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EVALUATION REPORT ON IMPLEMENTING THE ACTION PLAN FOR THE CONSERVATION OF MARINE VEGETATION IN THE MEDITERRANEAN SEA

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EVALUATION REPORT ON IMPLEMENTING THE ACTION PLAN FOR THE CONSERVATION OF MARINE VEGETATION IN THE MEDITERRANEAN SEA

Introduction

In the context of the Mediterranean Action Plan (MAP), the Contracting Parties to the Barcelona Convention adopted at their Eleventh Ordinary Meeting held in Malta in October 1999 an 'Action Plan for the conservation of marine vegetation in the Mediterranean Sea' with an accompanying implementation schedule that ended in 2006.

The programme of this Action Plan was as follows: it contained 12 actions ordered in response to both the aims articulated in Article 7, and the priorities stated in Article 8.

Programme and schedule for implementing the Action Plan for the conservation of marine vegetation in the Mediterranean Sea

Action	Deadline
1. Ratifying the new SPA Protocol	As quickly as possible
2. Mediterranean symposium	First symposium before November 2000, then every four years
3. Guidelines for impact studies	October 2000
4. First version of the Mediterranean data bank	October 2000
5. First issue of the Directory of specialists, laboratories and organisations concerned by marine vegetation in the Mediterranean	October 2000
6. Launching procedures for the legal protection of species at national level	Some time in 2001
7. Elaborating national plans	2001-2002
8. Inventorying the marine plant formations and meadows that can be considered as natural monuments	Some time in 2002
9. Elaborating management plans for protected areas	Some time in 2002
10. Preliminary inventory of species	Some time in 2002
11. Setting up marine plant monitoring networks	Some time in 2003
12. Mapping meadows and other plant formations that are significant for the marine environment	Some time in 2006

At their Thirteenth Ordinary Meeting, in Catania, November 2003, the Contracting Parties recommended that the implementation of the said Action Plan should be evaluated (as stipulated in Article 28) and a report on the subject drawn up to be submitted to the Seventh Meeting of National Focal Points for SPAs, planned for 31 May-3 June 2005 in Seville.

The above-mentioned evaluation should help in examining how much progress has been made in following the Action Plan's implementation schedule, and suggesting, if necessary, recommendations to readjust the schedule or to adopt a new schedule starting from 2007.

The present Report presents an assessment of the achievements and results recorded up to the present time for each of the actions, via a critical analysis of the Action Plan's arrangements, objectives and priorities. In the light of the degree of progress made, a certain number of recommendations have been suggested for the Action Plan's future activities.

The main documents used to draft this Report evaluating the implementation of the Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea were RAC/SPA's activities reports, for the regional element especially, and the national reports handed to RAC/SPA by the Contracting Parties, for the national element especially.

Furthermore, the evaluation was enriched by the opinions and comments of the National Focal Points for SPAs on the one hand and the Action Plan Associates and Partners, on the other. These were approached through a simple questionnaire to sound out their opinions and assess their degree of participation.

EVALUATION AND ANALYSIS OF THE ACTION PLAN'S ACHIEVEMENTS

Action 1. Ratifying the new SPA Protocol

1.1- Action Plan arrangements

When the Action Plan was established, the Contracting Parties were recommended to go ahead with ratifying the new SPA Protocol as quickly as possible.

1.2- Achievements

Just after they had adopted the Action Plan in October 1999, the number of Contracting Parties which had given in their ratifying instruments to the Depositary reached the number needed for the Protocol to enter into force; this happened on 12 December 1999.

The concerned Parties' ratifying instruments were received by the Depositary as follows:

Party	Date	Party	Date	Party	Date
Monaco	03.06.97	France	16.04.01	Greece	-
Tunisia	01.06.98	Albania	26.07.01	Libya	-
Spain	23.12.98	Algeria	-	Slovenia	08.01.03
Italy	07.09.99	Morocco	-	Cyprus	15.10.01
Malta	28.10.99	Croatia	12.04.02	Israel	-
European Community	12.11.99	Syria	10.10.03	Bosnia & Herzegovina	-
Egypt	11.02.00	Turkey	18.09.02	Lebanon	-
				Serbia & Montenegro	-

1.3- Evaluation and analysis of results

The time lapse for the entry into force of the new Protocol on SPAs, from October 1999 to December 2002, was considered satisfactory by some but relatively long by others.

For most of the Contracting Parties, this time lapse does not seem to have affected the pursuit of the national and regional actions planned in the Action Plan on the conservation of marine vegetation. But others, which ratified late or which have not yet ratified the new Protocol on SPAs, saw this lapse of time as having had repercussions on the starting of certain actions planned in the Action Plan: the inventorying of meadows and marine plant formations that can be considered as natural monuments, the setting up of marine vegetation monitoring networks, etc.

1.4- Recommendations

Invite those Parties that have not yet signed the new SPA Protocol to do so as quickly as possible.

Action 2. Mediterranean symposium on marine vegetation

2.1- Action Plan arrangements

The Mediterranean symposium on marine vegetation was planned at Action Plan level with a view to taking stock of the available scientific data.

In accordance with Paragraph 18 of the Action Plan, the first symposium was to be organised within a year starting from the date when the Action Plan was adopted; the symposium would then take place regularly every four years.

2.2- Achievements

Two Mediterranean symposiums on marine vegetation were organised by RAC/SPA after the Action Plan was adopted.

The ***first symposium*** took place in Ajaccio (Corsica, France) on 3 and 4 October 2000; there were 43 participants from 17 Mediterranean countries. The programme of the first symposium was elaborated by an *ad hoc* group of experts brought together by RAC/SPA in Montpellier in March 2000.

This first symposium enabled thirty-two scientific papers to be given (in the form of 1-4-page articles and posters). The presentation sessions were followed by round tables which enabled a rapid assessment of the situation to be made and a number of questions and pertinent tools for implementing the Action Plan to be discussed. These round tables looked into the following subjects:

- taxonomy and taxonomists
- marine vegetation and the management of coastal areas (impact, mapping, databases)
- suggestions to consider other species and populations as having priority when implementing the Action Plan.

A summary of the debates of the three round tables, as well as the recommendations made there, appear in **Annex 2.2.a** to the present Report.

The ***second symposium*** took place in Athens, Greece, on 12 and 13 December 2003; there were 65 participants from 14 Mediterranean countries. The programme of the second symposium was elaborated by Action Plan partners at their first Meeting, held in Marseilles on 25 April 2002, to examine *inter alia* various points related to the Action Plan.

This second symposium enabled some forty scientific papers to be given (in the form of articles and posters). The main subjects addressed were the following: (i) Inventorying species and communities, (ii) Anthropic impacts on Mediterranean marine vegetation and (iii) Mapping marine vegetation.

Three round tables were held at the fringe of the symposium, discussing varied subjects: (i) The phytobenthos as an element for evaluating ecological quality, (ii) Standardising mapping techniques, and (iii) Elaborating taxonomic tools for Mediterranean marine vegetation.

The programme and assignment report related to the second symposium, plus the comments and discussions coming from some of the sessions and round tables, appear in **Annex 2.2.b** to the present Report.

2.3- Evaluation and analysis of results

The aim of the Mediterranean Symposium on marine vegetation was perfectly attained, to the satisfaction of all.

As regards deadlines, the First Mediterranean Symposium on marine vegetation was organised within the time limit provided for by the Action Plan.

The second Symposium should have been held four years later but was put forward to 2003 on the recommendation of the participants at the First Symposium, approved by the Twelfth Meeting of Contracting Parties (Monaco, 13-17 November 2001). The participants at this Second Symposium suggested holding another symposium within three years.

As to content, the two symposiums were thought by all the participants to have been a great success in terms of participation and quality of discussion. The dynamics initiated by these seminars were particularly beneficial because they had enabled:

- various data to be collected through the various participants' papers (most of the papers were judged to be of noticeable quality)
- the various partners concerned by the Action Plan to meet
- bi- or multilateral cooperation to be initiated and transfers of skills started
- a list of specialists to be established and enriched
- exchange of scientific studies and information to be encouraged, and direct contact between specialists and participants to be made
- work groups and consultation groups to be formed for all subjects and projects that concern protection of marine vegetation in the Mediterranean
- lacks and inadequacies to be highlighted, and proposals and recommendations to be made for future activities. For example, stress was laid on:
  (i) the growing lack of taxonomists and the absence of documents describing Mediterranean marine flora that could be used to implement the Action Plan
  (ii) the need to standardise mapping methods and ways of presenting results, because the wide range of methods used up to now causes dispersal and lack of consistency in work
  (iii) proposals to consider other species and populations (such as *Cymodocea nodosa)* as having priority when implementing the Action Plan, and the problem of synonymy
  (iv) thinking about finding an effective, practical solution to the problem of anthropic impacts on Mediterranean marine vegetation
  (v) use of certain plant formations and species as an element in evaluating the ecological quality of marine environments
- plan new actions that are a direct or indirect response to the Action Plan's objectives for the conservation of marine vegetation in the Mediterranean

- make approaches to other programmes and Action Plans, some of whose activities are likely to directly or indirectly affect the Action Plan for the conservation of marine vegetation in the Mediterranean.

As weak points emerging from the organising of the two symposiums, and that were in fact stressed by some participants, we should mention:

- the absence or very low participation on the part of certain countries (in particular those which have not yet ratified the Protocol on SPAs
- the delay in, or absence of, publication and circulation of the Proceedings of the Symposium.

2.4- Recommendations

- Leaving four years between Mediterranean symposiums on marine vegetation should be reviewed; two years or a maximum three years is desirable
- The recommendations made at each symposium should be acted on; for this, it is necessary to:
- quickly publish the Proceedings of the Symposium and send them to specialists and partners and associates as quickly as possible (within 6 months if possible), so that the approaches presented should be made best use of
- invite specialists and partners and associates to look more closely into the recommendations made at each symposium
- make sure that at the next symposium there is a session to evaluate the activities and actions carried out as a result of the recommendations made at the two previous Symposiums in order to better structure future activities and define priorities.

Action 3. Guidelines for impact studies on marine meadows

3.1- Action Plan arrangements

Paragraph 11 of the Action Plan stipulates that the regulations on impact studies should be strengthened, mainly to make compulsory an evaluation of the impacts on meadows of all human activity to be introduced in areas where there are meadows. The regulations should pay particular attention to the impact on meadows and other plant formations that are significant for the marine environment of all construction of port facilities (including marinas), building of sea outlets for sewage, dredging work or deposits of dredging products and aquaculture projects. Because of this, guidelines for carrying out impact studies on marine meadows should be elaborated by RAC/SPA, in collaboration with Mediterranean experts and the concerned organisations, before the end of October 2000.

Moreover, Paragraph 10 urges the Contracting Parties that have not yet passed laws to protect meadows and other plant formations that are significant for the marine environment to do so as soon as possible.

3.2- Achievements

RAC/SPA, in collaboration with Mediterranean experts and National Focal Points for SPAs, elaborated a project on guidelines for impact studies on marine meadows. At their Twelfth Ordinary Meeting (in Monaco, 2001) the Contracting Parties adopted these guidelines as a basis for passing, improving and implementing laws in this field. The text relating to the guidelines as adopted by the Contracting Parties appears as document UNEP(DEC)/MED WG.177/9.

This document was printed in two languages (French and English) with a view to being circulated to all the countries of the region.

3.3- Evaluation and analysis of results

As to the time taken, elaborating the document on guidelines for impact studies on marine meadows required one year more than had been anticipated in the Action Plan schedule. This delay was due to the fact that much of the study was established from replies to a standard questionnaire sent to the concerned parties, and that the persons contacted were unable, because of their professional commitments, to fill in the said questionnaire within the desired period.

As to content, the document once elaborated was of prime importance in more ways than one. As well as the schematic guidelines laid down for the section on impact assessment studies on marine meadows, this document has the advantage of:

- recalling the morphological and ecological features and the distribution of the main species that constitute marine phanerogam meadows in the Mediterranean, i.e. *Posidonia oceanica, Cymodocea nodosa, Zostera noltii, Zostera marina, Halophila stipulacea, Ruppia cirrhosa* and *Ruppia maritima*

- highlighting the threats to meadows and the causes at the origin of the disappearance of the meadows and species

- giving examples of impact studies done in some Mediterranean countries

- defining the elements to be taken into consideration for impact studies on meadows and advocating practical steps to reduce possible impacts.

The guidelines is a valuable tool to help in managing and conserving the main marine plant formations, specially the impact studies required before any development project as preventive measure, where the environment is borne in mind as well as the interest of local people and economic and social development.

However, it should be said that several elements can reduce the impact procedure's efficacity, such as:

- the contracting authority's becoming financially responsible for the study, which can present some practical difficulties for reasons of cost: doing a superficial

study or handing the study over to inexperienced people, or people who do not work in the field
- the absence of accreditation for the people or bodies likely to do the impact study
- systematically underestimating the development's potential harm.

3.4- Recommendations

The document on guidelines for impact studies on marine meadows was produced in accordance with the Action Plan's planning.

But this action must be supplemented by other actions that should be planned for, starting from 2007, with a new timetable, consisting of:

- helping countries apply the guidelines on impact studies, particularly those countries that do not yet have specific regulatory frameworks that allow the main threatened plant formations to be taken into consideration, for all coastal development

- if necessary, elaborating guides for each country where it is necessary to adapt the guidelines to the particular context of the region, in the light of the main existing formations and threats therein

- reviewing and updating the text on guidelines every 3 or 5 years according to the new data collected in the field and the problems or impacts encountered in the various countries. For this, a survey must be carried out beforehand to learn the opinions of all those who are concerned as regards both aspects

- urging that where this is not the case there should be a statutory monitoring and checking system at every stage of development projects and then subsequently. This analysis allows checking that the techniques recommended fit the objectives aimed at in terms of impact reduction

- looking for solutions and suggesting procedures for standardization to surmount the weak points mentioned above as regards reduced efficacity of impact studies.

Action 4. Mediterranean data bank

4.1- Action Plan arrangements

With a view to collecting the available information on the biology, ecology and conservation of marine vegetation in the Mediterranean, Paragraph 19 of the Action Plan recommends setting up a Mediterranean data bank, to be held by RAC/SPA and regularly updated in collaboration with the concerned organisations and experts. This data bank will be used to produce summaries and other technical documentation. It must be available for internet consultation.

The first version of this data bank should be prepared before the end of October 2000.

4.2- Achievements

RAC/SPA elaborated a first version of the Mediterranean database on marine vegetation in October 2002. It contains approximately 500 records of scientific articles on Mediterranean marine vegetation, on a number of subjects (biology, ecology, cartography, taxonomy, conservation, threats, uses, etc.). The database and the software developed by RAC/SPA to use it (management, research) were distributed to several Mediterranean laboratories and scientists.

The future development of this database and the practical methods of implementing and using it were examined at the first Meeting of Action Plan Associates and Partners, held in Marseilles on 25 April 2002. Debate focused on the steering committee, which will have to pronounce on what references are to be included in the database, the establishing and updating of the list of key index words, the periodical assessing of the content and functioning of the database, etc. The structure and the list of key words decided on appear in **Annex 4.2** to the present Report.

4.3- Evaluation and analysis of results

The first version of the database was elaborated within the deadline set by the Action Plan schedule. However, this version is deemed incomplete since it contains a very small number of references to marine vegetation compared to the references held by several Mediterranean laboratories.

The Meeting of Associates and Partners enabled the database to be structured and a very useful list of key words established. But no more recent, new version of a database has been created.

A survey of associates and partners shows that they have their own data banks which are very rich in references on marine vegetation. It is thus a good idea to approach these partners and associates and their collaborators to enrich and update this Mediterranean database.

4.4- Recommendations

The first database on the conservation of marine vegetation in the Mediterranean should be developed and improved, consulting the key words given in Annex 4.2, starting from 2007, or if possible, before this.

To do this successfully, a steering committee should be formed, bringing together the associates and partners that already have their own data banks, and a data collection and updating mechanism set up to which all the specialists and specialist bodies can have access, enriching it as necessary.

Action 5. Directory of specialists, laboratories and organisations concerned by marine vegetation in the Mediterranean

5.1- Action Plan arrangements

In compliance with Paragraph 20 of the Action Plan, a directory of specialists, laboratories and organisations concerned by marine vegetation in the Mediterranean should be set up to facilitate exchange. The first issue of this directory must be elaborated before the end of October 2000 and then regularly updated.

Furthermore, Article 25 of the Action Plan stipulates that international and/or non-governmental organisations, laboratories and any concerned organisation or body are invited to join in implementing the present Action Plan. At their Ordinary Meetings, the Contracting Parties may, on the suggestion of the Meeting of National Focal Points for SPAs, grant the status of Action Plan Associate to any organisation or laboratory which so requests and which is carrying out, or giving (financial or other) support for the carrying out of, concrete actions (conservation, research, etc.) of a kind that will facilitate the implementing of the Action Plan in accordance with its priorities.

5.2- Achievements

Concerning specialists, in October 2000 RAC/SPA elaborated a first version of a directory of Mediterranean specialists in marine vegetation; this was distributed at the first symposium on marine vegetation.

Then, to mark the first Meeting of Associates (April 2002), a model of a form for inclusion in the directory of specialists was prepared and discussed, with criteria for fields of specialisation (subject, specific and geographical field). This model appears in Annex 5.2.a.

This model form allowed a second version of a list of specialists (the last) to be established in 2002, with 210 names (Annex 5.2.b). Furthermore, in compliance with the arrangements in Paragraph 21 of the Action Plan, which recommend priority listing of existing initiatives and skills in the field of systematics, biology and conservation of marine plants, it was possible (thanks to the ‘field of specialisation’ criteria) to make sub-lists, like that of taxonomic experts presented in Annex 5.2.c, where almost 60 names appear.

Concerning bodies and laboratories, up to the present day eight requests to join in implementing the Action Plan on conservation of marine vegetation in the Mediterranean have been received; all were agreed to by the Contracting Parties. A list of these bodies, now Action Plan Associates/Partners, appears below:

Body	Nature of the association	Date when joined
GIS Posidonie (France)	Associate	November 2001
ICRAM (Italy)	Associate	November 2001
INSTM (Tunisia)	Associate	November 2001
Secretariat of the RAMOGE Agreement	Associate	November 2001
Association Seagrass 2000	Associate	November 2001
University of Corsica	Associate	November 2001
Greek National Centre for Marine Research (NCMR)	Associate	November 2003
Nautilus (Italy)	Partner	November 2003

The main contributions and participations of these Action Plan Associates/Partners were recorded for the following actions:

Action in projects, programmes and actions	Associates/Partners having contributed							
	Gis Posidonie	ICRAM	INSTM	IAccord RAMOGE	Seagrass 2000	Université de Corse	NCMR	NAUTILUS
Preparing guidelines for impact studies on marine meadows	**X**				**X**	**X**		
Participating in elaborating guidelines to improve national laws on threatened species	X					X		
Helping elaborate certain national plans	X					X		
Training course on use of the SDF				X				
Participating in inventorying the main plant formations	X			X	X	X		
Participating in elaborating the management plan for the Port Cros National Park	X							
Participating in elaborating the management plan for the Ile Verte, La Ciotat	X							
Participating in elaborating the management plan for Toulon Bay	X							
Participating in elaborating the management plan for the Massif des Calanques (Marseilles)	X							
Participating in the management plan for the Bouches de Bonifacio Marine Park (2003-2005)						X		
Participating in the management plan for the MPA of Portofino, Italy (1992-1993)		X						
Participating in the management plan for the MPA of Asinara Island, Italy (1998-1999)		X						
Participating in the management plan for the MPA of the Maddalena Archipelago, Italy (1998-1999)		X						
Participating in the management plan for Al Hoceima National Park, Morocco (2001-2003)		X						
Participating in the management plan for Rdum Majjiesa to Ras Raheb Cave, Malta (2001-2003)		X						
Mapping the Posidonia meadows in the Zakynthos Park, Greece (2003)						X		
Hosting the Second Symposium on Marine Vegetation (2003)							X	
Technical help for training in inventorying and mapping techniques (2003)								X
Participating in national marine vegetation monitoring networks	X	X	X	X	X	X	X	X
Participating in various meadow mapping campaigns	X	X	X	X	X	X	X	

To be completed

5.3 Evaluation and analysis of results

Concerning the directory of specialists, the latest version (2002) and the model for the form for inclusion in the directory of specialists established to this end, did fairly much respond to Action Plan expectations; however, the list of specialists still seems incomplete, although containing a large number of names, and should therefore be added to and revised.
Concerning the directory of Associates/Partners, the number of associates so far registered (8 in all) seems fairly satisfactory, especially since the quality of the said associates goes without saying, given their experience in the field and also their history of actions with RAC/SPA and the various National Focal Points for SPAs.

Collaboration with the Associates/Partners has always had, and will continue to have, a positive and advantageous side for the various actions carried out by the Focal Points, particularly as regards implementing the present Action Plan, through:

- better exchange
- making data banks richer
- preparing various proposals (subjects, committee, date etc.) in the most practical way
- integrating actions within a wider context
- reducing the costs of accomplishing certain actions
- facilitating organising meetings with specialists
- hosting some meetings, training courses, etc.
- offering expertise to other bodies
- promoting the Action Plan in the eyes of the public
- etc.

As a response to the Action Plan's aims and priorities, forming a group of Associates/Partners has in particular allowed:

- actions carried out at national and regional level in the context of the Action Plan on marine vegetation to be strengthened, backed and made more effective
- the possibility of deepening the question on species appearing in Annex 2 to the SPA Protocol and also on other species likely to have heritage importance for the Mediterranean and thus be considered priority species.

The only weakness that seems to appear regarding the current directory of Associates/Partners is the lack of 'associated bodies' in some countries, and this can still to a certain extent be a handicap or a brake on certain actions at the level of these countries.

5.4 Recommendations

Concerning the directory of specialists, it is suggested that:

- a new version of the directory of specialists be established (late 2005 or early 2006) in the completest possible way, in consultation with the associates, some of whom have their own directories of specialists, and through a very wide circulation of the model of the form for inclusion plan for continuous
- updating of the directory of specialists from 2007
- on enrich the directory of specialists with a data bank showing the list of works and publications of the concerned people, enhancing the 'field of specialisation' criteria of each expert

-put the already available directory of specialists in marine vegetation on a website plan for a web form with which people could be included in the directory.

Concerning the directory of Associates/Partners, it is suggested:

that consultation with the Associates/Partners be enhanced, and that they be invited to participate actively in all the stages of implementing the Action Plan

that the list of Associates/Partners be widened and extended, particularly at the level of certain countries with a view to enhancing cooperation and exchanges

that the list of Associates/Partners be enriched by a list of bodies that are collaborators of the said Associates/Partners. Thus, the following collaborator bodies have already been mentioned during a sounding out process with the National Focal Points for SPAs and the eight Associates to the Action Plan:

- the Sofia Antipolis University, Nice, France (M. Meinesz, M. Francour)
- the Villefranche sur Mer Oceanographic Laboratory, France
- the French Research Institute for the Use of the Sea, France (IFREMER)
- the Port Cros National Park, France (M. Robert)
- the Ile de Lerins Scientific Council, France (M. Loques)
- the Luminy Science and Technology Park, Marseilles Oceanographic Centre, France (M. Boudouresque)
- the Monaco Scientific Centre (M. Tambutté/M. Allemand)
- the Monaco Oceanographic Museum
- the University of Genoa (M. Relini)
- ARPAL
- the University of Pisa, Italy
- the Tunis National Institute of Agriculture, Tunisia
- the Tunis Science Faculty, Tunisia
- the National Center for Marine Sciences-National Council for Scientific Research, Lebanon (Marie Abboud Abi Saab, Ph. D.)
- the Institute of Hydrology, Sarajevo, Bosnia and Herzegovina
- the Institute of Civil Engineering (IGH), Bosnia and Herzegovina
- the Faculty of Pedagogy, Mostar, Bosnia and Herzegovina

Action 6. Launching procedures for the legal status protection of species at national level

6.1- Action Plan arrangements

Paragraph 9 of the Action Plan stipulates that plant formations and species that are significant for the marine environment should be granted protection legal status, particularly those plant species enumerated in Annex 2 to the SPA Protocol. These must in the countries where they exist be given legal status protection to check and if necessary forbid any form of destruction or disturbance, including picking, harvesting, cutting, uprooting, possessing, trading in, transporting and exhibiting them for commercial purposes. It is also important to provide for penal sanctions for damage

caused to meadows and plant formations that are significant for the marine environment.

It is also necessary to harmonise Mediterranean laws and elaborate guidelines to direct countries' efforts in this field.

Procedures on the issue should be started during the year 2001.

6.2- Achievements

At regional level: RAC/SPA prepared a document on guidelines to encourage countries to set up and/or improve their national laws on endangered or threatened species. An extract from these guidelines on the vegetal species selected for Annex 2 to the SPA Protocol appears in **Annex 6.2.a.**

These species are:

- Magnoliophyceae: *Posidonia oceanica, Zostera marina, Zostera noltii*
- Chlorophyceae: *Caulerpa olliviere*
- Phaeophyceae: *Cystoseira amentacea, Cystoseira mediterranea, Cystoseira sedoïdes, Cystoseira spinosa* (inclu*. C. adriatica), Cystoseira zosteroides, Laminaria rodriguezii*
- Rhodophyceae: *Goniolithon byssoïdes, Lithophyllum lichenoides, Ptilophora mediterranea, Schimmelmannia schousboei*

At national level: Several countries have developed their institutional and legal frameworks as regards environment protection generally, often with aspects that touch particularly on coastal and marine fields (**Annex 6.2.b**.). But legal protection measures for marine plant species have only been introduced by some Mediterranean countries.

The few countries that have legal protection texts directly concerning marine plant species are the following:

- Cyprus: ban on fishing in shallow waters where there are Posidonia
- Spain: *Zostera noltii* (in the Canaries) and the Posidonia barrier reef (Andalusia) are listed in the national catalogue of threatened species
- France: *Cymodocea nodosa* and *Posidonia oceanica* are totally protected throughout the entire country; both Zostera species only enjoy integral protection measures in the Provence-Alpes-Côte d'Azur region
- Italy: a text on protection for the Posidonia meadow
- Slovenia: a text on protection for the Posidonia meadow.

Furthermore, texts and circulars banning trawling in shallow waters, setting up and managing marine protected areas, forbidding the introduction of non-native species, making an impact study compulsory before any coastal development project, and controlling and monitoring marine activities are likely to indirectly help protect marine plant formations.

6.3- Evaluation and analysis of results

Most of the countries in the Mediterranean have not yet taken measures to give direct legal protection to marine plant species, although these could be protected through protocols or conventions concerning the areas that shelter them, or against activities likely to affect them. The few cases signalled basically concern the Posidonia meadow.

The species appearing in Annex 2 to the SPA Protocol are automatically taken into consideration by the countries that ratified that Protocol, but national legislative measures are needed for effective protection.

6.4- Recommendations

For those countries that have not yet taken legal protection measures:

- Invite them to start protection procedures with the least possible delay
- Urge them to take the necessary steps so that coastal development and maritime activities take marine plant formations into account, particularly in sensitive areas.

For those countries that have already started on legal protection measures, like the countries of the western Mediterranean, specialists suggest continuing to enhance the protection measures in various ways, for example:

- adding those plants in Annex 2 to the Action Plan that are not yet protected by decree to the national list of protected species

- extending the protection of certain species that are protected in some areas to all the country's Mediterranean coasts; for example, it is suggested that the protection of *Zostera noltii* and *Zostera marina* be extended to all the French Mediterranean coasts
- elaborating specific legislation suited to those landscapes and plant formations that are of great heritage value (natural monuments)
- making sure that areas and depths of trawling are observed
- making sure that the conditions for setting up aquaculture farms are respected (set up off-shore aquaculture farms)

Moreover, Mediterranean legislation needs to be harmonized and guidelines elaborated to guide the countries' efforts in the field, preferably before the end of 2008.

Action 7. Elaborating national plans

7.1- Action Plan arrangements

Paragraph 22 of the Action Plan invites the Contracting Parties to establish national plans for the conservation of marine vegetation in order to make the measures envisaged for implementing the various actions planned during 2001-2002 more effective.

Each national plan must bear in mind the country's and even the concerned areas' specific features. It should propose the appropriate legislative measures, particularly as regards impact studies on littoral development (works, sea outlets for sewage, deposits of dredging products, etc.) and to check activities that may affect the marine vegetation (such as fishing and mooring). The national plan will be established on the basis of the scientific data available and will contain programmes for:

(i) collecting and continuously updating data
(ii) training specialists and giving refresher courses
(iii) awareness and education for the public, actors and decision-makers
(iv) conservation of the meadows and other plant formations that are significant for the marine environment in the Mediterranean.

The national plans must be made known to all the concerned actors and as far as possible coordinated with other pertinent national plans (e.g. emergency plan for accidental pollution).

7.2- Achievements

In April 2000, the FEM Council approved the elaboration of a 'Strategic Action Programme for Biodiversity in the Mediterranean Region' (SAP BIO), and appointed RAC/SPA as Lead Agency for carrying out this project.

The SAP BIO Project was elaborated within 30 months and, in 2003, resulted in a guiding document that brought together several strategic actions on a regional and national scale.

Several national plans, elaborated within the context of the SAP BIO Project, had as their direct aim the conservation of marine vegetation, or dealt with aspects or zones related to the protection of plant formations. The list and the titles of these national plans appear below.

