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**MEDITERRANEAN ACTION PLAN**

Fifth Meeting of the Executive Coordination Panel

Tunis, Tunisia, 26-27 February 2009

**MAIN WORKING DOCUMENT ON  
ECOSYSTEM APPROACH**



## CHAPTER 1

### **Proposal for the completion of the first five steps of the road map by July 2012**

The first five steps are:

- i) Definition of an ecological Vision for the Mediterranean.
- ii) Setting of common Mediterranean strategic goals.
- iii) Identification of important ecosystem properties and assessment of ecological status and pressures.
- iv) Development of a set of ecological objectives corresponding to the Vision and strategic goals.
- v) Derivation of operational objectives with indicators and target levels.

**Step no.1** has already been completed by the Contracting Parties and the agreed ecological vision is:

*“A healthy Mediterranean with marine and coastal ecosystems that are productive and biologically diverse for the benefit of present and future generations”;*

**Step no.2** has also been completed and the agreed strategic goals are:

- a) *To protect, allow recovery and, where practicable, restore the structure and function of marine and coastal ecosystems thus also protecting biodiversity, in order to achieve and maintain good ecological status and allow for their sustainable use.*
- b) *To reduce pollution in the marine and coastal environment so as to minimize impacts on and risks to human and/or ecosystem health and/or uses of the sea and the coasts.*
- c) *To prevent, reduce and manage the vulnerability of the sea and the coasts to risks induced by human activities and natural events.*

**Step no. 3** has been discussed at the Second Meeting of Government-designated Experts (Athens, 8-9 July 2008) and a table of contents as well as a method of work do exist. . The preparation of the assessment document for each one of the four areas will be undertaken by a group of experts consisting of at least one expert from each bordering state and with the support of the MAP components. The first task of the groups is to collect and collate existing information (including grey literature within the countries) and identify information gaps. If there are no gaps or the gaps are not serious to prohibit an assessment, the group will continue with the assessment of the situation. If the gaps do not allow an assessment to take place, these shall be referred (if possible, with suggestions) to the Secretariat which will decide how to solve the problem e.g. initiation of activities to generate the missing information. It is expected that the first task of the groups will be **completed within six months from the day the kick off meeting take place.**

**Step no 4** is the development of a set of ecological objectives corresponding to the vision and strategic goals.

**Step no. 5** is the derivation of operational objectives (from the ecological objectives) with indicators and target levels.

Preliminary work has already been initiated for these steps during a meeting held in Athens on 15 December 2008 with the participation of MED POL staff and a SPA/RAC representative. The SPA/RAC representative, at an internal meeting in Tunis, briefed the rest of the SPA/RAC staff and prepared initial ideas for ecological objectives and indicators.

MED POL and SPA/RAC will present their work during the present meeting.

It is now proposed that all RACs should prepare their initial ideas for these steps so that the ECP could work on the MAP ecological (or not) objectives to be presented for discussion with national experts. For this work it is proposed that each RAC designates a staff member to be responsible for this activity. It is understood that MED POL and SPA/RAC have already done that.

**The ECP is invited to decide whether another brainstorming meeting, similar to the one held in Athens on 15 December, but involving all RACs, should be held.**

The meeting held on 15 December 2008 showed that when ecological objectives are discussed, the discussion is led to the operational ones and the corresponding indicators. What is really harder is the setting of the target levels. It is therefore proposed that target levels are left for the next stage.

In the framework of the implementation of the EU Marine Strategy Framework Directive, "good environmental status" will have to be determined on the basis of a set of quality descriptors; environmental targets with associated indicators should also be decided and the deadline for all this work is July 2012.

#### **Time frame**

The first aim is to prepare draft MAP ecological and operational objectives with indicators before the end of 2009 so that discussion with national experts is initiated early 2010.

**The ECP is invited to agree that the process should be initiated with selected national experts or government-designated experts.**

If a brainstorming meeting is to be organized (see above) this should take place before the next ECP meeting. The last ECP meeting of the year (November 2009?) should be able to decide on the draft MAP objectives and indicators. This work could be carried out in conjunction with the case study on the road map.

Preliminary meeting (if needed)	April 2009
Other discussions in conjunction with case study	April – October 2009
ECP decision on draft MAP objectives	November 2009
Meeting to initiate discussion with national experts	February 2010

If the discussions will be with selected national experts, then the Third meeting of government-designated experts could be held in May or June 2010. During this meeting we should be able to present the draft MAP ecological and operational objectives with indicators as well as the results from the tasks proposed by the Second meeting of government-designated experts (July 2008) i.e. assessment documents, socio-economic analysis, communication and participation plan, case study, planning document, etc.

During the third meeting of experts we shall get a good idea of what the countries want and then we could work on target levels which could be discussed with selected national experts.

Final proposals could be presented at the Fourth meeting of Government-designated Experts which could take place in spring 2011. After this meeting, whatever has been agreed upon should be presented to the MAP focal points in autumn 2011 and then to the Meeting of the Contracting Parties.

**Ecological objectives for the implementation of the Ecosystem Approach by the MAP system**

The following ecological objectives are proposed by MED POL, after revising the draft prepared at Athens during the ECAP meeting held on 15 December 2008 and the SPA/RAC proposal:

- a) Healthy marine and coastal ecosystems, including associated seascapes and landscapes
- b) Thriving, resilient and balanced communities of living organisms
- c) Viable populations of naturally occurring species
- d) Marine ecosystems and human health unaffected by pollution from land-based, atmospheric and marine pollution sources
- e) Climate change effects on marine and coastal ecosystems and biodiversity minimised



## **CHAPTER 2**

### **TORs for the national delegates for the group areas**

#### **A. Tasks for the MED POL National Focal Points for the further development of the Ecosystem Approach within the Barcelona Convention (MED POL field of activities)**

##### **1. Introduction**

The Ecosystem Approach (ECAP) has been introduced aiming at improving the way human activities are managed for the protection of the marine environment. Following the World Summit on Sustainable Development, the ECAP has been adopted by many International Conventions and Regional Seas Organizations. The Contracting Parties to the Barcelona Convention have adopted it in January 2008 at their Almeria meeting together with a road map for its gradual application. The proposals to that meeting were developed in the framework of a project (ECOMED) funded by the EC.

As a follow up, the MAP has now received additional funding from the European Commission to undertake a project aiming at providing support to the Barcelona Convention for the Implementation of the road map for the gradual application of the Ecosystem Approach.

As a first step, the road map requires that an *assessment of the ecological status and of pressures and impacts is undertaken* in the four sub-regions of the Mediterranean initially identified by the Contracting Parties on the basis of bio-geographic and oceanographic considerations and subject to possible revision at a later stage (Area 1: Western Mediterranean Sea; Area 2: Adriatic Sea; Area 3: Ionian Sea and Central Mediterranean and; Area 4: Aegean-Levantine Sea). The MED POL Programme, the SPA/RAC Secretariat and the other RACs will be responsible for the final preparation of the assessments of the four sub-regions within their field of competence.

