Algeria	Sept. 2018	Ile Rachgoun- Algeria	ECAP-MED II – UNEP-MAP & EC
Techniques for monitoring marine habitats and seabirds	Morocco	Jun 2018	Al Hoceima	ECAP-MED II – UNEP-MAP & EC

The training is usually given as part of the international projects to which SPA/RAC is a partner (e.g. MedMPANet, MedKeyHabitat, ECAP II; Table VIII) but can also be done in the context of actions of bilateral cooperation (e.g. between Italy and Libya).

Nine Parties also developed programs to train specialists in the study and conservation of marine plants, integrating the teaching of such subjects as part of their university training.

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Annex II: request from Golder Associates



Turin (Italie), le 19 décembre 2018

Référence n. C12159T/18/SSE/gto/smo

Centre d'Activités Régionales pour les Aires Spécialement Protégées (CAR/ASP)  
Boulevard du Leader Yasser Arafat  
B.P. 337 - 1080 Tunis Cedex – Tunisie  
A l'attention du Directeur, M. Khalil ATTIA

**OBJECT : CANDIDATURE DE GOLDER EN TANT QUE PARTENAIRE POUR LES PLANS D'ACTION POUR LA CONSERVATION DU CORALLIGÈNE ET DES AUTRES BIOCONSTRUCTIONS ET LA VÉGÉTATION MARINE EN MER MÉDITERRANÉE**

Monsieur le Directeur,

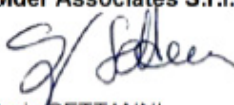
En tant que PDG de Golder Associates S.r.l., j'ai le plaisir de Vous soumettre notre candidature en tant que partenaires du CAR/ASP pour la mise en œuvre des Plans d'Action suivants :

- Plan d'Action pour la conservation du coralligène et des autres bioconstructions de la Méditerranée ;
- Plan d'Action pour la conservation de la végétation marine en Mer Méditerranée.

Golder est l'un des plus importants groupes mondiaux d'experts-conseils offrant des services en environnement. L'Entreprise, qui connaît une croissance régulière depuis près de cinquante ans, compte maintenant plus de 7 000 employés travaillant dans ses 180 bureaux locaux répartis sur les 6 continents. Le travail de Golder est basé sur de solides principes éthiques fondés sur la rigueur scientifique et le développement durable, en accordant une attention particulière à la conservation de la biodiversité.

Golder Associates S.r.l., le bureau italien du groupement Golder, compte sur un solide groupe d'experts en sciences marines, telles que biologie, écologie et océanographie. Comme vous le savez, pendant les dernières années, nous avons eu plusieurs fois le plaisir de collaborer avec le CAR/ASP. Parmi les autres, Golder a tenu des sessions de formations en thème de cartographie des habitats marins et a participé aux Projets *MedPAN* (en Montenegro) et *MedKeyHabitats I* (en Montenegro et Tunisie). Au moment, nous sommes impliqués activement dans les Projets *Deep-Sea Lebanon* et *MedKeyHabitats II* (en Tunisie).

Dans l'espoir que notre candidature retienne Votre attention, veuillez agréer, Monsieur, mes salutations les plus distinguées.

**Golder Associates S.r.l.**  
  
Sergio CETTANNI  
PDG

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