Algeria

- Action plan for setting up a network for monitoring *Posidonia oceanica* meadows
- Action plan for inventorying and setting up marine and coastal protected areas in Algeria

Bosnia-Herzegovina

- Action plan for identifying and preserving threatened marine, freshwater and dry land habitats and plant communities in the Mediterranean part of Bosnia-Herzegovina

Israel

- Action plan on the study of *Posidonia oceanica* meadows

Libya

- Action plan for proposing new national parks and marine and coastal protected areas

Malta

- Action plan for micromapping, mapping and monitoring *Posidonia oceanica* meadows

Morocco

- Action plan for mapping Morocco's Mediterranean coasts

Slovenia

- Action plan for mapping habitats using the Geographic Information System (in particular, phanerogam meadows)
- Action plan for sensitive ecosystems – *Posidonia oceanica* meadows (ecological conditions, mapping and monitoring based on the GIS Posidonie methodology)

Syria

- National plan for developing marine and coastal protected areas

Tunisia

- Action plan on invasive marine species: a report has been made to this effect where two exotic plant species (*Caulerpa racemosa* and *Caulerpa taxifolia*) appear; *Caulerpa taxifolia* is already being monitored in Tunisia and in coordination with the other concerned Mediterranean countries
- Pilot monitoring of Posidonia meadows
- Protection for coralligenous shallows and beds

Turkey

- The creation of marine protected areas along the Turkish coasts

As well as the actions envisaged in the SAP BIO Project, we should mention the national and regional plans that were started long ago and are still being pursued by the countries of the north-western Mediterranean, i.e. Italy, France, Monaco and Spain. These plans basically concern

- monitoring and mapping Posidonia meadows
- keeping a watch on the expansion of the Caulerpas (*Caulerpa racemosa* and *Caulerpa taxifolia*).

7.3- Evaluation and analysis of results

The national plans for the conservation of marine vegetation could only be elaborated after the SAP BIO Project was implemented.

In compliance with the arrangements of the Action Plan on the Conservation of Marine Vegetation, those suggestions chosen by the countries that have some bearing on aquatic flora are directed towards steps that are appropriate, according to the specific features and priorities of each region.

The various plans planned are thus likely to make more obvious and more effective the conservation actions on marine vegetation that are being undertaken by the concerned countries.

7.4- Recommendations

- Back and assist those action plans that are directly linked to programmes of studying, conservation and protection of marine vegetation
- Plan short-, medium- and long-term actions according to the priorities of the country and the region
- Get the maximum number of concerned actors to participate, by setting precise objectives and priorities – particularly the NGOs for citizen-related activities
- Widen the consultation with other countries and Partners and Associates of the Action Plan for the Conservation of Marine Vegetation, particularly as regards those aspects that affect many parts of the Mediterranean
- Enhance cooperation and the exchange of information and experience
- For better results, it is necessary that the national plans are brought to the attention of all the concerned actors, and as far as is possible coordinated with the other pertinent national plans

Action 8. Inventorying meadows and marine plant formations that can be considered as natural monuments

8.1- Action Plan arrangements

Paragraph 13 of the Action Plan invites all the concerned parties to identify the main marine plant formations that can be considered as natural monuments, such as Posidonia barrier reefs, surface organogenous formations, terraces (vermetid platforms with soft algal lawns) and certain Cystoseira belts and include them within a protected area network. This action should be carried out during the year 2002.

8.2- Achievements

At regional level: In 2000, RAC/SPA elaborated a Standard Data Form (SDF) for the requirements of national inventories of natural sites of conservation interest, in order to help Mediterranean countries inventory marine habitats sheltering meadows and plant formations that are deemed to be natural monuments. This SDF was the result of contributions made by a panoply of Mediterranean experts.

Furthermore, with a view to filling in the SDF efficaciously, RAC/SPA provided assistance to several field trips in various countries.

In November 2004, in collaboration with the Secretariat of the RAMOGE Accord and the Portofino Marine Reserve (Italy), a training course on the use of the SDF was organised. The training concerned the inventorying tools developed within the MAP context, including use of the SDF and the handbook for interpreting marine habitats.

Also, three case studies (in Tunisia, in Turkey and in Spain) were done to test the classification list and compare RAC/SPA's and MedWet's classification systems. The studies showed:

- complementarity between the two kinds of habitat classification and description; the RAC/SPA classification enabled the non-wetland coastal area to be covered and seems more explicit as regards description of habitats and species

- a need to retain both classifications for coastal dry land habitats and to develop identification, exchange and comparison interfaces between the two kinds of classification. MedWet's classification remains stricter in reference to the water parameter. Thus, according to the hydrological, geomorphological, floristic and faunistic specificity, one or other of the classification systems would be more suitable

- both kinds of classification can be done to complement the other, but it seems that the RAC/SPA classification is better suited to the inventories.

Also, in the context of harmonizing the inventorying system that uses the SDF with the Natura 2000, Emeraude and MedWet systems, RAC/SPA launched a study to analyse the different inventory systems in order to discover common points and differences and suggest harmonizing mechanisms. A cooordinating meeting with the various concerned actors is anticipated some time in the last three months of 2005 to finalize the procedures to be followed.

At national level: The SDF permitted many inventories to be made in sites in the following Mediterranean countries:

Algeria
- The Chenoua Marine Area and the Reghaia Marine Reserve: an inventory and diagnosis of marine biotopes in the two areas, pilot actions as part of the Coastal Development Programme (PAC) (September 2002)
- El Kala National Park: inventory as part of the MedMPA Project

Cyprus
- Moulia, Akamas and Cavo Greko: inventory as part of the MedMPA Project

France
- Dramond: inventory of marine biotopes, especially Posidonia meadows and formations with *Lithophyllum byssoides* (2004)

Israel
- Rosh Haniqra: inventory as part of the MedMPA Project

Italy
- Portofino Marine Protected Area: inventory as part of the RAMOGE Accord
- Capo Mortola: inventory of marine biotopes (2004)
- Tino and Tinetta, Palmaria Islands: inventory of marine biotopes (2004)

Lebanon
- Damour and Naqoura coastal areas: inventory of marine biotopes, particularly terraces, as part of the PAC Project

Libya
- Farwa Lagoon: collecting information on the main plant formations (June 2000)

Greece
- Zakynthos National Marine Park: mapping the main populations and types of bed in Laganas Bay (2003)

Malta
- The area between Rdum Majjiesa and Ras ir-Raheb: detailed study of marine biotopes in the area as part of the PAC Project (September 2002)

Morocco
- The Al Hoceima National Park: inventory as part of the MedMPA Project

Slovenia
- Mapping marine habitats in the coastal areas using the Geographic Information System (particularly phanerogam meadows) (2003)

Syria
- The Oum Toyour/Ras El Bassit area: inventory as part of the MedMPA Project

Tunisia
- The Kerkennah Islands: collecting information on Posidonia and other plant formations of ecological importance around the Kerkennah Islands (June 2000)
- The Zembra and Zembretta Marine Park: inventory as part of the MedMPA Project

Turkey
- Inventory as part of the Aphrodite Programme.

It is also possible that the Mediterranean countries' national authorities are in the process of using this inventorying tool in other sites as part of their national programmes.

Furthermore, other inventories have been made using other systems, either over the past five years or before the period when implementation of the Action Plan for the Conservation of Marine Vegetation started. Most of these inventories deal with all the natural land and sea resources in the concerned areas, given that these are often protected areas. As examples, we can mention:

- the inventory of live species and land and marine environmental habitats in the Provence-Alpes-Côte d'Azur area (PACA), using the ZNIEFF inventory system

- the inventory of Greek sites of ecological interest using the Natura 2000 system; this essentially concerns the dry land part

8.3- Evaluation and analysis of results

The work done at regional level to prepare a technical tool for inventories (the SDF) and make available to countries and users practical guides that permit them to identify and assess the state of conservation of marine habitats, has been of great help in urging countries to provide reliable data on the distribution and state of the main plant formations in their area, such as meadows, Posidonia barrier reefs, *Lithophyllum* pavements, vermetid platforms, etc.

The technical tool for the inventories (SDF) is deemed a valuable element insofar as it satisfies three requirements: scientific rigour, readability for laymen, and compatibility with other systems (Corine, Habitats Directive); also, it offers the advantage of presenting data in a standardized way, oriented to help monitoring and management.

Today we notice that the countries' use of the SDF is becoming increasingly widespread, although to fill in this technical tool effectively it is necessary to have a lot of data on the sites to be inventoried, and this may well slow down completion of the inventories in question. Thus in certain cases simplified inventories were established that could later be made more detailed and added to.

These considerations lead to the conclusion that the inventories so far made of meadows and important plant formations are still incomplete and need to be gradually enriched.

It should also be noted that for some countries these inventories are non-existent or very insufficient, and that therefore much must be done in these countries to enrich the Mediterranean database.

8.4- Recommendations

- Continue to help countries carry out case studies on inventories of natural sites of conservation interest, using the SDF

- In many countries, continuously develop and organise training courses on the use of the SDF to make filling in the data on the form easy and automatic

- Harmonize the SDF with all the inventory systems used (Natura 2000, Emeraude and MedWet, etc.)

Action 9. Elaborating management plans for marine areas

9.1- Action Plan arrangements

Paragraph 14 of the Action Plan invites the Contracting Parties to protect and conserve those meadow habitats and plant formations that are considered as natural monuments by creating new marine protected areas in places that shelter these habitats and formations and elaborating and enhancing effective management plans for the different marine protected areas.

These arrangements must be made as quickly as possible (in 2002).

9.2- Achievements

At regional level: RAC/SPA has carried out many actions to help and assist the Contracting Parties in selecting, establishing programmes and management plans for marine protected areas, training experts in the field of MPA management, etc. The main achievements in this context have been:

- ***Organising national training courses on specially protected areas and conservation of species (2000-2001)***

RAC/SPA organised several training courses on the management of protected areas for those countries which so requested in the first years of the implementation of the Action Plan on marine vegetation. For example:
- a national training course on improving the management of protected areas in Tunisia
- a national training course on designing and setting up a scientific monitoring programme in marine and coastal protected areas in Turkey
- a training workshop for 4 experts from Libya and Egypt on designing GIS databases (Geographic Information System) on protected areas

- ***Organising a Mediterranean colloquium on marine protected areas (2000)***

This colloquium took place in Ajaccio, Corsica (France) in November 2000. The main subjects were: (i) the legal and institutional side of setting up marine protected areas, (ii) managing marine protected areas, and (iii) the role of marine protected areas in environmental education and awareness

- ***Implementing the MedMPA Project 'Regional Project for Developing Marine and Coastal Protected Areas in the Mediterranean Region' (2002-2005)***

The MedMPA Project was elaborated to help various countries choose and establish management plans for marine protected areas; the countries concerned by this project are Algeria, Cyprus, Israel, Malta, Morocco, Syria and Tunisia.

The Project was implemented thanks to the financial support of the European Commission and the contribution made by three RAC/SPA partners: Instituto Centrale per la Ricerca Scientific e Technologica Applicata al Mare (ICRAM), Italy; the Unidad de Biologia Marina (UBM) of the Instituto Universitario del Agua y de las Ciencias Ambientales, Alicante University, Spain; and the Atelier Technique des Espaces Naturels (ATEN), France.

The MedMPA Project started on 1 February 2002 and ended on 31 January 2005; it enabled the following main activities to be carried out:

- Elaboration of management plans for the six following marine areas:
- the Al Hoceima National Park (Morocco) – May 2002-October 2004
- the protected areas of Rdum Majjiesa and Ras ir-Raheb (Malta) – June 2002-March 2004

- the National Park of Zembra and Zembretta (Tunisia) – June 2002-March 2004
- the Rosh Haniqra Nature Reserve (Israel) – July 2003-October 2004
- the protected area of Oum Toyour and Ras El Bassit (Syria) – September 2002-August 2003
- the El Kala National Park (Algeria) – October 2003-August 2004

- The elaboration of national plans for the development of marine protected areas in two countries – Cyprus (July 2002-May 2004) and Syria (September 2002-August 2003)

- The elaboration of guidelines and technical tools, such as:

- Guidelines for establishing and developing Specially Protected Areas in compliance with the recommendations of the new SPA Protocol. These guidelines treated various aspects: (i) the role of protected areas in the conservation of the marine environment, (ii) the involving of concerned actors in planning and managing marine protected areas, (iii) the promotion, management and monitoring of visitors to marine and coastal protected areas and (iv) the monitoring of marine protected areas

- Practical guide on species requiring particular attention in the Mediterranean coastal area (identification, management of populations and habitats, monitoring); this guide is just a set of descriptive illustrated sheets on all the species that appear in Annexes II and III to the SPA Protocol.

RAC/SPA intends to publish these two tools and then circulate them to all the concerned bodies in the Mediterranean countries.

- Assistance to the countries which so request for developing SPAMIs:

- Technical help to the Algerian NFP for SPAs, hiring a consultant for drafting files presenting four Algerian sites for inclusion on the SPAMI List. These sites are the Banc des Kabyles Marine Reserve, the Cap de Garde Marine Reserve, the Habibas Islands and Rachgoun Island (see document UNEP(DEC)/MED WG.232/8)

- Recruiting a legal consultant specialising in international environmental law to help the Parties which so desire formulate their requests for some SPAMIs to be listed as CAMPs (particularly sensitive marine areas) with the International Maritime Organisation (IMO). The consultant's assignment is to assess (in consultation with the IMO) whether the existing SPAMIs are eligible to be listed as CAMPs and then submit the selected sites' applications for candidature

- RAC/SPA received from the Spanish NFP for SPAs the presentation reports for three sites (Parque Nacional Maritimo y Terrestre del Archipelago de Cabrera, Acantilados de Maro-Cerro Gordo, Islas Chafarinas) proposed for inclusion on the SPAMI List (see document UNEP(DEC)/MED WG.232/9)

- RAC/SPA received from the Italian NFP for SPAs the presentation report for the Portofino site, proposed for inclusion on the SPAMI List

- Training in the field of protected marine area management, bearing in mind the specific needs of each country, with the organising of:

- a national training workshop on developing tourism in Moroccan protected areas (Rabat, 25-28 June 2003, with 25 participants)

- a national training workshop on techniques of monitoring Tunisian marine protected areas (Tunis, 23-26 June 2003, with 19 participants)

- a national training workshop on managing Algerian marine protected areas (El Kala National Park, 4-7 July 2004, with 30 participants)

- a regional training seminar on 'Planning for the management of marine protected areas' held in the south of France and in Catalonia, Spain, from 19-29 January 2004. This seminar included several field visits and helped 16 participants from 11 Mediterranean countries (Algeria, Croatia, Greece, Israel, Lebanon, Malta, Morocco, Slovenia, Syria, Tunisia and Turkey)

- ***Reviving the MedPAN Network (starting from 2005)***

RAC/SPA actively participated with WWF France in reviving the MedPAN Network (Network of Marine Protected Area Managers in the Mediterranean Sea), on the recommendation of the Contracting Parties in 1999. To this end it signed a Memorandum of Cooperation with WWF France, the body delegated by the Port Cros National Park (the Executive Secretary of the Network), to have operational responsibility for the MedPAN Network. Thanks to Community funding (INTERREG III), the MedPAN Network was once again functional from January 2005. This funding should allow it to function in Project mode over the coming three years (up to end 2007).

- ***Elaborating the Directory of Managers of Marine Protected Areas in the Mediterranean (ongoing)***

RAC/SPA, in collaboration with WWF France, compiled a directory of managers of marine protected areas around the Mediterranean. The compilation phase was followed by a validation phase (under way). Putting the directory online on the RAC/SPA web site will allow these managers to network and encourage exchange between them. A more elaborate version of this directory, including descriptive files for each protected area, is being finalized.

- ***Elaborating technical documents (ongoing)***

This involves preparing documents aimed at providing important information and constituting very useful tools for the parties that wish to develop the conservation of protected areas. These documents are:

- a document on protected marine areas and international law, prepared in collaboration with the University of Nantes

- a document (being prepared) that is a guide to economic principles for developing protected areas, sufficiently flexible to be adapted to fit the context of all the Mediterranean countries

At national level: Several actions were carried out in the context of development and management programmes for protected marine areas in the various Mediterranean countries in different regards. These actions essentially concerned the elaboration, or steps toward elaboration, of a management plan, the implementing of the management plan, and training for the management of marine protected areas. The teams that helped carry out the various projects usually consisted of the Project Partners' experts, of national consultants, of the national staff of the concerned authorities, of international consultants and of RAC/SPA staff.

Albania

- Organising a training course (in 2001) for Albanian researchers on inventorying benthic marine habitats in the protected areas, with the technical support of RAC/SPA and the collaboration of the Biology Department of Lecce University, Italy

- Two projects are under way, having been approved by the various authorities, for planning, improving and monitoring areas in the Karavasta and Butrinti lagoons

Algeria

- Elaborating a management plan for the El Kala National Park (Algeria). The plan was elaborated in consultation with the concerned Algerian bodies and in close collaboration with Algeria's national experts, after several contacts and field prospection trips (October 2003, December 2003, July 2004 and August 2004) and a socio-economic study of the El Kala region. As well as the management plan, a strategy of promoting public access, information and awareness was established, with sketches for posters, a promotional brochure and a leaflet for the Park

- Elaborating, with technical help from RAC/SPA, files to present four sites for inclusion on the SPAMI List: the Banc des Kabyles Marine Reserve, the Cap de Garde Marine Reserve, the Habibas Islands and Rachgoun Island

Bosnia-Herzegovina

- Jointly with the Secretariat of the Ramsar Convention and the MedWet Programme in March 2005, organising an assignment aimed at assessing the feasibility of starting a project for the integrated management of the lower Neretva area. The mission also allowed a visit to the Hutovo Blato area and a discussion with local authorities about management methods

Cyprus

- Elaborating a national plan to develop marine protected areas. This action was carried out in three stages: (i) identifying marine sites of conservation interest (July 2002), (ii) field prospection trips (December 2002, October 2003 and May 2004), (iii) elaborating a national plan to promote and develop marine protected

areas in three sites (Cavo Greko, Moullia and Akamas) on the Cypriot coast on the basis of scientific and socio-economic studies

Croatia

- Carrying out an assignment in 1999 for a diagnosis of the legal and institutional framework governing protected areas and identifying actions to improve the management of the two protected areas. Then starting a programme of collecting data on marine biotopes in the Mljet National Park, thanks to the financial support of the Principality of Monaco

Egypt

- Organising (by RAC/SPA) a training workshop for experts on designing a GIS database (Geographic Information System) on protected areas. At the end of the course, the Egyptian team was given GIS software to convert the national database on biodiversity into GIS format

- Organising in 2000 a field trip to elaborate a comprehensive study on the conservation of marine and coastal sites of interest on Egypt's Mediterranean coast, and drafting a report dealing with the status and development of marine protected areas in Egypt and with planning and monitoring public access to the Burullus Nature Reserve

- In the context of the MedWet Coast Project, preparing a proposal for a development plan in three sites: Zaranik, Burullus and Omayed. The aims of the development plan are (a) preparing and carrying out the necessary studies and programmes for improving the protection of the sites, (b) supervising and monitoring natural resources, (c) coordinating protected area activities, (d) public awareness and education, (e) controlling the water, (f) local community participation, and (g) information and exchange of experience

Israel

- Elaborating a management plan for the marine part of the Rosh Haniqra Nature Reserve (Israel). The plan was elaborated in collaboration with the concerned parties after several field prospection trips (July 2003, February-March 2004, October 2004) and a socio-economic survey of the region. Moreover, as part of implementing the management plan, a strategy of promoting public access to the Reserve was elaborated, as were sketches for posters and brochures

Italy

- Elaborating a report presenting the Portofino site, proposed for inclusion on the SPAMI List

Lebanon

- Setting up a programme for improving the management of the nature reserves in the Palm Islands and Tyre Beach (2000-2005), with the collaboration of the Lebanese Ministry of the Environment, the IUCN and the National Council for Scientific Research. This programme basically concerns the dry land part of the area

Libya

- RAC/SPA organised a training workshop for experts on designing GIS (Geographic Information System) databases on protected areas (in 2001). At the end of the course, the Libyan team was given equipment and files containing the structure of the database and digital database cards

Morocco

- Elaborating a management plan for the Al Hoceima National Park marine area (given MPA status in October 2004). The plan was elaborated with the collaboration of the Moroccan authorities concerned and in consultation with national experts, after several contacts and field prospection trips (May-June 2002, September 2002, July 2003 and August 2004) and a socio-economic study of the Park area. The management plan was validated at a presentation and consultation meeting in July 2004, which brought together all the actors and socio-professional bodies concerned. Moreover, to be able to start implementing the management plan, a study was done on promoting public access, information and environment education in the Park and a sketch for posters and a brochure presenting the Park's outstanding features were produced

- Inventorying, and identifying for study and elaboration, a plan to develop and manage 14 sites (the Al Hoceima National Park, the El Jebha Cirque, the Ghomara coast, the mouth of the Mouloya, the Cap des Trois Fourches, Beni Snassen, the Nador lagoon and Jbel Gourougou, the Bou Areg sebkha, Perdicaris, Cap Spartel, Koudiat Taifour, the Smir lagoon and Jbel Moussa) as part of a GEF Project. The aim is to make certain sites into national parks

Malta

- Elaborating a management plan for the marine part of the protected area between Rdum Majjiesa and Ras ir-Raheb. The plan is based on a field study and the recommendations made by the PAC Malta project, and on the information gathered from several contacts made with all the concerned parties (in June 2002). The plan led to the mapping and the area zoning plan being finalized, after a public consultation (in March 2004) of all the actors concerned by the management of the area in question. Furthermore, to start implementation of the management plan, RAC/SPA provided assistance for the Maltese authorities to undertake awareness activities, like printing a leaflet and making a CD-ROM and a promotional video to promote the protected area. The project also provided help to fund signposting equipment on dry land (signposting boards) and at sea (mooring buoys)

Syria

- Elaborating a management plan for the protected area between Oum Toyour and Ras El Bassit. The management plan was elaborated after several contacts and field prospection trips (September 2002 and August 2003); this was not a conventional management plan but detailed recommendations for managing the marine areas of Oum Toyour and Ras El Bassit, given that the Oum Toyour nature reserve has no management body

Tunisia

- Elaborating a management plan for the marine part of the Zembra and Zembretta National Park. The plan was established after several contacts and field prospection trips (June 2002, October 2002 and June 2003) leading to a zoning plan, and on the basis of a socio-economic study of the region. The management plan, prepared in collaboration with the various Tunisian actors (the authorities and national experts) was the subject of public consultation in March 2004. Furthermore, to start implementation of the management plan, a study was done on promoting public access, information and environment education in the Park and a sketch for posters and a brochure presenting the Park's outstanding features were produced

- Organising (in 2003), with the support of RAC/SPA and the collaboration of the Tunisian National Environment Protection Agency (ANPE), a training course on improving the management of protected areas. The course programme was designed bearing Tunisia's specific needs in the field in mind. Twenty-one participants attended

- (Ongoing) study on the need to protect and manage the La Galite archipelago with a view to creating a marine park

Turkey

- Organising, with the support of RAC/SPA and the collaboration of the Turkish Nature Conservation Society (DHKD), a national training course on designing and setting up a programme of scientific monitoring in marine and coastal protected areas. About twenty people attended the course

9.3- Evaluation and analysis of results

The activity relating to elaborating management plans for protected marine areas only started developing well from 2002 onwards, thanks to the MedMPA Project funded by the European Commission and the collaboration of a number of partners.

Fifteen countries were helped by actions on marine protected areas, which concerned:
- organising at least eight training courses, workshops or colloquiums
- making six marine protected area management plans
- making two national marine protected area development plans
- elaborating guidelines and technical tools for marine protected areas
- giving assistance and technical help to develop SPAMIs in some countries (some of these ongoing).

However, it should be stressed that the actions undertaken in protected areas do not always deal with aspects that directly affect marine vegetation. This is the case for the nature reserves in the Palm Islands and Tyre Beach (in Lebanon), where the 'marine vegetation' element seems to be ignored.

Also, the revival of the MedPAN Project, the guidelines and technical tools that have already been prepared, the directory of MPA managers that is being prepared, the

specific training activities etc. should be important incentives to help the managers of and the authorities responsible for protected areas better conserve natural sites and the species these shelter.

As a weak point, we should mention some difficulties emphasized by certain Focal Points in carrying out or starting projects relating to protected areas, for various reasons; this requires a revision of the length of time needed, according to the various suggestions of the Focal Points.

9.4- Recommendations

Elaborating and implementing the management plans for marine protected areas are actions that require long-drawn-out commitment. Thus it is necessary to pursue these actions according to the countries' predispositions, and it is suggested that:

- a work programme be elaborated on developing protected areas over the period 2006-2011 aimed at helping the countries in the region develop, before 2012, a representative network of protected marine areas, in compliance with the recommendations of the Johannesburg Summit
- there be collaboration with IUCN to prepare an evaluation report on the sites included on the SPAMI List
- regional training programmes on protected area management continue to be developed, bearing in mind existing initiatives at national and international level and concentrating attention on the important plant formations the concerned areas shelter
- the sites proposed by the Meeting of National Focal Points for SPAs be included on the SPAMI List, and requests that certain SPAMIs be included as CAMPS, formulated by those Parties which so request, continue to be backed
- countries continue to be helped to improve the management of marine protected areas and to prepare and implement emergency and prevention plans for MPAs according to new data on the sites
- the partners and associates and NGOs be invited to deepen their thinking, with those who have responsibility for marine protected areas, on the sustainable programmes and directions that should make their functioning as rich as possible and make best use of protected marine areas.

Action 10. Preliminary inventories of species

10.1- Action Plan arrangements

Paragraph 8.2 of the Action Plan invites the Contracting Parties to make an inventory of their country's macrophyte species, and Paragraph 23 invites RAC/SPA to promote the countries' initiatives in making these inventories. These arrangements must be put into effect in 2002.

It also gave priority to enhancing research on plant associations, species and genetics, to get better results (Paragraph 17).

10.2- Achievements

Information given on the inventories of marine plant species that are available in Mediterranean countries is recapitulated below. It is also possible that inventories have been made of other places, on various subjects, but do not appear on the lists given below; this information should thus be completed.

Mediterranean

Many Mediterranean specialists have elaborated, from bibliographical references, inventories on the taxonomic groups of marine plants in the Mediterranean as a whole (particularly the north-western Mediterranean). These inventories have been published in the three following documents:

- Inventory of **Fucophyceae** (1992): Ribera M. A., Gomez Garreta A., Gallardo T., Cormaci M., Furnari G., Giaccone G., Checklist of Mediterranean seaweeds. I. Fucophyceae (Warming, 1884). *Botanica marina*, Allem., 35: 109-130.

- Inventory of **Chlorophyceae** (1993): Gallardo T., Gomez Garreta A., Ribera M. A., Cormaci M., Furnari G., Giaccone G., Boudouresque C. F., Checklist of Mediterranean seaweeds. II. Chlorophyceae Wille s.l. *Botanica marina*, Allem., 36: 399-421.

- Inventory of **Rhodophyceae - Ceramiales** (2001): Gomez Garreta A., Gallardo T., Ribera M. A., Cormaci M., Furnari G., Giaccone G., Boudouresque C. F., Checklist of Mediterranean seaweeds. III. Rhodophyceae Rabenh. 1. Ceramiales Oltm. *Botanica marina*, Allem., 44: 425-460.

Albania

No information

Algeria

No information

Bosnia & Herzegovina

Inventory not at present available. But a great deal of data exists (obtained in the period of the former Yugoslavia) that is probably included with that for Croatia

Cyprus

A preliminary inventory was undertaken in 1998-2000 as part of the Areas of Conservation Project, to identify potential sectors and land and marine species. This inventory was developed in 2004. Information on Cyprus's land and marine species and fauna and flora habitats are included in a database (BioCyprus)

Croatia

No information

Egypt

No information

France
As well as the data appearing in the above-mentioned inventory of taxonomic groups in the Mediterranean, several inventories have been made in different regions and places, like

- Comprehensive (animal and vegetal) inventories in the Dramond region (2004), compiled thanks to the RAMOGE Accord
- Comprehensive (animal and vegetal) inventories in the Ile Verte (2004), compiled thanks to the RAMOGE Accord

Greece
No information

Israel
The Einav R. Inventory, 2004

Italy
As well as the data appearing in the above-mentioned inventory of taxonomic groups in the Mediterranean, we should mention the inventory made in the context of Italian marine biodiversity (2003): Furnari G., Giaccone G., Cormaci M., Alonghi G., Serio D. – Marine biodiversity of Italian coast: catalogue of the macrophytobenthos. *Biol. Mar. Medit*., 10 (1).

Furthermore, several inventories have been made in different regions and places, like:

- Comprehensive (animal and vegetal) inventories in the Tino Tinetta Palmaria Islands (2001): Inventories of the protected islands included in the Portovenere National Park, compiled thanks to the RAMOGE Accord

- Comprehensive (animal and vegetal) inventories in Capo Mortola (2004), compiled thanks to the RAMOGE Accord

Lebanon
A very incomplete preliminary list was made in 1996 in the context of elaborating the Biological Diversity of Lebanon document.

An inventory of species in the Naqoura and Damour regions was made in 2004 as part of the report on activity for the conservation of marine protected areas.

Also, a preliminary list was made in 2002-2003 after sea prospections done in 6 stations, in the context of elaborating a common Lebanese-Syrian scientific programme. A plan for monitoring was started in 2004 to identify flora and fauna along the Lebanese coast

Libya
An inventory of plant species in Farwa Lagoon as part of a field trip done in 2000 and updated from January 2005

Malta
No information

Monaco
An inventory of different species in the context of a monitoring programme started from 1997: Monitoring of marine biocenoses and inventory of fauna and flora in the Principality's waters

Morocco
Inventories made in the context of elaborating a management plan for sensitive areas (2003-2004): Inventory of biodiversity in the SIBE of Jbel Moussa, the Al Hoceima National Park, the mouth of the Mouloya, the Cap des Trois Fourches, the Beni Snassen massif, Nador Lagoon and Mount Gourougou

Serbia & Montenegro
An inventory not currently available. But there is scattered data that needs to be compiled. Very old inventories (dating back to 1968) were made in some protected sectors, but they are badly-conserved and should be updated. It should be noted that the Institute of Marine Biology (IMB) has a reference collection of several marine species, among them algae.

Slovenia
No inventory available

Spain
As well as the data appearing in the above-mentioned inventory of taxonomic groups in the Mediterranean, several inventories have been made in different regions and places.