##### **2. Objectives and activities**

According to the field of competence of MED POL, the sections of the assessments to be prepared refer to: Marine and coastal ecosystems status, chapter I.2 related to physical and chemical characteristics; Pressures and impacts, related to contamination (II.1), dumping activities (II.2), nutrient and organic matter enrichment (II.3), other interferences on temperature, salinity and desalination plants (II.6) (see the draft table of contents of the assessments attached as annex....).

In order to prepare the above, it is necessary to collate and analyse all the available data and information. In addition to the data and information that the MED POL Programme has collated throughout the years through the implementation of its activities, the preparation of a comprehensive assessment requires the collation of additional data and information that may be available at the national level in order to cover possible gaps.

*As a result, after an initial review by the Secretariat of all available data at MED POL at the four sub-regions, National MED POL Focal Points will be asked to obtain additional national data and information that may result missing thus covering important thematic or geographical gaps, and to transmit them to the MED POL Secretariat.*

To this end, the National MED POL Focal Points will establish contacts and will communicate with national authorities, focal points of other environment-related Conventions signed by the country and with relevant national scientific institutions, in order to obtain information and available data, to supplement those already provided to MED POL.

The MED POL Secretariat will indicate to the MED POL Focal Points the specific areas where additional data and information are missing and where gaps need to be covered. Assistance and guidance will be provided to the MED POL Focal Points as appropriate.

## Annex I

### **Action: Regional document on identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity**

#### **Objectives of action:**

To provide for information, interpretation and recommendations at national and regional levels aiming at identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity, in accordance with the outcomes of the 15th Ordinary Meeting of the Contracting Parties (OMCPs) to the Barcelona Convention.

#### **Inputs to participants:**

RAC/SPA will provide, when possible, for the National and International Consultants relevant information at the Mediterranean level regarding the ecosystem properties and assessment of ecological status and pressures, and resulting impacts on marine and coastal biodiversity. The following documents will be included:

- RAC/SPA SAP BIO and NAPs along with any other reports on marine and coastal biodiversity
- CBD reports
- RAC/SPA 2009 reports of Climate Change impacts on Mediterranean marine and coastal biodiversity
- Relevant documents produced by Regional Conventions and Agreements embracing the Mediterranean (Bern, Bonn, ACCOBAMS, etc...)

#### **Levels and actors:**

For operational reasons, and with reference to ecological status and pressures to Mediterranean marine and coastal biodiversity, the countries are grouped in four clusters (and sub-groups within them), to be managed by four international consultants as follows:

- (i) Cluster A : Algeria, France, Italy (Ligurian-Tirrenian Sea areas), Monaco, Morocco, Spain and Northern Tunisia
- (ii) Cluster B: Greece (Ionian Sea area), Italy (Ionian Sea area), Libya, Malta and Eastern-Southern Tunisia
- (iii) Cluster C: Cyprus, Egypt, Greece (Aegean/Cretan Seas area), Israel, Lebanon, Syria and Turkey
- (iv) Cluster D: Albania, Bosnia & Herzegovina, Croatia, Italy (Adriatic Sea area), Montenegro, and Slovenia

Four International consultants will be responsible of managing the work in the participating countries listed in their respective clusters.

National Experts will be identified according to their qualifications fitting to the sub-regional/national needs. Such selection will be done by RAC/SPA, in joint co-ordination with SAP BIO National Correspondents and Focal Points for SPAs.

The International Consultants will: (i) co-ordinate, assist, guide and harmonize the work of National Experts under their responsibility, (ii), collate, revise, provide coherence to the inputs received and (iii) prepare and harmonized document for the respective clusters, and (iv) present the draft to RAC/SPA and finalize it in accordance with the outputs of an eventual working meeting, and recommendations and comments by RAC/SPA.

The RAC/SPA will ensure guidance for the different stakeholders and will help to harmonise the work and the inputs. It will hold, if possible, *ad hoc* meetings at regional or lower levels and will prepare the final synthesising documents.

The National Experts should keep information and consultation exchanges on a regular basis with her/his respective International Consultant, while International Consultants should do the same with the RAC/SPA on a regular basis during the preparation of the documents.

### **Outputs envisaged:**

#### 1. National level:

A "National document on identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity in [the Country]", separately for each participating country, as per Annotated Contents provided by RAC/SPA.

Attendance of National Experts and others where appropriate to working meetings and others if any.

#### 2. Sub-regional level:

- Sub-regional Synthesis Reports on identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity, in accordance with the respective ToRs for International Consultants.
- Harmonisation, co-ordination, guidance and assistance to respective National Experts, provided by International Consultants, as non-deliverable outputs.

#### 3. Regional level (MAP and RAC/SPA)

- Guidance, harmonisation and co-ordination provided by MAP (RAC/SPA-MEDPOL) Co-ordination team
- Meetings at regional level.
- Four merged and harmonised assessment documents (RAC/SPA, MEDPOL, PAP/RAC, REMPEC) and synthesising documentation on issues related to the identification of important ecosystem properties and assessment of ecological status and pressures to biodiversity in Mediterranean marine and coastal areas.

**B. ToRs for the International Consultants and the International Coordination Consultant to be engaged for the action “Further development of the Ecosystem Approach within the Barcelona Convention”**

**1. Preamble**

The Ecosystem Approach (ECAP) has been introduced aiming at improving the way human activities are managed for the protection of the marine environment. Following the World Summit on Sustainable Development, the ECAP has been adopted by many International Conventions and Regional Seas Organizations. The Contracting Parties to the Barcelona Convention have adopted it in January 2008 at their Almeria meeting. The proposals to that meeting were developed in the framework of a project (ECOMED) funded by the EC.

In this context, any environmental policy should be developed in a way that secures an effective protection of the marine environment and that makes possible the continued provision of marine goods and services for the wealth of the population. The application of the ECAP has the potential to help reach a balance between the requirements of human activities and the conservation of the marine environment. Its adoption and gradual implementation within the framework of the Mediterranean Action Plan (Barcelona Convention) will give new impetus to the preparation of more integrated and holistic policies by the Convention, including the impact of human activities on the marine environment.

To ensure the sustainability of the exploitation of marine goods and services in the Mediterranean Sea, it is important that the ECAP and its related conservation and management measures be applied not only to areas under the jurisdiction of States, but they should cover also the habitats and ecosystems located beyond the national jurisdiction. As a consequence, the implementation of the Ecosystem Approach is not only a task for the Convention and its subsidiary bodies, but also and mainly for its Parties.

Within this framework, the MAP has received funding from the European Commission to undertake a project aiming at providing support to the Barcelona Convention for the Implementation of the Ecosystem Approach, including the establishment of MPAs in open seas areas, including deep sea.

The project's aims among others, at promoting and enhancing the implementation of the road map for the application of the ecosystem approach to the management of human activities. The road map requires that an assessment of the ecological status and of pressures and impacts is undertaken in four different regions of the Mediterranean, identified based on bio-geographic and oceanographic considerations.

**2. Object of the Contract**

As per paragraph 1, there is already an agreement to identify four areas in the Mediterranean, based on bio-geographic and oceanographic considerations. The four regions agreed upon are: Area1: Western Mediterranean Sea; Area 2: Adriatic Sea; Area 3: Ionian Sea and Central Mediterranean and; Area 4: Aegean-Levantine sea.

Four International consultants will be responsible of managing the work of compilation of inputs delivered to MED POL by the participating countries listed in their respective clusters. They will assist the National MED POL Focal points under their clusters asking for their technical support, in order to provide for the preparation of the assessment documents and identify data gaps on the status of marine and coastal ecosystems, as well as, on pressures to Mediterranean marine and coastal environment. They will further merge the information obtained by MED POL from participating countries in a homogeneous document for their respective cluster assessment.

The sections to be prepared will refer to: Marine and coastal ecosystems status, chapter I.2 related to physical and chemical characteristics; Pressures and impacts, related to contamination (II.1), dumping activities (II.2), nutrient and organic matter enrichment (II.3), other interferences on temperature, salinity and desalination plants (II.6).

### **3. Tasks to be undertaken**

The MED POL international consultants will support MED POL through managing the countries inputs appointed to them. The International consultants will:

- co-ordinate, assist, guide and harmonize the inputs provided to MED POL by National MED POL Focal points under the cluster assigned,
- collate, revise and provide coherence to the inputs received,
- prepare and harmonize the assessments for the respective clusters and identify gaps on important physical/chemical ecosystem properties, environmental status and pressures to Mediterranean marine and coastal marine environment, and
- present the draft cluster assessments to MED POL and finalize them in accordance with the outputs of the eventual working meeting(s), and recommendations and comments by MED POL.
- In order to provide for full available information and harmonized contents and structure of the assessment, the International consultants will follow the contents and structure needed for this ECAP phase, and to be provided by MED POL.

### **4. Duration and schedule for implementation**

The tasks implementation will start [1<sup>st</sup> March, 2009] and collaboration developed up to November 15<sup>th</sup>, 2009.

At the end of this Contract, the International Consultants will provide:

1/ The Final sub-regional (cluster) overview in accordance with provisions presented in Annex I. The Overview should bear on the cover page the MED POL logo(s) (provided by MED POL), the reference number of the study, the name of the Consultant, and the date when delivered. The document should contain a complete, paginated summary, the citation methods used in the document and a list of all the participants in the study/ies with their personal details.

Firstly the draft overview should be delivered to MED POL on August 31<sup>st</sup>; to be presented at the **Working Meeting scheduled for 2<sup>nd</sup> – 3<sup>rd</sup> week of September**. The final version should be prepared in accordance with outputs of the Working Meeting, as well as with suggestions and comments provided by MED POL and the International Consultants, and to be presented on October 30<sup>th</sup>, 2009 at the latest.

2/ Copies of the eventual graphic documents (e-format), as well as (when possible) PDF format copies of the bibliographic references used for the preparation of his report.

The various outputs and respective deadlines are as follows:

<b>Outputs</b>	<b>Deadlines</b>
1. Draft sub-regional overview	August 31 <sup>st</sup> 2009
2. Attending a Working Meeting if requested	[2 <sup>nd</sup> – 3 <sup>rd</sup> week September 2009]
3. Final version of the sub-regional overview	15 <sup>th</sup> November 2009

#### **5. Payment and terms of payment**

As payment for the services performed under the terms of this Contract, the company shall pay the consultant the lump sum of **xxxx Euros (xxxx €)**.

The consultant's accommodation and travel fees for necessary missions, to the completion of the tasks aforementioned will be reimbursed according to UNEP DSA rates and travel expenses really incurred, provided the previous appointment and authorisation to the mission by MED POL and presentation of documentary evidence.

## Annex I

### **Action: Regional document on assessment of status and pressures to the Mediterranean marine and coastal environment**

#### **Objectives of action:**

To provide for information, interpretation and recommendations at national and regional levels aiming at the assessment of status and pressures to the Mediterranean marine and coastal environment, in accordance with the outcomes of the 15th Ordinary Meeting of the Contracting Parties (OMCPs) to the Barcelona Convention.

#### **Inputs to participants:**

- MED POL will provide, when possible, for the International Consultants relevant information at the Mediterranean level regarding the assessment of status and pressures to the Mediterranean marine and coastal environment.

#### **Levels and actors:**

For operational reasons, and with reference to the assessment of status and pressures to the Mediterranean marine and coastal environment, the countries are grouped in four clusters (and sub-groups within them), to be managed by MED POL with the assistance of four international consultants as follows:

- (v) Cluster A : Algeria, France, Italy (Ligurian-Tirrenian Sea areas), Monaco, Morocco, Spain ~~and Northern Tunisia~~
- (vi) Cluster B: Greece (Ionian Sea area), Italy (Ionian Sea area), Libya, Malta and Tunisia
- (vii) Cluster C: Cyprus, Egypt, Greece (Aegean/Cretan Seas area), Israel, Lebanon, Syria and Turkey
- (viii) Cluster D: Albania, Bosnia & Herzegovina, Croatia, Italy (Adriatic Sea area), Montenegro, and Slovenia

Four International consultants will be responsible of assisting MED POL to manage the inputs coming from the participating countries listed in their respective clusters.

The International Consultants will: (i) co-ordinate, assist, and harmonize for the cluster under their respective responsibility the merging of inputs arrived to MED POL from the National MED OL Focal Points, (ii), collate, revise, provide coherence to the inputs received and (iii) prepare and harmonized document for the respective clusters, and (iv) present the draft to MED POL and finalize it in accordance with the outputs of an eventual working meeting, and recommendations and comments by MED POL.

MED POL will ensure guidance for the different countries and stakeholders and will lead the harmonisation of the work and the inputs. It will hold, if possible, *ad hoc* meetings at regional or lower levels and will prepare the final synthesising documents.

The MED POL Focal Points may keep information and consultation exchanges on a regular basis with International Consultants (assisting MED POL for the merging within clusters) involving their respective countries or country areas, while International Consultants will do the same with the MED POL during the preparation of the documents.

**Outputs envisaged:**

1. Sub-regional level:

- 4 Sub-regional Synthesis Reports on the assessment of status and pressures to the Mediterranean marine and coastal environment, in accordance with the respective ToRs for International Consultants.
- Harmonisation, co-ordination, guidance and assistance to respective National MED POL Focal Points, provided by MED POL, as non-deliverable outputs.
- Attendance of International Experts and others where appropriate to working meetings and others if any.

3. Regional level (MAP and MED POL)

- Guidance, harmonisation and co-ordination provided by MAP (RAC/SPA-MEDPOL) Co-ordination team.
- Meetings at regional level.
- Four merged and harmonised assessment documents (RAC/SPA, MEDPOL, PAP/RAC, REMPEC) and synthesising documentation on issues related to the identification of important ecosystem properties and assessment of ecological status and pressures to the Mediterranean marine and coastal environment.

**C. DRAFT ToRs for the National Experts to be engaged for the action “Further development of the Ecosystem Approach within the Barcelona Convention” (SPA/RAC field of activities)**

**1. Preamble**

The Ecosystem Approach (ECAP) has been introduced aiming at improving the way human activities are managed for the protection of the marine environment. Following the World Summit on Sustainable Development, the ECAP has been adopted by many International Conventions and Regional Seas Organizations. The Contracting Parties to the Barcelona Convention have adopted it in January 2008 at their Almeria meeting. The proposals to that meeting were developed in the framework of a project (ECOMED) funded by the EC.