Also, a programme to elaborate a Spanish inventory of species and habitats was started in 2004 as part of the BioAtlas Project

Syria
An inventory in the protected area between Oum Toyour and Ras El Bassit (2002-2003), elaborated in the context of the management plan for the site

Tunisia
An inventory elaborated in 1987 on all the marine plant species found in Tunisia: Ben Maïz N., Boudouresque C. F., Ouahchi F. (1987) – Inventory of Tunisian algae and benthic marine phanerogams. *Gior. Bot. Ital.*, 121 (5-6): 259-304.

This inventory was updated in 1996, in the context of the National Study on Tunisian Biological Diversity (vol. III).

It is now being updated.

Furthermore, inventories of species and habitats have been made (between 1999 and 2002) in the context of the characterization studies of sensitive natural areas, in 25 dry land and marine sites

Turkey
No information.

10.3. Evaluation and analysis of results

Only a few countries have an inventory of the species of marine vegetation present on their Mediterranean coast.

Work done by countries to make inventories of species (through collecting bibliographical data, prospecting sites, and updating or enriching existing inventories) has generally dealt with given sectors or areas that are concerned by some or other programme or Action Plan. This means that few countries have gone ahead with elaborating national inventories of the macrophyte species in their region.

This realisation confirms the lack of taxonomic specialists in several Mediterranean countries, which has been stressed since the first Symposium on Marine Vegetation, which took place in October 2000.

Indeed, the lack of taxonomists was identified as being one of the main problems that explains the absence of inventories in certain regions. This shortcoming is made worse by the lack of training opportunities. This is why it was recommended that a Mediterranean strategy on taxonomy be prepared. RAC/SPA, in collaboration with an *ad hoc* group of experts, has prepared to this end a project for a Mediterranean initiative on taxonomy. This project appears in Document UNEP(DEC)/MED WG.232/12. It particularly aims at promoting the training of taxonomists at university level and setting up systems of national and/or bilateral cooperation that encourage students to specialise in taxonomy (grants, subsidies, etc.)

With this idea in mind, in December 2003 RAC/SPA co-organised with NAFRINET the North African Taxonomy Network, the first national taxonomy workshop in Tunis. The workshop produced the following results:
- evaluation of human taxonomist resources and assessment of needs
- evaluation of the state of the existing collections and assessment of needs.

These results are likely to enrich the list of specialists that appears in Annex 5.2.b.

Moreover, after the recommendation made by the Twelfth Meeting of Contracting Parties (Monaco, November 2001), certain national bodies went ahead with setting up reference collections. But there is no precise information on this subject.

10.4- Recommendations
The recommendations concerning inventories of macrophyte species deal with two aspects:
Need to develop taxonomy
The need to develop taxonomy as a back-up tool for the programme to conserve biodiversity has been stressed at world level on many occasions. As regards marine vegetation, implementing the Mediterranean Initiative on Taxonomy, undertaken by RAC/SPA, should be supported, by:

- continuing to make contacts with the concerned international organisations

- inviting the concerned universities and institutions to encourage post-graduate specialisation in taxonomy, and setting up systems of national and/or bilateral bilateral cooperation to encourage students to specialise in taxonomy (grants, subsidies, etc.)

- elaborating as quickly as possible a taxonomic guide for Mediterranean marine flora (in a first phase, the guide already brought out by Giaccone and available at RAC/SPA could be translated and circulated).

Also, it is suggested that the possibility of organising a Mediterranean workshop on reference collections of marine plant species in the Mediterranean be looked into, with the partners and specialist bodies.

Elaboration of a programme to establish national inventories on macrophyte species

Field prospections should be provided for in all coastal regions, establishing short-, medium- and long-term programmes, which should be regularly updated. For this, each Contracting Party is called on to elaborate a programme for an inventory that will cover its whole littoral, staggered over several years according to those areas which have already been prospected and those which remain to be prospected.

But, given that the information and data are usually scattered among a number of actors, it is asked to start a questionnaire with the country's scientific laboratories and bodies requesting information on:

- areas where inventories of benthic macrophytes have been made (giving the date and an observation as to whether the inventory is complete or still incomplete)
- areas where prospection of macrophytes is planned (period, context, etc.)
- availability of a collection of benthic macrophyte species
- etc.

The various programmes must be backed individually or by being integrated in wider programmes.

Thus, each Focal Point must handle all the information collected about the different inventories through an observatory, and make it available to all the users.

Action 11. Setting up marine plant monitoring networks

11.1- Action Plan arrangements

Paragraph 8.2 of the Action Plan invites the Contracting Parties to set up marine plant monitoring networks, and Paragraphs 8.3 and 23 invite RAC/SPA to promote and back these national networks. These arrangements must be put into effect in 2003.

11.2- Achievements

At regional level: At the Twelfth Meeting of the Contracting Parties (Monaco, November 2001), RAC/SPA was invited to promote monitoring of the health of meadows and circulate relevant techniques through technical handbooks and training actions, in the light of what is required for setting up this kind of monitoring network.

To this end, RAC/SPA signed an inter-Partnership agreement involving eight western Mediterranean Partner bodies to implement a project on 'Consistency, development, harmonization and validation of methods of evaluating the quality of the coastal environment by monitoring the *Posidonia oceanica* meadow', where Ifremer (France) is appointed the lead agency. As part of this project, RAC/SPA will participate in training and information activities, particularly in organising the project's closing seminar, which is aimed at releasing final products and promoting and circulating the results of the project. This project is subject to a call for proposals in the context of the Interreg IIIB Medocc Programme. The launching of the project (to last for a total 36 months) will depend on the results of the call for projects, which will be known at the end of May 2005.

Furthermore, RAC/SPA has not over the past years neglected to provide aid and assistance to those countries which so requested regarding monitoring of Posidonia meadows and awareness.

Also, as part of implementing the Action Plan on the introduction of species and invasive species in the Mediterranean Sea, which is proving to be an extremely important monitoring action for certain species, RAC/SPA started to work on the terms of reference and directives needed to set up a regional mechanism for collecting, compiling and circulating information on invasive non-native species. This mechanism should dovetail with the Mediterranean Clearing House mechanism now being developed by RAC/SPA in collaboration with the Secretariat of the Convention on Biological Diversity (CBD).

The said regional mechanism will in particular include:

- procedures for notifying the detection in the Mediterranean Sea of non-native marine species
- a database on invasive marine species (taxonomy, ecology, ecosystems or species affected, means of fighting, specialists, etc.)
- systems for circulating information on the impacts due to the introduction of species and on approaches to prevention, management and risk assessment
- a procedure for rapidly circulating information on new introductions of species
- links of cooperation and exchange with the main pertinent world or regional initiatives.

At national level: There are not many regions or countries that have been able to set up or launch networks for monitoring marine plants in the Mediterranean. The information we possess concerns the countries and regions below. It is also possible that certain countries integrate the monitoring of marine plant formations within wider monitoring networks affecting other sectors of which we are ignorant.

Algeria

- Setting up a Posidonia meadow monitoring network in the context of the MAP

France

- PACA region: a network launched in 1986, directed by GIS Posidonie, with the assistance and collaboration of the PACA Region, the Mediterranean Corsican Rhône Water Board, the Corsican Environmental Office, the DIREN (Ministry of the Environment Regional Delegations). This network basically concerns the Posidonia meadow, with various studies and field trips made. Via this network, GIS Posidonie has been able to integrate various mappings of *Posidonia* meadows and *Cystoseira* and *Lithophyllum* belts

- Corsica region: a network launched in 2003, directed by the Corsica Region Environment Office, with the assistance of GIS Posidonie and Corsica University. This network basically concerns the Posidonia meadow, with various studies and field trips being made. The monitoring network's actions are integrated within other programmes carried out by concerned parties such as: Integrated Management of Mediterranean Ecosystems (Corsica University-Ifremer), Integrated Management of the Corsican Littoral, and Monitoring of the Quality of Water and of the Marine Environment (European INTERREG III Moniqua Programme)

- The national observatory on Caulerpa expansion (*C. taxifolia* and *C. racemosa*) using the Geographic Information System (GIS) and internet (www.caulerpa.org) to handle the updated mapped elements

Greece

- No monitoring network specifically for marine vegetation; the places that are most representative for marine plants are included in the European Community's Natura 2000 ecological network

Italy

- Liguria region: an attempt to extend into Italy (Liguria region) the PACA (France) regional network, with the assistance and collaboration of the PACA region, the Liguria region, ICRAM, and the RAMOGE Accord. This network handles Posidonia monitoring. It resulted in a guide on managing marine phanerogam meadows

- Calabria region: monitoring network using Posidonia meadow scanning, launched in 2002. This network is directed by the Ministry of the Environment and the Calabria Region

- Network for monitoring *Cystoseira zoosteroides, cystoseira spinosa* var. *Compressa* and *Laminaria* spp. populations, launched in 2003 by ICRAM, with the assistance and collaboration of FiPSAS and CMAS. The network is integrated within the participation in the Topic Centre for the Study of Biodiversity and the European Environment Agency (ETC/BD)

Monaco

- Monitoring the state of the Posidonia meadow in the Larvotto Reserve, particularly as regards the invasive alga *Caulerpa taxifolia*, by GPS positioning precision scanning (autumn 2004)

Serbia & Montenegro

- Elaboration of a project for a regular monitoring programme for endangered species (*Posidonia oceanica, Zostera noltii* and *Cystoseira spinosa*) in the protected sectors

Spain

- Setting up a Posidonia meadow monitoring network in the Balearic Islands, through studies and periodical observations made by research centres

- Monitoring the action to restore the Posidonia meadows in the Almeria area and the cliffs of the Maro-Cerro Gordo marine area (Andalusia)
- A monitoring network for the invasive species *Caulerpa taxifolia* and *Caulerpa racemosa* in the Valencia region, with exploration and setting up a programme to check distribution

Tunisia

- Setting up a Posidonia monitoring network along the Zarzis coastline (southern Tunisia) (2003-2005); project backed by RAC/SPA
-
- Setting up a monitoring network for invasive species, here Caulerpa taxifolia and Caulerpa racemosa, in the context of implementing the national and regional Action Plan on the introduction of invasive species in the Mediterranean

11.3- Evaluation and analysis of results

Monitoring networks for marine vegetation in the Mediterranean are not yet well developed and are lacking for several countries and regions.

Most of the existing networks basically concern the Posidonia meadow. The most important is that of the north-western Mediterranean countries, which started in several regions several years ago, thanks to the collaboration of GIS Posidonie and the research centres with the regional bodies. Today, other bodies are supporting these networks, like the RAMOGE Accord, ICRAM, etc.

These networks have the advantage of integrating various environmental aspects and also being themselves integrated within various regional and national programmes.

As well as the north-western coast of the Mediterranean, we should mention the setting up or launching of *Posidonia* meadow monitoring networks in some countries like Tunisia and Algeria, with the implementing of the Action Plan for the Conservation of Marine Vegetation.

As well as for the *Posidonia* meadow, other monitoring networks have been, or are on the point of being, set up, like the network for monitoring *Cystoseira* and *Laminaria* populations, launched in 2003 in Italy by ICRAM.

With the appearance and progression of invasive species in the Mediterranean, particularly *Caulerpa taxifolia*, some countries have set up monitoring networks on the invasion by this species and neighbouring species, while others are just starting prospection studies.

It should be noticed that certain monitoring actions and observations done by various national laboratories are not integrated within the monitoring and supervision process and are thus often unknown as elements of a monitoring network.

11.4- Recommendations

Monitoring networks require coordination and a short-, medium- and long-term strategy. This means, first and foremost:

- coordinating national and regional Action Plans and enhancing exchange of information, by setting up a suitable data circulation mechanism

The Mediterranean Clearing House Mechanism, or exchange centre, (CHM), where RAC/SPA must act as catalyst, organizer and coordinator, will be a very important element for improving exchange of the networks' various activities at national and regional levels

- integrating, as far as possible, the maximum number of actions and activities of the various national laboratories in processes of observation, follow-up and monitoring.

Furthermore, use of the Geographic Information System should be developed for managing and circulating data on marine vegetation from monitoring networks in the Mediterranean.

To encourage countries to develop their own monitoring networks, they must be financially backed and assisted (particularly those which do not yet have a network) through the cooperation and experience of those countries and bodies that do have experience.

Action 12. Mapping meadows and other plant formations that are significant for the marine environment

12.1- Action Plan arrangements

The Action Plan gives great importance to mapping meadows and other important plant formations. Thus, Paragraph 8.2 invites the Contracting Parties to start making detailed maps of meadows, and Paragraphs 8.3 and 23 invite RAC/SPA to strengthen cooperation and the exchange of experiences to attain this objective. These arrangements must be put into effect in 2006.

It is moreover recommended in Paragraph 15 that maps showing the distribution of the main meadows in each country be published and circulated to the actors on the littoral (town councils, people in industry and tourism, fishermen, etc.) so that development outlines take them into consideration.

12.2- Achievements

At regional level: RAC/SPA, on the recommendations made by the Contracting Parties (Monaco, November 2001), elaborated a request for funding to aid and assist countries to start mapping actions, because of the great amount of meadow mapping work and the technical skill required, which means that only a few Mediterranean countries are able to do this without outside help.

The mapping issue was then gone into very deeply at the First Meeting of Action Plan Associates (April 2002), which led to the forming of a work group to standardize and bring up to the norms symbols for mapping marine vegetation in the Mediterranean, and looking into possibilities of direct assistance to Mediterranean countries for mapping meadows.

Then RAC/SPA elaborated guidelines for elaborating Posidonia meadow mapping projects, in order to help Mediterranean countries comply with the aims of the Action Plan, particularly the one recommending that they map meadows and all other plant formations that are significant for the marine environment.

Furthermore, a training workshop on techniques for mapping Posidonia meadows was organised at Vibo Valentia, Italy, from 28 September to 5 October 2003, in order to enhance the various Mediterranean countries' capacities in this matter. This training course took place thanks to the technical help provided by the Nautilus Cooperative Company (Action Plan Partner). Seven participants from four Mediterranean countries (Albania, Cyprus, Greece and Tunisia) were given this practical training, in which they were in particular trained in modern seabed mapping techniques (ROV, side scan sonar, multi-beam echo sounder, etc.)

At national level: Several projects for mapping Posidonia meadows were done or started by various Mediterranean countries. RAC/SPA gave assistance to those countries that so requested. The projects carried out mainly concerned the following countries and areas:

Albania

- Diving exploration in the main Albanian ports and pilot mapping of Posidonia meadows in Saranda Bay and the Durres region; an (ongoing) project funded by FEM/small programmes; carried out with the help of RAC/SPA, through a mapping expert who gave local experts technical and scientific advice on methods and methodologies of mapping Posidonia meadows, in collaboration with an expert from Pisa University

France

- Mapping *Posidonia oceanica* meadows in the No-Sampling Zones in the Bouches de Bonifacio International Marine Park (southern Corsica). The mapping was done in 2003-4 by image processing from aerial photographs and field data. The

project is carried out by the Littoral Ecosystems Team at Corsica University, and funded by the Corsican Environment Office, Collectivité Territoriale (autonomous region) of Corsica

- Mapping *Posidonia oceanica* meadows along the entire coastline of Corsica (0 to -40 metres) using aerial photographs and side scan sonar, then a synthesis of image processing and GIS. This programme was launched in 1995; it is being carried out by Corsica University and GIS Posidonie and funded by the Corsican Environment Office, the Mediterranean Corsican Rhône Water Board, the STRIDE European programme

- Elaborating a Guide mapping the *Posidonia* meadow, produced on the basis of 2 demonstration areas (Côte Bleue and St Cyr sur Mer) – Ifremer, 2002-2003

Greece

- Study of mapping *Posidonia* meadows in the Zakynthos National Park (2003), done with the assistance of RAC/SPA, in collaboration with the Littoral Ecosystems Team at Corsica University

Italy

- Mapping *Posidonia* meadows and *Cymodoceae* prairies in the Sardinia region (in 2000), done by Nautilus and funded by the Ministry of the Environment

- Mapping *Posidonia* meadows in the Puglia region (starting from 2004), done by Nautilus and funded by the Puglia region

Libya

- Mapping the main plant formations in Farwa Lagoon (June 2000), supported by RAC/SPA, with the participation of seven Libyan scientists (from the National Authority for the Environment and the Marine Biology Research Centre), two consultants and one expert from RAC/SPA

Slovenia

- Mapping the *Posidonia* meadows that exist in territorial waters (Koper-Zusterna area) and carrying out a national campaign of awareness of the interest of these meadows (2003), organised with the assistance of RAC/SPA, in collaboration with the Principality of Monaco

Tunisia

- Mapping the *Posidonia* meadows and other plant formations that are of ecological importance in the Kerkennah Islands, in the context of the Mediterranean Action Plan, with the assistance of RAC/SPA. The information collected in the field (in June 2000) was used to produce maps of the main populations in the area of study. Four national experts participated in the field trip, which was supplemented by an assignment at Alicante University, Spain, to do the necessary laboratory work. The products of this activity will be used by the concerned Tunisian authorities to back up their project of creating a marine protected area in the Kerkennah Islands.

- A prospecting study of *Posidonia* meadows in three sites: Monastir Bay, Sidi Rais and Kerkennah (in 2002), done with the assistance of RAC/SPA.

12.3- Evaluation and analysis of results

Unlike the other actions, the assignments regarding mapping meadows and plant formations that are significant for the marine environment were launched sooner than expected in the Action Plan. These initiatives were explained in several countries by their decision-makers' awareness of the importance and role of Posidonia meadows in maintaining balanced marine and coastal ecosystems. Thus, several actions in the marine field integrated a meadow mapping element.

Certainly, the areas so far mapped are insignificant compared to the extent of the meadows in the Mediterranean, but the fact of launching these procedures should encourage countries and scientists to pursue their work and cover the maximum amount of coastal areas.

The issue of standardizing and bringing up to the norms prospection methods and representation maps, on which experts and partners are working, should not only facilitate achievements and interpretations, but also encourage rapid decision-making.

Circulating maps of the distribution of the main meadows in each country to the actors on the coast (town councils, people working in industry and tourism, fishermen, etc.) must make them aware of the need to take these plant formations into account in development programmes.

12.4- Recommendations

- Continue to develop training courses on methods of mapping meadows and marine plant formations (use of aerial and satellite imaging, use of GIS, etc.)

- Help standardize and bring up to the norms symbols for mapping marine vegetation in the Mediterranean and look into possible direct assistance to Mediterranean countries for mapping meadows

- Make sure maps of the main meadows in each country are circulated and distributed to the actors on the coast (town councils, people working in industry and tourism, fishermen, etc.) so that development programmes take them into account

- Continue to give technical and financial backing to mapping assignments in countries which lack means, to be able to cover as many sites of ecological importance as possible. Countries which have not so far mapped their meadows must be invited to plan for these assignments as soon as possible

CONCLUSION

Evaluation of the implementing of the Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea enabled the progress made in achieving each action planned for in the execution schedule to be highlighted, and the value of these achievements to be analysed with regard to the arrangements in the said Action Plan.

With a few exceptions, the activities completed or started at regional level usually comply with the Action Plan. RAC/SPA has carried out all the required tasks in accordance with the Action Plan timetable, according to the objectives and priorities that were decided on.

However, at national level much remains to be done, although considerable effort has been made by a certain number of countries. The delays and shortcomings noted for some countries which had not completed several actions are due to various constraints, including:

- elaboration of an integrated planning strategy in national programmes
- insufficient political backing
- lack of public interest
- conflicts of interest between certain departments or sectors
- lack of coordination between the various institutions involved
- lack of bodies and staff working constantly on the subjects
- lack of specialists in the field and insufficient training on pertinent subjects
- absence of funding or restrained budgetary reserves leading to certain actions' not being carried out or being partially completed.

A summary of the evaluation made is given in the Table appended, with a suggestion for recommendations for future activities concerning each action.

These future activities concern the remaining year 2006 and the following years starting from 2007, for which a new execution schedule must be made, based on the suggestions made for each action, and according to the predispositions of the Contracting Parties.

Indeed, they are called on to establish a schedule enabling them to take in the most practical way the necessary steps to successfully complete, within the prescribed time, the activities anticipated, or to be provided for, by the execution schedule of the Action Plan for the Conservation of Marine Vegetation.

At the same time, RAC/SPA is called on to give maximum support and to assist those countries which so request to carry out the activities that are part of the Action Plan for the Conservation of Marine Vegetation.

N.B. The achievements mentioned in the present Report were based on information appearing in the RAC/SPA activities reports, the national reports handed in by the Contracting Parties, and the answers to the questionnaires sent to the National Focal Points for SPAs and to the Action Plan Associates and Partners. Thus, if data is lacking, it should be added to.

Table summarising the Evaluation Report on the Implementation of the Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea

Execution schedule		Achievements/Evaluation	Remarks/Recommendations
Action	**Deadline**		
1/ Ratifying the new SPA Protocol	In the shortest possible time	The Protocol came into force in December 2002. But some parties have not yet ratified it	Invite those parties that have not yet signed the new Protocol to do so as quickly as possible
2/ Mediterranean symposium	1st symposium before November 2001, then every four years	Two symposiums held: the first in compliance with the date provided for by the Action Plan; the second was brought forward to 2003 instead of 2004 on the recommendation of the specialists. The two symposiums were very successful and allowed many objectives of interest for actions to conserve marine vegetation in the Mediterranean to be attained	-Organise a symposium every three years starting with 2006 -Follow up the recommendations after every symposium
3/ Guidelines for impact studies	October 2000	Guidelines were elaborated and adopted in 2001. The document is a valuable tool and should help towards the management and conservation of the main marine plant formations, and, especially, provide decision-makers with elements for making assessments. Moreover, it draws attention to the absence of accreditation for people or bodies likely to carry out impact studies, which may reduce the efficacity of the impact procedure	For them to be applicable, the guidelines must be supplemented by other actions starting from 2007, as suggested in Paragraph 3.4 of the present document
4/ First version of the Mediterranean data bank	October 2000	First version of the data base elaborated within the deadline set by the Action Plan schedule, and then revised in 2002. But this version is deemed incomplete compared to the references several Mediterranean laboratories hold	-Continue to develop and improve the first data base, starting from 2007 or if possible before this -Form a steering committee bringing together those Associates and Partners that already have their own data banks -Set up a mechanism for collecting and updating data

5/ First issue of the Directory of specialists, laboratories and organisations concerned by marine vegetation in the Mediterranean	October 2000	First version of the Directory of Specialists elaborated in 2000 and then revised in 2002. As for the laboratories and organisations concerned by marine vegetation in the Mediterranean, a Directory as such was not established, but at least 8 valuable Partners were recorded as joining the Action Plan who themselves have collaborators. The advantage offered by these Associates and Partners is stressed at many levels. Furthermore, the lack of associated bodies in many countries was noted, which may be a handicap in the concerned countries	-The list of specialists should be completed before the end of 2006 -Plan for enriching in terms of specialisation and continual updating starting from 2007 -Establish before the end of 2006 the Directory of institutions concerned by marine vegetation, with precise information on specialisations, in consultation with Associates and Partners -Widen the list of Associates and Partners starting from 2007
6/ Launching procedures for giving national legal protection to species	Some time in 2001	Preparation by RAC/SPA of a document of guidelines to encourage countries to set up and/or improve their national legislation on endangered or threatened species. But several countries have not yet introduced direct legal protection measures for marine plant species, although these could be protected via protocols or conventions concerning the areas which shelter such species, or activities likely to affect them	-Invite the countries to start legal protection measures as soon as possible -Enhance the steps taken by countries that have already started on legal protection measures -Prepare guidelines aiming at harmonizing legislation in order to guide countries' work in the field of conservation of plant species at national level (before end of 2008)
7/ Elaborating national plans	2001-2002	Most of the national plans for the conservation of marine vegetation could only be elaborated once the SAP BIO Project was implemented in 2003. Selected suggestions on aquatic flora by certain countries are directed towards appropriate measures according to each region's specific features and priorities. The various plans scheduled are likely to make the conservation actions on marine vegetation carried out in the concerned countries more obvious and efficacious	Follow the recommendations mentioned in Paragraph 7.4 of the present document, particularly those dealing with - assistance for action plans directly linked to marine vegetation - from 2006 on, planning short-, medium- and long-term actions according to the priorities of the countries and regions
8/ Inventorying marine meadows and plant formations that can be considered as	Some time 2002	The work done at regional level to prepare a technical tool for the inventories (SDF) and provide countries and users with practical guides enabling them to identify and to assess the state of conservation of marine habitats, was of great help in encouraging countries to go ahead with prospecting several sectors and providing reliable data on the	-Continue to help countries carry out case studies on inventories of natural sites of conservation interest, using the SDF (in 2006-8) -Continuously develop and organise

natural monuments		distribution and state of the main plant formations in their areas. The SDF is deemed to be a valuable element which also offers the advantage of presenting standardized data directed to helping monitoring and management. The training courses organised were beneficial for helping fill in this technical tool efficaciously. It should also be noticed that some of the inventories are still incomplete and need to be gradually enriched.	training courses on the use of the SDF in several countries to make filling in data on the form easy and automatic -Harmonize the SDF with all the other inventory systems used (before the end of 2006)
9/ Elaborating management plans for protected areas	Some time 2002	Elaboration of management plans for marine protected areas (MPAs) only developed well starting from 2002, with the MedMPA Project. 15 countries benefitted from actions on marine protected areas: organisation of at least 8 training courses, elaboration of 6 MPA management plans and 2 national MPA development plans, elaboration of guidelines and technical tools for MPAs, and assistance and technical support for developing SPAMIs in some countries. Also, the revival of the MedPAN Project, the guidelines and technical tools already prepared, the Directory of MPA managers now being prepared, the specific training activities, etc. should be important incentives for helping the managers and authorities responsible for protected areas to better conserve natural sites and the species they shelter	Elaborating and implementing management plans for marine protected areas are actions which require long-drawn-out effort. It is thus necessary to pursue these actions according to countries' predispositions, taking into account the recommendations mentioned in Paragraph 9.4 of the present document, particularly those dealing with elaborating a work programme on developing protected areas over the period 2006-2011, and aiming at helping the countries of the region to develop, before 2012, a representative network of marine protected areas in compliance with the recommendations of the Johannesburg Summit
10/ Preliminary inventory of species	Some time 2002	Only a few countries have an inventory of the marine plant species present on their Mediterranean coast. Work done by the countries to establish inventories of species has usually focused on given sectors or areas concerned by one or other action plan or programme. This means that few countries have gone ahead with elaborating national inventories of the macrophytes in their region. The lack of taxonomists and training opportunities was identified as one of the main problems explaining the absence of inventories in certain regions. To this end, RAC/SPA has prepared a project for a Mediterranean Initiative on Taxonomy, which aims at the long-term promoting and developing of taxonomy	The recommendations concerning inventories of macrophyte species deal with two aspects whose actions must be planned for the short, medium and long term, according to priorities, from 2006 on: -the need to develop taxonomy -the elaboration of a programme for producing national inventories on macrophyte species. The actions suggested for both aspects are mentioned in Paragraph 10.4 of the present document
11/ Setting up networks for	Some time 2003	Networks for monitoring marine vegetation in the Mediterranean are still not well developed, and are lacking as regards several countries and	Monitoring networks require coordination and a short-, medium- and long-term

monitoring marine vegetation		regions. Most of the existing networks deal with the *Posidonia* meadow and concern the countries of the western Mediterranean. *Posidonia* meadow monitoring networks have been set up or launched in other countries, like Tunisia and Algeria. Other monitoring networks have been set up, like the network for monitoring *Cystoseira* and *Laminaria* populations, launched in 2003 in Italy. With the appearance and advance of invasive species in the Mediterranean, particularly *Caulerpa taxifolia*, some countries have launched monitoring networks regarding the invasion by this species and neighbouring species, while others have just started doing prospection studies	strategy that must be planned from 2006 and set up from 2007, in each case. RAC/SPA's initiatives, particularly signing an inter-Partner convention, should revive and support processes of setting up marine plant monitoring networks on a national and regional scale. Moreover, use should be developed of the Geographic Information System for managing and circulating data on marine vegetation stored in monitoring networks in the Mediterranean
12/ Mapping meadows and other plant formations that are significant for the marine environment	Some time 2006	Assignments on mapping meadows and plant formations that are significant for the marine environment have been started earlier than was expected by the Action Plan. These initiatives were caused in various countries by the decision-makers' awareness of the importance and role of *Posidonia* meadows in maintaining balanced marine and coastal ecosystems. This means that many actions in the marine field have integrated a meadow mapping element. However, to this day the mapped areas remain insignificant compared to the size of the meadows in the Mediterranean, but the fact of launching procedures should encourage countries and scientists to pursue these actions. Experts and partners are working on the issue of standardizing and bringing up to the norms prospection methods and representation maps, which should not only facilitate achievements and interpretations, but also be an incentive for rapid decision-making	-Continue and develop training courses on methods of mapping meadows and marine plant formations (a course every 2 years) -Help standardize and bring up to the norms symbols for mapping the marine vegetation in the Mediterranean, and look into possibilities of direct assistance to Mediterranean countries for mapping meadows -From 2007, make sure maps of the main meadows are circulated and distributed at national and regional level -Continue to give technical and financial backing to mapping assignments in countries which do not have the means, to cover the most sites possible

ANNEXES

Annex 2.2.a

Summary of round table debates from the First Symposium on Marine Vegetation in the Mediterranean

(Ajaccio, 3 and 4 October 2000)

Rapport du Premier Symposium Méditerranéen sur la Végétation Marine 3 - 4 octobre 2000, Ajaccio (Corse, France)

Introduction :

Le Plan d'Action pour la Conservation de la Végétation Marine en Mer Méditerranée a été adopté par les Parties contractantes, en octobre 1999, en vue de faire face à la régression des herbiers marins constatée dans plusieurs pays de la région et d'éviter le déclin des espèces végétales marines. Dans le cadre dudit Plan d'Action, le Centre d'Activités Régionales pour les Aires Spécialement Protégées (CAR/ASP) a organisé le Premier Symposium Méditerranéen sur la Végétation Marine les 3 et 4 octobre 2000 à Ajaccio (Corse, France).