In this context, any environmental policy should be developed in a way that secures an effective protection of the marine environment and that makes possible the continued provision of marine goods and services for the wealth of the population. The application of the ECAP has the potential to help reach a balance between the requirements of human activities and the conservation of the marine environment. Its adoption and gradual implementation within the framework of the Mediterranean Action Plan (Barcelona Convention) will give new impetus to the preparation of more integrated and holistic policies by the Convention, including the impact of human activities on the marine environment.

To ensure the sustainability of the exploitation of marine goods and services in the Mediterranean Sea, it is important that the ECAP and its related conservation and management measures be applied not only to areas under the jurisdiction of States, but they should cover also the habitats and ecosystems located beyond the national jurisdiction. As a consequence, the implementation of the Ecosystem Approach is not only a task for the Convention and its subsidiary bodies, but also and mainly for its Parties.

Within this framework, the MAP has received funding from the European Commission to undertake a project aiming at providing support to the Barcelona Convention for the Implementation of the Ecosystem Approach, including the establishment of MPAs in open seas areas, including deep sea.

The project aims, among others, at promoting and enhancing the implementation of the road map for the application of the ecosystem approach to the management of human activities. The road map requires that an assessment of the ecological status and of pressures and impacts is undertaken in four different regions of the Mediterranean, identified based on bio-geographic and oceanographic considerations.

**2. Object of the Contract**

As per article 1, there is already an agreement to identify four areas in the Mediterranean, based on bio-geographic and oceanographic considerations. The four regions agreed upon are: Area 1: Western Mediterranean Sea; Area 2: Adriatic Sea; Area 3: Ionian Sea and Central Mediterranean and; Area 4: Aegean-Levantine Sea.

Parties' National Experts will provide for the preparation of the ecological status assessment documents and identify gaps on important ecosystem properties and acting pressures.

The sections to be prepared will refer to: ecosystem status chapters on Biological characteristics and habitat types; Pressures and impacts chapters related to biological disturbance as well as emerging issues, such as climate change effects and deep sea ecosystems modifications.

The National Experts should take into account, as a reference for their best tasks execution, the relevant recent global, regional and national documents and findings related to ecological status and biodiversity in national coastal and marine areas, in particular those listed in Annex I of these ToRs.

### **3. Tasks to be undertaken**

The National Experts will implement the tasks envisaged guided by RAC/SPA, which will be assisted by the RAC/SPA International Consultant for their respective regions in accordance with the attached Annex I. They will provide each a “National document aiming at the identification of important ecosystem properties, and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity in [the Country]” based on available national information and research. More specifically, The National Experts will implement the following tasks:

- Guided and assisted by the National Correspondent of SAP BIO, to establish contacts and communication with National Focal Points for SPA, CBD, other environment-related conventions signed by the country, and with relevant national scientific institutions, in order to:
  - exchange information on respective activities and available data;
  - secure harmonisation of activities, in particular trying to avoid overlap and redundancies, and to look for synergies.
- To consult documentation provided by RAC/SPA and the following national documents and reports (as per availability):
  - SAP BIO National Biodiversity Reports and NAPs
  - Any eventual biodiversity report update since 2002
  - RAC/SPA 2009 reports on Climate Change impacts on Mediterranean marine and coastal biodiversity
  - Reports to CBD
  - Reports and/or national strategies to Bern Convention
  - Reports to Bonn Convention (and subsidiary agreements ACCOBAMS, AEWA, etc...)
- To identify, synthesize and provide a critical analysis and gaps of the present national situation, in terms of implemented / ongoing / in preparation relevant national or international activities involving national actions related to important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity
- To provide expert opinion on expected general impacts projected on specific biodiversity-related issues, identifying expected critical marine / coastal areas, ecosystems, habitats, threatened / endangered species or populations particularly vulnerable to the marine and coastal human pressure activities, including effects of climate change; in addition, to provide expert opinion on expected changes on exploited marine and coastal species due to the direct and indirect effects of pressures, including climate change, etc.
- To identify and recommend priority national needs related to policies, measures, actions and projects, research, monitoring, and capacity-building, as well as needs of/and opportunities for transboundary and/or sub-regional / regional actions related to biodiversity conservation and management.

- To identify if possible potential sources of national funding / co-funding opportunities to support such policies, measures and actions.
- To prepare and finalize a national overview document as defined in an annotated content provided by RAC/SPA, guided by the SAP BIO National Correspondent, and further assisted whenever they wish by the respective sub-regional international consultant appointed by RAC/SPA.
- To ensure approval for the national overview document by the SAPBIO National Correspondent, to secure the National Focal Point to take note of it, and provide objections or suggestions, if any. The National Experts are binded to take into account the recommendations of the respective National Focal Points.
- To finalize the document in accordance with the revision made by RAC/SPA.

In order to provide for full available information and harmonized contents and structure of the assessment, the National Experts will follow the contents and structure needed for this ECAP phase, and to be provided by RAC/SPA.

#### **4. Duration and schedule for implementation**

The tasks **implementation will start** [1<sup>st</sup> March, 2009] and collaboration developed up to October 15<sup>th</sup>, 2009 at the latest.

At the end of this Contract, the National Experts will provide:

1/ The respective Final National Assessment document, as per Article 2 and 3 above, in accordance with provisions presented in Annex I. The document should bear on the cover page the RAC/SPA logo(s) (provided by the Centre), the reference number of the study, the name of the Consultant, and the date when delivered. The document should contain a complete, paginated summary, the citation methods used in the document and a list of all the participants in the study/ies with their personal details (cf. model here attached). Firstly the draft assessment should be delivered to RAC/SPA and International Consultant on July 1<sup>st</sup>. The final version should be prepared in accordance with suggestions and comments provided by RAC/SPA, and to be presented at October 15<sup>th</sup>, 2009 at the latest.

2/ Copies of the eventual graphic documents (e-format), as well as (when possible) PDF format copies of the bibliographic references used for the preparation of their reports.

The various outputs and respective deadlines are as follows:

<b>Outputs</b>	<b>Deadlines</b>
1. Draft assessment document	1 <sup>st</sup> July 2009
2. Final version of the assessment document	15 <sup>th</sup> October 2009

#### **5. Remuneration and terms of payment (??)**

As payment for the services performed under the terms of this Contract, the consultant will be paid the lump sum of xxx Euros (xxx€).

Travel expenses and DSA in accordance with UN regulations for approved missions (if any) will be paid separately by MAP.

The amount will be paid to the expert as follows:

- 50% first payment on reception of the draft overview report
- The balance on reception of the final expert's report, and clearance by RAC/SPA

## Annex I

### **Action: Regional document on identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity**

#### **Objectives of action:**

To provide for information, interpretation and recommendations at national and regional levels aiming at identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity, in accordance with the outcomes of the 15th Ordinary Meeting of the Contracting Parties (OMCPs) to the Barcelona Convention.