Déroulement des travaux :

Considérant la courte durée du Symposium, les présentations ont été réalisées sous la forme de posters, chacun étant soutenu par un article de une à quatre pages et préparé selon les indications envoyées par les organisateurs aux auteurs. Plusieurs sessions posters ont été prévues dans le déroulement du Symposium, ainsi que des tables rondes visant à faire une évaluation rapide de la situation actuelle et à faire le point sur un certain nombre de questions et d'outils pertinents pour la mise en œuvre du Plan d'Action.

Tables rondes :

***Table ronde 1 :* « Taxinomie et taxonomistes»**
Chairman: R. Semroud
Rapporteur : S. Boumaza

Les débats ont largement souligné le manque accru de taxonomistes de façon générale, ainsi que l'absence de documents descriptifs de la flore méditerranéenne pouvant être utilisés dans la mise en œuvre du Plan d'Action. Aussi les points suivants ont-ils été recommandés.

Recommandations :

- Elaborer un répertoire descriptif de la flore méditerranéenne présenté sous la forme de fiches.

- Rajouter les espèces ou groupes d'espèces objet de spécialité de chacun des experts figurant dans le répertoire des experts méditerranéens en végétation marine.

- Organiser des sessions de formation en systématique.

Table ronde 2 : **« Végétation marine et gestion des zones côtières (impact, cartographie, base de données) »**
Chairman : G. Pergent
Rapporteur : C. Pergent-Martin

De l'avis général, il ressort qu'un large éventail de méthodes de cartographie peut être actuellement utilisé ce qui conduirait à une disparité des travaux. De même il est à noter que différents travaux ont déjà été réalisés ou sont en cours de réalisation. Dès lors il apparaît nécessaire d'uniformiser les méthodes ainsi que la présentation des résultats.

Recommandations :

- Standardiser les méthodes d'études cartographiques. Cependant, il convient de commencer essentiellement par généraliser l'utilisation de techniques identiques, pouvant être simples mais ayant fait leur preuve.
Définir, ensuite, des méthodes faciles à mettre en œuvre, dont le coût permettra leur utilisation par tous.

- Rechercher et mettre au point de nouveaux outils de cartographie pour les structures profondes.

- Etablir des fiches pratiques sur les méthodes de cartographie qui seraient mises à disposition sur le site web du CAR/ASP. En terme de méthodes, il a été aussi convenu de réfléchir sur des techniques non destructives pouvant être appliquées dans des aires spécialement protégées.

- Constituer un groupe de travail (Grèce, Italie) pour mettre au point une liste de trames ou de couleurs standards à utiliser pour les peuplements végétaux méditerranéens utilisables avec divers software.

- Faire circuler la liste de trames, ainsi mise au point, auprès des différents participants pour être discutée, validée et adoptée assez rapidement. Il sera nécessaire ensuite de la mettre sur le site web du CAR/ASP pour utilisation et diffusion.

- Adjoindre quelques éléments complémentaires au niveau du Formulaire Standard des Données, notamment en ce qui concerne le problème des accumulations de litière en lagune.

- Mettre en place un forum sur le site web du CAR/ASP, sur les espèces rares.

- Hiérarchiser les données - s'avérant de plus en plus nombreuses - afin d'en permettre un meilleur accès.

- Organiser des sessions de formation aux techniques de terrains sur des sites ateliers, ainsi que des missions pluridisciplinaires et ceci à la demande des pays intéressés.

Table ronde 3 : **« Suggestions pour considérer d'autres espèces et peuplements comme prioritaires dans la mise en œuvre du Plan d'Action»**
Chairman : G. Relin
Rapporteur : A. Djellouli

- En ce qui concerne les « Habitats » :
De l'avis général, il ressort que les listes ainsi que les critères de sélection pour les habitats, tels que déjà définis, sont prêts. Ces listes sont objectives et suffisamment discutées, toutefois elles doivent rester dynamiques et évolutives. Il faudrait cependant rajouter au Plan d'Action :
  - Les fonds à maërl et d'une façon générale les bioconstructions calcaires ;
  - Les habitats à *Cystoseira* ssp. .

- Pour les espèces :
Trois (3) critères de sélection ont été retenus :
  - Espèces édificatrices d'habitats ;
  - Espèces vulnérables ;
  - Espèces endémiques ou rares.

Recommandations :

- Suite à la discussion relative à la présence de *Caulerpa olivierii* sur la liste du Plan d'Action, il a été convenu de maintenir cette espèce dans la liste.

- Concernant les espèces qu'il faudrait rajouter à la liste du Plan d'Action, deux cas ont été particulièrement discutés :
  - *Penicellus*, la conclusion des débats est de ne pas rajouter cette espèce à la liste.
  - *Cymodocea nodosa*, pour cette dernière il a été proposé de créer un groupe de travail afin de statuer sur son cas.

- Les problèmes de synonymies pour certaines espèces et en particulier pour *Goniolithon bysseoïdes* et *Lithophyllum lichenoïdes*, pour ces derniers cas, il a été retenu que :

- ***Goniolithon bysseoïdes*** devient : ***Lithophyllum trocanter auctorum*** ;
- ***Lithophyllum lichenoïdes*** devient ***Lithophyllum tortuosum auctorum***.

A la clôture, des débats il a été convenu d'effectuer une table ronde supplémentaire afin de discuter la liste des espèces ainsi que le cas particulier de *Cymodocea nodosa*.

Annex 2.2.b

Programme and round table debates from the Second Symposium on Marine Vegetation in the Mediterranean

(Athens, 12 and 13 December 2003)

Programme des Nations Unies pour l'environnement

Plan d'Action pour la Méditerranée

Centre d'Activités Régionales pour les Aires Spécialement protégées

Rapport de mission

Mission N°: 66/2003	**Nom:** Souha EL ASMI	**Mission à:** Athènes(Grèce)
Dates (y compris les jours de voyage) **du :** 09/12/03 **au:** 14/09/03		

Objectifs de la mission

Organiser la Troisième Réunion de Coordination du Projet MedMPA (Athènes, 11 décembre 2003) et organiser le Deuxième Symposium Méditerranéen sur la Végétation Marine (Athènes, 12-13 décembre 2003). L'ordre du jour la réunion et le programme du symposium sont respectivement joints en annexes 1 et 2 au présent rapport.

Résumé et Résultats:

La première journée de mission, nous avons eu à visiter l'Unité de Coordination du PAM où se passera la réunion de coordination et l'Institut Océanographique de l'Institut National de Recherche Marine Grec (NCMR) où se déroulera le symposium. Nous avons aussi eu le temps de faire dupliquer les documents à distribuer pendant le Symposium (la liste provisoire des participants, les résumés des communications et posters, les présentations introductives, etc.).

Profitant de l'inscription au Deuxième symposium méditerranéen de plusieurs scientifiques impliqués dans le projet MedMPA, une réunion de coordination des activités du projet MedMPA a été organisée à la marge de celui-ci. La réunion s'est déroulée dans la salle de réunion de l'Unité de Coordination du PAM, la journée du jeudi 11 décembre 2003.

Date: 22/12/03	**Signature :**.....

Résumé et Résultats (suite):

Mme Tatjana HEMA a ouvert la réunion en souhaitant la bienvenue aux participants. Elle a mis l'accent dans son allocution sur l'importance de ce genre de projets dans la promotion de la gestion des aires marines protégées méditerranéennes et sur la nécessité de dupliquer ce projet pour d'autres pays et pour d'autres sites marins et côtiers protégés.

Ensuite, c'est M. Chedly RAIS qui a eu à faire une présentation générale du projet MedMPA depuis sa phase de conception jusqu'aux étapes actuelles de sa mise en œuvre.

La réunion a aussi enregistré la présence de M. Erkki SIIRILA de l'Unité Régionale de Gestion et de Soutien (RMSU) du Programme Régional Euro-Méditerranéen pour l'Environnement. M. Sirilla a présenté à la réunion les principales conclusions (points forts et points faibles) du suivi qu'il avait effectué concernant les projets bénéficiant d'un financement SMAP.

Suite à cela les scientifiques qui ont pris part aux différentes missions de terrain ont présenté les principaux résultats qui ont émané de leurs prospections.

Suite à cette séance plénière, la réunion a été subdivisée en plusieurs groupes de travail regroupant les différents intervenants pour chaque activité du projet. Ces groupes de travails ont eu l'opportunité de continuer leurs réunions de mise au point même pendant les jours suivants (12 et 13 décembre).

Le Deuxième Symposium Méditerranéen sur la Végétation Marine a été ouvert le matin du vendredi 12 décembre 2004 à 9h00 par M. Saverio CIVILI représentant du PAM qui a prononcé une allocution de bienvenue dans laquelle il avait souligné les efforts que mène le PAM notamment à travers le CAR/ASP dans la sauvegarde de la biodiversité marine méditerranéenne. Il avait profité de l'occasion de la présence d'un grand nombre de scientifiques méditerranéens pour présenter le Projet PAS-Bio et donner un aperçu sur ses enjeux, ses grandes orientations et objectifs.

Par la suite c'était M. V. PAPATHANASSIOU, Directeur de l'Institut Océanographique du NCMR, qui avait souhaité la bienvenue aux participants et qui s'est montré réjoui du taux de participation des scientifiques méditerranéens à ce symposium.

Résumé et Résultats (suite):

Plus de soixante spécialistes méditerranéens en végétation marine ont pris part aux travaux du symposium. Le Symposium a compté trois séances de travail sur les thèmes suivants :(i) Biologie, écologie et inventaires des espèces et des communautés, (ii) Cartographie de la distribution de la végétation marine et (iii) Impacts anthropiques sur la végétation marine méditerranéenne (Voir programme ci-joint).

Le Symposium a enregistré la présentation de 24 communications orales et la présentation de 15 posters. Les sessions ont toujours été ouvertes par des présentations introductives sur le thème la session, données par de prestigieux scientifiques méditerranéens (Prof. G. GIACCONE et Prof. C.F. BOUDOURESQUE).

Le symposium a aussi enregistré des présentations données en marge du symposium sur “L’Accord RA.MO.GE” et sur “L’impact des espèces envahissantes d’herbivores de la Mer Rouge sur le réseau trophique en Méditerranée orientale”.

La liste des communications et posters donnés lors du symposium est jointe en annexe 3 au présent rapport de mission.

Le Programme du Symposium étant très dense, les groupes de travail qui étaient supposés se réunir pour discuter des outils taxonomiques ont été obligés de se réunir pendant la pause-déjeuner de la journée du 13 décembre.

Les travaux du symposium ainsi que son organisation avaient été, à l’avis de tous les participants, très concluants. Les spécialistes méditerranéens présents se sont félicités du niveau appréciable des communications.

Tout le monde avait en outre souhaité perpétuer la tradition du “Symposium Méditerranéen sur la Végétation Marine”, mais surtout écourter la fréquence de son organisation de 4 ans à 3 ans.

Activités de suivi et Recommandations:

- Poursuivre la collecte des versions finales des articles des communications et des résumés des posters présentés lors du symposium en vue de publier les "Actes du Deuxième Symposium Méditerranéen sur la Végétation Marine".

- Finaliser les recommandations des séances et tables rondes tenues lors du Symposium par échange de courrier électronique avec les rapporteurs et présidents de chaque table ronde.

- Mettre à jour le calendrier des activités du Projet MedMPA pour la dernière année du projet (qui débutera le 1er février 2004), pour la soumettre pour approbation par la Commission Européenne.

Annexe 1

Regional Project for the Development of Marine and Coastal Protected Areas in the Mediterranean Region **(MedMPA)**

THIRD COORDINATION MEETING
(Athens, 11 December 2003)

AGENDA

09.30 – 10.00: Opening session
Welcome speech by Ms Tatjana Hema(UNEP/MEDU)
General presentation by RAC/SPA

10.00 – 10.30: Project sustainability issues, with special emphasis on marine parks by Mr Erkki SIIRILA (Regional Management and Support Unit Regional Euro-Mediterranean Programme for the Environment)

10.30 – 13.00: Presentations about the field surveys carried out within the framework of the MedMPA Project

13.00 – 14.30: Break for Lunch

14.30 – 17.00: Working groups
(Harmonisation and further elaboration of the collected data & coordination of the forthcoming field activities of the Project. The working groups met also on 12 an 13 December).

List of participants:
ARGYROU, Marina (Cyprus)
BENHISSOUNE, Saïd (Morocco)
BITAR, Ghazi (RAC/SPA consultant)
DEBONO, Sarah (Malta)
DUPUY DE LA GRANDRIVE, Renaud (ATEN)
EL ASMI, Souha (RAC/SPA)
FOULQUIE, Mathieu (ATEN)
GOREN, Menachem (Israel)
HEMA, Tatjana (UNEP/MEDU)
IBRAHIM, Amir (Syrian Arab Republic)
ORTAL, Reuven (Israel)
RAIS, Chedly (RAC/SPA)
RAMOS, Alfonso (UBM)
SIIRILA, Erkki (RMSU)

Second Mediterranean Symposium on Marine Vegetation
Athens, 12-13 December 2003

PROGRAMME

Friday 12 December 2003

09:00 Opening Session
- Welcome speeches:
  V. PAPATHANASSIOU (Director of NCMR)
  S. CIVILI (UNEP/MAP Coordinating Unit)
- Presentation on the "Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea" and on the "Symposium Programme" by C. RAIS (RAC/SPA)

09:30 – 13:00 Session 2: Biology, Ecology and Inventories of species and assemblages (Chairperson: G. GIACCONE)
- Keynote speech on "Floristic similarity and discontinuity in phytogeographic Mediterranean regions" (G. GIACCONE, FURNARI G. & MARIO C.)
- Oral presentation session

✍✍ New records along the Apulian coasts (BOTTALICO A., DELLE FOGLIE C.I. & PERRONE C.)

✍✍ Mollusques ascoglosses associés aux peuplements de Caulerpa racemosa en Tunisie: espèces observées et description des effets trophiques (DJELLOULI A.S., LANGAR H. & EL ABED A.)

✍✍ Contribute to the knowledge of macroalgal biodiversity of the Ligurian coast (MANGIALAJO L., BARBERIS G. & CATTANEO-VIETTI R.)

Discussion

✍✍ Decadal variability in the timing and magnitude of Posidonia oceanica production at regional scale (BUIA M.C., GUALA I., FLAGELLA M., FLAGELLA S., CIGLIANO M.M. & GRAVINA T.)

✍✍ The situation of Caulerpa species around Turkish Coasts (CIRIK S. & AKÇALI B.)

Discussion

✍✍ Interactions entre l'herbier à Posidonia oceanica et l'hydrodynamisme au sein de la baie de Monastir (Tunisie orientale) (EL ASMI-DJELLOULI Z., DJELLOULI A.S., PERGENT-MARTINI C., PERGENT G., ABDELJAOUED S. & EL ABED A.)

✍✍ Caulerpa taxifolia : Situation connue en Tunisie au 31 juillet 2003 (LANGAR H., DJELLOULI A.S. & EL ABED A.)

✍✍ Apparition de la phanérogame Halophila stipulacea dans le golfe de Gabès (Tunisie) (MISSAOUI H., MAHJOUB M.S. & CHALGHAF M.)

Discussion

13:00 – 14:30 Lunch breack

14:30 – 14:45 "The RA.MO.GE Agreement" (F. PLATINI)

14:45 – 17:00 Session 3: Mapping marine vegetation distribution (Chairperson: C.F. BOUDOURESQUE)
- Keynote speech on "Mapping marine vegetation distribution: An overview" (BOUDOURESQUE C.F., LERICHE A., BERNARD G. & BONHOMME P.)
- Oral presentation session

✍✍ La cartographie des herbiers à Posidonia oceanica en Italie (CINELLI F., ACUNTO S., BALATA D. & PIAZZI L.)

✍✍ Cartographie du récif-barrière de posidonies de la baie de Sidi Raïs (côtes nord-orientales de la Tunisie) (EL ASMI S., RAIS C., ROMDHANE M.S. & EL HERRY S.)

Discussion

✍✍ Biocénoses du Parc National de Port-Cros: cartographie et proposition de gestion par SIG (BELSHER T.)

✍✍ Observations on the structure of Cystoseira communities along a gulf of Northeastern Mediterranean (central Aegean Sea, Greece) (VARKITZI I., PANAYOTIDIS P. & MONTESANTO B.)

✍✍ Assessment of coastal environmental quality based on littoral community cartography: methodological approach (TORRAS X., PINEDO S., GARCIA M. MANGIALAJO L. & BALLESTEROS E.)

Discussion

17:15 – 18:45 Roundtable 1: Standardisation of mapping techniques (Chairperson: G. PERGENT)

Saturday 13 December 2003

09:00 – 13:00 Session 4: Anthropogenic Impacts on Mediterranean marine vegetation (Chairperson: R. SEMROUD)
- Keynote speech on "Anthropogenic impacts on marine vegetation in the Mediterranean" (C.F. BOUDOURESQUE)
- Oral presentation session

✍✍ Caractérisation de l'état de l'herbier à Posidonia oceanica du Nord-est des îles Kerkennah (Tunisie) (EL HERRY S., ROMDHANE M.S., RAIS C. & BEN REJEB JENHANI A.)

✍✍ Biomonitoring of environmental metallic contamination (LAFABRIE C., ANDRAL B., FERRAT L., LEONI V., PERGENT-MARTINI C. & SAUZADE D.)

✍✍ Caractérisation des herbiers à Posidonia oceanica dans le Parc Marin National de Zakynthos (Grèce) (PERGENT G., OUERGHI A., PASQUALINI V., PERGENT-MARTINI C., SKOUFAS G., SOURBES L. & TSIRIKA A.)

Discussion

✍✍ Macroalgal assemblages in the Gulf of Naples: Spatial variability in relation to anthropogenic disturbance (GUALA I., ESPOSITO A. & BUIA M.C.)

✍✍ Marine benthic macrophytes as bioindicators of eutrophication in selected Eastern Macedonian and Thrace lagoons, North Greece (ORFANIDIS S., TSIAGGA E., STAMATIS N.)

✍✍ Phytobenthos as a Quality Element for the ecological Status Evaluation: a case study of the implementation of the Water Frame Directive (2000/60/EC) in the Mediterranean Ecoregion (PANAYOTIDIS P., MONTESANTO B. & ORFANIDIS S.)

✍✍ Littoral benthic communities as indicators of environmental quality in the Mediterranean waters (PINEDO S., GARCIA M., SATTA P., TORRAS X. & BALLESTEROS E.)

✍✍ Rapid assessment of the ecological status of a Greek coastal area based on phytobenthos: preliminary results (SALOMIDI M., PANCUCCI-PAPADOPOULOU M.A., HATIRIS G.A. & PANAYOTIDIS P.)

✍✍ Application of biotic indices on phytobenthos data for the implementation of the water frame directive (WFD, 2000/60/EC) (SPATHARIS S. & PANAYOTIDIS P.)

Discussion

✍✍ Effets de l'incorporation de l'Ulva sp. Dans l'alimentation de la Tilapia du Nil (MENSI F., KSOURI J., DRAIEF N. & EL ABED A.)

✍✍ Overview of the activities aimed at a long-term conservation of Posidonia oceanica meadow on the Slovenian coast (TURK R.)

Discussion

13:00 –14:30 Lunch breack

Working group 1: Elaboration of Taxonomy tools for Mediterranean marine vegetation (Chairperson: G. BITAR)

Working group 2: Posidonia meadows

14:30 – 14:45 "The impact of the Red Sea herbivore invaders on the food web in the eastern Mediterranean" (M. GOREN)

14:45 – 16:00 Roundtable 2: The phytobenthos as quality element for the evaluation of the ecological quality (Chairperson: P. PANAYOTIDIS)

16:30 – 17:30 Session 5: Conclusions and recommendations

- Recommendations of the Symposium (C. RAIS)
- Scientific objectives of the Third Mediterranean Symposium on Marine Vegetation

17:30 Closure of the Symposium

POSTERS DISPLAYED

- Marine vegetation assemblages and benthic bionomy in Cyprus (ARGYROU M., BAYLE J.T., RAIS C., RAMOS-ESPLÁ A.A., SANCHEZ-JEREZ P. & VALLE C.)
- Marine macrophytobenthos of Cyprus (ARGYROU M. & HADJICHRISTOPHOROU M.)
- Contribution to the knowledge of the Marine Vegetation assemblages end Benthic bionomy in the Zembra-Zembretta National Park (Tunisia) (BAYLE J.T., BEN MUSTAPHA K., BOUAJINA A., GUELLOUZ S., LIMAM A., RAIS C., RAMOS-ESPLÁ A.A., SANCHEZ-JEREZ P. & VALLE C.)
- Biodiversity along the Syrian coasts (DE LA GRANDRIVE R. FOULQUIE M. & BITAR G.)
- Les végétaux marins des ressources exploitables en nutrition animale. Application à la formulation d'aliments pour les monogastriques (KSOURI J., MENSI F., REKHIS J., ABASSI A. & OUIJENE R.)
- Mapping of the Posidonia oceanica meadow on the Slovenian coast (MAKOVEC T. & TURK R.)
- Seagrass ecosystems as biological indicators. A comparison of two approaches: leaf epiphyte taxonomy and a combined set of biological descriptors (MARTINEZ B., VERGÉS TRAMULLAS A., PRADO P., ROMERO J. & ALCOVERRO T.)
- Preliminary phytobenthos biodiversity study of marine sites of the Greek NATURA 2000 network (PANTAZI M., PANAYOTIDIS P., DANEILIDIS D., MONTESANTO B. & ECONOMOU A.)
- Descriptors of Posidonia oceanica meadows: General overview (PERGENT-MARTINI C., LEONI V., PASQUALINI V., ARDIZZONE G., BALESTRI E., BEDINI R., BELLUSCIO A., BELSHER T., BORG J.A., BOUDOURESQUE C.F., BOUMAZA S., BOUQUEGNEAU J.M., BRANKO V., BUIA M.C., CALVO S., CEBRIAN J., CHARBONNEL E., CINELLI F., COSSU A., DURAL B., FRANCOUR P., GOBERT S., MOSTAFA H., LEPOINT G., MEINESZ A., MOLENAAR H., PANAYOTIDIS P., PEIRANO A., PERGENT G., PIAZZI L., RELINI G., ROMERO J., SANCHEZ-LIZASO J., SEMROUD R., SHEMBRI P.J. & SHILI A. & VELIMIROV B.
- Littoral Benthic communities as indicators of environment quality in Mediterranean waters (PINEDO S., GARCIA M., SATTA M.P., TORRAS X. & BALLESTEROS E.)
- Caractérisation de faciès rares d'herbiers à posidonies: les microatolls de la lagune d'El Biban (RIVEILL S., DJEBO H., HAMRIT R. & EL ABED A.)
- Diversité spécifique des peuplements phytobenthique de la lagune de Bou Ghrara (Tunisie mériodionale) (SHILI A. & BEN MAIZ N.)
- Preliminary results of the epibiotic flora on Eunicella singularis (Gorgonacea) colonies from the North Aegean Sea (SKOUFAS G. & TSIRIKA A.)
- Assessment of coastal environmental quality based on littoral community cartography: methodological approach (TORRAS X., PINEDO S., GARCIA M., MANGIALAJO L. & BALLESTEROS E.)
- Contribution to the knowledge of the benthic marine macroalgae from Mani region (Messiniakos Gulf, Greece) (TSIRIKA A., PATOUCHEAS D. & HARITONIDIS S.)

UNEP

United Nations Environment Programme

MAP

Mediterranean Action Plan

Regional Activity Centre for Specially Protected Areas (RAC/SPA)

SECOND MEDITERRANEAN SYMPOSIUM ON MARINE VEGETATION

Athens, 12-13 December 2003

Organised in collaboration with
the National Centre for Marine Research of Greece (NCMR)

Annexe 3

PAPERS GIVEN DURING THE SECOND SYMPOSIUM ON MARINE VEGETATION (12-13 DECEMBER 2003)

Symposium Sessions

Session 2: Biology, Ecology and Inventories of species and assemblages
Chairperson: G. GIACCONE
Rapporteur: R. TURK
Keynote speech: Floristic similarity and discontinuity in phytogeographic Mediterranean regions (G. GIACCONE)
Papers:

- New records along the Apulian coasts (BOTTALICO A., DELLE FOGLIE C.I. & PERRONE C.)
- Mollusques ascoglosses associés aux peuplements de Caulerpa racemosa en Tunisie: espèces observées et description des effets trophiques (DJELLOULI A.S., LANGAR H. & EL ABED A.)
- Contribute to the knowledge of macroalgal biodiversity of the Ligurian coast (MANGIALAJO L., BARBERIS G. & CATTANEO-VIETTI R.)
- Decadal variability in the timing and magnitude of Posidonia oceanica production at regional scale (BUIA M.C., GUALA I., FLAGELLA M., FLAGELLA S., CIGLIANO M.M. & GRAVINA T.)
- The situation of Caulerpa species around Turkish Coasts (CIRIK S. & AKÇALI B.)
- Interactions entre l'herbier à Posidonia oceanica et l'hydrodynamisme au sein de la baie de Monastir (Tunisie orientale) (EL ASMI-DJELLOULI Z., DJELLOULI A.S., PERGENT-MARTINI C., PERGENT G., ABDELJAOUED S. & EL ABED A.)
- Caulerpa taxifolia: Situation connue en Tunisie au 31 juillet 2003 (LANGAR H., DJELLOULI A.S. & EL ABED A.)
- Apparition de la phanérogame Halophila stipulacea dans le golfe de Gabès (Tunisie) (MISSAOUI H., MAHJOUB M.S. & CHALGHAF M.)

Session 3: Mapping marine vegetation distribution
Chairperson: C.F. BOUDOURESQUE
Rapporteur: C. PERGENT-MARTINI
Keynote speech: Anthropogenic impacts on marine vegetation in the Mediterranean (C.F. BOUDOURESQUE)
Papers:

- La cartographie des herbiers à Posidonia oceanica en Italie (CINELLI F., ACUNTO S., BALATA D. & PIAZZI L.)
- Cartographie du récif-barrière de posidonies de la baie de Sidi Raïs (côtes nord-orientales de la Tunisie) (EL ASMI S., RAIS C., ROMDHANE M.S. & EL HERRY S.)
- Biocénoses du Parc National de Port-Cros: cartographie et proposition de gestion par SIG (BELSHER T.)
- Observations on the structure of Cystoseira communities along a gulf of Northeastern Mediterranean (central Aegean Sea, Greece) (VARKITZI I., PANAYOTIDIS P. & MONTESANTO B.)
- Assessment of coastal environmental quality based on littoral community cartography: methodological approach (TORRAS X., PINEDO S., GARCIA M., MANGIALAJO L. & BALLESTEROS E.)

Session 4: Anthropogenic Impacts on Mediterranean marine vegetation
Chairperson: R. SEMROUD
Keynote speech: Anthropogenic impacts on marine vegetation in the Mediterranean (C.F. BOUDOURESQUE)
Papers:

- Caractérisation de l'état de l'herbier à Posidonia oceanica du Nord-est des îles Kerkennah (Tunisie) (EL HERRY S., ROMDHANE M.S., RAIS C. & BEN REJEB JENHANI A.)
- Biomonitoring of environmental metallic contamination (LAFABRIE C., ANDRAL B., FERRAT L., LEONI V., PERGENT-MARTINI C. & SAUZADE D.)
- Caractérisation des herbiers à Posidonia oceanica dans le Parc Marin National de Zakynthos (Grèce) (PERGENT G., OUERGHI A., PASQUALINI V., PERGENT-MARTINI C., SKOUFAS G., SOURBES L. & TSIRIKA A.)
- Macroalgal assemblages in the Gulf of Naples: Spatial variability in relation to anthropogenic disturbance (GUALA I., ESPOSITO A. & BUIA M.C.)
- Marine benthic macrophytes as bioindicators of eutrophication in selected Eastern Macedonian and Thrace lagoons, North Greece (ORFANIDIS S., TSIAGGA E., STAMATIS N.)
- Phytobenthos as a Quality Element for the ecological Status Evaluation: a case study of the implementation of the Water Frame Directive (2000/60/EC) in the Mediterranean Ecoregion (PANAYOTIDIS P., MONTESANTO B. & ORFANIDIS S.)
- Littoral benthic communities as indicators of environmental quality in the Mediterranean waters (PINEDO S., GARCIA M., SATTA P., TORRAS X. & BALLESTEROS E.)
- Rapid assessment of the ecological status of a Greek coastal area based on phytobenthos: preliminary results (SALOMIDI M., PANCUCCI-PAPADOPOULOU M.A., HATIRIS G.A. & PANAYOTIDIS P.)
- Application of biotic indices on phytobenthos data for the implementation of the water frame directive (WFD, 2000/60/EC) (SPATHARIS S. & PANAYOTIDIS P.)
- Effets de l'incorporation de l'Ulva sp. Dans l'alimentation de la Tilapia du Nil (MENSI F., KSOURI J., DRAIEF N. & EL ABED A.)
- Overview of the activities aimed at a long-term conservation of Posidonia oceanica meadow on the Slovenian coast (TURK R.)