#### **Inputs to participants:**

RAC/SPA will provide, when possible, for the National and International Consultants relevant information at the Mediterranean level regarding the ecosystem properties and assessment of ecological status and pressures, and resulting impacts on marine and coastal biodiversity. The following documents will be included:

- RAC/SPA SAP BIO and NAPs along with any other reports on marine and coastal biodiversity
- CBD reports
- RAC/SPA 2009 reports of Climate Change impacts on Mediterranean marine and coastal biodiversity
- Relevant documents produced by Regional Conventions and Agreements embracing the Mediterranean (Bern, Bonn, ACCOBAMS, etc...)

#### **Levels and actors:**

For operational reasons, and with reference to ecological status and pressures to Mediterranean marine and coastal biodiversity, the countries are grouped in four clusters (and sub-groups within them), to be managed by RAC/SPA with the assistance of four international consultants as follows:

- (i) Cluster A : Algeria, France, Italy (Ligurian-Tirrenian Sea areas), Monaco, Morocco, Spain and Northern Tunisia
- (ii) Cluster B: Greece (Ionian Sea area), Italy (Ionian Sea area), Libya, Malta and Eastern-Southern Tunisia
- (iii) Cluster C: Cyprus, Egypt, Greece (Aegean/Cretan Seas area), Israel, Lebanon, Syria and Turkey
- (iv) Cluster D: Albania, Bosnia & Herzegovina, Croatia, Italy (Adriatic Sea area), Montenegro, and Slovenia

Four International consultants will be responsible of assisting RAC/SPA to manage the inputs coming from the participating countries listed in their respective clusters.

National Experts will be identified according to their qualifications fitting to the sub-regional/national needs. Such selection will be done by RAC/SPA, in close joint co-ordination with SAP BIO National Correspondents and Focal Points for SPAs.

The International Consultants will: (i) co-ordinate, assist, and harmonize for the cluster under their respective responsibility the merging of inputs arrived to RAC/SPA from the National

Experts, (ii), collate, revise, provide coherence to the inputs received and (iii) prepare and harmonized document for the respective clusters, and (iv) present the draft to RAC/SPA and finalize it in accordance with the outputs of an eventual working meeting, and recommendations and comments by RAC/SPA.

The RAC/SPA will ensure guidance for the different countries and stakeholders and will lead the harmonisation of the work and the inputs. It will hold, if possible, *ad hoc* meetings at regional or lower levels and will prepare the final synthesising documents.

The National Experts may keep information and consultation exchanges on a regular basis with International Consultants (assisting RAC/SPA for the merging within clusters) involving their respective countries or country areas, while International Consultants will do the same with the RAC/SPA during the preparation of the documents.

### **Outputs envisaged:**

#### 1. National level:

- A “National document on identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity in [the Country]”, separately for each participating country, as per Annotated Contents provided by RAC/SPA.
- Eventual attendance of National Experts and others where appropriate to working meetings and others if any.

#### 2. Sub-regional level:

- 4 Sub-regional Synthesis Reports on identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity, in accordance with the respective ToRs for International Consultants.
- Harmonisation, co-ordination, guidance and assistance to respective National Experts, provided by RAC/SPA, as non-deliverable outputs.
- Attendance of International Experts and others where appropriate to working meetings and others if any.

#### 3. Regional level (MAP and RAC/SPA)

- Guidance, harmonisation and co-ordination provided by MAP (RAC/SPA-MEDPOL) Co-ordination team.
- Meetings at regional level.
- Four merged and harmonised assessment documents (RAC/SPA, MEDPOL, PAP/RAC, REMPEC) and synthesising documentation on issues related to the identification of important ecosystem properties and assessment of ecological status and pressures to biodiversity in Mediterranean marine and coastal areas.

**D. ToRs for the International Consultants and the International Coordination Consultant to be engaged for the action “Further development of the Ecosystem Approach within the Barcelona Convention”**

**1. Preamble**

The Ecosystem Approach (ECAP) has been introduced aiming at improving the way human activities are managed for the protection of the marine environment. Following the World Summit on Sustainable Development, the ECAP has been adopted by many International Conventions and Regional Seas Organizations. The Contracting Parties to the Barcelona Convention have adopted it in January 2008 at their Almeria meeting. The proposals to that meeting were developed in the framework of a project (ECOMED) funded by the EC.

In this context, any environmental policy should be developed in a way that secures an effective protection of the marine environment and that makes possible the continued provision of marine goods and services for the wealth of the population. The application of the ECAP has the potential to help reach a balance between the requirements of human activities and the conservation of the marine environment. Its adoption and gradual implementation within the framework of the Mediterranean Action Plan (Barcelona Convention) will give new impetus to the preparation of more integrated and holistic policies by the Convention, including the impact of human activities on the marine environment.

To ensure the sustainability of the exploitation of marine goods and services in the Mediterranean Sea, it is important that the ECAP and its related conservation and management measures be applied not only to areas under the jurisdiction of States, but they should cover also the habitats and ecosystems located beyond the national jurisdiction. As a consequence, the implementation of the Ecosystem Approach is not only a task for the Convention and its subsidiary bodies, but also and mainly for its Parties.

Within this framework, the MAP has received funding from the European Commission to undertake a project aiming at providing support to the Barcelona Convention for the Implementation of the Ecosystem Approach, including the establishment of MPAs in open seas areas, including deep sea.

The project's aims among others, at promoting and enhancing the implementation of the road map for the application of the ecosystem approach to the management of human activities. The road map requires that an assessment of the ecological status and of pressures and impacts is undertaken in four different regions of the Mediterranean, identified based on bio-geographic and oceanographic considerations.

**2. Object of the Contract**

As per article 1, there is already an agreement to identify four areas in the Mediterranean, based on bio-geographic and oceanographic considerations. The four regions agreed upon are: Area 1: Western Mediterranean Sea; Area 2: Adriatic Sea; Area 3: Ionian Sea and Central Mediterranean and; Area 4: Aegean-Levantine sea.

Four International consultants will be responsible of managing the work of compilation of inputs delivered to RAC/SPA by the participating countries listed in their respective clusters. They will assist the national experts under their clusters asking for their technical support, in order to provide for the preparation of the assessment documents and identify gaps on important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity. They will further merge the information

obtained by RAC/SPA from participating countries in a homogeneous document for their respective cluster assessment.

The sections to be prepared will refer to: ecosystem status chapters on Biological characteristics and habitat types; Pressures and impacts chapters related to biological disturbance as well as emerging issues, such as climate change effects and deep sea ecosystems modifications.

### **3. Tasks to be undertaken**

1. The RAC/SPA international consultants will support RAC/SPA through managing, the countries inputs appointed to them, coordination with national experts, SAP BIO national correspondents and institutions asking for assistance, when participating in the process of the further development of the Ecosystem Approach within the Barcelona Convention following the attached annex. The International consultants will:

- co-ordinate, assist, guide and harmonize the inputs provided to RAC/SPA by National Experts under the cluster assigned,
- collate, revise and provide coherence to the inputs received,
- prepare and harmonize the assessments for the respective clusters and identify gaps on important ecosystem properties, ecological status and pressures to Mediterranean marine and coastal biodiversity, and
- present the draft cluster assessments to RAC/SPA and finalize them in accordance with the outputs of the eventual working meeting(s), and recommendations and comments by RAC/SPA.
- In order to provide for full available information and harmonized contents and structure of the assessment, the International consultants will follow the contents and structure needed for this ECAP phase, and to be provided by RAC/SPA.