Annexe 3

Posters

- Marine vegetation assemblages and benthic bionomy in Cyprus (ARGYROU M., BAYLE J.T., RAIS C., RAMOS-ESPLA A.A., SANCHEZ-JEREZ P. & VALLE C.)
- Marine macrophytobenthos of Cyprus (ARGYROU M. & HADJICHRISTOPHOROU M.)
- Contribution to the knowledge of the Marine Vegetation assemblages end Benthic bionomy in the Zembra-Zembretta National Park (Tunisia) (BAYLE J.T., BEN MUSTAPHA K., BOUAJINA A., GUELLOUZ S., LIMAM A., RAIS C., RAMOS-ESPLA A.A., SANCHEZ-JEREZ P. & VALLE C.)
- Macrophytobenthos des substrats rocheux de la région de Oued Laou-Jabha (Maroc, Méditerranée) (BENHISSOUNE S., VERLAQUE M. & BAYED A.)
- Biodiversity along the Syrian coasts (DE LA GRANDRIVE R. FOULQUIE M. & BITAR G.)
- Les végétaux marins des ressources exploitables en nutrition animale. Application à la formulation d'aliments pour les monogastriques (KSOURI J., MENSI F., REKHIS J., ABASSI A. & OUIJENE R.)
- Mapping of the Posidonia oceanica meadow on the Slovenian coast (MAKOVEC T. & TURK R.)
- Seagrass ecosystems as biological indicators. A comparison of two approaches: leaf epiphyte taxonomy and a combined set of biological descriptors (MARTINEZ B., VERGÉS TRAMULLAS A., PRADO P., ROMERO J. & ALCOVERRO T.)
- Preliminary phytobenthos biodiversity study of marine sites of the Greek NATURA 2000 network (PANTAZI M., PANAYOTIDIS P., DANEILIDIS D., MONTESANTO B. & ECONOMOU A.)
- Descriptors of Posidonia oceanica meadows: General overview (PERGENT-MARTINI C., LEONI V., PASQUALINI V., ARDIZZONE G., BALESTRI E., BEDINI R., BELLUSCIO A., BELSHER T., BORG J.A., BOUDOURESQUE C.F., BOUMAZA S., BOUQUEGNEAU J.M., BRANKO V., BUIA M.C., CALVO S., CEBRIAN J., CHARBONNEL E., CINELLI F., COSSU A., DURAL B., FRANCOUR P., GOBERT S., MOSTAFA H., LEPOINT G., MEINESZ A., MOLENAAR H., PANAYOTIDIS P., PEIRANO A., PERGENT G., PIAZZI L., RELINI G., ROMERO J., SANCHEZ-LIZASO J., SEMROUD R., SHEMBRI P.J. & SHILI A. & VELIMIROV B.
- Littoral Benthic communities as indicators of environment quality in Mediterranean waters (PINEDO S., GARCIA M., SATTA M.P., TORRAS X. & BALLESTEROS E.)
- Caractérisation de faciès rares d'herbiers à posidonies: les microatolls de la lagune d'El Biban (RIVEILL S., DJEBO H., HAMRIT R. & EL ABED A.)
- Diversité spécifique des peuplements phytobenthique de la lagune de Bou Ghrara (Tunisie mériodionale) (SHILI A. & BEN MAIZ N.)
- Preliminary results of the epibiotic flora on Eunicella singularis (Gorgonacea) colonies from the North Aegean Sea (SKOUFAS G. & TSIRIKA A.)
- Assessment of coastal environmental quality based on littoral community cartography: methodological approach (TORRAS X., PINEDO S., GARCIA M., MANGIALAJO L. & BALLESTEROS E.)
- Contribution to the knowledge of the benthic marine macroalgae from Mani region (Messiniakos Gulf, Greece) (TSIRIKA A., PATOUCHEAS D. & HARITONIDIS S.)

Side events

- The RA.MO.GE Agreement (F. PLATINI)
- The impact of the Red Sea herbivore invaders on the food web in the eastern Mediterranean (M. GOREN)

Roundtables

Roundtable 1: Standardisation of mapping techniques
Chairperson: G. PERGENT

Roundtable 2: The phytobenthos as quality element for the evaluation of the ecological quality
Chairperson: P. PANAYOTIDIS

Working groups

Working group 1: Elaboration of taxonomy tools for Mediterranean marine vegetation
Chairperson: Ghazi BITAR

Working group 2: Posidonia meadows

Quelques commentaires et recommandations enregistrés durant les sessions et tables rondes du deuxième symposium sur la végétation marine en Méditerrénée.

Session : Les impacts anthropiques sur la végétation marine méditerranéenne

La session a permis de faire un point sur les impacts anthropiques sur la végétation marine. La communication introductive du Prof. Boudouresque a permis de faire le point sur ce qui peut être regroupé aujourd'hui sous le terme de plante ou de végétation, puis sur les éléments qui peuvent permettre d'apprécier la biodiversité de ces plantes. Dans un deuxième temps, l'orateur a fait le point des divers impacts susceptibles d'affecter la végétation marine par rapport à leur réversibilité en détaillant plus particulièrement la problématique des espèces invasives au sens large. Les présentations de cette session se sont déclinées selon trois thèmes : La mise en œuvre de mesures sur des sites de référence, une évaluation de l'impact de l'anthropisation sur les peuplements végétaux et la mise au point de nouveaux outils destinés à répondre aux enjeux de la Directive Cadre eau.

Ainsi les travaux présentés par El Herry et al. et Pergent et al visaient à mettre en place une caractérisation des secteurs peu étudiés mais qui présentent à l'évidence un caractère remarquable et qui méritent d'être mieux connus dans un objectif de conservation qu'il s'agisse du secteur des Kerkennah ou du Parc national de Zakhynthos. Le travail de Lafabrie et al., apparaît intermédiaire entre deux thèmes dans la mesure où il ne visait pas tant à établir un état de référence de la contamination métallique le long du littoral de la Corse qu'a voir si les herbiers pouvaient être un outil efficace pour l'évaluation de cet état du littoral.

Les travaux de Guala et al visaient à faire une première approche des activités anthropiques sur les macro-algues au niveau du golfe de Naples.

Les travaux d'Orfanidis et al, Panayotidis et al., Salomidi et al., et Spatharis & Panayortidis constituaient un essai de mise en œuvre d'un index écologique (EEI) susceptible de permettre une évaluation de la qualité des eaux en utilisant les macrophytes et ce dans plusieurs cas de figure tant en milieu marin qu'au niveau de lagunes littorales et dans des sites connus pour leur statut de référence ou au contraire leur perturbation avérée.

Le travail de Pinedo et al. a présenté une démarche de même nature mais basée spécifiquement sur les substrats durs. Cette approche a permis de proposer un index qui semble particulièrement adapté au substrat dur et qui a par ailleurs fait l'objet d'une communication dans une autre session.

Enfin les deux derniers orateurs ont proposé une approche originale de l'activité humaine. Le premier travail de Mensi et al. Concernait une valorisation des ulves dans une optique d'alimentation de poissons d'élevage. La dernière communication présentait l'action anthropique sous son aspect le plus bénéfique à savoir les actions de conservation et de sensibilisation du public qui peuvent être menées. En effet le document de Turk a permis de faire un bilan des actions menées par la Slovénie, en partenariat avec le CARASP, dans le cadre du plan d'action sur la conservation de la végétation.

Session : Cartographie de la végétation marine

La session 3 a permis de faire le point sur les techniques utilisées pour la cartographie de la végétation marine en Méditerranée.
Cette session a été introduite par le Prof. Boudouresque, qui a insisté, dans un premier temps, sur le fait que la plupart des cartes actuellement disponibles concernaient presque exclusivement les herbiers, qu'ils s'agissent des herbiers à *Posidonia oceanica,* qui sont les plus étudiés ou de ceux concernant d'autres magnoliophytes (e.g. *Cymodocea nodosa*), les autres macrophytes étant généralement oubliées (e.g. Cystoseira, Sargassum, Lithophyllum). Il a en outre souligné qu'il était dommage que les cartes actuelles ne fournissent en général que des données quantitatives et trop rarement des données qualitatives. Enfin, il a montré que la plupart des anciennes cartes étaient peu ou pas fiables et qu'il était nécessaire de mettre en place un index de confiance (RI : *reliability index*) pour une carte

donnée afin de connaître sa fiabilité. En conclusion, le Prof. Boudouresque a insisté sur le fait que la cartographie, bien que nécessitant des moyens coûteux, était un outil utile et performant et que, dans l'optique d'une utilisation optimale, il était indispensable de considérer la méthode et de l'adapter à l'objectif poursuivi, et d'y ajouter, dans la mesure du possible, des données quantitatives mais aussi qualitatives permettant d'évaluer l'état de ces formations. Enfin une attention particulière doit être portée aux autres formations végétales.

Les communications présentées lors de cette session se sont déclinées autour de trois thèmes principaux : la cartographie des herbiers à *Posidonia oceanica*, la cartographie des peuplements de substrats durs et l'intérêt de la cartographie dans la surveillance de la qualité du milieu, notamment avec la mise en œuvre de la Directive Cadre « Eau » de la Commission des communautés européennes.

Cinelli *et al.* ont présenté les résultats cartographiques concernant les herbiers à *Posidonia oceanica* des côtes italiennes, réalisés depuis les années 80. Les techniques utilisées sur des aires géographiques réduites sont des méthodes directes (e.g. caméras sous-marines pour la localisation des limites de l'herbier, transects en plongée). Les cartographies réalisées plus récemment font appel à plusieurs méthodes (e.g. sonar latéral, télédétection aérienne, transects + caméras sous-marines et plongeurs) et permettent ainsi d'intégrer l'ensemble des données obtenues dans un système d'information géographique. Les résultats sont donc à la fois quantitatifs et qualitatifs. Le travail de El Asmi *et al.* visait à cartographier le récif-barrière à *Posidonia oceanica* de la baie de Sidi Raïs, qui constitue une formation remarquable. La technique utilisée (e.g. lunette de calfat) est relativement simple et peu coûteuse à mettre en œuvre depuis une embarcation. Des observations sur la vitalité de l'herbier sont effectuées en complément pour chaque station (e.g. recouvrement de l'herbier, degré d'épiphytisme, longueur des feuilles, état général de l'herbier). Les résultats montrent que l'herbier de la baie de Sidi Raïs est très proche d'un peuplement naturel initial et que le récif barrière reste important et mériterait d'être mieux connu dans un objectif de conservation. Le Prof Boudouresque a souligné l'intérêt de la méthode utilisée et sa parfaite adéquation avec les caractéristiques de la zone étudiée (e.g. surface, bathymétrie) et l'objectif recherché.

Le travail de Varkitzi *et al.* constitue une première approche quand à l'étude de la structure des peuplements à Cystoseira, dans quatre sites du littoral grec. Cette démarche est particulièrement intéressante au regard du peu d'études consacrées à ces formations végétales et à l'importance de celles-ci dans la Directive habitat européenne « Natura 2000 ». L'étude de ces quatre sites, caractérisés par des niveaux d'hydrodynamisme et des substrats différents, montre une corrélation entre le niveau d'exposition du site (e.g. mode plus ou moins battu) et la structure des peuplements à Cystoseira.
Deux communications ont permis d'illustrer l'intérêt de la cartographie dans la gestion des formations végétales. Le travail de Belsher concernait plus globalement la cartographie des fonds sous-marins du Parc National de Port-Cros, réalisée par sonar latéral et photographies aériennes, et l'intégration des résultats obtenus dans un système d'information géographique. L'intérêt de ce type d'outil pour la surveillance des aires marines protégées a été discuté. Les travaux de Torras *et al*. ont montré une nouvelle approche de la cartographie des peuplements de substrats durs basée sur l'utilisation de différentes espèces bioindicatrices de la qualité du milieu. Les résultats, très intéressants, ont permis aux auteurs de proposer un index de qualité pour chacun des secteurs étudiés. Cette technique allie rapidité, facilité de mise en œuvre, faible coût et s'avère en outre peu destructive comparé aux techniques généralement utilisées pour l'étude des peuplements de substrats durs. Elle permet d'envisager une surveillance de ces peuplements littoraux dans une optique de surveillance de la qualité globale de ces milieux. Elle s'insère donc dans les démarches initiées dans le cadre de la mise en œuvre de la Directive cadre « Eau » et pourrait constituer un moyen de détecter des changements temporels et spatiaux, à moyen terme, de la qualité du milieu marin.

Table ronde : Standardisation des méthodes de cartographie

Cette table ronde fait suite à l'atelier « Cartographie de la répartition de la végétation marine », les discussions se sont réparties autour de quatre grands thèmes : (i) Les méthodes de cartographie des

herbies à *Posidonia oceanica*, (ii) Les méthodes de cartographie semi-quantitative des herbiers, (iii) Les méthodes de cartographie des autres macrophytes et (iv) Les méthodes de rendu cartographique (fiabilité, systèmes d'informations géographiques).

Les différents intervenants ont souligné la disponibilité de nombreuses méthodes cartographiques performantes pour l'étude des herbiers à *Posidonia oceanica*. Toutefois, la disponibilité et le coût de ces techniques ne permettent pas toujours leur application. La réalisation de cartographies à l'échelle du bassin méditerranéen doit s'appuyer sur des méthodes fiables mais faciles à mettre en oeuvre et d'un coût réduit. En terme de stratégie, il est toujours possible de dresser une carte générale avec une précision moyenne associée à des cartes sectorielles plus précises répondant à des impératifs de gestion.
La première étape doit donc consister à cerner le plus précisément possible les contraintes et les objectifs du travail : Surface à cartographier, précision recherchée, données disponibles, moyens humains, matériels et financiers, contraintes administratives et scientifiques.
La seconde étape consiste à établir un cahier des charges précis, répondants aux critères précédents, basé sur des méthodes standardisées. Il doit permettre d'identifier d'éventuellles demandes de coopération ou d'assistance auprès du CAR-ASP ou d'autres pays méditerranéens (séminaires de formation, expertises).
La troisième étape correspond à la réalisation du travail par les scientifiques et institutions nationales.

Outre la présence ou l'absence d'un herbier plusieurs informations permettant de caractériser cet herbier peuvent être mesurées lors du levé cartographique (paramètres semi-quantitatifs). Ces descripteurs sont, pour la plupart d'entre eux, standardisés et régulièrement utilisés par les scientifiques méditerranéens ; il s'agit notamment du recouvrement, de la densité, du substrat (nature et déchaussement) et de la structure de l'herbier (type d'herbier, présence de structures érosives). Il a été souligné la nécessité de disposer de grilles de mesures validées et normalisées qui pourraient être utilisées par l'ensemble des pays méditerranéens. La prise en compte de ces paramètres semi-quantitatifs est également importante pour d'autre peuplements de macrophytes (ex. largeur du trottoir à *Lithophyllum lichenoides*, biomasse d'une ceinture à *Cystoseira* sp.).

La cartographie des autres formations végétales, et notamment celles inscrites dans le Plan d'Action pour la Conservation de la Végétation Marine en Méditerranée, doit également être développée. Ces études concernent généralement des surfaces plus limitées présentant un intérêt particulier pour la conservation (aires spécialement protégées, sites Natura 2000) ou s'intègrant dans des réseaux de suivi de la qualité du milieu. Un effort de standardisation des méthodes apparaît indispensable. La progression d'espèces introduites (ex. *Caulerpa taxifolia*, *Caulerpa racemosa* var. *cylindracea*) fait actuellement l'objet de cartographies règulièrement mises à jour dans plusieurs pays.

L'évaluation de la fiabilité des cartes réalisées ainsi que leur diffusion sous forme de systèmes d'informations géographiques constituent une difficulté supplémentaire à prendre en compte. Il est clair que la précision dépend fortement des techniques et des moyens mis en œuvre et il paraît donc indispensable d'associer à ces cartographies une échelle de fiabilités permettant de fixer leur limite d'utilisation. De même, la propriété des données, et donc leur diffusion, constitue un obstacle significatif qui devra faire l'objet de concertations entre les différents partenaires impliqués (décideurs, financeurs et scientifiques). L'intégration de l'ensemble des données cartographiques dans une base de données géoréférencée et normalisée à l'échelle du bassin méditerranéen doit constituer un objectif prioritaire. Ce système d'informations géographiques apportera un outil indispensable dans le cadre d'une gestion intégrée de la zone côtière. La mise en place de la Directive Européenne Cadre Eau (Directive 2000/60/EU), prennant en compte la "qualité écologique" du milieu, devrait initier la réalisation de nombreuses cartographies biocénotiques pour les pays concernés mais également favoriser des actions de coopération avec l'ensemble des pays méditerranéens (transferts d'expériences).

La mise en place de groupes de travail thématiques (normalisation des méthodes de cartographie et des descripteurs, mise en forme et diffusion de l'information) est proposée ainsi que la constitution d'un

« comité scientifique et technique » destiné à conseiller les différents pays dans la réalisation de leurs cartographies nationales.

Table ronde : Elaboration d'outils taxonomiques pour la végétation marine en Méditerranée

Les participants considèrent que le document présent dans sa forme actuelle constitue un outil efficace à la mise en œuvre du plan d'action pour la promotion de la taxonomie. Ils préconisent en outre les recommandations suivantes:

I- Inventaire des spécialistes
1- Mettre le répertoire des spécialistes de la végétation marine déjà disponible sur le site web
2- Prévoir une fiche web permettant l'inscription sur le répertoire

II- Guides
1- traduction et diffusion du guide déjà réalisés par Giaccone et disponible au CAR/ASP.

III- Inventaire des besoins nationaux
1- Accélérer la réalisation et la diffusion des questionnaires

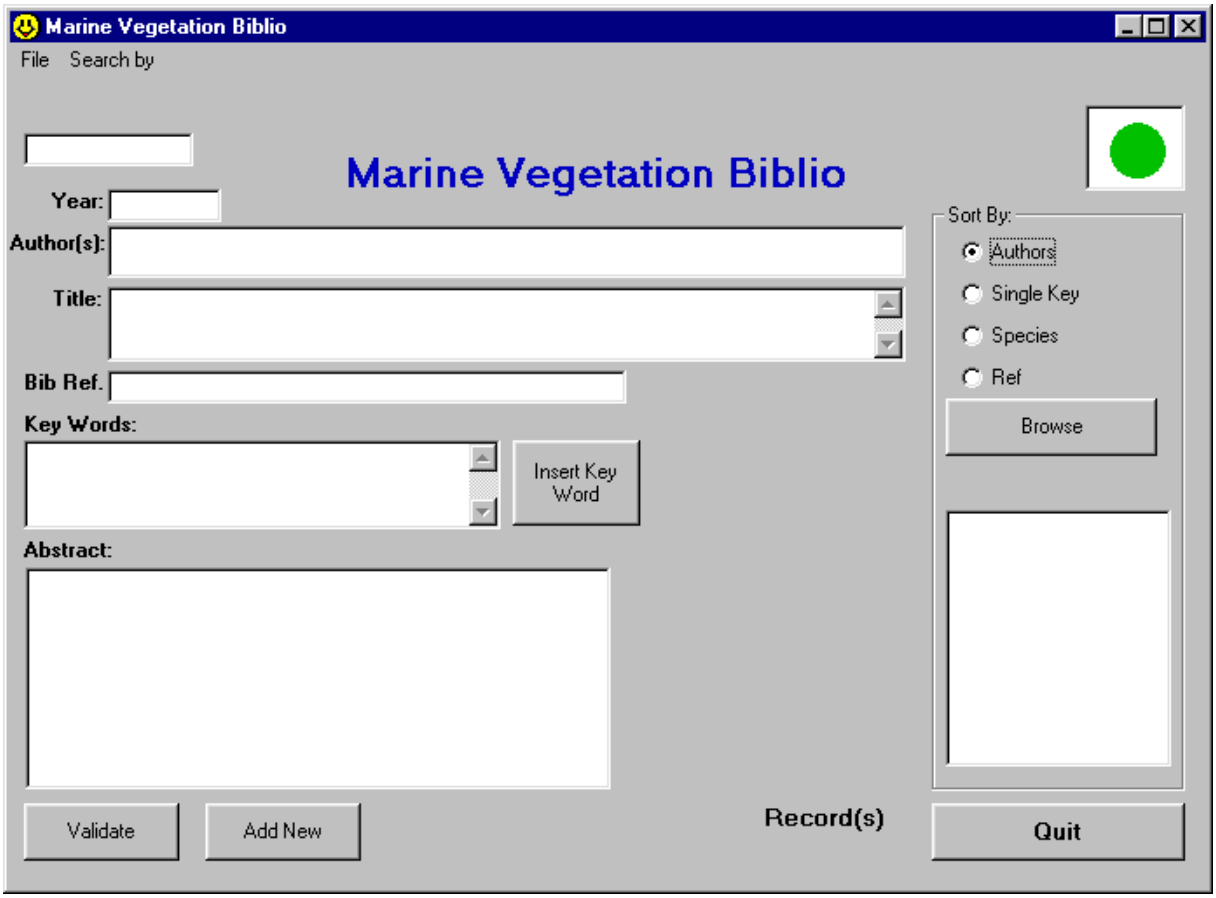
IV- Traitement des informations:
Il est urgent de traiter par le biais d'un observatoire les informations déjà acquises par le CAR/ASP et les rendent disponibles

Annex 4.2.

Structure for inserting references into the database
and
List of key words decided on for the database

Annex 4.2.

Structure for inserting references into the database



A
Abiotic factors
Absorption spectroscopy
Acceptance tests
Acclimation
Acclimatization
Accumulation
Acoustic equipment
Acoustic imagery
Acoustics
Adriatic sea
Aegean sea
Aerial photographs
Aerial photography
Aerial surveys
Aerobic respiration
Age determination
Age differences
Air-water exchanges
Algae
Algal blooms
Algal settlements
Algeria
Alginic acid
Alkaline earth metals
Alkalinity
Alternate reproduction
Amino acids
Anatomy
Ane, Europe
Ane, France
Ane, France, Brittany
Ane, North Sea
Ane, Spain
Animal morphology
Annual variations
Antibacterial agents
Antibiotics
Antifungal agents
Antimony
Antioxidants
Antiviral agents
Apoglossum gregarium
Apoptosis
Aquaculture
Aquaculture systems
Aquaria
Aquarium culture
Aquatic bacteria
Aquatic communities
Aquatic drugs
Aquatic ecosystems
Aquatic organisms
Aquatic plants
Aromatic hydrocarbons
Arrays
Artificial reefs
Artisanal fishing
Ase, Morocco
Asexual reproduction
Associated species
Associations (ecological)
Atlantic ocean
Atlantic ocean, northern
ATP
Autecology

B
Bacteria
Bacteriocides
Bacterioplankton
Balearic I., Majorca
Barrier reefs
Bathymetry
Bays
Beach nourishment
Behavior
Behavior modification
Behaviour
Benthic environment
Benthos
Bibliography
Bifurcaria
Bioaccumulation
Bioassay
Bioassays
Biocenosis
Biochemical analysis
Biochemical composition
Biochemistry
Bioclimatology
Biocoenosis
Biodegradation
Bioenergetics
Biogeochemical cycle
Biogeochemistry
Biogeography
Biogeography
Bioindicators
Biological age
Biological control
Biological development
Biological drift
Biological membranes
Biological poisons
Biological pollutants
Biological production
Biological rhythms
Biological sampling
Biological settlement
Biological surveys
Biomass
Biomonitoring
Biopolymorphism
Biostratigraphy
Biosynthesis
Biotic factors
Biotopes
Blood
Boat transportation
Body size
Boops salpa
Botanical resources
Botany
Bottom erosion
Bottom topography
Bottom trawling
Burrowing organisms
Burying

C
Cadmium
Caesium
Cage culture
Canopies
Carbohydrates
Carbon
Carbon 13
Carbon cycle
Carbon dioxide
Carbon fixation
Carbon/Nitrogen ratio
Carbonate
Carbonate sediments
Carbonates
Carnivores
Cartography
Caulerbenyne
Caulerpenyne
Caulerpin
Cell organelles
Cesium 137
Checklists
Chemical analysis
Chemical composition
Chemical elements
Chemical extraction
Chemical pollutants
Chemotaxonomy
Chlorinated hydrocarbons
Chlorophylls
Chromium
Chromosome number
Chromosomes
Ciliates
Classification systems
Climate
Climatic changes
Climax community
Clones
Cnidaria
Coastal engineering
Coastal erosion
Coastal lagoons
Coastal structures
Coastal water
Coastal waters
Coastal zone
Coastal zone management
Colonization
Commercial species
Community composition

Spatial variations
Speciation
Species composition
Species diversity
Spectroscopic techniques
Spores
Spreading
Standardization
Starch
Statistical analysis
Sterols
Stocking (organisms)
Stomach content
Storms
Substrata
Substrate preferences
Suez canal
Sulfide
Sulphides
Surface temperature
Surveying
Surveys
Survival
Suspended organic matter
Swell
Sympatric populations

T
Tantalum
Taxonomic revision
Taxonomy
Temperature
Temperature effects
Temperature tolerance
Temporal distribution
Temporal variations
Terpenes
Terpenoids
Tetraprenyltoluquinols
Thallus
Thermal pollution
Thickness variations
Thorium
Tissues
Tolerance
Total mortality
Toxicity
Toxicity testing
Toxicity tests
Toxicology
Toxins
Trace elements
Trace metals
Transplantation
Trawling
Tributyltin
Trophic levels
Turbidity

U
U.V. Radiation
Ultrastructure
Ultraviolet radiation
Undercurrents
Urban runoff

V
Variability
Variance analysis
Vegetation cover

FAMILLE
Caulerpaceae
Ceramiaceae
Chlorophyceae
Corallinaceae
Cystoseiraceae
Delesseriaceae
Halosieae
Plocamiaceae
Potamogetonaceae
Solieriaceae
Ulvophyceae

GENRE
Amphipoda
Angiospermae
Antithamnion
Ascomycota
Bangiales
Bivalvia
Caulerpa
Ceramiales
Chlorophyta
Cryptonemiales
Cystoseira
Dictyotales
Echinodermata
Echinoidea
Embryophyta
Embryophytes
Enteromorpha
Foraminifera
Fucales
Gigartinales
Gobiidae
Goniotrichopsis
Gracilaria
Gracilariales
Helobiae
Hydropuntia
Magroliophyta
Monocotyledonae
Mytilidae
Nematoda
Peyssonnelia
Phaeophyceae
Phaeophyta
Phaeophyta rhodophyta
Polychaeta
Polychaetes
Porifera
Porphyra
Porphyridiales
Posidonia
Predaea
Questidae
Quinqueloculina
Rhodomelaceae
Rhodophyceae
Rhodophyta
Scorpaena
Sparidae
Ulva

ESPECE
Acrothamnion preissii
Agardhiella subulata
Antithamnion algeriensis
Antithamnion piliferum
Arbacia lixula
Balliella cladoderma
Bangia atropurpurea
Bathycoccus prasinos
Caulerpa mexicana
Caulerpa prolifera
Caulerpa racemosa
Caulerpa taxifolia
Ceramium cingulatum
Ceramium giacconei
Chondrus giganteus flabellatus
Chrysymenia wrightii
Cladophoropsis membranacea
Codium fragile
Colpomenia sinuosa
Cystoseira amentacea stricta
Cystoseira barbata
Cystoseira barbata aurantia
Cystoseira caespitosa
Cystoseira crinita
Cystoseira elegans
Cystoseira funkii
Cystoseira jabukae
Cystoseira mediterranea
Cystoseira spinosa
Cystoseira stricta
Cystoseira zosteroides
Desmarestia viridis
Dictyopteris membranacea
Diplodus annularis
Dipterosiphonia dendritica
Discorbis obtusa
Dunaliella minuta
Eupogodon planus
Eupogodon spinellus
Fucus spiralis
Geodia cydonium
Gracilaria bursa-pastoris
Gracilaria gracilis
Gracilaria verrucosa
Halimeda tuna
Haloguigrardia cystoseiraea
Halophila stipulacea
Halopitys incurvus
Halopteris scoparia
Halosia elisae
Halymenia asymmetrica
Helicometra fasciata
Hildenbrandia rivularis
Hypnea furnariana
Laminaria rodriguezii
Laurencia chondrioides
Laurencia epiphylla
Laurencia microcladia
Laurencia minuta
Laurencia minuta ssp.scammaccae
Laurencia pelagosae
Laurencia pinnatifida
Laurencia truncata
Leathesia difformis
Lithophyllum frondosum
Lithophyllum lichenoides
Lithophyllum tortuosum
Lithothamnion corallioides
Lithothamnion valens
Macvicaria alacris
Monostroma obscurum
Mytilus galloprovincialis
Neogoniolithon notarisii
Osmundea maggsiana
Ostreococcus tauri
Paracentrotus lividus
Penicillus capitatus
Phymatolithon calcareum
Pinna nobilis
Plocamium secundatum
Polysiphonia setacea
Polystrata fosliei
Porphyra leucosticta
Posidonia oceanica
Predaea bisporifera
Predaea ollivieri
Predaea pusilla
Pseudolithophyllum expansum
Pterocladia pinnata
Pythium marinum
Quinqueloculina juleana
Rissoella verruculosa
Ruppia cirrhosa
Rytiphloea tinctoria
Sargassum muticum
Sargassum vulgare
Sarpa salpa
Serranus cabrilla
Serranus scriba
Solieria chordalis
Solieria filiformis
Sparus aurata
Sporolithon ptychoidess
Stichothamnion cymatophilum
Stypodium tubruqense
Symphodus ocellatus
Taenioma nanum
Taonia lacheana
Tenarea tortuosa
Triloculina semicostata
Ulva lactuca
Ulva rigida
Valonia aegagropila

Annex 5.2.a

Model of a form for inclusion on the Directory of specialists

United Nations Environment Programme
Mediterranean Action Plan
Regional Activity Centre for Specially Protected Areas

Directory of Marine Vegetation Specialists
(Mediterranean Sea)

To be included in the directory, please fill in this form and send it before 15 June 2002 to RAC/SPA[1].

Last name: .....

First name: .....

Title: ..... **Position:** .....

Institution: .....

Department: .....

Address: .....

Code: ..... **City:** ..... **Country:** .....

Telephone: ..... **Fax:** .....

E-mail address: .....

Working language(s): .....

Signature: ..... **Date:** .....

AREAS OF INTEREST

By taxon:

Phanerogams ☐ *	Algae ☐ *
Species (if applicable):	*Species* (if applicable): ....

By geographic area(s): .....

By subject: * *

Subject (A) ☐ Subject (C) ☐

Subject (B) ☐ Subject (D) ☐

* If yes, please tick the box

* * Please chose from the following field list up to a maximum of four subjects:

(1) Aquaculture	(5) Cartography	(9) Histology	(13) Taxonomy
(2) Biodiversity	(6) Conservation	(10) Legislation	(14) Other: specify
(3) Biogeography	(7) Ecology	(11) Physiology	
(4) Biotechnology	(8) Genetics	(12) Reproduction	

[1] RAC/SPA: Regional Activity Centre for Specially Protected Areas
Boulevard de l'Environnement - B.P. 337 - 1080 Tunis Cedex - TUNISIA
Tel: (216) 71 78 28 68 / 71 78 30 34 - Fax: (216) 71 79 73 49
E-mail: car-asp@rac-spa.org.tn

Annex 5.2.b

List of specialists in marine vegetation (2002 version)

Last name	First name	Tiltle	Position	Institution	Department	Address	Country	Telephone	Fax	Email	Web site	Updated	New rec
ABDELAHAD	NADIA			Università di Roma "La Sapienza"	Dipartimento di Biologia Vegetale	P. le Aldo Moro 5, I- 00185 Roma	Italy	39.06.49912579	39.06.4463.865	abdelahad@uniromal.it		N	N
ABBOUD-ABI SAAB	MARIE	Doctor	Research doctor	National Council for Scientific Research	Plankton	National Center for Marine Research, Batroun PO BOX 534	Lebanon	641 6 741 582/3	641 6 741 584	mabissab@.cnrs.edu.lb		Y	Y
AHMED	KAZEM			Ministry of State for Environmental Affairs	Environmental Costal Directorate	P.O. Box 3773, Tolyani Street, Damascus	Syria	963.11.2234.309	963.113335645/96343321916			N	N
AIROLDI	LAURA			Università di Bologna	Corso di Laureain Scienze Ambientali	Via Tombesi dell'Ova 55, I-48100 Ravenna	Italy	39.05.44.21.38.31		lairoldi@ambra.unibo.it		N	N
ALBERTANO	PATRIZIA			Università di Roma "Tor Vergata"	Dipartimento di Biologia	Via della Ricerca Scientfica, I-00133 Roma	Italy	39.06.72.59.43.45	39.06.20.23.500	albertano@uniroma2.it		N	N
ALFINITO	SILVIA			Università di Roma "La Sapienza"	Dipartimento di Biologia Vegetale	P. le Aldo Moro 5, I-00185 Roma	Italy	39.06.4991.2432	39.06.4463.865		http://www.uniroma2.it/biologia/centri/micr	N	N
ANDREOLI	CARLO			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-35121 Padova	Italy	39.049.8276263	39.049.827626 0	labandr@civ.bio.unipd.it		N	N
ANTOLIC	BORIS	Doctor	Laboratory leader	Institute of Oceanography and Fisheries	Laboratory for Benthos	Set. I Mestrovica 63 , Split 21000	Croatia	385 21 358 688	38521358650	antolic@izor.hr		Y	Y
ARANDA	AURELLO			Institut d'Ecologia Litoral		Ctrade Benimagrell 5, EL CAMPELLO 03560 Alicante	Spain					Y	N
ARGYROU	MARINA			Ministry of Agriculture, Natural Resources and Envionment	Department of Fisheries and Marine Ressources	Aeolou Street 13, 1416 Nicosia	Cyprus	357.2.303.864	357.2.775.955	margyrou@cytanet.com.cy		N	N
BACHET	FREDERIC			Maison de la Mer	Parc Marin de la Côte Bleue	Maison de la Mer B.P. 37, 13960 Sausset les Pins	France					N	N
BALATA	DAVID			Università degli Studi di Pisa	Dipartimento di Scienze dell'Uomo e dell'Ambiente	Via A. Volta 6, I-56126 Pisa	Italy	39.050.500.018	39.050.496.94	jandegom@iol.it		N	N
BALDAN	BARBARA			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-35121 Padova	Italy	39.049.827.6277	39.049.827.6280	bbarbara@civ.bio.unipd.it		N	N
BALESTRI	ELENA			Università degli Studi di Pisa	Dipartimento di Scienze Ambientali	Via A. Volta 6, I-56126 Pisa	Italy	39.050.500.018	39.050.49.694			N	N
BALLESTEROS	ENRIC			CSIC	Centre d'Estudis Avançats de Blanes	Cami de Santa Barbara, E-17300 Blanes	Spain	34.972.336.101	34.972.337.806	kike@ceab.csic.es		Y	N

BARBERIS	GIUSEPPINA			Università degli Studi di Genova	Dip. per lo studio :Territorio e sue Risorse	Corso Dogali 4 c, I-16136 Genova	Italy	39.010.209.93.56	39.010.209.93.77	geobotge@csita.unige.it		N	N
BARLETTA	DONATO			Università degli Studi di Ancona	Istitutodi Scienze del Mare	Via Brecce Bianche, I-60131 Ancona	Italy	39.071.220.46.47	39.071.220.46.50	barletta@popcsi.unian.it	http//www.unian.it/	N	N
BARONE	ROSELLA			Università degli Studi di Palermo	Dipartimento di Scienze Botaniche	Via Archirafi 38, I-90123 Palermo	Italy	39.091.616.14.93	39.091.617.60.89			N	N
BARTOLE	LAURA			Università di Trieste	Dipartimento di Biologia	Via L. Georgieri 10, I-34127 Trieste	Italy	39.040.6763869	39.040.568855	bartole@univ.trieste.it		N	N
BATTELLI	CLAUDIO	M SC	Assistant of didactic of natural sciences	University of Lubiana, Faculty of Education	St Cankar 5, Koper 6000	Croatia (?)	386 5 66 31 264	386 5 66 31 268	ClaudioBattelli@guest.arnes.sci	Italian English		Y	Y
BAVARU	ADRIAN			Univ. Ovidius		Bdul Mamaia 124, 8700 Constanta	Roumania					N	N
BAZZICHELLI	GIORGIO			Università di Roma "La Sapienza"	Dipartimentodi Biologia Vegetale	P. le Aldo Moro 5, I-00185 Roma	Italy	39.06.4991245	39.06.4463865			N	N
BELKHIRIA	SAMI			Agence Nationale de Protection de L'Environnement		12 rue du Cameroun, B.P. 52, 1002 Tunis Belvédère	Tunisia	216.1.840.563	216.1.848.069			N	N
BELLEMO	GIORGIO			Università di Padova-Biologia		Cannareggio 97/B, I-30121 Venezia	Italy	39.041.715.840				N	N
BELSHER	THOMAS			IFREMER-Centre de Brest	DEL / Ecologie	B.P.70 Plouzané Cedex, 29280 Brest	France	33.2.98.224.319	33.2.98224548	belsher@ifremer.fr		Y	N
BENSAÏD	RAFIK			Institut National des Sciences & Technologies de la Mer		28, Rue du 2 Mars 1934, 2025 Salammbô	Tunisia	216.1.730.420/276121	216.1.732.622	rafik.bensaïd@instm.rnrt.tn		N	N
BENEDETTICECCHI	LISANDRO			Università degli Studidi Pisa	Dipartimento di Scienze Ambientali	Via A. Volta 6, I-56126 Pisa	Italy	39.050.500.018	39.050.496.94	encecc@discat.unipi.it		Y	N
BENHISSOUNE	SAÏD			Faculté des Sciences d'Agadir	Département de Biologie	B.P. 28/S, 80000 Agadir	Morocco	212.61.433 819	212.48.220 100	benhissoune@hotmail.com		Y	N
BENTATA	VINCENT			Ministère Français de l'Environnement	(DNP)	20, Avenue de Ségur, 75007 Paris	France	33.1.42191866	33.1.42191979	dnp.sdcffs.bffs.fau@environnement.gouv.fr		N	N
BIGAN	MARTINE			Ministère de l'Environnement	Direction de la Nature et des Paysages	20, Avenue de Ségur 75302 Paris	France					N	N
BITAR	GHAZI			Université Libanaise	Faculté des Sciences (SectionI)	Hadeth, Beyrouth	Lebanon	961.3.315162/961.5.801395	961.5.465562	ghbitar@ul.edu.lb		Y	N

BOISSET LOPEZ	FERNANDO		Profesor Titular de Universidad	University of Valencia	Vegetal Biology	Dr. Moliner s/n, Burjassot-Valencia 46100	Spain	96 3 864 374	96 3 864 082	fernando.boisset@uv.es		Y	Y
BONI	LAURITA			Università degli Studi di Bologna	Dipart. di Biologia Evoluzionistica Sperimentale	Via Irnerio 42, I-40126 Bologna	Italy	39.05.135130 2/39.05.4421 3831	39.051.24257 6/39.0544.21 3831	boni@ambra.unibo.it		Y	N
BORDEHORE	CESAR			Universidad de Alicante	Unidad de Biologia Marina	Ap. 99, E-03080 Alicante	Spain	34.96.590.36 68	34.96.590.38 15	cesar.bordehore@ua.es		N	N
BORG	JOSEPH ANTHONY	MR	Assistant Lecturer	University of Malta	Biology	West str, Msida MST06	Malta	356 21 342 488	356 21 342 488	joseh.a.borg@um.edu.mt		Y	Y
BOTTALICO	ANTONELLA			Università di Bari-Campus	Istituto di Botanica	Via E. Orabona 4, I-70126 Bari	Italy	39.080.544.2 1.63	39.080.544.2 1.63/2	bottalico@botanica.uniba.it		N	N
BOUDOURESQUE	CHARLES-FRANÇOIS			UMR 6540 CNRS	Centre d'Océanologie de Marseille	Campus - Univ. de Marseille-Luminy Marseille Cedex 09, 13288 Marseille	France	33.4.9182913 0	33.4.91.41.12 .65	boudour@com.univ-mrs.fr		N	N
BOUMAZA	SALIMA			Inst. des Sc. de la Mer et de l'Aménagement du Littoral	Labo. de Biologie et de l'Ecologie du Phytobenthos	Villa n°4, B.P. 54 Staraueli, Wilaya de Tipaza, Alger	Algeria	213.21.37.68. 06/21.37.70.7 6	213.21.74.76. 54/21.74.29.0 9	bsalima82@hotmail.com		N	N
BRESSAN	GUIDO			Università degli Studi di Trieste	Dipartimento di Biologia	Via L. Giorgieri 10, I-34127 Trieste	Italy	39.040.676.3 868	39.040.56885 5	bressan@univ.trieste.it	http://www.univ.trieste.it/biolo/gia	Y	N
BRUNO	LAURA			Università di Roma "Tor Vergata"	Dipartimento di Biologia	Via della Ricerca scientifica, I-00133 Roma	Italy	39.06.72.59.4 3.32	39.06.20.23.5 00	laura.bruno@uniroma2.it		N	N
BRUNO	MILENA				Instituto Superiori di Sanità	Via le Regina Elena, I-00185 Roma	Italy	39.06.4990.2 173	39.06.4990.2 328	mbruno@iss.it		Y	N
BUIA	M.CRISTINA			Laboratorio di Ecologia del Benthos	Stazione Zoologica "A.Dohrn"	Punta S. Pietro, I-80077 Ischia Porto (NA)	Italy	39.081.58335 04	39.081.98420 1	cbuia@alpha.szn.it	http://www.szn.it/	Y	N
CABRINI	MARINA				Laboratorio di Biologia Marina	Strada Costiera 336 S. Croce, I-34010 Trieste	Italy	39.040.22440 0/22446	39.040.22443 7	abrini@univ.trieste.it		Y	N
CALVO	SEBASTIANO			Universita degli studi di Palermo	Dipartemento de Scienze Botaniche	Via Archirafi 38, I-90123 Palermo	Italy	39.091.61614	39.091.61760	calvo@mbox.unipa.it		N	N
CANINI	ANTONELLA			Università di Roma "Tor Vergata"	Dipartimento di Biologia	Via della Ricerca Scientifica, I-00133 Roma	Italy	39.06.725943 32	39.06.202350 0	canini@uniroma2.it	http://www.uniroma2.it/biologia/centri/micr	N	N
CANTONATI	MARCO			MuseoTridentino di Scienze Naturali		Via Calepina 14, I-38100 Trento	Italy	39.0461.2703 42	39.0461.2338 30	cantonati@mtsn.tn.it	http://mtsn.tn.it	N	N

CAROPPO	CARMELA			C.N.R.	Istituto Talassografico 'A.Cerruti'	Via Roma 3, I-74100 Taranto	Italy	39.099.4542203	39.099.4542215	caroppo@alpha.area.le.cnr.it		N	N
CASTRIC-FEY	ANNIE			Collège de France	Laboratoire de Biologie Marine	B.P. 225 Concarneau Cedex 29182, CONCARNEAU Cedex	France					N	N
CAVACINI	PAOLO			Università di Roma "La Sapienza"	Dipartimento di Biologia Vegetale	P. le Aldo Moro 5, I-00185 Roma	Italy	39.06.49912432	39.06.4463.865	cavacini@uniromal.it		N	N
CECCHERELLI	GIULIA			Università degli Studi di Pisa	Departimento di Scienza dell'Uomo et dell'Ambiente	Via A. Volta ,56126 Pisa	Italy	39.050.500.018	39.050.49.694	cecchere@discat.unipi.it		N	N
CECERE	ESTER			C.N.R.	Istituto Talassografico A. Cerruti	Via Roma 3, I-74100 Taranto	Italy	39.099.4542203	39.099.4542215	cecere@istta.le.cnr.it	http://www.istta.le.cnr.it	Y	N
CINELLI	FRANCESCO			Università degli Studi di Pisa	Depart. di Scienze dell Uomo et dell'Ambiente	Via A. Volta 6, 56121 Pisa	Italy	39.050.500.018	39.050.49.694	cinelli@discat.unipi.it		Y	N
CIRIK	SÜKRAN			Dokuz Eylül University	Institute of Marine Science and Technology	1884/8 Sokak N 10, P.O. Box 478, 35260 Izmir	Turkey	90.232.2785565	90.232.2785082			N	N
COK	SARA				Laboratorio di Biologia Marina	Strada Costiera 336 S. Croce, I-34010 Trieste	Italy	39.040.224400/224464	39.040.224437			N	N
CONGESTRI	ROBERTA			Università di Roma "Tor Vergata"	Dipartimento di Biologia	Via della Ricerca scientifica, I-00133 Roma	Italy	39.06.7259.4332	39.06.2023.500	roberta.congestri@uniroma2.it		N	N
COPPEJANS	ERIC			Universiteit Gent	Vakgroezp Morfologie Systematiek & Ecologie Laboratorium Plantkunde	K.L. Leganckstraat 35, 9000 GENT						N	N
COQUILLARD	PATRICK			Université d'Auvergne	Laboratoire d'Ecologie végétale et cellulaire	P.O. Box 38 Clermont-Ferrand Cedex 1, 63000 Clermont-Ferrand	France	33.4.73.60.80.74	33.4.73.27.79.07	Coquillard@u-clermont1.fr		N	N
CORDELLA	PAOLO			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-34127 Padova	Italy	39.049.827.6259	39.049.827.6260	cordella@civ.bio.unipd.it		N	N
CORMACI	MARIO			Università degli Studi di Catania	Dipartimento di Botanica	Via A. Longo 19, I-95125 Catania	Italy	39.095.507.490/430.901/2	39.095.441.209	cormaci@mbox.dipbot.unict.it		Y	N
CULOSO	FRANCA			Università degli Studi di Messina	Istituto di Botanica	Salita Sperone 31 S. Agata, I-98166 Messina	Italy	39.090.391.940	39.090.392.686			N	N
CURIEL	DANIELE			c/o Università di Padova-Biologia		Via Cal Solaro 37 Favaro, I 30100 Veneto (VE)	Italy	39.041.634.207	39.041.634.207			N	N
DARCHINO	ROBERTA			Università di Roma "La Sapienza"	Dipartimento di Biologia Vegetale	P. le Aldo Moro 5, I-00185 Roma	Italy	39.06.49912579	39.06.4463865	darchino@uniromal.it		N	N

DE MASI	FLORA			Universita' degli Studi di Messina	Istituto di Botanica	Salita Sperone 31 S. Agata, I-98166 Messina	Italy	39.090.391.94	39.090.392.686			N	N
DE STEFANO	MARIO			Stazione Zoologica "A.Dohrn"		Villa Comunale, I-80121 Napoli	Italy	39.081.7641355	destefa@alpha.szn.it			Y	N
DEL NEGRO	PAOLA				Laboratorio di Biologia Marina	Strada Costiera 336 S. Croce, I-34010 Trieste	Italy	39.040.224400/224464	39.040.224437	delnegro@univ.trieste.it		Y	N
DELL UOMO	ANTONIO			Università degli Studi di Camerino	Dipartimento di Botanica e dEcologia	Via Pontoni 5, 62032 Cameriono (MC)	Italy	39.0737.40527/2527	39.0737.40528	ficoecol@camserv.unicam.it		N	N
DELLA PIETA	FRANCESCA			Università degli Studi di Pisa	Dipartimento di Scienze Ambientali	Via A. Volta 6, I-56126 Pisa	Italy	39.050.500018/500943	39.050.49694			N	N
DESTOMBE	CHRISTOPHE			Université de Lille	Labo. de génétique et Evolution des Populations Végétales	URA CNRS 1185, Bat. SN2 - Université de Lille I, Cedex 59655 Villeneuve d'Ascq	France	33.3.2043.49.91	33.3.20.43.69.79	Destombe@univ-Lille1.fr		N	N
DIAZ ALMELA	ELENA	Biologist	PhD student	Instituto Mediterraneo de Estudios Avanzados CSIC-Univ	Natural Ressources	C/ Miquel Marques 21, Esperoles 07190	Spain	34 97 161 1725	34 97 161 1761	ieaeda@clust.uib.es		Y	Y
DI MARTINO	VINCENZO			Università degli Studi di Catania	Dipartimento di Botanica	Via A. Longo 19, I-95125 Catania	Italy	39.0347.2344614	39.095.441209	vincenzo@mail.pandorasicilia.it		N	N
DIAPOULIS	ARISTIDIS			National Center for Marine Research		Aghios Kosmas, 166 04 Athens	Greece	30.198.33.095				N	N
DINI	FERNANDO			Università di Pisa	Departimento di Etologia, Ecologia e d'Evoluzione	Via A. Volta 4, 56126 Pisa	Italy	39.050.24.252	39.050.24.252	F.dini@discat.unipi.it		N	N
DIVIACCO	GIOVANNI			Regione Liguria	Ufficio Parchie Area Protetti	Via d'Annonzio, Genova	Italy	00.39.010.54.84.218	00.39.010.54.85.754	giovanni.diviacco@regione.liguria.it		N	N
DJELLOULI	ASLAM SAMI			Faculté des Sciences de Tunis	Departement de Biologie	Campus Universitaire, 1005 Tunis	Tunisia	216.71.882.200/872.600 Poste				Y	N
DJELLOULI-EL ASMI	ZOHRA	MSC	Researcher	Institut National des Sciences et Technologies de la Mer		28, Rue du 2 Mars 1934, 2025 Salammbô	Tunisia	216 71 730 420	216 71 732 622			Y	N
DUARTE QUESEDA	CARLOS MANUEL	Doctor	Research Professor Spanish Research Council	Instituto Mediterraneo de Estudios Avanzados CSIC-Univ	Natural Ressources	C/ Miquel Marques 21, Esperoles 07190	Spain	34 97 161 1725	34 97 161 1761	cduarte@uib.es		Y	Y
EINAV	RACHEL			University of Barllan	Department of LifeSciences	Ramat Gan, 529000 Ramat Gan	Israel	972.66.390448	972.66.392221	einavr@maritime.co.il		N	N

ELABED	AMOR			28, rue du 2 Mars 1934	Institut National des Sciences & Technologies de la Mer	28, rue du 2 Mars 1934, 2025 Salammbô	Tunisia	216.1.732.022	216.71.732622			N	N
ELEFTHERIOU	ANASTASIOS			Institute of Marine Biology of Crete		P.O. Box 2214, Heraklion, 71003 Crete	Greece	30.81.242.882/241.992	30.81.241.882	imbc@imbc.gr		N	N
ERTUGRUL	OGUZHAN			Turkish Embassy		Vassileos Georgiou Str. 8, 10674 Athens	Greece	30.1.724.59.15	30.1.722.95.97			N	N
FALACE	ANNALISA			Università degli Studi di Trieste	Dpartimento di Biologia	Via L. Giorgieri 10, I-34127 Trieste	Italy	39.040.6763868	39.040.568855			Y	N
FELICINI	GIAMPIERO			Università degli Studi di Bari	Istituto di Botanica	Via E. Orabona 4, I-70126 Bari	Italy	39.080.544216 3	39.080.544216 3/2	g.felicini@botanica.uniba.it		N	N
FUMANTI	BRUNO			Università di Roma "La Sapienza"	Dipartimento di Biologia Vegetale	P. le Aldo Moro 5, I-00185 Roma	Italy	39.60.4991.2432	39.06.4463.865	fumanti@uniromal.it		N	N
FURNARI	GIOVANNI			Università degli Studi di Catania	Dipartimento di Botanica	Via A. Longo 19, I-95125 Catania	Italy	39.095.507490/430901/2	39.095.441209	g.furnari@mbox.dipbot.unict.it	http://www.dipbot.unict.it	Y	N
GABRIELIDES	GABRIELP.			Coordinating Unit for the Mediterranean Action Plan	Senior Programme Officer	P.OL. Box 18019, Vas. Konstantiniou Avenue 48, 11610 Athens	Greece	30.1.727.3103	30.1.725.3196/7	gabriel@unepmap.gr		N	N
GAMBARDELLA	RAFFAELE			Univesità di Napoli "FedericoII"	Dipartimento di Biologia Vegetale	Via Foria 223, I-80139 Napoli	Italy	39.81.440681	39.81.450165	gambarde@unina.it		N	N
GARGIULO	GAETANOM.			Università degli Studi di Messina	Istituto di Botanica	Salita Sperone 31, S. Agata, I-98166 Messina	Italy	39.090.391940	39.090.392686	ggargiul@scirocco.unime.it		N	N
GAVACH	CLAUDE			UMR CNRS N 9987	Labo. des Matériaux et Procédés Membranaires	UMR CNRS N 9987, B.P. 5051- Montpellier cedex, 34033 Montpellier	France					N	N
GENOVESE	GIUSY			Università degli Studi di Messina	Istituto di Botanica	Salita Sperone 31, S. Agata, I-98166 Messina	Italy	39.090.391940	39.090.392686			N	N
GHIRARDELLI	LIAANGELA			Università degli Studi di Trieste	Dipartimento di Biologia	Via L. Giorgieri 10, I-34127 Trieste	Italy	39.040.6763865	39.040.568855	ghiradl@univ.trieste.it	http://www.univ.trieste.it/biologia/	Y	N
GIACCONE	GIUSEPPE			Università di Catania	Dipartimento di Botanica	Via A. Longo, 19, I-95125 Catania	Italy	39.095.507490	39.095.441.209	giaccone@mbox.dipbot.unict.it	http://www.dipbot.unict.it	Y	N
GOMEZ GARRETA	AMELIA	Doctor	Professor	University of Barcelona Faculty of Farmacy	Botany	Joan XXIII s/n, Barcelona 08028	Spain	34 93 402 4490	34 93 403 5879	agomez@farmacia.far.ub.zs		Y	Y
GORI	PAOLO			Università degli Studi di Siena	Istituto Policattedra di Biologia Generale	Via T. Pendola 62, I-53100 Siena	Italy	39.0577.263521	39.0577.263509	goripaolo@unisi.it		N	N

GRAVEZ	VINCENT			GIS Posidonie		Parc Scientifique & Technologique de Luminy, Case 901 Marseille cedex 09, 13288 Marseille	France	33.4.91829135	33.4.91.41.12.65	gravez@com.univ-mrs.fr		N	N
GRILLICAIOLA	MARIA			Università di Roma "Tor Vergata"	Dipartimento di Biologia	Via della Ricerca Scientifica, I-00133 Roma	Italy	39.06.72594344	39.06.2023500	grilli@uniroma2.it	jttp://www.uniroma2.it/biologia/centri/micr	N	N
GUALTIERI	PAOLO			C.N.R.	Istituto di Biofisica	Via San Lorenzo 26, I-56127 Pisa	Italy	39.050.513213	39.050.553501	mbxgualtieri@mail.cnuce.cnr.it		N	N
GUGLIELMI	PAOLO			WWF MedPO		Via Po 25/c 198, Rome	Italy	39.06.84497358	39.06.8413866	pguglielmi@wwfnet.org		Y	N
HAMZA	ASMA			Institut National des Sciences & Technologie de la Mer	Centre de Sfax	B.P. 1035, 3018 Sfax	Tunisia	216.4.220.117	216.4.229.987			N	N
HARMELIN-VIVIEN	MIREILLE			Centre d'Océanologie de Marseille - CNRS UMR 6540	Station Marine d'Endoume	Rue Batterie des Lions, 13007 Marseille	France	33.4.91041628	33.4.91041635	harmelin@com.univ-mrs.fr		N	N
HONSELL	GIORGIO			Università degli Studi di Udine	Dipart. di Biologia e d'Economia Agro-Industriale	Via Cotonificio 108, I-33100 Udine	Italy	39.0432558789(40.6763867)	30.0432558784	giorgio.honsell@pldef.uniud.it		N	N
INNAMORATI	MARIO			Università degli Studi di Firenze	Dipartimento di Biologia Vegetale	Via P.A. Micheli 1, I-50121 Firenze	Italy	39.0552757381/2757383	39.055.282358	innaecol@unifi.it		N	N
ISRAEL	ALVARO			Israel Oceanographic Institute	Dept. of Marine Biology	Tel Shikmona, P.O. Box 8030, 31080 Haifa	Israel	972.4.851.52.02	972.4.851.19.11	alvaro@ocean.org.il		N	N
JAUBERT	JEAN			Observatoire Océanologique Européen	Centre Scientifique de Monaco	Avenue Saint Martin, MC-98000	Monaco	377.92.167983	377.92.167981	jaubert@naxos.unice.fr		Y	N
JAUME	DARDER			Conselleria d'Agricultura-Comerçi Industria	Fisheries Department Govern Balear	C/. Foners 10, 07006 Palma de Mallorca	Spain	34.71.17.61.04	34.71.1761.57			N	N
KARAKASSIS	IOANNIS			Institute of Marine Biology of Crete		P.O. Box 2214, Heraklion, 71003 Crete	Greece	30.81.242022/241992	30.81.241882	jkarak@imbc.gr		N	N
KASHTA	LEFTER			Universiteti "Luigi Gurakuqi"	Fakultetii Shkencavete Natyres	Shkodra	Albania	355.224.3747	355.42.65229	cep@cep.tirana.al		N	N
KHALIL	ABDELGHANI			Faculty of Science-Alexandria University	Department of Oceanography	Moharrem Bey, 21511 Alexandria	Egypt	20.3.4843171/2	20.3.4911794	pro@dataxpers.com.eg		N	N
KNOEPFFLER	MICHELE			URA CNRS 117	Laboratoire Arago	B.P. 44 - Banuyls-Sur-Mer CEDEX, 66651 Banuyls-Sur-Mer	France					N	N

KOUTSOUBAS	DROSOS			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	30.81.242022 /241992	30.81.241882	drosos@imbc.gr		N	N
KSOURI	JAMEL			Institut National des Sciences & Technologies de la Mer		29 Rue du Général Khéréddine, 2025 Le Kram	Tunisia	216.1.276.12 1	216.1.732.62 2	jamel.ksouri@instm.rnrt.tn		Y	N
LANFRANCO	EDWIN			University of Malta	Department of Biology	MSD 06 Msida	Malta					N	N
LAPENNA	GAIA			Università di Bari	Istituto di Botanica	Via E. Orabona 4, I-70126 Bari	Italy	39.080.54421 63	39.080.54421 63/2			N	N
LAZARIDOU	THALIA				Greek Biotope- Wetland Centre	14th Km Thessaloniki-Mikaniona, 570 01 Thessaloniki	Greece	30.31.476262	30.31.471795	thalia@ekbij.the.forthnet.gr		N	N
LAZZARA	LUIGI			Università degli Studi di Firenze	Dipartimento di Biologia Vegetale	Via P.A. Micheli 1, I-50121 Firenze	Italy	39.055.27573 84	39.055.28235 8	llazzara@unifi.it		N	N
LEONE	MASSIMO					Via Novara 23, I-04022 Fondi (LT)	Italy					N	N
LHARDY-HALOS	MARIE-THERESE			Faculté des Sciences - Université du Maine	Laboratoire de Phycologie Marine, Morphogénèse	Avenue O Messiaen, LE MANS Cedex, 72017 LE MANS	France					N	N
LUGLIË	ANTONELLA			Università degli Studi di Sassari	Istituto di Botanica	Via Muroni 25, I-07100 Sassari	Italy	39.079.23708 7	39.079.23360 0			N	N
M.GRAU	ANTONIO			Conselleria d'Agricultura-Comerçi Industria	Marine Resources Service Govern Balear	C/. Foners 10, 07006 Palma de Mallorca	Spain	34.71.176104	34.71.176157			N	N
MANNINO	ANNAMARIA			Università degli Studi di Palermo	Dipartimento di Scienze Botaniche	Via Archirafi 38, I-90123 Palermo	Italy	39.091.61614 93	39.091.61760 89			N	N
MARANZANA	GIULIANO			Università deli Studi di Trieste	Dipartimento di Biologia	Via L. Giorgieri 10, I-34127 Trieste	Italy	39.040.67638 98	39.040.56885 5	maranzan@univ.trieste.it		N	N
MARBA BORDALBA	NURIA	Doctor	Post Doctorant	Instituto Mediterraneo de Estudios Avanzados CSIC-Univ	Natural Ressources	C/ Miquel Marques 21, Esperoles 07190	Spain	34 97 161 1725	34 97 161 1761	ieanmb@clust.uib.es		Y	Y
MARIANI	PAOLA			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-35121 Padova	Italy	39.049.82762 77	39.049.82762 80			N	N
MARINO	DONATO			Stazione Zoologica "A.Dohrn"		Villa Comunale, I-80121 Napoli	Italy	39.081.58332 71	39.081.76413 55	marino@alpha.szn.it		N	N
MARZOCCHI	MARA			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-35121 Padova	Italy	39.049.82762 61	39.049.82762 60	mara@civ.bio.unipd.it		N	N
MAURI	ELENA			Osservatorio Geofisico Sperimentale		Borgo Grotta Gigante, I-34100 Trieste	Italy	39.040.21402 67				N	N
MAURIZI	ALOIS			Institute of Marine Biology of Crete		P.O. Box 2214, 71003 Heraklion	Greece	30.81.242022 /241992	30.81.241882	alois@imbc.gr		N	N