2. The RAC/SPA international coordination consultant will ensure: coordination of the cluster consultants; wrapping of final results; continuity of the process of animation, aimed at the identification of the important ecosystem properties and the assessment of ecological status and pressures to implement the Ecosystem Approach and support sustainable development. Process splitting in four areas: West, Central, East Mediterranean and Adriatic.

### **4. Duration and schedule for implementation**

The tasks implementation will start [1<sup>st</sup> March, 2009] and collaboration developed up to November 15<sup>th</sup>, 2009.

At the end of this Contract, the International Consultants will provide:

1/ The Final sub-regional (cluster) overview, as per Article 3 above, in accordance with provisions presented in Annex I. The Overview should bear on the cover page the RAC/SPA logo(s) (provided by the Centre), the reference number of the study, the name of the Consultant, and the date when delivered. The document should contain a complete, paginated summary, the citation methods used in the document and a list of all the participants in the study/ies with their personal details.

Firstly the draft overview should be delivered to RAC/SPA on August 31<sup>st</sup>; to be presented at the Working Meeting scheduled for 2<sup>nd</sup> – 3<sup>rd</sup> week of September. The final version should be prepared in accordance with outputs of the Working Meeting, as well as with suggestions

and comments provided by RAC/SPA and the International Consultants, and to be presented on October 30<sup>th</sup>, 2009 at the latest.

2/ Copies of the eventual graphic documents (e-format), as well as (when possible) PDF format copies of the bibliographic references used for the preparation of his report.

The various outputs and respective deadlines are as follows:

<b>Outputs</b>	<b>Deadlines</b>
1. Draft sub-regional overview	August 31 <sup>st</sup> 2009
2. Attending a Working Meeting if requested	[2 <sup>nd</sup> – 3 <sup>rd</sup> week September 2009]
3. Final version of the sub-regional overview	15 <sup>th</sup> November 2009

#### **5. Payment and terms of payment (??)**

As payment for the services performed under the terms of this Contract, the company shall pay the consultant the lump sum of xxxx Euros (xxxx €).

The consultant's accommodation and travel fees for necessary missions, to the completion of the tasks aforementioned will be reimbursed according to UNEP DSA rates and travel expenses really incurred, provided the previous appointment and authorisation to the mission by RAC/SPA and presentation of documentary evidence.

## Annex I

### **Action: Regional document on identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity**

#### **Objectives of action:**

To provide for information, interpretation and recommendations at national and regional levels aiming at identification of important ecosystem properties and assessment of ecological status and pressures to Mediterranean marine and coastal biodiversity, in accordance with the outcomes of the 15th Ordinary Meeting of the Contracting Parties (OMCPs) to the Barcelona Convention.

#### **Inputs to participants:**

RAC/SPA will provide, when possible, for the National and International Consultants relevant information at the Mediterranean level regarding the ecosystem properties and assessment of ecological status and pressures, and resulting impacts on marine and coastal biodiversity. The following documents will be included:

- RAC/SPA SAP BIO and NAPs along with any other reports on marine and coastal biodiversity
- CBD reports
- RAC/SPA 2009 reports of Climate Change impacts on Mediterranean marine and coastal biodiversity
- Relevant documents produced by Regional Conventions and Agreements embracing the Mediterranean (Bern, Bonn, ACCOBAMS, etc...)

#### **Levels and actors:**

For operational reasons, and with reference to ecological status and pressures to Mediterranean marine and coastal biodiversity, the countries are grouped in four clusters (and sub-groups within them), to be managed by RAC/SPA with the assistance of four international consultants as follows:

- (i) Cluster A : Algeria, France, Italy (Ligurian-Tirrenian Sea areas), Monaco, Morocco, Spain and Northern Tunisia
- (ii) Cluster B: Greece (Ionian Sea area), Italy (Ionian Sea area), Libya, Malta and Eastern-Southern Tunisia
- (iii) Cluster C: Cyprus, Egypt, Greece (Aegean/Cretan Seas area), Israel, Lebanon, Syria and Turkey
- (iv) Cluster D: Albania, Bosnia & Herzegovina, Croatia, Italy (Adriatic Sea area), Montenegro, and Slovenia

Four International consultants will be responsible of assisting RAC/SPA to manage the inputs coming from the participating countries listed in their respective clusters.

National Experts will be identified according to their qualifications fitting to the sub-regional/national needs. Such selection will be done by RAC/SPA, in close joint co-ordination with SAP BIO National Correspondents and Focal Points for SPAs.

The International Consultants will: (i) co-ordinate, assist, and harmonize for the cluster under their respective responsibility the merging of inputs arrived to RAC/SPA from the National Experts, (ii), collate, revise, provide coherence to the inputs received and (iii) prepare and harmonized document for the respective clusters, and (iv) present the draft to RAC/SPA and finalize it in accordance with the outputs of an eventual working meeting, and recommendations and comments by RAC/SPA.

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The National Experts may keep information and consultation exchanges on a regular basis with International Consultants (assisting RAC/SPA for the merging within clusters) involving their respective countries or country areas, while International Consultants will do the same with the RAC/SPA during the preparation of the documents.

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#### 3. Regional level (MAP and RAC/SPA)

- Guidance, harmonisation and co-ordination provided by MAP (RAC/SPA-MEDPOL) Co-ordination team.
- Meetings at regional level.
- Four merged and harmonised assessment documents (RAC/SPA, MEDPOL, PAP/RAC, REMPEC) and synthesising documentation on issues related to the identification of important ecosystem properties and assessment of ecological status and pressures to biodiversity in Mediterranean marine and coastal areas.

## DRAFT ANNOTATED TABLE OF CONTENTS

### I. Marine and coastal ecosystem status

#### **Executive summary**

1. Introduction
2. Physical and chemical characteristics
  - 2.1 Topography, bathymetry and nature of seabed
    - *Maps of the coastal zone with depths on an adequate scale in order to detect important morphological features*
    - *Maps of the Mediterranean basin seabed to show deep seas features*
    - *Information on the nature of the above seabed (sand, rocks, canyons, sea mounts, reefs. Etc.)*
  - 2.2 Spatial and temporal (all available data but at least 5 years) distribution of salinity; annual and seasonal temperature regime; currents, air sea interaction, water masses, mixing, upwelling, turbidity, etc.