MEDEGHINIBONATTI	PIERA			Università degli Studi di Modena	Istituto di Botanica	Via Caduti in guerra 127, I-41100 Modena	Italy	39.059.236132	39.059.221829			N	N
MEINESZ	ALEXANDRE			Université de Nice Sophia Antipolis	Laboratoire Environnement Marin Littoral	Nice cedex 2, 06108 Nice	France	33.4.92076846	33.4.92076849	meinesz@unice.fr		N	N
MICHELI	CARLA			ENEA-Casaccia		Via Anguillarese 301, S. Maria di Galeri, I-00060 Roma	Italy	39.06.3048.6428	39.06.3048.6487			N	N
MIFSUD	CARMEN	M S	Environment Officer	Environment Protection Directorate of the Malta Environment and Planning Authorit		Corradina PLA 08	Malta	356 69 966 171	356 69 667 779 ?	carmen.b.mifsud@magnet.mt		Y	Y
MIRONAKI	EFTYCHIA			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	30.81.242022/241992	30.81.241882	imbc@imbc.gr		N	N
MONTESANTO	BARBARA			University of Athens	Department of Ecology & Taxonomy	Panepistimiopolis, 15 784 Athens	Greece	30.1.72.74.373	30.1.98.86.337	bmontes@cc.uoa.gr		N	N
MONTRESOR	MARINA			Stazione Zoologica "A. Dohrn"		Villa Comunale, I-80121 Napoli	Italy	39.081.583325	39.081.764135	mmontr@alpha.szn.it	http://www.szn.it/	N	N
MORABITO	GIUSEPPE			Istituto Italiano di Idrologia CNR-ITT		Villa Comunale, I-80121 Napoli	Italy	39.0323518300-34	39.0323556513	g.morabito@iii.to.cnr.it	http://www.iii.to.cnr.it	N	N
MORABITO	MARINA			Università degli Studi di Messina	Istituto di Botanica	Salita Sperone 31, S. Agata, I-98166 Messina	Italy	39.090.39.19.40	39.090.39.26.86			N	N
MORENO LAMPREAVE	DIEGO					C/ Arana apartamentos Las Dunas 2, Cabo de Gata Almeria 04150	Spain	34 95 037 1277		dmoreno@telebase.es		Y	Y
MOSTAFA	HESHAMMANSOUR			Faculty of Science-University of Alexandria	Department of Oceanography	Moharrem Bey, 21511 Alexandria	Egypt	0203.5401.910	0202.3350.687	eess@intouch.com		Y	N
MUCCIFLORA	SIMONETTA			Università degli Studi di Siena	Istituto Policattedra di Biologia Generale	Via T. Pendola 62, I-53100 Siena	Italy	39.0577.263521	39.0577.263509			N	N
MURANO	ERMINIO			Centro Ricerche POLYbios	POLYtechs. cr. 1. e	Area di Ricerca, Padriciano 99, I-34012 Trieste	Italy	39.040.3756607	39.040.9220016	murano@polytech3.area.trieste.it		N	N
NAJIM	LARBI			Faculté des Sciences	Depart. de Biologie - Laboratoire de Botanique (Algologie)	Avenue Ibn Batouta, B.P. 1014, Rabat	Morocco	212.7.775461	212.7.775461	lnajim@fsr.ac.ma		Y	N
NASELLIFLORES	LUIGI				Dipartimento di Scienze Botaniche	Via Archirafi 38, I-90123 Palermo	Italy	39.091.616143	39.091.617608	luigi.naselli@unipa.it		N	N

NOTARBARTOLO DI SCIARA	GIUSEPPE				Istituto Centrale per la Ricerca scientifica e technologica Applicata al Mare (ICRAM)	Via di Casalotti 300, 00166 Rome	Italy	39.06.808871 2/80	39.06.615619 06	disciara@tin.it		N	N
NUCCIO	CATERINA			Università degli Studi di Firenze	Dipartimento di Biologia Vegetale	Via PA Micheli 1, I-50121 Firenze	Italy	39.055.27573 87/2757381	39.055.28235 8	ecol@unifi.it		N	N
ORESTANO	CARLA			Università degli Studi di Palermo	Dipartimento di Scienze Botaniche	Via Archirafi 38, I-90123 Palermo	Italy	39.91.616149 3	39.91.617608 9	orestano@mbox.unipa.it		N	N
ORFANIDIS	SOTIRIS	PhD	Associated Researcher	National Agricultural Research Foundation Fisheries Research Institute	Marine Ecology	Nea Permos, Kavala 64007	Greece	30 59 402 2692	30 59 402 2222	sorfanid@otenet.gr		Y	Y
ORLANDO BONACA	MARTINA	Biologist	Researcher	National Institute of Biology	Marine Biology Station Piran	Fornace 41, Piran 6330	Slovenia	386 5 674 5306	386 5 674 6367	orlando@nib.si		Y	Y
PALANDRI	MARIAROSA			Università degli Studi di Firenze	Dipartimento di Biologia Vegetale	Via P.A. Micheli 1, I-50121 Firenze	Italy	39.55.275738 1	39.55.282358			N	N
PANAYOTIDIS	PANAYOTIS			National Centre for Marine Research	Institute of Oceanography	Aghios Kosmas, GR-16604 Athens	Greece	30.1.9653520 /1	30.1.9653522	ppanag@erato-fl.ncmr.gr		Y	N
PAPADOPOULOU-SMITH	KONSTANTIA			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	30.81.242022 /241992	30.81.241882	imbc@imbc.gr		N	N
PAPI	HARIA			Univesità degli Studi di Pisa	Dipartimento di Scienze Ambientali	Via A. Volta 6, I-56126 Pisa	Italy	39.050.50001 8/500943	39.050.49694			N	N
PARDI	GIUSEPPINA			Università degli Studi di Pisa	Dipartimento di Scienze Ambientali	Via A Volta 6, I-56126 Pisa	Italy	39.050.50001 8/500943	39.050.49694	gpardi@discat.unipi.it		N	N
PARIS	GIANMARCO			Università degli Studi di Parma	Istituto di Ecologia	ViadelleScienze, I-43100 Parma,	Italy	39.05219056 11/905612	39.0521.9056 65	paris@eagle.bio.unipr.it		N	N
PASCALINI	VANINA			Université de Provence	Biosystématique et Ecologie Méditerranéenne	13001 Marseille,	France			vanina.pasqulini@bioeco.u-3mrs.fr		N	N
PEIRANO	ANDREA			Environmental Reserach Center	Italian Agency for New Technology Energy & Environ	C.P. 316, 19100 La Spezia	Italy	39.0187.5362 96	39.0187.5362 73	peirano@estosf.santateresa.enea.it		N	N
PENNA	ANTONELLA			Università di Urbino	Centro Biologia Ambientale	Piazza Risorgimento 3, I-61029 Urbino	Italy	39.07223052 52	39.07223201 88	a.penna@mailer.uniurb.it		N	N
PERGENT	GERARD			Université de Corse	Facultés des Sciences	BP 52, 20250 Corte	France	33.4.9545014 6	33.4.9546244 1	pergent@univ-corse.fr		Y	N
PERGENT-MARTINI	CHRISTINE			Université de Corse	Facultés des Sciences	BP 52, 20250 Corte	France	33.4.9545014 6	33.4.9546244 1	pergent@univ-corse.fr		Y	N

PERRONE	CESIRA			Università degli Studi di Bari	Istituto di Botanica	Via E. Orabona 4, I-70126 Bari	Italy	39.080.5442163	39.080.5442163/2	perrone@botanica.uniba.it		Y	N
PETROCELLI	ANTONELLA			C.N.R.	Istituto Talassografico 'A. Cerruti'	Via Roma 3, I-74100 Taranto	Italy	39.099.4542203	39.099.4542215		http://www.istta.le.cnr.it	Y	N
PINTO	GABRIELE			Università di Napoli "FedericoII"	Dipartimento di Biologia Vegetale	Via Foria 223, I-80139 Napoli	Italy	39.081.2538515	39.081.450165	gabpinto@unina.it		N	N
PITTA	VIVI			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	30.81.242022/241992	30.81.241882	imbc@imbc.gr		N	N
PLAITI	WANDA			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	30.81.242022/241992	30.81.241882	imbc@imbc.gr		N	N
POLLIO	ANTONINO			Università di Napoli "FedericoII"	Dipartimento di Biologia Vegetale	Via Foria 223, I-80139 Napoli	Italy	39.081.440681	39.081.450165	anpollio@unina.it		N	N
PONIZ	PAOLA			Università degli Studi di Trieste	Dipartimento di Biologia	Via L. Giorgieri 10, I-34127 Trieste	Italy	39.040.676386767(307861)	39.040.568855			N	N
RASCIO	NICOLETTA			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-35121 Padova	Italy	39.049.8276278	39.049.8276280	rascio@civ.bio.unipd.it		N	N
RELINI	GIULIO			University of Genova	DIP.TE.RIS	Via Balbi 5, 16126 Genova	Italy	39.010.24.77.537	39.010.24.77.537	biolmar@unige.it		N	N
RIBERA	MARIAANTONIA			Facultad de Farmacia-Universidad de Barcelona	Departamento de Botanica	c/Juan XIII, s/n, 08028 Barcelona	Spain	34.3.4024490	34.3.4021887	ribera@farmacia.far.ub.es		Y	N
RINALDI	ATTILIO			Istitut Cent Ricerca Scientie Techno appli al Mare		Via di Casalotti 300, 00166 Rome	Italy	39.06.615701	39.06.61550581	icramdir@rdn.it		N	N
RIZZI	ERMENEGILDA				Laboratorio Provinciale di Biologia Marina	I-70123 Bari	Italy	39.080.5211200	39.080.5213486			N	N
RODRIGUEZ-PRIETO	CONXI			Universitat de Girona		Via di Casalotti 300, 17071 Girona	Spain	34.972.418157	34.972.418150	cacrp@fc.udg.es		Y	N
RUBINO	FERNANDO	Doctor	Researcher	Istituto per l'Ambiente Marino Costiero-CNR	Isti. Talassografico "A Cerruti" Sezione Taranto	Via Roma 3, Taranto 74100	italy	39 (0) 99 454 2203	39 (0) 99 454 2215	rubino@istta.le.cnr.it		Y	Y
SAIDKAHOUADJI	MOHAMMED			Ministère de l'Environnement		Avenue Roosevelt, Ex Résidence de l'Ambassade de France, Rabat	Morocco	212.7.680744/796908	212.7.680746			N	N
SANCHEZ-LIZASO	JOSE LUIS	Doctor	Professor	University of Alicante	Environmental Sciences	Po Box 99, Alicante 03080	Spain	34 96 590 3400 ext 3279	34 96 590 3464	JL.Sanchez@ua.es		Y	Y
SANGIORGI	FRANCESCA			Università di Bologna	Corso di Laureain Scienze Ambientali	Via Tombesi dell'Ova 55, I-48100 Ravenna	Italy			franci@ambra.unibo.it		N	N

SANTISI	SALVATORE			Università di Napoli "FedericoII"	Dipartimento di Biologia Vegetale	Via Foria 223, I-80139 Napoli	Italy	39.081.440681	39.081.450165			N	N
SARACINO	O.DANIELA			C.N.R.	Istituto Talassografico 'A. Cerruti'	Via Roma 3, I-74100 Taranto	Italy				http://www.istta.le.cnr.it/	Y	N
SARNO	DIANA				Stazione Zoologica "A.Dohrn"	Villa Comunale, I-80121 Napoli	Italy	39.081.583329 5	39.081.764135 5	sarno@alpha.szn.it	http://www.szn.it	N	N
SARTONI	GIANFRANCO			Università degli Studi di Firenze	Dipartimento di Biologia Vegetale	Via La Pira 4, I-50121 Firenze	Italy	39.055.275737 0	39.055.275737 3	gsartoni@unifi.it		Y	N
SCALA	SIMONA				Stazione Zoologica "A.Dohrn"	Villa Comunale, I-80121 Napoli	Italy	39.081.5833. 111	39.081.7641. 355	scala@alpha.szn.it		N	N
SCAMMACCA	BLASCO			Università degli Studi di Catania	Dipartimento di Botanica	Via A. Longo 19, I-95125 Catania	Italy	39.095.430901	39.095.441209			N	N
SCHEMBRI	PATRICK J.	Profes sor	Professor of Biology	University of Malta	Biology	University of Malta, Msida MSD06	Malta	356 32 902 789	356 32 903 092	patrick.j.schembri@um.edu.mt		Y	Y
SECHI	NICOLA			Università degli Studi di Sassari	Istituto di Botanica	Via Muroni 25, I-07100 Sassari	Italy	39.079.228.644	39.079.233.600	sechi@ssmain.uniss.it		N	N
SEFERLIS	MILTIADIS	MSC	Researcher	Greek Biotop Wetland Centre		14 Km Thessaloniki-Mihaniona, Thermi 57001	Greece	30 31 0 473 432 ext 212	30 31 0 471 795	seferlis@ekby.gr		Y	Y
SEMROUD	RACHID			Instit. Des Sc. De la Mer et de l'Aménagement du Littoral	Laboratoire de Biologie et de l'Ecologie du Phytoben	Villa n 4 B.P. 54 Starueli, Wilaya de Tipaza, Alger - ALGERIA	Algeria	213.21.37.68. 06/2.37.70.76	213.21.74.76. 54/2.74.29.09	rasem33@hotmail.com		N	N
SERIDI	HALIMA			Université des Sciences et Technologie Houari Boumediene	Labo. de Biologie Marine - Institut des Sciences del	B.P. 29 El-Alia Bab-Ezzouar, 16111 Alger	Algeria	213.21.24.72. 17				N	N
SERIO	DONATELLA			Università degli Studi di Catania	Dipartimento di Botanica	Via A. Longo 19, I-95125 Catania	Italy	39.095.430901	39.095.441209			N	N
SGROSSO	SILVIA			Stazione Zoologica "A.Dohrn"		Villa Comunale, I-80121 Napoli	Italy	39.081.583325 9	39.081.764135 5	SGrosso@alpha.szn.it		N	N
SIAKAVARA	EKATERINI			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	33.81.242022 /241992	33.81.241882	siakava@imbc.gr		Y	N
SIDARI	LAURA			Università degli Studi di Trieste	Dipartimento di Biologia	Via L. Giorgieri 10, I-34127 Trieste	Italy	39.040.676386 7	39.040.568855			N	N
SOLAZZI	ATTILIO			Università degli Studi di Ancona	Istituto di Scienze del Mare	Via Brecce Bianche, I-60131 Ancona	Italy	39.071.220491 9	39.071.220465 0	solazzi@popcsi.unian.it	http://www.unian.it/	N	N
TALARICO	LAURA			Università degli Studi di Trieste	Dipartimento di Biologia	Via Archirafi 38, I-90123 Palermo	Italy	39.040.676386 6/6763898	39.040.568855	talarico@univ.trieste.it	hrrp://www.univ.trieste.it/biologia/	N	N
TANTI	CHRISTINA			Ministry of Foreign Affairs and Environment	Environment Protection Department	Floriana	Malta	356.230.617	356.241.378			N	N

TERRADOS MUNOZ	JORGE	Doctor	Spanish Research Council Scientist	Centro de Estudios Avanzados de Blanes CSIC		14 Accès a la Cala Sant Francesc, Blanes 17300	Spain	34 97 233 6101	37 97 233 7806	terrados@ceab.csic.es		Y	Y
TERZIOGLU	ERGÜL			Ministry of Environment	Department of Environmental Protection	Eskisehir Yolu, 8 Km – Balgat, 06530 Ankara	Turkey	90.312.2879963	90.312.2862271			N	N
TOLAY	MUSTAFA			Scubadivers Sport Club Association		Iskele Cikmazi No 69 – Caddebostan, 81070 Istanbul	Turkey	90.532.2664628/90216.3555628	90..216.3605250			N	N
TOLOMIO	CLAUDIO			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-35121 Padova	Italy	39.049.8276256	39.049.8276260	ctolomio@civ.bio.unipd.it		N	N
TORTORA	TERESA			Università di Napoli "FedericoII"	Dipartimento di Biologia Vegetale	Via Foria 223, 80139 Napoli	Italy	39.081.440681	39.081.450165	mtortora@unina.it		N	N
TOTTI	CECILIA			Università degli Studi di Ancona	Istituto di Scienze del Mare	Via Brecce Bianche, I-60131 Ancona	Italy	39.071.2204647	39.071.2204650	cecilia@popcsi.unian.it	http://www.unian.it/	N	N
TREVISAN	RENATA			Università degli Studi di Padova	Dipartimento di Biologia	Via Trieste 75, I-35121 Padova	Italy	39.049.827.6279	39.049.827.6280	trevisan@civ.bio.unipd.it		N	N
TRIPODI	GIACOMO			Università degli Studi di Messina	Istituto di Botanica	Salita Sperone 31, S. Agata, I-98166 Messina	Italy		39.090.391.940	39.090.392686	gtripodi@sciroccco.unime.it	N	N
TSAPAKIS	MANOLIS			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	30.81.242022/241992	30.81.241882	imbc@imbc.gr		N	N
TSIRIKIA	ANASTASIA	MSC	PhD Student	Aristotle University of Thessaloniki	Botany	Aristotle University of Thessaloniki School of Biology Departement of Botany, Thessaloniki GR-541 24	Greece	30 31 0 998 272	30 31 0 998 389	atsirika@bio.auth.gr		Y	Y
TUNESI	LEONARDO			Istituto Centrale per la Ricerca scientifica e technologica Applicata al Mare (ICRAM)	Marine Protected Areas	Via di Casalotti, 300, 00166 Rome	Italy	39.06.8088712/80	39.06.61561906	letunesi@tin.it		Y	N
TURK	ROBERT			Regional Institute for Natural & Cultural Heritage Protection		Trg Bratstva 1, Piran	Slovenia	386.66.75676	386.66.73562	robert.turk@zvnkdpi.sigov.mail.si		Y	N

VERLAQUE	MARC			Centre d'Océanographie de Marseille (COM)	UMR 6540 DIMAR CNRS -	UMR 6540 DIMAR CNRS - Parc Scientifique de Luminy, COM, Case 901- Marseille Cedex 9, F-13288 Marseille	France	04.91.82.91.06	04.91.41.12.65	verlaque@com.univ.mrs.fr		Y	N
VIAGGIU	EMANUELA			Università di Roma "Tor Vergata"	Dipartimento di Biologia	Via della Ricerca Scientifica, I-00133 Roma	Italy	39.06.7259.4332	39.06.202.3500	emanuela.viaggiu@uniroma2.it		N	N
VUKOVIC	ALEKSANDER	Doctor Sci	Scientist	National Institut of Biology	Marine Biology Station	41 Fornace, Piran 6330	Slovenia	386 6 747 121 / 746 368 / 745 306	386 6 746 367	vukovik@nib.si		Y	Y
ZINGONE	ADRIANA			Stazione Zoologica "A. Dohrn"		Villa Comunale, I-80121 Napoli	Italy	39.081.5833295	39.081.7641355	zingone@alpha.szn.it	http://www.szn.it/research/Biol_Ecol.htm	N	N
ZIVANOVIC	SNEZANA			Institute of Marine Biology of Crete		P.O. Box 2214 – Heraklion, 71003 Crete	Greece	30.81.242022 /241992	30.81241882	imbc@imbc.gr		N	N
ZULJEVIC	ANTE					Setaliste Ivana Mestrovica 63,HR-21000 Split	Croatia	385.21.358688	385.21.358650	ante.zuljevic@jadran.izor.hr		Y	N

Annex 5.2.c

Sub-list of experts with expertise in taxonomy

Last name	First name	Title	Posi	Institution	Departement	Addr	Country	Tele	Fax	E-mail a	Working lang	Phaner	Algaes
ABBOUD-ABI SAAB	MARIE	Docto	Rese	National Council for Scientific F	Plankton	Natio	Lebanon	641 6	641 (	mabissa	English Frenc	no	Diatoms
ANTOLIC	BORIS	Docto	Labo	Institute of Oceanography and	Laboratory for Benthos	Set. I	Croatia	385 2	385 2	antolic@	croatian	Posidon	yes
ARANDA	AURELIO	Biolog	Rese	Institut d'Ecologia Litoral	Benthos	Jacint	Spain	34 63	34 6	aranda@	Spanish Frenc	Posidon	yes
BALLESTEROS	ENRIC	Docto	Rese	Centre d'Estudis Avançats de E	Aquatic ecology	Acces	Spain	34 97	34 9	kike@ce	Spanish Englis	all	all
BATTELLI	CLAUDIO	M SC	Assis	University of Lubiana, Faculty		St Ca	Slovenia	386 3	386	ClaudioB	Italian English	no	yes
BELSHER	TOMAS	Docto	Cadr	Ifremer	Environnement littoral	Centr	France	33 0	33 0	belsher@	Frensh Englis	Posidon	all
BENEDETTI-CECCHI	LISSANDRO	PhD	Lectu	University of Pisa	Scienze dell'Uomo e del	Via A	Italy	39 (0	39 (0	bencecc	English	Posidon	yes
BENHISSOUNE	SAID	Profes	Teat	Faculty of Sciences	Biology	BP 40	Morroco	212 4	212 4	benhisso	Arabic French		yes
BITAR	GHAZI	Docto	Ocea	Faculty of Sciences Lebanon U	Natural Sciences	Unive	Lebabon	961 3	961 3	ghbitar@	Arabic French	Posidon	Macro a
BOISSET LOPEZ	FERNANDO		Profe	University of Valencia	Vegetal Biology	Dr. M	Spain	96 3	96 3	fernando	Spanish Englis	Posidon	Laurenc
BONI	LAURITA	Profes	Asso	University of Bologna	Biology	Via Ir	Italy	39 (0	39 (0	boni@ar	Italian English	no	Diatoms
BORG	JOSEPH ANTH	MR	Assis	University of Malta	Biology	West	Malta	356 2	356 2	joseh.a.l	English	Posidon	no
BRESSAN	GUIDO	Profes	Acad	University of Trieste	Biology	Via L.	Italy	39 (0	39 (0	bressan	Italian French	yes	Corallina
BRUNO	MILENA	Gradu	Rese	Istituto Superiore di Sanità	Environment, Prevention	Via R	Italy	39 (0	39 (0	mbruno(	Italian English	no	Toxic sp
BUIA	MARIA CRIST	Docto	Coor	Stazione Zoologica 'A. Dohrn"	Benthic Ecology Labora	Punta	Italy	39 (0	39 (0	mcbuia@	English	Posidon	Macroal
CABRINI	MARIA	Docto	resea	Laboratory of Marine Biology		Via A	Italy	39 (0	39 (0		Italian English	no	Phytopla
CECERE	ESTER	Docto	Rese	Istituto per l'Ambiente Marino C	Isti. Talassografico "A C	Via R	Italy	39 (0	39 (0	cecere@	Italian English		yes
CINELLI	FRANCESCO	Profes	Full P	University of Pisa	Human and Environmen	Via A	Italy	39 (0	39 (0	cinelli@	French Englis	Posidon	Red Alg
CORMACI	MARIO	Profes	Profe	University of Catania	Botany	Via A	Italy	39 (0	39 (0	cormaci	Italian English	no	Macroa
DE STEFANO	MARIO	Docto	Post	Zoological Station of Naples	Marine Botany	Villa C	Italy	39 (0	39 (0	destefa(	Italian English	Posidon	Diatoms
DEL NEGRO	PAOLA	Docto	Rese	Laboratory of Marine Biology	Chemistry, Biochemistry	Via A	Italy	39 (0	39 (0	delnegro	Italian English	no	Cyanop
DIAZ ALMELA	ELENA	Biolog	PhD	Instituto Mediterraneo de Estud	Natural Ressources	C/ Mi	Spain	34 97	34 9	ieaeda@	Spanish Englis	yes	no
DJELLOULI	ASLAM SAMI	MSC	Assis	Faculty of Sciences of Tunis	Biology	Camp	Tunisia	216 7	216 7		Frensh Englis	yes	Marine M
DJELLOULI-EL ASMI	ZOHRA	MSC	Rese	Institut National des Sciences e		Ocea	Tunisia	216 7	216 7		French Englis	Posidon	No
DUARTE QUESEDA	CARLOS MAN	Docto	Rese	Instituto Mediterraneo de Estud	Natural Ressources	C/ Mi	Spain	34 97	34 9	cduarte(	Spanish Englis	yes	yes
FALACE	ANNALISA	Docto	Rese	Universita Degli Studi Di Triest	Botany	Via L.	Italy	39 (0	39 (0	falace@	Italian French	no	yes
FURNARI	GIOVANNI	Pofess	Profe	University of Catania	Botany	Via A	Italy	39 (0	39 (0	g.furnari	Italian English	no	Macroal
GHIRARDELLI	LIA ANGELLA	Docto	Rese	University of Trieste	Biology	Via L.	Italy	39 (0	39 (0	ghirardl(	English Italian	no	Cyanoba
GIACCONE	GUISEPPE	Profes	Profe	University of Catania	Botany	Via A	Italy	39 (0	39 (0	giaccone	Italian English	yes	yes
GOMEZ GARRETA	AMELIA	Docto	Profe	University of Barcelona Faculty	Botany	Joan	Spain	34 93	34 9	agomez	English Spani	no	Cystose
GUGLIELMI	PAOLO	Docto	Head	Mediterranean Programme Off		Via po	Italy	39 (0	39 (0	pguglielr	English Frenc	Posidon	no
JAUBERT	JEAN	Pofess	Profe	University of Nice-Sophia Antip	Faculty of Sciences	Parc	France	33 49	33 4	jean.jaul	French Englis	no	Caulerp
KSOURI	JAMEL		Rese	National Institute of Marine Sci	Aquaculture	29 rue	Tunisia	216 7	216 7	Jamel.K	French Englis	Posidon	Gracilar

LARBI	NAJIM	Profes	Lead	Faculty of Science of Rabat	Biology	BP 10	Morroco	212 3	212 3	lnajim@	French Englis	no	yes	
MARBA BORDALBA	NURIA	Docto	Post	Instituto Mediterraneo de Estu	Natural Ressources	C/ Mi	Spain	34 97	34 9	ieanmb@	Spanish Engli	yes	yes	
MIFSUD	CARMEN	M S	Envi	Environment Protection Directo		Corra	Malta	356 6	356 (	carmen.	English	Posidon	Cystose	
MORENO LAMPREAVE	DIEGO					C/ Ara	Spain	34 95		dmoren	Spanish Italian	Posidon	no	
MOSTAFA	HESHAM	Docto	Ass-I	Faculty of Science University o	Oceanography	Moha	Egypt	203 4		hmostaf	English Arabic	Posidon	Caulerp	
ORFANIDIS	SOTIRIS	PhD	Asso	National Agricultural Research	Marine Ecology	Nea F	Greece	30 59	30 5	sorfanid	English	yes	yes	
ORLANDO BONACA	MARTINA	Biolog	Rese	National Institute of Biology	Marine Biology Station F	Forna	Slovenia	386 5	386 5	orlando@	Slovenian Itali	Posidon	yes	
PANAYOTIDIS	PANAYOTIS	Docto	Prin	National Center for Marine rese	Oceanography	Agios	Greece	30 10	30 1	ppanag@	French Englis	Posidon	Cystose	
PERGENT	GERARD	Profes	Char	University of Corsica	Faculty of Sciences	EqEL	France	33 0	33 0	pergent@	French Englis	Posidon	no	
PERGENT-MARTINI	CHRISTINE	Docto	Lead	University of Corsica	Faculty of Sciences	EqEL	France	33 0	33 0	pmartini	French Italian	Posidon	no	
PERRONE	CESIRA	Profes	Profe	Universita degli Studi	Departement of Vegetal	Via E	Italy	39 (0	39 (0	perrone@	French Englis	no	Gelidiale	
PETROCELLI	ANTONELLA	Docto	Rese	Istituto per l'Ambiente Marino C	Isti. Talassografico "A C	Via R	Italy	39 (0	39 (0	antonella	Italian English	no	yes	
RIBERA SIGUAN	MARIA ANTON	Docto	Profe	University Of Barcelona, Facul	Botany	Joan	Spain	34 93	34 9	ribera@	English Spani	no	yes	
RODRIGUEZ-PRIETO	CONXI	Docto	Profe	University of Girona	Environmental Sciences	Facul	Spain	34 97	34 9	conxi.ro	English	no	yes	
RUBINO	FERNANDO	Docto	Rese	Istituto per l'Ambiente Marino C	Isti. Talassografico "A C	Via R	Italy	39 (0	39 (0	rubino@	Italian English	no	yes	
SANCHEZ-LIZASO	JOSE LUIS	Docto	Profe	University of Alicante	Environmental Sciences	Po Bo	Spain	34 96	34 9	JL.Sanc	English Spani	Posidon	no	
SARACINO	ORESTINA DA	Docto	Rese	Istituto per l'Ambiente Marino C	Isti. Talassografico "A C	Via R	Italy	39 (0	39 (0	daniella.	Italian English	no	yes	
SARTONI	GIANFRANCO	Docto	Asso	University Of Firenze	Vegetal Biology	Via L	Italy	39 (0		gsartoni	English Frens	no	yes	
SCHEMBRI	PATRICK J.	Profes	Profe	University of Malta	Biology	Unive	Malta	356 3	356 2	patrick.j.	English	yes	no	
SEFERLIS	MILTIADIS	MSC	Rese	Greek Biotop Wetland Centre		14 Km	Greece	30 31	30 3	seferlis@	Greek English	Posidon	yes	
SIAKAVARA	EKATERINI	Docto	Rese	Institute of Marine Biology Of C	Marine Ecology & Biodiv	po bo	Greece	30 81	30 8	siakava@	English	Posidon	Caulerp	
TERRADOS MUNOZ	JORGE	Docto	Span	Centro de Estudios Avanzados		14 Ac	Spain	34 97	37 9	terrados	Spanish Engli	yes	yes	
TSIRIKIA	ANASTASIA	MSC	PhD	Aristotle University of Thessalo	Botany	Aristo	Greece	30 31	30 3	atsirika@	English	Posidon	Cystose	
TUNESI	LEONARDO	Docto	Seni	Icram	Marine Protected Areas	300 V	Italy	39 (0	39 (0	ltunesi@	French Englis	Posidon	Caulerp	
TURK	ROBERT	MSC	Head	Institute of the Republic of Slov	Regional Office in Piran	12 Ta	Slovenia	386 5	386 5	robert.tu	English	Posidon	no	
VERLAQUE	MARC	Docto	Char	CNRS	UMR 6540 DIMAR	Centr	France	33 4	33 4	verlaque	French	no	Marine M	
VUKOVIC	ALEKSANDER	Docto	Scie	National Institut of Biology	Marine Biology Station	41 Fo	Slovenia	386 6	386 (	vukovik@	Slovenian Cro	Posidon	yes	
ZULJEVIC	ANTE	MSC	assis	Insitute of Oceanography and I	Laboratory of Benthos	63 Sc	Croatia	385 2	385 2	zuljevic@	Croatian Engli	yes	yes	

Géographic Areas	subjects	Updated	Remarks
Eastern Mediterranean	Biodiversity Biogeography Ecology Taxonomy	yes	
Adriatic sea	Biodiversity Cartography Ecology Taxonomy	yes	
Mediterranean sea	Taxonomy Ecology Cartography Biodiversity	yes	
Western Mediterranean	Biodiversity Ecology Taxonomy Physiology	yes	
Northern Adriatic, Gulf of Triest	Biodiversity Ecology	yes	verify country
Noth West Mediterranean, Atlantic (French & Canadian coasts) Pacific, Indian	Biodiversity Cartography Ecology Taxonomy	yes	Change address in 2003
North West Mediterrranean	Ecology Biodiversity Conservation	yes	verify fax
Mediterranean, Atlantic	Taxonomy Ecology Biodiversity Biogeography	yes	
Medterranean Red Sea Atlantic	Biodiversity Biogeography Ecology Taxonomy	yes	verify fax & phone code
Mediterranean	Biodiversity Taxonomy Biogeography Conservation	yes	
Adriatic sea	Physiology Ecolgy Aquaculture Toxic Algae	yes	
Central Mediterranean	Biodiversity CartographyConservation Ecology	yes	
Mediterranean	Biodiversity Biogeography Ecology Genetics Taxonomy	yes	
Mediterranean sea	Aquaculture Ecology Physiology Taxonomy	yes	
Central Italian Coasts	Ecology Biodiversity Physiology Conservation	yes	verify phone
Adriatic Mediterranean Magellan Strait Antartica		yes	
Ionian sea	Biodiversity Ecology Reproduction Taxonomy	yes	
Mediterranean Indian ocean Pacific ocean	Biodiversity Ecology Cartography Taxonomy	yes	verify fax
Mediterranean	Taxonomy Biodiversity Biogeography	yes	
	Taxonomy Elctron microscopy of microalgae	yes	
Adriatic antartic	Ecology	yes	
Mediterranean	Ecology Genetics Reproduction	yes	
Tunisia	Cartography Ecology Biodiversity	yes	
Tunisia	Ecology Cartography Conservation	yes	
Mediterranean SE Asia Caribean W Australia	Ecology Genetics Aquaculture Biodiversity	yes	
Adriatic Ligurian Sea	Biodiversity Ecology Taxonomy Aquaculture	yes	verify fax
Mediterranean	Taxonomy Biodiversity Biogeography	yes	
Northern Adriatic	Taxonomy Ecology Physiology	yes	verify phone & fax
Mediterranean Indian ocean	Biodiversity Biogeography Ecology Legislation	yes	
Western Mediterranean	Taxonomy Biogeography Biodiversity Ecology	yes	
mediterranean	Biodiversity Conservation Ecology Legislation	yes	
	Biogeography Cartography Ecology Physiology	yes	
	Aquaculture Biotechnology	yes	

	Biodiversity Biogeography Cartography Conservation	yes	
Mediterranean S E Asia Caribean W Australia	Ecologie Genetics Aquaculture Biodiversity	yes	
	Biodiversity Conservation Taxonomy Ecology Cartography	yes	
Andalusia S E of Spain	Biodiversity Biogeography Cartography Conservation	yes	
N W Mediterranean Egyptian Coast S Red Sea	Biodiversity Conservation Ecology Legislation	yes	
	Ecology Biogeography Aquaculture Cartography	yes	
Northern Adriatic Sea	Biodiversity Conservation Ecology Cartography	yes	
Eastern Mediterranean	Ecology Cartography Conservation Taxonomy	yes	
Mediterranean	Ecology Conservation Cartography Aquaculture	yes	
Mediterranean	Ecology Monitoring in response to human impact Ecology (	yes	
Mediterranean	Histology Reproduction Taxonomy Aquaculture	yes	
Ionian Sea	Biodiversity Ecology Physiology Taxonomy	yes	
Western Mediterranean	Taxonomy Biogeography Biodiversity Ecology	yes	
Mediterranean	Taxonomy Reproduction Ecology Physiology	yes	
Ionian Sea	Biodiversity Taxonomy Ecology	yes	
	Conservation Cartography Ecology Biodiversity	yes	
Ionian Sea	Biodiversity Ecology Taxonomy	yes	
	Taxonomy Ecology Biodiversity Conservation	yes	
Central Mediterranean	Ecology Conservation Human Impact	yes	
East Mediterranean	Biodiversity Biogeography Ecology Physiology	yes	
Aegean Ionian Cretan seas	Cartography Conservation Ecology	yes	
Mediterranean	Ecology Genetics Aquaculture Biodiversity	yes	
Aegean Ionian Seas	Biodiversity Cartography Conservation Ecology	yes	
Italian Waters Mediterranean Sea	Conservation Cartography Legislation	yes	
	Conservation Ecology	yes	
Mediterranean	Biogeography Ecology Biodiversity Taxonomy	yes	
Northern Adriatic Sea	Taxonomy Biodiversity Ecology Cartography	yes	
Adriatic Sea	Biodiversity Cartography Conservation Ecology	yes	

Annex 6.2.a

Extract from guidelines dealing with selected vegetal species in Annex 2 of the SPA Protocol

PROTECTION AND MANAGEMENT OF ANNEX-LISTED FLORA

The *Action Plan for the Conservation of Marine Vegetation in the Mediterranean Sea*[1] provides detailed guidance to Parties. It emphasises how protected flora help to maintain the balance of marine ecosystems by contributing to preserving necessary living conditions for other macrophyta species (associated and dependent species). The Plan recognises that many species are under increasing human pressure and that their decline has economic as well as ecological impacts (e.g. on fish spawning/nursery grounds and coastal stability). As the main threats are habitat loss/degradation rather than direct taking, this has important implications for the design of legal measures. A strategic cross-sectoral approach is fundamental to managing processes and activities damaging to marine plant communities.

The Plan calls on Parties to prepare a **national marine vegetation plan**, coordinated with other relevant plans (e.g. emergency plan to deal with pollution). National plans should:

- take account of country/area specific features;
- be scientifically-based and include programmes for data collection and specialist training;
- promote awareness-raising and education for the public, decision-makers and other stakeholders;
- provide for appropriate assessment, planning, regulation and management of coastal development, processes and activities that could affect marine plants (see section 4.1);
- provide for appropriate measures for conservation of marine vegetal assemblages that could be considered natural monuments, such as barrier reefs of *Posidonia* and organogenic surface formations, terraces (platforms with vermitids covered by soft algae) and certain *Cystoseira* belts (see section 4.2);
- provide for control of direct actions affecting protected flora (see section 4.3).

Magnoliophyta		
Species **Status under other instruments**	**Range, characteristics and threats**	**Appropriate legal measures**
Posidonia oceanica Neptune grass Bern (I) EU Fish (I) EU Habs (I)	Endemic to the Mediterranean, found along most of coastline (except Israel). Meadows play a key role in controlling sedimentary flows, recruitment of species of economic interest (spawning grounds/nursery) and exportation of organic matter towards deep ecosystems. Many associated or dependent species. Regression worst near large urban centres. Threats include pollution, reduced water transparency, boat mooring, trawling and illegal use of explosives for fishing.	Inventory and map meadows Confer strictly protected status on species and assemblages (meadows, barrier reefs) Prohibit destruction and disturbance of species/habitat without a permit Use area-based measures to protect and restore habitats (*ex situ* conservation if necessary and feasible)

[1] Adopted by the Eleventh Meeting of the Contracting Parties, Malta, 27-30 October 1999.

		Plan, regulate and/or manage activities and processes: • pollution and water turbidity • boat movements/mooring • fishing methods damaging to benthic habitats • prohibition on destructive fishing practices
Zostera marina Common eelgrass Bern (I) EU Fish (I)	Considerable regression in Mediterranean: now rare and very localized in north-west Mediterranean, the Adriatic and the Aegean. Important role in some Mediterranean coastal lagoons. Found in shallow sublittoral to the lower littoral zone, rarely below a depth of 5m. Beds/meadows support high density and diversity of associated flora and fauna, and provide valuable nursery and feeding grounds for fishes and birds. Root networks bind sediment and help to stabilise shoreline. Threats generated by coastal development relate to reduced water clarity, excessive nutrient loading and changes in sediment regime. As root systems are within top layer (20cm) of the sediment, may be dislodged by trampling, anchoring, digging (e.g. bait), shoreline riding, off-road driving and some watersports over subtidal beds (windsurfing, wash from jetskis and powerboats).	Inventory and map assemblages Confer strictly protected status on species and assemblages (meadows and barrier reefs) Prohibit destruction and disturbance of species/habitat without a permit Use area-based measures to protect and restore habitats (*ex situ* conservation if necessary and feasible) Plan, regulate and/or manage activities and processes: • pollution (eutrophisation, water turbidity) • boat movements/mooring • fishing methods damaging to benthic habitats • recreational access and activities (including bait digging).
Zostera noltii Dwarf eelgrass Bern (I) EU Fish (I)	Rare and very localized in Mediterranean: plays important ecological role in some coastal lagoons, where relatively dense meadows are formed at up to 5m depth. May be adjacent to saltmarsh communities. Threats as for *Z.marina.*	As for *Z.marina*.

Chlorophyta		
Caulerpa ollivieri Bern (I) EU Fish (I)	Endemic in the Mediterranean (France, Lybia, Spain, Turkey). Lives on sandy-muddy bottoms in shallow sheltered sites. Known sites are extremely rare and isolated, usually of less than one hectare. Nearly all are in areas under develop-ment pressure (two of the three French sites have already disappeared).	As a priority, inventory and map assemblages: promote research into new sites Confer strictly protected status on species and assemblages Prohibit destruction and disturbance of species/habitat without a permit Use area-based measures to protect and restore habitats

		Plan, regulate and/or manage coastal development: take account of site location and fragility in planning and EIA Prioritise restoration of known sites, where feasible.

Phaeophyta		
Cystoseira amentacea (including *var. stricta* and *var. spicata)* Rainbow Bladder-Weed Bern (I) EU Fish (I)	Endemic to the Mediterannean with three varieties: *amentacea* (eastern Mediterranean), *spicata* (Adriatic) and *stricta* (western Mediterranean). Lives at infralittoral stage, on hard substrate near the surface with up to strong wave movement. Threats include pollution (has receded close to all large urban areas) and overgrazing by some micro-herbivores.	Inventory and map assemblages (belts) Confer strictly protected status on species and assemblages Prohibit destruction and disturbance of species/habitat without a permit Use area-based measures to protect and restore habitats (*ex situ* conservation if necessary and feasible) Plan, regulate and/or manage activities and processes: • coastal development • pollution (water turbidity) and where necessary: • boat movements/mooring • fishing methods damaging to benthic habitats
Cystoseira mediterranea Sea-fir Bern (I) EU Fish (I)	Endemic to the Mediterannean: rarer and more localized than *C. amentacea,* but is replacing *C. amentacea* in some regions of western Mediterranean. Lives at infralittoral stage, on hard substrate near the surface with up to strong wave movement. Threats as for *C. amentacea*.	As for *C. amentacea*.
Cystoseira sedoides Sea-fir Bern (I) EU Fish (I)	Endemic to the coasts of Algeria (from around Algiers to El Kala), Tunisia and the extreme south of Italy (island of Pantelleria).Long-lived species: has very narrow ecological niche (hard photophilic surface substrates, within moderate wave movement). Like other species of *Cystoseira*, sensitive to pollution and overgrazing. Threatened status due to limited area of distribution and rarity of sites.	As for *C. amentacea*, but given threatened status and narrow niche, use strictest category of area-based measures to protect and restore habitats.
Cystoseira spinosa (including *C. adriatica*) Sea-fir	Endemic to the Mediteranean (subspecies *adriatica* found in Adriatic). Lives on hard substrates at infralittoral	As for *C. amentacea*. Prioritise regulation of fishing methods damaging to benthic habitats.

Bern (I) EU Fish (I)	stage, especially in deep water (15-35m), in sciaphilic to hemisciaphilic biotopes. Formed large forests until 1960s: now reduced to isolated individuals. Threats thought to include pollution, uprooting by nets and trawlers, and overgrazing by sea urchins.	
Cystoseira zosteroides Seafir Bern (I) EU Fish (I)	Endemic to Mediteranean. Lives in deep water at bottom of the infralittoral stage, mainly circalittoral level (down to 100m) on hard substrates in sectors with unidi-rectional currents. Rare in many sites where once abundant. Threats include increased water turbidity, sedimentation and overgrazing by sea urchin.	As for *C. amentacea*.
Laminaria rodriguezii Ribboned kombu Bern (I)	Endemic to the western Mediterranean, in highly localized sites. Lives at great depths (60-150m), needs cold and very clear water, swept by seabed currents. Threats include eutrophisation and/or increased turbidity.	As for *C. amentacea*. Focus process-based measures on control of pollution and changes to sedimentation regime.

Rhodophyta		
Goniolithon byssoides (Stoneweed) Bern (I)	Endemic to western Mediterranean: very localised sites (Corsica, Sicily, Algeria, Adriatic). Calcareous alga with very narrow ecological niche, in infracoastal fringe just beneath the surface of the water, subject to strong wave movement, on a hard, well-lit substrate. Cushions vulnerable to trampling (foot fishermen, swimmers) and pollution (hydrocarbon film on sea surface)	Inventory and map assemblages (cushions) Confer strictly protected status on species and assemblages Prohibit destruction and disturbance of species/habitat without a permit Use area-based measures to protect and restore habitats Plan, regulate and/or manage activities and processes: • coastal development; • pollution • recreational access and activities Given proximity to shoreline, consider information notices on beaches.
Lithophyllum lichenoides Stoneweed Bern (I)	Calcareous alga living at mediocoastal level on hard substrates, in biotopes subject to strong wave movement and in slight shade (especially crevices). In a few sites, has built up small mounds up to 2m wide (‘pavements’) over a period	As for *Goniolithon byssoides*

	of a thousand years: these formations are unique to the Mediterranean. Threats include surface pollution (hydrocarbons?) and trampling. Destruction of mounds is irreversible.	
Ptilophora mediterranea *=Beckerella mediterranea* *=Phyllophora aegeae* Bern (I)	Endemic to a limited area of the Mediterranean (between mainland Greece and Crete): localised mainly in depth (25m to over 120m), on hard substrates, on bioconcretions with calcareous algae. Reduction of water transparency, from eutrophisation and/or turbidity.	Inventory and map assemblages Confer strictly protected status on species and assemblages Prohibit destruction and disturbance of species/habitat without a permit Use area-based measures to protect and restore habitats (strictest category) Plan, regulate and/or manage activities and processes: • coastal development; • pollution
Schimmelmannia schousboei Bern (I)	Species with very localized sites (S.Italy, Libya, one site off French Atlantic coast). Lives in superficial sciaphilous biotopes (1-2m deep) on hard substrates, usually near cold fresh water. Sites are very rare, could be destroyed by coastal development.	As for *Ptilophora mediterranea*

Annexe 6.2.b

Institutional and legal frame for environmental protection in Mediterranean countries

Cadre institutionnel et juridique des pays méditerranéens en matière de protection du milieu marin

I. Cadre Institutionnel

Albanie:
Un ministère de l'environnement a été créé en 2001 avec 6 directions dont une chargée de la protection de la nature et une autre de l'évaluation des impacts environnementaux ainsi qu'une inspection qui comprend des agences régionales de l'environnement couvrant tout le pays.

Bosnie-Herzegovine:
Conformément à l'accord de paix de Dayton, la protection, la conservation et la promotion de l'environnement sont du ressort de deux entités, à savoir la fédération de Bosnie-Herzégovine et la République de Srpska. Il n'existe pas de base constitutionnelle pour l'établissement d'organismes de protection de l'environnement et de la nature. C'est ce qui explique la non-signature des conventions internationales. La Bosnie-Herzégovine s'est portée candidate à l'Agence Européenne pour la protection de l'environnement et compte devenir membre de l'Union Européenne. D'après la Constitution, c'est à la Fédération de Bosnie-Herzégovine que revient la réglementation en matière de protection de l'environnement, faite conjointement entre le gouvernement fédéral et les cantons. D'après l'accord de Dayton, la mise en œuvre de la réglementation existante en matière de protection de l'environnement et de la nature continue à être du ressort à la fois des deux entités ci-dessus citées et des cantons.

Chypre:
Deux départements sont impliqués, à savoir celui des pêches et de la recherche marine (auquel revient la protection de la biodiversité marine et côtière) et celui des forêts. Il existe également un comité de coordination des questions touchant à l'environnement.

Croatie:
Le Ministère de la protection de l'Environnement et de la Planification est l'autorité gouvernementale chargée de la protection de la nature et de la biodiversité ; parmi ses 7 divisions, deux sont compétentes en cette matière, à savoir la division de la conservation de la nature et la division de la protection de l'environnement. C'est à cette dernière que revient la mise en œuvre de la Convention de Barcelone et des protocoles y relatifs.

Egypte:
L'organisme chargé de la conservation de la nature est le NCS ou Secteur de la Conservation de la Nature qui dépend de l'Agence des Affaires Environnementales d'Egypte (EEAA).

Espagne:
En plus du gouvernement central à Madrid, il existe 17 communautés et 2 villes autonomes représentant le pouvoir régional. Le respect des engagements internationaux et l'adaptation de la politique européenne à l'Espagne sont du ressort du gouvernement central. Au niveau central, le Ministère de l'Environnement, avec sa direction générale de la préservation de la nature qui comprend elle-même une sous-direction générale de la préservation de la biodiversité, assure la mise en œuvre du Protocole. Quant aux régions autonomies, elles ne possèdent pas de ministères spécifiques aux questions d'environnement ; mais il existe cependant une conférence sectorielle de l'environnement qui assure la coordination en la matière entre les ministères régionaux. La coordination entre le gouvernement central et les gouvernements régionaux est assurée par un conseil consultatif pour l'environnement qui comprend des représentants des régions, du gouvernement central et des institutions de recherche.

Israel:
L'Autorité de Protection de la Nature et des Parcs Nationaux, qui dépend du Ministère de l'Environnement, est l'organe statutaire pour la conservation de la nature ; mais d'autres ministères sont impliqués dans des domaines particuliers de la conservation. Le Ministère de l'environnement agit aux niveaux local, régional et national.

Italie:
Au niveau central le Ministère italien de l'Environnement, avec une direction de défense de la mer et une direction de conservation de la nature, est responsable de la protection de la biodiversité. Mais le Ministère des Politiques Agricoles et des Forêts y contribue également à travers sa direction de la pêche et de l'agriculture. Dans certains cas, la protection des zones côtières locales est assurée par les autorités régionales.

Liban:
Il existe des agences, au double niveau national et local, œuvrant pour la constitution d'une capacité de gestion de l'environnement. Au niveau gouvernemental, un ministère de l'environnement a été crée en 1997 avec, entre autres objectifs, la protection de l'environnement et la création de réserves de la nature. Le code de l'environnement rend obligatoires les études d'impacts pour tout projet de développement.

Libye:
L'Autorité Générale de l'Environnement, placée sous la tutelle du Secrétariat des Ressources, est responsable de la durabilité des ressources, de la protection de l'environnement et de la conservation de la biodiversité. Des centres spécialisés comme celui de Tajura pour la biologie marine qui dépend du Secrétariat Général des ressources marines et de l'Agriculture et le centre de recherche agricole de l'Autorité Générale de l'Eau sont impliqués dans les questions d'environnement.

Malte:
La co-ordination et la mise en œuvre des politiques environnementales et de conservation est du ressort de l'Autorité Maltaise de l'environnement et de la Planification ; sa direction de la protection de l'environnement comporte 3 unités dont une chargée de la protection de la nature à laquelle revient la responsabilité de la mise en œuvre du Protocole ASP.

Maroc:
Il existe un Secrétariat de l'Environnement, mais l'autorité en charge des questions de biodiversité et d'aires protégées est le Département ministériel des Forêts et de la lutte contre la désertification. Autrement, le rapport ne donne aucun détail supplémentaire sur les responsabilités de chaque département.

Monaco:
Aucune information à ce sujet n'est donnée dans le rapport.

Slovénie:
A partir de janvier 2002, la mise en œuvre du protocole ASP est confiée à l'institut de conservation de la nature de la République de Slovénie, qui est un établissement public dépendant du Ministère de l'environnement, de la planification et de l'énergie. Les aires protégées et les aires déclarées par l'ancienne loi comme faisant partie de l'héritage naturel sont réunies dans la nouvelle loi sous les termes de 'caractéristiques naturelles de valeur'

Syrie:
Le Ministère d'Etat pour l'Environnement est chargé de toutes les questions et aspects relatifs à l'environnement. Les activités en matière de biodiversité et d'aires protégées sont du ressort d'une Direction, créée en 1996, qui agit en tant que point focal pour la Convention sur la biodiversité ; elle est placée sous la tutelle du Ministre d'Etat pour l'Environnement. Les autres autorités nationales dont les activités touchent à des aspects spécifiques de l'environnement sont le Ministère de l'Agriculture et de la Réforme Agraire, le Ministère de l'Irrigation et le Conseil Supérieur de la vie aquatique. La mise en œuvre de la stratégie Nationale et du Plan d'Action de la biodiversité est largement influencée par la Commission de Planification d'Etat qui juge du bien-fondé des projets de conservation de la biodiversité et recommande leur financement.

Tunisie:
Plusieurs organismes publics s'occupent de l'environnement en général et de conservation et de protection de la nature en particulier. Ils dépendent principalement du Ministère de l'Agriculture et des Ressources Hydrauliques et du Ministère de l'environnement et du Développement durable. Il existe

plusieurs associations non gouvernementales aussi bien au niveau national que local qui s'activent dans le domaine de l'environnement, de la conservation et de la protection de la nature.
Le Protocole ASP est du ressort, au niveau de sa mise en œuvre, du Ministère de l'Environnement et du Développement durable ainsi que des agences se trouvant sous sa tutelle (Agence nationale de protection de l'environnement, ANPE et Agence de protection et d'aménagement du littoral, APAL).

II. Cadre juridique régissant la conservation d'espèces et de sites

Comme cela a été ci-dessus dit, des efforts ont été faits pour améliorer et adapter les législations nationales en matière de conservation de la biodiversité marine et côtière ; ce qui nécessite plus d'effort maintenant, c'est la mise en œuvre des instruments juridiques disponibles et futurs.

Albanie:
Depuis 1991, plusieurs lois en relation avec l'environnement ont été approuvées, notamment celles réglementant la pêche et l'aquaculture, les forêts et les ressources hydrauliques. De 2000 à 2002, plusieurs projets de lois ont été préparés dont 7 ont été ratifiés par le parlement. On peut en citer la loi sur l'environnement, la loi sur les aires protégées et la loi sur les études d'impact ainsi que le décret réglementant les procédures de proclamation des aires protégées. Malgré cet effort de promotion de la législation environnementale, des lacunes persistent notamment en ce qui concerne la zone côtière, la diversité des paysages etc.

Bosnie-Herzégovine:
Il n'existe pas de législation environnementale propre à la Bosnie-Herzégovine. La protection de la nature est régie par le règlement de l'ex-république croate de Bosnie-Herzégovine de 1995 dont le décret d'application a institué les 2 parcs naturels de Hutovo Blato et de Blidinje. Plusieurs lois ont été préparées avec l'assistance du programme européen PHARE, dont une sur la protection de la nature et une autre sur la protection de l'environnement.

Chypre:
En plus des mesures prévues par la loi sur la pêche et ses décrets d'application qui considèrent toute la zone côtière comme habitat des espèces marines telles que les tortues marines et la loi pour la protection de la laisse de basse mer, la plupart des directives européennes ont été transcrites dans la législation chypriote ou en voie de l'être. Plusieurs zones côtières sont protégées ainsi que des espèces de faune et de flore principalement par la loi sur la pêche.

Croatie:
La loi sur la protection de l'environnement (OG 82/94 et OG 128/99) régit la protection de l'environnement en général ; mais c'est la loi de 1994 sur la protection de la nature (OG 30/94, 72/94:) qui permet la mise en œuvre de cette protection à travers la création des sites, aires, parcs, paysages, monuments, ainsi que la conservation des espèces animales et végétales.

Egypte:
La loi de 1983 définit le cadre légal pour la création des aires protégées ; celle de 1994 charge l'agence EEAA de la gestion et de la conservation de la biodiversité. l'EEAA veille aussi à l'application des conventions internationales.

Espagne:
La loi sur la préservation des aires protégées et de la faune et de la flore sauvages constitue la législation de base aussi bien au niveau central que régional. Un ensemble de règlements relatifs aux aires protégées est en vigueur depuis longtemps, y compris ceux transposant les directives européennes comme par exemple celle sur les habitats et plusieurs décrets royaux sur les aires protégées et les espèces menacées.
Des régions autonomes ont développé des législations établissant des mesures parfois plus contraignantes que les normes nationales ou européennes dans le domaine de la protection.

Israël:
L'instrument juridique de base est la loi sur les sites mémoriaux, les parcs nationaux, les réserves de la nature et les sites nationaux. Elle prévoit également des systèmes de déclaration des réserves de la nature et des parcs nationaux ainsi que l'établissement de la liste des aires protégées. Depuis la dernière réunion des points focaux, une réserve marine, deux réserves côtières et deux parcs nationaux ont été déclarés. Le plan d'action stratégique national de biodiversité n'est pas encore entré en vigueur.

Italie:
Les principales lois comprennent celle qui résulte de l'adaptation de la directive européenne sur les habitats naturels et de la flore et de la faune sauvages, celle qui constitue la loi cadre pour les aires protégées, celle de la protection de la mer et des aires marines protégées et celle se référant à la directive européenne sur la conservation des oiseaux. Il existe également plusieurs règlements pris en application de ces lois ainsi que de celles portant sur la pêche et la chasse et celles résultant des accords internationaux.

Liban:
Des décisions ont été prises pour la conservation des espèces et des sites, dont notamment la loi déclarant la côte de Tyr comme réserve de la nature, la décision d'interdiction de la pêche des tortues marines, la décision protégeant et interdisant la pêche des baleines, du phoque moine et des tortues marines et la décision interdisant la pêche des éponges pendant une période de 5 ans.

Libye:
La loi sur la protection de quelques espèces animales et d'arbres, la loi sur protection des ressources marines avec une mention spéciale des aires marines protégées et le décret sur l'interdiction des activités de chasse, y compris des espèces marines comme la tortue et d'autres espèces du protocole ASP, sont cités comme illustration de l'intérêt porté à la conservation de la nature et de la biodiversité.

Malte:
Le principal cadre juridique de conservation des espèces et des sites est constitué par la loi de protection de l'environnement et la loi sur la planification du développement tel qu'amendée et remplacée par les actes de 1997 et 2001. Plusieurs outils réglementaires ont été institués en application de ces lois dont ceux relatifs à la protection des reptiles, des oiseaux, des espèces de faune et de flore faisant l'objet de commerce, des mammifères marins, aux Organismes Génétiquement Modifiés. D'autres actes traitent d'aspects touchant à la biodiversité, tels que l'acte sur l'aménagement et la conservation des pêcheries, l'acte sur le bien-être des animaux et l'acte sur la préservation du sol.

Maroc:
Les principaux actes législatifs sont des Dahirs (lois) sur la création des parcs nationaux, la police de la chasse et la pêche dans les eaux continentales ainsi qu'un arrêté ministériel sur la procédure de création des parcs nationaux. Une loi sur les aires protégées et un décret d'application sont en cours de préparation; ce qui facilitera le classement des aires protégées identifiées et aidera à la mise en place d'un réseau national de ces aires.

Monaco:
Aucune information n'est donnée dans le rapport national sur les aspects juridiques relatifs à la mise en œuvre du protocole et autres instruments pertinents.

Slovénie:
L'acte sur la conservation de la nature, adopté en 1999, prévoit la conservation de la biodiversité, la protection des sites, les lignes directrices dont il faut tenir compte dans la planification, l'utilisation des biens naturels, la protection de l'héritage culturel et les autorisations d'activités affectant la nature et sa protection. Les aires protégées sont, en vertu de cette loi sur la conservation de la nature, classées sous les termes 'caractéristiques naturelles de valeur'. La loi prévoit et fixe les espèces animales et végétales menacées, les aires protégées et leur gestion et les mesures de protection des sites naturels.

Syrie:
Les principaux instruments juridiques cités dans le rapport et qui sont en relation directe avec la biodiversité marine et les habitats marins sont du domaine de la réglementation de la pêche ou de la lutte contre la pollution marine.

Tunisie:
Plusieurs lois et décrets sont en vigueur parmi lesquels la loi sur la pêche de 1994, la loi sur le domaine public maritime, la loi créant l'Agence de Protection et d'Aménagement du Littoral. Deux autres lois sont à l'état de projet dont une concerne les organismes génétiquement modifiés et l'autre la création et la gestion des aires protégées marines et côtières.