*Consider collecting data from national oceanographic programmes in the coastal zone, Environmental Impact Assessment Studies for industries submitted to the competent National authorities, Development Plans drafted by international and National bodies and other Oceanographic surveys of various purposes (research, placing of cables, sea bed prospecting, etc.). Available data could be raw (numbers without any assessment) or*

- *Salinity and temperature data (horizontal and vertical distribution) from the last 5 years in the coastal region of the country. Priority should be given to areas at the vicinity of outfalls (municipal and industrial effluents, desalination plants) and rivers (or oueds). Try to collect seasonal data, if possible.*
  - *Data and information (from Reports) on available current measurements in the coastal zone. Give priority to areas, where fresh water is discharged to the sea (outfalls, rivers, oueds, industries – especially power plants)*
  - *Provide information on precipitation (quantity) in the coastal zone and, if available, data on the chemical composition of rainwater*
  - *Provide information – data on water masses circulation that has been characterised in the region, as well as mixing processes. Provide available information on upwelling*
  - *Provide data on turbidity, especially near river mouths or outfalls. If possible give information on the location of the turbidity maximum.*
- 2.3 Spatial and temporal (all available data but at least 5 years) distribution of nutrients (dissolved inorganic nitrogen and phosphorus, total nitrogen and phosphorus), dissolved oxygen and pH

*Nutrients, chl-a, and DO data are collected in the MED POL database. However, consider collecting additional information from scientific literature, National Reports on various development Programmes and from the Reports produced by National Oceanographic Institutions, Research Centres and*

*Universities. Also add information from Remote Sensing surveys (satellite imagery) undertaken by national or international organisations for the area concerned. If available try to collect information on seasonal fluctuations and time series data, which could be used to describe a potential trend in the state of the marine environment.*

#### 2.4 Sedimentology

- *Collect information on the mineralogy of the coastal zone and the drainage basin under survey.*
- *Compile data on the sediment mineralogy and granulometry (grain size) of the sediments in the marine coastal environment. Try to identify possible “natural anomalies” in the distribution of trace elements, which are contaminants (Hg, Pb ores; ultra basic minerals rich in Cr, Ni; etc.)*
- *Provide information on sedimentation rate, based on sediment traps data or marine sediment geochronology. Special attention should be given in areas close to river mouths, coastal cities (outfalls, harbours), industrial zones and desalination plants. This kind of information could be mainly found in the international and national scientific literature.*

#### 2.5 General description of the catchment area in relation to the analysis

### 3. Biological characteristics

#### 3.1 Description of water column biological communities (basically phyto- and zooplankton) including the species and seasonal and geographical variability

*The description should be based on results of studies undertaken to obtain:*

- *The spatial distribution of phytoplankton production and chlorophyll a biomass*
- *Samples of euphotic zones to determine total phytoplankton production and biomass*
- *Information on phytoplankton cells grazed by microzooplankton*

*Known singularities existing in the described area with respect to other Mediterranean ones should be underlined.*

#### 3.2 Information on invertebrate bottom fauna, macro-algae and angiosperms including species composition, biomass and annual/seasonal variability

*Describe the above emphasizing the information on endemisms, species of restricted distribution in the concerned country/region, habitat structuring species, and species of known sharp reduction along last decades.*

#### 3.3 Information on vertebrates other than fish: Description of population dynamics (including trends), historical and current range and status of species of marine mammals, sea turtles and seabirds

*Describe the above emphasizing the singularities differentiating your country/region situation from other ones. Include all such species listed in the ASP/BD Protocol annexes.*

3.4 Inventory of the temporal occurrence, abundance and spatial distribution of exotic, non-indigenous and invasive species

*Further to the inventory, provide additional information on identified trends along the last decade and any valuable data to develop the respective chapter on impacts below.*

3.5 Information on fish (including mollusc and shellfish species of commercial interest): structure of fish populations, its abundance, spatial distribution and age/size structure

*Ecosystem management seems to be a good alternative for fisheries preservation, such as its application in large-scale marine protected areas, in which no fishing takes place or access is restricted to certain beneficiaries in properly controlled conditions, being its adoption as a primary management tool that satisfies simultaneously all objectives that have been set for ecosystem management.*

*Focus and develop available information regarding the above in main commercial species and species included in annexes to the SPA/BD Protocol. Include also the five main species of interest for artisanal fleets regarding catch, as well the five main species regarding revenue for those fleets in the respective countries.*

3.6 To the extent not described above, description of coastal biodiversity regarding species composition and abundance

4. Habitat types

Predominant habitat types should be described in terms of physical, chemical and biological features. Habitats of special scientific or economic or biodiversity interest or habitats subject to intense or specific pressures should be identified. Identification and mapping of special habitat types including MPAs, etc.

*Use as habitat standardisation tool the RAC/SPA “Handbook for interpreting types of marine habitat for the selection of sites to be included in the national inventories of natural sites of conservation interest” (Bellan-Santini et al, 2002). Profit of eventual Natura 2000 habitat distribution information for your country to transduce it into the equivalent RAC/SPA habitat type, as per the above Handbook equivalence references.*

*Provide maps and available “shape” files and their related metadata for any geo-referenced thematic cartography (MPAs, coralligenous, Cystoseira spp., vermetid reefs, etc). Provide reference information and potential source on any such existing material of restricted distribution.*

5. Conclusions and identification of gaps

*Include here clear gaps identified after collecting the available information for your country on the above.*

*(This is a chapter that will be completed later, once information has been collected from the counties).*

II. Pressures and impacts (Note (1) Should cover cumulative and synergistic effects (2) Ecosystem goods and services to be included in the socio-economic assessment)

1. Contamination (including biomagnification) by hazardous substances (includes heavy metals, halogenated and petroleum hydrocarbons, antifoulants, chemicals and pharmaceuticals, etc. from all sources as well as radionuclides)

*Relative data, generated by the National monitoring programmes of the Mediterranean countries in the frame of MED POL Phase III and IV, exist in MED POL database. More specifically in the MED POL database are collected data on:*

- *Trace metals and organic contaminants (including halogenated hydrocarbons and petroleum hydrocarbons – PAHs) in biota (Mullus barbatus and Mytilus galloprovincialis)*
- *Trend analysis of trace metals in biota (under preparation)*
- *Trace metals and organic contaminants (including halogenated hydrocarbons and petroleum hydrocarbons – PAHs) in marine sediments*

*More data should be gathered to fill geographical and temporal gaps in the MED POL database. The experts will work closely with MED POL, in order to be guided for concentrating their effort to fill these gaps.*

*Additional data could be found in the international scientific literature and the National specialised Reports, which may be found through National Research Institutes and competent National authorities.*

*Data on contaminants releases through effluent discharges and air emissions from industrial and municipal land-based pollution sources are available in the MED POL database. Information is been recently updated (2009) through the National Baseline Budget revision underway. Already 7,600 point pollution sources have been registered in the Mediterranean coastal zones of the countries, and data exist for a large number of contaminants. Furthermore, relevant information can be found in the UNEP/MAP archives (National Action Plans for all countries).*

*The effort of the experts should be concentrated in the filling of existing geographical gaps. Also more information can be gathered from other available National Reports for industry, as well as from the study of Environmental Impact Assessment studies.*

*Also, because MED POL does not collect data on radionuclide pollution, the gap should be filled using information from IAEA and International/national Reports on the state of radioactive contamination in the Mediterranean region.*

*In general, data should be gathered for all matrixes of the marine environment, i.e. biota, sediment and water.*

2. Dumping activities (introduction of substances and impact)

*Information on Dumping will be based on MED POL relative data and reports. However additional information has to be collected on the amounts and characterisation of materials dumped, originating from:*

- *Dredging of ports and waterways*
- *Public works construction (roads, land alteration because of development plans – landfills, sea reclamation for building purposes, etc.)*

*Furthermore, the impact of dumping activities on the marine environment has to be assessed. Examples of possible impacts to be assessed in local cases are:*

- *Stress on the benthic ecosystem*
- *Increased turbidity and reduction of light penetration*
- *change of the textural characteristics of the seabed*
- *introduction of toxic elements into the marine environment (dumping of dredged material from harbour with high content of toxic compounds, dumping of industrial by-products – phoshogypsum (Cd), ore mining sludges (Ni, Cr, etc.)*

3. Nutrient and organic matter enrichment. Inputs of fertilizers and other N-P rich substances (e.g. from point and diffuse sources including agriculture, aquaculture and atmospheric deposition). Inputs of organic matter (e.g. sewers, mariculture, riverine inputs)

*Data on organic matter and nutrients releases through effluent discharges and air emissions from industrial and municipal land-based pollution sources are available in the MED POL database. As mentioned above, information is been recently updated (2009) through the National Baseline Budget revision underway.*

*However, much less information exists for non-point sources of nutrients and organic matter (agriculture, rivers and cities runoff). Data and model estimation of pollutants quantities from these sources have to be collected from relative National and International Reports, as well as from the scientific literature.*

*Nutrient and organic matter pollution from mariculture is an emerging issue and few data are available. The effort has to be concentrated on the areas with intense mariculture (mainly fish culture). Ammonia data are of great interest, as well as data on Dissolved Oxygen concentrations near the cages.*

*Also, when collecting information for the riverine transfer of pollutants to the marine environment, special attention should also be granted to the role of riverine systems wit intermittent flow (rivers that become dry during the summer months) and which constitute a special case in many Mediterranean countries.*

4. Biological disturbance (non-indigenous and invasive species, microbial pathogens, impact of fisheries on target and non-target species)

*Ballast waters, aquaculture, biofouling are factors that contribute to the non-indigenous biological disturbances. Related to the impacts, the most important ones are those associated to loss of biodiversity, alteration of habitat and socioeconomics negative impacts. Tropicalization and meridionalization effects refer to the components that produce a never-ending positive feedback loop. Provide key information related to these issues coming from the respective country.*

*Fishing drives fish stocks to exhibit smaller body sizes and age/length at maturity, and increases catch variability, thus increasing uncertainty. Impact of gears varies across countries and areas, depending on their composition target and by-caught species and regulations implementation means. Focus information here on main impacts by gear and areas regarding habitats and sensitive species presence in by-catch. Describe identified problems in catch reduction on key species for artisanal fisheries economies (e.g. *Palinurus* sp., *Sparidae*, etc.).*

5. Physical disturbance
  - 5.1 Effects from man-made structures and constructions on and off shore
  - 5.2 Impacts on the seabed and situation changes (e.g. from fishing and boating activities, dredging material, outfalls, exploration and exploitation of living and non-living resources on the seabed and subsoil, marine erosion, etc.)
  - 5.3 Effects of underwater noise and marine litter
6. Other interferences; on temperature (e.g. power plants); on salinity (e.g. in lagoons from constructions); desalination plants

*The importance of power plants (and other industries that need important volume of cooling water for their operation) is a special case of impact on the coastal marine environment that has to be addressed. Specific information has to be gathered on temporal temperature changes in areas under the influence of such land based activities. Case studies could be presented, highlighting the process.*

*Salinity changes, because of river flow reduction (draught or dams) (increasing salinity) or because of increase of effluents discharges from large coastal cities (decreasing salinity), may have very pronounced impacts on the coastal ecosystem, because they affect its flora and fauna. Changes in the salinity may allow the introduction of alien species, more suited to survive in the new conditions. To illustrate this issue, specific case studies should be presented (i.e. the case of salinity reduction and alien species introduction in the marine coastal area off the River Nile Delta).*

*Desalination plants, do not only provide a solution to the increasing scarcity of fresh water in the Mediterranean Region, but also constitute a source of brine discharge, containing toxic compounds, into the coastal marine environment. Information on this issue should focus on specific case studies, in order to highlight the problem in the locations where such plants are in operation. Data gathered should include all potential impacts in the location of the brine outfalls (physical destruction of habitat, salinity disturbance, introduction of toxic elements to the marine environment (i.e. Cu).*

7. Tourism and recreational activities
8. Maritime activities

9. Emerging issues such as climatic change effects and deep sea ecosystem modifications

*Consider herein available country information from the respective 2008 country report to RAC/SPA on effects of climate change on marine and coastal biodiversity, as well as updating it with eventual 2009 data.*

*Add any available information on human effects on open seas ecosystem alterations including on the deep seas.*

### III. Conclusions including policy considerations and priorities

This chapter could include the conclusions and all issues of serious concern (e.g. health issues) and hot spot areas where urgent action is needed. Where policies are in place and measures have been taken relevant to the application of the ecosystem approach, these could be taken into account.

Note 1: In addition to the above, the Secretariat will undertake an economic and social analysis of the use of the waters and of the cost of degradation of the marine and coastal environment. The study will address the role of the marine and coastal ecosystem as provider of goods and services to mankind and may also include the socio-economic situation in the region.

Note 2. For the environmental evaluation, when appropriate, the measures already taken and their effectiveness may also be addressed.



### **CHAPTER 3**

#### **Proposal about methodology and timeframe for the socio-economic analysis**

The Blue Plan proposes to estimate the Total Economic Value (TEV) of the Mediterranean marine ecosystem, from the coastal band to the high sea area. This estimation will use benefit transfer, based on similar past studies on the same kind of ecosystem and biomes.

This method calls for a three-step approach:

- identify and distribute the different biomes to be included in the study: ecological characteristics, location, surface, etc.
- compare the different accessible results of studies carried out on similar biomes
- test the similarities and differences of use and value characteristics' between the different studies and the Mediterranean context (concerning nature of socio-economic benefits, volume of those benefits, frequency of benefits, etc.).

Those three steps will enable the Blue Plan to balance the benefits transfers. At last, every TEV, of each biome, will be added up to obtain the TEV of the Mediterranean marine ecosystem. The results of the study will be presented in two forms:

- A table presenting each biome's TEV and the TEV of the regional marine ecosystem. This table will enable different chart representations and comparisons with other studies.
- Two maps: one illustrating the repartition of the regional TEV in-between the different biomes identified. Another map will represent the nature of the main values composing the TEV of each biome.

The results of this study will be useful for different discussions and agreements, considering the methodological limits. Among those limits, two fundamental ones can be presented here:

- The TEV of an ecosystem gives a financial weight to the socio-economic benefits produced by ecosystems. This TEV does not reflect the value of the ecosystem itself but the value of the flows human beings get from ecosystem, in a particular space and time.
- The Mediterranean TEV of the marine ecosystem will be estimated from a regional point of view. This approach will erase the disparities that could emerge from a similar study at the national scale.

Therefore the results of the study will be useful for regional or multilateral discussions and trades-off, for instance in the case of definition and financing of Specially Protected Area of Mediterranean Importance or the introduction of compensation mechanisms for uses that degrade marine biodiversity.